



Portable Video Signal Generator

VG-882

Instruction Manual

Ver.1.00



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Ver.1.00

ASTRODESIGN,Inc

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Before Use

Introduction

Thank you for purchasing the VG-882 Portable Video Signal Generator.

This manual contains operating instructions, as well as precautions and other information. Note that incorrect handling may lead to accidents, so be sure to read this manual.

After reading the manual, keep it handy for future reference.

Safety precautions



General precautions

- Do not subject the unit to strong impact. Never throw or drop the unit. This poses a risk of malfunction, rupture of the unit, overheating, or fire.
- Do not use the unit where it may be exposed to explosions or fire.
- If you are using the unit outdoors and hear thunder or see lightning, immediately turn off the unit, disconnect the power cord, and bring it to a safe place.

Power cord

- Hold the cord by the plug when disconnecting it.
- To avoid a risk of fire, do not bend the power cord by force or bundle it together.
- To avoid damaging the power cord and risking fire or electric shock, do not put heavy objects on the cord.

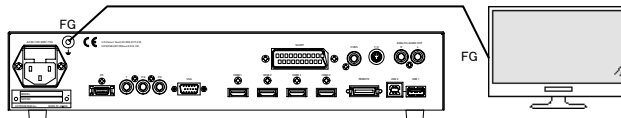
Foreign substances

- Avoid spilling liquid in the unit, and do not let combustible substances or metal objects drop inside. Using the unit in this condition may cause fire, electric shock, or malfunction.

CAUTION

General precautions

- When connecting the unit to a display, use the supplied FG cable to ensure that the display and frame ground are shared. Using the unit without a shared frame ground may cause the unit to malfunction. Be especially careful when connecting the unit to a display under development.



- When disconnecting the VG-882 from a display, first remove the connection cables and then remove the FG cable.
- Be sure to use the Power switch on the front panel to turn the power on and off. Powering the unit by connecting and disconnecting the power cable (with the Power switch in the ON position) may damage the internal circuitry.
- Wait 10 to 15 minutes after powering the unit to ensure that the unit operates stably before operating.
- Opening of the top panel of the unit is prohibited.
- Never remove a USB memory device during memory access. This may cause the device to malfunction.
- Note that using a USB memory device other than that included with the unit may prevent the unit from operating properly.
- When using the USB memory device while connected to the USB2 port, be careful not to have the device stolen or damaged.
- Avoid using excessive force when inserting or removing HDMI cables, as this may damage the cable or connector core wire.

Impact

- This is a precision instrument and, as such, subjecting it to impact may cause it to malfunction. Take special care when moving the unit.
- Do not drop the unit.

Installation

- **Install in a safe location with the unit oriented horizontally. Installing the unit with a vertical orientation may cause overheating and a rise in internal temperature that may result in malfunction.**

In case of abnormality or problems

- **If the unit does not operate properly, disconnect the power cable and contact your sales representative or the Astrodesign Sales Department.**

Contents of package

This unit comes with the following items.

Be sure to use the appropriate accessories, as use of other items may result in malfunction.

■ Standard package

- VG-882 main unit
- VG-882 user's manual CD (this PDF): 1
- SP-8870 software installation CD (for Windows): 1
- SP-8870 user's manual: PDF version (included in SP-8870 installation CD)
- USB memory device (**operations confirmed**)
- Power cable: 1^{*1}
- FG cable (1.5 m): 1^{*1}

*1: Exclusively for use with the unit.

■ Optional accessories

- RB-1870^{*2}:
Remote control box for program editing
- RB-1871^{*2}:
Simplified remote control box. Enables program execution but not editing.

*2: This is the same item as the remote control box used for VG-870/871/870A/871A/870B/871B.

These accessories cannot be used with models other than those listed above, including the VG-882.

1

Introducing the VG-882

1.1 Overview

The VG-882 is a portable video signal generator that can handle various types of output signals. It can be used to perform all types of testing of interfaces built into digital TVs.

1.2 Features

■ Abundant HDMI outputs

The HDMI connector supports four channels. Testing can be performed for four outputs at the same time.

■ Various analog output types

Supports various analog interfaces (VGA, D-terminal, YPbPr, CVBS, Y/C, SCART).

■ Supports HDMI Version 1.4 additional functions (Option)

Testing of the Audio Return Channel (ARC) function added in HDMI Version 1.4 can be performed and 3D patterns (Frame Packing) can be output.

* Audio cannot be output, so audio received by ARC line cannot be output.

* HDMI Ethernet Channel (HEC) is not supported.

■ Windows-compatible editing and registration software (SP-8870) is included as a standard feature.

Program data in a USB-connected computer can be edited and registered, and signal output can be controlled.

* The USB driver supports Windows 2000, XP, and Vista.

■ Built-in sample data for each standard

One thousand types of timing and patterns are registered as built-in sample data.

These can be categorized by standard and usage, and the necessary data can be easily selected.

■ Create and register user programs

User-created program data can be registered to the internal memory of the VG main unit.

In addition, optional patterns combined with sample patterns and 256-color natural images can be registered.

1.3 Specifications

1.3.1 General specifications

Supply voltage	AC 100 to 240V
Frequency	50 / 60Hz
Power consumption	52 VA MAX
Dimensions	370 (W) × 66 (H) × 300 (D) mm (excluding protrusions)
Weight	Approx. 3.5 kg
Operating temperature range	5 to 40°C
Operating humidity range	30 to 80%RH (no condensation)

1.3.2 Common specifications

Dot clock frequency	0.100 to 165.000 MHz
Horizontal frequency	Max. 300 kHz, 8192 dots
Vertical scan lines	Max. 4096
Video memory	4096 dots × 2560 H
Cutting pulse (Serration)	OFF/0.5H/1H/EXOR
Scanning	Progressive (non-interlaced), interlaced, segmented frame, interlaced (sync)

1.3.3 HDMI output

HDMI1 HDMI2 HDMI3 HDMI4	Connectors		HDMI×4		
	DotCLK		8-bit output	25 to 165 MHz (TMDS CLK: 165 MHz)	
			10-bit output	25 to 165 MHz (TMDS CLK: 206.25 MHz)	
			12-bit output	25 to 150 MHz (TMDS CLK: 225 MHz)	
	Colors, bit length (Color Depth)		8-, 10-, or 12-bit output (supports formats for RGB, YCbCr444, and YCbCr422) * However, when set to 10- or 12-bit output, only the indicator can be displayed.		
	Audio output	HDMI	L-PCM	Sampling frequency: 32, 44.1, or 48 kHz Output frequency: 100 Hz to 20 kHz * When the sampling frequency is 32 kHz, the upper limit is 14 kHz. Bits: 16-, 20-, or 24-bit output	
	Audio input	HDMI ARC		Sampling frequency	Fs = 32 to 192 kHz
	Copy protection		HDCP Ver1.2		
Additional features		Version 1.4 (DDC2B), xvYCC, CEC			

1.3.4 Analog output

VGA	DotCLK	5 to 165 MHz
	Colors, bit length	8-bit output for R, G, and B
	Connector	Dsub × 1
D5	Resolution	HDTV, SDTV
	Colors, bit length	8-bit output for Y, Pb, and Pr
	Connector	D-Terminal × 1 (supports D5 output)
YPbPr	Resolution	HDTV, SDTV
	Colors, bit length	8-bit output for Y, Pb, and Pr
	Connector	RCA × 3
CVBS Y/C	Resolution ^{*1}	NTSC-M/J/443, PAL (B/D/G/H/I) /M/N/Nc/60, SECAM
	Colors, bit length	8-bit output for Y, Pb, and Pr
	Connector	CVBS (RCA) × 1, Y/C (S-VIDEO) × 1
	Additional features ^{*1}	Teletext, ClosedCaption, Vchip, Macrovision (^{*2})
SCART ^{*3}	Resolution ^{*1}	NTSC-M/J/443, PAL (B/D/G/H/I) /M/N/Nc/60, SECAM
	Colors, bit length	8-bit output for Y, Pb, and Pr and for R, G, and B
	Connector	SCART × 1
	Additional features ^{*1}	Teletext, ClosedCaption, Vchip, Macrovision (^{*2})
AUDIO L/R	Output frequency	100 Hz to 20 kHz (sampling frequency: 44.1 or 48 kHz) 100 Hz to 14 kHz (sampling frequency: 32 kHz)
	Output level	0 to 2000 mV
	Connector	RCA × 2

*1 Some features may not be supported in the future due to optional TV features and TV timing signals.

*2 Macrovision is sold as a license.

*3 SCART output is sold as an option.

1.3.5 External control

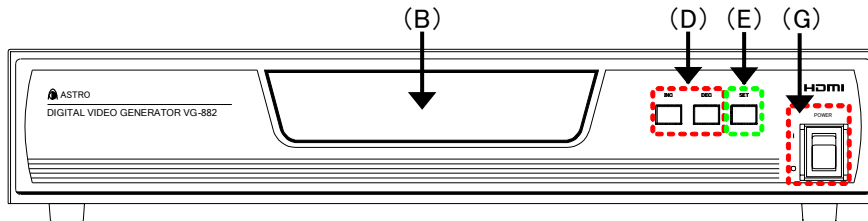
The operation tools of the VG-882 and their operation restrictions are listed in the table below.

Control and editing	Operation restrictions	Notes
VG-882 front panel	Program read-only	Executes registered programs.
RB-1870	All functions can be operated.	Remote control for VG-870 Series and VG-882
RB-1871	Program read-only	Simplified remote control for use with production line
SP-8870	All functions can be operated.	For operation and editing with a computer

1.4 Names of keys and connectors and their functions

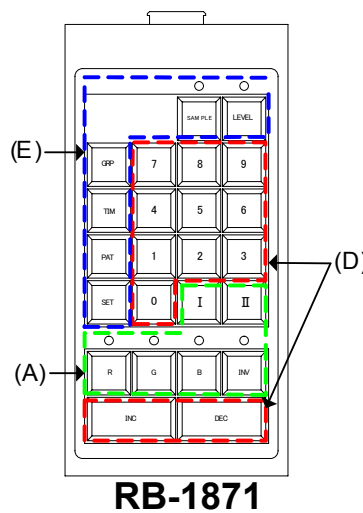
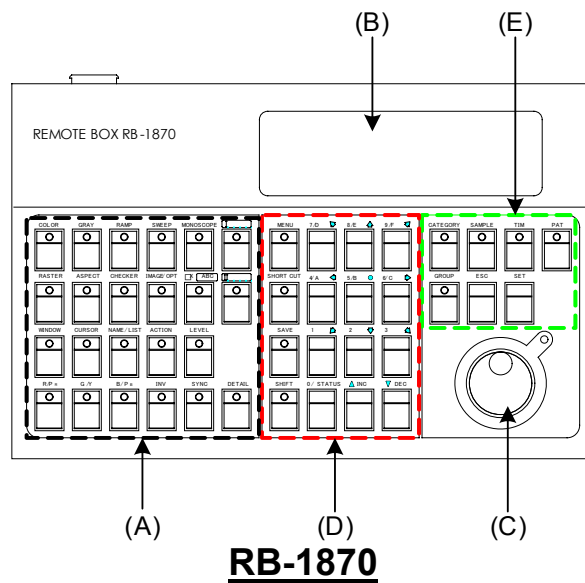
1.4.1 Front panel of the VG-882

This is the view of the front panel. For descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.



1.4.2 RB-1870, RB-1871 (optional accessories)

These remote boxes are used to edit and execute programs. For descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.













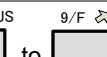
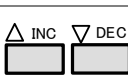













* The RB-1871 has operation limitations. The following operations can be performed.

- Program selection and execution
- Grouped program execution. (Group editing cannot be performed.)
- ON/OFF of R/G/B/INV keys
- ON/OFF of CUSTOM (I/II) keys (by default, I: HDCP, II: MUTE)
- Level adjustment (digital video level only)

* For detailed descriptions of the keys, refer to “1.4.3 Names of operation keys and their applications”.

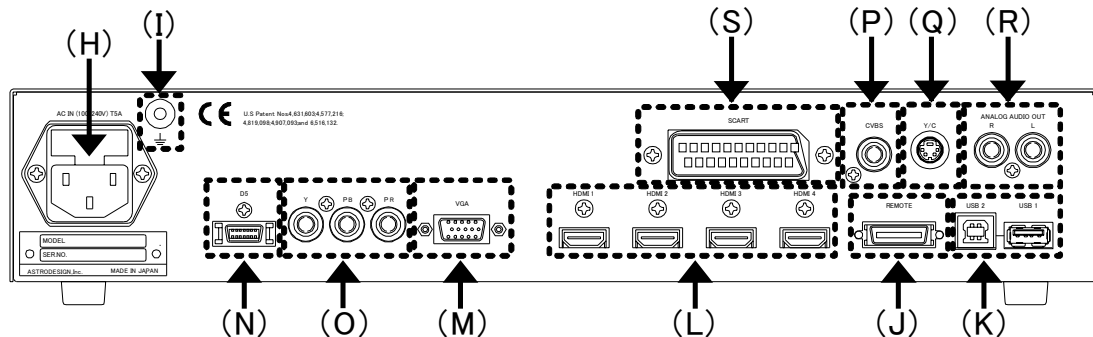
1.4.3 Names of operation keys and their applications

(A)	Pattern keys	 etc.	Used to display and edit the patterns.
	Action key		Used to set the scroll, flicker, and other functions.
	Level key		Used to set the digital video levels, analog video levels, and audio levels.
	RGB channel on/off	 etc.	Used to set RGB on or off.
	INV key		Used to invert the black and white of the video levels.
	SYNC key		Used to set the sync on or off.
	Detail key		Used to perform the detailed settings of the pattern data, timing data, and other data.
	HDCP key (custom key)		Used to set HDCP on or off. (HDCP is a system for protecting content used by HDMI and DVI.)
	MUTE key (custom key)		Used to set the audio on or off (muted). * When setting HDMI AV-MUTE This key operates as the HDMI AV-MUTE On/Off setting. (Refer to “8.1.12 RB-1870 CUSTOM Key 1/2 and RB-1871 CUSTOM Key ”.)
(B)	Menu operation screens		The menu screens are used to set and check the items displayed on the fluorescent display tube.
(C)	Jog dial		This is turned clockwise or counterclockwise to select the setting items or parameters, change the level settings, etc. (It provides the same control as the INC/DEC keys.)
(D)	Number keys	 to 	Used to input numerical values, select the menus, etc.
	INC/DEC		Used to select the setting items or parameters, change the level settings, change the program numbers, etc. (It provides the same control as the jog dial.)
	Menu		Used to display the menu screens. When it is pressed while a menu screen is already displayed, the initial screen is restored. * When the menu key indicator is lighted (selected) It is no longer possible to use any of the other keys.
	Shortcut key		Used to move to a user-registered menu screen using minimal key operations.
	Save key		Used to save the data which has been set.
	Shift key		Used to input letters of the alphabet with the number keys.

(E)	Category key	CATEGORY 	Used to select the internal sample data by category.
	Sample key	SAMPLE 	Used to output the internal sample data. * When the sample key indicator is off The data in the USB memory device or stored in the internal memory can be used.
	Timing key	TIM 	Used to display changeable lists when only the output timing data is to be changed.
	Pattern key	PAT 	Used to display changeable lists when only the output pattern data is to be changed.
	Group key	GROUP 	Used to display user-registered groups, etc. and create groups.
	Escape key	ESC 	This key can be used in the following situations. • When canceling parameter selections or numerical value settings • When returning the displayed menu screen to the previous hierarchical level
	Set key	SET 	Used to enter the setting items and parameters which have been set.
(G)	Power switch		Used to turn the power of the VG-882 on and off.

1.4.4 Rear panel of the VG-882 (connectors and communication port)

This is the back view of the VG-882. For details of the output terminals, refer to “1.4.5 Names of connectors and their outputs and applications”.



1.4.5 Names of connectors and their outputs and applications

(H)	AC power socket	Connect the power cable here. Voltage from 100 V to 240 V is supported.
(I)	Frame ground	Connect this frame ground terminal to the frame ground terminal of the unit which is connected to the VG-882.
(J)	Remote connector	This is used to connect the dedicated remote control box (RB-1870 or RB-1871).
(K)	USB 1	This is used to update the version of the USB memory device.
	USB 2	This is used to control the VG-882 by SP-8870 or other software by connecting to a computer via USB. For details, see the SP-8870 user's manual.
(L)	HDMI output	This enables output of the same image on four systems at the same time. (HDMI connector) EDID, HDCP, CEC, and ARC functions are supported. For details of the output terminals, refer to “5.2 HDMI”.
(M)	VGA output	This enables output of analog component signals (RGB) and H/V separate sync. (D-sub connector, shrink type D-sub 15-pin)
(N)	D-Terminal output	This enables output of analog component signals. (Can be output up to D5.)
(O)	Component output	This enables output of YPbPr analog component signals. (RCA connector)
(P)	CVBS output	This enables output of NTSC/PAL/SECAM composite (VBS) signals. (RCA connector)
(Q)	Y/C output	This enables output of Y/C signals. (S-Terminal)
(R)	Analog audio output	This enables output of analog audio (L/R). (RCA connector)
(S)	SCART output	This enables output of NTSC/PAL/SECAM composite (VBS) signals, Y/C signals, analog component signals (RGB), and analog audio. (SCART connector)

2

Basic Operations (Executing and Saving Programs)

The VG-882 edits and saves program data and config data using the RB-1870/SP-8870.

The key operations of the main unit can be used only to select and execute programs.

Therefore, the descriptions in “2.2 Executing sample programs” and thereafter are described using the operations with the RB-1870.

For details on operating the SP-8870, refer to the accompanying SP-8870 user’s manual.

2.1 Operating the main unit

For the location of the front keys, refer to “1.4.1 Front panel of the VG-882”.

INC/DEC keys: Increment or decrement the program number.

SET key: Executes the selected program.

2.2 Executing sample programs

2.2.1 Settings required for displays

The **timing data** and **pattern data** must be set for the test patterns to be displayed from the generator.

The following items are set for these data.

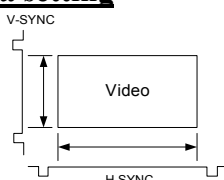
In the case of this generator, the **timing data** and **pattern data** are collectively referred to as the “**program data**”.

Program data

Timing data


Video timing data setting

- Horizontal timing
- Vertical timing



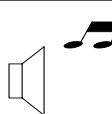
Output setting

- On or off for each interface
- Settings inherent to interface



Audio output settings


- Sound source, level
- Frequency
- On or off of channels



Pattern data

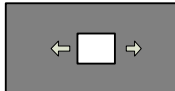
Pattern data setting

- Type, size, level, and other settings



Action settings

- Scroll
- Flicker
- Level sweep



エラー! 参照元が見つかりません。

2.2.2 Program data structure

The data output from the generator is managed using program data.

Program data is made up of pattern data, which is used to set data related to output images, and timing data, which is used to set data related to other output timing and output conditions. The details of the pattern data and timing data are as follows.

Block		Overview
Timing data	Program Name	Program name
	Timing (TIM)	Timing
	Output (TIM)	Output conditions
	Audio (TIM)	Audio output
Pattern data	Pattern (PAT)	Pattern
	Action (PAT)	Pattern action

The generator comes with several types of program data, option patterns, and user character patterns as sample data.

	Data units
Timing data	1000 (1001 to 1999)
Pattern data	1000 (1001 to 1999)
Option patterns	200 (1 to 200)
User character patterns	16 (F0H to FFH)

The generator can register data to the **internal memory (approx. 90 MB)** and the USB memory.

	Data units
Program data	1000 (1 to 1000)
User option patterns	200 (1 to 200)
Images (image data)	200 (1 to 200) (Depends on image data size.)
User character patterns	16 (E0H to EFH)
Number of characters of program name	20
Number of groups	99 (1 to 99)
Number of group data units	98 (1 to 98)
Number of characters of group name	20

(For details of groups, refer to "2.5 Group function".)

CAUTION

**When the USB memory device is connected, the data registered in the USB memory becomes enabled and the data registered in the internal memory becomes disabled.
Image data in both the USB memory and internal memory can be enabled.***

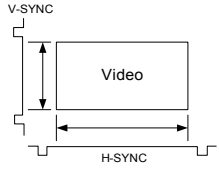
* For details, refer to "8.1.8 Image - priority setting".

2.2.3 Selecting the timing data

There are two ways to select the timing data.

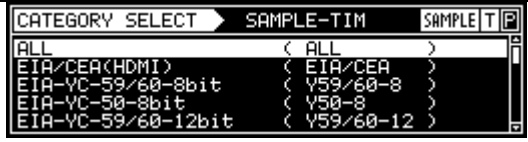

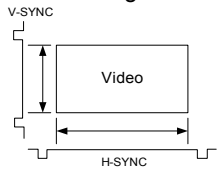
- 1) Input the timing data numbers directly.
- 2) Select the timing data from the categories.

1) Inputting the timing data numbers directly

<p>① Input the timing data number (1001 to 1999) using</p> <p>SAMPLE → TIM</p> <p>0/STATUS to 9/F (number keys).</p>	<p>Video timing data output</p>  <p>The display patterns are not changed.</p>
--	---

2) Selecting the timing data from the categories

The timing data of the internal sample data is classified by category such as EIA or VESA (PC). Select the desired timing data from the category to which it belongs.

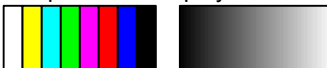
<p>①</p> <p>CATEGORY → SAMPLE → TIM</p>	
<p>② Select the category using</p> <p>or</p> <p>and then press</p>	
<p>③ Select the timing data using</p> <p>and then press</p> <p>or execute with</p>	<p>Video timing data output</p>  <p>The display patterns are not changed.</p>

2.2.4 Selecting the pattern data




There are four ways to select the pattern data.

- 1) Input the pattern data numbers directly.
- 2) Select the pattern data from the categories.
- 3) Select the pattern data using the pattern keys.
- 4) Select the patterns for each program data.




1) Inputting the pattern data numbers directly

<p>① Input the pattern data number (1001 to 1999) using → → to (number keys).</p>	<p>The pattern is displayed.</p>  etc.
---	--


2) Selecting the pattern data from the categories
















<p>① → → </p>	<p>The pattern category is displayed.</p> 
<p>② Select the category using or and then press and then press .</p>	<p></p>
<p>③ Select the pattern using and then press or execute with .</p>	<p>The pattern is displayed.</p>  etc.

3) Selecting the pattern data using the pattern keys

<p>① Select the key corresponding to the pattern, such as or , to be displayed.</p>	<p>The pattern of the selected type is displayed.</p>  <p>Lighted: selected; off: deselected</p>
<p>② When setting details for the pattern or changing the pattern type. Press .</p>	<p>The pattern selection screen is displayed.</p> 
<p>③ Select the pattern using or and then press and then press .</p> <p>Select the pattern directly using to .</p> <p>Press to select .</p>	<p>The selected pattern is displayed.</p> 

4) Selecting the patterns for each program data

<p>① Select Program Edit using → or , and then press .</p>	<p></p>
--	---

②	<p>Select Pattern (PAT) using  or  INC</p> <p> DEC</p> <p> SET</p> <p>, and then press .</p>																																							
③	<p>Select Pattern/RGB/INV Select using </p> <p>or  INC  DEC</p> <p>, and then press  SET.</p>																																							
④	<p>Select the item using  or  INC  DEC</p> <p>and then press  SET.</p> <p>→ Selected or deselected is displayed.</p>	<p>The selected pattern is indicated by a check mark.</p> <table border="1"> <tr> <td>Color Bar</td> <td>Check this to select the color bar pattern.</td> </tr> <tr> <td>Gray Scale</td> <td>Check this to select the gray scale pattern.</td> </tr> <tr> <td>Ramp</td> <td>Check this to select the ramp pattern.</td> </tr> <tr> <td>Sweep</td> <td>Check this to select the sweep (sine wave) pattern.</td> </tr> <tr> <td>Monoscope</td> <td>Check this to select the monoscope pattern.</td> </tr> <tr> <td>Raster</td> <td>Check this to select the raster pattern.</td> </tr> <tr> <td>Aspect</td> <td>Check this to select the pattern for checking the aspect ratio.</td> </tr> <tr> <td>Checker</td> <td>Check this to select the checkerboard pattern.</td> </tr> <tr> <td>Image/OPT</td> <td>Check this to select the bitmap image, an optional pattern, or a moving image.</td> </tr> <tr> <td>Character</td> <td>Check this to select the character pattern.</td> </tr> <tr> <td>Cross Hatch</td> <td>Check this to select the crosshatch pattern.</td> </tr> <tr> <td>Dot</td> <td>Check this to select the dot pattern.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Check this to select the frame pattern.</td> </tr> <tr> <td>×</td> <td>Check this to select the cross pattern.</td> </tr> <tr> <td>+</td> <td>Check this to select the center mark pattern.</td> </tr> <tr> <td>Circle</td> <td>Check this to select the circle pattern.</td> </tr> <tr> <td>Burst</td> <td>Check this to select the burst (continuous black and white) pattern.</td> </tr> <tr> <td>Window</td> <td>Check this to select the window pattern.</td> </tr> <tr> <td>Cursor</td> <td>Check this to select the cursor pattern.</td> </tr> </table>	Color Bar	Check this to select the color bar pattern.	Gray Scale	Check this to select the gray scale pattern.	Ramp	Check this to select the ramp pattern.	Sweep	Check this to select the sweep (sine wave) pattern.	Monoscope	Check this to select the monoscope pattern.	Raster	Check this to select the raster pattern.	Aspect	Check this to select the pattern for checking the aspect ratio.	Checker	Check this to select the checkerboard pattern.	Image/OPT	Check this to select the bitmap image, an optional pattern, or a moving image.	Character	Check this to select the character pattern.	Cross Hatch	Check this to select the crosshatch pattern.	Dot	Check this to select the dot pattern.	<input type="checkbox"/>	Check this to select the frame pattern.	×	Check this to select the cross pattern.	+	Check this to select the center mark pattern.	Circle	Check this to select the circle pattern.	Burst	Check this to select the burst (continuous black and white) pattern.	Window	Check this to select the window pattern.	Cursor	Check this to select the cursor pattern.
Color Bar	Check this to select the color bar pattern.																																							
Gray Scale	Check this to select the gray scale pattern.																																							
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Cursor	Check this to select the cursor pattern.																																							






























		Name/List	Check this to select the name/list function.
		R/Pr	Check this to set the pattern R (red) or Pr output on or off. Normally this is checked.
		G/Y	Check this to set the pattern G (green) or Y (luminance) output on or off. Normally this is checked.
		B/Pb	Check this to set the pattern B (blue) or Pb output on or off. Normally this is checked.
		INV	Check this invert the black and white of the video level. (Cursor and Name/List are not inverted.)

















2.2.5 Selecting the actions

There are two ways to select actions.












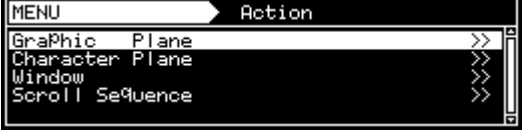




- 1) Select the action using the action key.
- 2) Select and set the action for each program data.

1) Selecting the action using the action key

<p>① Press  key.</p>	<p>The action selection screen is displayed.</p> 														
<p>② Select the action using  or  or   and then press .</p>	<p>The selected action is indicated by a check mark.</p>  <p>To select the window action, the window pattern must be displayed first.</p> <table border="1"> <tr> <td>GC-SCROL</td> <td>Check this to scroll the graphic character pattern.</td> </tr> <tr> <td>G-SCROLL</td> <td>Check this to scroll the graphic pattern.</td> </tr> <tr> <td>C-SCROLL</td> <td>Check this to scroll the character pattern.</td> </tr> <tr> <td>W-SCROLL</td> <td>Check this to scroll the window.</td> </tr> <tr> <td>W-FLICKR</td> <td>Check this to flicker the window.</td> </tr> <tr> <td>W-LEVEL</td> <td>Check this to change the window level.</td> </tr> <tr> <td>W-L.SEQ</td> <td>Check this to execute the window level sequence.</td> </tr> </table>	GC-SCROL	Check this to scroll the graphic character pattern.	G-SCROLL	Check this to scroll the graphic pattern.	C-SCROLL	Check this to scroll the character pattern.	W-SCROLL	Check this to scroll the window.	W-FLICKR	Check this to flicker the window.	W-LEVEL	Check this to change the window level.	W-L.SEQ	Check this to execute the window level sequence.
GC-SCROL	Check this to scroll the graphic character pattern.														
G-SCROLL	Check this to scroll the graphic pattern.														
C-SCROLL	Check this to scroll the character pattern.														
W-SCROLL	Check this to scroll the window.														
W-FLICKR	Check this to flicker the window.														
W-LEVEL	Check this to change the window level.														
W-L.SEQ	Check this to execute the window level sequence.														
<p>③ Select the action using  or  or   and then press .</p>	 <p>On this screen, the scroll direction and number of steps are set when the GC-SCROL, G-SCROLL or C-SCROLL action has been checked.</p> <table border="1"> <tr> <td>   </td> <td>Select these to scroll in the directions of the arrows.</td> </tr> <tr> <td></td> <td>Select this to stop the scrolling temporarily.</td> </tr> <tr> <td>RESET</td> <td>Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)</td> </tr> <tr> <td>STEP+1</td> <td>Select this to increment the scroll step by 1.</td> </tr> <tr> <td>STEP-1 (Press while holding down the SHIFT key.)</td> <td>Select this to decrement the scroll step by 1.</td> </tr> <tr> <td>EDIT</td> <td>Select this to perform the detailed scroll settings.</td> </tr> </table>	   	Select these to scroll in the directions of the arrows.		Select this to stop the scrolling temporarily.	RESET	Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)	STEP+1	Select this to increment the scroll step by 1.	STEP-1 (Press while holding down the SHIFT key.)	Select this to decrement the scroll step by 1.	EDIT	Select this to perform the detailed scroll settings.		
   	Select these to scroll in the directions of the arrows.														
	Select this to stop the scrolling temporarily.														
RESET	Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)														
STEP+1	Select this to increment the scroll step by 1.														
STEP-1 (Press while holding down the SHIFT key.)	Select this to decrement the scroll step by 1.														
EDIT	Select this to perform the detailed scroll settings.														

<p>④</p>	<p>Select the action using  or  and then press  and then press .</p>	 <p>On this screen, the scroll direction and number of steps are set when the W-SCROLL action has been checked.</p> <table border="1"> <tr> <td></td> <td>Select these to scroll in the directions of the arrows.</td> </tr> <tr> <td></td> <td>Select this to stop the scrolling temporarily.</td> </tr> <tr> <td>RESET</td> <td>Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)</td> </tr> <tr> <td>STEP+1</td> <td>Select this to increment the scroll step by 1.</td> </tr> <tr> <td>STEP-1</td> <td>Select this to decrement the scroll step by 1.</td> </tr> <tr> <td>EDIT</td> <td>Select this to perform the detailed scroll settings</td> </tr> </table>		Select these to scroll in the directions of the arrows.		Select this to stop the scrolling temporarily.	RESET	Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)	STEP+1	Select this to increment the scroll step by 1.	STEP-1	Select this to decrement the scroll step by 1.	EDIT	Select this to perform the detailed scroll settings
	Select these to scroll in the directions of the arrows.													
	Select this to stop the scrolling temporarily.													
RESET	Select this to return the pattern to its original position. (It is displayed only while scrolling is stopped temporarily.)													
STEP+1	Select this to increment the scroll step by 1.													
STEP-1	Select this to decrement the scroll step by 1.													
EDIT	Select this to perform the detailed scroll settings													
<p>⑤</p>	<p>Select the action using  or  and then press  and then press .</p>	 <p>On this screen, the level increment/decrement and direction as well as the number of steps are set when the W-LEVEL action has been checked.</p> <table border="1"> <tr> <td>UP</td> <td>Select this to increment the level.</td> </tr> <tr> <td>DOWN</td> <td>Select this to decrement the level.</td> </tr> <tr> <td>STOP</td> <td>Select this to stop the level change.</td> </tr> <tr> <td>STEP+1</td> <td>Select this to increment the level change step by 1.</td> </tr> <tr> <td>STEP-1</td> <td>Select this to decrement the level change step by 1.</td> </tr> <tr> <td>EDIT</td> <td>Select this to perform the detailed level settings.</td> </tr> </table>	UP	Select this to increment the level.	DOWN	Select this to decrement the level.	STOP	Select this to stop the level change.	STEP+1	Select this to increment the level change step by 1.	STEP-1	Select this to decrement the level change step by 1.	EDIT	Select this to perform the detailed level settings.
UP	Select this to increment the level.													
DOWN	Select this to decrement the level.													
STOP	Select this to stop the level change.													
STEP+1	Select this to increment the level change step by 1.													
STEP-1	Select this to decrement the level change step by 1.													
EDIT	Select this to perform the detailed level settings.													

2) Selecting and setting the action for each program data












①	<p>Select Program Edit using  →  </p> <p>or  , and then press .</p>	
②	<p>Select Action (PAT) using  or </p> <p>, and then press .</p>	
③	<p>Select the item using  or  </p> <p>and then press .</p>	<p>One of the following actions is selected, and the detailed settings are performed.</p> <ul style="list-style-type: none"> • Graphic Plane • Character Plane • Window • Scroll Sequence <p>For details on the setting procedure, refer to “Action Settings”.</p>

2.3 Saving the program data

Upon completion of program editing, save the data.





















If the power is turned off without saving the data, the status before the changes were made will be restored.

* For details on editing the program names and pattern names of data to be saved, refer to “2.4 Changing program names”.

①			
②	<p>Select the item using  or  </p> <p>and then press .</p>	No.	The program number is set here. (0001-1000)
		Media	The internal memory or USB memory (USB) is selected here.
		Program Name	Any name (consisting of up to 20 characters) can be allocated as the program name.
		Pattern Name	Any name (consisting of up to 20 characters) can be allocated as the pattern name.
③	<p>Select  using  or </p> <p>, and then press .</p>	The program data is saved.	

2.4 Changing program names

The name of a program or pattern can be changed and saved after the program is edited.

<p>①</p>  <p>Select Name using  or  ,</p> <p>and then press .</p>	
<p>②</p> <p>To move the cursor to the location of the characters to be changed:</p> <p> (when moving to the left)</p> <p> (when moving to the right)</p>	<p>The cursor where the character of the name is to be input moves.</p> 
<p>To delete all characters:</p> <p></p>	<p>All characters are deleted.</p> 
<p>To delete one character:</p> <p></p>	<p>The character at the cursor position is deleted.</p> 
<p>To switch between insert and overwrite:</p> <p> This switches between inserting and overwriting the characters.</p>	<p>This switches between inserting and overwriting the characters.</p> 
<p>To input characters:</p> <p>Select the characters using ,</p> <p>and enter them using .</p>	<p>The characters are input.</p> 
<p>③</p> <p>To set the name:</p> <p>Select OK using ,</p> <p>and then press .</p>	<p>The name is changed.</p>

2.5 Group function

Registering programs as “groups” is useful when specific programs are to be combined and used repeatedly. Examples include times on a TV set inspection process when specific timing and pattern data are combined for repeated use.















It is possible to set not only the timing and pattern data execution sequence but also the execution time of each program.

エラー! 参照元が見つかりません。

* Up to 98 programs can be registered in a group. Up to **99 groups** can be registered.

















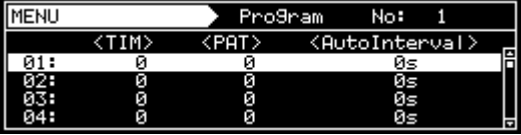
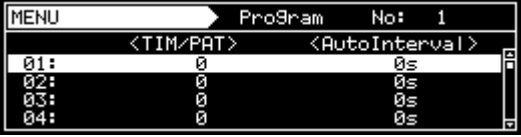

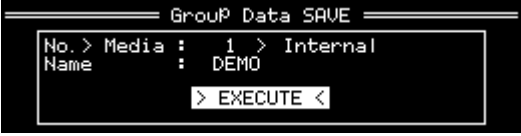




2.5.1 Executing groups







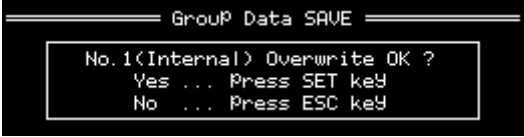
It is possible to execute combinations of frequently used programs and patterns that have been registered by the user.

①		
②	Select the groups using  or   , and then press  .	 <p>Only the programs registered as groups can be selected.</p>
③	Select the groups using  or   , and then press  .	<p>The programs in the group are executed.</p> <p>When   are used, the programs are executed in ascending or descending order without pressing  .</p>

2.5.2 Creating and Saving Groups




















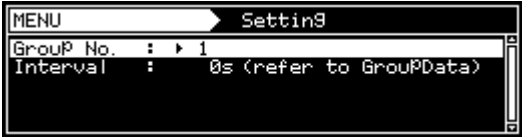
Create frequently used programs and save the desired amount of program data as a group.












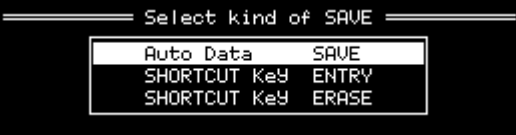








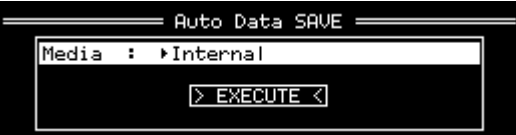
①										
②	Select Group Edit using  or  and then press  and then press  .									
③	Select the items using  or  and then press  and then press  .	<table border="1"> <tr> <td>No.</td> <td>The number of the desired group is set here. (01-99)</td> </tr> <tr> <td>Name</td> <td>Any name (consisting of up to 20 characters) can be allocated as the group name.</td> </tr> <tr> <td>Edit Mode</td> <td>TIM/PAT : The timing data and pattern data are set separately. Program : The program number is designated here.</td> </tr> <tr> <td>Program</td> <td>Depending on the Edit Mode setting, the display screen in ④ below will differ.</td> </tr> </table>	No.	The number of the desired group is set here. (01-99)	Name	Any name (consisting of up to 20 characters) can be allocated as the group name.	Edit Mode	TIM/PAT : The timing data and pattern data are set separately. Program : The program number is designated here.	Program	Depending on the Edit Mode setting, the display screen in ④ below will differ.
No.	The number of the desired group is set here. (01-99)									
Name	Any name (consisting of up to 20 characters) can be allocated as the group name.									
Edit Mode	TIM/PAT : The timing data and pattern data are set separately. Program : The program number is designated here.									
Program	Depending on the Edit Mode setting, the display screen in ④ below will differ.									
④	Select the numbers (01 to 98) of the TIM or PAT programs and AutoInterval using  →  or   , and then press  . <p>The programs set in the group are executed in sequence from 01 up to 98.</p> <ul style="list-style-type: none"> •If 0 is set for both TIM and PAT •If 0 is set for Program In both of the above cases, 0 is recognized as the end of the group.	When TIM/PAT is selected as the Edit Mode setting  When Program is selected as the Edit Mode setting  <table border="1"> <tr> <td>TIM/PAT</td> <td>The program number is set here.</td> </tr> <tr> <td>TIM</td> <td>The timing data number is set here.</td> </tr> <tr> <td>PAT</td> <td>The pattern data number is set here.</td> </tr> <tr> <td>Auto-Interval</td> <td>The execution times during Auto Display are set here (0 to 999 seconds).</td> </tr> </table>	TIM/PAT	The program number is set here.	TIM	The timing data number is set here.	PAT	The pattern data number is set here.	Auto-Interval	The execution times during Auto Display are set here (0 to 999 seconds).
TIM/PAT	The program number is set here.									
TIM	The timing data number is set here.									
PAT	The pattern data number is set here.									
Auto-Interval	The execution times during Auto Display are set here (0 to 999 seconds).									
⑤	This completes the setting operations. The group data is now saved. 									
⑥	Select the items using  or  and then press  and then press  .	<table border="1"> <tr> <td>No.</td> <td>The group number is set here (01 to 99).</td> </tr> <tr> <td>Media</td> <td>Internal: The group data is saved in the internal memory. USB: The group data is saved in the memory connected to the USB1 port.</td> </tr> </table>	No.	The group number is set here (01 to 99).	Media	Internal: The group data is saved in the internal memory. USB: The group data is saved in the memory connected to the USB1 port.				
No.	The group number is set here (01 to 99).									
Media	Internal: The group data is saved in the internal memory. USB: The group data is saved in the memory connected to the USB1 port.									

		Name	Any name (consisting of up to 20 characters) can be allocated as the name.
⑦	<p>Select > EXECUTE < using  or  INC  DEC  , and then press  SET.</p> <p>If previous data exists, the user is prompted to confirm whether to overwrite the existing data.</p>	 <p>This completes the saving of the group data.</p>	

2.6 Automatic program execution

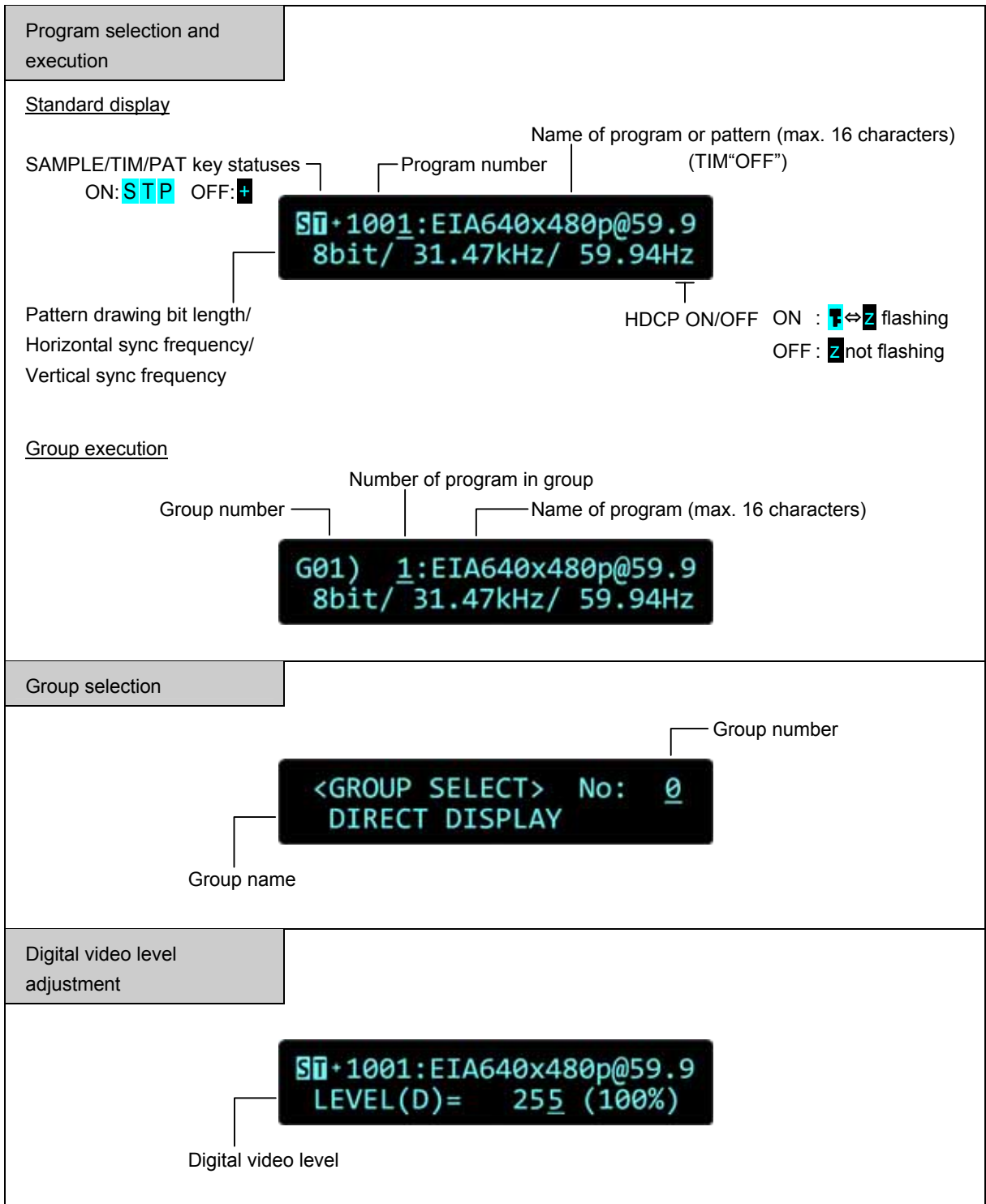
The data in the selected groups and programs can be automatically output in accordance with the set time interval.

<p>①</p> <p>MENU</p> 	
<p>②</p> <p>Select Auto Edit using  or  or  INC  DEC, and then press .</p>	
<p>③</p> <p>Selecting the Mode setting</p> <p>Select Program or Group using  or  or 0/STATUS 1 .</p> 	
<p>④</p> <p>Select Setting using  or  or  INC  DEC, and then press .</p>	<p>When Program has been selected as the Mode setting</p>  <p>Interval: The time during which each pattern is to be displayed is set here (0 to 999 seconds).</p> <p>Program (Start-Stop): The start and end points of programs to be repeated are set here. The start and end point settings can be designated in three stages. Automatic execution is performed in the following sequence: Start point 1 → end point 1 → start point 2 → end point 2 → start point 3 → end point 3.</p> <p>When Group has been selected as the Mode setting</p>  <p>Group No.: The number of the group to be executed automatically is set here.</p> <p>Interval: The time during which each pattern is to be displayed is set here (0 to 999 seconds). When 0 is set, the group is executed according to the group data setting. If the interval is not set in the group data, 0 seconds will be set.</p>

<p>⑤ For automatic execution, select EXECUTE using  or  INC  DEC, and then press .</p> <p>To cancel automatic execution at anytime, press .</p>	
<p>⑥ Select Auto Data SAVE using    or  INC  DEC.</p>	
<p>⑦ Select the save destination* at Media using  or  INC  DEC, and then press .</p> <p>Select EXECUTE using  or  INC  DEC, and then press .</p>	 <p>* Internal: The data is saved in the internal memory. USB: The data is saved in the memory connected to the USB1 port.</p>

2.7 Displays appearing on the front fluorescent display tube

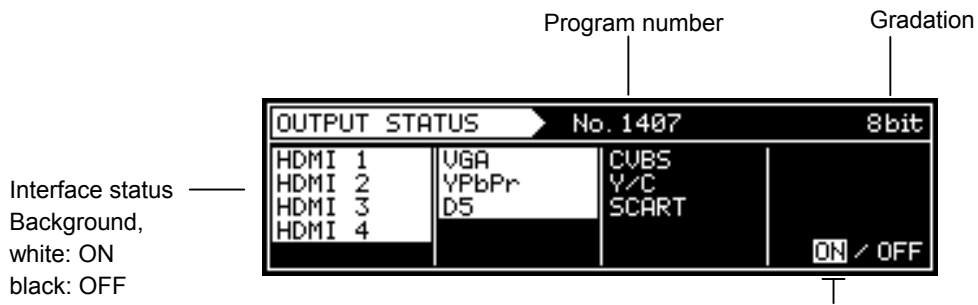
The following describes the information displayed on the fluorescent display tube during operation of the generator.



2.8 Display of interface output status

The output status for each interface is displayed.

Press and at the same time.



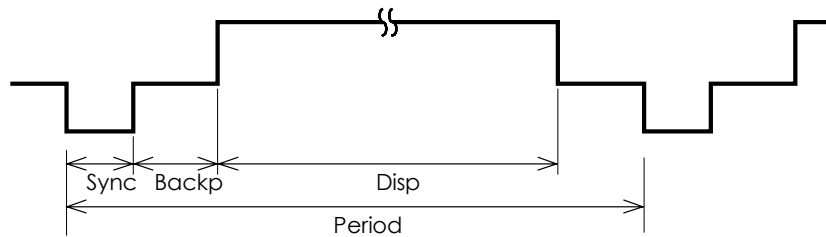
3

Selecting and Editing Timing Data

3.1 Horizontal timing data editing

3.1.1 Horizontal timing data

When making changes with the horizontal timing data, the parameters that can be set and the names of the parameters are indicated below.



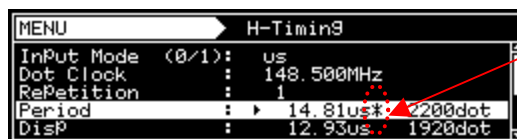
3.1.2 Restrictions on the horizontal timing parameters

The table below shows the restrictions on the parameters that can be changed with the horizontal timing data.

Setting item	Range	Parameter fixing function
Dot Clock	0.100 to 165.000 MHz * The number of bits that can be output is restricted.	
Period	Time display: 0.00 to 999.999 μ s Dot display: 128 to 8192 dots	μ s setting fixed with SHIFT+2 dot setting fixed with SHIFT+3
Disp	Time display: 0.00 to 999.999 μ s Dot display: 48 to 4096 dots	μ s setting fixed with SHIFT+0 dot setting fixed with SHIFT+1
Backp , Sync	Time display: 0.00 to 999.999 μ s Dot display: 0 to 4096 dots	

* When a parameter is fixed, it is accompanied by an asterisk (*). Even when parameters other than ones with fixed items have been changed, the values of the parameters with the asterisks remain fixed.

Example: When a μ s setting has been fixed with SHIFT+2 for Period



An asterisk is displayed here when the value is fixed.

CAUTION








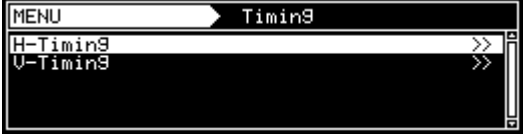



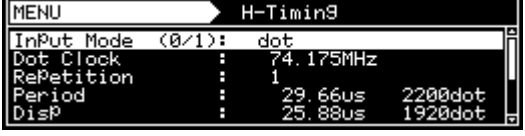

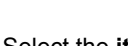




When items are set in microseconds (μ s), restrictions apply to these settings depending on the dot clock frequency and other timing data used for drawing.

The values for the blanking and frontp items are calculated automatically based on the data above.

Item	Calculation formula	Range
Blanking	Blanking = Period – Disp	Time display: 0.00 to 999.999 μs Dot display: 40 to 4092 dots
Frontp	Frontp = Period – Disp – Sync – Backp	Time display: 0.00 to 999.999 μs Dot display: 0 to 4092 dots

3.1.3 Horizontal timing data setting procedure

The following describes the procedure for setting the parameters that can be changed with the horizontal timing data.

<p>① Select Program Edit using  or , and then press .</p>									
<p>② Select Timing (TIM) using  or , and then press .</p>									
<p>③ Select H-Timing using  or , and then press .</p>									
<p>Setting the parameters</p> <p>Select the items using  or , and then press .</p> <p>Alternatively:</p> <p>Select the parameter using  to  (number keys), and then press .</p>	<p>Set the H-Timing parameters.</p> <table border="1"> <tbody> <tr> <td>Input Mode</td> <td>Select the input setting for the H-Timing parameters to μs: time [microseconds] or dot: number of dots [dots].</td> </tr> <tr> <td>Dot Clock</td> <td>The dot clock frequency [MHz] is set here.</td> </tr> <tr> <td>Repetition</td> <td>The number of repetitions is set here. The pixel configuration depends on the number that is set in Repetition. When 2 is set for Repetition and 1440 for Disp, the number of pixels will be 720.</td> </tr> <tr> <td>Period</td> <td>The total number of pixels in the horizontal direction is set here. When μs: time [microseconds] has been selected as the Input Mode setting It is possible to establish settings using both μs and dot parameters.</td> </tr> </tbody> </table>	Input Mode	Select the input setting for the H-Timing parameters to μs: time [microseconds] or dot: number of dots [dots].	Dot Clock	The dot clock frequency [MHz] is set here.	Repetition	The number of repetitions is set here. The pixel configuration depends on the number that is set in Repetition. When 2 is set for Repetition and 1440 for Disp, the number of pixels will be 720.	Period	The total number of pixels in the horizontal direction is set here. When μs: time [microseconds] has been selected as the Input Mode setting It is possible to establish settings using both μs and dot parameters.
Input Mode	Select the input setting for the H-Timing parameters to μs: time [microseconds] or dot: number of dots [dots].								
Dot Clock	The dot clock frequency [MHz] is set here.								
Repetition	The number of repetitions is set here. The pixel configuration depends on the number that is set in Repetition. When 2 is set for Repetition and 1440 for Disp, the number of pixels will be 720.								
Period	The total number of pixels in the horizontal direction is set here. When μs: time [microseconds] has been selected as the Input Mode setting It is possible to establish settings using both μs and dot parameters.								

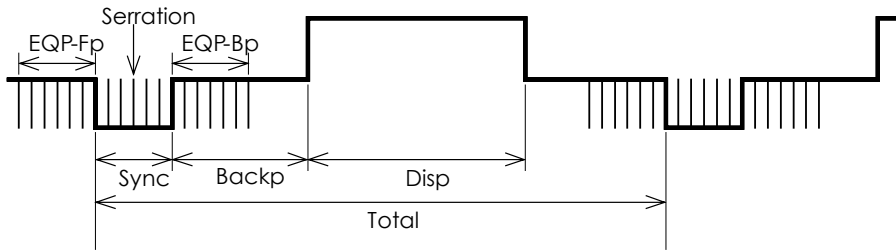
		Disp	The Disp width in the horizontal direction is set here. When μs: time [microseconds] has been selected as the Input Mode setting It is possible to establish settings using both μ s and dot parameters.
		Sync	The Sync width in the horizontal direction is set here.
		BackP	The BackP width in the horizontal direction is set here.

3.2 Vertical timing data editing

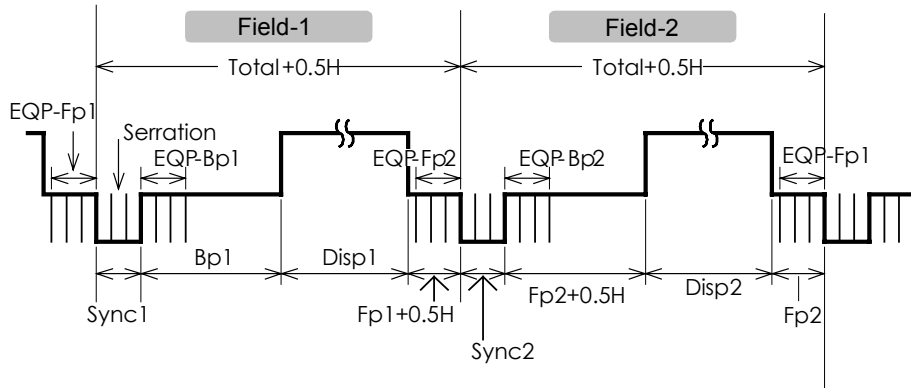
The vertical timing setting locations and names of the settings are indicated below.

3.2.1 Vertical timing data

For progressive scanning



For interlaced scanning



3.2.2 Restrictions on the vertical timing parameters

The table below shows the restrictions on the parameters that can be changed with the vertical timing data.

For progressive scanning

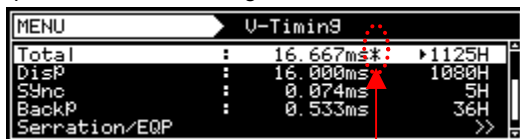
Setting item	Range	Parameter fixing function
Total	Time display: 0.00 to 999.999 ms Dot display: 4 to 4096 H	ms setting fixed with SHIFT+2 H setting fixed with SHIFT+3
Disp	Time display: 0.00 to 999.999 ms Dot display: 1 to 2560 H	ms setting fixed with SHIFT+0 H setting fixed with SHIFT+1
Sync	Time display: 0.00 to 999.999 ms Dot display: 1 to 99 H	
Backp	Time display: 0.00 to 999.999 ms Dot display: 0 to 4096 H	

For interlaced scanning

Setting item	Range	Parameter fixing function
Field-1 Total1	Time display: 0.00 to 999.999 ms Dot display: 2.0 to 2048.0 H (in 0.5 H increments)	ms setting fixed with SHIFT+2 H setting fixed with SHIFT+3
Disp1	Time display: 0.00 to 999.999 ms Dot display: 0 to 1280 H	ms setting fixed with SHIFT+0 H setting fixed with SHIFT+1
Sync1	Time display: 0.00 to 999.999 ms Dot display: 1.0 to 99.0 H (in 0.5 H increments)	
Backp1	Time display: 0.00 to 999.999 ms Dot display: 0.0 to 2048.0 H (in 0.5 H increments)	
Field-2 Total2	Same as Field-1	Same as Field-1
Disp2		
Sync2		
Backp2		

* When a parameter is fixed, it is accompanied by an asterisk (*). Even when values other than ones for parameters with an asterisk have been changed, the values of the parameters with the asterisks remain fixed.

Example: When a ms setting has been fixed with SHIFT+2 for Total



An asterisk is displayed here when the value is fixed.



When the time display (ms) is set for the items, restrictions apply to these settings depending on the H-period and other timing data used for drawing.

The values for the blanking and frontp items are calculated automatically based on the data above.

For progressive scanning
















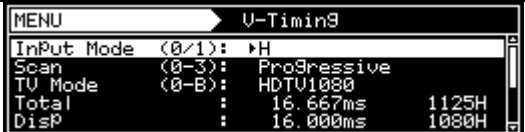







Item	Calculation formula	Range
Blanking	Blanking = Total – Disp	Time display: 0.00 to 999.999 ms Dot display: 1 to 4096 H
Frontp	Frontp = Total – Disp – Sync – Backp	Time display: 0.00 to 999.999 ms Dot display: 0 to 4096 H

For interlaced scanning

Item	Calculation formula	Range
Frontp1 (Frontp2)	Frontp1 = Total2 – Disp2 – Sync2 – Backp2 (Frontp2 = Total1 – Disp1 – Sync1 – Backp1)	Time display: 0.00 to 999.999 ms Dot display: 0.0 to 2048.0 H
Blanking1 (Blanking2)	Blanking1 = Frontp1 + Sync1 + Backp1 (Blanking2 = Frontp2 + Sync2 + Backp2)	Time display: 0.00 to 999.999 ms Dot display: 1.0 to 2048.0 H

3.2.3 Vertical timing data setting procedure

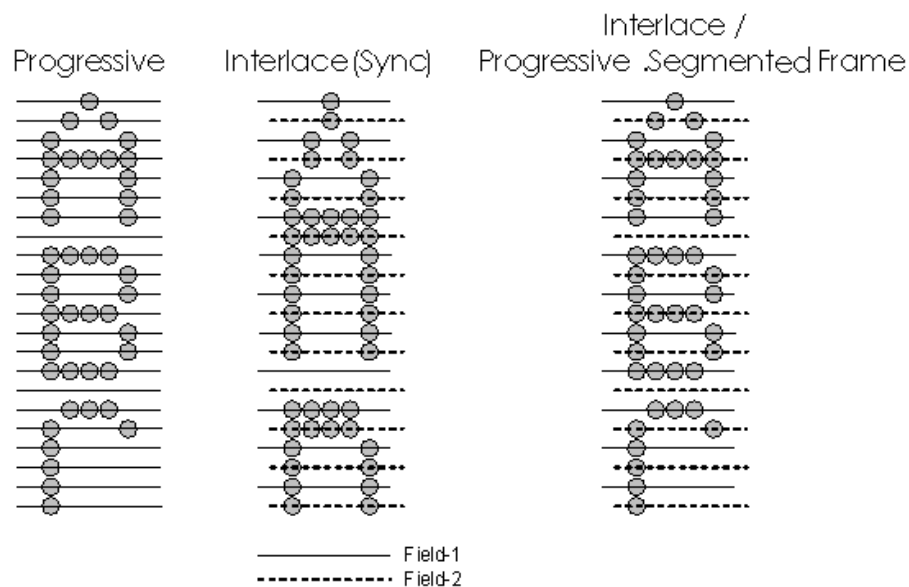
The following describes the procedure for setting the parameters that can be changed with the vertical timing data.

①	<p>Select Program Edit using  → </p> <p>or  INC  DEC, and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P60 Timing (TIM) > Output (TIM) > Audio (TIM) > Pattern (PAT) > </pre>																
②	<p>Select Timing (TIM) using  or </p> <p> DEC, and then press .</p>	 <pre> MENU Timing H-Timing >> U-Timing >> </pre>																
③	<p>Select V-Timing using  or  INC  DEC</p> <p>and then press .</p>	 <pre> MENU U-Timing InPut Mode (0/1): ▶H Scan (0-3): Progressive TV Mode (0-B): HDTV1080 Total : 16.667ms 1125H Disp : 16.000ms 1080H </pre>																
	<p>Select the items using  or  INC  DEC</p> <p>and then press .</p> <p>Alternatively:</p> <p>Select the parameter using  to </p> <p>(number keys), and then press .</p> <p>* In the case of interlaced scanning outputs, Total, Disp, Sync and BackP are set for both Field1 and Field2.</p>	<p>Set the V-Timing parameters.</p> <table border="1"> <tr> <td>Input Mode</td> <td>Select the input setting for the V-Timing parameters to ms: time [milliseconds] or H: number of lines [H].</td> </tr> <tr> <td>Scan</td> <td>For further details, refer to “3.2.4 Scanning modes”.</td> </tr> <tr> <td>TV Mode</td> <td>As a general rule, do not change this setting. For further details, refer to “3.2.5 TV modes”.</td> </tr> <tr> <td>Total</td> <td>The Total number in the vertical direction is set here.</td> </tr> <tr> <td>Disp</td> <td>The Disp width in the vertical direction is set here.</td> </tr> <tr> <td>Sync</td> <td>The Sync width in the vertical direction is set here.</td> </tr> <tr> <td>BackP</td> <td>The BackP width in the vertical direction is set here.</td> </tr> <tr> <td>Serration /EQP</td> <td>For further details, refer to “3.2.6 Serration and EQP”.</td> </tr> </table>	Input Mode	Select the input setting for the V-Timing parameters to ms: time [milliseconds] or H: number of lines [H].	Scan	For further details, refer to “ 3.2.4 Scanning modes ”.	TV Mode	As a general rule, do not change this setting. For further details, refer to “ 3.2.5 TV modes ”.	Total	The Total number in the vertical direction is set here.	Disp	The Disp width in the vertical direction is set here.	Sync	The Sync width in the vertical direction is set here.	BackP	The BackP width in the vertical direction is set here.	Serration /EQP	For further details, refer to “ 3.2.6 Serration and EQP ”.
Input Mode	Select the input setting for the V-Timing parameters to ms: time [milliseconds] or H: number of lines [H].																	
Scan	For further details, refer to “ 3.2.4 Scanning modes ”.																	
TV Mode	As a general rule, do not change this setting. For further details, refer to “ 3.2.5 TV modes ”.																	
Total	The Total number in the vertical direction is set here.																	
Disp	The Disp width in the vertical direction is set here.																	
Sync	The Sync width in the vertical direction is set here.																	
BackP	The BackP width in the vertical direction is set here.																	
Serration /EQP	For further details, refer to “ 3.2.6 Serration and EQP ”.																	

3.2.4 Scanning modes

The table below lists the V-Timing scan settings, the operations for the scanning methods supported by the settings, the imaging methods, and the action settings.

Scan mode	System	Pixel imaging	Scroll and other actions
Progressive	Progressive scanning	Different pixels are drawn on each line.	Operation is performed for each frame.
Interlace	Interlaced scanning	Different pixels are drawn in the first and second fields.	Operation is performed for each field.
Prog.Segmented Frame	Interlaced scanning	Different pixels are drawn in the first and second fields.	Operation is performed for each frame (2 fields).
Interlace (Sync)	Interlaced scanning	The same image is repeatedly drawn in the first and second fields.	Operation is performed for each field.



3.2.5 TV modes

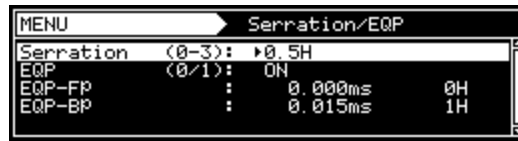
This parameter indicates the output of the standard TV signals (NTSC, NTSC-M, NTSC-443, PAL, PAL-M, PAL-60, PAL-N, PAL-Nc, SECAM, HDTV1080 or HDTV 720).

Even when this parameter is changed, the timing data and other data will not be edited. Therefore, when changed, it is not possible for images to be drawn correctly on the monitor.

- * When editing the sample timing data using a TV Mode setting other than "Other", select "Other" as the TV mode setting. In this case, however, the tri-level sync signal will not be output.

3.2.6 Serration and EQP

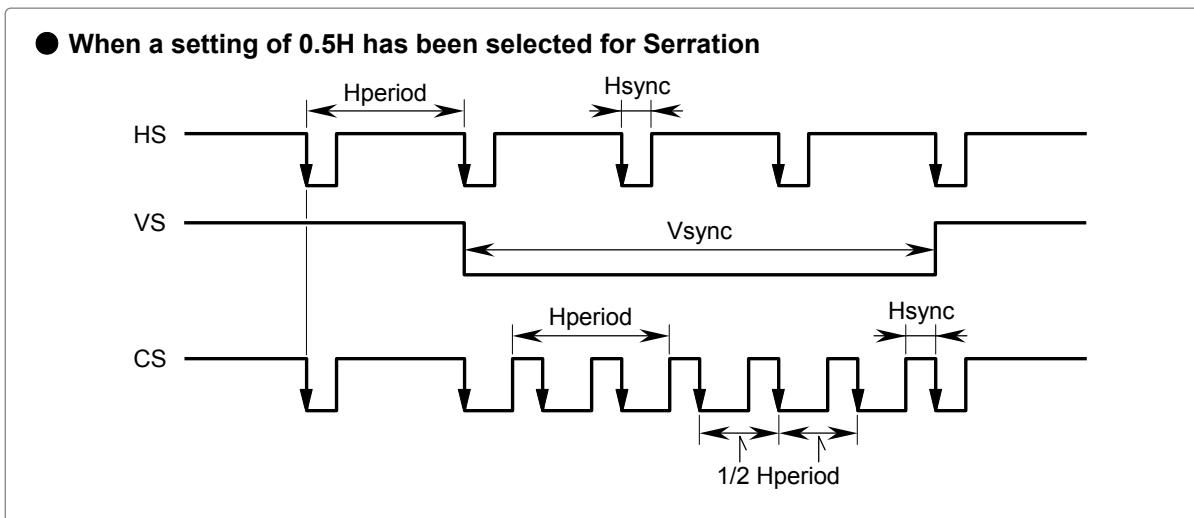
Serration and EQP can be selected on the V-Timing [MENU] screen, and the various parameters can be set. The relationship between the settings and operations are described in the table below.



Serration and EQP setting procedure

Setting item	Key	LCD display	Description
Serration	0	OFF	Serrated pulses are not inserted.
	1	0.5H	Serrated pulses are inserted in increments of 0.5 H.
	2	1H	Serrated pulses are inserted in increments of 1 H.
	3	EXOR	HS and VS EXORs are inserted as serrated pulses.
EQP	0	OFF	Equalizing pulses are not inserted into the EQPfp and EQPbp periods.
	1	ON	Equalizing pulses are inserted into the EQPfp and EQPbp periods.

The following shows an example of the phase relationship when a setting of 0.5 H has been selected for Serration.



- The serration and EQP item settings are not reflected in the composite, Y/C and SCART signals.
- In the case of HDTV timing data, they are set to OFF when EXOR is selected as the serration setting item.

3.2.7 EQP-Fp and EQP-Bp

Equalizing pulses (EQP-Fp and EQP-Bp) can be selected on the V-Timing [MENU] screen, and the various parameters can be set.

The relationship between the settings and operations are described in the table below.

MENU		Serration/EQP	
Serration	(0-3):	0.5H	
EQP	(0/1):	ON	
EQP-Fp	:	0.000ms	▶ 0H
EQP-Bp	:	0.015ms	1H

EQP-Fp/EQP-Bp setting procedure

For progressive scanning

Setting item	Details of setting
EQP-Fp	This sets the equalizing pulse inside the front porch. Range: 0.000 to 999.999 [ms], 0 to 99 [H]
EQP-Bp	This sets the equalizing pulse inside the back porch. Range: 0.000 to 999.999 [ms], 0 to 99 [H]

For interlaced scanning

Setting item	Details of setting
EQP-Fp1 (EQP-Fp2)	This sets the equalizing pulse inside the front porch. Range: 0.000 to 999.999 [ms], 0.0 to 99.0 [H] (in 0.5 H increments)
EQP-Bp1 (EQP-Bp2)	This sets the equalizing pulse inside the back porch. Range: 0.000 to 999.999 [ms], 0.0 to 99.0 [H] (in 0.5 H increments)

CAUTION

- Set EQP-Fp within the range of $[(EQP-Fp + 1H) \leq H_{frontp}]$ for tri-level sync signal outputs in the interlaced scanning mode

The figure below shows the EQP phase relationship and approach taken.

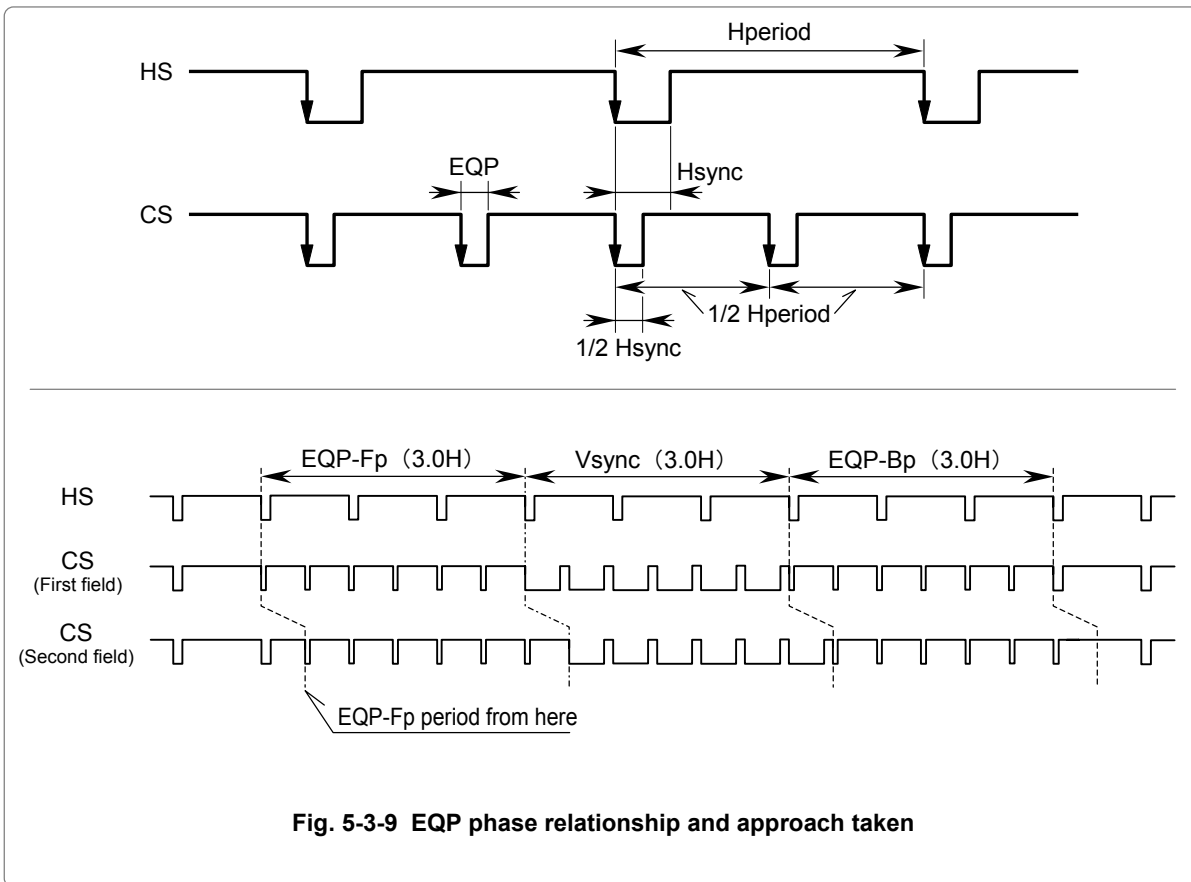
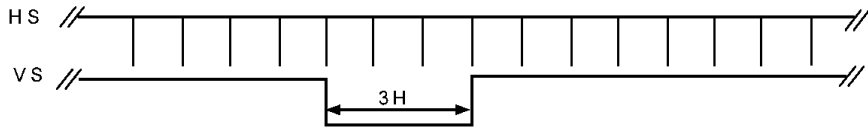


Fig. 5-3-9 EQP phase relationship and approach taken

Example: Four examples of the EQP-Fp, EQP-Bp, EQP and Serration settings are shown below.



Setting example 1

Setting item	Setting
EQP-Fp	0H
EQP-Bp	0H
EQP	OFF
Serration	OFF



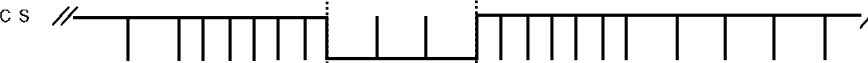
Setting example 2

Setting item	Setting
EQP-Fp	0H
EQP-Bp	0H
EQP	OFF
Serration	0.5H



Setting example 3

Setting item	Setting
EQP-Fp	3H
EQP-Bp	3H
EQP	ON
Serration	1H



Setting example 4

Setting item	Setting
EQP-Fp	3H
EQP-Bp	0H
EQP	OFF
Serration	OFF



4

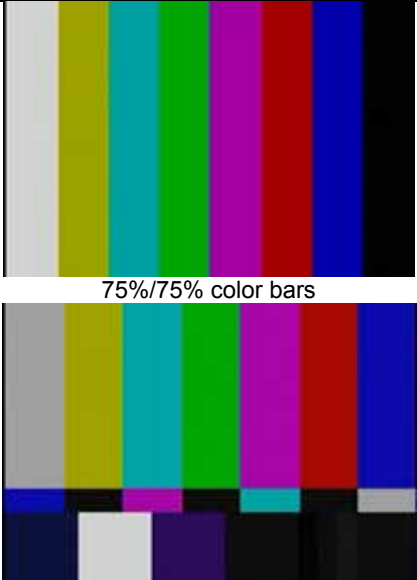
Selecting and Editing Pattern Data

4.1 Color bar patterns

4.1.1 Types of color bar patterns

When color bars have been selected using the pattern key, for instance, color bar patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	CUSTOM	Customized pattern	
1	100/100-H	100%/100% color bars	
2	100/75-H	100%/75% color bars	
3	75/75-H	75%/75% color bars	
4	SMPTE	SMPTE color bars	
5	RGBW-V	Horizontal color bars	
6	xvYCC 4%	xvYCC 4% color bars	
7	xvYCC 8%	xvYCC 8% color bars	
8	xvYCC 12%	xvYCC 12% color bars	





























CAUTION

• xvYCC color bars are not displayed correctly for output other than HDMI output.

4.1.2 Customizing color bar patterns

Described below is the procedure for selecting the color bar pattern type and for performing the settings when **CUSTOM** has been selected as the color bar pattern type.

(If **CUSTOM** is selected, the color bar patterns can be displayed with any width and color.)

①	<p>Select Program Edit using  or  , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P60 Timing < TIM > Output < TIM > Audio < TIM > Pattern < PAT > </pre>
②	<p>Select Pattern (PAT) using  or , and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
③	<p>Select Pattern/RGB/INU select using , or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
④	<p>Select Color Bar using  or , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input checked="" type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
⑤	<p>Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
⑥	<p>Select Color Bar using  or , and then press .</p>	 <pre> MENU Color Bar Type < 0-8 > : ▶CUSTOM CUSTOM </pre>
⑦	<p>Selecting the pattern type Select Type using  or  , and then press .</p>	<p>For details of the pattern types, refer to “4.1.1 Types of color bar patterns”.</p> <p>If CUSTOM has been selected for Type, set item ⑧ below.</p>



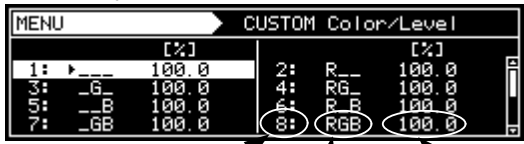
⑧	When Type is set to CUSTOM	
	<p>Advanced settings of customized patterns</p> <p>Select CUSTOM on the screen in step ⑥ above, and then press .</p> <p>Selecting the items and inputting the parameters</p> <p>Select the items, set the parameters, and create a customized pattern.</p>	
		<p>For details on the settings, refer to “Table of customized color bar pattern setting items” below.</p>

Table of customized color bar pattern setting items

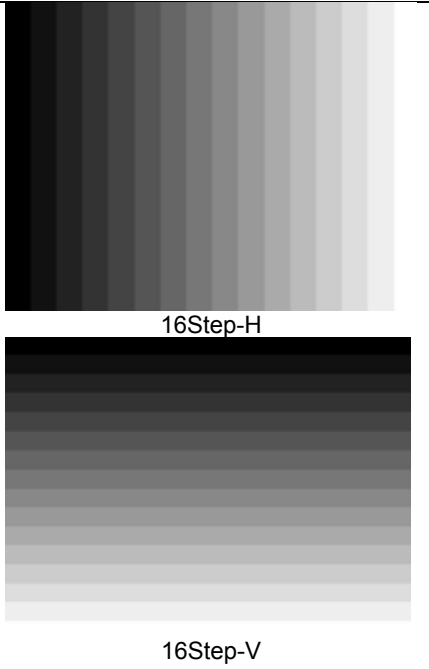
(1)	Format(0-3)	The drawing direction of the color bars is set here.		
		0	H Direction	Horizontal direction
		1	V Direction	Vertical direction
		2	H Direction&div.V	Horizontal direction (loopback by Repeat)
		3	V Direction&div.H	Vertical direction (loopback by Repeat)
(2)	Repeat	One or more of the 1 to 16 data set by Color/Level are set here. The value set here becomes the number of colors that are displayed. Range: 1 to 16		
(3)	Input Mode(0/1)	The method of specifying the display size per color is set here.		
		0	%	The size is set as a percentage of the entire screen.
		1	dot	The size is set in 1-dot increments.
(4)	Width[%] Width[dot]	The display size per color is set here.		
		When a percentage is used for Input Mode		Set any width from 0.1% to 100.0%.
		When dots are used for Input Mode		Set the width in 1-dot increments.
(5)	Color/ Level>>	The display color and level are set here.		
				
			Number	The colors from 1 to the Repeat setting are used for the display.
			Color	The display colors are selected here.
			Level	The level as a percentage of the peak brightness is set here. Setting range: 0.0 to 100.0%
		0	__ __	Black
		1	R __	Red
		2	_ G _	Green
		3	R G _	Yellow
		4	_ _ B	Blue
		5	R _ B	Magenta
		6	_ G B	Cyan
		7	R G B	White

4.2 Gray scale patterns

4.2.1 Types of gray scale patterns

When gray scale has been selected using the pattern key, for instance, gray scale patterns can be selected from among the types listed below.


































For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	CUSTOM	Customized pattern	 <p>16Step-H</p> <p>16Step-V</p>
1	8Step-H	8 steps (horizontal)	
2	16Step-H	16 steps (horizontal)	
3	32Step-H	32 steps (horizontal)	
4	8Step-V	8 steps (vertical)	
5	16Step-V	16 steps (vertical)	
6	32Step-V	32 steps (vertical)	

4.2.2 Customizing gray scale patterns

Described below is the procedure for selecting the gray scale pattern type and for performing the settings when **CUSTOM** has been selected as the gray scale pattern type.

(If **CUSTOM** is selected, the gray scale patterns can be displayed with any width and level.)

<p>① Select Program Edit using    or  , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P060 Timing (TIM) Output (TIM) Audio (TIM) Pattern (PAT) </pre>
<p>② Select Pattern (PAT) using  or  , and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
<p>③ Select Pattern/RGB/INV select using  or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
<p>④ Select Gray Scale using  or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input checked="" type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
<p>⑤ Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
<p>⑥ Select Gray Scale using  or  , and then press .</p>	 <pre> MENU Gray Scale Type (0-6): ▶CUSTOM CUSTOM </pre>
<p>⑦ Selecting the pattern type Select Type using  or  , and then press .</p>	<p>For details of the pattern types, refer to “4.2.1 Types of gray scale patterns”.</p> <p>If CUSTOM has been selected for Type, set item ⑧ below.</p>



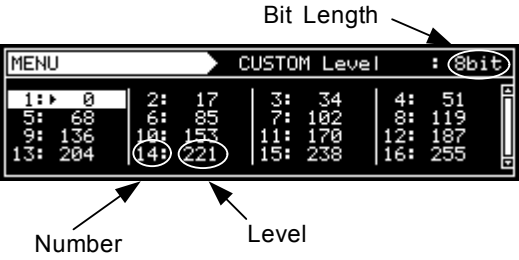
⑧	When Type is set to CUSTOM	
	Advanced settings of customized patterns Select CUSTOM on the screen in step ⑥ above, and then press  .	
	Selecting the items and inputting the parameters Select the items, set the parameters, and create a customized pattern.	For details on the settings, refer to “ Table of customized gray scale pattern setting items ” below.

Table of customized gray scale pattern setting items

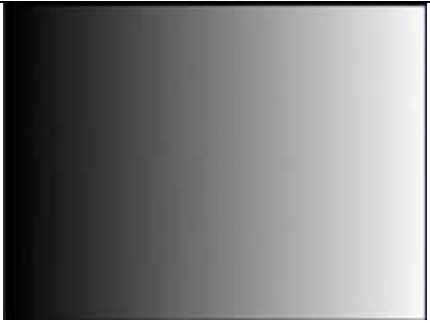
(1)	Format(0-3)	The drawing direction of the gray scale is set here.		
		0	H Direction	Horizontal direction
		1	V Direction	Vertical direction
		2	H Direction&div.V	Horizontal direction (loopback by Repeat)
		3	V Direction&div.H	Vertical direction (loopback by Repeat)
(2)	Repeat	One or more of the 1 to 16 data set by Level are set here. The value set here becomes the number of steps that are displayed. Range: 1 to 16		
(3)	Input Mode(0/1)	The method of specifying the display size per step is set here.		
		0	%	The size is set as a percentage of the entire screen.
(4)	Width[%] Width[dot]	The display size per step is set here.		
		When a percentage is used for Input Mode		Set any width from 0.1% to 100.0%.
		When dots are used for Input Mode		Set the width in 1-dot increments.
(5)	Level>>	The display level is set here.		
				
		Number	The steps from 1 to the Repeat setting are used for the display.	
		Level	The level is set here.	
			The setting range differs depending on the color depth .	
8BIT	0 - 255			
9BIT	0 - 511			
10BIT	0 - 1023			
		11BIT	0 - 2047	
		12BIT	0 - 4095	



4.3 Ramp patterns

4.3.1 Types of ramp patterns

When ramp has been selected using the pattern key, for instance, ramp patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	CUSTOM	
1	Linear-H	
2	Linear-V	
3	Linear-256	
4	Turn-H	
5	Linear-HV	


































*1 Limited-V is selectable only by  or .


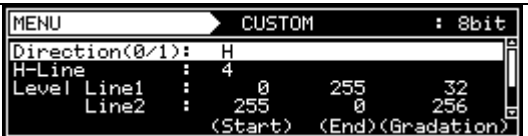
*2 The luminance level of Limited-H/V is 16-232 and color-difference level is 16-240.

4.3.2 Ramp pattern type settings and customizing

Described below is the procedure for selecting the ramp pattern type and for performing the settings when **CUSTOM** has been selected as the ramp pattern type.

(If **CUSTOM** is selected, the ramp patterns can be displayed with any level and steps.)

<p>① Select Program Edit using    or  INC  DEC, and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
<p>② Select Pattern (PAT) using  or  INC  DEC, and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>> </pre>
<p>③ Select Pattern/RGB/INV select using  or  INC  DEC, and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
<p>④ Select Ramp using  or  INC  DEC, and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input checked="" type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
<p>⑤ Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>> </pre>
<p>⑥ Select Ramp using  or  INC  DEC, and then press .</p>	 <pre> MENU Ramp Type (0-5): ▶Linear-H CUSTOM >> </pre>
<p>⑦ Selecting the pattern type Select Type using  or  INC  DEC, and then press .</p>	<p>For details of the pattern types, refer to “4.3.1 Types of ramp patterns”.</p> <p>If CUSTOM has been selected for Type, set item ⑧ below.</p>

<p>⑧ When Type is set to CUSTOM Advanced settings of customized patterns Select CUSTOM on the screen in step ⑥ above, and then press .</p>	 <pre> MENU CUSTOM : 8bit Direction(0/1): H H-Line : 4 Level Line1 : 0 255 32 Level Line2 : 255 0 256 : (Start) (End)(Gradation) </pre>
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<p>Selecting the items and inputting the parameters</p> <p>Select the items, set the parameters, and create a customized pattern.</p>	<p>For details on the settings, refer to “Table of customized ramp pattern setting items” below.</p>
--	---

Table of customized ramp pattern setting items

(1)	Direction(0/1)	The resolution is set here.		
		0	H	Horizontal ramp
		1	V	Vertical ramp
(2)	H-Line	Up to four ramp patterns with different levels and steps can be displayed on one screen. Range: 1 to 4 types. These types are used in sequence from line 1.		
(3)	Line1 to Line4	The start level, end level, and step are set here.		
		(Start)	The start level is set here.	
		(End)	The end level is set here.	
		(Step)	The number of display steps from the start level to end level is set here. Setting range: 1 ≤ setting ≤ (End) - (Start) + 1	
		The setting range for the above levels differs depending on the color depth .		
		8BIT	0 - 255	
		9BIT	0 - 511	
10BIT	0 - 1023			
11BIT	0 - 2047			
12BIT	0 - 4095			

* Concerning H-Line

This item takes effect only when “0” has been selected as the Direction setting.

* Concerning Direction


When “1” has been selected as the Direction setting, only “1” takes effect as the H-Line setting. (Splitting in the vertical direction is not possible.)

4.4 Sweep patterns

4.4.1 Types of sweep patterns

































When sweep has been selected using the pattern key, for instance, sweep patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	Multi-Burst 100	Multi-burst	 Multi-burst
1	Multi-Burst 50	Multi-burst	
2	Sweep	Sweep	

4.4.2 Sweep pattern selection

The types of sweep patterns can be set using the procedure below.

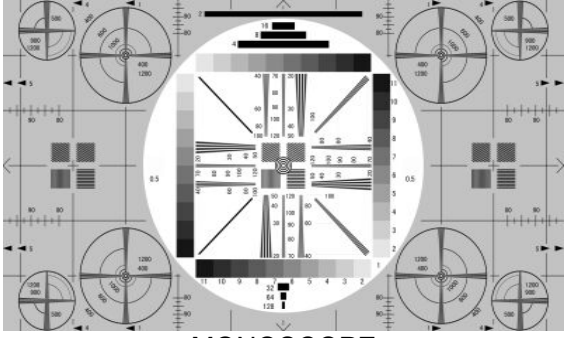
①	Select Program Edit using  →  or  INC  DEC, and then press  .	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P060 Timing (TIM) Output (TIM) Audio (TIM) Pattern (PAT) </pre>
②	Select Pattern (PAT) using  or   DEC, and then press  .	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
③	Select Pattern/RGB/INV select using  or  INC  DEC, and then press  .	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
④	Select Sweep using  or  INC  DEC, and then press  .	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input checked="" type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
⑤	Press  .	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
⑥	Select Sweep using  or  INC  DEC, and then press  .	 <pre> MENU Sweep Type (0-2): ▶Multi-Burst 100 </pre>
⑦	Selecting the pattern type Select Type using  or  INC  DEC, and then press  .	For details of the pattern types, refer to “4.4.1 Types of sweep patterns”.

4.5 Monoscope patterns

4.5.1 Types of monoscope patterns























When monoscope has been selected using the pattern key, for instance, monoscope patterns can be selected from among the types listed below.













For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	SMPTE RP-133	
1	SMPTE PR-133 Color	
2	MONOSCOPE	
3	PHILIPS	
4	CHINA	
		MONOSCOPE

4.5.2 Selecting the monoscope pattern

The types of monoscope patterns can be selected using the procedure below.

<p>① Select Program Edit using  or  , and then press .</p>	
<p>② Select Pattern (PAT) using  or  , and then press .</p>	
<p>③ Select Pattern/RGB/INU select using  or  , and then press .</p>	
<p>④ Select Monoscope using  or  , and then press .</p>	
<p>⑤ Press .</p>	


⑥	<p>Select Monoscope using  or  ^{INC} or  ^{INC}</p> <p> ^{DEC}  ^{DEC}, and then press  ^{SET}.</p>	
⑦	<p>Selecting the pattern type</p> <p>Select Type using  or  ^{INC} or  ^{INC}  ^{DEC}, and then press  ^{SET}.</p>	<p>For details of the pattern types, refer to “4.5.1 Types of monoscope patterns”.</p>

4.6 Raster patterns

4.6.1 Types of raster patterns





























When raster patterns have been selected using the pattern key, for instance, raster patterns can be selected from among the types listed below.





For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.



0	CUSTOM	 <p>Raster pattern</p>
1	White	
2	Red	
3	Green	
4	Blue	
5	Black	
6	50%-Gray	

4.6.2 Raster pattern type settings and customizing

Described below is the procedure for selecting the raster pattern type and for performing the settings when **CUSTOM** has been selected as the raster pattern type. (The rasters can be displayed with any level.)

①	<p>Select Program Edit using  →  or  INC  DEC  SET.</p>	
②	<p>Select Pattern (PAT) using  or  INC  DEC  SET.</p>	
③	<p>Select Pattern/RGB/INV select using  or  INC  DEC  SET.</p>	
④	<p>Select Raster using  or  INC  DEC  SET.</p>	
⑤	<p>Press  ESC.</p>	
⑥	<p>Select Raster using  or  INC  DEC  SET.</p>	

⑦	<p>Selecting the pattern type</p> <p>Select Type using  or  , and then press .</p>	<p>For details of the pattern types, refer to “4.6.1 Types of raster patterns”.</p> <p>If CUSTOM has been selected for Type, set item ⑧ below.</p>
---	--	---

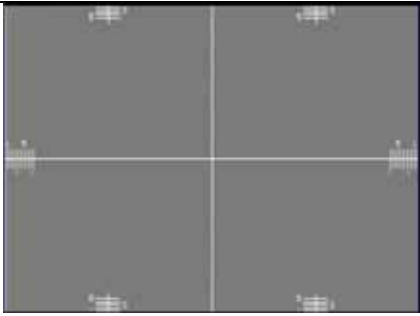

⑧	<p>When Type is set to CUSTOM</p> <p>Advanced settings of customized patterns</p> <p>Select CUSTOM on the screen in step ⑥ above, and then press .</p>	<p>Bit Length</p>  <p>Level</p>											
	<p>Selecting the items and inputting the parameters</p> <p>Select the items, set the parameters, and create a customized pattern.</p>	R,G,B	<p>The setting range for the above levels differs depending on the color depth.</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">8BIT</td> <td style="width: 80%;">0 - 255</td> </tr> <tr> <td>9BIT</td> <td>0 - 511</td> </tr> <tr> <td>10BIT</td> <td>0 - 1023</td> </tr> <tr> <td>11BIT</td> <td>0 - 2047</td> </tr> <tr> <td>12BIT</td> <td>0 - 4095</td> </tr> </table>		8BIT	0 - 255	9BIT	0 - 511	10BIT	0 - 1023	11BIT	0 - 2047	12BIT
8BIT	0 - 255												
9BIT	0 - 511												
10BIT	0 - 1023												
11BIT	0 - 2047												
12BIT	0 - 4095												

4.7 Aspect ratio patterns

4.7.1 Types of aspect ratio patterns

When aspect ratio has been selected using the pattern key, for instance, aspect ratio patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	Over Scan	 <p>Over Scan</p>  <p>AFD pattern</p>	
1	AFD		
	0		As the coded frame
	1		4:3 (center)
	2		16:9 (center)
	3		14:9 (center)
	4		box 16:9 (top)
	5		box 14:9 (top)
	6		box 13:7 (center)
	7		box 2:1 (center)
	8		box 11:5 (center)
	9		box 12:5 (center)
	A		4:3 (14:9 center)
	B		16:9 (14:9 center)
	C		16:9 (4:3 center)

4.7.2 Aspect ratio pattern type settings and customizing

Described below is the procedure for selecting the aspect ratio pattern type and for performing the settings when **CUSTOM** has been selected as the aspect ratio pattern type.

(If **CUSTOM** is selected, the aspect ratio patterns can be displayed with any level.)























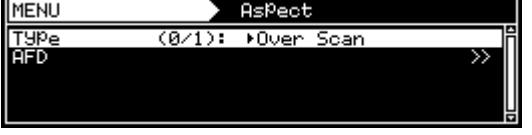




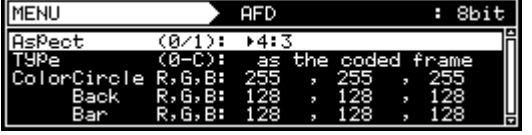
<p>① Select Program Edit using  or  , and then press .</p>	
<p>② Select Pattern (PAT) using  or , and then press .</p>	
<p>③ Select Pattern/RGB/INV select using  or , and then press .</p>	
<p>④ Select Aspect using  or , and then press .</p>	
<p>⑤ Press .</p>	
<p>⑥ Select Aspect using  or , and then press .</p>	
<p>⑦ Selecting the pattern type Select Type using  or , and then press .</p>	<p>For details of the pattern types, refer to “4.7.1 Types of aspect ratio patterns”.</p> <p>If AFD has been selected for Type, set item ⑧ below.</p>
<p>⑧ When Type is set to AFD Advanced settings of AFD patterns</p> <p>Select AFD on the screen in step ⑥ above, and then press .</p> <p>Selecting the items and inputting the parameters</p> <p>Select the items, set the parameters, and create a customized pattern.</p>	 <p>For details on the settings, refer to “Table of AFD pattern setting items” below.</p>

Table of AFD pattern setting items

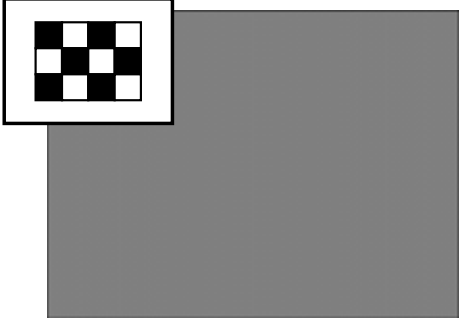
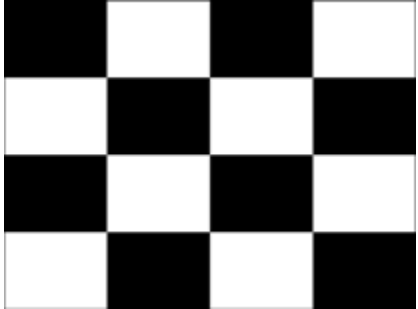

(1)	Aspect(0/1)	The aspect ratio of the screen is set here.		
		0	4:3 The images are displayed on the screen with a 4:3 aspect ratio.	
		1	16:9 The images are displayed on the screen with a 16:9 aspect ratio.	
(2)	Type	For details of the pattern types, refer to “4.7.1 Types of aspect ratio patterns”.		
(3)	Color			
		Circle	Displays the circle level. The R, G and B levels are displayed in sequence from the left. The setting range for the above levels differs depending on the color depth .	
			8BIT	0 - 255
			9BIT	0 - 511
	10BIT	0 - 1023		
	11BIT	0 - 2047		
	12BIT	0 - 4095		
	Back	The background level is set here. (Details are the same as for Color Circle .)		
	Bar	The bar level is set here. (Details are the same as for Color Circle .)		

4.8 Checkerboard patterns

4.8.1 Types of checkerboard patterns

When checkerboard has been selected using the pattern key, for instance, checkerboard patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	DOTxDOT	Dot	
1	BLOCKxBLOCK	Block	
2	SubPixel	Sub-pixel	

4.8.2 Checkerboard pattern customizing

Described below is the procedure for selecting the checkerboard pattern type and setting the spacing.






















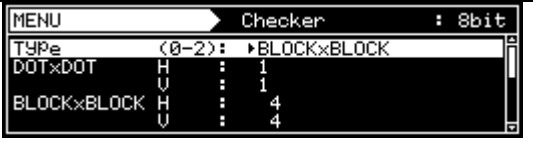









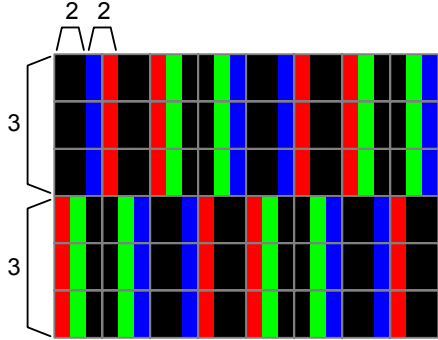



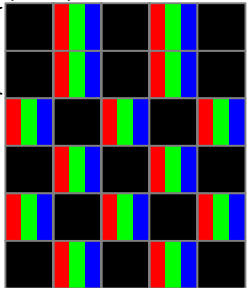
①	<p>Select Program Edit using  or , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P@60 Timing < TIM > Output < TIM > Audio < TIM > Pattern < PAT > </pre>
②	<p>Select Pattern (PAT) using  or , and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
③	<p>Select Pattern/RGB/INU select using  or , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep Monoscope </pre>
④	<p>Select Checker using  or , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select Raster Aspect Checker Image/OPT Character </pre>
⑤	<p>Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
⑥	<p>Select Checker using  or , and then press .</p>	 <pre> MENU Checker : 8bit Type < 0-2 > : ▶BLOCKxBLOCK DOTxDOT H : 1 U : 1 BLOCKxBLOCK H : 4 U : 4 </pre>
⑦	<p>Selecting the pattern type</p> <p>Select Type using  or , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>For details of the pattern types, refer to “4.8.1 Types of checkerboard patterns”.</p> <p>Depending on the Type setting, the setting items differ. Refer to “Table of checkerboard setting items” below.</p>

Table of checkerboard setting items

(1)	DOTxDOT H/V	(Valid only when DOTxDOT has been selected as the Type setting) Set the number of horizontal (H) and vertical (V) pixels for one color. Setting range: 1 to 8						
(2)	BLOCKxBLOCK H/V	(Valid only when BLOCKxBLOCK has been selected as the Type setting) Set the number of horizontal (H) and vertical (V) blocks. Setting range: 2 to 32						
(3)	Sub Pixel H/V	<p>(Valid only when Sub Pixel has been selected as the Type setting) Set the number of horizontal (H) sub pixels and vertical (V) pixels. Setting range: 0 to 3</p> <p>* When RGB 0% / 100% has been selected for Color Select, H=1 and V=1 will be set regardless of the settings.</p> <p>Setting example: H=2, V=3</p>  <p>When User Color has been selected</p> <ul style="list-style-type: none"> : User Color 1 is used. : User Color 2 is used. 						
(4)	SubPixel Offset H/V	<p>(Valid only when Sub Pixel has been selected as the Type setting) Set the number of sub pixels at the top left in the horizontal (H) direction and the number of pixels at the very top in the vertical (V) direction. (The Sub Pixel H and V settings subsequently apply.) Setting range: 0 to 2</p> <p>* When RGB 0% / 100% has been selected for Color Select, H=0 and V=0 will be set regardless of the settings.</p> <p>Setting example: Sub Pixel H=3, V=1, Sub Pixel Offset H/V = refer to figures.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Offset H=0 / V=0</p>  <p>∩ H=1 (V=0)</p>  <p>∩ H=2 (V=0)</p>  </div> <div style="text-align: center;"> <p>V=2 (H=0)</p>  </div> </div>						
(5)	Color Select (0/1)	<p>Set the color and level.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">0</td> <td style="width: 35%;">RGB 0% / 100%</td> <td style="width: 60%;">0% / 100%</td> </tr> <tr> <td style="text-align: center;">1</td> <td>User Color</td> <td>The colors selected using User Color 1 and 2 are used.</td> </tr> </table>	0	RGB 0% / 100%	0% / 100%	1	User Color	The colors selected using User Color 1 and 2 are used.
0	RGB 0% / 100%	0% / 100%						
1	User Color	The colors selected using User Color 1 and 2 are used.						


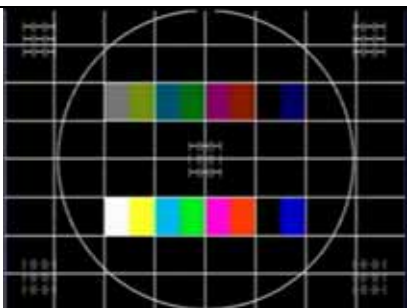
(6)	User Color 1 R,G,B	<p>When RGB 0% / 100% has been selected for Color Select, set any color and level to be indicated by "0%".</p> <p>In the case of the Sub Pixel item, the same level as the RGB level is set.</p> <p>The setting range differs depending on the color depth.</p>	Setting ranges by color depth	
			8BIT	0 - 255
			9BIT	0 - 511
			10BIT	0 - 1023
			11BIT	0 - 2047
(7)	User Color 2 R,G,B	<p>When RGB 0% / 100% has been selected for Color Select, set any color and level to be indicated by "100%".</p> <p>In the case of the Sub Pixel item, the same level as the RGB level is set.</p> <p>The setting range is the same as that for User Color 1.</p>		

4.9 Image/OPT

4.9.1 Types of image/OPT patterns
























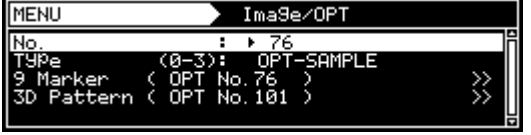












When Image/OPT has been selected using the pattern key, for instance, optional and image patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	IMAGE	Image pattern	 <p>IMAGE</p> <p>A still image registered as the default can be used or any still image can be registered by the user and used.</p>
1	OPT-SAMPLE	Sample optional pattern	 <p>OPT-SAMPLE</p>
2	OPT-USER	User option patterns	<p>Option pattern registered by the user Any test pattern can be described using a programming language.</p>

4.9.2 Optional and image pattern setting

The procedure for setting optional and image patterns is described below.

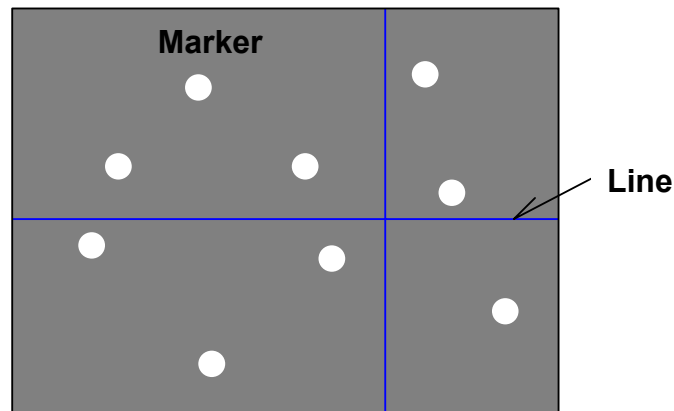
①	Select Program Edit using  or   , and then press  .			
②	Select Pattern (PAT) using  or  , and then press  .			
③	Select Pattern/RGB/INU select using  or   , and then press  .			
④	Select Image/OPT using  or  , and then press  .			
⑤	Press  .			
⑥	Select Image/OPT using  or  , and then press  .			
⑦	Selecting the items Select the items using  or   , and then press  .	<ul style="list-style-type: none"> • For details of the settings when 9 Marker is selected, refer to “4.9.3 9-marker (OPT No. 76) pattern setting”. • For details of the settings when 3D Pattern is selected, refer to “4.9.4 3D pattern (OPT No. 101) setting”. 		
⑧	Setting the pattern number Select the pattern number using  or   , and then press  .	<table border="1"> <tr> <td>No.</td> <td>Specific numbers are allocated to the optional and image patterns. The number of the pattern to be displayed is set in No. Setting range: 1 to 200</td> </tr> </table>	No.	Specific numbers are allocated to the optional and image patterns. The number of the pattern to be displayed is set in No. Setting range: 1 to 200
No.	Specific numbers are allocated to the optional and image patterns. The number of the pattern to be displayed is set in No. Setting range: 1 to 200			
⑧	Selecting the pattern type Select the pattern number using  or   , and then press  .	<table border="1"> <tr> <td>Type</td> <td>* For further details, refer to “4.9.1 Types of image/OPT patterns”.</td> </tr> </table>	Type	* For further details, refer to “ 4.9.1 Types of image/OPT patterns ”.
Type	* For further details, refer to “ 4.9.1 Types of image/OPT patterns ”.			

4.9.3 9-marker (OPT No. 76) pattern setting

Sample optional pattern No. 76 is a pattern that displays up to nine markers and lines at the desired positions.

For details on how to display the patterns, refer to “4.9.2 Optional and image pattern setting”.

Select Type = OPT-SAMPLE, No. 76, and edit the marker and line positions using the procedure below.



<p>① Select Program Edit using or , and then press .</p>	
<p>② Select Pattern (PAT) using or , and then press .</p>	
<p>③ Select Image/OPT using or , and then press .</p>	
<p>④ Select 9 Marker (OPT No. 76) using or , and then press .</p>	
<p>⑤ Selecting the items Select the items using or , and then press .</p> <p>Setting the parameters Select the parameters using or , and then press .</p> <p>Alternatively: Select the parameters using to (number keys), and then press .</p>	<p>For details on the parameters, refer to “Table of 9-marker setting items” below.</p>

Table of 9-marker setting items

(1)	Mark Shape (0-2)	The shape of the markers is specified here.		
		0	Circle	Circle
		1	Square	Square
		2	Line	Line
(2)	Mark Fill (0/1)	Whether to fill the markers is specified here. (disabled when Line is selected for Mark Shape)		
		0	OFF(Line)	Markers not filled ○□
		1	ON	Markers fill ●■
(3)	Mark Line Width	The width of the marker frame is set here. Setting range: 1 to 15 [dot]	Setting example: Mark Line Width = 1 Mark Size = 5	
		* When "ON" has been selected for the Mark Fill setting, the width will be 1 dot regardless of the setting.		
(4)	Mark Size	The size of the markers is set here. Setting range: 1 to 9999 [dot]		
(5)	Mark Number	The number of the markers is set here. Setting range: 0 to 9		
(6)	Mark Position H,V	The center coordinate of the marker position is set here. Setting range: 0 to 4095 [dot]		
(7)	Mark Direction [H,V]	The direction of the line marker is set here.		
		0	H	Horizontal line
		1	V	Vertical line
(8)	Mark Color R,G,B	The color of the markers is set here. The setting range differs depending on the color depth. * See below.		
(9)	Line Mode (0-3)	Whether to display the lines and the shape of the lines when they are displayed are set here.		
		0	None	No lines
		1	V-Line	Vertical line
		2	H-Line	Horizontal line
		3	HV-Line	Cross consisting of horizontal line and vertical line
(10)	Line Width	The width of the lines is set here. Setting range: 1 to 15 [dot]		
(11)	Line Position H,V	The positions of the lines are set here. Setting range: 0 to 4095 [dot]		
(12)	Line Color R,G,B	The color of the lines is set here. The setting range differs depending on the color depth. * See below.		

* Setting ranges by color depth

Color Depth	Setting range
8BIT	0 - 255
9BIT	0 - 511
10BIT	0 - 1023
11BIT	0 - 2047
12BIT	0 - 4095

4.9.4 3D pattern (OPT No. 101) setting

Sample optional pattern No.101 is a 3D pattern.

A license is required to display this pattern. **For details, contact your dealer or the Astrodesign Sales Department.**

For details on how to display the patterns, refer to “4.9.2 Optional and image pattern setting”.

Select Type = OPT-SAMPLE, No. 101, and make the settings using the procedure below.

Other than shown below, the settings of “HDMI ■ Vendor Specific InfoFrame” are referenced at this time.


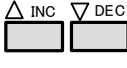









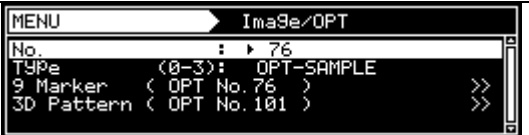

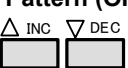

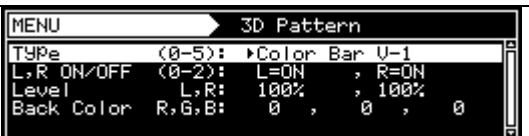

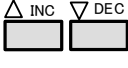







<p>① Select Program Edit using  or , and then press .</p>	
<p>② Select Pattern (PAT) using  or , and then press .</p>	
<p>③ Select Image/OPT using  or , and then press .</p>	
<p>④ Select 3D Pattern (OPT No. 101) using  or , and then press .</p>	
<p>⑤ Selecting the items Select the items using  or , and then press .</p> <p>Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the parameters, refer to “Table of 3D pattern setting items” below.</p>

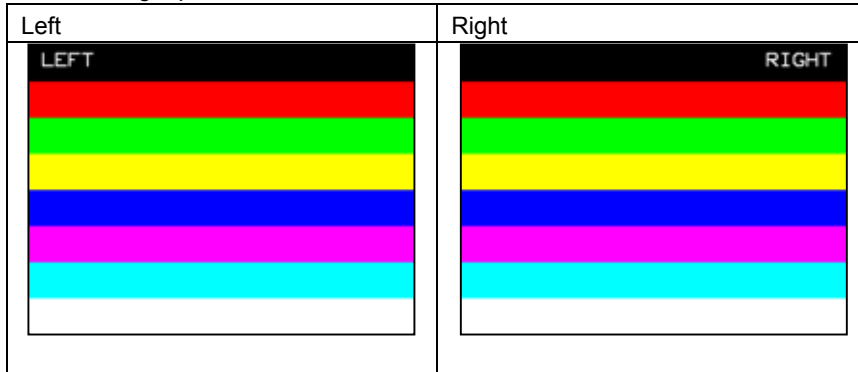
Table of 3D pattern setting items

(1)	Type (0-7)	The type of the pattern is specified here.		
		0	Color Bar V-1	
		1	Color Bar V-2	
		2	Vertical Bar	
		3	Checker DOT	The checkerboard pattern setting is referenced.
		4	Checker BLOCK	
		5	Slant Color Bar	
		6	Raster	
7	<input type="checkbox"/> x+o			
(2)	L,R ON/OFF (0-2)	Check this to set the left (L) and right (R) pattern output on or off. When this is set to Off, the color set with Back Color is output.		
		0	L=ON, R=ON	
		1	L=ON, R=OFF	
		2	L=OFF, R=ON	
(3)	Level L,R	Check this to set the left (L) and right (R) pattern output level. Setting range: 0 to 100 [%]		
(4)	Back Color R,G,B	Set the output color when L,R ON/OFF is set to Off. Setting range: 0 to 255		
(5)	Checker	Set the checkerboard pattern when Type is set to Checker DOT or Checker BLOCK. This setting is shared with the normal checkerboard pattern. * Refer to “4.8.2 Checkerboard pattern customizing”.		

Details of 3D patterns

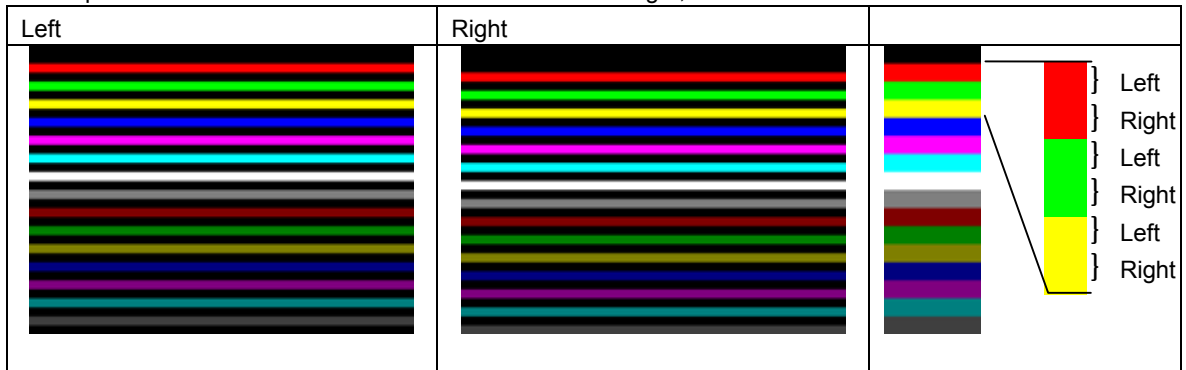
[0] Color Bar V-1

This outputs color bars in the same vertical direction on the left and right. "LEFT" and "RIGHT" are displayed in the left and right patterns.



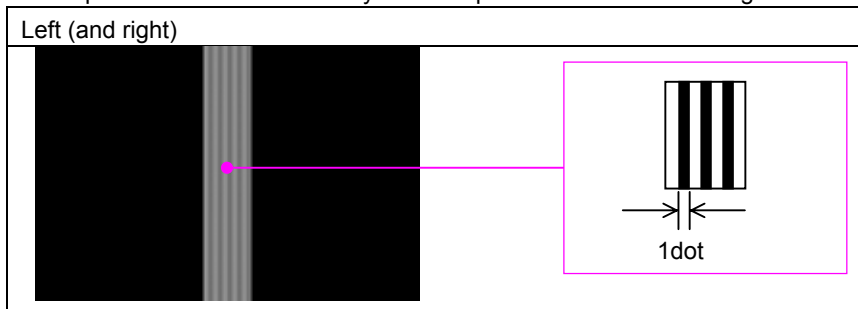
[1] Color Bar V-2

This outputs color bars in a vertical direction on the left and right, as shown below.



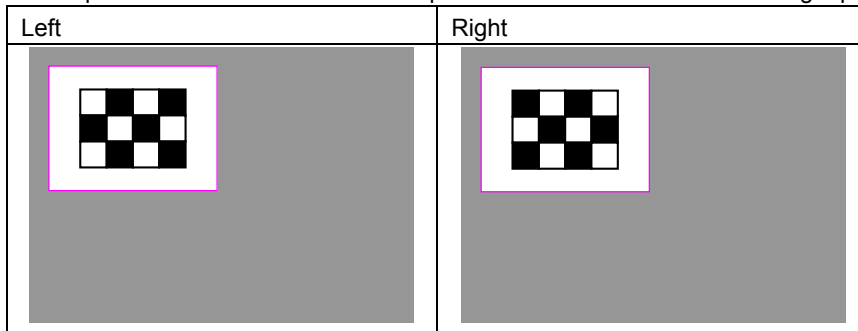
[2] Vertical Bar

This outputs a vertical bar for every dot. The patterns on the left and right are the same.



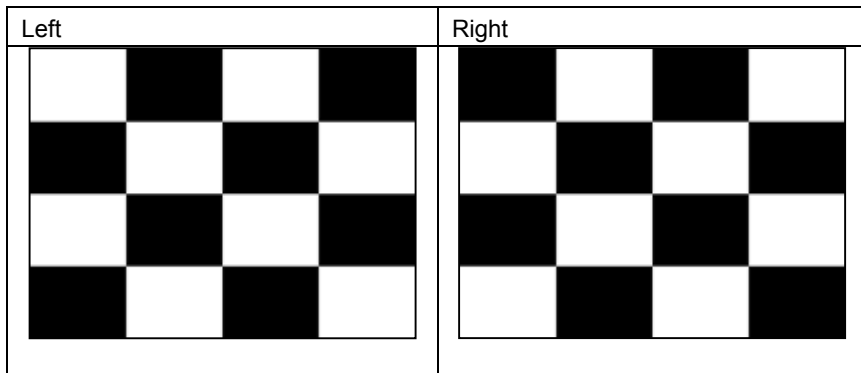
[3] Checker DOT

This outputs a checkerboard DOTxDOT pattern. The colors in the left and right patterns are inverted.



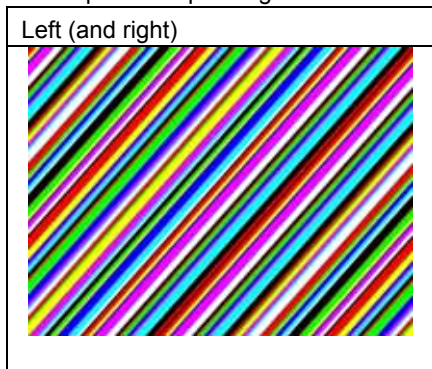
[4] Checker BLOCK

This outputs a checkerboard BLOCKxBLOCK pattern. The colors in the left and right patterns are inverted. The patterns shown below are when the number of blocks are set to H = 4 and V = 4.



[5] Slant Color Bar

This outputs multiple diagonal color bars of varying widths. The patterns on the left and right are the same.

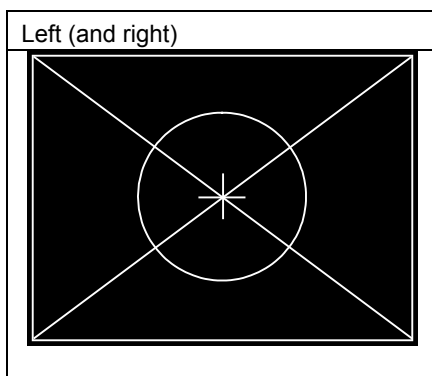


[6] Raster

This outputs a raster pattern. The patterns on the left and right are the same.



[7] □×+○


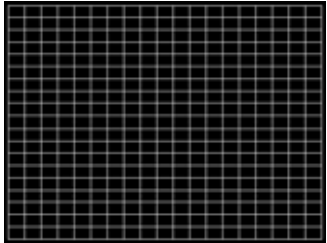

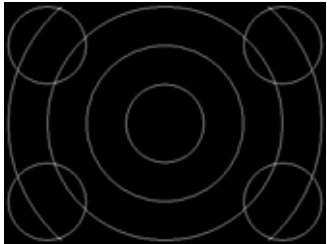
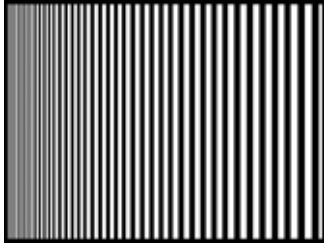



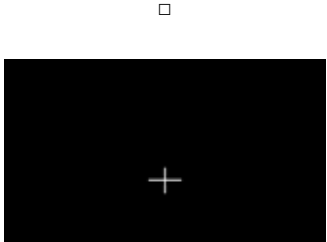
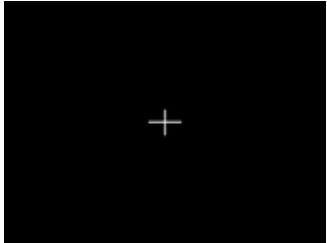
This outputs the □×ABC pattern displaying an overlapping rectangle, two diagonal lines, a cross hatch, and a circle. The patterns on the left and right are the same.




4.10 × **ABC** Pattern























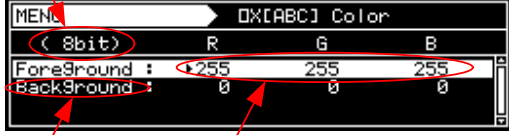











The following patterns are available as  × **ABC** patterns. Select them using the  key. All the patterns can be superimposed onto one another, and displayed. For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

Character	Character (text)		
Cross	Crosshatch		
Dot	Dot		
Circle	Circle		
Burst	Burst		
			
×			
+			

* There are no items to be set in , × and + patterns.

4.10.1 Color settings

The colors of the □×[ABC] patterns themselves and their background colors can be set.

<p>① Select Program Edit using  →  or  INC  DEC, and then press .</p>		
<p>② Select Pattern (PAT) using  or  INC  DEC, and then press .</p>		
<p>③ Select □×[ABC] using  or  INC  DEC, and then press .</p>		
<p>④ Select Color using  or  INC  DEC, and then press .</p>	<p>Bit Length</p>  <p>Part Level</p>	
<p>⑤ Setting the items</p> <p>Select the items using  or  INC  DEC, and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  INC  DEC, and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>Foreground</p>	<p>The colors of the □×[ABC] pattern are set here (in the order of RGB from the left).</p> <p>The setting range differs depending on the color depth.</p> <p>* See below.</p>
	<p>Background</p>	<p>The background color is set here (in the order of RGB from the left).</p> <p>The setting range differs depending on the color depth.</p> <p>* See below.</p>

* Setting ranges by color depth

8BIT	0 - 255
9BIT	0 - 511
10BIT	0 - 1023
11BIT	0 - 2047
12BIT	0 - 4095

4.10.2 Character patterns
































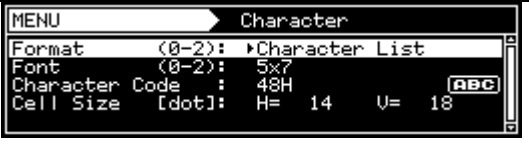




























<p>① Select Program Edit using  or  , and then press .</p>	
<p>② Select Pattern (PAT) using  or  , and then press .</p>	
<p>③ Select Pattern/RGB/INV select using  or  , and then press .</p>	
<p>④ Select Character using  or  , and then press .</p>	
<p>⑤ Press .</p>	
<p>⑥ Select □×[ABC] using  or  , and then press .</p>	
<p>⑦ Select Character using  or  , and then press .</p>	
<p>⑧ Setting the items Select the items using  or  , and then press .</p> <p>Setting the parameters Select the parameters using  or  , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys).</p>	<p>For details, refer to “Table of character setting items” below.</p>

Table of character setting items

(1)	Format(0-2)	The format is selected here.	
		0	Character List
		1	All 1-Character
		2	Corner&Center
(2)	Font(0-2)	The font size is set here.	
		0	5x7
		1	7x9
		2	16x16
(3)	Character Code	The character code is selected here. Setting range: 20h to FFh When selecting characters directly, select ABC . For details on the operation procedure, refer to "2.4 Changing program names".	
(4)	Cell Size [dot]	The size of each character is set here.	
		H	Set the size of the character in the horizontal direction.
		V	Set the size of the character in the vertical direction.

4.10.3 Crosshatch patterns

The crosshatch pattern settings are described below.

①	Select Program Edit using  or  , and then press  .	
②	Select Pattern (PAT) using  or  , and then press  .	
③	Select Pattern/RGB/INV select using  , or  , and then press  .	
④	Select Cross Hatch using  or  , and then press  .	
⑤	Press  .	










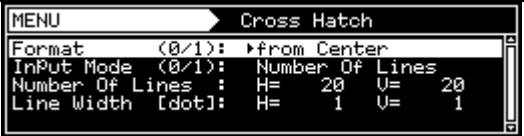












⑥	Select $\square \times$ [ABC] using  or   , and then press  .	
⑦	Select Cross Hatch using  or   , and then press  .	
⑧	<p>Setting the items</p> Select the items using  or   , and then press  . <p>Setting the parameters</p> Select the parameters using  or   , and then press  . <p>Alternatively:</p> Select the parameters using  to   , (number keys), and then press  .	For details, refer to “ Table of crosshatch setting items ” below.

Table of crosshatch setting items

(1)	Format(0-2)	The origin point of the pattern drawing is set here.	
		0	From Center The pattern is drawn using the screen center as the origin point.
		1	From Top-Left The pattern is drawn using the top left as the origin point.
(2)	InputMode(0/1)	The input mode is selected here.	
		0	Number Of Line This sets the number of lines to be displayed on the screen.
		1	Interval(dot) This sets the interval between the blocks.
(3)-a	When Input Mode =Number Of Lines	This sets the number of lines to be displayed on the screen.	
		Number Of Lines : H= Set the number of lines in the horizontal direction.	
		Number Of Lines : V= Set the number of lines in the vertical direction.	
(3)-b	When Input Mode = Interval(dot)	This sets the interval between the blocks.	
		Interval [dot] : H= Set the interval between the blocks in the horizontal direction.	
		Interval [dot] : V= Set the interval between the blocks in the vertical direction.	
(4)	Line Width [dot]	The width of the lines is set here.	
		Line Width [dot]: H= Set the width of the lines in the horizontal direction.	
		Line Width [dot]: V= Set the width of the lines in the vertical direction.	

4.10.4 Dot patterns

The dot pattern settings are described below.







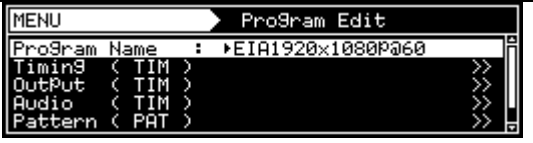



























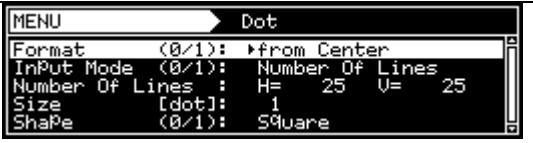
































①	<p>Select Program Edit using   </p> <p>or  , and then press .</p>	 <pre> MENU Program Edit Program Name : EIA1920x1080P60 Timing (TIM) Output (TIM) Audio (TIM) Pattern (PAT) </pre>
②	<p>Select Pattern (PAT) using  or </p> <p>, and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
③	<p>Select Pattern/RGB/INU select using </p> <p>or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select [] Color Bar [] Gray Scale [] Ramp [] Sweep [] Monoscope </pre>
④	<p>Select Dot using  or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select [] Cross Hatch [x] Dot [] 0 [] X [] + </pre>
⑤	<p>Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select Color Bar Gray Scale Ramp Sweep </pre>
⑥	<p>Select [ABC] using  or  , and then press .</p>	 <pre> MENU 0x[ABC] Color Character Cross Hatch Dot Circle </pre>
⑦	<p>Select Dot using  or  , and then press .</p>	 <pre> MENU Dot Format (0/1): from Center Input Mode (0/1): Number Of Lines : H= 25 U= 25 Size [dot]: 1 Shape (0/1): Square </pre>
⑧	<p>Setting the items</p> <p>Select the items using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or </p> <p>, and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to </p> <p>(number keys), and then press .</p>	<p>For details, refer to "Table of dot setting items" below.</p>













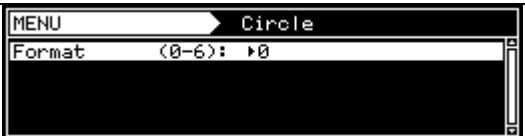











Table of dot setting items

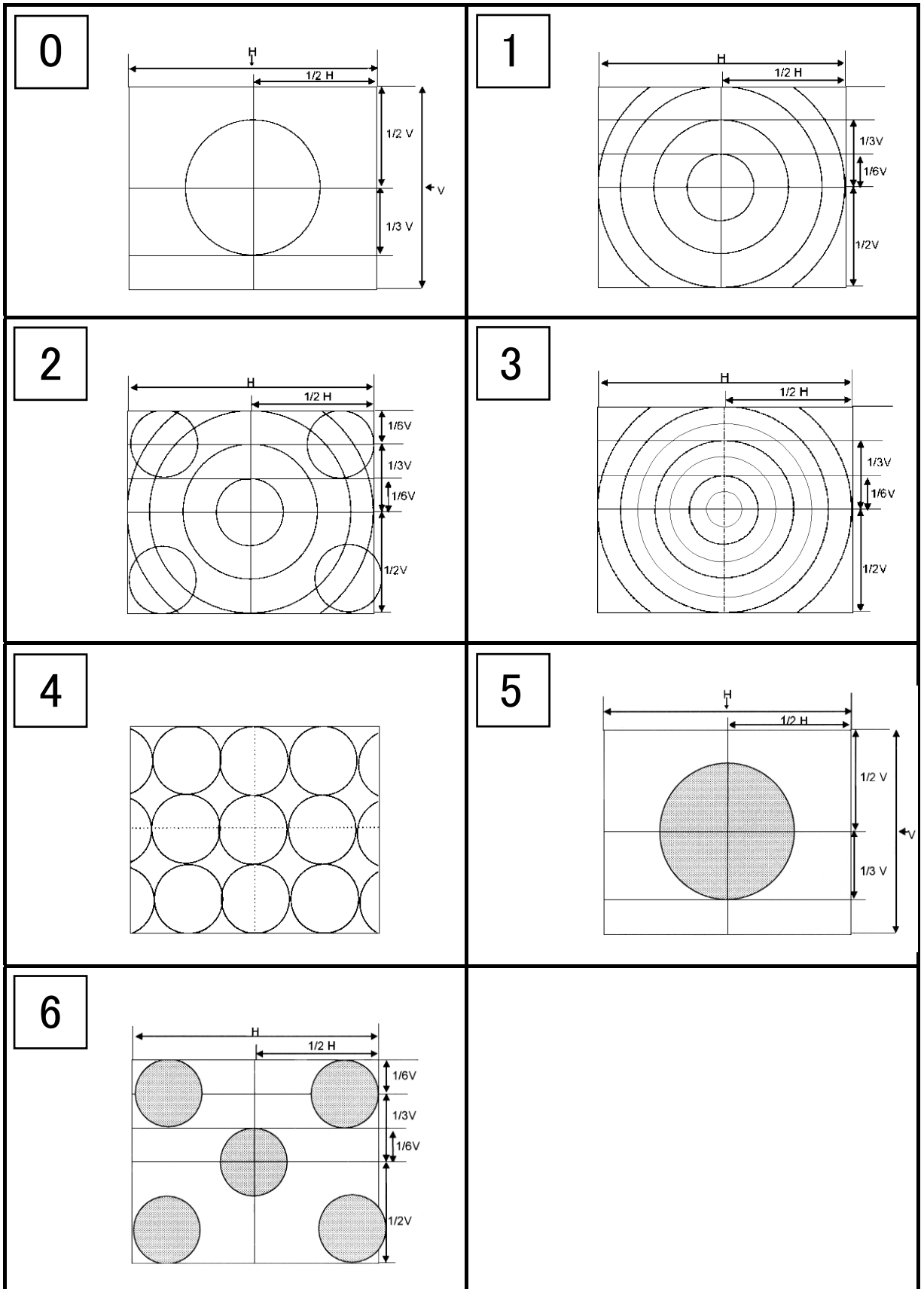
(1)	Format(0-2)	The origin point of the pattern drawing is set here.		
		0	From Center	The pattern is drawn using the screen center as the origin point.
		1	From Top-Left	The pattern is drawn using the top left as the origin point.
(2)	InputMode(0/1)	The input mode is selected here.		
		0	Number Of Line	This sets the number of lines to be displayed on the screen.
		1	Interval(dot)	This sets the interval between the dots.
(3)-a	When Input Mode =Number Of Lines	This sets the number of lines to be displayed on the screen.		
		Number Of Lines : H=	Set the number of lines in the horizontal direction.	
		Number Of Lines : V=	Set the number of lines in the vertical direction.	
(4)-b	When Input Mode = Interval(dot)	This sets the interval between the blocks.		
		Interval [dot] : H=	Set the interval between the blocks in the horizontal direction.	
		Interval [dot] : V=	Set the interval between the blocks in the vertical direction.	
(5)	Size [dot]	The size is set here. Setting range: 1 to 15 [Dot]		
(6)	Shape	The shape is set here.		
		0	Circle	The dots are drawn in the form of circles.
		1	Square	The dots are drawn in the form of squares.

4.10.5 Circle patterns

The circle pattern settings are described below.

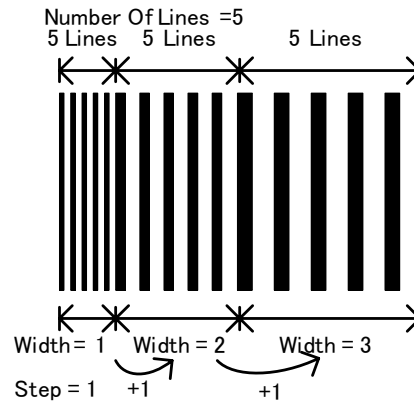
①	Select Program Edit using  →  or   , and then press  .	
②	Select Pattern (PAT) using  or   , and then press  .	
③	Select Pattern/RGB/INV select using  or   , and then press  .	
④	Select Circle using  or   and then press  .	

⑤	Press  .	
⑥	Select  using  or   , and then press  .	
⑦	Select Circle using  or   , and then press  .	
⑧	<p>Setting the items</p> <p>Select Format using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>Select the shapes of the circles from the options below.</p> <p>Format 0</p> <ul style="list-style-type: none"> • Single circle • Center: 1/2H, 1/2V • Radius: 1/3V <p>Format 1</p> <ul style="list-style-type: none"> • Concentric circles 1 • Center: 1/2H, 1/2V • Radius (from the center): 1/6V, 1/3V, 1/2V, 1/2H <p>Format 2</p> <ul style="list-style-type: none"> • Format 1 + (circles with radius 1/6V × 4) <p>Format 3</p> <ul style="list-style-type: none"> • Concentric circles 2 • Center: 1/2H, 1/2V • Radius (from the center): One circle added inside the 1/6V, 1/3V and 1/2V circles, 1/2 radius added <p>Format 4</p> <ul style="list-style-type: none"> • Consecutive circles with radius 1/6V • Top/bottom and left/right symmetry with center (1/2H, 1/2V) as the reference <p>Format 5</p> <ul style="list-style-type: none"> • Single filled-in circle • Center: 1/2H, 1/2V • Radius: 1/3V <p>Format 6</p> <ul style="list-style-type: none"> • Filled-in circles with radius 1/6V × 5



4.10.6 Burst patterns

In burst patterns, the line width increases gradually.



The burst pattern settings are described below.

<p>① Select Program Edit using or , and then press .</p>	
<p>② Select Pattern (PAT) using or , and then press .</p>	
<p>③ Select Pattern/RGB/INV select using or , and then press .</p>	
<p>④ Select Burst using or , and then press .</p>	
<p>⑤ Press .</p>	
<p>⑥ Select OX[ABC] using or , and then press .</p>	
<p>⑦ Select Burst using or , and then press .</p>	












⑧	Setting the items Select the items using  or   , and then press  .	For details, refer to “ Table of burst setting items ” below.
	Setting the parameters Select the parameters using  or  ,  , and then press  . Alternatively: Select the parameters using  to  (number keys), and then press  .	

Table of burst setting items

(1)	Format(0-2)	The origin point of the pattern drawing is set here.		
		0	L->R	The line width increases from left to right.
		1	L<-R	The line width increases from right to left.
		2	L<-C->R	The line width increases from the center to the left edge and from the center to the right edge.
		3	L->C<-R	The line width increases from the left edge to the center and from the right edge to the center.
		4	T->B	The line width increases from top to bottom.
		5	T<-B	The line width increases from bottom to top.
		6	T<-C->B	The line width increases from the center to the top edge and from the center to the bottom edge.
7	T->C<-B	The line width increases from the top edge to the center and from the bottom edge to the center.		
(2)	Number of Line	The number of lines set here are repeatedly drawn with the same thickness. After the set number of lines have been drawn, the thickness is increased by an amount equivalent to the Step setting, and this is repeated. Setting range: 1 to 99		
(3)	Step	The step is set here. Setting range: 0 to 99 [dot]		

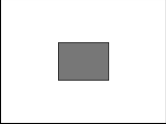
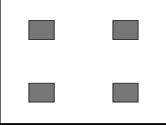
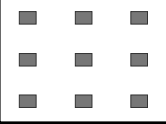
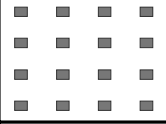
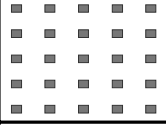
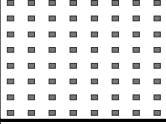

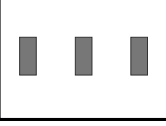
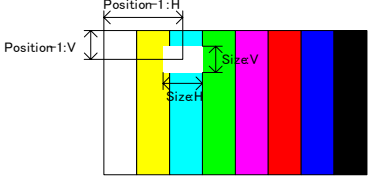
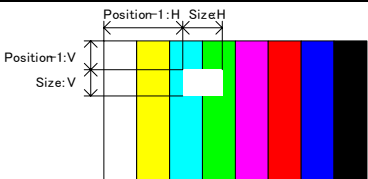
4.11 Window patterns

Mono-color rectangles can be displayed as window patterns. The window patterns can also be used to check moving images (refer to “Action Settings”).

4.11.1 Types of window patterns

When window has been selected using the pattern key, for instance, window patterns can be selected from among the types listed below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.

0	1 Window	1 window displayed	
1	4 Window	4 windows displayed	
2	9 Window	9 windows displayed	
3	16 Window	16 windows displayed	
4	25 Window	25 windows displayed	
5	64 Window	64 windows displayed	
6	3 Window In V Row	3 windows in a vertical row displayed	
7	3 Window In H Row	3 windows in a horizontal row displayed	
8	User Pos Center	Window displayed at the desired position * The coordinates of the window center are specified as the origin point of the display.	
9	User Pos Corner	Window displayed at the desired position * The coordinates of the top left of the window are specified as the origin point of the display.	

4.11.2 Window pattern settings

The types of window patterns can be selected using the procedure below.





































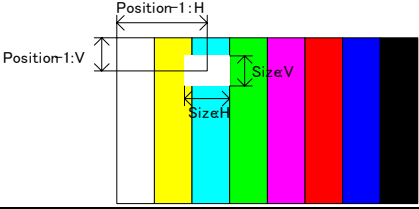
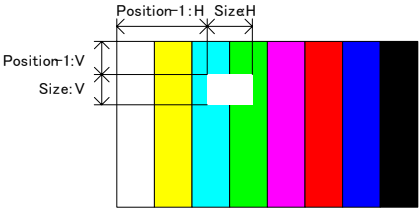
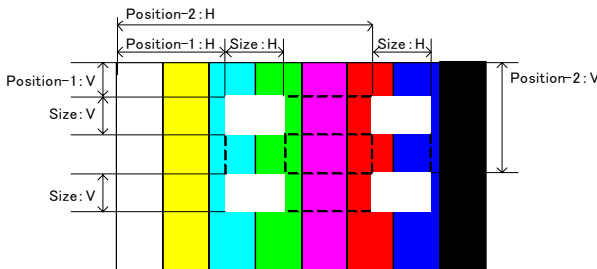
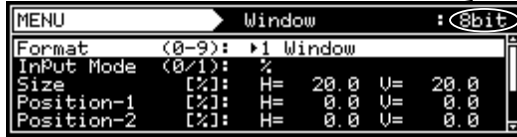
<p>① Select Program Edit using  or  , and then press .</p>	
<p>② Select Pattern (PAT) using  or , and then press .</p>	
<p>③ Select Pattern/RGB/INV select using  or  , and then press .</p>	
<p>④ Select Window using  or  , and then press .</p>	
<p>⑤ Press .</p>	
<p>⑥ Select Window using  or  , and then press .</p>	
<p>⑦ Selecting the items Select the items using  or  , and then press .</p> <p>Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the parameters, refer to “Table of window pattern setting items” below.</p>

Table of window pattern setting items

(1)	Format(0-9)	The window display format is set here.		
		0	1 Window	One window is displayed at the center of the screen.
		1	4 Window	The screen is divided into four areas, and a window is displayed in the center of each area. The window size is set using the area divided into the four areas as 100%.
		2	9 Window	The screen is divided into nine areas, and a window is displayed in the center of each area.
		3	16 Window	The screen is divided into 16 areas, and a window is displayed in the center of each area.
		4	25 Window	The screen is divided into 32 areas, and a window is displayed in the center of each area.
		5	64 Window	The screen is divided into 64 areas, and a window is displayed in the center of each area.
		6	3 Window In V Row	The screen is divided vertically into three areas, and a window is displayed in the center of each area.
		7	3 Window In H Row	The screen is divided horizontally into three areas, and a window is displayed in the center of each area.
		8	User Pos Center	The window can be displayed at any position. The coordinates of the window center are specified as the origin point of the display. 
9	User Pos Corner	The window can be displayed at any position. The coordinates of the top left of the window are specified as the origin point of the display. 		
(2)	Input Mode	The input mode for the window size and display position is specified here.		
		0	%	The size and position are set as a percentage of the entire screen.
		1	dot	The size and position are set in 1-dot increments.
(3)	Size	The window size is set here. The setting procedure differs depending on the Input Mode setting.		

<p>(4)</p>	<p>Position-1 Position-2</p>	<p>Specify the coordinates of the window when Format 8: User Pos Center or Format 9: User Pos Corner has been selected. Up to four windows are displayed depending on the settings of H (% or dot) and V (% or dot) for Position-1 and Position-2.</p> <p>Below is an example of when Format: 9 is set and four windows are displayed at the same time.</p>  <p>H= The window center position or horizontal direction of the start position is set here.</p> <p>V= The window center position or vertical direction of the start position is set here.</p>											
	<p>(5)</p>	<p>Color R G B</p> <p>The window colors and level are set here.</p> <p style="text-align: right;">Bit Length</p>  <p>The setting range differs depending on the color depth.</p>	<p>Setting ranges by color depth</p> <table border="1"> <tr> <td>8BIT</td> <td>0 - 255</td> </tr> <tr> <td>9BIT</td> <td>0 - 511</td> </tr> <tr> <td>10BIT</td> <td>0 - 1023</td> </tr> <tr> <td>11BIT</td> <td>0 - 2047</td> </tr> <tr> <td>12BIT</td> <td>0 - 4095</td> </tr> </table>	8BIT	0 - 255	9BIT	0 - 511	10BIT	0 - 1023	11BIT	0 - 2047	12BIT	0 - 4095
	8BIT	0 - 255											
9BIT	0 - 511												
10BIT	0 - 1023												
11BIT	0 - 2047												
12BIT	0 - 4095												

4.12 Cursor patterns

A cursor can be displayed on screens with pattern displays.

The cursor can be moved to any point, and its position on the screen can be displayed.

4.12.1 Cursor settings

The cursor can be selected using the procedure below.

For further details on pattern selection, refer to “2.2.4 Selecting the pattern data”.


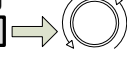




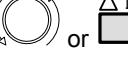




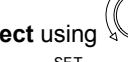




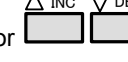






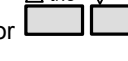



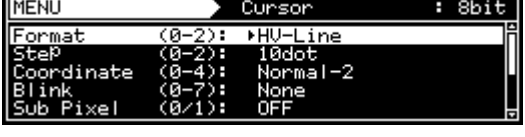
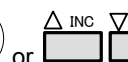










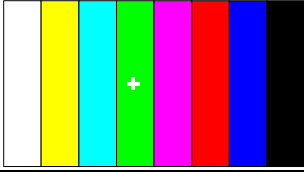
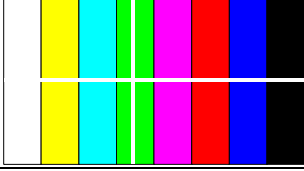
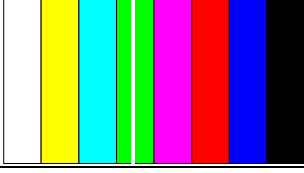
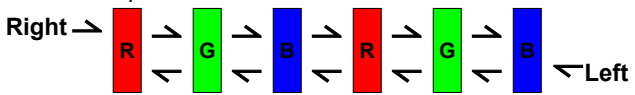
①	<p>Select Program Edit using   or  , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P@60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
②	<p>Select Pattern (PAT) using  or , , and then press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>> </pre>
③	<p>Select Pattern/RGB/INV select using  or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope </pre>
④	<p>Select Cursor using  or  , and then press .</p>	 <pre> MENU Pattern/RGB/INU Select <input type="checkbox"/> Window <input checked="" type="checkbox"/> Cursor <input type="checkbox"/> Name/List <input checked="" type="checkbox"/> R/Pr <input checked="" type="checkbox"/> G/Y </pre>
⑤	<p>Press .</p>	 <pre> MENU Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>> </pre>
⑥	<p>Select Cursor using  or  , and then press .</p>	 <pre> MENU Cursor : 8bit Format (0-2): ▶HV-Line Step (0-2): 10dot Coordinate (0-4): Normal-2 Blink (0-7): None Sub Pixel (0/1): OFF </pre>
⑦	<p>Selecting the items</p> <p>Select the items using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or , , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to , (number keys), and then press .</p>	<p>For details on the parameters, refer to “Table of cursor pattern setting items” below.</p>

Table of cursor pattern setting items

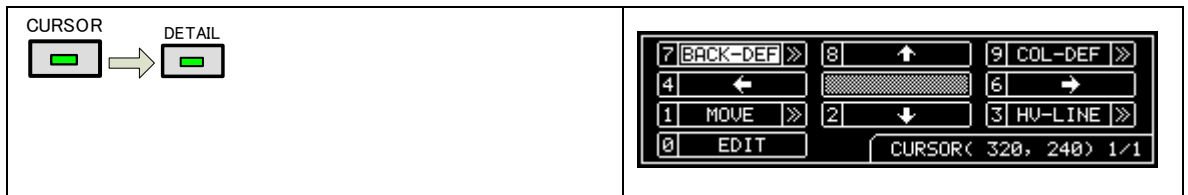
(1)	Format(0-2)	The shape of the cursor is set here.	
		0	5x5 Cross The cursor is displayed as a 5×5-pixel cross. 
		1	HV-Line The cursor is displayed as a cross whose horizontal and vertical dimensions extend to the edges of the screen. 
		2	V-Line The cursor is displayed as a vertical line. 
(2)	Step	The amount of cursor movement when the cursor is to be moved is set here.	
		0-2	1dot /10dot /100dot
(3)	Coordinate	The coordinate display method is set here.	
		0	OFF No coordinates are displayed.
		1	Normal-1 The horizontal and vertical coordinates and step are displayed in 1-pixel increments.
		2	Normal-2 The horizontal and vertical coordinates are displayed in sub-pixel increments, and the step is displayed in 1-pixel increments.
		3	Reverse-1 Normal-1 is inverted at the top and bottom, and displayed.
		4	Reverse-2 Normal-2 is inverted at the top and bottom, and displayed.

(4)	Blink	Whether the cursor is to blink and the blink interval are set here.		
		0	None	The cursor does not blink.
		1-7	1V /2V /4V /8V /16V /32V /64V	The cursor blinks for each 1 V (vertical sync period) to 64 V and then goes off, and this is repeated.
(5)	Sub Pixel	Set whether the cursor is to be moved in 1-pixel increments or sub-pixel increments. Operation in sub-pixel increments: 		
		0	OFF	The cursor is moved in 1-pixel increments.
		1	ON	The cursor is moved in sub-pixel increments.
(6)	Overlay	Set whether the cursor is to be displayed on top of the test pattern or on top of the background color set using the Color Back R G B item.		
		0	OFF	The cursor is displayed on top of the background color set by the Color Back R G B item.
		1	ON	The cursor is displayed on top of the test pattern.
(7)	Intersection	The shape of the intersection is set here.		
		0	Normal	The intersection is filled in as a cross.
		1	Space	The intersection is displayed in black.
(8)	Color Cursor R, G, B	The cursor color and level are set here.		
		The setting range differs depending on the color depth.		
		Setting ranges by color depth		
		8BIT	0 - 255	
		9BIT	0 - 511	
10BIT	0 - 1023			
11BIT	0 - 2047			
12BIT	0 - 4095			
(9)	Color Back R, G, B	The background color and level are set here. However, when On has been selected as the Overlay item setting, the test pattern becomes the background, so this setting is canceled. The setting procedure is the same as that for Color Cursor R, G, B .		

4.12.2 Cursor operations

Available cursor operations include moving the cursor and changing the cursor level.

Operation screen display



Moving the cursor

①	Select MOVE using .									
②	When using the number keys 4/A ← 6/C → 2 ↓ 8/E ↑ 	<table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">4</td> <td>The cursor moves to the left.</td> </tr> <tr> <td>6</td> <td>The cursor moves to the right.</td> </tr> <tr> <td>2</td> <td>The cursor moves downward.</td> </tr> <tr> <td>8</td> <td>The cursor moves upward.</td> </tr> </table>	4	The cursor moves to the left.	6	The cursor moves to the right.	2	The cursor moves downward.	8	The cursor moves upward.
4	The cursor moves to the left.									
6	The cursor moves to the right.									
2	The cursor moves downward.									
8	The cursor moves upward.									
③	When using the jog dial 	<table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">4/A ← 6/C →</td> <td>When or is pressed and the jog dial is turned, the cursor moves to the left or right.</td> </tr> <tr> <td>2 ↓ 8/E ↑</td> <td>When or is pressed and the jog dial is turned, the cursor moves down or up.</td> </tr> </table>	4/A ← 6/C →	When or is pressed and the jog dial is turned, the cursor moves to the left or right.	2 ↓ 8/E ↑	When or is pressed and the jog dial is turned, the cursor moves down or up.				
4/A ← 6/C →	When or is pressed and the jog dial is turned, the cursor moves to the left or right.									
2 ↓ 8/E ↑	When or is pressed and the jog dial is turned, the cursor moves down or up.									

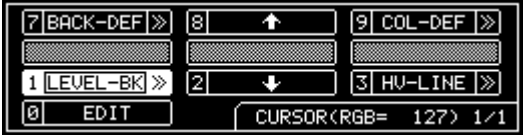

Changing the cursor level

* These steps change the **Color Cursor R, G, B** settings.

①	Select LEVEL using . * The level of the sub-pixel cursor cannot be changed.					
②	(When using the number keys) 2 ↓ 8/E ↑ 	<table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">2</td> <td>The level is decremented.</td> </tr> <tr> <td>8</td> <td>The level is incremented.</td> </tr> </table>	2	The level is decremented.	8	The level is incremented.
2	The level is decremented.					
8	The level is incremented.					
③	(When using the jog dial) 	<table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">When turned counter-clockwise</td> <td>The level is decremented.</td> </tr> <tr> <td>When turned clockwise</td> <td>The level is incremented.</td> </tr> </table>	When turned counter-clockwise	The level is decremented.	When turned clockwise	The level is incremented.
When turned counter-clockwise	The level is decremented.					
When turned clockwise	The level is incremented.					

Changing the background level

* These steps change the **Color Back R, G, B** settings.

①	Select LEVEL-BK using <input type="text"/> ^{1 ↗} Select BACK-DEF using <input type="text"/> ^{7/D ↖}		
②	(When using the number keys) <input type="text"/> ^{2 ↓} , <input type="text"/> ^{8/E ↑}	2	The level is decremented.
		8	The level is incremented.
③	(When using the jog dial) 	When turned counter-clockwise	The level is decremented.
		When turned clockwise	The level is incremented.

Changing the cursor shape

* These steps change the **Format** settings.

③ <input type="text"/> ^{3 ↗}		5x5 CROSS	5x5-pixel cross
		HV-LINE	Cross that covers the entire screen
		V-LINE	Vertical line

Changing the background color

⑦ <input type="text"/> ^{7/D ↖}		BACK-DEF	Color Back R, G, B settings
		BACK-W	White
		BACK-R	Red
		BACK-G	Green
		BACK-B	Blue
		BACK-BLK	Black


Inverting the cursor color

⑨ <input type="text"/> ^{9/F ↗}		COL-DEF	Normal
		COL-INV	Inverted

4.13 Name/List patterns






















Information such as the setting data and execution results as well as the images (number of colors restricted) are contained in the Name/List patterns, and they can be superimposed onto other patterns.



















Types of Name/List patterns

NAME/LIST	NAME	Program name display	For details, refer to “4.13.2 Name”.
	EDID	EDID setting data display	For details, refer to “4.13.5 EDID”.
	EDID(HEX)	EDID setting data HEX display	For details, refer to “4.13.5 EDID”.
	DDC/CI	DDC-CI setting data display	For details, refer to “4.13.6 DDC/CI”.
	HDCP	HDCP authentication screen display	For details, refer to “4.13.3 HDCP”.
	CEC	CEC setting data display	For details, refer to “5.2.4 CEC”.
	HDMI	HDMI setting data display	For details, refer to “4.13.4 HDMI list”.
	TIMING	Timing data (parameters, etc.) display	For details, refer to “4.13.8 Timing data list”.
	IMAGE	Image pattern list display	For details, refer to “4.13.9 Image pattern list”.
	OPT-USER	User optional pattern list display	For details, refer to “4.13.10 OPT-USER pattern list”.
	ARC	Audio Return Channel data display	For details, refer to “5.2.8 ARC (Audio Return Channel)”.

4.13.1 Name/List display

The Name/List functions can be selected using the procedure below.

<p>① Select Program Edit using  →</p> <p> or  , and then press .</p>	
<p>② Select Pattern (PAT) using  or  , and then press .</p>	
<p>③ Select Pattern/RGB/INV select using  or  , and then press .</p>	
<p>④ Select Name/List using  or  , and then press .</p>	

⑤	<p>Press .</p>																																					
⑥	<p>Select Name/List using  or , and then press  or .</p>																																					
⑦	<p>Selecting the items</p> <p>Select the items using  or , and then press  or .</p> <p>Setting the parameters</p> <p>Select the parameters using  or , and then press  or .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>Specify the pattern to be displayed by Type. Some patterns have advanced settings.</p> <table border="1"> <thead> <tr> <th colspan="3">Type</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>NAME</td> <td>The names of programs are displayed.</td> </tr> <tr> <td>1</td> <td>HDCP</td> <td>The HDCP authentication screen is displayed.</td> </tr> <tr> <td>2</td> <td>EDID</td> <td>The EDID is displayed as text.</td> </tr> <tr> <td>3</td> <td>EDID(HEX)</td> <td>The EDID is displayed in hexadecimal format.</td> </tr> <tr> <td>4</td> <td>DDC/CI</td> <td>DDC/CI is used.</td> </tr> <tr> <td>5</td> <td>CEC</td> <td>The CEC execution list is displayed.</td> </tr> <tr> <td>6</td> <td>ARC</td> <td>The ARC execution list is displayed.</td> </tr> <tr> <td>7</td> <td>HDMI</td> <td>A list of the HDMI-related data is displayed.</td> </tr> <tr> <td>8</td> <td>Timing</td> <td>A list of timing that is being output is displayed.</td> </tr> <tr> <td>9</td> <td>Image</td> <td>The information of the image patterns registered in the internal memory or on the CF card is displayed.</td> </tr> <tr> <td>A</td> <td>OPT-USER</td> <td>The names and sizes of the user optional patterns registered in the internal memory or on the CF card is displayed.</td> </tr> </tbody> </table>	Type			0	NAME	The names of programs are displayed.	1	HDCP	The HDCP authentication screen is displayed.	2	EDID	The EDID is displayed as text.	3	EDID(HEX)	The EDID is displayed in hexadecimal format.	4	DDC/CI	DDC/CI is used.	5	CEC	The CEC execution list is displayed.	6	ARC	The ARC execution list is displayed.	7	HDMI	A list of the HDMI-related data is displayed.	8	Timing	A list of timing that is being output is displayed.	9	Image	The information of the image patterns registered in the internal memory or on the CF card is displayed.	A	OPT-USER	The names and sizes of the user optional patterns registered in the internal memory or on the CF card is displayed.
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4.13.2 Name list

The display method can be set when Name has been selected as the Type setting.













































<p>① Select Program Edit using  →  or  INC  DEC, and then press .</p>	 <p>MENU → Program Edit Program Name : ▶EIA1920x1080P60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>></p>
<p>② Select Pattern (PAT) using  or  INC  DEC, and then press .</p>	 <p>MENU → Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>></p>
<p>③ Select Pattern/RGB/INV select using  or  INC  DEC, and then press .</p>	 <p>MENU → Pattern/RGB/INU Select <input type="checkbox"/> Color Bar <input type="checkbox"/> Gray Scale <input type="checkbox"/> Ramp <input type="checkbox"/> Sweep <input type="checkbox"/> Monoscope</p>
<p>④ Select Name/List using  or  INC  DEC, and then press .</p>	 <p>MENU → Name/List <input type="checkbox"/> Window <input type="checkbox"/> Cursor <input checked="" type="checkbox"/> Name/List <input checked="" type="checkbox"/> R/Pr <input checked="" type="checkbox"/> G/V</p>
<p>⑤ Press .</p>	 <p>MENU → Pattern Pattern/RGB/INU Select >>> Color Bar >>> Gray Scale >>> Ramp >>> Sweep >>></p>
<p>⑥ Select Name/List using  or  INC  DEC, and then press .</p>	 <p>MENU → Name/List Type (0-C): ▶NAME Name >>> Subtitle >>> EDID >>> DDC/CI >>></p>
<p>⑦ Select Name using  or  INC  DEC, and then press .</p>	 <p>MENU → Name Format (0-3): ▶Program Name Position (0-6): Top-Left Font (0-2): 7x9 Overscan [%]: H= 10 U= 10 Pattern Name : Character List</p>
<p>⑧ Selecting the items Select the items using  or  INC  DEC, and then press .</p> <p>Setting the parameters Select the parameters using  or  INC  DEC, and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>For details, refer to “Table of name setting items” below.</p>

Table of name setting items

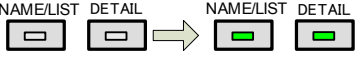






(1)	Format(0-3)	The display contents of Name are set here.		
		0	Program Name	The program names are displayed.
		1	Pattern Name	The pattern names are displayed.
		2	Program & Pattern Name	The program and pattern names are displayed at the same time.
		3	Program Name, Freq	The program names and video timing frequencies are displayed.
(2)	Position	The display position of the name is set here.		
		0	Center	The name is displayed at the center of the screen.
		1	Top-Left	The name is displayed at the top left of the screen.
		2	Bottom-Left	The name is displayed at the bottom left of the screen.
		3	Top-Right	The name is displayed at the top right of the screen.
		4	Bottom-Right	The name is displayed at the bottom right of the screen.
		5	Top-Center	The name is displayed at the top center of the screen.
6	Bottom Center	The name is displayed at the bottom center of the screen.		
(3)	Font	The font size is set here.		
		0	5x7	5 × 7 is set as the font size.
		1	7x9	7 × 9 is set as the font size.
		2	16x16	16 × 16 is set as the font size.
(4)	Overscan [%]	The display position can be adjusted in such a way that the display is not hidden to simulate an overscanning monitor.		
		H=	The horizontal overscanning ratio is set here.	
		V=	The vertical overscanning ratio is set here.	
(5)	Pattern Name	The pattern names are edited here. For details on the editing procedure, refer to “ 2.4 Changing program names ”.		

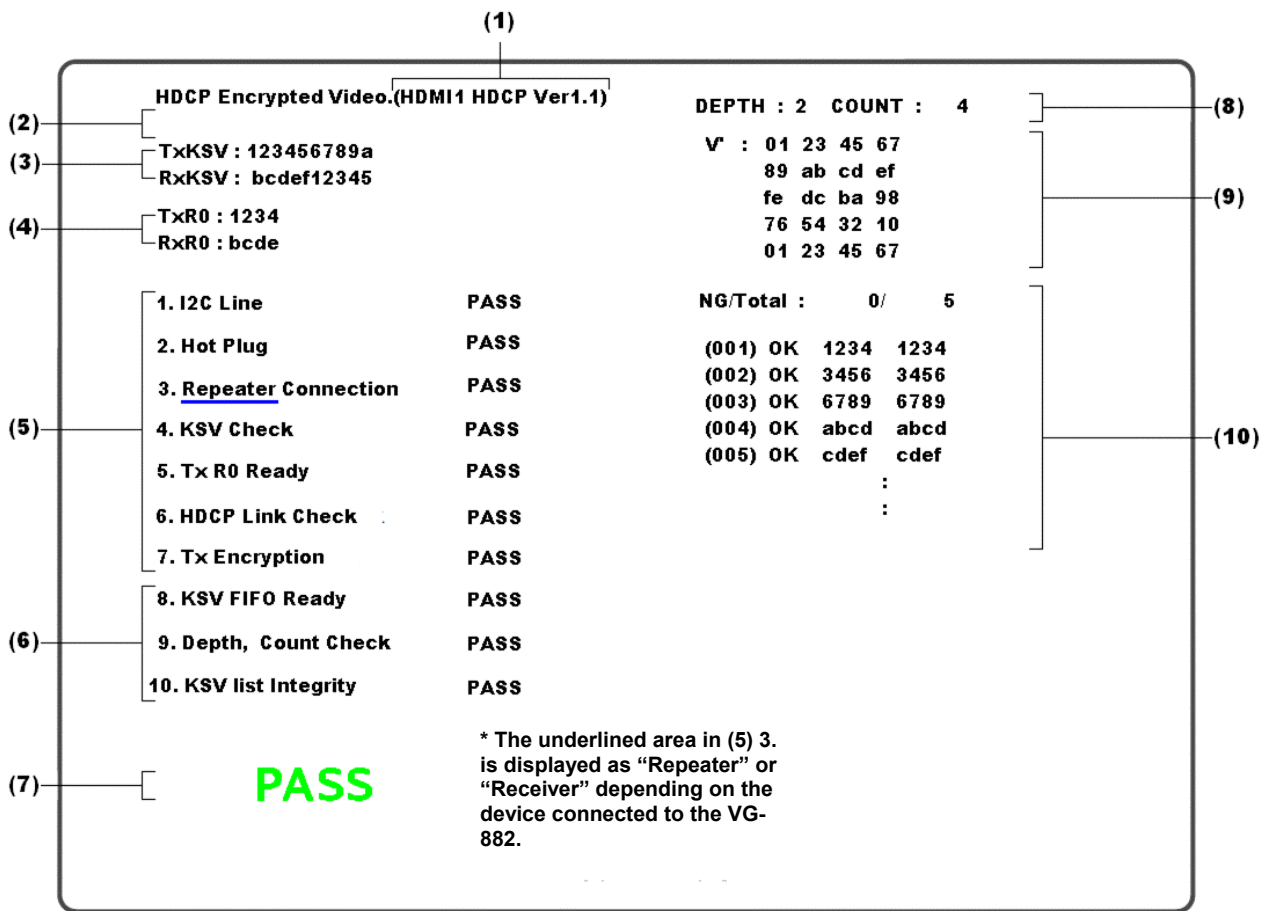
4.13.3 HDCP list

The HDCP authentication results can be shown on the display.

(For details of the HDCP settings and execution, refer to “5.2.5 HDCP”.)

Displaying the HDCP authentication screen

<p>①</p> 	
<p>② Selecting HDCP</p> <p>Select HDCP using  or  , and then press .</p>	
<p>③ Advanced settings</p> <p>For the advanced HDCP settings, refer to “5.2.5 HDCP”.</p>	



Details of the displayed information are given below.

HDCP authentication screen display data

(1)	This displays the port selected in c) Display Select of "5.2.5 Executing HDCP". (When the HDCP authentication is successful, the HDCP version is displayed next to the port; when it has failed, an error message is displayed next to the port.)	
(2)	This displays the EDID reading results. (The results are displayed only when AUTO has been selected as the HDMI or DVI setting in "5.2.2 HDMI setting procedure" or when EDID Check has been selected as the Version setting in "5.2.5 HDCP setting items (4)".)	
(3)	The Key Selection Vectors are displayed here among the HDCP keys. "TxKSV" is the key selection vector of the transmitter; "RxKSV" is the key selection vector of the receiver.	
(4)	The Synchronization Verification Values calculated by the initial authentication are displayed here. "TxR0" is the value calculated for the transmitter; "RxR0" is the value calculated for the receiver.	
(5)	The authentication status of the initial authentication is displayed here.	An item with "PASS" denotes an item that has been successfully authenticated.
(6)*	The authentication status of the second authentication for a repeater is displayed here.	
(7)	If all authentication attempts are successful, "PASS (green)" appears; otherwise, "NG (red)" appears.	
(8)*	This displays the DEPTH (number of stages) and COUNT (total number of connections) of the devices connected to the receiver that is connected to the VG-882.	
(9)*	This displays the value (V'), which is used to verify the adequacy of the KSV list of devices connected to the receiver that is connected to the VG-882.	

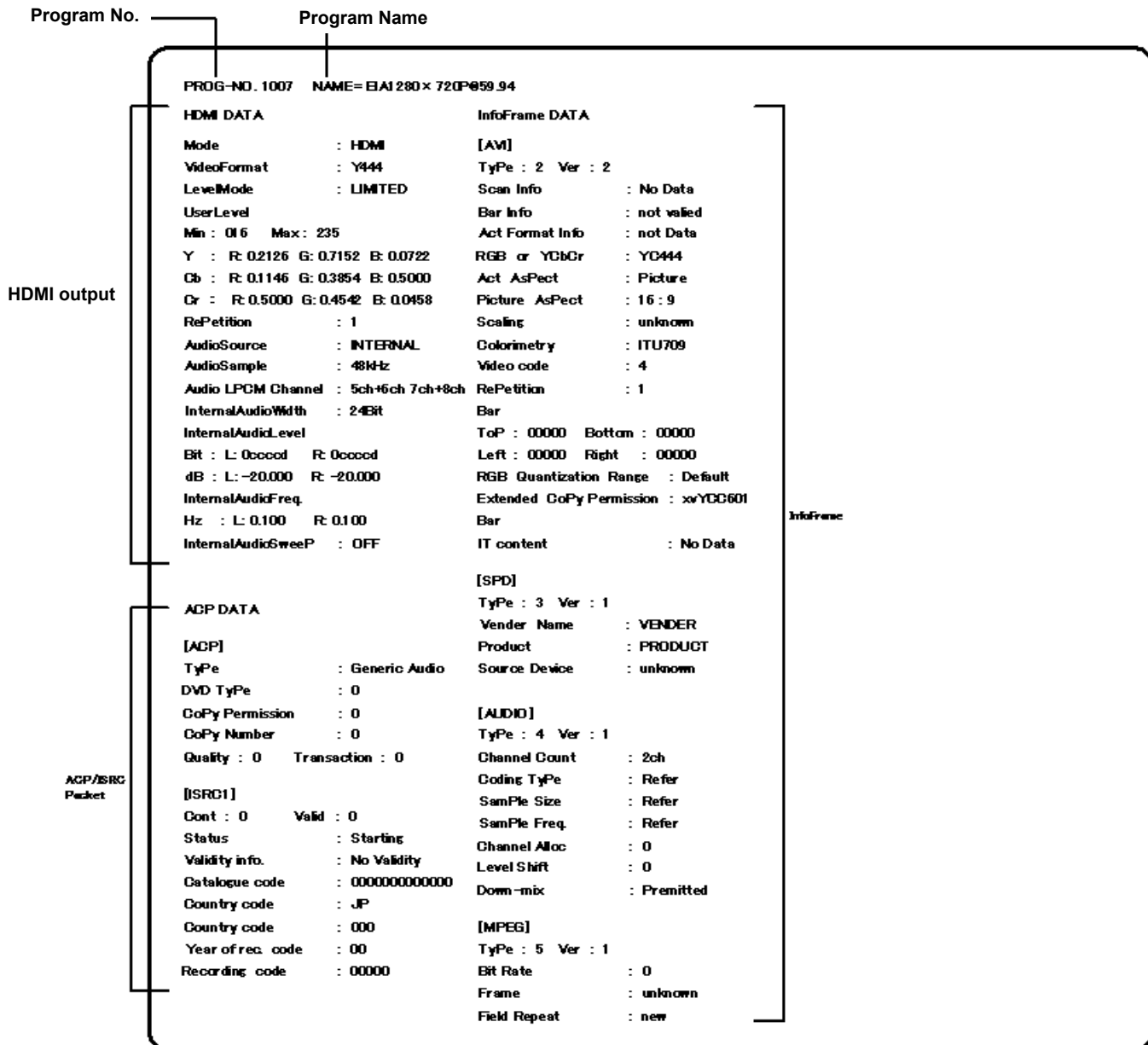
(10)	This displays the Synchronization Verification Values (Ri, Ri'), which are used for checking the adequacy of links. Ri is the value calculated for the transmitter; Ri' is the value calculated for the receiver. "OK" is displayed when the transmitter and receiver values match. (If OK resulted from a retry, "OK2" is displayed instead.)
------	---

* This information is displayed only when the device connected to the VG-882 is a repeater.

4.13.4 HDMI list

The HDMI list display can be selected by pressing the NAME/LIST pattern key while the output from the HDMI connector is connected to the display. Information of the signals that are input to the display from the HDMI connector is shown on the display.

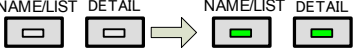


















Example: HDMI list when EIA 1280 × 720 and 59.94 Hz output signals are input to the display

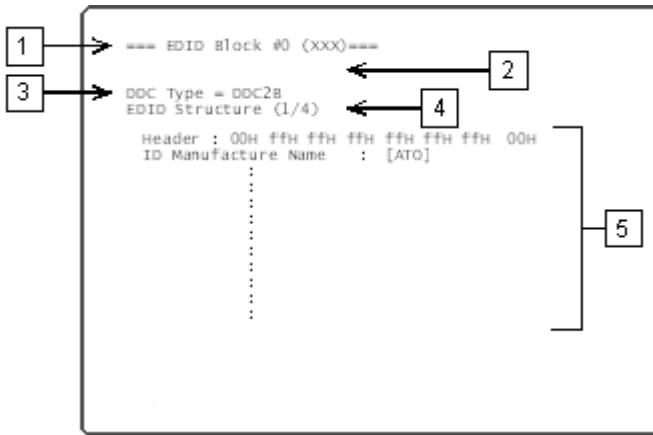


4.13.5 EDID list

The EDID of the connected display can be displayed on the screen.

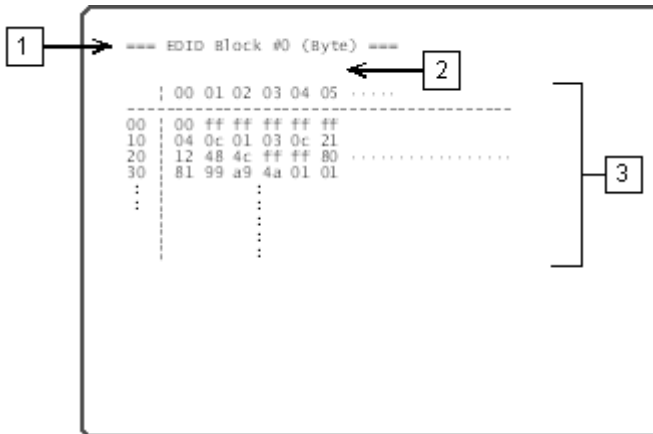
a) EDID display method

<p>①</p> 	
<p>② Displaying the EDID</p> <p>Select EDID using  or  , and then press .</p> <p>Alternatively:</p> <p>Select  for the GUI display format or  for the HEX display format.</p>	 <p>The EDID is displayed as shown below.</p>
<p>③ Selecting the pages</p> <p>Select   (previous page) or   (next page) using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the page using  (previous page) or  (next page).</p>	<p>When the display extends over several pages, it is divided up on the fluorescent display tube, and shown. (Switch from one page to another to display all the information.)</p>



When the GUI display format is selected

- 1) EDID block number
- 2) If an error occurs, the error is displayed.
- 3) DDC type
- 4) Displayed EDID blocks
- 5) EDID content



When the HEX display format is selected

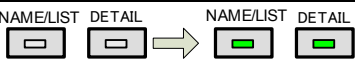











- 1) EDID block number
- 2) If an error occurs, the error is displayed.
- 3) EDID content



The maximum number of read EDID blocks is eight (1 base block + 7 extension blocks) (when HDMI is selected).

b) Port selection method

The EDID is displayed by only one video interface at a time, and it is necessary to set the video interface that is to display the EDID.

<p>①</p>  <p>Establish the state in which EDID or EDID (HEX) is selected.</p>																
<p>②</p> <p>Select EDIT using  or  , and then press .</p> <p>Alternatively, select EDIT using .</p>																
<p>③ Selecting the port</p> <p>Select the port using  or  , and then press .</p>	<p>Select the video interface for displaying the EDID.</p> <table border="1"> <tr> <td>0</td> <td>HDMI1</td> <td>HDMI 1 output is selected.</td> </tr> <tr> <td>1</td> <td>HDMI2</td> <td>HDMI 2 output is selected.</td> </tr> <tr> <td>2</td> <td>HDMI3</td> <td>HDMI 3 output is selected.</td> </tr> <tr> <td>3</td> <td>HDMI4</td> <td>HDMI 4 output is selected.</td> </tr> <tr> <td>4</td> <td>VGA</td> <td>VGA output is selected.</td> </tr> </table>	0	HDMI1	HDMI 1 output is selected.	1	HDMI2	HDMI 2 output is selected.	2	HDMI3	HDMI 3 output is selected.	3	HDMI4	HDMI 4 output is selected.	4	VGA	VGA output is selected.
0	HDMI1	HDMI 1 output is selected.														
1	HDMI2	HDMI 2 output is selected.														
2	HDMI3	HDMI 3 output is selected.														
3	HDMI4	HDMI 4 output is selected.														
4	VGA	VGA output is selected.														

4.13.6 DDC/CI list

Using the VGA and HDMI connectors, the DDC/CI commands can be sent and received, and shown on the display. Two modes are available for DDC/CI: the **Get (Get VCP Feature)** mode, in which the function data of the connected display is read, and the **Set (Set VCP Feature)** mode, in which user-defined data is set to the connected display.

Setting DDC/CI

①		
②	<p>Selecting DDC/CI</p> <p>Select DDC/CI using or , and then press .</p>	
③	<p>Advanced setting: EDIT</p> <p>Select EDIT using or , and then press .</p> <p>Alternatively, select EDIT using .</p>	

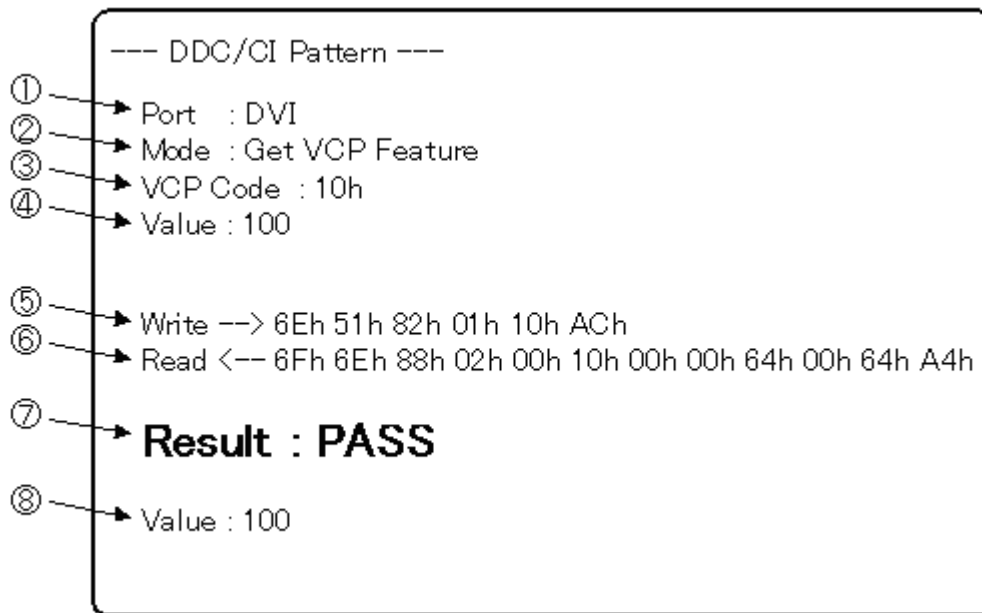
Re-executing DDC/CI

①		
②	<p>Select RE-EXECUTE using or , and then press .</p> <p>Alternatively, select RE-EXECUTE using .</p>	

Table of DDC/CI setting items

(1)	Port(0-C)	The port using DDC/CI is set here.	
		0	HDMI1 HDMI 1 output is selected.
		1	HDMI2 HDMI 2 output is selected.
		2	HDMI3 HDMI 3 output is selected.
		3	HDMI4 HDMI 4 output is selected.
		4	VGA VGA output is selected.
(2)	Mode(0/1)	The operating mode is set here.	
		0	Get VCP Feature The status of the connection destination is checked.
		1	Set VCP Feature The control commands are sent to the connection destination.
(3)	VCP Code	00H-FFH	The VCP code is set.
(4)	Value	0-65535	A value is set only when Set VCP Feature has been selected as the Mode setting.

Display example of sent and received data using the DDC/CI setting



①	Port	Output port from which DDC/CI is transferred	Items to be set by the generator
②	Mode	DDC/CI transfer mode Get VCP Feature: The status of the connection destination is received. Set VCP Feature: The control commands are sent to the connection destination.	
③	VCP Code	Transfer command (set using the hexadecimal format)	
④	Value	(Displayed only when Set VCP Feature has been selected as the Mode setting.) Parameter value to be transferred from the generator to the connection destination	
⑤	Write	Data sent from the generator	Items that display the receiving or sending results
⑥	Read	Data received by the generator	
⑦	Result	Transfer result PASS: Data was transferred successfully. NG: Transfer failed.	
⑧	Value	(Displayed only when Get VCP Feature has been selected as the Mode setting.) Parameter value received by the VG-882 from the connection destination	

4.13.7 CEC list

The CEC list display can be selected by pressing the NAME/LIST key while the generator is connected to the display.

For details of the executed and displayed list, refer to "5.2.4 CEC".

4.13.8 Timing data list

The timing data list display can be selected by pressing the NAME/LIST pattern key while the generator is connected to the display. The timing data, such as the parameters, of the signals that are input to the display from the output terminal is shown on the display.

Example: Timing list when EIA 1280 × 720 and 59.94 Hz output signals are input to the display

	Program Name	Horizontal sync frequency	Vertical sync frequency	
Program No.	PROG-NO. 1001	NAME=EIA640x480P059.94	H= 31.47KHz U= 59.94Hz	
Horizontal timing data	MODE : dot		MODE : H	
	CLOCK : 25.175MHz		SCAN : Progressive	
	HPERIOD : 31.78us	800dot	SERRATION: 1H	
	HDISP : 25.42us	640dot	EOP : OFF	
	HSYNC : 3.81us	96dot	VTOTAL1 : 16.683ms	525.0H
	HBACKP : 1.91us	48dot	VDISP1 : 15.253ms	480.0H
Output conditions	HS : NEGA		USYNC1 : 0.064ms	2.0H
	US : NEGA		UBACKP1 : 1.049ms	33.0H
	CS : NEGA		EOP FP1 : 0.000ms	0.0H
	SYNC ON : 0		EOP BP1 : 0.000ms	0.0H
	VIDEO : 0.70 V		TU-MODE : ANALOG	
	SYNC : 0.30 V		Fre9 L/R: 1000 Hz	1000 Hz
	SETUP : 0.00 V		Level L/R: 2000 mV	2000 mV
	RGB/VPbPr: RGB		SamPFre9 : 48KHz	
	VPbPr No.: 2		Digi CH0 : 00000H	1000 Hz
			Digi CH1 : 00000H	1000 Hz
	UBS : OFF			
	BNC : ON			
SCON : OFF				
DCON : ON				
DSUB : ON				
SCART1 : OFF				
HDMI 1/2 : ON	ON			
HDMI 3/4 : ON	ON			

4.13.9 Image pattern list

When the image list display is selected by pressing the NAME/LIST key while the generator is connected to the display, the information on the image patterns registered in the internal memory or the USB memory is shown on the display.

* When the USB memory device is connected, the information of the image patterns registered in the USB memory is displayed in a list; otherwise, the information of the image patterns in the internal memory is displayed in a list.

Internal or USB memory		Free space [KB]	Page number/number of pages	
Image Data List (Internal:12345KB free) ... 1/1				
NO.	H,V-SIZE	COLOR	NAME	LICENSE
1	(1024, 768)	24bit	owl	-
101	(712, 484)	24bit	china Monoscope	available
102	(1920, 1080)	24bit	carnation girl	missing
	⋮			

NO.: Image number

H,V-SIZE: Image size (width [dots], height [dots])


COLOR: Number of bits per dot

NAME: Image name

LICENSE: - No license required. (standard)

available The license has been registered, so the image can be used. (option)

missing The license has not been registered, so the image cannot be used by this generator. (option)

If the total number of pages exceeds two, the pages can be selected using .

4.13.10 OPT-USER pattern list

When the OPT-USER pattern list display is selected by pressing the NAME/LIST key while the generator is connected to the display, the names and sizes of the user optional patterns registered in the internal memory or the USB memory are shown on the display.


* When the USB memory device is connected, the information registered in the USB memory is displayed in a list; otherwise, the information in the internal memory is displayed in a list.

Internal or USB memory		Free space [KB]	Page number/number of pages
USER OPT Data List (Internal:12345KB free) ... 1/1			
NO.	SIZE	NAME	
1	578	RGBW Color Bar	
100	676	10Step & 1/10MHz	
200	2549	DisplayPositionAdj	
	⋮		

NO.: Pattern number

SIZE: Pattern size [bytes]

NAME: Pattern name

If the total number of pages exceeds two, the pages can be selected using .

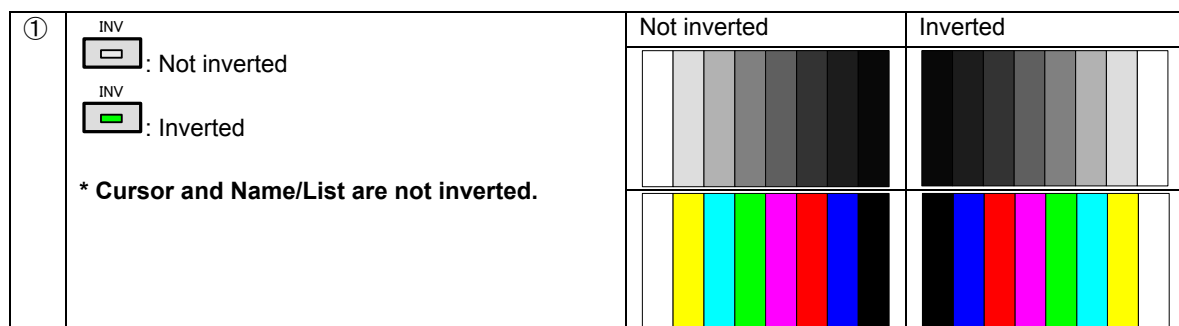
4.13.11 ARC pattern list

The ARC list display can be selected by pressing the NAME/LIST key while the generator is connected to the display.

For details of the executed and displayed list, refer to "5.2.8 ARC (Audio Return Channel)".

4.14 Video inversion

The video levels can be inverted.



5

Output Settings

5.1 Common settings

The following items are set as settings common to multiple video and audio output interfaces.








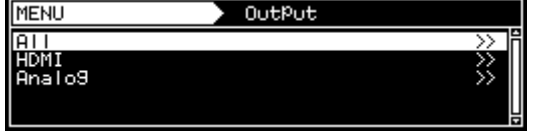



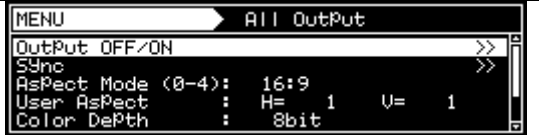



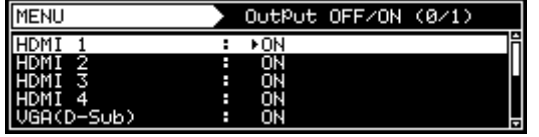




- Output interface on/off setting
- Sync signal on/off and polarity setting
- Aspect ratio setting
- Output gradation (bit length) setting
- Color difference coefficient setting
- Analog video level setting
- Digital video level setting
- Audio level setting






5.1.1 Setting the output interfaces to ON or OFF

“Output” (ON) or “no output” (OFF) can be selected for each video and audio output interface.





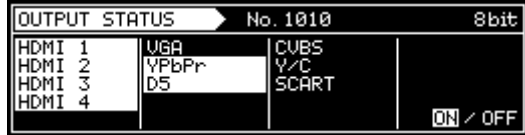
This is set to ON for the internal sample timing data unless this interferes with the ratings or specifications of the generator.

Example: In the case of EIA 1920 × 1080i@59.94, the CVBS, SCART and Y/C signals are set to OFF, but other output signals are set to ON.

<p>① Select Program Edit using  or , and then press .</p>	 <pre> MENU Program Edit Program Name : EIA1920x1080P@60 Timing (TIM) >>> OutPut (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
<p>② Select Output (TIM) using  or , and then press .</p>	 <pre> MENU OutPut All >>> HDMI >>> Analog >>> </pre>
<p>③ Select All using  or , and then press .</p>	 <pre> MENU All OutPut OutPut OFF/ON >>> Sync >>> Aspect Mode (0-4): 16:9 User Aspect : H= 1 U= 1 Color Depth : 8bit </pre>
<p>④ Select Output OFF/ON using  or , and then press .</p>	 <pre> MENU OutPut OFF/ON (0/1) HDMI 1 : ON HDMI 2 : ON HDMI 3 : ON HDMI 4 : ON VGA(D-Sub) : ON </pre> <p>PC, TV, etc. are types of interfaces.</p>
<p>⑤ Select the interface whose settings are to be changed using  or , and then press .</p>	 <pre> MENU OutPut OFF/ON (0/1) HDMI 1 : ON HDMI 2 : ON HDMI 3 : ON HDMI 4 : ON VGA(D-Sub) : ON </pre>































<p>⑥ Select ON/OFF using  or  , and then press .</p>	
---	--

How to check the interfaces whose signals are output

<p>① On the initial screen, select  while holding down .</p> <p>Select  again while holding down  to exit from the OUTPUT STATUS screen.</p>	
---	--

5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities

In this section, the sync signals are set to ON or OFF and the sync signal polarities are set for each output terminal.

<p>① Select Program Edit using   or  , and then press .</p>	
<p>② Select Output (TIM) using  or  , and then press .</p>	
<p>③ Select All using  or  , and then press .</p>	
<p>④ Select Sync using  or  , and then press .</p>	
<p>⑤ Select the items using  or  , and then press .</p>	<p>HS/VS and CV are set here.</p> <p>* CV is a sync signal superimposed by analog video signals output from the RGB/YPbPr terminals, and it denotes "Video-on-Sync" in this manual.</p>
<p>Select the parameters using  or  , and then press .</p>	
<p></p>	<p>Display returns to the initial screen.</p>

Sync setting parameters















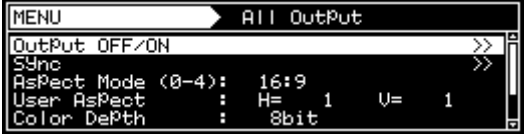



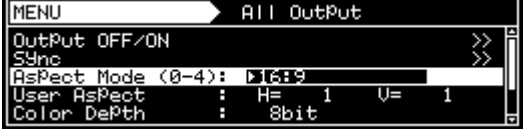










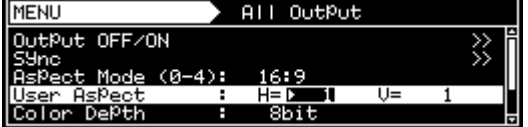



HS	Used to set the HS terminal output.	
	0	Off No output
	1	Nega The signal is output with a negative polarity.
	2	Posi The signal is output with a positive polarity.
VS	Used to set the VS terminal output.	
	0	Off No output
	1	Nega The signal is output with a negative polarity.
	2	Posi The signal is output with a positive polarity.
CV	Used to set whether to superimpose Video-on-Sync onto analog component signals.	
	0	Off Video-on-Sync is not superimposed.
	1	R Video-on-Sync is superimposed onto the R signal.
	2	G Video-on-Sync is superimposed onto the G signal.
	3	RG Video-on-Sync is superimposed onto the RG signal.
	4	B Video-on-Sync is superimposed onto the B signal.
	5	RB Video-on-Sync is superimposed onto the RB signal.
	6	GB Video-on-Sync is superimposed onto the GB signal.
	7	RGB Video-on-Sync is superimposed onto the RGB signal.










- If the overlapping sync is a tri-level sync (HDTV timing) signals, its polarity cannot be changed.

5.1.3 Setting the aspect ratio

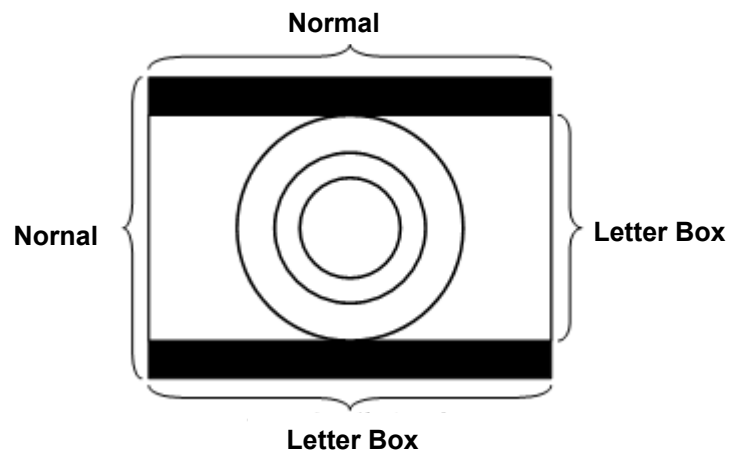
The aspect ratio of video signals is set here.

<p>① Select Program Edit using   or  , and then press .</p>													
<p>② Select Output (TIM) using  or , and then press .</p>													
<p>③ Select All using  or  , and then press .</p>													
<p>④ Select Aspect Mode using  or , and then press .</p>													
<p>⑤ Inputting the parameters</p> <p>Select the parameters using  or , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>Set the aspect ratio.</p> <table border="1"> <tbody> <tr> <td>0</td> <td>4:3</td> <td>The aspect ratio is set to 4:3.</td> </tr> <tr> <td>1</td> <td>16:9</td> <td>The aspect ratio is set to 16:9.</td> </tr> <tr> <td>2</td> <td>Resolution</td> <td>The aspect ratio is set to same ratio as that of the screen resolution.</td> </tr> <tr> <td>3</td> <td>User</td> <td>The user sets the aspect ratio.</td> </tr> </tbody> </table>	0	4:3	The aspect ratio is set to 4:3.	1	16:9	The aspect ratio is set to 16:9.	2	Resolution	The aspect ratio is set to same ratio as that of the screen resolution.	3	User	The user sets the aspect ratio.
0	4:3	The aspect ratio is set to 4:3.											
1	16:9	The aspect ratio is set to 16:9.											
2	Resolution	The aspect ratio is set to same ratio as that of the screen resolution.											
3	User	The user sets the aspect ratio.											
<p>⑥ If User was set in step ⑤, the user can set the aspect ratio.</p> <p>Select UserAspect using  or  , and then press .</p>													
<p>⑦ Inputting the parameters</p> <p>Select the parameters using  or , and then press .</p>	<p>Set the aspect ratio.</p> <table border="1"> <tbody> <tr> <td>H</td> <td>The aspect ratio is set in the horizontal direction. Setting range: 0 to 255</td> </tr> <tr> <td>V</td> <td>The aspect ratio is set in the vertical direction. Setting range: 0 to 255</td> </tr> </tbody> </table>	H	The aspect ratio is set in the horizontal direction. Setting range: 0 to 255	V	The aspect ratio is set in the vertical direction. Setting range: 0 to 255								
H	The aspect ratio is set in the horizontal direction. Setting range: 0 to 255												
V	The aspect ratio is set in the vertical direction. Setting range: 0 to 255												

<p>Select the numerical value using  or .</p> <p> , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to .</p> <p>(number keys), and then press .</p>	
---	--

- * Although images are normally output with the 4:3 aspect ratio, the images that are output when 4:3 Letter Box has been selected have a 16:9 aspect ratio. Therefore, the top and bottom portions of the images are filled in black and output.

When 4:3 Letter Box has been selected as the aspect ratio, the images output will appear as shown below.




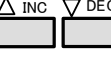



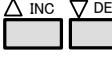

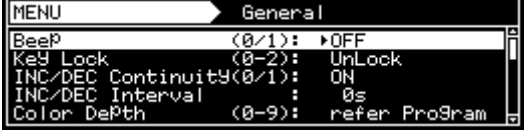

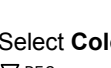



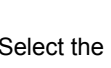




5.1.4 Setting the output gradation (bit length)

The output gradation (bit length) of the program for execution can be set.

This can either be set either separately for each program or it can be fixed irrespective of the programs.










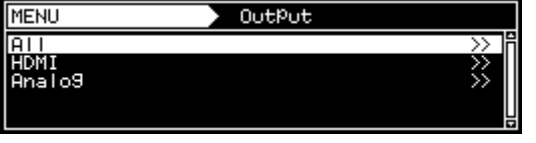




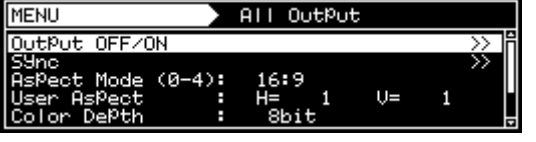










- a) Specify a fixed bit length
- b) Set the bit length for each program

a) Specifying a fixed bit length


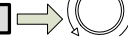








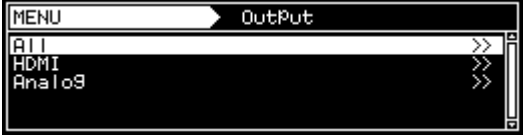

















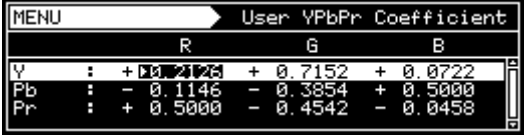












①	Select Configuration using  or  , and then press  .																						
②	Select General using  or  , and then press  .																						
③	Select Color Depth using  or  , and then press  .																						
④	Inputting the parameters Select the parameters using  or  , and then press  . Alternatively: Select the parameters using  to  (number keys), and then press  .	<table border="1"> <thead> <tr> <th colspan="3">Select the bit length.</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Refer to Program</td> <td>The setting matches the program setting.</td> </tr> <tr> <td>1</td> <td>8Bit</td> <td>The patterns are drawn with 8 bits.</td> </tr> <tr> <td>2</td> <td>9Bit</td> <td>The patterns are drawn with 9 bits.</td> </tr> <tr> <td>3</td> <td>10Bit</td> <td>The patterns are drawn with 10 bits.</td> </tr> <tr> <td>4</td> <td>11Bit</td> <td>The patterns are drawn with 11 bits.</td> </tr> <tr> <td>5</td> <td>12Bit</td> <td>The patterns are drawn with 12 bits.</td> </tr> </tbody> </table>	Select the bit length.			0	Refer to Program	The setting matches the program setting.	1	8Bit	The patterns are drawn with 8 bits.	2	9Bit	The patterns are drawn with 9 bits.	3	10Bit	The patterns are drawn with 10 bits.	4	11Bit	The patterns are drawn with 11 bits.	5	12Bit	The patterns are drawn with 12 bits.
Select the bit length.																							
0	Refer to Program	The setting matches the program setting.																					
1	8Bit	The patterns are drawn with 8 bits.																					
2	9Bit	The patterns are drawn with 9 bits.																					
3	10Bit	The patterns are drawn with 10 bits.																					
4	11Bit	The patterns are drawn with 11 bits.																					
5	12Bit	The patterns are drawn with 12 bits.																					

b) Setting the bit length for each program

This setting takes effect when **Refer to Program** has been selected for the setting in ③ of “a) Specifying a fixed bit length” above.

<p>① Select Program Edit using  or  or , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P@60 Timing (TIM) >>> OutPut (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
<p>② Select Output (TIM) using  or , or , and then press .</p>	 <pre> MENU OutPut All >>> HDMI >>> Analog >>> </pre>
<p>③ Select All using  or  or , and then press .</p>	 <pre> MENU All OutPut OutPut OFF/ON >>> Sync >>> Aspect Mode (0-4): 16:9 User Aspect : H= 1 U= 1 Color Depth : 8bit </pre>
<p>④ Select Color Depth using  or , or , and then press .</p>	 <pre> MENU All OutPut OutPut OFF/ON >>> Sync >>> Aspect Mode (0-4): 16:9 User Aspect : H= 1 U= 1 Color Depth : ▶ 8bit </pre>
<p>⑤ Select the bit length using  or , or , and then press .</p>	 <pre> MENU All OutPut OutPut OFF/ON >>> Sync >>> Aspect Mode (0-4): 16:9 User Aspect : H= 1 U= 1 Color Depth : ▶16bit </pre>




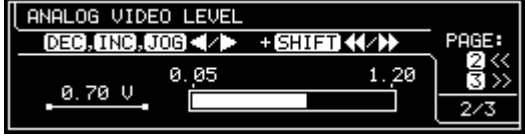












5.1.6 Setting the color difference coefficient

<p>① Select Program Edit using   or  , and then press .</p>														
<p>② Select Output (TIM) using  or  , and then press .</p>														
<p>③ Select All using  or  , and then press .</p>														
<p>④ Select the color difference coefficient when YPbPr is selected.</p> <p>Select YPbPr Select using  or  , and then press .</p> <p>Select the parameters using  or  , and then press .</p>	<p>Select the color difference coefficient.</p> <table border="1"> <tbody> <tr> <td>0</td> <td>SMPTE274M /296M /RP-177</td> <td rowspan="3">The color difference coefficient for one of the standards on the left is set.</td> </tr> <tr> <td>1</td> <td>SMPTE-240M</td> </tr> <tr> <td>2</td> <td>SMPTE-293M</td> </tr> <tr> <td>3</td> <td>SMPTE-125M</td> <td></td> </tr> <tr> <td>4</td> <td>User</td> <td>The user sets the coefficient.</td> </tr> </tbody> </table>	0	SMPTE274M /296M /RP-177	The color difference coefficient for one of the standards on the left is set.	1	SMPTE-240M	2	SMPTE-293M	3	SMPTE-125M		4	User	The user sets the coefficient.
0	SMPTE274M /296M /RP-177	The color difference coefficient for one of the standards on the left is set.												
1	SMPTE-240M													
2	SMPTE-293M													
3	SMPTE-125M													
4	User	The user sets the coefficient.												
<p>⑤ If User was set in step ④, the user can set the coefficient.</p> <p>Select UserYPbPr Coefficient using  or  , and then press .</p>														
<p>⑥ Set the color matrix coefficients.</p> <p>Select the parameters using  or  , and then press .</p> <p>Select the numerical value using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>© Caution for setting the coefficients</p> <ul style="list-style-type: none"> • The Y line must total 1.0000. • The sum of the coefficient for Pb and Pr respectively must be 0. 													
<p>MENU </p>	<p>Display returns to the initial screen.</p>													

5.1.7 Setting the analog video level

The video level of the analog component signals can be changed in real-time. The video signal gray scale remains unchanged, and only the level is changed. The analog video level can be changed either by using the LEVEL key screen or Program Edit.

Using the LEVEL key screen

<p>①</p>  →  ³  <p>→ Setting the analog video level</p>	
<p>②</p>  or  ^Δ INC  [∇] DEC <p>→ Changing the analog level</p> <p>To increase the setting speed</p> <p>Use   and , or use   and  ^Δ INC  [∇] DEC.</p> <p>→ Changing the analog level (increase)</p>	<p>Setting range: When Video-on-Sync is not superimposed 0.05V – 1.2V</p> <p>When Video-on-Sync is superimposed 0.30V – 1.2V</p> <p>For the Video-On-Sync settings, refer to “5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities”.</p>
<p>③</p>  or  ESC	<p>Display returns to the initial screen.</p>

Using Program Edit

For details of the setting procedure, refer to “5.3.1 Common component signal settings”.



This setting only takes effect when outputting analog component signals (VGA, YPbPr).


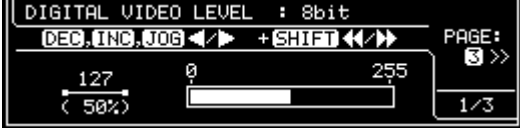








5.1.8 Setting the digital video level

The digital level of the video signals can be changed in real-time.



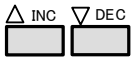





For details of the setting the gradation, refer to “5.1.4 Setting the output gradation (bit length)”.

The digital video level can be changed either by using the LEVEL key screen or Program Edit.





Using the LEVEL key screen

<p>①  → Setting the digital video level</p>													
<p>②  or  → Changing the digital level</p> <p>To increase the setting speed</p> <p>Select using  and , or use  and .</p> <p>→ Changing the digital level (increase)</p> <p>The number of steps when increasing can be set with “8.1.11 Digital video level step setting”.</p>	<table border="1"> <thead> <tr> <th>Bit length (gradation)</th> <th>Setting range</th> </tr> </thead> <tbody> <tr> <td>8BIT</td> <td>0 - 255</td> </tr> <tr> <td>9BIT</td> <td>0 - 511</td> </tr> <tr> <td>10BIT</td> <td>0 - 1023</td> </tr> <tr> <td>11BIT</td> <td>0 - 2047</td> </tr> <tr> <td>12BIT</td> <td>0 - 4095</td> </tr> </tbody> </table>	Bit length (gradation)	Setting range	8BIT	0 - 255	9BIT	0 - 511	10BIT	0 - 1023	11BIT	0 - 2047	12BIT	0 - 4095
Bit length (gradation)	Setting range												
8BIT	0 - 255												
9BIT	0 - 511												
10BIT	0 - 1023												
11BIT	0 - 2047												
12BIT	0 - 4095												
<p>③ Select using  or .</p>	<p>Display returns to the initial screen.</p>												





Using Program Edit

<p>① Select  →, and then use  or  to:</p> <p>select Program Edit, and then press .</p> <p>select Output (TIM), and then press .</p> <p>select HDMI, and then press .</p> <p>select Level, and then press .</p>	
---	--




②


Select the items using  or  , and then press .

Inputting the parameters

Select the parameters using  or  , and then press .

Alternatively:

Select the parameters using  to , and then press .



```















MENU          HDMI          : 8bit
2ch (0/1):    ON
3ch (0/1):    ON
4ch (0/1):    ON
Level Mode (0/1): Limited
Level       : 255

```

5.1.9 Setting the audio level

The audio output level for common items can be changed in real-time. The levels set separately for analog audio and HDMI audio are applied with the levels added here.

* For details on analog audio and HDMI, refer to “5.6.2 Analog audio” and “5.7.1 Digital audio” respectively.

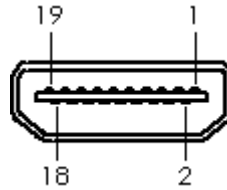
①	 →  →  (PAGE: 3/3)	
②	<p>Change the audio level using  or  .</p> <p>To increase the setting speed</p> <p>Select using  and  or  and  .</p>	
③	<p>Select using  or .</p>	



- The value set here is **not saved** to the program data.

5.2 HDMI Output












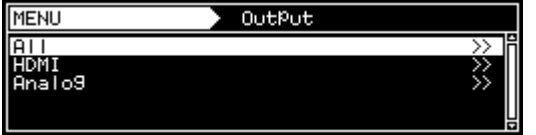




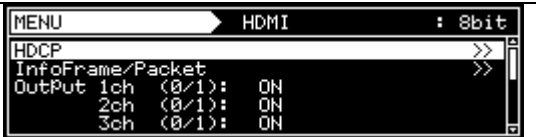











5.2.1 Connectors and pin assignments



Pin No.	Signal
1	TMDS DATA2+
2	TMDS DATA2 SHIELD
3	TMDS DATA2-
4	TMDS DATA1+
5	TMDS DATA1 SHIELD
6	TMDS DATA1-
7	TMDS DATA0+
8	TMDS DATA0 SHIELD
9	TMDS DATA0-
10	TMDS CLK+
11	TMDS CLK SHIELD
12	TMDS CLK-
13	CEC
14	UTILITY
15	DDC CLK
16	DDC DATA
17	GROUND (for +5V)
18	+5V (DDC power supply ^{*1})
19	HOT PLUG DETECT
Shell	FG

*1 Restrictions apply to the supply current of the DDC power supply. Refer to “11.1 Concerning the DDC power supply”.

5.2.2 HDMI setting procedure

①	<p>Select Program Edit using   </p> <p>or  , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P@60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
②	<p>Select Output (TIM) using  or  ,</p> <p>and then press .</p>	 <pre> MENU OutPut All >>> HDMI >>> Analog >>> </pre>
③	<p>Select HDMI using  or  ,</p> <p>and then press .</p>	 <pre> MENU HDMI : 8bit HDCP >>> InfoFrame/Package >>> Output 1ch (0/1): ON Output 2ch (0/1): ON Output 3ch (0/1): ON </pre>
④	<p>Select the items using  or  ,</p> <p>and then press .</p> <p>Inputting the parameters</p> <p>Select the parameters using  or  ,</p> <p>and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to </p> <p>(number keys), and then press .</p>	<p>For details on the parameters, refer to “HDMI output setting parameters” on the next page.</p>

HDMI output setting parameters

(1)	Output 1ch (0/1) Output 2ch (0/1) Output 3ch (0/1) Output 4ch (0/1)	Set on or off for each channel here. The same settings as the ones described in “ 5.1.1 Setting the output interfaces to ON or OFF ” can also be used here.		
		0	OFF	No output
		1	ON	Signal output
(2)	Level Mode(0/1)	Set the range of the video level output from HDMI. It is possible to output video, switching between HDMI standard Limited Range and the normal Full Range. * For details of the level mode, refer to the table on the next page.		
		0	Full	This outputs video with Full Range.
		1	Limited	This outputs video with Limited Range.
(3)	Level	The output level is set here. The setting range varies depending on the output gradation setting. This level is linked to the common digital video level. (Refer to “ 5.1.8 Setting the digital video level ”). * For the setting range, refer to the table on the next page.		
(4)	HDMI or DVI(0-2)	An HDMI connection can be made to DVI by cable conversion. Set the operations at this time here.		
		0	HDMI	The full functions of HDMI can be used.
		1	DVI	This setting differs from HDMI in the following ways. InfoFrame and Packet are not sent. Audio is not supported. Up to 8 bits are supported. Deep Color is not supported.
		2	Auto	EDID of the connected monitor is checked, and the DVI and HDMI modes are set.
(5)	Video Format (0-2)	The color space of the images output from HDMI is set here. * The AVI InfoFrame setting must also be configured at the same time.		
		0	RGB	The images are output using RGB signals. * The color format of “5.3.1 Common component signal settings” must be set to RGB. (Product specifications)
		1	YCbCr4:4:4	The images are output using YCbCr4:4:4 signals.
		2	YCbCr4:2:2	The images are output using YCbCr4:2:2 signals.
(6)	Width(0-3)	The bit length of the images output from HDMI is set here. A setting independent of the bit length for pattern drawing can be selected or the same bit length can be selected automatically. * The portion by which the bit length for pattern drawing exceeds the bit length set here is discarded. The deficient portion is filled with zeros. Refer to “ 5.1.4 Setting the output gradation (bit length) ”.		
		0	Auto	8, 10 or 12 bits are selected here automatically depending on the bit length for pattern drawing.

		1	8bit	8-bit output
		2	10bit	10-bit output
		3	12bit	12-bit output
(7)	Audio Output(0/1)	0	OFF	Audio is not output.
		1	ON	Audio (sine wave via L-PCM) is output.
(8)	Audio N (0/1)	<p>The audio N parameter is set here.</p> <p>* This setting is optional. This setting is only valid when the CTS license is registered. This is set to Auto when not registered.</p>		
		0	Auto	The appropriate value is set here.
		1	Manual 128xfs/ A	<p>Set the N value that is calculated by $N = 128 \times \text{sampling frequency} / A$.</p> <p>A setting range: 300 to 1500</p>
(9)	InfoFrame/Packet	<ul style="list-style-type: none"> When sending this setting automatically together with the color space and other settings, refer to “5.2.3 Info Frame / Packet”. When sending this setting with specified data, refer to “5.2.3 Info Frame / Packet”. 		

Video range of Full Range

	8BIT	10BIT	12BIT
R/G/B/Y/Cb/Cr	0-255	0-1023	0-4095

Video range of Limited Range

	8BIT	10BIT	12BIT
R/G/B/Y	16-235	64-940	256-3760
Cb/Cr	16-240	64-960	256-3840


















5.2.3 Info Frame / Packet

InfoFrame can send the values that are optimal for the video and audio output conditions. In addition, it is possible to send InfoFrame using values that differ from the output conditions to verify operations when the correct InfoFrame is not sent.

Use one of the following operations to send InfoFrame/Packet:

- Send the optimal values automatically
- Set separate InfoFrame values and send them.

a) Sending the optimal values automatically

<p>① Select Configuration using  →  or  , and then press .</p>			
<p>② Select HDMI using  or  , and then press .</p>			
<p>③ Select Auto Select using  or  , and then press  and .</p>	<p>The values are selected and sent automatically.</p> 		
	<p>0</p>	<p>OFF</p>	<p>The optimal value is not sent.</p>
	<p>1</p>	<p>ON</p>	<p>The optimal value is sent.</p>

List of automatically selected items

- If program data has been saved when Auto Select is set to ON, the values that were set by automatic selection will be saved.
- A dash (“-”) denotes that the value of the original setting is used.

Item	Setting/reference section
------	---------------------------

AVI InfoFrame		
	AFD pattern is displayed. (* Refer to “4.7 Aspect ratio patterns”.)	Other setting
Active Format Information	Valid	—
Active Format Aspect	The setting depends on the AFD> Type setting.	—
Top Bar	Value calculated from AFD and Timing settings	—
Bottom Bar		
Left Bar		
Right Bar		
RGB or YCbCr	The setting depends on the HDMI> Video Format setting.	
Picture Aspect	The setting depends on the HDMI>AVI InfoFrame> Video Code setting. (Conforms with EIA/CEA-861.)	
Repetition	The setting depends on the H-Timing> Repetition setting.	
















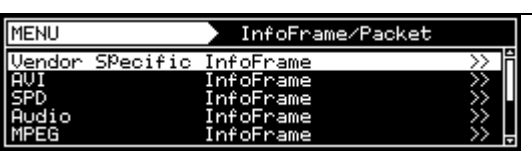






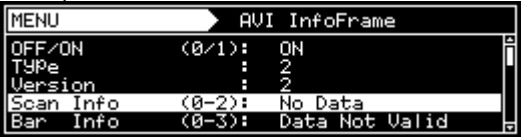
Audio InfoFrame				
	The setting depends on the Digital Audio> Source setting.			
	Ext.ANALOG to L-PCM Int.L-PCM	Ext.ANALOG to DSD	Int.DSD (optional)	Other setting
	Ext.I2S L-PCM (optional)			
Sampling Frequency	—	44.1kHz	Depends on the DSD File information.	—
Channel Count	The setting depends on the number of channels set to ON by Digital Audio> Output Channel .			—
	0	1	2~8	
	Refer StreamHeader	2ch	2~8ch	

ACP Packet		
	The setting depends on the ACP Packet> ACP_Type setting.	
	DVD-Audio	Other setting
DVD-Audio_Type	1	0
Copy_Permission	—	0 (Copy Freely)
Copy_Number	—	0 (1 copies)
Quality	—	0
Transaction	—	0 (Not Present)

ISRC Packet		
	The setting depends on the ACP Packet> ACP_Type setting.	
	DVD-Audio	Other setting
OFF/ON ISRC1	—	OFF
ISRC2	The setting depends on the ISRC Packet> ISRC_Cont setting.	
	0	1
	OFF	—





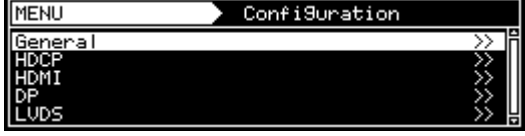








b) Setting separate InfoFrame values and sending them

* This setting takes effect when **Off** has been selected for Auto Select in “a) Sending the optimal values automatically” above.

<p>① Select Program Edit using  or , and then press .</p>	 <pre> MENU Program Edit Program Name : ▶EIA1920x1080P60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
<p>② Select Output (TIM) using  or , and then press .</p>	 <pre> MENU OutPut All >>> HDMI >>> Analog >>> </pre>
<p>③ Select HDMI using  or , and then press .</p>	 <pre> MENU HDMI : 8bit HDCP >>> InfoFrame/Packet >>> Output 1ch (0/1): ON Output 2ch (0/1): ON Output 3ch (0/1): ON </pre>
<p>④ Select the InfoFrame and Packet to be set. Select InfoFrame/Packet using  or , and then press .</p>	 <pre> MENU InfoFrame/Packet Vendor Specific InfoFrame >>> AVI InfoFrame >>> SPD InfoFrame >>> Audio InfoFrame >>> MPEG InfoFrame >>> </pre>
<p>⑤ Inputting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>Example: When AVI-InfoFrame is selected</p>  <pre> MENU AVI InfoFrame OFF/ON (0/1): ON Type : 2 Version : 2 Scan Info (0-2): No Data Bar Info (0-3): Data Not Valid </pre> <p>For details on InfoFrame and Packet, refer to “InfoFrame/Packet setting parameters” on the next page.</p>

Setting the HDMI output when making changes to InfoFrame/Packet

When making changes to InfoFrame/Packet, users can select either to turn off the synchronization of the HDMI output and configure the settings or change only the packets without turning off the synchronization.

<p>① Select Configuration using   or , and then press .</p>							
<p>② Select HDMI using  or , and then press .</p>							
<p>③ Select Packet Changing using  or , and then press .</p>	 <table border="1"> <tr> <td>0</td> <td>Normal Mode</td> <td>The HDMI output synchronization is turned off, and the InfoFrame/Packet changes are made.</td> </tr> <tr> <td>1</td> <td>Game Mode</td> <td>Changes are made to InfoFrame/Packet only (the synchronization is not turned off).</td> </tr> </table>	0	Normal Mode	The HDMI output synchronization is turned off, and the InfoFrame/Packet changes are made.	1	Game Mode	Changes are made to InfoFrame/Packet only (the synchronization is not turned off).
0	Normal Mode	The HDMI output synchronization is turned off, and the InfoFrame/Packet changes are made.					
1	Game Mode	Changes are made to InfoFrame/Packet only (the synchronization is not turned off).					

InfoFrame/Packet setting parameters

The following are the nine InfoFrame/Packet setting parameters.

- Vendor Specific
- AVI InfoFrame
- SPD InfoFrame
- Audio InfoFrame
- MPEG InfoFrame
- NTSC VBI
- ACP Packet
- ISRC Packet
- Gamut Metadata Packet

CAUTION

Due to restrictions of built-in devices, only **up to four packets** may be sent, not including **AVI InfoFrame or Audio InfoFrame**. In addition, the ON/OFF settings of packets are checked in the following order.

1. ACP Packet
2. ISRC1 Packet
3. ISRC2 Packet
4. Gamut Meta Data Packet
5. SPD InfoFrame
6. MPEG InfoFrame
7. Vendor Specific InfoFrame
8. NTSC VBI InfoFrame

In the following example, Vendor Specific InfoFrame and NTSC VBI InfoFrame are disabled.

ACP Packet	: ON	SPD InfoFrame	: ON
ISRC1 Packet	: OFF	MPEG InfoFrame	: ON
ISRC2 Packet	: OFF	Vendro Specific InfoFrame	: ON
Gamut Metadata Packet	: ON	NTSC VBI InfoFrame	: ON

■ Vendor Specific InfoFrame

The vendor specific information is stored in Vendor Specific InfoFrame, and sent.

(1)	OFF/ON	This setting determines whether Vendor Specific InfoFrame is to be sent.		
		0	OFF	The Vendor Specific InfoFrame is not sent.
		1	ON	The Vendor Specific InfoFrame is sent.
The following are the Vendor Specific InfoFrame settings. * These settings are not related to the video and audio output settings.				
(2)	Type	This is the Vendor Specific InfoFrame type setting.		
		1		* "Type" is displayed only. It cannot be changed.
(3)	Version	This is the Vendor Specific InfoFrame version setting.		
		1		* "Version" is displayed only. It cannot be changed.
(4)	IEEE RegID Sel	This selects the format setting for the IEEE Registration ID and the items after it.		
		0	Other	Any IEEE Registration ID can be selected. The Payload is set after the IEEE Registration ID.
		1	HDMI	The IEEE Registration ID is set to 000C03. After the IEEE Registration ID, the setting is configured using the format that supports HDMI 1.4.
1. IEEE RegID Sel: Other				
1-(1)	IEEE Regist. ID	This is the IEEE Registration ID setting.		
		000000 - FFFFFFFF		
1-(2)	Payload Length	This is the Payload length setting.		
		0 – 24		
1-(3)	Payload 1-24	This is the Payload data setting.		
		00 – FF		
2. IEEE RegID Sel: HDMI				
2-(1)	IEEE Regist. ID	This indicates the IEEE Registration ID. (It cannot be changed.)		
		000C03		
2-(2)	Video Format	This is the HDMI Video Format setting.		
		0	None	No additional HDMI video format is presented in this packet.
		1	Ext. Resolution	Extended resolution format present.
	2	3D (optional)	3D format indication present. * "3D" is optional. The Vendor Specific InfoFrame information is not sent unless the license has been registered. For details, contact your dealer or the Astrodesign Sales Department.	
2-1. Video Format: Ext. Resolution				
2-1-(1)	HDMI VIC	This is the HDMI VIC setting.		
		0	4Kx2K 29.97/30Hz	
		1	4Kx2K 25Hz	
		2	4Kx2K 23.98/24Hz	
		3	4Kx2K 24Hz(SMPTE)	

2-2. Video Format: 3D (optional)			
2-2-(1)	3D Structure	This is the 3D Structure setting.	
		0 Frame Packing	
		1 Field Alternative *1	
		2 Line Alternative	
		3 Side-by-Side(Full)	
		4 L + depth	
		5 L + d + G + G-d (L + depth + graphics + graphics - depth)	
		6 Side-by-Side(Half)	
2-2-(2)	3D Ext Data	This is the 3D Ext Data setting.	
		0 Horizontal O/L,O/R *2	Horizontal sub-sampling Odd/Left picture, Odd/Right picture
		1 Horizontal O/L,E/R *2	Horizontal sub-sampling Odd/Left picture, Even/Right picture
		2 Horizontal E/L,O/R *2	Horizontal sub-sampling Even/Left picture, Odd/Right picture
		3 Horizontal E/L,E/R *2	Horizontal sub-sampling Even/Left picture, Even/Right picture
		4 Quincunx O/L,O/R	Quincunx matrix Odd/Left picture, Odd/Right picture
		5 Quincunx O/L,E/R	Quincunx matrix Odd/Left picture, Even/Right picture
		6 Quincunx E/L,O/R	Quincunx matrix Even/Left picture, Odd/Right picture
2-2-(3)	3D Meta Present	This is the 3D Meta present (whether or not the following 3D metadata is present) setting.	
		0 0 (Not Present)	3D metadata not present
		1 1	3D metadata present
2-2-(4)	Metadata Type	This indicates the 3D Metadata type. (It cannot be changed.) 0	
2-2-(5)	Metadata Length	This is the 3D Metadata Length setting. 0 - 19	
		2-2-(6)	Metadata 1-19



***1**

The output signals differ from the written standards. Currently, during the Vblank3 period of Field Alternative the DE signal becomes HIGH.



***2**

The values 0 to 3 of 3D Ext Data are all set to “Horizontal sub-sampling” for HDMI version 1.4a.

The previous notation is used for the VG to differentiate the drawing methods and ensure compatibility.

■ AVI InfoFrame

“AVI InfoFrame” stands for Auxiliary Video Information InfoFrame. The information of the transmission images, including the color space and aspect ratio, is stored in it, and sent.

(1)	OFF/ON	This setting determines whether the AVI InfoFrame is to be sent.		
		0	OFF	The AVI InfoFrame is not sent.
		1	ON	The AVI InfoFrame is sent.
The following are the AVI InfoFrame settings. * These settings are not related to the video and audio output settings.				
(2)	Type	This is the AVI InfoFrame type setting.		
		2	* “Type” is displayed only. It cannot be changed.	
(3)	Version	This is the AVI InfoFrame version setting.		
		1	Version 1	
		2	Version 2	
(4)	Scan Info	This sets the Scan Information. (It sets whether scan processing is required for the transmitted images.)		
		0	No Data	No Data
		1	Overscanned	Composed for an overscanned display.
		2	Underscanned	Composed for an underscanned display.
(5)	Bar Info	This sets the Bar Info (valid or invalid for the Bar Information described later).		
		0	Data Not Valid	Bar Data not valid
		1	Vertical Valid	Vert.Bar info valid
		2	Horizontal Valid	Horiz.Bar info Valid
		3	Vert. & Horiz. Valid	Vert. And Horiz. Bar Info valid
(6)	ActiveF Info	This sets the Active Format Information Present (valid or invalid for the Active Format Aspect Ratio described later).		
		0	No Data	No Data
		1	Valid	Active Format Information Valid
(7)	RGB or YCbCr	This is the RGB or YCbCr (color space of transmitted images) setting.		
		0	RGB	
		1	YCbCr 4:2:2	
		2	YCbCr 4:4:4	
(8)	ActiveF Aspect	This is the Active Format Aspect Ratio (aspect ratio of the video parts (excluding Bar of letter box, etc.)) setting.		
		0	Same Picture	
		1	4:3(center)	
		2	16:9(center)	
		3	14:9(center)	
		4	Box 16:9(top)	
		5	Box 14:9(top)	
		6	Box > 16:9(center)	
		7	4:3(14:9 center)	
		8	16:9(14:9 center)	
		9	16:9(4:3 center)	

(9)	Picture Aspect	This is the Picture Aspect Ratio (aspect ratio of the video parts including Bar of letter box, etc.) setting.	
		0	No Data No Data
		1	4:3 4:3
		2	16:9 16:9
(10)	Scaling	This is the Non-Uniform Picture Scaling (direction in which transmitted images have been scaled) setting.	
		0	No Known No Known non-uniform Scaling
		1	Horizontal Picture has been scaled horizontally
		2	Vertical Picture has been scaled vertically
		3	Horiz. & Vert. Picture has been scaled horizontally and vertically
(11)	Colorimetry	This is the Colorimetry (the standard whose coefficients were used for conversion into color difference signals) setting.	
		0	No Data No Data
		1	SMPTE170M ITU601 SMPTE170M/ITU601
		2	ITU709 ITU709
		3	Extended Valid Extended Colorimetry Information Valid
(12)	Video Code	This is the Video Format Identification Code setting.	
		0 - 64	For details on the timings indicated by Code, refer to CEA-861-E.
(13)	Repetition	1 - 10	This is the Pixel Repetition Factor setting.
(14)	Top Bar	0 - 65535	This is the Line Number of End of Top Bar setting. (Letter box top bar size setting)
(15)	Bottom Bar	0 - 65535	This is the Line Number of Start of Bottom Bar setting. (Letter box bottom bar size setting)
(16)	Left Bar	0 - 65535	This is the Pixel Number of End of Left Bar setting. (Pillar box left bar size setting)
(17)	Right Bar	0 - 65535	This is the Pixel Number of Start of Right Bar setting. (Pillar box right bar size setting)
(18)	RGB Quan.Range	This is the RGB Quantization Range setting (quantization range when RGB images apply to Colorimetry).	
		0	Default
		1	Limited Range
		2	Full Range
(19)	YCC Quan.Range	This is the YCC Quantization Range setting (quantization range when YCC images apply to Colorimetry).	
		0	Limited Range
		1	Full Range
(20)	Extended Colo.	This is the Extended Colorimetry setting. (This is referenced when Extended Valid has been set as the Colorimetry setting.)	
		0	XvYCC601
		1	XvYCC709
		2	sYCC601
		3	AdobeYCC601
		4	AdobeRGB

(21)	IT content	This is the IT Content (whether the transmitted images are IT content) setting.			
		0	No Data		
		1	IT content		
(22)	IT Content Type	This is the IT Content Type setting.			
		0	Graphics		
		1	Photo		
		2	Cinema		
		3	Game		
(23)	Checksum	This is the checksum setting.			
		0	Auto	The value is calculated automatically.	
		1	Manual	The user sets the value.	
			00h - 0FFh		
(24)	Length		0 - 15 [byte]	This is the AVI InfoFrame length setting. (It does not include Packet Header or Checksum.) The default value is 13 (bytes).	*1
(25)	Data Byte 14, 15		00h - 0FFh	This sets the values of Data Byte 14 and 15.	

*1 Checksum, Length, and Data Byte 14,15 are optional. This setting is only valid when the license is registered.

When it is not registered, Checksum is fixed to Auto and Length is fixed to 13 bytes.

■ SPD InfoFrame

“SPD InfoFrame” stands for Source Product Description InfoFrame. The information of the transmission device is stored in it, and sent.

(1)	OFF/ON	This setting determines whether the SPD InfoFrame is to be sent.	
		0	OFF The SPD InfoFrame is not sent.
		1	ON The SPD InfoFrame is sent.
The following are the SPD InfoFrame settings. * These settings are not related to the video and audio output settings.			
(2)	Type	This is the SPD InfoFrame type setting.	
		3	* “Type” is displayed only. It cannot be changed.
(3)	Version	This is the SPD InfoFrame version setting.	
		1	Version1 * “Version” is displayed only. It cannot be changed.
(4)	Vendor Name	This is the Vendor Name (name of the transmission device vendor) setting.	
		Maximum 8 characters	For details on the input method, refer to steps ② and beyond in “2.4 Changing program names”.
(5)	Product Description	This the Product Description (name of the transmission device (model name, etc.)) setting.	
		Maximum 16 characters	For details on the input method, refer to steps ② and beyond in “2.4 Changing program names”.
(6)	Source Device	This is the Source Device Information (the type of transmission device) setting.	
		0	Unknown
		1	Digital STB
		2	DVD Player
		3	D-VHS
		4	HDD Video recorder
		5	DVC
		6	DSC
		7	Video CD
		8	Game
		9	PC general
		A	Blue-Ray Disc
		B	Super Audio CD
		C	HD DVD
D	PMP		

■ Audio InfoFrame

The transmission audio information is stored in the Audio InfoFrame, and sent.

(1)	OFF/ON	This setting determines whether the Audio InfoFrame is to be sent.		
		0	OFF	The Audio InfoFrame is not sent.
		1	ON	The Audio InfoFrame is sent.
The following are the Audio InfoFrame settings. * These settings are not related to the video and audio output settings.				
(2)	Type	This is the Audio InfoFrame type setting.		
		4	* "Type" is displayed only. It cannot be changed.	
(3)	Version	This is the Audio InfoFrame version setting.		
		1	* "Version" is displayed only. It cannot be changed.	
(4)	Coding Type	This is the Audio Coding Type setting.		
		0	Refer StreamHeader	Refer to Stream Header
		1	IEC60958 PCM	
		2	AC-3	
		3	MPEG1(Layers 1&2)	
		4	MP3(MPEG1 Layer 3)	
		5	MPEG2(multi ch.)	
		6	AAC	
		7	DTS	
		8	ATRAC	
		9	One Bit Audio	
		A	Dolby Digital +	
		B	DTS-HD	
		C	MLP	
D	DST			
E	WMA Pro			
F	Refer Extension			
(5)	Coding Ext Type	This is the Audio Coding Ext Type setting.		
		0	HE-AAC	
		1	HE-AACv2	
		2	MPEG Surround	
(6)	Channel Count	This is the Audio Channel Count setting.		
		0	Refer StreamHeader	Refer to Stream Header
		1	2ch	
		↓	↓	
		7	8ch	
(7)	Sampling Freq	This is the Sampling Frequency setting.		
		0	Refer StreamHeader	Refer to Stream Header
		1	32kHz	
		2	44.1kHz	
		3	48kHz	
		4	88.2kHz	
		5	96kHz	
		6	176.4kHz	
		7	192kHz	

(8)	Sample Size	This is the Sample Size setting.								
		0	Refer StreamHeader	Refer to Stream Header						
		1	16bit							
		2	20bit							
		3	24bit							
(9)	Speaker Placement	This is the Channel/Speaker Allocation setting.								
			8ch	7ch	6ch	5ch	4ch	3ch	2ch	1ch
		0		-	-	-	-	-	FR	FL
		1		-	-	-	-	LFE	FR	FL
		2		-	-	-	FC	-	FR	FL
		3		-	-	-	FC	LFE	FR	FL
		4		-	-	RC	-	-	FR	FL
		5		-	-	RC	-	LFE	FR	FL
		6		-	-	RC	FC	-	FR	FL
		7		-	-	RC	FC	LFE	FR	FL
		8		-	RR	RL	-	-	FR	FL
		9		-	RR	RL	-	LFE	FR	FL
		10		-	RR	RL	FC	-	FR	FL
		11		-	RR	RL	FC	LFE	FR	FL
		12		RC	RR	RL	-	-	FR	FL
		13		RC	RR	RL	-	LFE	FR	FL
		14		RC	RR	RL	FC	-	FR	FL
		15		RC	RR	RL	FC	LFE	FR	FL
		16	RRC	RLC	RR	RL	-	-	FR	FL
		17	RRC	RLC	RR	RL	-	LFE	FR	FL
		18	RRC	RLC	RR	RL	FC	-	FR	FL
		19	RRC	RLC	RR	RL	FC	LFE	FR	FL
		20	FRC	FLC	-	-	-	-	FR	FL
		21	FRC	FLC	-	-	-	LFE	FR	FL
		22	FRC	FLC	-	-	FC	-	FR	FL
		23	FRC	FLC	-	-	FC	LFE	FR	FL
		24	FRC	FLC	-	RC	-	-	FR	FL
		25	FRC	FLC	-	RC	-	LFE	FR	FL
		26	FRC	FLC	-	RC	FC	-	FR	FL
		27	FRC	FLC	-	RC	FC	LFE	FR	FL
		28	FRC	FLC	RR	RL	-	-	FR	FL
		29	FRC	FLC	RR	RL	-	LFE	FR	FL
		30	FRC	FLC	RR	RL	FC	-	FR	FL
31	FRC	FLC	RR	RL	FC	LFE	FR	FL		
(10)	Level Shift Value	This is the Level Shift Value setting.								
		0 -15	The decibel (dB) level is set here.							
(11)	Down-mix	This is the Down-mix Inhibit Flag setting.								
		0	Permitted / No Info			Permitted or no information about any assertion of this				
		1	Prohibited			Prohibited				

(12)	LFE PB Level	This is the LFE Playback Level setting.	
		0	Undnown
		1	0dB Playback
		2	+10dB Playback

■ MPEG InfoFrame

If the original source of the data prior to its conversion to HDMI is MPEG data, its information is stored in MPEG InfoFrame, and sent.

(1)	OFF/ON	This setting determines whether the MPEG InfoFrame is to be sent.		
		0	OFF	The MPEG InfoFrame is not sent.
		1	ON	The MPEG InfoFrame is sent.
The following are the MPEG InfoFrame settings. * These settings are not related to the video and audio output settings.				
(2)	Type	This is the MPEG InfoFrame type setting.		
		5	* "Type" is displayed only. It cannot be changed.	
(3)	Version	This is the MPEG InfoFrame version setting.		
		1	* "Version" is displayed only. It cannot be changed.	
(4)	Bit Rate	0 – 4294M 967k 295Hz	This is the MPEG bit rate setting.	
(5)	Field Repeat	This is the Field Repeat setting.		
		0	New Field(picture)	
		1	Repeated Field	
(6)	Frame	This is the MPEG Frame setting.		
		0	Unknown(No Data)	
		1	I Picture	
		2	B Picture	
		3	P Picture	

■ NTSC VBI InfoFrame

The vertical blanking interval (VBI) information is stored in NTSC VBI InfoFrame, and sent.

(1)	OFF/ON	This setting determines whether the NTSC VBI InfoFrame is to be sent.		
		0	OFF	The NTSC VBI InfoFrame is not sent.
		1	ON	The NTSC VBI InfoFrame is sent.
The following are the NTSC VBI InfoFrame settings. * These settings are not related to the video and audio output settings.				
(2)	Type	This is the NTSC VBI InfoFrame type setting.		
		6	* "Type" is displayed only. It cannot be changed.	
(3)	Version	This is the NTSC VBI InfoFrame version setting.		
		1	* "Version" is displayed only. It cannot be changed.	
(4)	PES Length	0 – 27	This sets the PES length.	
(5)	PES 1-5/6-10/11-15/16-20/21-25/26-27	00 – FF	This sets the PES data.	

■ ACP Packet

“ACP Packet” stands for Audio Content Protection Packet. The copyright protection information added to DVD-Audio and Super Audio CD contents is stored in it, and sent.

(1)	OFF/ON	This setting determines whether the ACP Packet is to be sent.			
		0	OFF	The ACP Packet is not sent.	
		1	ON	The ACP Packet is sent.	
The following are the ACP Packet settings. * These settings are not related to the video and audio output settings.					
(2)	ACP_Type	This is the ACP Type setting.			
		0	Generic Audio		
		1	IEC60958 Audio		
		2	DVD-Audio		
		3	Super Audio CD		
(3)	DVD-Audio Type	This is the DVD-Audio_Type_Dependent_Generation setting.			
		0	* This must be set to 1 when “DVD-Audio” has been selected as		
		1	the ACP_Type setting.		
(4)	CopyPermission	Audio_Copy_permission (the information concerning the permission to copy DVD-Audio content) is set here.			
		0	Copy Freely		
		1	(reserved)		
		2	Specify CopyNumber		
		3	No More Copies		
(5)	Copy_Number	Audio_copy_number (the number of times DVD-Audio content may be copied) is set here.			
		0	1 copies		
		1	2 copies		
		2	4 copies		
		3	6 copies		
		4	8 copies		
		5	10 copies		
		6	3 copies		
		7	Copy OneGeneration		
(6)	Quality	Audio_Quality (the quality in which DVD-Audio content is to be copied) is set here.			
			Channels	Sampling frequency	Bit width
		0	2 channels or less	48kHz or less	16 bits or less
		1	2 channels or less	No restrictions	No restrictions
		2	No restrictions	No restrictions	No restrictions
		3	No restrictions	48kHz or less	16 bits or less
(7)	Transaction	Audio_Transaction (whether the status of optional access control is contained in the DVD-Audio data) is set here.			
		0	Not Present	not present	
		1	(reserved)	Reserved for copyright management system use	

(8)	Count_A	Count_A (the number of times the Super Audio CD contents can be copied by an approved secure recorder) is set here.	
		0	Prohibited
		1 - 254	Allowed from 1 to 254 times
		255	No restrictions
(9)	Count_S	Count_S (the number of times the Super Audio CD contents can be copied by a secure recorder) is set here.	
		0	Prohibited
		1 - 254	Allowed from 1 to 254 times
		255	No restrictions
(10)	Count_U	Count_U (the number of times the Super Audio CD contents can be copied by an unlisted recorder) is set here.	
		0	Prohibited
		1 - 254	Allowed from 1 to 254 times
		255	No restrictions
(11)	CCI_Flags_Q_A	CCI_Flags_Q_A (the quality in which Super Audio CD contents are to be copied by an approved secure recorder) is set here.	
		0	CD Quality
		1	Unlimited DSD Quality
(12)	CCI_Flags_Q_S	CCI_Flags_Q_S (the quality in which Super Audio CD contents are to be copied by a secure recorder) is set here.	
		0	CD Quality
		1	Unlimited DSD Quality
(13)	CCI_Flags_Q_U	CCI_Flags_Q_U (the quality in which Super Audio CD contents are to be copied by an unlisted recorder) is set here.	
		0	CD Quality
		1	Unlimited DSD Quality
(14)	CCI_Flags_Move_A	CCI_Flags_Move_A (whether copying of Super Audio CD contents by individual track onto an approved secure recorder is allowed) is set here.	
		0	Not Allowed
		1	Allowed
(15)	CCI_Flags_Move_S	CCI_Flags_Move_S (whether copying of Super Audio CD contents by individual track onto a secure recorder is allowed) is set here.	
		0	Not Allowed
		1	Allowed
(16)	CCI_Flags_Move_U	CCI_Flags_Move_U (whether copying of Super Audio CD contents by individual track onto an unlisted recorder is allowed) is set here.	
		0	Not Allowed
		1	Allowed

■ ISRC Packet

“ISRC Packet” stands for International Standard Recording Code Packet. The sound source identification codes and other information are stored in it, and sent.

(1)	OFF/ON ISRC1	This setting determines whether the ISRC1 Packet is to be sent.		
		0	OFF	The ISRC1 Packet is not sent.
		1	ON	The ISRC1 Packet is sent.
(2)	OFF/ON ISRC2	This setting determines whether the ISRC2 Packet is to be sent.		
		0	OFF	The ISRC2 Packet is not sent.
		1	ON	The ISRC2 Packet is sent.
The following are the ISRC Packet settings. * These settings are not related to the video and audio output settings.				
(3)	ISRC_Cont	This is the ISRC Continued setting.		
		0	ISRC2 is not sent.	
		1	ISRC2 is sent.	
(4)	ISRC_Valid	This is the ISRC Valid setting. (ISRC Valid indicates whether data has been set to the ISRC_Status in the ISRC Packet and whether the UPC_EAN_ISRC_XX field is valid.)		
		0	Invalid	
		1	Valid	
(5)	ISRC_Status	This is the ISRC_Status setting. (ISRC_Status indicates the position on the current track.)		
		0	Starting	
		1	Intermediate	
		2	Ending	
(6)	Validity Info	This is the Validity information setting. (This indicates whether the ISRC and UPC/EAN data is valid or invalid.)		
		0	Vo Validity	
		1	ISRC	
		2	UPC/EAN	
		3	UPC/EAN and ISRC	
(7)	Catalogue Code	This is the Catalogue Code (UPC/EAN #1 - 13) setting.		
		Number consisting of 13 digits		
(8)	Country Code	This is the Country Code (ISRC #1 - 2) setting.		
		Character string consisting of 2 letters		
(9)	First Owner Code	This is the First Owner Code (ISRC #3 - 5) setting.		
		Character string consisting of 3 alphanumerics		
(10)	Year of Rec. Code	This is the Year-of-recording code (ISRC #6 - 7) setting.		
		Number consisting of 2 digits		
(11)	Recording-item Code	This is the Recording code/Recording-item code (ISRC #8 -12) setting.		
		Number consisting of 5 digits		

■ Gamut Metadata Packet

If the transmission images have been sent by xvYCC, their color space information (range, etc.) is stored in the Gamut Metadata Packet, and sent.

(1)	OFF/ON	This setting determines whether the Gamut Metadata Packet is to be sent.	
		0	OFF The Gamut Metadata Packet is not sent.
		1	ON The Gamut Metadata Packet is sent.
The following are the Gamut Metadata Packet settings. * These settings are not related to the video and audio output settings.			
(2)	Next-Field	This is the Next_Field setting. (This indicates whether GBD (Gamut Boundary Description) sent in this Gamut Metadata Packet is applicable to the next video field.)	
		0	Not applicable
		1	Applicable
(3)	No_Current_GBD	This is the No_Current_GBD setting. (This indicates whether GBD sent in this Gamut Metadata Packet is valid or invalid.)	
		0	Invalid
		1	Valid
(4)	GBD_Profile	This is the GBD_Profile setting.	
		0	P0
		1	P1
		2	P2
		3	P3
(5)	AffectedGamutSeqNum	0 - 15	This is the Affected_Gamut_Seq_Num setting. (This indicates the number of GBD (Gamut boundary description) sent in this Gamut Metadata Packet.)
(6)	Current_GamutSeqNum	0 - 15	This is the Current_Gamut_Seq_Num setting. (This indicates the number of the GBD that applies to the current video field.)
(7)	Packet_Seq	This is the Packet_Seq setting. (This identifies what this Gamut Metadata Packet is in the Gamut Metadata Packet Sequence.)	
		0	Intermediate Intermediate packet in sequence
		1	First First packet in sequence
		2	Last Last packet in sequence
		3	Only Only packet in sequence
(8)	Format_Flag	This is the Format_Flag setting. (This indicates the format of the GBD sent.)	
		0	Vertices/Facets Vertices/Facets description
		1	Range Range description
(9)	Colorprecision	This is the GBD_Color_Precision setting. (This indicates the precision (bit width) of the vertex and range data in GBD.)	
		0	8bit
		1	10bit
		2	12bit

(10)	Color_Space	This is the GBD_Color_Space setting.		
		■ When Vertices/facets (0) has been selected as the Format_Flag setting		
		0	ITU-R BT.709	ITU-R BT.709 (using RGB)
		1	xvYCC601	xvYCC601 (IEC61966-2-4-SD) (using YCbCr)
		2	xvYCC709	xvYCC709 (IEC61966-2-4-HD) (using YCbCr)
		3	XYZ	XYZ
		■ When Range (1) has been selected as the Format_Flag setting		
		0	Reserved	Reserved
		1	xvYCC601	RGB expression of xvYCC601 coordinates
		2	xvYCC709	RGB expression of xvYCC709 coordinates
3	Reserved	Reserved		
(11)	Number_Vertices	This is the Number_Vertices setting.		
		* This is displayed only when Vertices/Facets (0) has been selected as the Format_Flag setting.		
		Colorprecision =		
		8bit : 4 - 8		
		10bit : 4 - 6		
		12bit : 4 - 5		
(12)	Packed_GBD_Vertices_Data	This is the Packed_GBD_Vertices_Data setting.		
		* This is displayed only when Vertices/Facets (0) has been selected as the Format_Flag setting.		
		Data1	Colorprecision = 8bit : 0 - 255 10bit: 0 - 1023 12bit: 0 - 4095	The Y, Cb and Cr values of the colors (Data) are set here.
		Data2		
		Data3		
Data4				
(13)	Packed_Range_Data	This is the Packed_Range_Data setting.		
		* This is displayed only when Range (1) has been selected as the Format_Flag setting.		
		Min_Red	Colorprecision = 8bit : -3.96875 - +3.96875 10bit: -3.9921875 - +3.9921875 12bit: -3.998046875 - +3.998046875	The Range Data of the colors (Red, Green and Blue) are set here.
		Max_Red		
		Min_Green		
		Max_Green		
		Min_Blue		
Max_Blue				

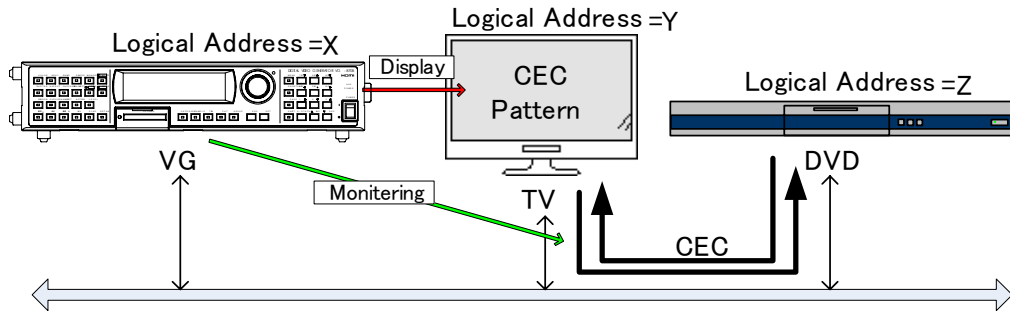
5.2.4 CEC

HDMI can send and receive the CEC commands, and display them on the screen.

The CEC function has three operation modes.

a) Monitor mode (Monitor)

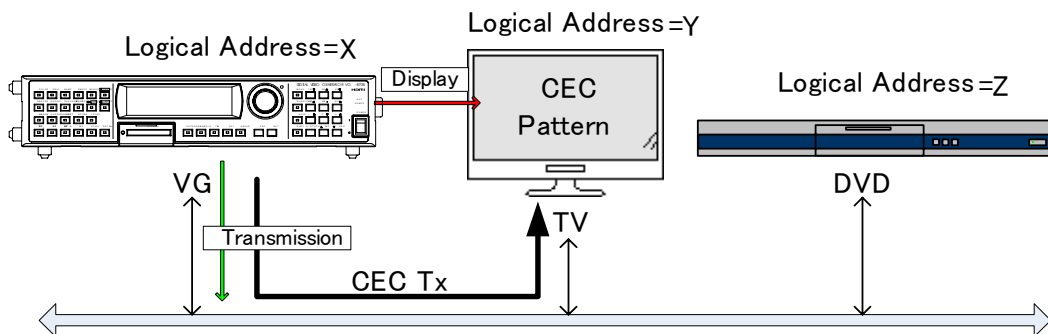
In this mode, the sending and receiving of the commands generated between the equipment connected to CEC are displayed on the screen.



Monitor Mode

b) Transmission mode (Transmission)

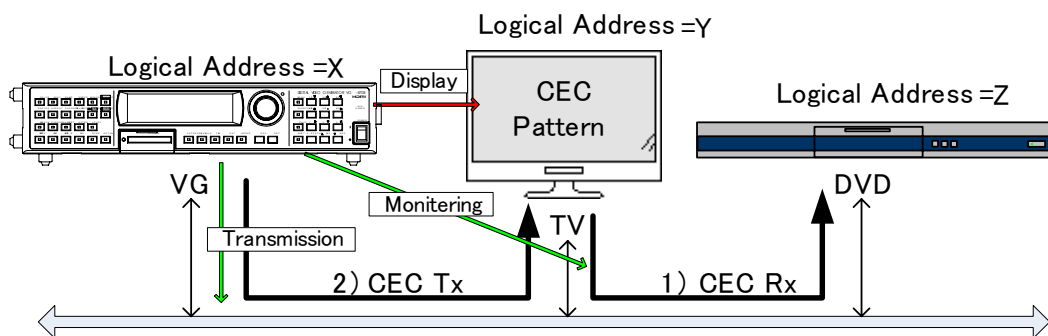
In this mode, the commands are sent from the generator to the designated logical address.



Transmission Mode

c) Response mode (Response)

In this mode, the commands are sent as responses when the designated commands have been transmitted.



Response Mode

CEC display method














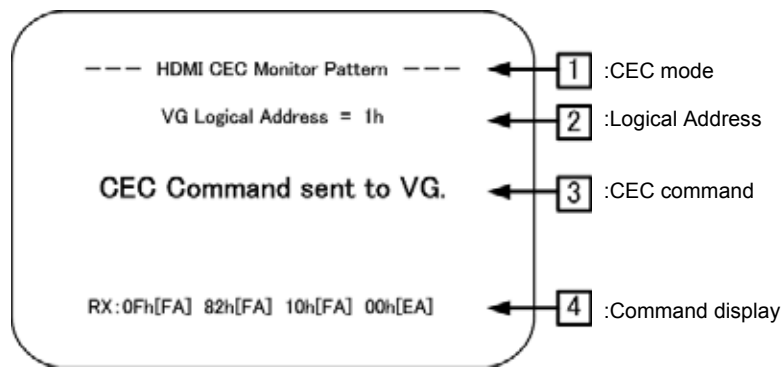
①		
②	<p>Selecting CEC</p> <p>Select CEC using  or  , and then press .</p>	
③	<p>Advanced setting: Selecting EDIT</p> <p>Select EDIT using  or  , and then press .</p> <p>Alternatively, select EDIT using .</p> <p>After editing the setting items, select EXECUTE and press the SET key to enable the setting.</p>	

Table of CEC setting items

(1)	VG Logical Address	This sets the logical address of the VG generator. (0 to F)	
(2)	Port(0-1)	This sets the port used for CEC execution.	
		0 HDMI1	CEC is executed using HDMI1.
		1 HDMI2	CEC is executed using HDMI2.
		2 HDMI3	CEC is executed using HDMI3.
3 HDMI4	CEC is executed using HDMI4.		
(3)	Mode(0-2)	The operating mode is set here.	
		0 Monitor	The CEC commands are monitored.
		1 Transmission	The CEC commands set using items (4) to (7) are transmitted.
2 Response	When commands have been received under conditions (8) to (12), the CEC commands set using items (4) to (7) are transmitted.		
Set here the CEC commands to be sent from the VG-882.			
The following items are set when Transmission or Response has been selected as the Mode setting.			
(4)	Tx Destination	- This sets the address of the destination (transmission destination of CEC commands).	
(5)	Tx Opcode	- This sets the OPCode.	
(6)	Tx Data Length	0-14 This sets the length of the Tx data .	
(7)	Tx Data [H] 1-6 /7-12/13-14	- This sets the CEC command data.	
Set here the CEC commands to be received from the VG-882.			
The following items are set when Response has been selected as the Mode setting.			
(8)	Rx Initiator	0-E This sets the address of the initiator.	
(9)	Rx Destination	0-F This sets the address of the destination . This can also be set using a logical address other than the one set using item (1).	
(10)	Rx Opcode	- This sets the OPCode.	
(11)	Rx Data Length	0-14 This sets the length of the Rx data .	
(12)	Rx Data [H] 1-6 /7-12/13-14	- This sets the CEC command data.	



1	CEC mode	<p>“HDMI CEC Monitor Pattern”: Monitor mode</p> <p>“HDMI CEC Transmission Pattern”: Command transmission mode</p> <p>“HDMI CEC Response Pattern”: Command response mode</p>
2	Logical Address	VG logical address that has been set
3	Display of CEC command transmission/reception status	<p>“CEC Command send to Device Xh”</p> <p>: The command has been transmitted to the unit (Destination Logical Address Xh) that has been set.</p> <p>“CEC Command sent to VG”</p> <p>: The generator has received a command. (Command destined to the VG logical address that has been set.)</p> <p>“CEC Command sent to Other Devices”</p> <p>: A command has been transferred to a unit other than the generator. (A command to a VG logical address other than the one that has been set)</p> <p>“Waiting Command”</p> <p>: Command wait status (when a command is not transmitted or received for at least 5 seconds)</p>
4	Command display	<p>When the corresponding command has been transmitted or received, it is displayed.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>XXh[FA] XXh[FA] XXh[FA] XXh[EA]</p> </div> <ul style="list-style-type: none"> Acknowledge A: Provided N: Not provided End of Message E: Yes F: No Data portion <p>TX is a command that is transmitted by the generator; RX is a command that is received by the generator.</p> <p>* Commands sent to the destination address of Fh are judged to be broadcast messages and are displayed using the polarity that is the reverse of regular ACK polarity.</p>

5.2.5 HDCP (High-bandwidth Digital Content Protection)

HDCP setting procedure






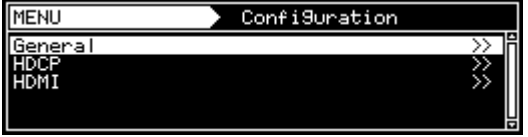




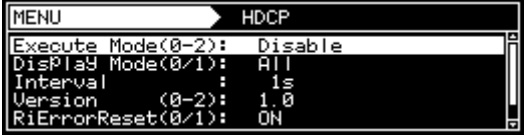
①	<p>Select Configuration using  →  or  INC  DEC, and then press .</p>	
②	<p>Select HDCP using  or  INC  DEC, and then press .</p>	

Table of HDCP setting items

(1)	Execute Mode (0-2)	<p>This sets the HDCP execution mode.</p> <table border="1"> <tr> <td>0</td> <td>Disable</td> <td>HDCP is not executed.</td> </tr> <tr> <td>1</td> <td>Enable</td> <td>HDCP is executed.</td> </tr> <tr> <td>2</td> <td>Program</td> <td>This sets whether to execute HDCP for each program.</td> </tr> </table>	0	Disable	HDCP is not executed.	1	Enable	HDCP is executed.	2	Program	This sets whether to execute HDCP for each program.
0	Disable	HDCP is not executed.									
1	Enable	HDCP is executed.									
2	Program	This sets whether to execute HDCP for each program.									
(2)	Display Mode(0-1)	<p>This sets the display mode of the HDCP authentication screen.</p> <table border="1"> <tr> <td>0</td> <td>All</td> <td>All authentication values are displayed.</td> </tr> <tr> <td>1</td> <td>NG Only</td> <td>The authentication value is displayed only when the status is NG.</td> </tr> </table>	0	All	All authentication values are displayed.	1	NG Only	The authentication value is displayed only when the status is NG.			
0	All	All authentication values are displayed.									
1	NG Only	The authentication value is displayed only when the status is NG.									
(3)	Interval	<p>This sets the interval for performing authentication.</p> <table border="1"> <tr> <td>1s-10s</td> <td></td> <td>Set from 1 to 10 seconds.</td> </tr> </table>	1s-10s		Set from 1 to 10 seconds.						
1s-10s		Set from 1 to 10 seconds.									
(4)	Version(0-2)	<p>This sets the HDCP version.</p> <table border="1"> <tr> <td>0</td> <td>1.0</td> <td>Operates as HDCP 1.0.</td> </tr> <tr> <td>1</td> <td>1.1 / 1.2</td> <td>Operates as HDCP 1.1/1.2.*1</td> </tr> <tr> <td>2</td> <td>EDID Check</td> <td>The version is determined by checking the EDID.</td> </tr> </table>	0	1.0	Operates as HDCP 1.0.	1	1.1 / 1.2	Operates as HDCP 1.1/1.2.*1	2	EDID Check	The version is determined by checking the EDID.
0	1.0	Operates as HDCP 1.0.									
1	1.1 / 1.2	Operates as HDCP 1.1/1.2.*1									
2	EDID Check	The version is determined by checking the EDID.									
(5)	RiErrorReset(0/1)	<p>This sets whether to perform authentication again when an HDCP authentication error occurs.</p> <table border="1"> <tr> <td>0</td> <td>OFF</td> <td>Do not perform authentication again when an error occurs.</td> </tr> <tr> <td>1</td> <td>ON</td> <td>Perform authentication again when an error occurs.</td> </tr> </table>	0	OFF	Do not perform authentication again when an error occurs.	1	ON	Perform authentication again when an error occurs.			
0	OFF	Do not perform authentication again when an error occurs.									
1	ON	Perform authentication again when an error occurs.									
(6)	FIFO Ready(0-8)	<p>This sets the restriction value of the wait time until "FIFO Ready" is returned when the connection device is a repeater.</p> <table border="1"> <tr> <td>0</td> <td>OFF</td> <td>30 seconds</td> </tr> <tr> <td>1-7</td> <td>600ms~4,200ms</td> <td>Increases in increments of 600 ms.</td> </tr> <tr> <td>8</td> <td>5,000ms</td> <td>5 seconds</td> </tr> </table>	0	OFF	30 seconds	1-7	600ms~4,200ms	Increases in increments of 600 ms.	8	5,000ms	5 seconds
0	OFF	30 seconds									
1-7	600ms~4,200ms	Increases in increments of 600 ms.									
8	5,000ms	5 seconds									

*1 Advance Cipher/Enhanced Link Verification is not supported.

Executing HDCP

HDCP can be executed with any of the following three operations.








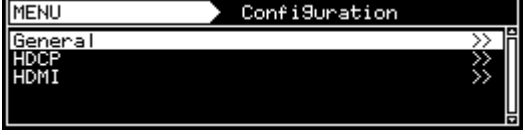




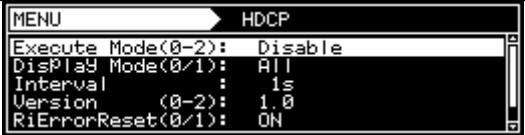





- Enable or disable HDCP setting the custom key to ON or OFF
- Enable or disable HDCP using the configuration
- Enable or disable HDCP for each program

a) Enabling or disabling HDCP setting the custom key to ON or OFF

When the program is changed, this setting is canceled and either **b)** or **c)** below takes effect.














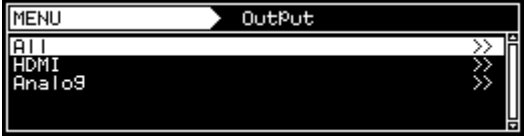




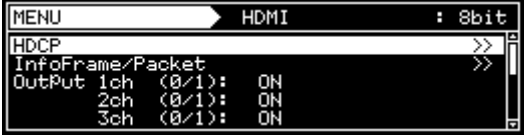





①		HDCP is executed and the authentication results screen is displayed on the test pattern.
---	---	--












b) Enabling or disabling HDCP using the configuration

①	Select Configuration using  →  or  INC  DEC or   , and then press  .										
②	Select HDCP using  or  INC  DEC , and then press  .										
③	Select Execute Mode using  or  INC  DEC  , and then press  .	This sets the HDCP execution mode. <table border="1" style="width: 100%;"> <tr> <td style="width: 5%;">0</td> <td style="width: 20%;">Disable</td> <td>HDCP is not executed.</td> </tr> <tr> <td>1</td> <td>Enable</td> <td>HDCP is executed.</td> </tr> <tr> <td>2</td> <td>Program</td> <td>This sets whether to execute HDCP for each program.</td> </tr> </table>	0	Disable	HDCP is not executed.	1	Enable	HDCP is executed.	2	Program	This sets whether to execute HDCP for each program.
0	Disable	HDCP is not executed.									
1	Enable	HDCP is executed.									
2	Program	This sets whether to execute HDCP for each program.									

c) Enabling or disabling HDCP for each program

* This setting takes effect when **Program** has been selected for the HDCP execution mode of “**b) Enabling or disabling HDCP using the configuration**” above.

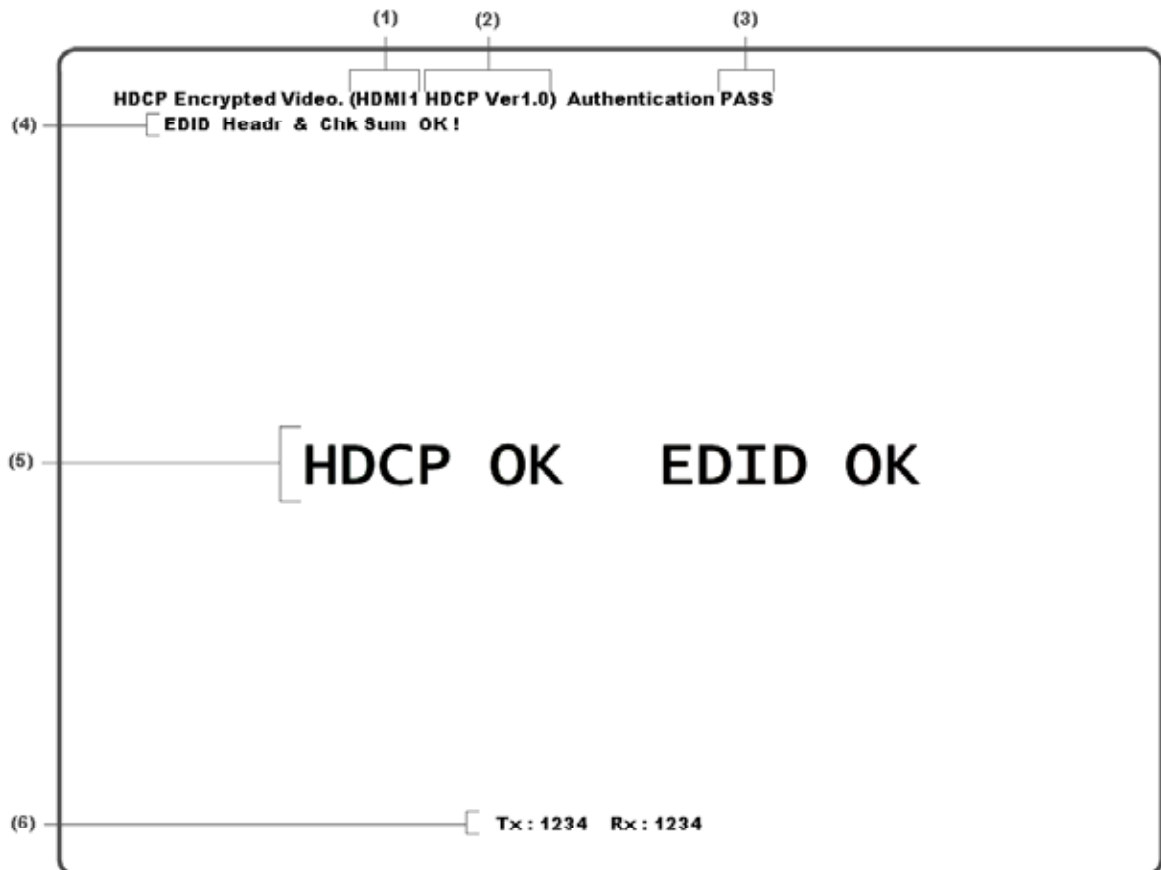
①	Select Program Edit using  →  or  INC  DEC or   , and then press  .	
②	Select Output (TIM) using  or  INC  DEC  , and then press  .	
③	Select HDMI using  or  INC  DEC , and then press  .	
④	Select HDCP using  or  INC  DEC , and then press  .	

⑤	<p>Select the items using  or  , and then press .</p>	<p>Execute Enable(0/1) This sets whether to execute HDCP. All video interfaces for which HDCP can be executed are affected by this setting. HDCP is also executed at the same time.</p> <table border="1"> <tr> <td>0</td> <td>Disable</td> <td>HDCP is not executed.</td> </tr> <tr> <td>1</td> <td>Enable</td> <td>HDCP is executed.</td> </tr> </table>	0	Disable	HDCP is not executed.	1	Enable	HDCP is executed.								
	0	Disable	HDCP is not executed.													
1	Enable	HDCP is executed.														
<p>Inputting the parameters</p> <p>Select the parameters using  or , , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to , and then press .</p>	<p>Display Select(0-7) The HDCP authentication status can be displayed by only one video interface.</p> <table border="1"> <tr> <td>0</td> <td>Disable</td> <td>Do not display the status.</td> </tr> <tr> <td>1</td> <td>HDMI1</td> <td>Display the status of channel 1 of the HDMI unit.</td> </tr> <tr> <td>2</td> <td>HDMI2</td> <td>Display the status of channel 2 of the HDMI unit.</td> </tr> <tr> <td>3</td> <td>HDMI3</td> <td>Display the status of channel 3 of the HDMI unit.</td> </tr> <tr> <td>4</td> <td>HDMI4</td> <td>Display the status of channel 4 of the HDMI unit.</td> </tr> </table>	0	Disable	Do not display the status.	1	HDMI1	Display the status of channel 1 of the HDMI unit.	2	HDMI2	Display the status of channel 2 of the HDMI unit.	3	HDMI3	Display the status of channel 3 of the HDMI unit.	4	HDMI4	Display the status of channel 4 of the HDMI unit.
0	Disable	Do not display the status.														
1	HDMI1	Display the status of channel 1 of the HDMI unit.														
2	HDMI2	Display the status of channel 2 of the HDMI unit.														
3	HDMI3	Display the status of channel 3 of the HDMI unit.														
4	HDMI4	Display the status of channel 4 of the HDMI unit.														

HDCP execution results display

During execution of HDCP, the authentication results and other information is displayed on the screen.
(If another pattern is being displayed, the information is displayed on top of that pattern.)

- ① When HDCP has been selected for the NAME/LIST pattern
For details of the screen and display content, refer to “4.13.3 HDCP”.
- ② Otherwise
The following screen is displayed.



Details of the displayed information are given below.

HDCP authentication screen (simplified) display data

(1)	This displays the port selected in c) Display Select of “ 5.2.5 Executing HDCP ”.
(2)	This displays the HDCP version. (When HDCP authentication has failed, an error message is displayed.)
(3)	The HDCP authentication result (success: PASS, fail: NG) is displayed.
(4)	This displays the EDID header and checksum check result. (The results are displayed only when AUTO has been selected as the HDMI or DVI setting in “ 5.2.2 HDMI setting procedure ” or when EDID Check has been selected as the Version setting in “ 5.2.5 HDCP setting items (4) ”.)
(5)	This displays the HDCP authentication status (OK/NG) and the EDID header and checksum check result (OK/NG). (The EDID check result is displayed only when AUTO has been selected as the HDMI or DVI setting in “ 5.2.2 HDMI setting procedure ” or when EDID Check has been selected as the Version setting in “ 5.2.5 HDCP setting items (4) ”.)
(6)	This displays the Synchronization Verification Values, which are used for checking the validity of links. Tx is the value calculated for the transmitter; Rx is the value calculated for the receiver. This is displayed each time HDCP authentication and encryption are completed. * This item is not displayed when the HDCP display is set to DisplayPort.

5.2.6 EDID

For the advanced setting procedure, refer to “**4.13.5 EDID**”.

5.2.7 DDC/CI

For the advanced setting procedure, refer to “**4.13.6 DDC/CI**”.

5.2.8 ARC (Audio Return Channel)

This executes the Audio Return Channel function and displays patterns for related data.

A license is required. For details, contact your dealer or ASTRODESIGN Sales.

Audio Return Channel display method














<p>①</p> 	
<p>② Selecting HDMI ARC</p> <p>Select HDMI ARC using  or  INC</p> <p> DEC, and then press  SET.</p>	
<p>③ Advanced setting: Selecting EDIT</p> <p>Select EDIT using  or  INC  DEC, and then press  SET.</p> <p>Alternatively, select EDIT using  0/STATUS.</p> <p>After editing the setting items, select EXECUTE and press the SET key to enable the setting.</p>	

Table of Audio Return Channel setting items

(1)	VG Logical Address	This sets the logical address of the VG generator. (0 to F)		
(2)	Port(0/1)	This sets the port used for Audio Return Channel execution.		
		0	HDMI1	Audio Return Channel is executed using HDMI1.
		1	HDMI2	Audio Return Channel is executed using HDMI2.
		2	HDMI3	Audio Return Channel is executed using HDMI3.
(3)	Mode (0/1)	The operating mode is set here.		
		0	Use CEC	This controls the start and end of ARC using CEC commands.
		1	Audio Monitor	This starts acquisition of audio without using CEC commands.
(4)	CEC Command (0-2)	The operation is set when Use CEC(0) has been selected as the Mode setting.		
		0	Wait Request	Operations are in response to ARC start and end requests from ARC TX.
		1	Initiate	ARC starts from ARC RX(VG). (The Initiate ARC command is sent.)
(5)	Follower : Mode (0/1)	This sets the transmission destination of CEC commands.		
		0	Auto	Commands are sent to a neighboring VG device.*
		1	Manual	Commands are sent by specifying the logical address.
(6)	Follower : LogicalAddr	This sets the logical address to which commands are sent when Manual(1) has been set for Follower: Mode . (0-F)		



When **Auto(0)** has been selected for **Follower: Mode**

- To set the neighboring VG device, confirm the VG connection location by reading the physical address of the EDID connected to VG. If it is determined that the physical address cannot be acquired (because the EDID of the connection destination cannot be read or the EDID is not an HDMI EDID), an error occurs. In this case, **EXECUTE** must be performed again.
- CEC commands are sent from VG to set the neighboring VG device. When a response to a command is invalid and VG cannot set the neighboring device, an error occurs. In this case, **EXECUTE** must be performed again.
- When it is determined from the response to that command that there are two or more devices in the vicinity of VG (because the physical address is the same, etc.), the neighboring device is determined with priority given to the device with the smallest logical address.

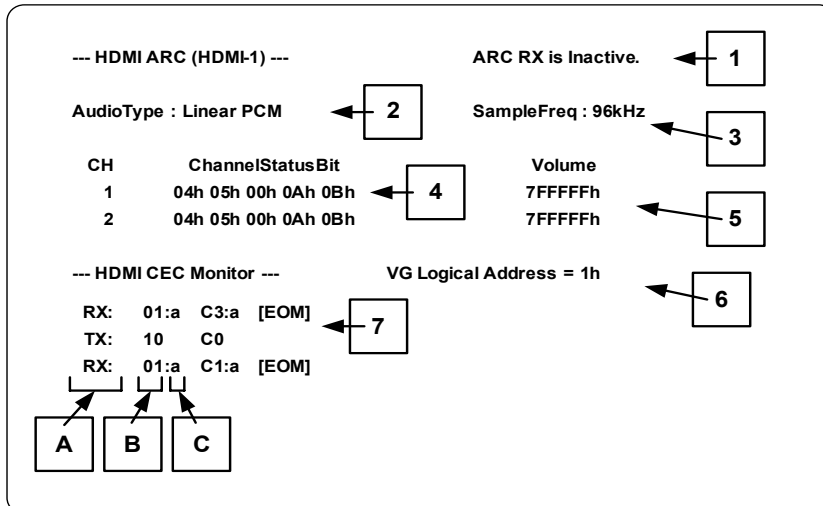
A response is sent to the following received commands when the ARC pattern is selected.

When **Auto(0)** has been selected for **Follower: Mode**

Received command		Response command	
Command	Sent from	Command	Sent to
Give Physical Address	All	Report Physical Address * Only when a physical address can be acquired from EDID * The device type of the address set with VG Logical Address is used for the device type from among the parameters. However, a separate device type is used for the following addresses. Ch : Reserved Dh : Reserved Eh : Video Processor Fh: No response	Broadcast
Request ARC Initiation	Neighboring device	Initiate ARC	Neighboring device
Request ARC Termination	Neighboring device	Terminate ARC	Neighboring device

When **Manual(1)** has been selected for **Follower: Mode**

Received command		Response command	
Command	Sent from	Command	Sent to
Request ARC Initiation	Follower: LogicalAddr setting	Initiate ARC	Follower: LogicalAddr setting
Request ARC Termination	Follower: LogicalAddr setting	Terminate ARC	Follower: LogicalAddr setting



Audio data is displayed at the top and CEC sent and received data is displayed at the bottom of the Audio Return Channel screen.

Audio data only is displayed when **Audio Monitor(1)** has been selected for **Mode**.

Table of displayed audio data items

(1)	Status display	This displays the execution status of the ARC function of VG.
	ARC RX is Inactive.	The ARC receiving function is not being executed.
	ARC RX is Active.	The ARC receiving function is being executed.
(2)	AudioType	This displays the audio type.
(3)	SampleFreq	This displays the sampling frequency.
(4)	ChannelStatusBit	This displays the channel status.
(5)	Volume	This displays the volume (peak) value. (Only Linear PCM)

* Audio data is not displayed when **Use CEC(0)** has been selected for **Mode** unless CEC commands are communicated properly.

Table of displayed CEC data items

(6)	VG Logical Address	This displays the logical address of VG.
(7)	CEC sent/received data	This displays the CEC command data sent from VG or other devices.
	(A) RX/TX	RX is a command that is received by VG; TX is a command that is transmitted by VG.
	(B) Data portion	This displays the block data (00-FF).
	(C) ACK portion	This displays the block ACK data (a: ACK present, n: ACK not present). * Only received commands are displayed.

Regarding the display items (7) above, the following information is displayed.

[E_BUS]	When an attempt was made to send a command from VG, the bus was not released; therefore, the command was not sent.
[E_ACK]	There was no ACK in the command sent from VG.
[E_ARB]	When an attempt was made to send a command from VG, there was interference from another command and sending of the command could not be completed.
[EOM]	The block EOM is set. * This is only displayed for received commands.

5.3 Component output

5.3.1 Common component signal settings























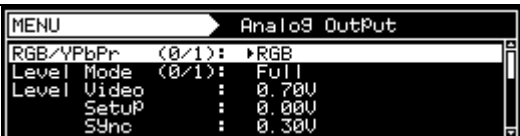
















The video, sync, and other levels can be set for analog component signals. These settings are applied to all component outputs.

In level mode, it is possible to output video, switching between HDMI standard Limited Range and the normal Full Range.

(For details of the level mode, refer to the table on the next page.)

*** The level of the video parts of analog output can be changed, but there is no change for either pedestal level and peak level when set to Full Range.**

Setting procedure

①	Select Program Edit using    or  INC  DEC   , and then press  .																																									
②	Select Output (TIM) using  or  INC  DEC   , and then press  .																																									
③	Select Analog using  or  INC  DEC   , and then press  .																																									
④	Select the items using  or  INC  DEC   , and then press  . Select the numerical value using  or  INC  DEC   , and then press  . Alternatively: Select using  to  (number keys), and then press  .	Set each parameter. <table border="1"> <tbody> <tr> <td colspan="2">RGB/YPbPr</td> <td colspan="2">Set the color format here.</td> </tr> <tr> <td>0</td> <td>RGB</td> <td colspan="2">The signal is output in RGB.</td> </tr> <tr> <td>1</td> <td>YPbPr</td> <td colspan="2">The signal is output in YPbPr.</td> </tr> <tr> <td colspan="2">Level Mode</td> <td colspan="2">The video level range is set here.</td> </tr> <tr> <td>0</td> <td>Full</td> <td colspan="2">This outputs video with Full Range.</td> </tr> <tr> <td>1</td> <td>Limited</td> <td colspan="2">This outputs video with Limited Range.</td> </tr> <tr> <td rowspan="3">Level</td> <td rowspan="2">Video</td> <td colspan="2">The video level is set here.</td> </tr> <tr> <td>0.05-1.20V</td> <td>When Video-on-Sync is OFF</td> </tr> <tr> <td>0.30-1.20V</td> <td>When Video-on-Sync is ON</td> </tr> <tr> <td>Setup</td> <td>0.00-0.25V</td> <td colspan="2">The setup level is set here.</td> </tr> <tr> <td>Sync</td> <td>0.00-0.60V</td> <td colspan="2">The sync signal (Video-On-Sync) level is set here.</td> </tr> </tbody> </table>	RGB/YPbPr		Set the color format here.		0	RGB	The signal is output in RGB.		1	YPbPr	The signal is output in YPbPr.		Level Mode		The video level range is set here.		0	Full	This outputs video with Full Range.		1	Limited	This outputs video with Limited Range.		Level	Video	The video level is set here.		0.05-1.20V	When Video-on-Sync is OFF	0.30-1.20V	When Video-on-Sync is ON	Setup	0.00-0.25V	The setup level is set here.		Sync	0.00-0.60V	The sync signal (Video-On-Sync) level is set here.	
RGB/YPbPr		Set the color format here.																																								
0	RGB	The signal is output in RGB.																																								
1	YPbPr	The signal is output in YPbPr.																																								
Level Mode		The video level range is set here.																																								
0	Full	This outputs video with Full Range.																																								
1	Limited	This outputs video with Limited Range.																																								
Level	Video	The video level is set here.																																								
		0.05-1.20V	When Video-on-Sync is OFF																																							
	0.30-1.20V	When Video-on-Sync is ON																																								
Setup	0.00-0.25V	The setup level is set here.																																								
Sync	0.00-0.60V	The sync signal (Video-On-Sync) level is set here.																																								
		Display returns to the initial screen.																																								

CAUTION

Configure the setting so that the Video setting is equal to or greater than the Setup, Sync, or Setup+Sync settings.

Video range of Full Range

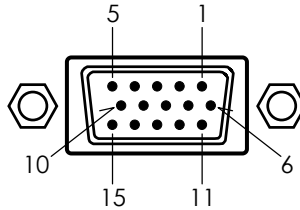
	8BIT	10BIT	12BIT
R/G/B/Y/Cb/Cr	0-255	0-1023	0-4095

Video range of Limited Range

	8BIT	10BIT	12BIT
R/G/B/Y	16-235	64-940	256-3760
Cb/Cr	16-240	64-960	256-3840

5.3.1 VGA (D-Sub) output

5.3.1.1 Connectors and pin assignments



Pin No.	Signal	Pin No.	Signal
1	R	9	+5V (DDC power supply ^{*1})
2	G	10	GND
3	B	11	GND
4	NC	12	DDC DATA
5	NC	13	HS
6	GND(R)	14	VS
7	GND(G)	15	DDC CLK
8	GND(B)		

*1 Restrictions apply to the supply current of the DDC power supply. Refer to “11.1 Concerning the DDC power supply”.

5.3.1.2 Setting the video level

For the control method, refer to “5.1.7 Setting the analog video level”.

5.3.1.3 Setting the sync signal

For the control method, refer to “5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities”.

5.3.1.4 EDID function

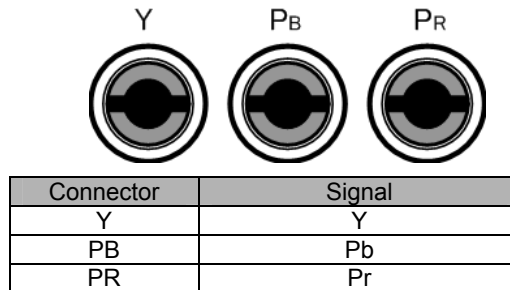
For the control method, refer to “4.13.5 EDID list”.

5.3.1.5 DDC/CI function

For the control method, refer to “4.13.6 DDC/CI list”.

5.3.2 YPbPr output

5.3.2.1 Connectors and pin assignments



5.3.2.2 Setting the video level

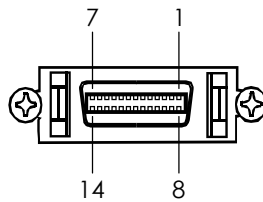
For the control method, refer to “5.1.7 Setting the analog video level”.

5.3.2.3 Setting the sync signal

For the control method, refer to “5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities”.

5.3.3 D5 output

5.3.3.1 Connectors and pin assignments



Pin No.	Signal	Pin No.	Signal
1	Y	8	Line 1
2	GND(Y)	9	Line 2
3	Pb	10	NC
4	GND(Pb)	11	Line 3
5	Pr	12	NC
6	GND(Pr)	13	NC
7	NC	14	NC

5.3.3.2 Setting the video level

For the control method, refer to “5.1.7 Setting the analog video level”.

5.3.3.3 Setting the sync signal

For the control method, refer to “5.1.2 Setting the sync signals ON/OFF and setting the sync signal polarities”.

5.3.3.4 Setting the ID signals

ID signals indicating the resolution, scanning system and aspect ratio can be output from the D-terminal. The ID signals are DC signals, and they identify the formats using three lines. These lines are referred to as line 1, line 2 and line 3.

Setting procedure








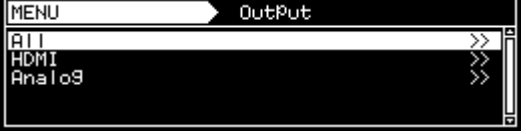



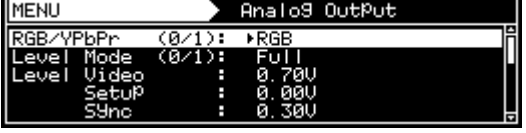



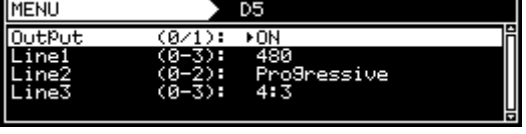










<p>① Select Program Edit using  or , and then press .</p>	
<p>② Select Output (TIM) using  or , and then press .</p>	
<p>③ Select Analog using  or , and then press .</p>	
<p>④ Select D5 using  or , and then press .</p>	
<p>⑤ Selecting the items Select the items using  or , and then press .</p> <p>Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of D5 setting items” below.</p>
<p>After completing the settings: </p>	<p>Display returns to the initial screen.</p>

Table of D5 setting items

(1)	Line1(0-2)	Line1: This sets the resolution.		
		0	480	720×480
		1	720	1280×720
		2	1080	1920×1080
		3	Auto	The setting matches the program setting.
(2)	Line2(0/1)	Line2: This sets the scanning system.		
		0	Interlace	Interlace
		1	Progressive	Progressive
		2	Auto	The setting matches the program setting.
(3)	Line3(0-2)	Line3: This sets the aspect ratio.		
		0	4:3	4:3
		1	4:3 Letter Box	4:3 letter box
		2	16:9	16:9
		3	Auto	The setting matches the program setting.

5.4 Composite output

The following video signals can be output as composite signals.

- NTSC-M, NTSC-J, NTSC-443
- PAL-60, PAL, PAL-M, PAL-N, PAL-Nc
- SECAM

CAUTION

- If the timing of the composite and Y/C signals (such as the period and sync width data) has been changed from that in the internal program, it may no longer be possible to draw the patterns on the monitor correctly.

5.4.1 CVBS output

5.4.1.1 Connectors and pin assignments

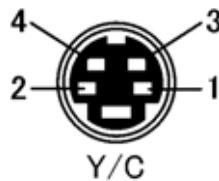


CVBS

Connector	Signal
CVBS	Composite video

5.4.2 Y/C (S-terminal) output

5.4.2.1 Connectors and pin assignments


















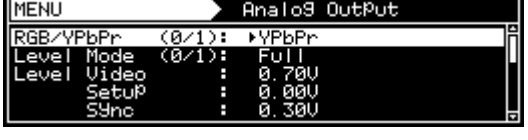




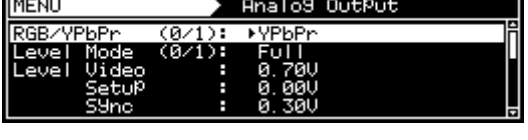













Y/C

Pin No.	Signal
1	GND
2	GND
3	Y
4	C

5.4.2.2 Setting the ID signals

The Y/C signals can be used to identify the aspect ratio by the DC level superimposed onto the C signal.

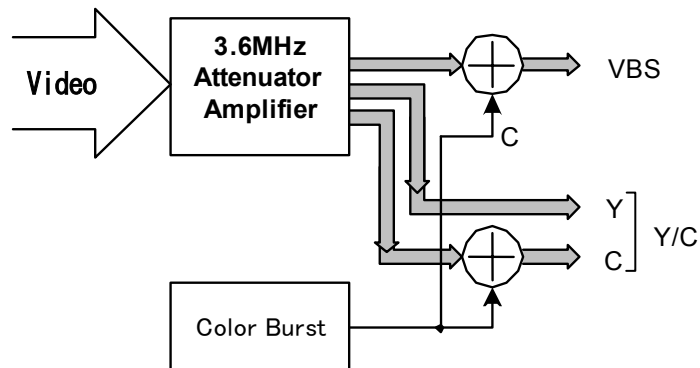
Setting procedure

<p>① Select Program Edit using  →  or  , and then press .</p>													
<p>② Select Output (TIM) using  or  , and then press .</p>													
<p>③ Select Analog using  or  , and then press .</p>													
<p>④ Select Y/C using  or  , and then press .</p>													
<p>⑤ Select the Aspect using  or  , and then press .</p>													
<p>⑥ Select the parameters using  or  , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>Set the DC voltage of the C signal.</p> <table border="1"> <tbody> <tr> <td>0</td> <td>4:3 Normal</td> <td>4.3 (0 V)</td> </tr> <tr> <td>1</td> <td>4:3 Letter Box</td> <td>4:3 letter box (2.2 V)</td> </tr> <tr> <td>2</td> <td>16:9 Squeeze</td> <td>16:9 squeeze (5.0 V)</td> </tr> <tr> <td>3</td> <td>Auto</td> <td>The setting matches the aspect ratio setting of the program.</td> </tr> </tbody> </table>	0	4:3 Normal	4.3 (0 V)	1	4:3 Letter Box	4:3 letter box (2.2 V)	2	16:9 Squeeze	16:9 squeeze (5.0 V)	3	Auto	The setting matches the aspect ratio setting of the program.
0	4:3 Normal	4.3 (0 V)											
1	4:3 Letter Box	4:3 letter box (2.2 V)											
2	16:9 Squeeze	16:9 squeeze (5.0 V)											
3	Auto	The setting matches the aspect ratio setting of the program.											
<p>After completing the settings: </p>	<p>Display returns to the initial screen.</p>												

5.4.3 Filter settings

The filter for composite output can be set.

This setting is processed before the chrominance is added to the video signals so that the color burst is not affected.



Setting procedure

<p>① Select Configuration using or , and then press .</p>																			
<p>② Select General using or , and then press .</p>																			
<p>③ Select TV-COMPOSITE Filter using or , and then press .</p>																			
<p>④ Inputting the parameters</p> <p>Select the parameters using or , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using to (number keys), and then press .</p>	<p>The TV-COMPOSITE Filter setting is used to enhance or smooth the edges.</p> <table border="1"> <tbody> <tr> <td>0</td> <td>3.5dB gain</td> <td>The edges are enhanced.</td> </tr> <tr> <td>1</td> <td>1.0dB gain</td> <td>Same as above</td> </tr> <tr> <td>2</td> <td>-1.0dB</td> <td>The edges are smoothed.</td> </tr> <tr> <td>3</td> <td>-3.0dB</td> <td>Same as above</td> </tr> <tr> <td>4</td> <td>-7.0dB</td> <td>Same as above (factory setting)</td> </tr> <tr> <td>5</td> <td>-7.0dB *1</td> <td>Three pixels are smoothed in addition to the setting of 4.</td> </tr> </tbody> </table>	0	3.5dB gain	The edges are enhanced.	1	1.0dB gain	Same as above	2	-1.0dB	The edges are smoothed.	3	-3.0dB	Same as above	4	-7.0dB	Same as above (factory setting)	5	-7.0dB *1	Three pixels are smoothed in addition to the setting of 4.
0	3.5dB gain	The edges are enhanced.																	
1	1.0dB gain	Same as above																	
2	-1.0dB	The edges are smoothed.																	
3	-3.0dB	Same as above																	
4	-7.0dB	Same as above (factory setting)																	
5	-7.0dB *1	Three pixels are smoothed in addition to the setting of 4.																	

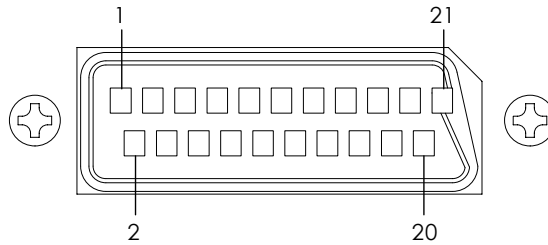
* The filter settings are shared by the CVBS, Y/C (S-terminal) and SCART outputs.

5.4.4 Functions superimposed over composite signals

Macrovision, Closed Caption, V-Chip, Teletext, WSS, and CGMS-A/ID-1 can be multiplexed with the composite signals. For details, refer to "6. Functions Superimposed Over TV Signals".

5.5 SCART output














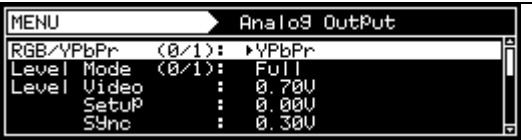















5.5.1 Connectors and pin assignments



Pin No.	Signal	Pin No.	Signal
1	Audio R output	11	Component G output
2	N.C.	12	N.C.
3	Audio L output	13	GND
4	GND	14	GND
5	GND	15	Component R output/C output
6	GND	16	RGB status
7	Component B output	17	GND
8	Video Status	18	GND
9	GND	19	Composite/Y output/CS
10	N.C.	20	N.C.
		21	GND

5.5.2 SCART setting procedure

SCART setting procedure

<p>① Select Program Edit using  or  , and then press .</p>	 <pre> MENU Program Edit Program Name : EIA1920x1080P60 Timing (TIM) >>> OutPut (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
<p>② Select Output (TIM) using  or , and then press .</p>	 <pre> MENU Output All >>> HDMI >>> Analog >>> </pre>
<p>③ Select Analog using  or  , and then press .</p>	 <pre> MENU Analog Output RGB/YPbPr (0/1): YPbPr Level Mode (0/1): Full Level Video : 0.70V SetUP : 0.00V Sync : 0.30V </pre>
<p>④ Select SCART using  or  , and then press .</p>	 <pre> MENU SCART OutPut (0/1): ON OutPut Select(0-2): COMPOSITE Video Status (0-3): Auto RGB Status (0-3): Auto </pre>
<p>⑤ Select the items using  or  , and then press .</p> <p>Inputting the parameters</p> <p>Select the parameters using  or , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to , (number keys), and then press .</p>	<p>For details on the parameters, refer to “SCART setting parameters” below.</p>

SCART setting parameters

(1)	Output(0/1)	Set on or off for each channel here. The same settings as the ones described in “5.1.1 Setting the output interfaces to ON or OFF” can also be used here.		
		0	Off	No output
		1	On	Signal output
(2)	Output Select(0-2)	This sets the format of the video signals that are output from the SCART connector.		
		0	COMPOSITE	Composite signals are output.
		1	Y/C	Y/C signals are output.
		2	RGB	RGB signals are output.
(3)	Video Status(0-3)	This sets the video status signal that is output from the SCART connector.		
		0	Auto	The setting matches the program setting.
		1	4:3	4:3 (identified voltage: 12 V (9.5 to 12.0 V))
		2	16:9	16:9 (identified voltage: 5 V (4.5 to 7.0 V))
		3	No Signal	No output (identified voltage: 0V (0.0 to 2.0 V))
(4)	RGB Status(0-3)	This sets the RGB status signal that is output from the SCART connector.		
		0	Auto	The signal is set automatically by Output Select .
		1	VBS	Composite or Y/C (identified voltage: 0 V)
		2	RGB	RGB (identified voltage: 5 V)
		3	Fast Blanking	This sets the output range of the fast blanking signal.
(5)	Fast Blanking Area	This sets the output range of the fast blanking signal.		
		H	The horizontal output range is set as a percentage of H-Disp. Setting range: 0 to 100 [%]	
		V	The vertical output range is set as a percentage of V-Disp. Setting range: 0 to 100 [%]	
(6)	Audio Out1ch(0/1)	Set on or off for each channel here.		
		0	OFF	No output
		1	ON	Signal output
(7)	Audio Out2ch(0/1)	This setting is the same as for the Audio Out1ch setting.		

5.5.3 Filter settings

The amount of attenuation (or gain) in the 3.6 MHz frequency of the SCART output signals can be set. For details, refer to “5.4.3 Filter settings”.

5.5.4 Functions superimposed over SCART output

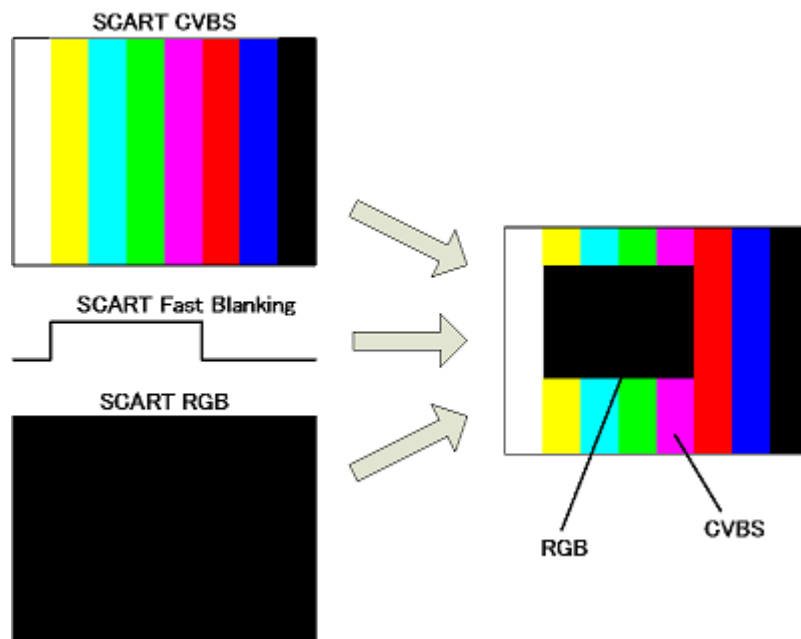
Macrovision, Closed Caption, V-Chip, Teletext, WSS, and CGMS-A/ID-1 can be multiplexed with the composite signals. For details, refer to “6. Functions Superimposed Over TV Signals”.

5.5.5 Fast blanking signal

The fast blanking signal is a control signal for selecting the composite output and RGB output video signals that are output from the 16-pin SCART connector, and displaying them.

By using fast blanking, displays can be shown as with on-screen displays.

When the fast blanking signal level is low (0 V), the CVBS video signals are displayed on the monitor; when it is high (5 V), the RGB video signals are displayed.



CAUTION

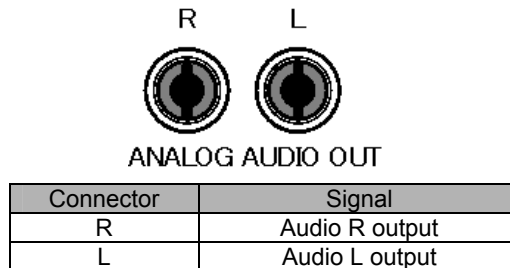
- With the VG-882, different images cannot be output from the composite (CVBS, Y/C) and RGB output. If CVBS or Y/C has been set for Output Select among the SCART settings, a black-filled image is output to the RGB output of the SCART connector. If RGB has been set for Output Select the same image as that for composite is output.

5.5.6 Audio settings

For the advanced setting procedure, refer to “5.6 Analog audio”.

5.6 Analog audio

5.6.1 Connectors and output signals



5.6.2 Analog audio

Analog audio can be output.


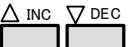









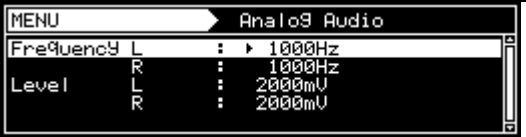

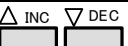







The operation procedure is described below.

- Enable the analog audio.
- Set the audio source, frequency, and level.

a) Enabling the analog audio

①	Select Program Edit using or and then press .							
②	Select Output (TIM) using or and then press .							
③	Select Analog using or and then press .							
④	Select AUDIO using or and then press .							
⑤	Select Output (TIM) using or and then press .	<p>The analog audio output is enabled or disabled.</p> <table border="1"> <tbody> <tr> <td>0</td> <td>OFF</td> <td>Disabled</td> </tr> <tr> <td>1</td> <td>ON</td> <td>Enabled</td> </tr> </tbody> </table>	0	OFF	Disabled	1	ON	Enabled
0	OFF	Disabled						
1	ON	Enabled						

b) Setting the audio source, frequency, and level

①	<p>Select Program Edit using  or , and then press .</p>									
②	<p>Select Audio (TIM) using  or , and then press .</p>									
③	<p>Select Analog Audio using  or , and then press .</p>									
④	<p>Select the items using  or , and then press .</p> <p>Inputting the parameters</p> <p>Select the parameters using  or , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>The frequency and level are set here.</p> <table border="1"> <tbody> <tr> <td>Frequency L</td> <td>The left channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)</td> </tr> <tr> <td>Frequency R</td> <td>The right channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)</td> </tr> <tr> <td>Level L</td> <td>The left channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)</td> </tr> <tr> <td>Level R</td> <td>The right channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)</td> </tr> </tbody> </table>	Frequency L	The left channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)	Frequency R	The right channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)	Level L	The left channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)	Level R	The right channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)
Frequency L	The left channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)									
Frequency R	The right channel frequency is set. Setting range: Sampling frequency 44.1 or 48 KHz: 20 Hz to 20,000 KHz 32 KHz: 20 Hz to 14,000 KHz (100 Hz Step)									
Level L	The left channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)									
Level R	The right channel level is set. Setting range: 0 to 4000 [mV] (50 mV Step)									

CAUTION

- The sampling frequency of analog audio is shared with that of digital audio. Therefore, the sampling frequency is switched at the same time the sampling frequency of HDMI output is changed. The analog audio may experience a temporary drop in sound at that time.
















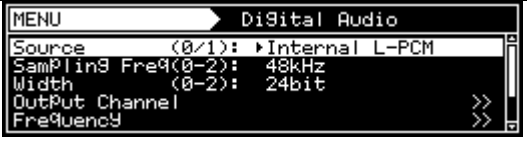











5.7 Digital audio

5.7.1 Digital audio

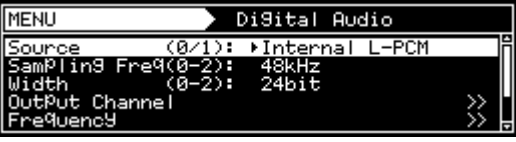
This is audio that is superimposed over HDMI output. The only supported audio source is L-PCM that is generated internally by the generator.

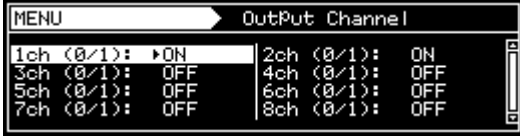
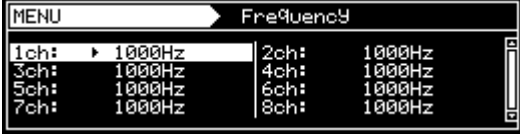




Set the audio source, frequency, and output level.



Operation procedure

①	<p>Select Program Edit using   or  , and then press .</p>	
②	<p>Select Audio (TIM) using  or  , and then press .</p>	
③	<p>Select Digital Audio using  or  , and then press .</p>	
④	<p>Select Source using  or  , and then press .</p> <p>Inputting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>Sine waves are output via the internal L-PCM as the “Source” sound source.</p> <p>For details on the settings, refer to “Int L-PCM setting parameters” below.</p>

Int. L-PCM setting parameters

	Setting menu display											
(1)	Sampling Frequency (0-2)	<p>This sets the sampling frequency.</p> <table border="1"> <tr> <td>0</td> <td>32KHz</td> <td>This outputs the signals at a 32-kHz sampling frequency.</td> </tr> <tr> <td>1</td> <td>44.1KHz</td> <td>This outputs the signals at a 44.1-kHz sampling frequency.</td> </tr> <tr> <td>2</td> <td>48KHz</td> <td>This outputs the signals at a 48-kHz sampling frequency.</td> </tr> </table>	0	32KHz	This outputs the signals at a 32-kHz sampling frequency.	1	44.1KHz	This outputs the signals at a 44.1-kHz sampling frequency.	2	48KHz	This outputs the signals at a 48-kHz sampling frequency.	
0	32KHz	This outputs the signals at a 32-kHz sampling frequency.										
1	44.1KHz	This outputs the signals at a 44.1-kHz sampling frequency.										
2	48KHz	This outputs the signals at a 48-kHz sampling frequency.										
(2)	Width (0-2)	<p>This sets the bit length of the audio data.</p> <table border="1"> <tr> <td>0</td> <td>16BIT</td> <td>The audio data is output with 16 bits.</td> </tr> <tr> <td>1</td> <td>20BIT</td> <td>The audio data is output with 20 bits.</td> </tr> <tr> <td>2</td> <td>24BIT</td> <td>The audio data is output with 24 bits.</td> </tr> </table>	0	16BIT	The audio data is output with 16 bits.	1	20BIT	The audio data is output with 20 bits.	2	24BIT	The audio data is output with 24 bits.	
0	16BIT	The audio data is output with 16 bits.										
1	20BIT	The audio data is output with 20 bits.										
2	24BIT	The audio data is output with 24 bits.										

(3)	Output Channel	<p>This sets whether to set ON or OFF for channels 1 to 8 of the embedded audio.</p> 	
0		OFF	No output
1		ON	Signal output
(4)	Frequency	<p>This sets the frequency (sine wave) of the audio signals to be output.</p> 	
100-20000 (100-14000)		<ul style="list-style-type: none"> When the sampling frequency is 32 kHz: The output frequency can be set from 100 Hz to 14 kHz. When the sampling frequency is 44.1 or 48 kHz: The output frequency can be set from 100 Hz to 20 kHz. 	
(5)	Level InpMode	This sets the level input method.	
0		dB(1-8ch All)	<p>This sets all the channels 1 to 8 as a dB display. Setting range: -138.48 to 0.00 [dB]</p> 
1		BIT(1-8ch All)	<p>This sets all the channels 1 to 8 as a bit display. Setting range: 0 to 7FFFFFFh</p> 
2		db(1-8ch Separate)	<p>This sets channels 1 to 8 separately as a dB display. Setting range: -138.48 to 0.00 [dB]</p>  <p>Select the level here.</p> 

		<p>3 bit(1-8ch Separate)</p>	<p>This sets channels 1 to 8 separately as a bit display. Setting range: 0 to 7FFFFFFh</p>  <p>Select the level here.</p> 
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6

Functions Superimposed Over TV Signals

Teletext broadcasts, data multiplexed broadcasts, copy prevention information, and other data are superimposed in the vertical blanking interval (VBI) of the NTSC, PAL and SECAM standard TV signals, and transmitted.

The VG-882 supports the following functions.

- (1) Macrovision (optional)
- (2) Closed caption/V-Chip
- (3) Teletext
- (4) WSS
- (5) CGMS-A/ID-1

The standard TV signals and supported functions are summarized in the table below.

	Macrovision	Closed caption V-Chip	Teletext	WSS	CGMS-A/ ID-1
NTSC-J	○	○	-	-	○
NTSC-M	○	○	-	-	○
NTSC-443	○	○	-	-	○
PAL-M	○	○	-	-	○
PAL-60	○	○	-	-	○
PAL(-BDGHIK)	○	○	○	○	-
PAL-N	○	○	-	○	-
PAL-Nc	○	○	-	○	-
SECAM	○	-	-	○	-

CAUTION

- The Macrovision, closed caption (V-Chip), teletext, WSS, and CGMS-A/ID-1 functions cannot be executed at the same time. Macrovision has priority.

6.1 Macrovision

6.1.1 Description and specifications

■ What is “Macrovision”?

Macrovision is a copy prevention system developed by Macrovision Corporation.

Widely used by video sources such as VHS and DVD-Video on the market and by satellite broadcasts, the system ensures that, by causing the automatic gain control (AGC) of the video decks to malfunction, users will not be able to record properly the video output sources protected by the system.

The AGC circuit is designed to adjust the gain of the input signals automatically and maintain the appropriate sensitivity, and almost all consumer-use VCRs now feature it. It serves to make dark images a little brighter and excessively light images darker and keep them this way.

While keeping the luminance and chrominance signal components of the video signals unchanged, Macrovision’s copy prevention signals cause the AGC to malfunction by mixing signals with non-standard levels in the vertical blanking interval. This is why the brightness of the images will fluctuate even when the images are recorded. These signals also have the effect of causing trouble for the sync signals and disturbances in the images.

The disturbances caused ensure that content is unwatchable even when it has been copied.

■ What does the “color stripe” function do?

This function is part of the Macrovision standard, and it provides color stripes to overlap with the regular Macrovision signals.

It constitutes a method of superimposing the modulated color burst signal onto the video signals, and it is also referred to as a means of color burst copy prevention.

The color stripe function inserts thin horizontal lines into the copied images and, like the Macrovision system, it makes the images unwatchable.

* The color stripes are provided only in the Type 2 and 3 modes of the NTSC-M and J systems.

■ Macrovision specifications

Macrovision supports the TV signals of the following systems.








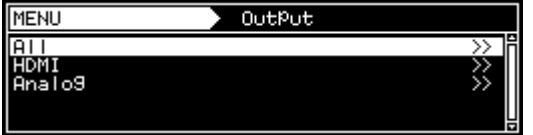

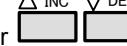

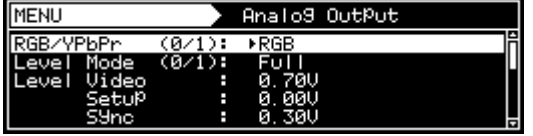









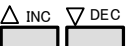




Its signals are superimposed onto the composite signals and Y/C signals.

- NTSC-M, NTSC-J, NTSC-443
- PAL-60, PAL, PAL-M, PAL-N, PAL-Nc
- SECAM



- Macrovision is optional. Contact your dealer or the Astrodesign Sales Department.
- Macrovision signals have different effects depending on the type of VHS or DVD player used. When using the system, be sure to check the terms and conditions of the agreement with Macrovision Corporation.

6.1.2 Setting procedure

①	<p>Select Program Edit using  or , and then press .</p>																																											
②	<p>Select Output (TIM) using  or , and then press .</p>																																											
③	<p>Select Analog using  or , and then press .</p>																																											
④	<p>Select VBI Function using  or , and then press .</p>																																											
⑤	<p>Select Macrovision using  or , and then press .</p>																																											
⑥	<p>Select Mode using  or , and then press .</p> <p>Alternatively: Select using  to  (number keys), and then press .</p>	<p>The selection options for Mode differ depending on the TV signals. (OFF is set for any timing format not listed below.)</p> <table border="1"> <tbody> <tr> <td colspan="2" style="background-color: #cccccc;">NTSC-M</td> </tr> <tr><td>0</td><td>OFF</td></tr> <tr><td>1</td><td>Type1 (AGC only)</td></tr> <tr><td>2</td><td>Type2 (AGC + 2Line Colorstripe)</td></tr> <tr><td>3</td><td>Type3 (AGC + 4Line Colorstripe)</td></tr> <tr><td>4</td><td>VHS USA</td></tr> <tr><td>5</td><td>VHS US obs.</td></tr> <tr> <td colspan="2" style="background-color: #cccccc;">NTSC-J</td> </tr> <tr><td>0</td><td>OFF</td></tr> <tr><td>1</td><td>Type1 (AGC only)</td></tr> <tr><td>2</td><td>Type2 (AGC + 2Line Colorstripe)</td></tr> <tr><td>3</td><td>Type3 (AGC + 4Line Colorstripe)</td></tr> <tr><td>4</td><td>VHS Japan1</td></tr> <tr><td>5</td><td>VHS Japan2</td></tr> <tr> <td colspan="2" style="background-color: #cccccc;">NTSC-443, PAL-60, PAL-M</td> </tr> <tr><td>0</td><td>OFF</td></tr> <tr><td>1</td><td>Type1,2,3 (AGC only)</td></tr> <tr> <td colspan="2" style="background-color: #cccccc;">PAL, PAL-N, PAL-Nc, SECAM</td> </tr> <tr><td>0</td><td>OFF</td></tr> <tr><td>1</td><td>Type1,2,3 (AGC only)</td></tr> <tr><td>2</td><td>VHS</td></tr> </tbody> </table>	NTSC-M		0	OFF	1	Type1 (AGC only)	2	Type2 (AGC + 2Line Colorstripe)	3	Type3 (AGC + 4Line Colorstripe)	4	VHS USA	5	VHS US obs.	NTSC-J		0	OFF	1	Type1 (AGC only)	2	Type2 (AGC + 2Line Colorstripe)	3	Type3 (AGC + 4Line Colorstripe)	4	VHS Japan1	5	VHS Japan2	NTSC-443, PAL-60, PAL-M		0	OFF	1	Type1,2,3 (AGC only)	PAL, PAL-N, PAL-Nc, SECAM		0	OFF	1	Type1,2,3 (AGC only)	2	VHS
NTSC-M																																												
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2	Type2 (AGC + 2Line Colorstripe)																																											
3	Type3 (AGC + 4Line Colorstripe)																																											
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NTSC-443, PAL-60, PAL-M																																												
0	OFF																																											
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PAL, PAL-N, PAL-Nc, SECAM																																												
0	OFF																																											
1	Type1,2,3 (AGC only)																																											
2	VHS																																											

	Display returns to the initial screen.
---	--

6.2 Closed caption/V-Chip

6.2.1 Description and specifications

■ What is “closed caption (CC)”?

Closed captioning was developed in the United States, and it provides broadcasts with subtitles for the hearing impaired so that people who are deaf or hard of hearing can enjoy movies and news programs. The captions are “closed” in the sense that they are not displayed on the screen during normal playback. Conversely, the Japanese-language subtitles and other such characters used with video content that is “burned into” the images from the start are referred to as “open captions.” Although closed captioning was originally developed as a technology for the hearing impaired, it is currently attracting the attention of educators and language learners as a tool which helps develop “listening.”

The CC subtitle data is superimposed onto line 21 (first field) and line 284 (second field) of the NTSC output signals, and output. The subtitle data has two modes, captions and text. Another available service is the Extended Data Service (EDS), which transmits titles, ratings and other program information using line 284 (second field). The V-Chip described below uses the EDS function.

A total of 32 characters can be displayed per line by CC. There are 15 lines, but the maximum number of lines is limited to 4 in the caption mode (CC1 to 4). All 15 lines can be displayed in the text mode (T1 to 4).

■ What is the “V-Chip”?

The V-Chip refers to a semiconductor chip that blocks out TV programs containing violence and sexual situations. “V” refers to violence, and the viewing of programs is blocked out according to the ratings that are categorized by the extremity of the program content. Once the ratings are set in a receiver (TV set) that incorporates the V-Chip function, the rating information of EDS is decoded, and whether the programs are to be output to the screen is automatically determined.

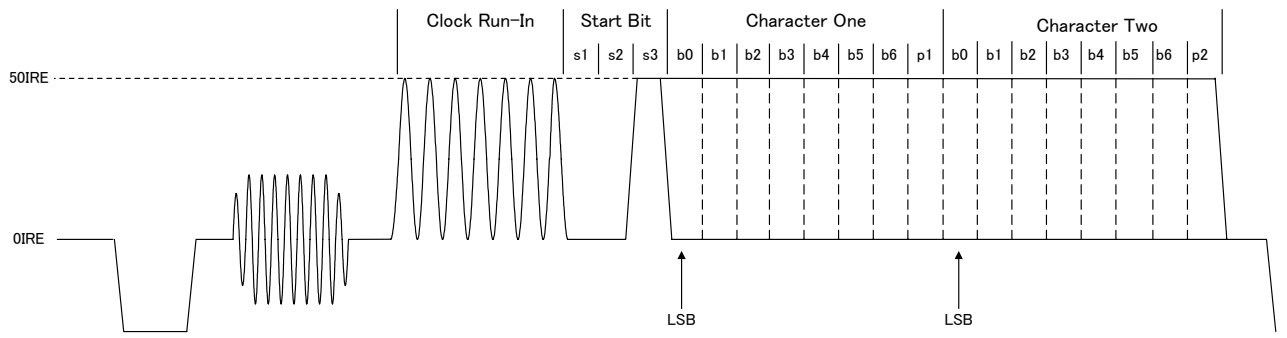
■ Specifications of closed caption/V-Chip

Closed caption/V-Chip supports the TV signals of the following systems.
Closed caption/V-Chip is superimposed onto the composite signals and Y/C signals.

- NTSC-M, NTSC-J, NTSC-443
- PAL-60, PAL, PAL-M, PAL-N, PAL-Nc

* However, in a 625-line system (PAL, PAL-N, PAL-Nc), the caption data is superimposed onto 23 lines (335 lines).

The closed caption/V-Chip waveform is shown below. After the color burst comes a sine wave known as Clock Run-In and then the start bit. The start bit is always “001.” Two bytes of data (Char1, Char2) are sent for each line. Char1 and Char2 are decoded from LSB, and an odd parity is usually added to MSB (bit 8).



Closed Caption / V-Chip (21Line System)

6.2.2 Closed caption settings
















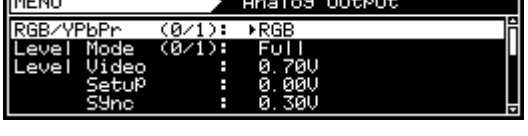




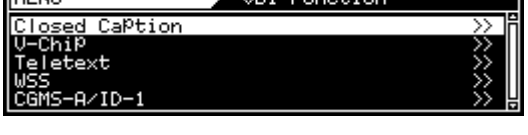




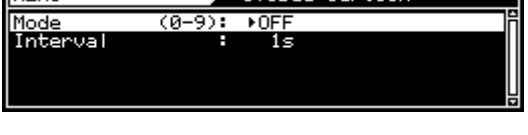














①	<p>Select Program Edit using  →  or  , and then press .</p>	 <pre> MENU → Program Edit Program Name : ▶NTSC-M Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
②	<p>Select Output (TIM) using  or  , and then press .</p>	 <pre> MENU → OutPut All >>> HDMI >>> Analog >>> </pre>
③	<p>Select Analog using  or  , and then press .</p>	 <pre> MENU → Analog OutPut RGB/VPbPr (0/1): ▶RGB Level Mode (0/1): FULL Level Video : 0.70V Setup : 0.00V Sync : 0.30V </pre>
④	<p>Select VBI Function using  or  , and then press .</p>	 <pre> MENU → VBI Function Closed Caption >>> U-ChIP >>> Teletext >>> WSS >>> CGMS-A/ID-1 >>> </pre>
⑤	<p>Select Closed Caption using  or  , and then press .</p>	 <pre> MENU → Closed Caption Mode (0-9): ▶OFF Interval : 1s </pre>
⑥	<p>Selecting the setting items from the table</p> <p>Select the parameters using  →  or   , and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of closed caption setting items” below.</p>
⑦	<p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	
	<p>After completing the settings:</p> 	<p>Display returns to the initial screen.</p>

Table of closed caption setting items

(1)	Mode(0-9)	The mode is set here.		
		0	OFF	The captions are set to OFF.
		1	CC1	Closed caption mode 1 is selected here.
		2	CC2	Closed caption mode 2 is selected here.
		3	CC3	Closed caption mode 3 is selected here.
		4	CC4	Closed caption mode 4 is selected here.
		5	T1	Text data mode 1 is selected here.
		6	T2	Text data mode 2 is selected here.
		7	T3	Text data mode 3 is selected here.
		8	T4	Text data mode 4 is selected here.
9	USER Data	The user data is selected here. Up to 20 user data can be registered using SP-8870.		
(2)	Interval	0-60	Interval	The interval at which the closed caption data is transmitted is set. (in 1-second increments)
(3)	USER Data No.	1-20		The user data number is set here. This is valid when USER Data has been selected as the Mode setting in (1) above.

Listed below are the types of closed caption services available.

CC1 - Primary Synchronous Caption Service (caption service for primary language)

CC2 - Special Non-Synchronous Use Caption (service that does not need to be synchronized with the sound, etc.)

CC3 - Secondary Synchronous Caption Service (caption service for secondary language)

CC4 - Special Non-Synchronous Use Caption (service that does not need to be synchronized with the sound, etc.)

T1 - First Text service (text service)

T2 - Second Text service (text service)

T3 - Third Text service (text service)

T4 - Fourth Text service (text service)

■ The content of closed caption internal data (1/3)

Service	Caption style, line, color, optional settings, etc.	Displayable characters
CC1~ CC4	Roll-up2 ROW2 Background: Black, not transparent Text: White	Primary Synchronous Caption Service -- CC1 (CC1) Secondary Synchronous Caption Service -- CC2 (CC2) Special Non-Synchronous Use Captions -- CC3 (CC3) Special Non-Synchronous Use Captions -- CC4 (CC4)
	Roll-up3 ROW10 Background: Blue, not transparent Text: Yellow	Roll-up Style characters are always displayed immediately. Each time a Carriage Return is received, the text is scrolled up one row.
	Roll-up4 ROW15, indent Background: Cyan, not transparent Text: Red	Standard characters 0123456789 ABCDEFGHIJ áâäçéèëîïñóóú !,:;7"##% &@/() []+~÷<=>? Music note, solid block, Transparent space, solid block, Music note, solid block, Transparent space
	Pop-on ROW1 ROW2 ROW3 Background: Red, semi-transparent Text: Cyan	Pop-on Style Caption data are loaded into a non-displayed memory.
	Pop-on ROW4 ROW5 ROW6 Background: Green, semi-transparent Text: Blue, flashing	End of Caption command (EOC) "flips" displayed and non displayed memory.
	Pop-on ROW7, indent ROW8, indent ROW9, indent Background: Magenta, not transparent Text: Green, italic	ABCDEFGHIJ 0123456789 Å å Ø ø □ ⊔

■ The content of closed caption internal data (3/3)

Service	Caption style, line, color, optional settings, etc.	Displayable characters
T3	--	<p>Third Text Service -- T3</p> <p>A Text Mode may be used that consists of data formatted to fill a box which in height is not less than 7 rows and not more than 15 rows (all of which should be contiguous), and in width is not less than 32 columns. Text should be displayed over a solid background to isolate it from the unrelated program video. Each row of text contains maximum of 32 characters.</p>
T4	--	<p>Fourth Text Service -- T4</p> <p>ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 012345678901234567890 !"#\$%&'()*+,-./ :;<=>?@[é]íóú *._©SM•□"</p>

6.2.3 V-Chip settings


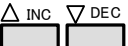





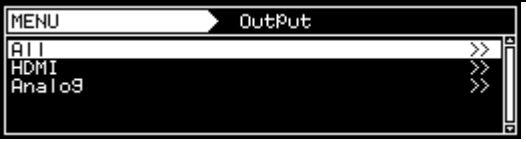







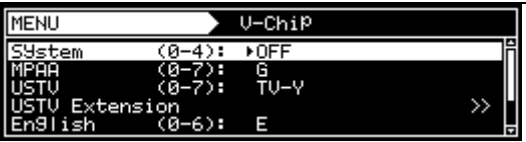




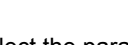





<p>① Select Program Edit using  or , and then press .</p>	
<p>② Select Output (TIM) using  or , and then press .</p>	
<p>③ Select VBI Function using  or , and then press .</p>	
<p>④ Select V-Chip using  or , and then press .</p>	
<p>⑤ Selecting the setting items from the table Select the parameters using  or , and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of V-Chip setting items” below.</p>
<p>⑥ Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	
<p>After completing the settings: </p>	<p>Display returns to the initial screen.</p>

Table of V-Chip setting items

(1)	System(0-4)	The rating system is selected here.		
		0	OFF	The V-Chip is set to OFF here.
		1	MPAA	MPAA is set here.
		2	U.S.TV	U.S. TV is set here.
		3	English	Canadian English is set here.
		4	French	Canadian French is set here.

Listed below are the names of the rating systems and a brief description of each.

MPAA : Motion Picture Association of America

This organization was set up in order to promote the spread of American movies. It is active in many fields such as promoting exports overseas and cracking down on pirated movies. On the U.S. domestic front, it helps viewers exercise voluntary controls by establishing a rating system for violence, sexual content and discriminatory content. Its rating standards are strict, and it has screening targets images and language that would hardly raise an eyebrow in Japan.

U.S.TV: U.S. TV Parental Guideline Rating System

This rating system is incorporated in ordinary TV sets installed in American homes.

English: Canadian English Language Rating System

This rating system targets Canadian English.

French: Canadian French Language Rating System

This rating system targets Canadian French.

(2)	MPAA	These ratings, which apply when MPAA has been selected as the System setting in (1) above, are set here.		
		0	G	“General Audience” is set as the MPAA rating.
		1	PG	“Parental Guidance” is set as the MPAA rating.
		2	PG-13	“Parents Strongly Cautioned” is set as the MPAA rating.
		3	R	“Restricted” is set as the MPAA rating.
		4	NC-17	“No One 17 and Under Admitted” is set as the MPAA rating.
		5	X	“Adult Movie” is set as the MPAA rating.
		6	Not Rated	“Not Submitted For MPAA Review” is set as the MPAA rating.
		7	N/A	“N/A” is set as the MPAA rating.

Listed below are the names and descriptions of the MPAA ratings.

G: General Audience

For general audiences.

PG : Parental Guidance

Contains scenes unsuitable for young children.

PG-13 : Parents Strongly Cautioned

Contains scenes unsuitable for children aged 13 and under.

R : Restricted

Permission of a parent or guardian required for children up to 17 years of age.

NC-17 : No One 17 and Under Admitted

Cannot be viewed by anyone aged 17 years and under.

X : Adult Movie

For adults only.

Not Rated

Not Submitted For MPAA Review

N/A

No applicable restrictions

(3)	U.S.TV	These ratings, which apply when U.S.TV has been selected as the System setting in (1) above, are set here.		
		0	TV-Y	“All children” is set as the U.S. TV rating.
		1	TV-Y7	“Directed to older children” is set as the U.S. TV rating.
		2	TV-G	“General Audience” is set as the U.S. TV rating.
		3	TV-PG	“Parental Guidance Suggested” is set as the U.S. TV rating.
		4	TV-14	“Parents Strongly Cautioned” is set as the U.S. TV rating.
		5	TV-MA	“Mature Audience Only” is set as the U.S. TV rating.
		6	Not Rated 1	“Not Rated” is set as the U.S. TV rating. (Code = 000)
		7	Not Rated 2	“Not Rated” is set as the U.S. TV rating. (Code = 111)
(4)	USTV Extension	The extension bits for U.S. TV are set. The bits which can be set differ depending on the U.S. TV ratings. For details of the pattern types, refer to “ U.S. TV rating system extension bit settings ”.		

Listed below are the names and descriptions of the U.S. TV ratings.

TV-Y : All children

Suitable for all children.

TV-Y7 : Directed to older children

Suitable for children aged 7 and above.

TV-G : General Audience

Suitable for audiences of all ages (must not contain violent scenes, objectionable language or sexual content).

TV-PG : Parental Guidance Suggested

Contains scenes involving some violence and sexual content unsuitable for young children or situations that may induce foul language or incite delinquency.

TV-14 : Parents Strongly Cautioned

Contains scenes involving violence and sexual content unsuitable for children aged 14 or below or situations that may induce foul language or incite delinquency.

TV-MA : Mature Audience Only

For adults only; programs with this rating are hardly ever broadcast.

Not Rated1/2

No applicable restrictions

[U.S. TV rating system extension bit settings]

	FV	V	S	L	D
TV-Y	Cannot be set				
TV-Y7	0:- / 1:*	Cannot be set			
TV-G	Cannot be set				
TV-PG	Cannot be set	0:- / 1:*	0:- / 1:*	0:- / 1:*	0:- / 1:*
TV-14	Cannot be set	0:- / 1:*	0:- / 1:*	0:- / 1:*	0:- / 1:*
TV-MA	Cannot be set	0:- / 1:*	0:- / 1:*	0:- / 1:*	Cannot be set
Not Rated 1	Cannot be set				
Not Rated 2	Cannot be set				

* “-” denotes OFF, and “*” ON.

Listed below are the names of the U.S. TV rating extension service ratings and a description of each.

FV : Fantasy Violence

Acts of fantasy violence = violence in animated features and comics.

V : Violence

Violence

S : Sexual Situations

Sexual content

L : Adult Language

Foul language

D : Sexually Suggestive Dialog

Sexually suggestive dialog

(5)	English	These ratings, which apply when English has been selected as the System setting in (1) above, are set here.		
		0	E	“Exempt” is set as the English rating.
		1	C	“Children” is set as the English rating.
		2	C8+	“Children eight years and older” is set as the English rating.
		3	G	“General Programming, suitable for all audiences” is set as the English rating.
		4	PG	“Parental Guidance” is set as the English rating.
		5	14+	“Viewers 14 years and older” is set as the English rating.
		6	18+	“Adult Programming” is set as the English rating.

Listed below are the names and descriptions of the Canadian English ratings.

E : Exempt

No age restrictions apply.

C : Children

Programming may be viewed by all children.

C8+ : Children eight years and older

Programming may be viewed by children aged eight and above.

G : General Programming, suitable for all audiences

General programming

PG : Parental Guidance

Permission of a parent is required to view programming.

14+ : Viewers 14 years and older

Programming may be viewed by children 14 years and older.

18+ : Adult Programming

Programming for adults only.

(6)	French	These ratings, which apply when French has been selected as the System setting in (1) above, are set here.		
		0	E	“Exempt” is set as the French rating.
		1	G	“General” is set as the French rating.
		2	8ans+	“Not recommended for young children” is set as the French rating.
		3	13ans+	“Programming may not be suitable for children under 13” is set as the French rating.
		4	16ans+	“Programming is not be suitable for children under 16” is set as the French rating.
		5	18ans+	“Programming restricted to adults” is set as the French rating.

Listed below are the names and descriptions of the Canadian French ratings.

E : Exempt

No age restrictions apply.

G : General

General programming

8ans+ : Not recommended for young children

Programming unsuitable for young children

13ans+ : Programming may not be suitable for children under 13

Programming unsuitable for children aged 13 and under

16ans+ : Programming is not suitable for children under 16

Programming unsuitable for children aged 16 and under

18ans+ : Programming restricted to adults

Programming for adults only.

(7)	Interval	0-60	Interval	The interval at which the V-Chip data is transmitted is set. (in 1-second increments)
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6.3 Teletext

6.3.1 Description and specifications

■ What is “Teletext”?

Teletext is the name of a system used to send still picture program data of text and graphics after multiplexing it in the vertical sync blanking interval of the TV signals. Programs broadcast in Teletext include subtitled broadcasts, news broadcasts, weather forecasts and stock market information. Teletext has achieved a high penetration rate in various countries in Europe and Southeast Asia where the 625/50i system is used.

With Teletext, a total of 40 characters × 25 lines can be contained on a page (per screen), and between 100 and 899 pages of information can be displayed.

■ Teletext specifications

Teletext supports the following TV signals.

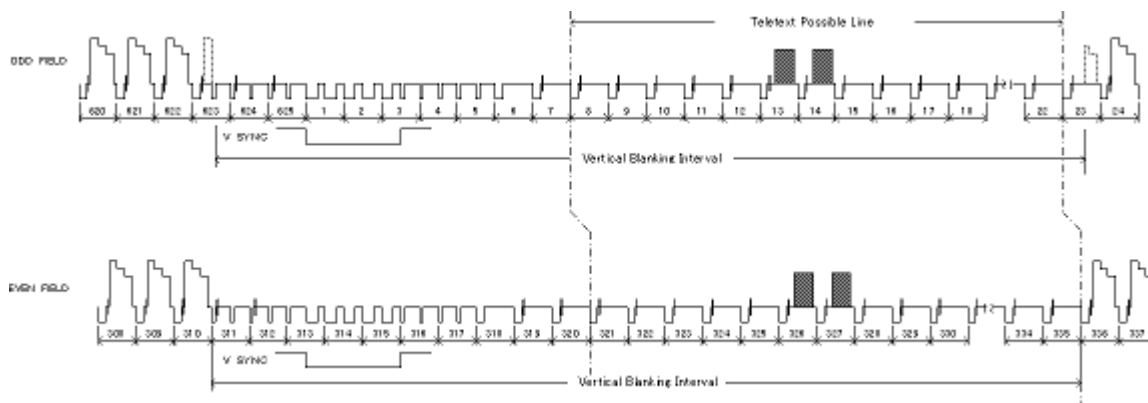
Teletext is superimposed onto the composite signals and Y/C signals.

- PAL (but not PAL-60, PAL-N and PAL-Nc)

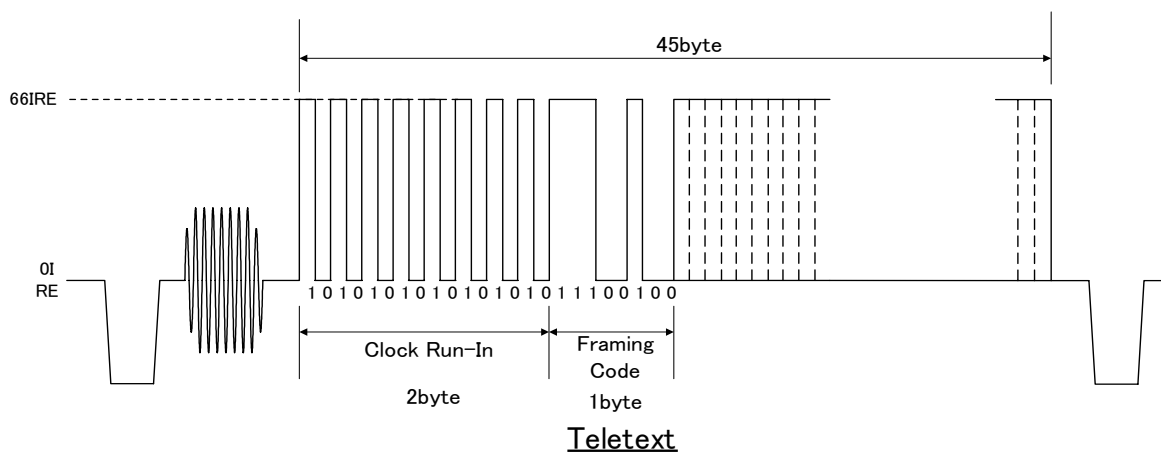
The vertical sync blanking interval (VBI) and Teletext waveforms are shown below.

The Teletext data can be output in lines 8 to 22 (first field) and lines 321 to 335 (second field) in the vertical sync blanking interval of the PAL signals.

A total of 45 bytes consisting of the Clock Run-In, Framing Code and data bytes (42 bytes) are superimposed in one line.



VBI waveforms



Teletext waveforms

6.3.2 Setting procedure
















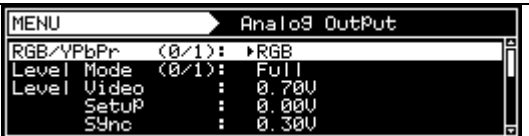
























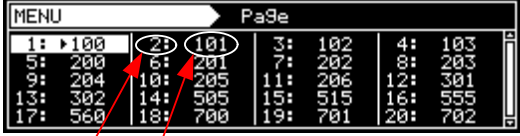


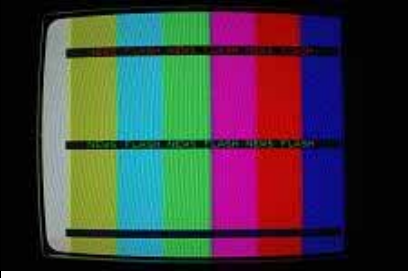







<p>① Select Program Edit using  →  or  , and then press .</p>	
<p>② Select Output (TIM) using  or  , and then press .</p>	
<p>③ Select Analog using  or  , and then press .</p>	
<p>④ Select VBI Function using  or  , and then press .</p>	
<p>⑤ Select the Teletext using  or  , and then press .</p>	
<p>⑥ Selecting the setting items from the table Select the parameters using  →   or  , and then press .</p>	<p>For details on the setting items and parameters, refer to "Table of teletext setting items" below.</p>
<p>⑦ Setting the parameters Select the parameters using  or  , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	
<p>After completing the settings: </p>	<p>Display returns to the initial screen.</p>









Table of teletext setting items

(1)	Mode(0-2)	The Teletext operation mode is selected here.			
		0	Off	Teletext off	
		1	Default	The default pages are output. For details of the default pages, refer to the list of teletext default pages.	
		2	Page Select	The pages selected by page in (2) below is output here.	
(2)	Page Press <input type="button" value="SET"/> to display the setting menu.				
		<p>Page Data</p> <p>This generator enables up to 20 pages of teletext screens to be registered. Numbers for the internal data are set on each page. Page data can be set from 100 to 899.</p>			
(3)	Line	The lines in which the Teletext data is to be output are set here. The figure indicates the line numbers in the first field and second field.			
		8,321	0	Disable	The data is not output in line 8 and line 321.
			1	Enable	The data is output in line 8 and line 321.
		9,322	Same setting as above.		
		10,323	Same setting as above.		
		.	.		
		22,335	Same setting as above.		

■ List of teletext default pages (page 1 of 2)

Page No.	Description	Screen	Page No.	Description	Screen
100	Index Page		101	Test Page	 Including FLASH and CONCEAL.
102	Newsflash		103	Subtitle	
200	Character (English)		201	Character (German)	
202	Character (Swedish /Finnish /Hungarian)		203	Character (Italian)	
204	Character (French)		205	Character (Portuguese /Spanish)	

■ List of teletext default pages (page 2 of 2)

Page No.	Description	Screen	Page No.	Description	Screen
206	Character (Czech /Slovak)		301	Colours	
302	White Flat		505	Clock Cracker	
515	Multi Page	 4 sub-pages	555	Test Pattern1	
560	Test Pattern2		-	Other pages	 Screen for page 700

6.4 WSS

6.4.1 Description and specifications

■ What is WSS (Wide Screen Signaling)?

“WSS (Wide Screen Signaling)” is a system for multiplexing the aspect ratio information of the images in the vertical sync blanking interval, and sending it.

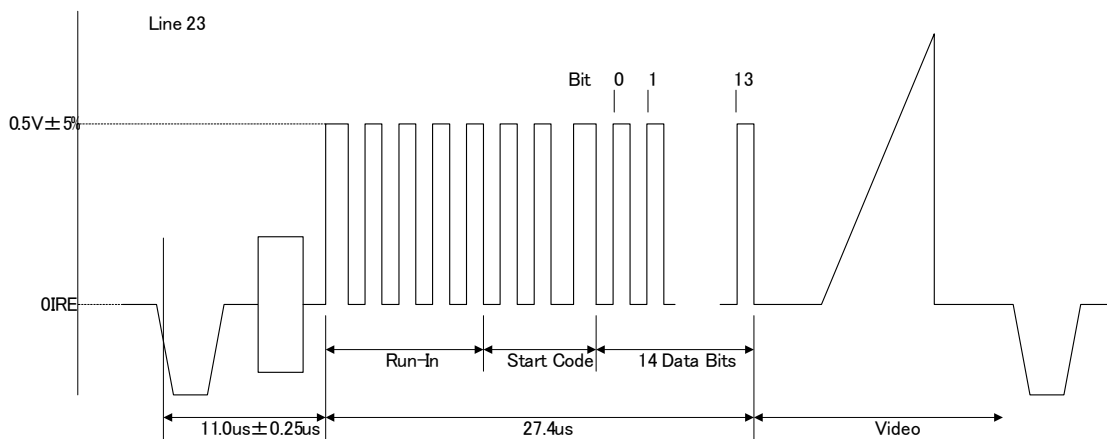
■ WSS specifications

WSS supports the following TV signals.

WSS is superimposed onto the composite signals and Y/C signals.

- PAL, PAL-N, PAL-Nc
- SECAM

The aspect ratio information of WSS is superimposed on line 23 of the first field. The WSS waveform consists of Run-In, Start Code and the 14-bit data. This waveform and the bit allocation are shown below.



WSS(Widscreen Signaling)

• Bit0-3 : Aspect

Bit		Aspect Ratio	Full format or Letterbox	Position
0 1 2	3			
0 0 0	1	4:3	Full format	Not applicable
1 0 0	0	14:9	Letterbox	Center
0 1 0	0	14:9	Letterbox	Top
1 1 0	1	16:9	Letterbox	Center
0 0 1	0	16:9	Letterbox	Top
1 0 1	1	>16:9	Letterbox	Center
0 1 1	1	14:9	Full format	Center
1 1 1	0	16:9	Full format	Not applicable

Bit3 is the parity bit.

- Bit4-13: Other service information (not supported by the VG-882)

6.4.2 Setting procedure








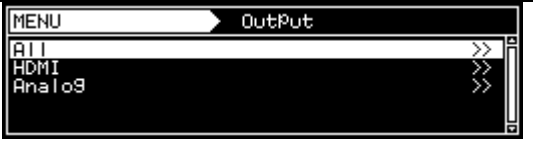



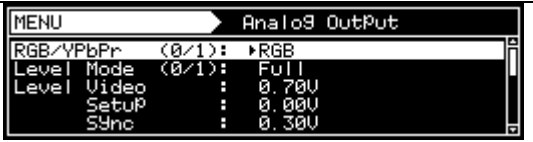


















①	Select Program Edit using  or  , and then press  .	
②	Select Output (TIM) using  or  , and then press  .	
③	Select Analog using  or  , and then press  .	
④	Select VBI Function using  or  , and then press  .	
⑤	Select WSS using  or  , and then press  .	
⑥	Selecting the setting items from the table Select the parameters using  or  , and then press  .	For details on the setting items and parameters, refer to "Table of WSS setting items" below.
⑦	Setting the parameters Select the parameters using  or  , and then press  . Alternatively: Select the parameters using  to  (number keys), and then press  .	
	After completing the settings: 	Display returns to the initial screen.

Table of WSS setting items

(1)	OFF/ON (0/1)	Set whether the WSS information is to be output.	
		0	OFF WSS information is not output.
		1	ON WSS information is output.
(2)	Aspect Ratio(0-7)	Set the aspect ratio here.	
		0	The aspect ratio is set to Full Format 4:3 .
		1	The aspect ratio is set to LB 14:9 center .
		2	The aspect ratio is set to LB 14:9 top .
		3	The aspect ratio is set to LB 16:9 center .
		4	The aspect ratio is set to LB 16:9 top .
		5	The aspect ratio is set to LB >16:9 center .
		6	The aspect ratio is set to Full Format 14:9 .
7	The aspect ratio is set to Full Format 16:9 .		

6.5 CGMS-A/ID-1

6.5.1 Description and specifications

■ What is CGMS-A (Copy Generation Management System)?

CGMS-A is a system of multiplexing the copy control information in the vertical sync blanking intervals, and sending it.

■ What is ID-1?

ID-1 is a system of multiplexing the aspect ratio information in the vertical sync blanking intervals, and sending it.

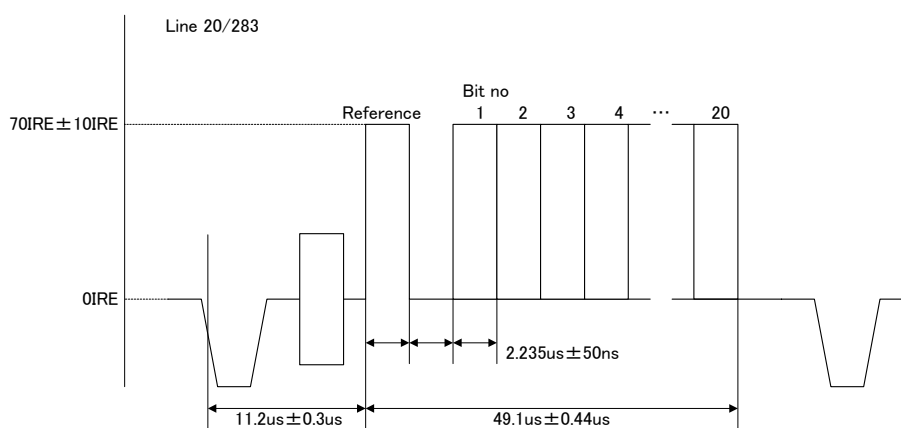
■ CGMS-A/ID-1 specifications

CGMS-A/ID-1 supports the following TV signals.

CGMS-A/ID-1 is superimposed onto the composite signals and Y/C signals.

- NTSC, NTSC-M, NTSC-443
- PAL-60, PAL-M

CGMS-A and ID-1 are superimposed onto line 20 (first field) and line 283 (second field). The CGMS-A and ID-1 waveform consists of the reference bit and 20-bit data. This waveform and the bit allocation are shown below.



CGMS-A / ID-1

• Bit1-0 : Aspect (ID-1)

Bit		Applications	
1	2	Aspect ratio	Picture display format
0	0	4:3	Normal
1	0	16:9	Normal
0	1	4:3	Letter Box
1	1	Not Defined	

• Bit6-2: Fixed at "0000"

- Bit8-7 : CGMS-A

Bit		Application
7	8	
0	0	Copy is permitted without restriction
1	0	Condition not to be used
0	1	One generation of copies may be made
1	1	No copying is permitted

- Bit14-9: Other service information (not supported by the VG-882)
- Bit20-15 : CRC

6.5.2 Setting procedure








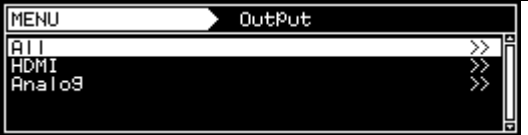



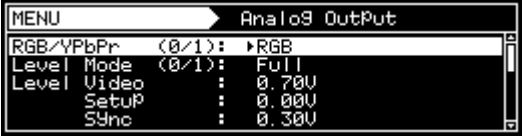







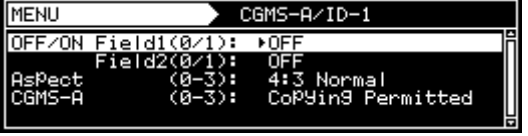










<p>① Select Program Edit using  or , and then press .</p>	
<p>② Select Output (TIM) using  or , and then press .</p>	
<p>③ Select Analog using  or , and then press .</p>	
<p>④ Select VBI Function using  or , and then press .</p>	
<p>⑤ Select CGMS-A/ID-1 using  or , and then press .</p>	
<p>⑥ Selecting the setting items from the table Select the parameters using  or , and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of CGMS-A/ID-1 setting items” below.</p>
<p>⑦ Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	
<p>After completing the settings: </p>	<p>Display returns to the initial screen.</p>

Table of CGMS-A/ID-1 setting items

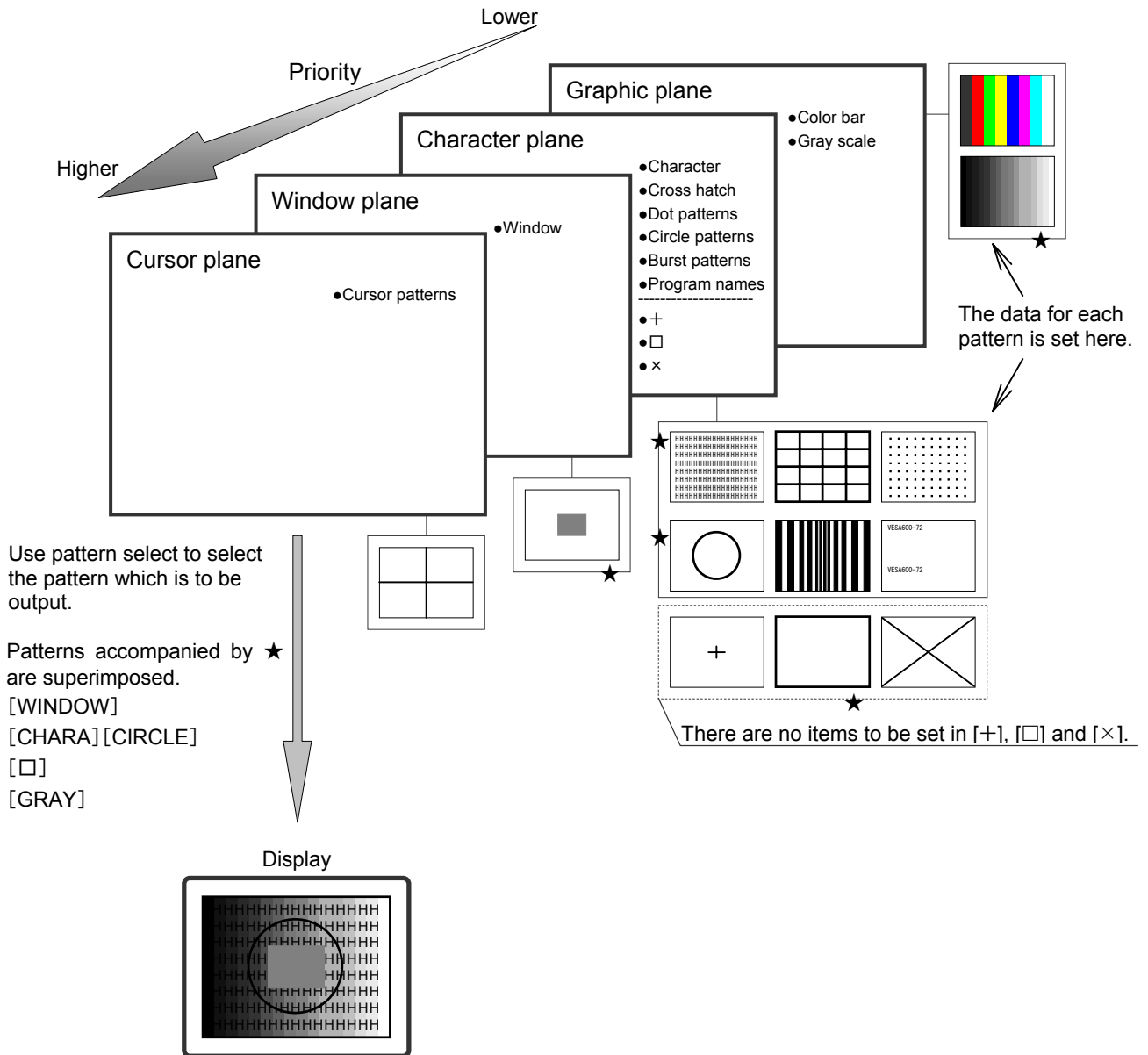
(1)	OFF/ON Field1(0/1)	Set whether to output the data to line 20 of the first field.		
		0	OFF	The data is not output.
		1	ON	The data is output.
(2)	OFF/ON Field2(0/1)	Set whether to output the data to line 283 of the second field.		
		0	OFF	The data is not output.
		1	ON	The data is output.
(3)	Aspect	Set the aspect ratio here.		
		0	4:3 Normal	The aspect ratio is set to 4:3.
		1	16:9 Normal	The aspect ratio is set to 16:9.
		2	4:3 Letter Box	The aspect ratio is set to 4:3 letter box.
		3	Not Defined	The aspect ratio is left undefined.
(4)	CGMS-A	Set copy protection here.		
		0	Copying Permitted	Copying is permitted.
		1	Not Used Condition	Copy protection is left undefined.
		2	Copy Once	Copy-once is set.
		3	No Copying Permitted	Copying is not permitted.

* The same data is superimposed onto line 20 and line 283.

7

Action Settings

7.1 Planes



7.2 Window actions

7.2.1 Scrolling

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.
































<p>① Select Program Edit using  →  or  , and then press .</p>	
<p>② Select Action (PAT) using  or , and then press .</p>	
<p>③ Select Window using  or  , and then press .</p>	
<p>④ Select Scroll using  or  , and then press .</p>	
<p>⑤ Selecting the items Select the items using  or  , and then press .</p> <p>Setting the parameters Select the parameters using  or , , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of scroll setting items” below.</p>

Table of scroll setting items

(1)	OFF/ON (0/1)	Set On or Off for window scrolling.		
		0	OFF	Window scrolling is set to Off.
		1	ON	Window scrolling is set to On.
(2)	Direction(0-A)	Set the direction of scrolling here.		
		0	Left	The window is scrolled to the left.
		1	Right	The window is scrolled to the right.
		2	Up	The window is scrolled up.
		3	Down	The window is scrolled down.
		4	Left Up	The window is scrolled to the top left.
		5	Left Down	The window is scrolled to the bottom left.
		6	Right Up	The window is scrolled to the top right.
		7	Right Down	The window is scrolled to the bottom right.
		8	Left<->Right	The window is scrolled to the left and right.
		9	Up<->Down	The window is scrolled up and down.
A	Random	The window is scrolled randomly.		
(3)	Mode(0-4)	Set the interval (execution interval) mode for window scrolling here.		
		0	User	The window is scrolled as per the Interval 1-4 setting .
		1	60i->60i	The interval (execution interval) is set to 1 V.
		2	24p->60i 2-3PullDown	The interval (execution interval) is set to 2 V and 3 V and repeated.
		3	25p->50i	The interval (execution interval) is set to 2 V.
		4	30p->60i	The interval (execution interval) is set to 2 V.
(4)	Interval(Interval 1)	Set the interval (execution interval) here. Setting range: 1 V to 255 V This setting takes effect only when User has been selected as the Mode setting.		
(5)	Step(Step 1)	Set the amount of movement per interval (execution interval) here.		
		H	Setting range: 1 to 255 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 1H to 255H This setting takes effect only when Up or Down has been selected as the Direction setting.	
The following settings take effect only when User has been selected as the Mode setting.				
(6)	Interval 2 - 4	Set the interval (execution interval) here. Setting range: 0 V to 255 V When a setting other than "0" has been selected, the conditions which have been set are repeated in sequence starting with Interval 1 . Example: Interval 1 → Interval 2 → Interval 3 → Interval 1 → ...		
(7)	Step 2 - 4	Set the amount of movement per interval (execution interval) here. The amount of movement corresponding to the Interval 2-4 setting is set.		
		H	Setting range: 0 to 255 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 0H to 255H This setting takes effect only when Up or Down has been selected as the Direction setting.	

7.2.2 Flickering

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.












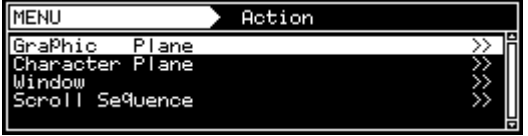




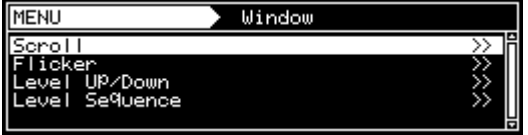
















①	Select Program Edit using    or   , and then press  .	
②	Select Action (PAT) using  or   , and then press  .	
③	Select Window using  or   , and then press  .	
④	Select Flicker using  or   , and then press  .	
⑤	<p>Selecting the items</p> Select the items using  or   and then press  . <p>Setting the parameters</p> Select the parameters using  or   , and then press  . <p>Alternatively:</p> Select the parameters using  to  (number keys), and then press  .	For details on the setting items and parameters, refer to “Table of flicker setting items” below.

Table of flicker setting items

(1)	OFF/ON (0/1)	Set On or Off for window flicker. <table border="1"> <tbody> <tr> <td>0</td> <td>OFF</td> <td>Window flicker is set to Off.</td> </tr> <tr> <td>1</td> <td>ON</td> <td>Window flicker is set to On.</td> </tr> </tbody> </table>	0	OFF	Window flicker is set to Off.	1	ON	Window flicker is set to On.
0	OFF	Window flicker is set to Off.						
1	ON	Window flicker is set to On.						
(2)	Interval	Set the interval (execution interval) here. Setting range: 1 V to 255 V * Set this to 2 V or higher when using interlaced output.						

7.2.3 Level up/down actions

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.





























<p>① Select Program Edit using  or  , and then press .</p>	
<p>② Select Action (PAT) using  or , and then press .</p>	
<p>③ Select Window using  or  , and then press .</p>	
<p>④ Select Level Up/Down using  or , and then press .</p>	
<p>⑤ Selecting the items Select the items using  or  , and then press .</p> <p>Setting the parameters Select the parameters using  or , and then press .</p> <p>Alternatively: Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of level up/down setting items” below.</p>

Table of level up/down setting items

(1)	OFF/ON(0/1)	Set On or Off for level up/down.		
		0	OFF	Level up/down is set to Off.
		1	ON	Level up/down is set to On.
(2)	Direction(0/1)	Set the direction in which the level is changed.		
		0	Up	Select this to increment the level.
		1	Down	Select this to decrement the level.
(3)	Interval	Set the interval (execution interval) here. Setting range: 1 V to 255 V		
(4)	Step	Set the amount of increase/decrease per interval (execution interval) here. Setting range: 1 to 255		

7.2.4 Level sequence action

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.










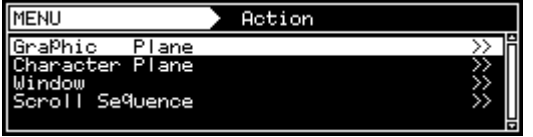





















①	<p>Select Program Edit using  or  , and then press .</p>	
②	<p>Select Action (PAT) using  or  , and then press .</p>	
③	<p>Select Window using  or  , and then press .</p>	
④	<p>Select Level Sequence using  or  , and then press .</p>	
⑤	<p>Selecting the items</p> <p>Select the items using  or   and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of level sequence setting items” below.</p>

Table of level sequence setting items

(1)	OFF/ON(0/1)	Set On or Off for level sequence.	
		0	OFF Level sequence is set to Off.
		1	ON Level sequence is set to On.
(2)	Number	Set the number of level sequences. Setting range: 1 to 16 The sequences are repeated in order for the number of times set here.	
(3)	1 - 16	The RGB levels and interval (execution interval) in each sequence are set here.	
		(R)	Set the R, G, and B levels. 8-bit setting range: 0 to 255
		(G)	9-bit setting range: 0 to 511 10-bit setting range: 0 to 1023
		(B)	11-bit setting range: 0 to 2047 12-bit setting range: 0 to 4095
		(Time)	Set the interval (execution interval) here. Setting range: 1 V to 9999 V

7.3 Graphic plane scrolling actions

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.











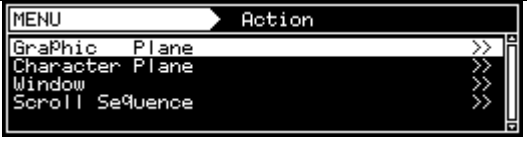




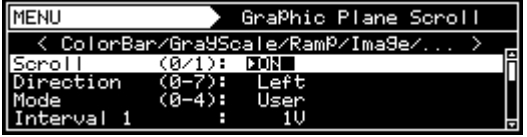











①	<p>Select Program Edit using  →  or  , and then press .</p>	
②	<p>Select Action (PAT) using  or  , and then press .</p>	
③	<p>Select Graphic Plane using  or  , and then press .</p>	
④	<p>Selecting the items</p> <p>Select the items using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of graphic plane setting items” below.</p>

Table of graphic plane setting items

(1)	Scroll(0/1)	Set On or Off for scrolling.		
		0	OFF	Scrolling is set to Off.
		1	ON	Scrolling is set to On.
(2)	Direction(0-7)	Set the direction of scrolling here.		
		0	Left	The window is scrolled to the left.
		1	Right	The window is scrolled to the right.
		2	Up	The window is scrolled up.
		3	Down	The window is scrolled down.
		4	Left Up	The window is scrolled to the top left.
		5	Left Down	The window is scrolled to the bottom left.
		6	Right Up	The window is scrolled to the top right.
		7	Right Down	The window is scrolled to the bottom right.
(3)	Mode(0-4)	Set the interval (execution interval) mode for scrolling here.		
		0	User	The window is scrolled as per the Interval 1-4 setting .
		1	60i->60i	The interval (execution interval) is set to 1 V.
		2	24p->60i 2-3PullDown	The interval (execution interval) is set to 2 V and 3 V and repeated.
		3	25p->50i	The interval (execution interval) is set to 2 V.
		4	30p->60i	The interval (execution interval) is set to 2 V.
(4)	Interval(Interval 1)	Set the interval (execution interval) here. Setting range: 1 V to 255 V This setting takes effect only when User has been selected as the Mode setting.		
(5)	Step(Step 1)	Set the amount of movement per interval (execution interval) here.		
		H	Setting range: 1 to 4095 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 1H to 4095H This setting takes effect only when Up or Down has been selected as the Direction setting.	
The following settings take effect only when User has been selected as the Mode setting.				
(6)	Interval 2 - 4	Set the interval (execution interval) here. Setting range: 0 V to 255 V When a setting other than "0" has been selected, the conditions which have been set are repeated in sequence starting with Interval 1 . Example: Interval 1 → Interval 2 → Interval 3 → Interval 1 → ...		
(7)	Step 2 - 4	Set the amount of movement per interval (execution interval) here. The amount of movement corresponding to the Interval 2-4 setting is set.		
		H	Setting range: 0 to 255 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 0H to 255H This setting takes effect only when Up or Down has been selected as the Direction setting.	

7.4 Character plane scrolling actions

For details of the action selection procedure, refer to “2.2.5 Selecting the actions”.






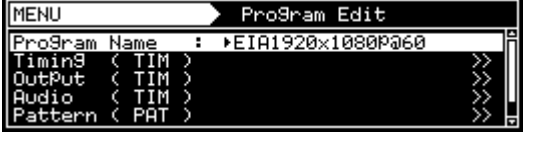









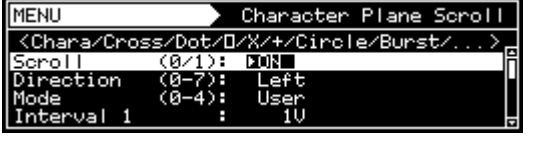











①	<p>Select Program Edit using  →  or  , and then press .</p>	
②	<p>Select Action (PAT) using  or  , and then press .</p>	
③	<p>Select Character Plane using  or  , and then press .</p>	
④	<p>Selecting the items</p> <p>Select the items using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of character plane setting items” below.</p>

Table of character plane setting items

(1)	Scroll(0/1)	Set On or Off for scrolling.		
		0	OFF	Scrolling is set to Off.
		1	ON	Scrolling is set to On.
(2)	Direction(0-7)	Set the direction of scrolling here.		
		0	Left	The window is scrolled to the left.
		1	Right	The window is scrolled to the right.
		2	Up	The window is scrolled up.
		3	Down	The window is scrolled down.
		4	Left Up	The window is scrolled to the top left.
		5	Left Down	The window is scrolled to the bottom left.
		6	Right Up	The window is scrolled to the top right.
		7	Right Down	The window is scrolled to the bottom right.
(3)	Mode(0-4)	Set the interval (execution interval) mode for scrolling here.		
		0	User	The window is scrolled as per the Interval 1-4 setting .
		1	60i->60i	The interval (execution interval) is set to 1 V.
		2	24p->60i 2-3PullDown	The interval (execution interval) is set to 2 V and 3 V and repeated.
		3	25p->50i	The interval (execution interval) is set to 2 V.
		4	30p->60i	The interval (execution interval) is set to 2 V.
(4)	Interval(Interval 1)	Set the interval (execution interval) here. Setting range: 1 V to 255 V This setting takes effect only when User has been selected as the Mode setting.		
(5)	Step(Step 1)	Set the amount of movement per interval (execution interval) here.		
		H	Setting range: 1 to 4095 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 1H to 4095H This setting takes effect only when Up or Down has been selected as the Direction setting.	
The following settings take effect only when User has been selected as the Mode setting.				
(6)	Interval 2 - 4	Set the interval (execution interval) here. Setting range: 0 V to 255 V When a setting other than "0" has been selected, the conditions which have been set are repeated in sequence starting with Interval 1 . Example: Interval 1 → Interval 2 → Interval 3 → Interval 1 → ...		
(7)	Step 2 - 4	Set the amount of movement per interval (execution interval) here. The amount of movement corresponding to the Interval 2-4 setting is set.		
		H	Setting range: 0 to 255 dots This setting takes effect only when Left or Right has been selected as the Direction setting.	
		V	Setting range: 0H to 255H This setting takes effect only when Up or Down has been selected as the Direction setting.	

7.5 Scroll sequence

The scroll sequence settings can be used to perform scrolling for each plane with up to 16 sequences.











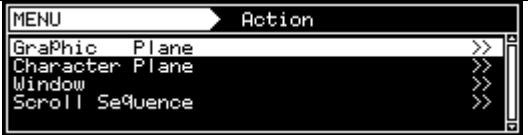




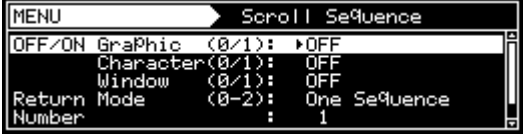











①	<p>Select Program Edit using  →  or  , and then press .</p>	 <pre> MENU → Program Edit Program Name : ▶EIA1920x1080P60 Timing (TIM) >>> Output (TIM) >>> Audio (TIM) >>> Pattern (PAT) >>> </pre>
②	<p>Select Action (PAT) using  or  , and then press .</p>	 <pre> MENU → Action Graphic Plane >>> Character Plane >>> Window >>> Scroll Sequence >>> </pre>
③	<p>Select Scroll Sequence using  or  , and then press .</p>	 <pre> MENU → Scroll Sequence OFF/ON Graphic (0/1): ▶OFF Character (0/1): OFF Window (0/1): OFF Return Mode (0-2): One Sequence Number : 1 </pre>
④	<p>Select the items using  or  , and then press .</p> <p>Setting the parameters</p> <p>Select the parameters using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to , and then press .</p>	<p>For details on the setting items and parameters, refer to “Table of scroll sequence setting items” below.</p>

Table of scroll sequence setting items

(1)	OFF/ON (0/1)	Set On or Off for graphic/character/window plane.		
		0	OFF	
		1	ON	
(2)	Return Mode (0-2)	Set the mode to restore the scroll position.		
		0	One Sequence	Restore the scroll position for each sequence.
		1	All Sequence	Restore the scroll position for all sequences.
		2	Random	Do not restore the scroll position. In this mode, Parameter (scrolling direction, execution interval, amount of movement, and execution time) changes randomly for each sequence regardless of the set value. However, with the exception of the scrolling direction, the set value becomes the upper limit.
(3)	Number	Set the number of sequences. Setting range: 1 to 16		
Parameter				
(1)	Direction	Set the direction of scrolling here.		
		0	L	The window is scrolled to the left.
		1	R	The window is scrolled to the right.
		2	U	The window is scrolled up.
		3	D	The window is scrolled down.
		4	L-U	The window is scrolled to the top left.
		5	L-D	The window is scrolled to the bottom left.
		6	R-U	The window is scrolled to the top right.
		7	R-D	The window is scrolled to the bottom right.
(2)	Interval	Set the interval (execution interval) here. Setting range: 1 to 255 V		
(3)	H Step	Set the amount of horizontal movement per interval (execution interval) here. Setting range: 1 to 255 dots		
(4)	V Step	Set the amount of vertical movement per interval (execution interval) here. Setting range: 1 to 255 H		
(5)	Time	Set the execution time per sequence. Setting range: 1 to 999 V		






















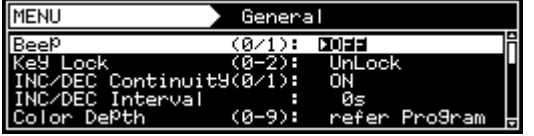
8

VG-882 System Settings

8.1 CONFIG Settings

8.1.1 Beep setting


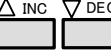

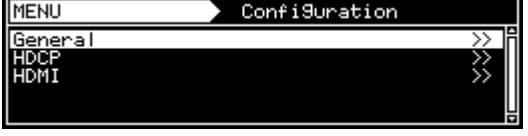



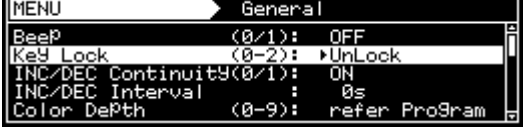











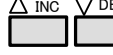

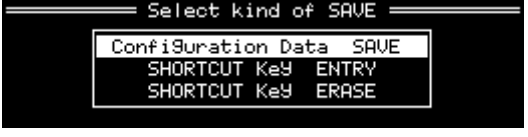
The buzzer, which sounds when any of the keys on the front panel of the VG-882 (or on the RB-1870 or RB-1871) are pressed, can be turned on or off.

<p>① Select Configuration using  or  , and then press .</p>							
<p>② Select General using  or  , and then press .</p>							
<p>③ Select Beep using  or  , and then press .</p> <p>Inputting the parameters</p> <p>Select the parameters using  or , , and then press .</p> <p>Alternatively:</p> <p>Select the parameters using  to  (number keys), and then press .</p>	 <p>This sets the beep.</p> <table border="1"> <tr> <td>0</td> <td>OFF</td> <td>The beep is turned off.</td> </tr> <tr> <td>1</td> <td>ON</td> <td>The beep is turned on.</td> </tr> </table>	0	OFF	The beep is turned off.	1	ON	The beep is turned on.
0	OFF	The beep is turned off.					
1	ON	The beep is turned on.					



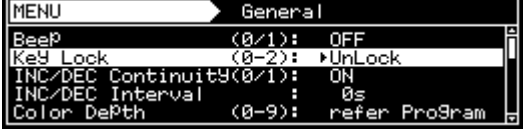
8.1.2 Key lock setting

The keys on the VG-882 can be locked.

Key lock setting

<p>① Select Configuration using  or , and then press .</p>	
<p>② Select General using  or , and then press .</p>	
<p>③ Select Key Lock using  or . . Select the setting using  or . , and then press .</p> <p>Alternatively: Select the setting using  to  (number keys).</p>	<p>UnLock: Key lock is not set.</p> <p>Lock: The keys set by the SP-8870 are locked. * For details on the settings, refer to the instruction manual of the SP-8870 software.</p> <p>ALL Lock: All keys are locked.</p>
<p>④ Call the SAVE menu using .</p> <p>Select Configuration Data SAVE using  or , and then press .</p> <p>After the setting is saved, the key lock setting takes effect when the power is turned off and then turned back on.</p>	






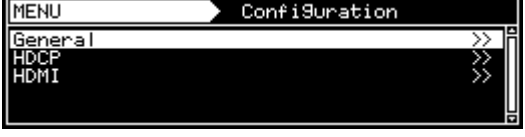




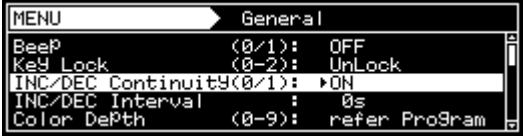









Key lock release and unlock settings

<p>① After the key lock setting is saved, the setting takes effect when the power of the generator is turned on. To release the key lock setting: Press  for about 5 seconds. Key lock is released and MENU is opened.</p>	
<p>② Save the Unlock setting by following steps ① to ④ for the key lock setting.</p>	

* Unless the UnLock setting is saved, the key lock setting will take effect when the generator is turned on.





















8.1.3 INC/DEC Continuity setting

The INC/DEC key continuity function enables the holding down of the INC and DEC keys to be enabled or disabled. This function works only when programs are selected and executed.

①	<p>Select Configuration using  →  or  , and then press .</p>	
②	<p>Select General using  or  , and then press .</p>	
③	<p>Select INC/DEC Continuity using  or  .</p> <p>Select ON/OFF using  or  , and then press .</p> <p>Alternatively, select ON/OFF using  to  (number keys).</p>	<p>ON: Programs continue to be switched while the INC or DEC key is held down.</p> <p>OFF: The number of programs switched corresponds to the number of times the INC or DEC key is pressed. Whether the keys are tapped or held down makes no difference.</p> <p>For the switching intervals, refer to “8.1.4 INC/DEC interval setting”.</p>

8.1.4 INC/DEC interval setting

This function enables the minimum interval for switching programs to be set using the INC and DEC key. This function works only when programs are selected and executed.

①	<p>Select Configuration using  →  or  , and then press .</p>	
②	<p>Select General using  or  , and then press .</p>	
③	<p>Select INC/DEC Interval using  or  .</p> <p>Select the value using  or  , and then press .</p> <p>Alternatively, select the value using  to  (number keys).</p>	<p>Set using a value from 0 s to 10 s The lower the value, the faster the switching speed.</p>





















8.1.5 Color depth setting

This setting makes it possible to specify whether the number of color gray scale bits for the output images is to match the program data or whether it is to be fixed.

For details, refer to “5.1.4 Setting the output gradation (bit length)”.











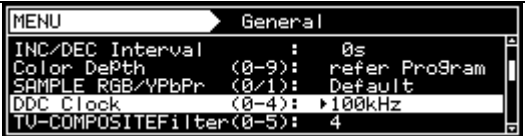









8.1.6 SAMPLE RGB/YPbPr setting

This setting makes it possible to specify whether the color space of the output images is to match the sample program data or whether it is to be fixed to RGB.

<p>① Select Configuration using  →  or  INC  DEC, and then press .</p>	
<p>② Select General using  or  INC  DEC, and then press .</p>	
<p>③ Select SAMPLE RGB/YPbPr using  or  INC  DEC.</p> <p>Select the value using  or  INC  DEC, and then press .</p> <p>Alternatively, select the value using  to  (number keys).</p>	<p>Default: RGB/YPbPr is changed in accordance with the color space registered in the sample program data.</p> <p>RGB: The color space is fixed to RGB. Due to the stipulations of the DVI and other standards, the color difference signals are output at the “Default” setting when the EIA timing or other such data of the sample program has been selected for outputs with no color difference signals. However, fixing the color space to RGB enables RGB output without having to edit the program.</p>

8.1.7 DDC clock setting

The DDC clock can be set.

<p>① Select Configuration using  →  or  INC  DEC, and then press .</p>	
<p>② Select General using  or  INC  DEC, and then press .</p>	
<p>③ Select DDC Clock using  or  INC  DEC.</p> <p>Select the value using  or  INC  DEC, and then press .</p> <p>Alternatively, select the value using  to  (number keys).</p>	<p>Select 20, 40, 60, 80 or 100 kHz. The factory setting is 100 kHz.</p>




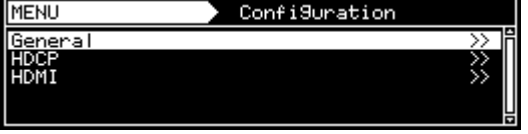



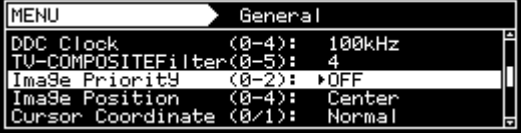









8.1.8 Image - priority setting

Image priority settings can be performed.

Data can be saved both in the internal memory of the VG-882 or in the USB memory.

This setting is used to set the priority when both sets of image data are valid.











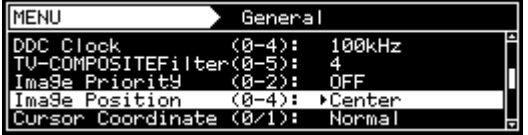









This setting provides some advantages such as increasing the drawing speed, distributing the data to the internal memory and USB memory, and calling the saved data.

<p>① Select Configuration using  or , and then press .</p>	
<p>② Select General using  or , and then press .</p>	
<p>③ Select Image Priority using  or  .</p> <p>Select the setting using  or , , and then press .</p> <p>Alternatively, select the setting using  to  (number keys).</p>	<p>OFF: When the USB memory device is connected, the image data in the USB memory is valid and the image data in the internal memory is invalid.</p> <p>Internal > USB: The image data both in the internal memory and the USB memory are valid. In this mode, reading of the image data in the internal memory takes priority. An increase in the drawing speed can be expected.</p> <p>USB > Internal: The image data both in the internal memory and the USB memory are valid. In this mode, reading of the image data in the USB memory takes priority.</p>

8.1.9 Image position setting

The image position setting can be used to change the bitmap display position.










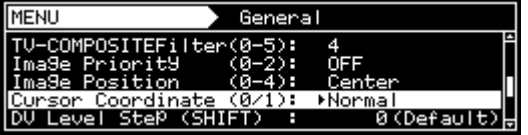









* **Bitmap resolution can be set only when its resolution is lower than display resolution.**

①	<p>Select Configuration using  →  or  INC  DEC, and then press .</p>	
②	<p>Select General using  or  INC  DEC, and then press .</p>	
③	<p>Select Image Position using  or  INC  DEC.</p> <p>Select the setting using  or  INC  DEC, and then press .</p> <p>Alternatively, select the setting using  to  (number keys).</p>	<p>For details of the setting, refer to table below.</p>

Key	LCD display	Description
0	Center	The image is displayed at the center of the screen.
1	Top-Left	The image is displayed at the top left of the screen.
2	Bottom-Left	The image is displayed at the bottom left of the screen.
3	Top-Right	The image is displayed at the top right of the screen.
4	Bottom-Right	The image is displayed at the bottom right of the screen.

8.1.10 Cursor coordinate setting

The position for displaying the cursor coordinates can be set. For details on the On/Off setting for the coordinate display, refer to “4.12 Cursor patterns”.


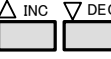



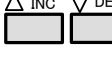

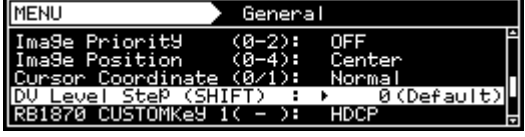








<p>① Select Configuration using  or  , and then press .</p>	
<p>② Select General using  or  , and then press .</p>	
<p>③ Select Cursor Coordinate using  or  .</p> <p>Select the setting using  or  , and then press .</p> <p>Alternatively, select the setting using  to  (number keys).</p>	<p>For details of the setting, refer to table below.</p>

Key	LCD display	Description
0	Normal	The coordinates are displayed at the top left or right of the display.
1	Move with Curs	The display appears near the actual cursor coordinates and moves as the cursor moves.

8.1.11 Digital video level step setting

This function can be used to increase the digital video level adjustment speed by pressing the SHIFT key while adjusting the digital video level.






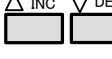

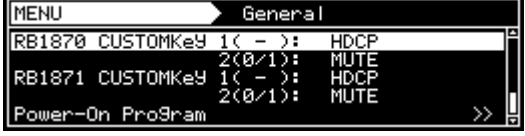

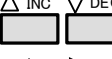






Set the number of steps at this time here. (For details of the adjusting the level, refer to "5.1.8 Setting the digital video level".)

<p>① Select Configuration using  or , and then press .</p>	
<p>② Select General using  or , and then press .</p>	
<p>③ Select the DV Level Step (SHIFT) using  or . Select the setting using  or , , and then press . Alternatively, select the setting using  to  (number keys).</p>	<p>Setting range: 0 (factory setting), 1 to 32767</p> <p>When this is set to "0", the default number of steps that depends on the bit length (level) is used.</p> <p>When this is set to "1 to 32767", the number of set steps is used regardless of the bit length (level).</p>

8.1.12 RB-1870 CUSTOM Key 1/2 and RB-1871 CUSTOM Key 1/2


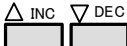

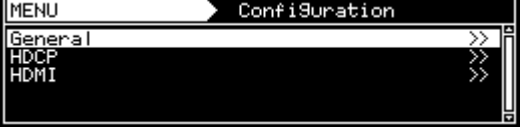





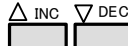
















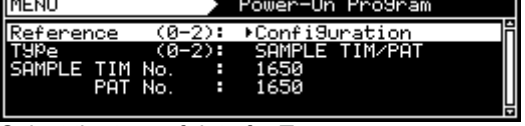
RB-1870 Custom Key 2 and RB-1871 Custom Key 2 can be set.

Either MUTE or HDMI AV-MUTE can be selected.

<p>① Select Configuration using  or , and then press .</p>	
<p>② Select General using  or , and then press .</p>	
<p>③ Select CUSTOM Key 2 or RB-1871 CUSTOM Key 2 using  or . Select the setting using  or , , and then press . Alternatively, select the setting using  to  (number keys).</p>	<p>MUTE: Operates as audio mute.</p> <p>HDMI AV-MUTE: Operates as HDMI AV-mute. This is set to Off when the program is switched.</p> <p>* When the setting is changed, MUTE or HDMI AV-MUTE is set to Off.</p>

8.1.13 Operation mode at power-on

The program to be executed immediately after turning on the power of the VG-882 can be set.

<p>① Select Configuration using  or , and then press .</p>	
<p>② Select General using  or , and then press .</p>	
<p>③ Select Power-On-Program using  or , and then press .</p>	
<p>④ Select the setting using  or , , and then press .</p> <p>Alternatively:</p> <p>Select the setting using  to  (number keys), and then press .</p>	<p>Reference None(not execute) : The program is not executed when the generator's power is turned on.</p> <p>Configuration : The program which was set in step ⑤ is executed.</p> <p>Last Memory : The Last Memory operation (the program which was executed immediately before the generator's power was turned off) is executed. However, some restrictions apply. Refer to notes below.</p>
<p>⑤ When Configuration has been selected</p> <p>Select the setting using  or , , and then press .</p> <p>Alternatively:</p> <p>Select the setting using  to  (number keys), and then press .</p>	 <p>Select the type of data for Type.</p> <p>Type SAMPLE TIM/PAT : Internal sample data (timing or pattern data)</p> <p>USER Program : Program data created and registered by the user.</p> <p>Group : Group data created and registered by the user.</p>

* Last Memory restrictions

1. The user program will be executed in cases where the data types differ, such as when internal sample data is selected as the timing data and a user program is selected as the pattern data.
(Example: When TIM=1001 and PAT=1, then TIM=PAT=1 is executed.)
2. The timing data number will be executed in cases where user programs are selected as both the timing data and pattern data but their numbers differs.
(Example: When TIM=5 and PAT=1, then TIM=PAT=5 is executed.)
3. When Last Memory is executed using a group, the data at the head of the group will be executed.

9

Other Functions

9.1 Copying and erasing data

The data stored on the media (internal memory or USB memory) can be copied or erased.


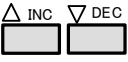




Avoid removing the USB memory device or turning off the power while data is being copied or erased.

9.1.1 Copying programs


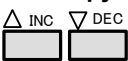



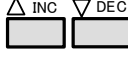









Various methods can be used to copy the program data.






<p>① Select Data Copy/Erase using or or or , and then press .</p>	
<p>② Select Copy: Program using or or , and then press .</p>	
<p>③ Select the program using or or , and then press .</p> <p>Alternatively:</p> <p>Select the program using to (number keys), and then press .</p>	<p>Type: Select the type of data copying. Source: Select the copy source number and media. Destination: Select the copy destination number and media.</p>

<p>Program categories for Type 1-Program Select this when copying stored programs in their original form.</p> <p>1-SAMPLE TIM&PAT->Program Select this when combining the timing data and pattern data among the internal sample data to create a program.</p> <p>1-TIM(Timing/Output/Audio) Select this when combining the timing data of the source program with the pattern data of the destination program and overwriting the existing program. * This setting cannot be used when the program does not exist at the destination end.</p> <p>1-PAT(Pattern/Action) Select this when combining the pattern data of the source program with the timing data of the destination program and overwriting the existing program. * This setting cannot be used when the program does not exist at the destination end.</p> <p>Multiple-Program Select this when copying multiple programs.</p>	<p>Differences in the settings 1-Program Select the source and destination program numbers and media.</p> <p>1-SAMPLE TIM&PAT->Program Select the timing or pattern data number among the internal sample data to serve as the source, and select the program number and media to serve as the destination.</p> <p>1-TIM(Timing/Output/Audio) Select the program number and media for the timing data to be used as the source, and select the program number and media for the pattern data to be used as the destination.</p> <p>1-PAT(Pattern/Action) Select the program number and media for the pattern data to be used as the source, and select the program number and media for the timing data to be used as the destination.</p> <p>1-Multiple-Program Select the range of the source and destination program numbers and the media.</p>
<p>④ Select EXECUTE using  or , and then press  to complete the copying.</p>	

9.1.2 Copying user characters











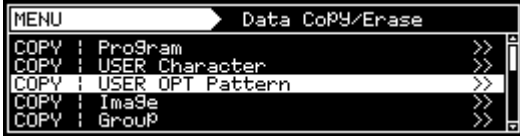













User character pattern data can be copied.

<p>① Select Data Copy/Erase using  or , and then press .</p>	
<p>② Select Copy: USER Character using  or , and then press .</p>	
<p>③ Select the characters using  or , and then press .</p> <p>Alternatively: Select the characters using  to , and then press .</p>	 <p>Source: Select the copy source character code (such as e0H) and the media.</p> <p>Destination: Select the copy destination character code (such as e0H) and the media.</p>

<p>④ Select EXECUTE using  or  INC  DEC, and then press  to complete the copying.</p>	
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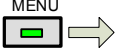























9.1.3 Copying user optional patterns

User optional pattern data can be copied.

<p>① Select Data Copy/Erase using  or  or  INC  DEC, and then press .</p>	
<p>② Select Copy: USER OPT Pattern using  or  INC  DEC, and then press .</p>	
<p>③ Select the patterns using  or  INC  DEC, and then press .</p> <p>Alternatively:</p> <p>Select the patterns using  to  (number keys), and then press .</p>	 <p>Source: Select the copy source pattern number and media.</p> <p>Destination: Select the copy destination pattern number and media.</p>
<p>④ Select EXECUTE using  or  INC  DEC, and then press  to complete the copying.</p>	

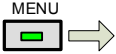










9.1.4 Copying images














Image pattern data can be copied.

①	<p>Select Data Copy/Erase using  or  or  , and then press .</p>	
②	<p>Select Copy: Image using  or  , and then press .</p>	
③	<p>Select the images using  or  , and then press .</p> <p>Alternatively: Select the images using  to , and then press .</p>	 <p>Source: Select the copy source pattern number and media.</p> <p>Destination: Select the copy destination pattern number and media.</p>
④	<p>Select EXECUTE using  or  , and then press  to complete the copying.</p>	

9.1.5 Copying groups


























Group data can be copied.

①	<p>Select Data Copy/Erase using  or  or  , and then press .</p>	
②	<p>Select COPY: Group using  or  , and then press .</p>	

③	<p>Select the groups using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the groups using  to  (number keys), and then press .</p>	 <p>Source: Select the copy source group number and media.</p> <p>Destination: Select the copy destination group number and media.</p>
④	<p>Select EXECUTE using  or  , and then press  to complete the copying.</p>	

9.1.6 Copying auto executions

























Auto execution data can be copied.

①	<p>Select Data Copy/Erase using  ,  or  , and then press .</p>	
②	<p>Select COPY: Auto using  or  , and then press .</p>	
③	<p>Select the auto executions using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the auto executions using  to  (number keys), and then press .</p>	 <p>Source: Select the copy source media.</p> <p>Destination: Displays the copy destination media. (When the copy source media is selected, the copy destination media is selected automatically.)</p>
④	<p>Select EXECUTE using  or  , and then press  to complete the copying.</p>	

9.1.7 Copying all data

All data can be copied together.

The time taken to copy the data differs according to how much data is to be copied. It is not possible to cancel copying once it has been initiated.







<p>① Select Data Copy/Erase using  → or  or  , and then press .</p>	
<p>② Select COPY: All using  or  , and then press .</p>	
<p>③ Select all data using  or  , and then press .</p> <p>Alternatively: Select all data using  to  (number keys), and then press .</p>	 <p>Source: Select the copy source media.</p> <p>Destination: Displays the copy destination media. (When the copy source media is selected, the copy destination media is selected automatically.)</p>
<p>④ Select EXECUTE using  or  , and then press  to complete the copying.</p>	






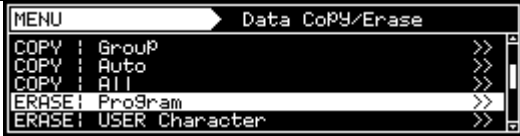

















Avoid removing the USB memory device or turning off the power while data is being copied. Otherwise the USB memory and its data may be damaged.

9.1.8 Erasing programs






























Program data can be erased. Multiple data can be erased at the same time.

<p>① Select Data Copy/Erase using  → or  or  , and then press .</p>	
---	--

<p>② Select ERASE: Program using  or  INC  DEC  SET, and then press .</p>	
<p>③ Select the programs using  or  INC  DEC  SET, and then press .</p> <p>Alternatively:</p> <p>Select the programs using  to  (number keys), and then press  SET.</p>	 <p>Select the range of the program numbers to be erased and the media.</p>
<p>④ Select EXECUTE using  or  INC  DEC  SET, and then press  to erase the programs.</p>	

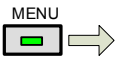









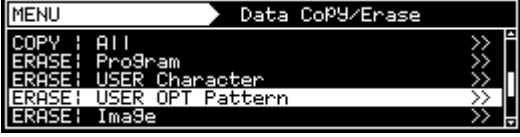













9.1.9 Erasing user characters

User character pattern data can be erased.

<p>① Select Data Copy/Erase using   or  or  INC  DEC  SET, and then press .</p>	
<p>② Select ERASE: USER Character using  or  INC  DEC  SET, and then press .</p>	
<p>③ Select the characters using  or  INC  DEC  SET, and then press .</p> <p>Alternatively:</p> <p>Select the characters using  to  (number keys), and then press  SET.</p>	 <p>Select the character code (such as e0H) to be erased and the media.</p>
<p>④ Select EXECUTE using  or  INC  DEC  SET, and then press  to erase the user characters.</p>	

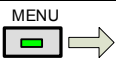


















9.1.10 Erasing user optional patterns






User optional pattern data can be erased.

<p>① Select Data Copy/Erase using  →  or  , and then press .</p>	
<p>② Select ERASE: USER OPT Pattern using  or  , and then press .</p>	
<p>③ Select the user optional pattern number using  or  , and then press .</p> <p>Alternatively: Select the user optional pattern number using 0/STATUS  to  (number keys), and then press .</p>	 <p>Select the number of the pattern to be erased and the media.</p>
<p>④ Select EXECUTE using  or  , and then press  to erase the user optional pattern.</p>	

9.1.11 Erasing images













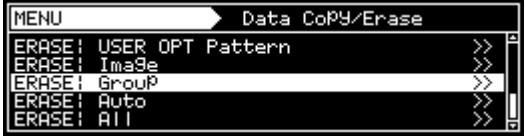














Image pattern data can be erased.

<p>① Select Data Copy/Erase using  →  or  , and then press .</p>	
<p>② Select ERASE: Image using  or  , and then press .</p>	
<p>③ Select the image number using  or  , and then press .</p> <p>Alternatively: Select the image number using  to  (number keys), and then press .</p>	 <p>Select the number of the image to be erased and the media.</p>

<p>④ Select EXECUTE using  or  , and then press .</p>	
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




9.1.12 Erasing groups














Group pattern data can be erased. Multiple data can be erased at the same time.

<p>① Select Data Copy/Erase using    or  , and then press .</p>	
<p>② Select ERASE: Group using  or   , and then press .</p>	
<p>③ Select the group number using  or   , and then press .</p> <p>Alternatively:</p> <p>Select the group number using  to  (number keys), and then press .</p>	 <p>Select the range of the numbers of the groups to be erased and the media.</p>
<p>④ Select EXECUTE using  or  , and then press .</p>	

9.1.13 Erasing auto executions


























Auto execution data can be erased.

<p>① Select Data Copy/Erase using    or  , and then press .</p>	
<p>② Select ERASE: Auto using  or   , and then press .</p>	

<p>③ Select the media using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the media using  to  (number keys), and then press .</p>	 <p>Select the media whose data is to be erased.</p>
<p>④ Select EXECUTE using  or  , and then press  to erase the automatic executions.</p>	

9.1.14 Erasing all data


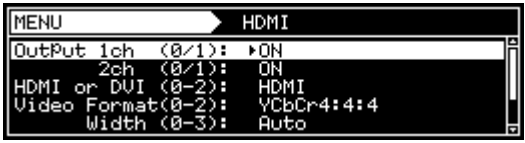

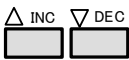

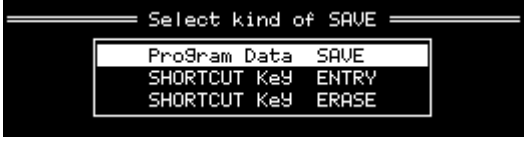

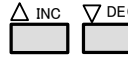








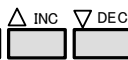


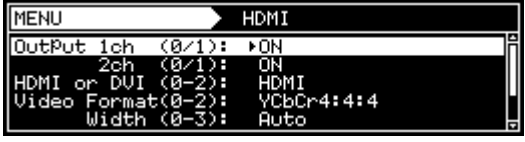



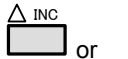




All data can be erased together.

<p>① Select Data Copy/Erase using  ,  or  , and then press .</p>	
<p>② Select ERASE: All using  or , , and then press .</p>	
<p>③ Select the media using  or  , and then press .</p> <p>Alternatively:</p> <p>Select the media with the data using  to  (number keys), and then press .</p>	 <p>Select the media whose data is to be erased.</p>
<p>④ Select EXECUTE using  or  , and then press  to erase all data.</p>	

9.2 Short-cut keys


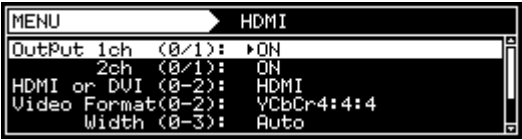



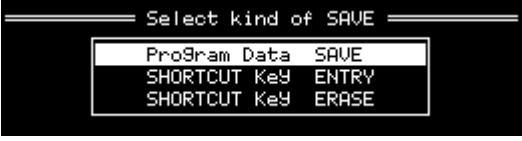






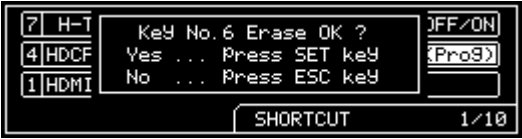
It is possible to set up to any of 90 frequently used menu screens so that they can be called by pressing the short-cut keys.

Registering a short-cut key

<p>① Display the menu screen to be registered as a short-cut, and then press .</p> <p>In the example given here, the HDMI setting screen is registered.</p>	
<p>② Select SHORTCUT Key ENTRY using  or , and then press .</p>	
<p>③ Select the position where the screen is to be registered using  or  (for page selection), and then press .</p> <p>In this example, the screen is saved to 7 on the first page. * The selected positions 1 to 9 correspond to  to .</p>	 <p>Current page/total pages </p>
<p>④ Set the name of the registered screen. To use the name already displayed, select OK, and then press .</p> <p>To change the name: Change the name using   , select OK, and then press .</p> <p>The new name in this example is HDMI-1.</p> <p>When the setting is saved, "Save Completed" is displayed and the display returns to the screen in ① above.</p>	 
<p>⑤ Calling a menu screen with SHORTCUT Press  to display the SHORTCUT screen.</p> <p>HDMI-1, which is the registered screen, is now registered to shortcut 7 on the first page.</p> <p>Use , or alternatively use   or  (for page selection) and then press  to display the HDMI setting screen.</p>	 <p>Current page/last registered page </p>

* The short-cut key function may be disabled on some display screens. Use ESC to return to the previous screen, and press the keys again.

Deleting a short-cut key

<p>① To delete a short-cut, display the menu screen, and then press .</p> <p>In the example given here, the HDMI setting screen is registered.</p>	
<p>② Select SHORTCUT Key ERASE using  or , and then press .</p>	
<p>③ Select the short-cut to be deleted using  or  (for page selection), and then press .</p> <p>In this example, short-cut 6 on the first page is deleted.</p>	 <p>Current page/total pages</p>
<p>④ Press  to delete the short-cut. Press  to cancel deletion.</p>	

9.3 Information

The main unit's version, serial number and other information can be displayed.








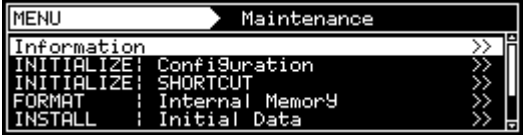




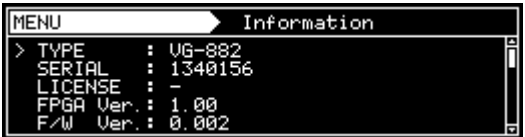
<p>①</p> <p>Select Maintenance using  → </p> <p>or  , and then press .</p>	
<p>②</p> <p>Select Information, and then press .</p>	
<p>③</p> <p>Scroll the display up or down using  or  or  .</p>	

Table of display items

Example of display	Description
TYPE : VG-882 SERIAL : ***** (3505001) LICENSE : - (Macrovision) FPGA Ver. : *.* (1.00) F/W Ver. : *.* (1.000) BOOT *.* (1.001)	Product name Serial number of main unit Usable optional functions Hardware version Firmware version Boot data version
- BOARD ----- MAIN) SERIAL : ***** (3505001) REVISION : * (C) USER ADJUSTMENT VALUE: VGA = +0/+0/+0 YPbPr/D5 = +0/+0/+0	(The following is the board information.) Serial number of main board Board revision of main board User adjustment values (dependent on the unit type) VGA output adjustment value YPbPr/D5 output adjustment value
(EXT) TYPE : TV Encoder SERIAL : ***** (3505001) REVISION : * (0) USER ADJUSTMENT VALUE: CVBS, Y/C = +0 RGB(SCART) = +0	Serial number of EXT board Board revision of EXT board CVBS and Y/C output adjustment value RGB (SCART) output adjustment value
- INTERNAL MEMORY ----- Free Space : ***** KB (87110 KB)	(The following is the internal memory information.)

9.4 Data initialization












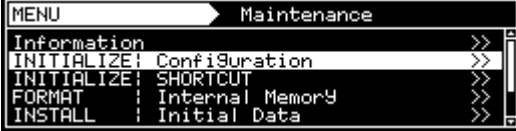




Initialization restores the system settings and short-cut data to the factory settings.

CAUTION

- Performing this operation initializes all data stored in the internal memory.
- The generator must be re-started after initialization.











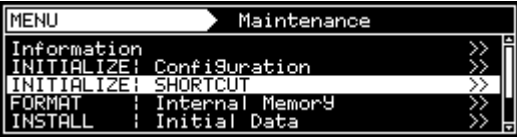




9.4.1 Initializing the system settings

This operation restores the system settings data to the factory settings.

①	Select Maintenance using  →   or   , and then press  .	
②	Select INITIALIZE: Configuration using  or   , and then press  .	
③	Press  to execute initialization. : : : : : : : : : Initialization is completed.	  
④	Cycle the power of the generator.	

9.4.2 Initializing the short-cut data

This operation restores the short-cut data to the factory settings.

<p>①</p> <p>Select Maintenance using  → </p> <p>or  , and then press .</p>	
<p>②</p> <p>Select INITIALIZE: SHORTCUT using </p> <p>or  , and then press .</p>	
<p>③</p> <p>Press  to execute initialization.</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p style="text-align: center;">:</p> <p>Initialization is completed.</p>	 <p style="text-align: center;">↓</p>  <p style="text-align: center;">↓</p> 
<p>④ Cycle the power of the generator.</p>	

9.5 Internal memory formatting and data installation

The following describes the procedure for formatting the internal memory.



CAUTION

Formatting the internal memory will delete the data required for the generator's operation, so the steps for data installation and firmware version updating must be taken after the memory has been formatted.

Procedure

1. Have the required data ready.
2. Format the internal memory. Refer to "**Formatting procedure**".
3. Turn on the power.
4. Install the data. Refer to "**Data installation procedure**".
5. Turn off the power.
6. Update the firmware version (partial update). Refer to "**Firmware version update procedure**".
7. Turn on the power.

Required data





















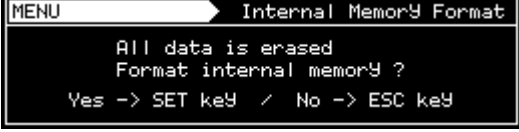
- Copy the data in the **InitialData** folder on the provided SP-8870 software installation CD to the USB memory and use this data.
- If the firmware version has been updated at some point after the generator was purchased, the data of the updated version will be required.

Further action must be taken in the following cases.

For details, contact your dealer or the Astrodesign Sales Department.

- When using APCD patterns (optional)
APDC patterns are not included in the data provided with the SP-8870 software.
- When the VG generator is not a standard model
The data provided with the SP-8870 software is for a standard model.

Formatting procedure











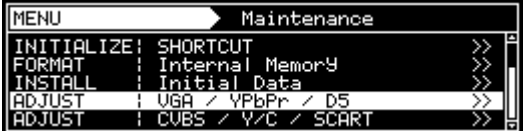



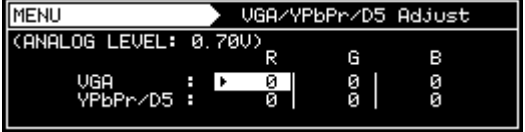


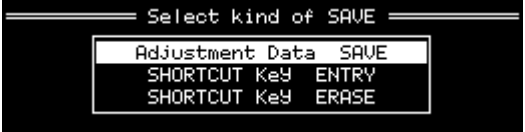
①	<p>Select Maintenance using  →  </p> <p>or  INC  DEC or  or , and then press .</p>	
②	<p>Select FORMAT: Internal Memory using  or  INC  DEC or  or , and then press .</p>	
③	<p>Initiate formatting by pressing .</p>	
④	<p>A confirmation message is displayed.</p> <p>To continue with formatting, select .</p> <p>To cancel formatting, select .</p> <p>⋮</p> <p>⋮</p> <p>Formatting is completed.</p>	 <p style="text-align: center;">↓</p> <p style="text-align: center;">Now Formatting ...</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Complete >>> Please Reboot!</p>
⑤	<p>Cycle the power, and then install the data.</p>	

9.6 Adjustments

9.6.1 Adjusting the video levels of the component output

The video levels of the component output can be adjusted. After adjusting the levels, save the data.

* YPbPr output and D5 output share the same adjustment value.












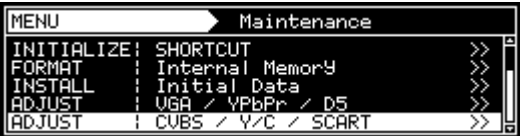






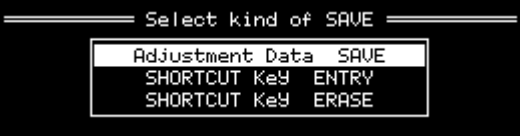
①	<ul style="list-style-type: none"> • Display the raster “white” pattern (No.1121) using any timing data. • Check that the digital levels are the maximum values. (Refer to “5.1.8 Setting the digital video level”.) • Set the analog levels to the desired values. (Refer to “5.1.7 Setting the analog video level”.) 	
②	Select Maintenance using  →  or  INC  DEC, and then press  .	
③	Select ADJUST: VGA/YPbPR/D5 using  or  INC  DEC, and then press  .	
④	Select the items to be set using  , and then while monitoring the actual level with an oscilloscope or other measuring device, adjust the value set in ① up using  INC or down using  DEC. * Perform this step for R, G, and B. * VGA and YPbPr (D5) can be adjusted independently of each other.	
⑤	Press  , select Adjustment Data SAVE , and then press  . The message “Save Completed” is displayed, and then the display returns to the screen in ⑤ above.	

9.6.2 Adjusting the video levels of the composite output

The video levels of the composite output can be adjusted. After adjusting the levels, save the data.

* The adjustment values for CVBS and Y/C are also applied to CVBS and Y/C for SCART output.

* The RGB adjustment value is applied only to SCART output.

①	<ul style="list-style-type: none"> • Display the raster “white” pattern (No.1121) using any timing data. • Check that the digital levels are the maximum values. (Refer to “5.1.8 Setting the digital video level”.) • Set the analog levels to the desired values. (Refer to “5.1.7 Setting the analog video level”.) 	
②	<p>Select Maintenance using  →  </p> <p>or  , and then press .</p>	
③	<p>Select ADJUST: CVBS/Y/C/SCART using  or  , and then press .</p>	
④	<p>Select the items to be set using ,</p> <p>and then while monitoring the actual level with an oscilloscope or other measuring device,</p> <p>adjust the value set in ① up using  or</p> <p>down using .</p> <p>* CVBS and Y/C share the same adjustment value.</p> <p>* R, G, and B share the same adjustment value.</p>	
⑤	<p>Press , select Adjustment Data SAVE,</p> <p>and then press .</p> <p>The message “Save Completed” is displayed, and then the display returns to the screen in ⑤ above.</p>	

10

Internal data

10.1 Program data

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1001	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	EIA640x480p@59.94	100%/100% color bars, horizontal direction	Color Bar 100/100-H
1002	31.50	60.00	25.200	640x480	Prog	N	N	ANALOG	RGB	EIA640x480p@60	100%/75% color bars, horizontal direction	Color Bar 100/75-H
1003	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@59.94	75%/75% color bars, horizontal direction	Color Bar 75/75-H
1004	31.50	60.00	27.027	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@60	SMPTE color bars	Color Bar SMPTE
1005	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@59.94	RGBW color bars, vertical direction	Color Bar RGBW-V
1006	31.50	60.00	27.027	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@60	xvYCC 4% color bars	Color Bar xvYCC 4%
1007	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@59.94	xvYCC 8% color bars	Color Bar xvYCC 8%
1008	45.00	60.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@60	xvYCC 12% color bars	Color Bar xvYCC 12%
1009	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@59.94	100%/100% color bars, horizontal direction 2	Color Bar 100/100-H2
1010	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@60		
1011	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@59.94		
1012	15.75	60.00	27.028	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@60		
1013	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@59.94		
1014	15.75	60.00	27.028	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@60		
1015	15.73	60.05	27.000	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240p@59.94		
1016	15.75	60.12	27.028	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240p@60		
1017	15.73	59.83	27.000	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240p@59.94		
1018	15.75	59.89	27.028	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240p@60		
1019	15.73	60.05	27.000	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240pW@59.94		
1020	15.75	60.12	27.028	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240pW@60		

Internal Program Data: No. 1001 ~ 1020

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1021	15.73	59.83	27.000	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240pW@59.94		
1022	15.75	59.89	27.028	1440x240	Prog	N	N	ANALOG	YPbPr	EIA1440x240pW@60		
1023	15.73	59.94	54.000	2880x480	Int	N	N	ANALOG	YPbPr	EIA2880x480i@59.94		
1024	15.75	60.00	54.054	2880x480	Int	N	N	ANALOG	YPbPr	EIA2880x480i@60		
1025	15.73	59.94	54.000	2880x480	Int	N	N	ANALOG	YPbPr	EIA2880x480iW@59.94		
1026	15.75	60.00	54.054	2880x480	Int	N	N	ANALOG	YPbPr	EIA2880x480iW@60		
1027	15.73	60.05	54.000	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240p@59.94		
1028	15.75	60.11	54.054	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240p@60		
1029	15.73	59.83	54.000	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240p@59.94		
1030	15.75	59.89	54.054	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240p@59.94		
1031	15.73	60.05	54.000	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240pW@59.94	Gray scale, horizontal direction (4 steps)	Gray Scale H-4step
1032	15.75	60.11	54.054	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240pW@60	Gray scale, horizontal direction (8 steps)	Gray Scale H-8step
1033	15.73	59.83	54.000	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240pW@59.94	Gray scale, horizontal direction (16 steps)	Gray Scale H-16step
1034	15.75	59.89	54.054	2880x240	Prog	N	N	ANALOG	YPbPr	EIA2880x240pW@60	Gray scale, horizontal direction (32 steps)	Gray Scale H-32step
1035	31.47	59.94	54.000	1440x480	Prog	N	N	ANALOG	YPbPr	EIA1440x480p@59.94	Gray scale, horizontal direction (64 steps)	Gray Scale H-64step
1036	31.50	60.00	54.054	1440x480	Prog	N	N	ANALOG	YPbPr	EIA1440x480p@60	Gray scale, horizontal direction (128 steps)	Gray Scale H-128step
1037	31.47	59.94	54.000	1440x480	Prog	N	N	ANALOG	YPbPr	EIA1440x480pW@59.94	Gray scale, horizontal direction (256 steps)	Gray Scale H-256step
1038	31.50	60.00	54.054	1440x480	Prog	N	N	ANALOG	YPbPr	EIA1440x480pW@60	Gray scale, vertical direction (4 steps)	Gray Scale V-4step
1039	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@59.94	Gray scale, vertical direction (8 steps)	Gray Scale V-8step
1040	67.50	60.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@60	Gray scale, vertical direction (16 steps)	Gray Scale V-16step

Internal Program Data : No. 1021 ~ 1040

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1041	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576p@50	Gray scale, vertical direction (32 steps)	Gray Scale V-32step
1042	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576pW@50	Gray scale, vertical direction (64 steps)	Gray Scale V-64step
1043	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@50	Gray scale, vertical direction (128 steps)	Gray Scale V-128step
1044	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@50	Gray scale, vertical direction (256 steps)	Gray Scale V-256step
1045	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576i@50	Linear ramp, horizontal direction	Ramp Linear-H
1046	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576iW@50	Linear ramp, vertical direction	Ramp Linear-V
1047	15.63	50.08	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288p@50	Linear ramp, horizontal and vertical directions	Ramp Linear-HV
1048	15.63	49.92	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288p@50		Ramp Linear-H RGBW-H
1049	15.63	49.76	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288p@50		Ramp Linear-V RGBW-V
1050	15.63	50.08	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288pW@50		Ramp Linear-H RGBW-V
1051	15.63	49.92	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288pW@50	Turn ramp	Ramp-H 1Level/dot
1052	15.63	49.76	27.000	1440x288	Prog	N	N	ANALOG	YPbPr	EIA1440x288pW@50		
1053	15.63	50.00	54.000	2880x576	Int	N	N	ANALOG	YPbPr	EIA2880x576i@50		Ramp Linear H:G V:R
1054	15.63	50.00	54.000	2880x576	Int	N	N	ANALOG	YPbPr	EIA2880x576iW@50		Ramp Linear H:B V:R
1055	15.63	50.08	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288p@50		Ramp Linear H:B V:G
1056	15.63	49.92	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288p@50		Ramp Linear H:R V:G
1057	15.63	49.76	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288p@50		Ramp Linear H:R V:B
1058	15.63	50.08	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288pW@50		Ramp Linear H:G V:B
1059	15.63	49.92	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288pW@50	128-step gray scale ramp (top: R → L, bottom: R ← L)	Ramp 128 R->L L->R
1060	15.63	49.76	54.000	2880x288	Prog	N	N	ANALOG	YPbPr	EIA2880x288pW@50	256-step gray scale ramp (top: R → L, bottom: R ← L)	Ramp 256 R->L L->R

Internal Program Data: No. 1041 ~ 1060

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1061	31.25	50.00	54.000	1440x576	Prog	N	N	ANALOG	YPbPr	EIA1440x576p@50		
1062	31.25	50.00	54.000	1440x576	Prog	N	N	ANALOG	YPbPr	EIA1440x576pW@50		
1063	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@50		
1064	26.97	23.98	74.176	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@23.97		
1065	27.00	24.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@24		
1066	28.13	25.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@25		
1067	33.72	29.97	74.176	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@29.97		
1068	33.75	30.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1920x1080p@30		
1069	31.47	59.94	108.000	2880x480	Prog	N	N	ANALOG	YPbPr	EIA2880x480p@59.94		
1070	31.50	60.00	108.108	2880x480	Prog	N	N	ANALOG	YPbPr	EIA2880x480p@60		
1071	31.47	59.94	108.000	2880x480	Prog	N	N	ANALOG	YPbPr	EIA2880x480pW@59.94	Linear ramp, horizontal direction + scroll	Ramp Linear-H Scroll
1072	31.50	60.00	108.108	2880x480	Prog	N	N	ANALOG	YPbPr	EIA2880x480pW@60	Linear ramp, vertical direction + scroll	Ramp Linear-V Scroll
1073	31.25	50.00	108.000	2880x576	Prog	N	N	ANALOG	YPbPr	EIA2880x576p@50	Linear ramp, horizontal and vertical directions + scroll	Ramp Linear-HV Scroll
1074	31.25	50.00	108.000	2880x576	Prog	N	N	ANALOG	YPbPr	EIA2880x576pW@50		
1075	31.25	50.00	72.000	1920x1080	Int	P	N	HDTV1250(AUS)	YPbPr	EIA1920x1080i@50		
1076	56.25	100.00	148.500	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@100		
1077	75.00	100.00	148.500	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@100		
1078	62.50	100.00	54.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576p@100		
1079	62.50	100.00	54.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576pW@100		
1080	31.25	100.00	54.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576i@100		

Internal Program Data : No. 1061 ~ 1080

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1081	31.25	100.00	54.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576iW@100		
1082	67.43	119.88	148.352	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@119.88		
1083	67.50	120.00	148.500	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1920x1080i@120		
1084	89.91	119.88	148.352	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@119.88		
1085	90.00	120.00	148.500	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@120		
1086	62.94	119.88	54.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@119.88		
1087	63.00	120.00	54.054	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@120		
1088	62.94	119.88	54.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@119.88		
1089	63.00	120.00	54.054	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@120		
1090	31.47	119.88	54.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@119.88		
1091	31.50	120.00	54.054	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@120		
1092	31.47	119.88	54.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@119.88		
1093	31.50	120.00	54.054	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@120		
1094	125.00	200.00	108.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576p@200		
1095	125.00	200.00	108.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA720x576pW@200		
1096	62.50	200.00	108.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576i@200		
1097	62.50	200.00	108.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA1440x576iW@200		
1098	125.87	239.76	108.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@239.76		
1099	126.00	240.00	108.108	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480p@240		
1100	125.87	239.76	108.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@239.76		

Internal Program Data : No. 1081 ~ 1100

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1101	126.00	240.00	108.108	720x480	Prog	N	N	ANALOG	YPbPr	EIA720x480pW@240	Multi burst 100%	Multi Burst 100%
1102	62.94	239.76	108.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@239.76	Multi burst 50%	Multi Burst 50%
1103	63.00	240.00	108.108	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480i@240	Sweep pattern	Sweep
1104	62.94	239.76	108.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@239.76		
1105	63.00	240.00	108.108	1440x480	Int	N	N	ANALOG	YPbPr	EIA1440x480iW@240		
1106	18.00	24.00	59.400	1280x720	Prog	P	P	HDTV720	YpbPr	EIA1280x720p@24		
1107	18.75	25.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA1280x720p@25		
1108	22.50	30.00	74.250	1280x720	Prog	P	P	HDTV720	YpbPr	EIA1280x720p@30		
1109	112.50	100.00	297.000	1920x1080	Prog	P	P	HDTV1080	YpbPr	EIA1920x1080p@100		
1110	135.00	120.00	297.000	1920x1080	Prog	P	P	HDTV1080	YpbPr	EIA1920x1080p@120		
1111											OPT38 (SMPTE RP-133)	SMPTE RP-133
1112											OPT39 (SMPTE color version)	SMPTE RP-133+Color
1113											Monoscope	Monoscope
1114											Philips pattern	Philips
1115											Chinese monoscope	China Monoscope
1116											APDC1	APDC1
1117											APDC2	APDC2
1118											APDC3	APDC3
1119											APDC4	APDC4
1120												

Internal Program Data : No. 1101 ~ 1120

※Programs No. 1116 to 1119 require license registration. When the license is not input, a license error results. For information on purchasing a license, contact an Astrodesign sales representative.

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1121											White solid	Raster White
1122											Red solid	Raster Red
1123											Green solid	Raster Green
1124											Blue solid	Raster Blue
1125											Black solid	Raster Black
1126											50% solid gray	Raster 50%Gray
1127											Magenta solid	Raster Magenta
1128											Cyan solid	Raster Cyan
1129											Yellow solid	Raster Yellow
1130												
1131												
1132												
1133												
1134												
1135												
1136												
1137												
1138												
1139												
1140												

Internal Program Data : No. 1121 ~ 1140

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1141											Overscan pattern	Over Scan
1142											AFD pattern 4:3 Type 0	AFD 4:3 Type0
1143											AFD pattern 4:3 Type 1	AFD 4:3 Type1
1144											AFD pattern 4:3 Type 2	AFD 4:3 Type2
1145											AFD pattern 4:3 Type 3	AFD 4:3 Type3
1146											AFD pattern 4:3 Type 4	AFD 4:3 Type4
1147											AFD pattern 4:3 Type 5	AFD 4:3 Type5
1148											AFD pattern 4:3 Type 6	AFD 4:3 Type6
1149											AFD pattern 4:3 Type 7	AFD 4:3 Type7
1150											AFD pattern 4:3 Type 8	AFD 4:3 Type8
1151	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA480p59-YCC-12	AFD pattern 4:3 Type 9	AFD 4:3 Type9
1152	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i59-YCC-12	AFD pattern 4:3 Type 10	AFD 4:3 Type10
1153	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p59-YCC-12	AFD pattern 4:3 Type 11	AFD 4:3 Type11
1154	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	EIA480p59-YCC-12	AFD pattern 4:3 Type 12	AFD 4:3 Type12
1155	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p59-YCC-12	AFD pattern 16:9 Type 0	AFD 16:9 Type0
1156	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA480i59-YCC-12	AFD pattern 16:9 Type 1	AFD 16:9 Type1
1157	27.00	24.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p24-YCC-12	AFD pattern 16:9 Type 2	AFD 16:9 Type2
1158	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA576p50-YCC-12	AFD pattern 16:9 Type 3	AFD 16:9 Type3
1159	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i50-YCC-12	AFD pattern 16:9 Type 4	AFD 16:9 Type4
1160	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p50-YCC-12	AFD pattern 16:9 Type 5	AFD 16:9 Type5

Internal Program Data : No. 1141 ~ 1160

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1161	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p50-YCC-12	AFD pattern 16:9 Type 6	AFD 16:9 Type6
1162	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA576i50-YCC-12	AFD pattern 16:9 Type 7	AFD 16:9 Type7
1163	28.13	25.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p25-YCC-12	AFD pattern 16:9 Type 8	AFD 16:9 Type8
1164											AFD pattern 16:9 Type 9	AFD 16:9 Type9
1165											AFD pattern 16:9 Type 10	AFD 16:9 Type10
1166											AFD pattern 16:9 Type 11	AFD 16:9 Type11
1167											AFD pattern 16:9 Type 12	AFD 16:9 Type12
1168												
1169												
1170												
1171	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	EIA480p59-RGB-12		
1172	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i59-RGB-12		
1173	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p59-RGB-12		
1174	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	EIA480p59-RGB-12		
1175	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p59-RGB-12		
1176	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	EIA480i59-RGB-12		
1177	27.00	24.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p24-RGB-12		
1178	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	EIA576p50-RGB-12		
1179	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i50-RGB-12		
1180	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p50-RGB-12		

Internal Program Data : No. 1161 ~ 1180

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1181	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p50-RGB-12		
1182	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	EIA576i50-RGB-12		
1183	28.13	25.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p25-RGB-12		
1184												
1185												
1186												
1187												
1188												
1189												
1190												
1191	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i59-YCC-12-xv		
1192	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p59-YCC-12-xv		
1193	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p59-YCC-12-xv		
1194	27.00	24.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p24-YCC-12-xv		
1195	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	EIA1080i50-YCC-12-xv		
1196	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	EIA720p50-YCC-12-xv		
1197	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p50-YCC-12-xv		
1198	28.13	25.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	EIA1080p25-YCC-12-xv		
1199												
1200												

Internal Program Data : No. 1181 ~ 1200

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1201	134.87	59.94	296.704	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p60 FramePack	1-dot × 1-dot checker	Checker 1dot*1dot
1202	112.50	50.00	297.000	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p50 FramePack	2-dot × 1-dot checker	Checker 2dot*1dot
1203	67.43	29.97	148.352	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p30 FramePack	4-dot × 1-dot checker	Checker 4dot*1dot
1204	53.95	23.98	148.352	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p24 FramePack	4 × 4 checker	Checker 4*4
1205	67.43	29.97	148.352	1920x2228	Prog	P	P	ANALOG	YPbPr	3D 1080i60 FramePack	8 × 8 checker	Checker 8*8
1206	56.25	25.00	148.500	1920x2228	Prog	P	P	ANALOG	YPbPr	3D 1080i50 FramePack	Sub-pixel checker	SubPixel
1207	89.91	59.94	148.352	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p60 FramePack		
1208	75.00	50.00	148.500	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p50 FramePack		
1209	44.96	29.97	148.352	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p30 FramePack		
1210	35.96	23.98	118.681	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p24 FramePack		
1211	62.94	59.94	54.000	720x1005	Prog	N	N	ANALOG	YPbPr	3D 480p60 FramePack		
1212	31.47	29.97	54.000	1440x1028	Prog	N	N	ANALOG	YPbPr	3D 480i60 FramePack		
1213	62.50	50.00	54.000	720x1201	Prog	N	N	ANALOG	YPbPr	3D 576p50 FramePack		
1214	31.25	25.00	54.000	1440x1226	Prog	N	N	ANALOG	YPbPr	3D 576i50 FramePack		
1215	62.94	59.94	50.350	640x1005	Prog	N	N	ANALOG	RGB	3D VGAp60 FramePack		
1216												
1217												
1218												
1219												
1220												

Internal Program Data : No. 1201 ~ 1220

※Programs No. 1201 to 1215 require license registration for 3D's Vendor Specify InfoFrame. When the license is not input, a license error results. For information on purchasing a license, contact an Astrod designs sales representative.

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1221	67.43	59.94	148.352	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p60 Side_half	Character list 7 × 9	Character List 7*9
1222	56.25	50.00	148.500	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p50 Side_half	Character H (5 × 7 / 10 × 14)	Character all H5*7
1223	33.72	29.97	74.176	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p30 Side_half	Character H (7 × 9 / 14 × 18)	Character all H7*9
1224	26.97	23.98	74.176	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p24 Side_half	Character H (16 × 16 / 32 × 32)	Character all H16*16
1225	33.72	59.94	74.176	1920x1080	Int	P	P	ANALOG	YPbPr	3D 1080i60 Side_half	Corner & center character H (5 × 7 / 10 × 14)	Chara Cor&Gen H5*7
1226	28.13	50.00	74.250	1920x1080	Int	P	P	ANALOG	YPbPr	3D 1080i50 Side_half	Corner & center character H (7 × 9 / 14 × 18)	Chara Cor&Gen H7*9
1227	44.96	59.94	74.176	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p60 Side_half	Corner & center character H (16 × 16 / 32 × 32)	Chara Cor&Gen H16*16
1228	37.50	50.00	74.250	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p50 Side_half	Chinese character "BI" (7 × 9 / 64 × 64)	Chara all Chinese
1229	22.48	29.97	74.176	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p30 Side_half	Character "me" 18 × 18	Chara all me
1230	17.98	23.98	59.341	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p24 Side_half	Character "me" 18 × 18 (VESA specifications)	Chara all me(VESA)
1231	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	3D 480p60 Side_half		
1232	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	3D 480i60 Side_half		
1233	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	3D 576p50 Side_half		
1234	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	3D 576i50 Side_half		
1235	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	3D VGAp60 Side_half		
1236												
1237												
1238												
1239												
1240												

Internal Program Data : No. 1221 ~ 1240

※Programs No. 1221 to 1235 require license registration for 3D's Vendor Specify InfoFrame. When the license is not input, a license error results. For information on purchasing a license, contact an Astrodesign sales representative.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1241	67.43	59.94	148.352	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p60 Top&Bot	Crosshatch pattern	Cross Hatch
1242	56.25	50.00	148.500	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p50 Top&Bot		
1243	33.72	29.97	74.176	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p30 Top&Bot		
1244	26.97	23.98	74.176	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p24 Top&Bot		
1245	33.72	59.94	74.176	1920x1080	Int	P	P	ANALOG	YPbPr	3D 1080i60 Top&Bot		
1246	28.13	50.00	74.250	1920x1080	Int	P	P	ANALOG	YPbPr	3D 1080i50 Top&Bot		
1247	44.96	59.94	74.176	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p60 Top&Bot		
1248	37.50	50.00	74.250	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p50 Top&Bot		
1249	22.48	29.97	74.176	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p30 Top&Bot		
1250	17.98	23.98	59.341	1280x720	Prog	P	P	ANALOG	YPbPr	3D 720p24 Top&Bot		
1251	31.47	59.94	27.000	720x480	Prog	N	N	ANALOG	YPbPr	3D 480p60 Top&Bot	H=20, V=20 dot pattern	Dot H=20,V=20
1252	15.73	59.94	27.000	1440x480	Int	N	N	ANALOG	YPbPr	3D 480i60 Top&Bot	H=60, V=60 dot pattern	Dot H=60,V=60
1253	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	3D 576p50 Top&Bot		
1254	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	3D 576i50 Top&Bot		
1255	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	3D VGAp60 Top&Bot		
1256												
1257												
1258												
1259												
1260												

Internal Program Data : No. 1241 ~ 1260

※Programs No. 1241 to 1255 require license registration for 3D's Vendor Specify InfoFrame. When the license is not input, a license error results. For information on purchasing a license, contact an Astrodex sales representative.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1261	67.43	59.94	296.704	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p60 Side_full	Edge marker pattern	Edge Marker
1262	56.25	50.00	297.000	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p50 Side_full	Diagonal line pattern	Diagonal Line
1263	33.72	29.97	148.352	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p30 Side_full	Center marker pattern	Center Marker
1264	26.97	23.98	148.352	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p24 Side_full		
1265	33.72	59.94	148.352	3840x1080	Int	P	P	ANALOG	YPbPr	3D 1080i60 Side_full		
1266	28.13	50.00	148.500	3840x1080	Int	P	P	ANALOG	YPbPr	3D 1080i50 Side_full		
1267	44.96	59.94	148.352	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p60 Side_full		
1268	37.50	50.00	148.500	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p50 Side_full		
1269	22.48	29.97	148.352	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p30 Side_full		
1270	17.98	23.98	118.681	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p24 Side_full		
1271	31.47	59.94	54.000	1440x480	Prog	N	N	ANALOG	YPbPr	3D 480p60 Side_full	Circle (Format 0)	Circle Format0
1272	15.73	59.94	54.000	2880x480	Int	N	N	ANALOG	YPbPr	3D 480i60 Side_full	Circle (Format 1)	Circle Format1
1273	31.25	50.00	54.000	1440x576	Prog	N	N	ANALOG	YPbPr	3D 576p50 Side_full	Circle (Format 2)	Circle Format2
1274	15.63	50.00	54.000	2880x576	Int	N	N	ANALOG	YPbPr	3D 576i50 Side_full	Circle (Format 3)	Circle Format3
1275	31.47	59.94	50.350	1280x480	Prog	N	N	ANALOG	RGB	3D VGAp60 Side_full	Circle (Format 4)	Circle Format4
1276											Circle (Format 5)	Circle Format5
1277											Circle (Format 6)	Circle Format6
1278												
1279												
1280												

Internal Program Data : No. 1261 ~ 1280

※Programs No. 1261 to 1275 require license registration for 3D's Vendor Specify InfoFrame. When the license is not input, a license error results. For information on purchasing a license, contact an Astrodex sales representative.

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1281											Burst L → R	Burst L→R
1282											Burst L ← R	Burst L←R
1283											Burst L ← C → R	Burst L←C→R
1284											Burst L → C ← R	Burst L→C←R
1285											Burst T → B	Burst T→B
1286											Burst T ← B	Burst T←B
1287											Burst T ← C → B	Burst T←C→B
1288											Burst T → C ← B	Burst T→C←B
1289												
1290												
1291												
1292												
1293												
1294												
1295												
1296												
1297												
1298												
1299												
1300												

Internal Program Data : No. 1281 ~ 1300

Program No.	Horizontal frequency [kHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1301	15.73	59.94	27.000	1440x487	Int	N	N	ANALOG	YPbPr	SD-SDI 487i@59.94	1 window	1 Window
1302	15.63	50.00	27.000	1440x576	Int	N	N	ANALOG	YPbPr	SD-SDI 576i@50	4 windows	4 Window
1303											9 windows	9 Window
1304											16 windows	16 Window
1305											25 windows	25 Window
1306											64 windows	64 Window
1307											3 windows, vertical direction	3 Window in V Row
1308											3 windows, horizontal direction	3 Window in H Row
1309											Window user position/center	User pos-Center
1310											Window user position/corner	User pos-Corner
1311	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@60i	Window scroll: Left	Window Scroll: Left
1312	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@59.94i	Window scroll: Right	Window Scroll: Right
1313	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@50i	Window scroll: Up	Window Scroll: Up
1314	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@30sf	Window scroll: Down	Window Scroll: Down
1315	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@29.97sf	Window scroll: Top left	Window Scroll: L Up
1316	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@25sf	Window scroll: Bottom left	Window Scroll: L Down
1317	27.00	48.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@24sf	Window scroll: Top right	Window Scroll: R Up
1318	26.97	47.96	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	HD-SDI 1080@23.98sf	Window scroll: Bottom right	Window Scroll: R Down
1319	45.00	60.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@60p	Window scroll L ↔ R	Window Scroll: L<->R
1320	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@59.94p	Window scroll: Up ↔ down	Window Scroll: Up<->D

Internal Program Data : No. 1301 ~ 1320

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1321	22.50	30.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@30p	Window scroll: Random	Window Scroll: Random
1322	22.48	29.97	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@29.97p	Window + monoscope	Window & Monoscope
1323	18.75	25.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@25p	Window: 2-3 pull-down	Window 2-3pull down
1324	18.00	24.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@24p	0% window	Window HV Size 0%
1325	17.98	23.98	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@23.98p	5% window	Window HV Size 5%
1326	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	HD-SDI 720@50p	10% window	Window HV Size 10%
1327											20% window	Window HV Size 20%
1328											30% window	Window HV Size 30%
1329											40% window	Window HV Size 40%
1330											50% window	Window HV Size 50%
1331	67.50	60.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-A 60p YC422 10b	60% window	Window HV Size 60%
1332	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-A 59p YC422 10b	70% window	Window HV Size 70%
1333	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 60i RGB 12b	80% window	Window HV Size 80%
1334	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 59i RGB 12b	90% window	Window HV Size 90%
1335	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 60i YC444 12b	100% window	Window HV Size 100%
1336	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 59i YC444 12b	Window: Flicker 1 V	Window Flicker 1V
1337	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 60i YC422 12b	Window: Flicker 2 V	Window Flicker 2V
1338	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-A 59i YC422 12b	Window: Flicker 3 V	Window Flicker 3V
1339	27.00	24.00	74.250	2048x1080	Prog	P	P	ANALOG	YPbPr	3G-A DCI RGB 12b	Window: Flicker 4 V	Window Flicker 4V
1340											Window: Level Up	Window Auto Level

Internal Program Data : No. 1321 ~ 1340

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1341	67.50	60.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-B 60p YC422 10b	Bar: L → R	Moving Bar
1342	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-B 59p YC422 10b		
1343	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 60i RGB 12b		
1344	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 59i RGB 12b		
1345	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 60i YC444 12b		
1346	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 59i YC444 12b		
1347	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 60i YC422 12b		
1348	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	3G-B 59i YC422 12b		
1349	27.00	24.00	74.250	2048x1080	Prog	P	P	ANALOG	RGB	3G-B DCI RGB 12b		
1350												
1351	67.50	60.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	Dual 60p YC422 10b		
1352	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	Dual 59p YC422 10b		
1353	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 60i RGB 12b		
1354	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 59i RGB 12b		
1355	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 60i YC444 12b		
1356	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 59i YC444 12b		
1357	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 60i YC422 12b		
1358	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	Dual 59i YC422 12b		
1359	27.00	24.00	74.250	2048x1080	Prog	P	P	HDTV720	YPbPr	Dual DCI RGB 12b		
1360												

Internal Program Data : No. 1341 ~ 1360

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1361	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-A 50p YC422 10b		
1362	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	3G-B 50p YC422 10b		
1363	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	Dual 50p YC422 10b		
1364												
1365												
1366												
1367												
1368												
1369												
1370												
1371												
1372												
1373												
1374												
1375												
1376												
1377												
1378												
1379												
1380												

Internal Program Data : No. 1361 ~ 1380

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1381	135.00	60.00	594.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p60 s0		
1382	135.00	60.00	594.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p60 s1		
1383	135.00	60.00	594.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p60 s2		
1384	135.00	60.00	594.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p60 s3		
1385	270.00	120.00	1188.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p120s0		
1386	270.00	120.00	1188.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p120s1		
1387	270.00	120.00	1188.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p120s2		
1388	270.00	120.00	1188.000	3840x2160	Prog	P	P	HDTV1080	RGB	4K2K 3840x2160p120s3		
1389												
1390												
1391												
1392												
1393												
1394												
1395												
1396												
1397												
1398												
1399												
1400												

Internal Program Data : No. 1381 ~ 1400

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1401	31.47	59.94	27.000	720x483	Prog	N	N	ANALOG	YPbPr	NTSC PROG.	256-block color	256-Color Block
1402	31.47	59.94	27.000	720x483	Prog	N	N	ANALOG	YPbPr	NTSC PROG. W	64-gradation block gray (white → black)	64Gray Block White→
1403	31.47	59.94	27.000	720x483	Prog	N	N	ANALOG	YPbPr	NTSC PROG. LB	64-gradation block gray (black → white)	64Gray Block Black→
1404	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@59.94i	8 color bars & 16 gray scale	8-Color & 16-Gray
1405	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@60i	Gray scale & crosshatch	Gray & Cross Hatch
1406	67.43	59.94	148.352	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@59.94p	Color bar & crosshatch	Color & Cross Hatch
1407	67.50	60.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@60p	Color temperature	Color Temperature
1408	44.96	59.94	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@59.94p	Pairing	Pairing
1409	45.00	60.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@60p	Crosshatch & circle & gray	Cross&Circle&Gray
1410	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC-J 4:3	Crosshatch & circle & color bar & character	Cross&Circle&Color&H
1411											Circle & line	Circle & Line
1412											Character edge (H)	H-Character Line
1413											Character edge (O)	O-Character Line
1414											Crosstalk (width 90%)	Cross Talk W=90%
1415											Sine wave scroll	Sign Wave Scroll
1416	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	PAL PROG.	10 steps & 1/10 MHz	1/10MHz x 10step
1417	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	PAL PROG. W	Gamma correction ramp $w\gamma = 2.5$	Gamma Ramp $wr=2.5$
1418	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	PAL PROG. LB	Gamma correction ramp $\gamma = 2.0$	Gamma Ramp $r=2.0$
1419	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@50i	Gamma correction ramp $\gamma = 0.5$	Gamma Ramp $r=0.5$
1420	56.25	50.00	148.500	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@50p	SMPTE RP-27.1	SMPTE RP-27.1

Internal Program Data : No. 1401 ~ 1420

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1421	37.50	50.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@50p	ITC pattern 9 windows	ITC 9-Window
1422	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL 4:3	ITC pattern crosshatch & marker	ITC Cross & Marker
1423											ITC pattern H character	ITC H-Character
1424											64 gray + RGBW color bars superimposed	64-Gray & RGBW-Color
1425											Gray scale + circle	Gray & Circle
1426	33.72	29.97	74.176	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@29.97p	Corner & center point marker	Corner&Center Marker
1427	33.75	30.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@30p	Crosstalk (width 60%)	Cross Talk W=60%
1428	26.97	23.98	74.176	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@23.98p	Song of Youth	SpeakerCheck / Youth
1429	27.00	24.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@24p	Crosshatch & marker	Cross & Marker 1
1430	28.13	25.00	74.250	1920x1080	Prog	P	P	HDTV1080	YPbPr	1920x1080@25p	256-color block color "Color" letters	256-Color <Color>
1431	33.72	59.94	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@29.97sf	Random 256-color color bar	256-Color Random
1432	33.75	60.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@30sf	256-step gray scale & 7 color bars	256-Gray & 7-Color
1433	26.97	47.96	74.176	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@23.98sf	Center, corner window & edge marker	Corner&Center Window
1434	27.00	48.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@24sf	3-step gray scale window	3gray-Window
1435	28.13	50.00	74.250	1920x1080	Int	P	P	HDTV1080	YPbPr	1920x1080@25sf	19 x 15 crosshatch & marker	Cross & Marker 2
1436	22.48	29.97	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@29.97p	Crosshatch & circle	Circle & Cross Hatch
1437	22.50	30.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@30p	Checkerboard & window	1dotChecker & Window
1438	17.98	23.98	74.176	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@23.98p	ANSI pattern (Setup)	ANSI Setup
1439	18.00	24.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@24p	ANSI pattern (Contrast)	ANSI Contrast
1440	18.75	25.00	74.250	1280x720	Prog	P	P	HDTV720	YPbPr	1280x720@25p	ANSI pattern (9Point)	ANSI 9-Point

Internal Program Data : No. 1421 ~ 1440

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1441											ANSI pattern (Hor Reso)	ANSI H-Resolution
1442											ANSI pattern (Ver Reso)	ANSI V-Resolution
1443											Gamma correction ramp $\gamma = 2.2$	Gamma Ramp r=2.2
1444											Gamma correction ramp $\gamma = 0.45$	Gamma Ramp r=0.45
1445											Limited ramp in horizontal direction	Ramp Limited-H
1446											Limited ramp in vertical direction	Ramp Limited-V
1447												
1448												
1449												
1450												
1451	33.72	59.94	74.176	1920x1035	Int	P	P	HDTV1080	YPbPr	1920x1035@59.94i		
1452	33.75	60.00	74.250	1920x1035	Int	P	P	HDTV1080	YPbPr	1920x1035@60i		
1453	31.25	50.00	74.250	1920x1080	Int	N	N	HDTV1250	YPbPr	SMPTE295Mi		
1454	62.50	50.00	148.500	1920x1080	Prog	N	N	HDTV1250	YPbPr	SMPTE295Mp		
1455	31.25	50.00	48.000	1280x1152	Int	P	P	HDTV1152(AUS)	YPbPr	AUS 1152i		
1456	31.25	50.00	72.000	1920x1080	Int	P	N	HDTV1250(AUS)	YPbPr	AUS 1080i		
1457												
1458												
1459												
1460												

Internal Program Data : No. 1441 ~ 1460

※Program numbers 1461 to 1480 are not registered.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1481											Motion blur 1	Motion Blur1
1482											Motion blur 2	Motion Blur2
1483											Motion blur 3	Motion Blur3
1484											Motion blur 4	Motion Blur4
1485											Motion blur 5	Motion Blur5
1486											Motion blur 6	Motion Blur6
1487											Motion blur 7	Motion Blur7
1488											Motion blur 8	Motion Blur8
1489											Motion blur 9	Motion Blur9
1490											Motion blur 10	Motion Blur10
1491											Motion blur 11	Motion Blur11
1492											Motion blur 12	Motion Blur12
1493												
1494												
1495												
1496												
1497												
1498												
1499												
1500												

Internal Program Data : No. 1481 ~ 1500

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1501	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC-J 4:3	Timing data	Timing Data
1502	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC-J 16:9		
1503	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC-J LB		
1504	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL 4:3		
1505	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL 16:9		
1506	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL LB		
1507	15.63	50.00	13.500	702x574	Int	N	N	SECAM	YPbPr	SECAM 4:3		
1508	15.63	50.00	13.500	702x574	Int	N	N	SECAM	YPbPr	SECAM 16:9		
1509	15.63	50.00	13.500	702x574	Int	N	N	SECAM	YPbPr	SECAM LB		
1510	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	NTSC-M		
1511	15.73	59.94	13.500	712x484	Int	N	N	NTSC-443	YPbPr	NTSC-443		HDCP On Screen
1512	15.73	59.94	13.500	712x484	Int	N	N	PAL-M	YPbPr	PAL-M		
1513	15.73	59.94	13.500	712x484	Int	N	N	PAL-60	YPbPr	PAL-60		
1514	15.63	50.00	13.500	718x572	Int	N	N	PAL-N	YPbPr	PAL-N		
1515	15.63	50.00	13.500	702x574	Int	N	N	PAL-Nc	YPbPr	PAL-Nc		
1516												
1517												
1518												
1519												
1520												

Internal Program Data : No. 1501 ~ 1520

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1521	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	Closed Caption CC1		
1522	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	Closed Caption CC2		
1523	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	Closed Caption Text1		
1524	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	Closed Caption Text2		
1525	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	V Chip MPAA G		
1526	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	V Chip MPAA X		
1527	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	V Chip US TV-Y		
1528	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	V Chip US TV-MA-VSL		
1529												
1530												
1531	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL TELETEXT	EDID pattern DVI-1	EDID DVI1
1532											EDID pattern DVI-1 (HEX)	EDID DVI1(HEX)
1533											EDID pattern DVI-2	EDID DVI2
1534											EDID pattern DVI-2 (HEX)	EDID DVI2(HEX)
1535											EDID pattern HDMI1	EDID HDMI1
1536											EDID pattern HDMI1 (HEX)	EDID HDMI1(HEX)
1537											EDID pattern HDMI2	EDID HDMI2
1538											EDID pattern HDMI2 (HEX)	EDID HDMI2(HEX)
1539											EDID pattern PC-DVI	EDID PC-DVI
1540											EDID pattern PC-DVI (HEX)	EDID PC-DVI(HEX)

Internal Program Data : No. 1521 ~ 1540

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1541	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	Mac NTSC-J DVD Type1	EDID pattern PC-VGA	EDID PC-VGA
1542	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	Mac NTSC-J DVD Type2	EDID pattern PC-VGA (HEX)	EDID PC-VGA(HEX)
1543	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	Mac NTSC-J DVD Type3	EDID pattern TV-VGA	EDID TV-VGA
1544	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	Mac PAL DVD	EDID pattern TV-VGA (HEX)	EDID TV-VGA(HEX)
1545												
1546												
1547												
1548												
1549												
1550												
1551	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	SCART PAL VBS 4:3		
1552	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	SCART PAL Y/C 4:3		
1553	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	SCART PAL RGB 4:3		
1554	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	SCART PAL VBS 16:9		
1555	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	SCART PAL TELETEXT		
1556												
1557												
1558												
1559												
1560												

Internal Program Data : No. 1541 ~ 1560

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1561											DDC/CI pattern DVI-1 L-0	DDC/CI DVI1 L-0
1562											DDC/CI pattern DVI-1 L-100	DDC/CI DVI1 L-100
1563											DDC/CI pattern DVI-1 L-200	DDC/CI DVI1 L-200
1564											DDC/CI pattern DVI-2 L-0	DDC/CI DVI2 L-0
1565											DDC/CI pattern DVI-2 L-100	DDC/CI DVI2 L-100
1566											DDC/CI pattern DVI-2 L-200	DDC/CI DVI2 L-200
1567											DDC/CI pattern HDMI1 L-0	DDC/CI HDMI1 L-0
1568											DDC/CI pattern HDMI1 L-100	DDC/CI HDMI1 L-100
1569											DDC/CI pattern HDMI1 L-200	DDC/CI HDMI1 L-200
1570											DDC/CI pattern HDMI2 L-0	DDC/CI HDMI2 L-0
1571											DDC/CI pattern HDMI2 L-100	DDC/CI HDMI2 L-100
1572											DDC/CI pattern HDMI2 L-200	DDC/CI HDMI2 L-200
1573											DDC/CI pattern PC-DVI L-0	DDC/CI pcDVI L-0
1574											DDC/CI pattern PC-DVI L-100	DDC/CI pcDVI L-100
1575											DDC/CI pattern PC-DVI L-200	DDC/CI pcDVI L-200
1576											DDC/CI pattern PC-VGA L-0	DDC/CI pcVGA L-0
1577											DDC/CI pattern PC-VGA L-100	DDC/CI pcVGA L-100
1578											DDC/CI pattern PC-VGA L-200	DDC/CI pcVGA L-200
1579											DDC/CI pattern TV-VGA L-0	DDC/CI tvVGA L-0
1580											DDC/CI pattern TV-VGA L-100	DDC/CI tvVGA L-100
1581											DDC/CI pattern TV-VGA L-200	DDC/CI tvVGA L-200

Internal Program Data : No. 1561 ~ 1581

※Program numbers 1582 to 1600 are not registered.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1601	37.86	85.08	31.500	640x350	Prog	P	N	ANALOG	RGB	VESA640x350@85		
1602	37.86	85.08	31.500	640x400	Prog	N	P	ANALOG	RGB	VESA640x400@85		
1603	37.93	85.04	35.500	720x400	Prog	N	P	ANALOG	RGB	VESA720x400@85		
1604	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VESA640x480@60		
1605	37.86	72.81	31.500	640x480	Prog	N	N	ANALOG	RGB	VESA640x480@72		
1606	37.50	75.00	31.500	640x480	Prog	N	N	ANALOG	RGB	VESA640x480@75		
1607	43.27	85.01	36.000	640x480	Prog	N	N	ANALOG	RGB	VESA640x480@85		
1608	35.16	56.25	36.000	800x600	Prog	P	P	ANALOG	RGB	VESA800x600@56		
1609	37.88	60.32	40.000	800x600	Prog	P	P	ANALOG	RGB	VESA800x600@60		
1610	48.08	72.19	50.000	800x600	Prog	P	P	ANALOG	RGB	VESA800x600@72		
1611	46.88	75.00	49.500	800x600	Prog	P	P	ANALOG	RGB	VESA800x600@75		
1612	53.67	85.06	56.250	800x600	Prog	P	P	ANALOG	RGB	VESA800x600@85		
1613	76.30	119.97	73.250	800x600	Prog	P	N	ANALOG	RGB	VESA800x600@120CVT		
1614	31.02	60.00	33.750	848x480	Prog	P	P	ANALOG	RGB	VESA848x480@60		
1615	35.52	86.96	44.900	1024x768	Int	P	P	ANALOG	RGB	VESA1024x768@43		
1616	48.36	60.00	65.000	1024x768	Prog	N	N	ANALOG	RGB	VESA1024x768@60		
1617	56.48	70.07	75.000	1024x768	Prog	N	N	ANALOG	RGB	VESA1024x768@70		
1618	60.02	75.03	78.750	1024x768	Prog	P	P	ANALOG	RGB	VESA1024x768@75		
1619	68.68	85.00	94.500	1024x768	Prog	P	P	ANALOG	RGB	VESA1024x768@85		
1620	97.55	119.99	115.500	1024x768	Prog	P	N	ANALOG	RGB	VESA1024x768@120CVT		

Internal Program Data : No. 1601 ~ 1620

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1621	67.50	75.00	108.000	1152x864	Prog	P	P	ANALOG	RGB	VESA1152x864@75	CEC pattern HDMI1 Standby	CEC HDMI1 Standby
1622	47.40	59.99	68.250	1280x768	Prog	P	N	ANALOG	RGB	VESA1280x768@60	CEC pattern HDMI1 Im View On	CEC HDMI1 Im View On
1623	47.78	59.87	79.500	1280x768	Prog	N	P	ANALOG	RGB	VESA1280x768@60	CEC pattern HDMI1 Set OSD Nm	CEC HDMI1 Set OSD Nm
1624	60.29	74.89	102.250	1280x768	Prog	N	P	ANALOG	RGB	VESA1280x768@75	CEC pattern HDMI2 Standby	CEC HDMI2 Standby
1625	68.63	84.84	117.500	1280x768	Prog	N	P	ANALOG	RGB	VESA1280x768@85	CEC pattern HDMI2 Im View On	CEC HDMI2 Im View On
1626	97.40	119.80	140.250	1280x768	Prog	P	N	ANALOG	RGB	VESA1280x768@120CVT	CEC pattern HDMI2 Set OSD Nm	CEC HDMI2 Set OSD Nm
1627	49.31	59.91	71.000	1280x800	Prog	P	N	ANALOG	RGB	VESA1280x800@60CVT		
1628	49.70	59.81	83.500	1280x800	Prog	N	P	ANALOG	RGB	VESA1280x800@60		
1629	62.79	74.93	106.500	1280x800	Prog	N	P	ANALOG	RGB	VESA1280x800@75		
1630	71.55	84.88	122.500	1280x800	Prog	N	P	ANALOG	RGB	VESA1280x800@85		
1631	101.56	119.91	146.250	1280x800	Prog	P	N	ANALOG	RGB	VESA1280x800@120CVT		
1632	60.00	60.00	108.000	1280x960	Prog	P	P	ANALOG	RGB	VESA1280x960@60		
1633	85.94	85.00	148.500	1280x960	Prog	P	P	ANALOG	RGB	VESA1280x960@85		
1634	121.88	119.84	175.500	1280x960	Prog	P	N	ANALOG	RGB	VESA1280x960@120CVT		
1635	63.98	60.02	108.000	1280x1024	Prog	P	P	ANALOG	RGB	VESA1280x1024@60		
1636	79.98	75.02	135.000	1280x1024	Prog	P	P	ANALOG	RGB	VESA1280x1024@75		
1637	91.15	85.02	157.500	1280x1024	Prog	P	P	ANALOG	RGB	VESA1280x1024@85		
1638	130.03	119.96	187.250	1280x1024	Prog	P	N	ANALOG	RGB	VESA1280x1024@120CVT		
1639	47.71	60.02	85.500	1360x768	Prog	P	P	ANALOG	RGB	VESA1360x768@60		
1640	97.53	119.97	148.250	1360x768	Prog	P	N	ANALOG	RGB	VESA1360x768@120CVT		

Internal Program Data : No. 1621 ~ 1640

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1641	64.74	59.95	101.000	1400x1050	Prog	P	N	ANALOG	RGB	VESA1400x1050@60		
1642	65.32	59.98	121.750	1400x1050	Prog	N	P	ANALOG	RGB	VESA1400x1050@60		
1643	82.28	74.87	156.000	1400x1050	Prog	N	P	ANALOG	RGB	VESA1400x1050@75		
1644	93.88	84.96	179.500	1400x1050	Prog	N	P	ANALOG	RGB	VESA1400x1050@85		
1645	133.33	119.90	208.000	1400x1050	Prog	P	N	ANALOG	RGB	VESA1400x1050@120CVT		
1646	55.47	59.90	88.750	1440x900	Prog	P	N	ANALOG	RGB	VESA1440x900@60CVT		
1647	55.93	59.89	106.500	1440x900	Prog	N	P	ANALOG	RGB	VESA1440x900@60		
1648	70.64	74.98	136.750	1440x900	Prog	N	P	ANALOG	RGB	VESA1440x900@75		
1649	80.43	84.84	157.000	1440x900	Prog	N	P	ANALOG	RGB	VESA1440x900@85		
1650	114.22	119.85	182.750	1440x900	Prog	P	N	ANALOG	RGB	VESA1440x900@120CVT		
1651	75.00	60.00	162.000	1600x1200	Prog	P	P	ANALOG	RGB	VESA1600x1200@60		
1652	81.25	65.00	175.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1600x1200@65		
1653	87.50	70.00	189.000	1600x1200	Prog	P	P	ANALOG	RGB	VESA1600x1200@70		
1654	93.75	75.00	202.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1600x1200@75		
1655	106.25	85.00	229.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1600x1200@85		
1656	152.41	119.92	268.250	1600x1200	Prog	P	N	ANALOG	RGB	VESA1600x1200@120CVT		
1657	64.67	59.88	119.000	1680x1050	Prog	P	N	ANALOG	RGB	VESA1680x1050@60CVT		
1658	65.29	59.95	146.250	1680x1050	Prog	N	P	ANALOG	RGB	VESA1680x1050@60		
1659	82.31	74.89	187.000	1680x1050	Prog	N	P	ANALOG	RGB	VESA1680x1050@75		
1660	93.86	84.94	214.750	1680x1050	Prog	N	P	ANALOG	RGB	VESA1680x1050@85		

Internal Program Data : No. 1641 ~ 1660

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1661	133.42	119.99	245.500	1680x1050	Prog	P	N	ANALOG	RGB	VESA1680x1050@120CVT		
1662	83.64	60.00	204.750	1792x1344	Prog	N	P	ANALOG	RGB	VESA1792x1344@60		
1663	106.27	75.00	261.000	1792x1344	Prog	N	P	ANALOG	RGB	VESA1792x1344@75		
1664	170.72	119.97	333.250	1792x1344	Prog	P	N	ANALOG	RGB	VESA1792x1344@120CVT		
1665	86.33	60.00	218.250	1856x1392	Prog	N	P	ANALOG	RGB	VESA1856x1392@60		
1666	112.50	75.00	288.000	1856x1392	Prog	N	P	ANALOG	RGB	VESA1856x1392@75		
1667												
1668	74.04	59.95	154.000	1920x1200	Prog	P	N	ANALOG	RGB	VESA1920x1200@60		
1669	74.56	59.88	193.250	1920x1200	Prog	N	P	ANALOG	RGB	VESA1920x1200@60		
1670	94.04	74.93	245.250	1920x1200	Prog	N	P	ANALOG	RGB	VESA1920x1200@75		
1671	107.18	84.93	281.250	1920x1200	Prog	N	P	ANALOG	RGB	VESA1920x1200@85		
1672	152.40	119.91	317.000	1920x1200	Prog	P	N	ANALOG	RGB	VESA1920x1200@120CVT		
1673	90.00	60.00	234.000	1920x1440	Prog	N	P	ANALOG	RGB	VESA1920x1440@60		
1674	112.50	75.00	297.000	1920x1440	Prog	N	P	ANALOG	RGB	VESA1920x1440@75		
1675												
1676	98.71	59.97	268.500	2560x1600	Prog	P	N	ANALOG	RGB	VESA2560x1600@60CVT		
1677	47.71	59.79	85.500	1366x768	Prog	P	P	ANALOG	RGB	VESA1366x768@60		
1678	45.00	60.00	74.250	1280x720	Prog	P	P	ANALOG	RGB	VESA1280x720@60		
1679	48.00	60.00	72.000	1366x768	Prog	P	P	ANALOG	RGB	VESA1366x768@60		
1680	60.00	60.00	108.000	1600x900	Prog	P	P	ANALOG	RGB	VESA1600x900@60		

Internal Program Data : No. 1661 ~ 1680

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1681	67.50	60.00	148.50	1920x1080	Prog	P	P	ANALOG	RGB	VESA1920x1080@60		
1682	72.00	60.00	162.00	2048x1152	Prog	P	P	ANALOG	RGB	VESA2048x1152@60		
1683												
1684												
1685												
1686												
1687												
1688												
1689												
1690												
1691												
1692												
1693												
1694												
1695												
1696												
1697												
1698												
1699												
1700												

Internal Program Data : No. 1681 ~ 1700

※Program numbers 1701 to 1800 are not registered.

※The 3D timing were moved or added to program numbers 1201 to 1275 when HDMI Specification Ver.1.4a were supported. Thus, program numbers 1801 to 1848 data has been deleted.
The data that was originally stored in program numbers 1801 to 1848 can be read and set with standard software 『SP-8870』.

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1801	134.87	59.94	296.704	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p60 FramePack		
1802	112.50	50.00	297.000	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p50 FramePack		
1803	53.95	23.98	148.352	1920x2205	Prog	P	P	ANALOG	YPbPr	3D 1080p24 FramePack		
1804	67.43	29.97	148.352	1920x2228	Prog	P	P	ANALOG	YPbPr	3D 1080i60 FramePack		
1805	56.25	25.00	148.500	1920x2228	Prog	P	P	ANALOG	YPbPr	3D 1080i50 FramePack		
1806	89.91	59.94	148.352	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p60 FramePack		
1807	75.00	50.00	148.500	1280x1470	Prog	P	P	ANALOG	YPbPr	3D 720p50 FramePack		
1808	62.94	59.94	54.000	720x1005	Prog	N	N	ANALOG	YPbPr	3D 480p60 FramePack		
1809	62.50	50.00	54.000	720x1201	Prog	N	N	ANALOG	YPbPr	3D 576p50 FramePack		
1810	31.47	29.97	54.000	1440x1028	Prog	N	N	ANALOG	YPbPr	3D 480i60 FramePack		
1811	31.25	25.00	54.000	1440x1226	Prog	N	N	ANALOG	YPbPr	3D 576i50 FramePack		
1812	62.94	59.94	50.350	640x1005	Prog	N	N	ANALOG	RGB	3D VGAp60 FramePack		
1813	67.43	59.94	148.352	1920x2206	Int	P	P	ANALOG	YPbPr	3D 1080i60 FieldAlte		
1814	56.25	50.00	148.500	1920x2206	Int	P	P	ANALOG	YPbPr	3D 1080i50 FieldAlte		
1815	31.47	59.94	54.000	1440x1006	Int	N	N	ANALOG	YPbPr	3D 480i60 FieldAlte		
1816	31.25	50.00	54.000	1440x1202	Int	N	N	ANALOG	YPbPr	3D 576i50 FieldAlte		
1817	134.87	59.94	296.704	1920x2160	Prog	P	P	ANALOG	YPbPr	3D 1080p60 LineAlter		
1818	112.50	50.00	297.000	1920x2160	Prog	P	P	ANALOG	YPbPr	3D 1080p50 LineAlter		
1819	53.95	23.98	148.352	1920x2160	Prog	P	P	ANALOG	YPbPr	3D 1080p24 LineAlter		
1820	89.91	59.94	148.352	1280x1440	Prog	P	P	ANALOG	YPbPr	3D 720p60 LineAlter		

Internal Program Data : No. 1801 ~ 1820

※The 3D timing were moved or added to program numbers 1201 to 1275 when HDMI Specification Ver.1.4a were supported. Thus, program numbers 1801 to 1848 data has been deleted.
The data that was originally stored in program numbers 1801 to 1848 can be read and set with standard software 『SP-8870』.

※Program filled with **gray** is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1821	75.00	50.00	148.500	1280x1440	Prog	P	P	ANALOG	YPbPr	3D 720p50 LineAlter	CEC pattern HDMI1 Standby	CEC HDMI1 Standby
1822	62.94	59.94	54.000	720x960	Prog	N	N	ANALOG	YPbPr	3D 480p60 LineAlter	CEC pattern HDMI1 Im View On	CEC HDMI1 Im View On
1823	62.50	50.00	54.000	720x1152	Prog	N	N	ANALOG	YPbPr	3D 576p50 LineAlter	CEC pattern HDMI1 Set OSD Nm	CEC HDMI1 Set OSD Nm
1824	62.94	59.94	50.350	640x960	Prog	N	N	ANALOG	RGB	3D VGAp60 LineAlter	CEC pattern HDMI2 Standby	CEC HDMI2 Standby
1825	67.43	59.94	296.704	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p60 Side_full	CEC pattern HDMI2 Im View On	CEC HDMI2 Im View On
1826	56.25	50.00	297.000	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p50 Side_full	CEC pattern HDMI2 Set OSD Nm	CEC HDMI2 Set OSD Nm
1827	26.97	23.98	148.352	3840x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p24 Side_full		
1828	33.72	59.94	148.352	3840x1080	Int	P	P	ANALOG	YPbPr	3D 1080i60 Side_full		
1829	28.13	50.00	148.500	3840x1080	Int	P	P	ANALOG	YPbPr	3D 1080i50 Side_full		
1830	44.96	59.94	148.352	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p60 Side_full		
1831	37.50	50.00	148.500	2560x720	Prog	P	P	ANALOG	YPbPr	3D 720p50 Side_full		
1832	31.47	59.94	54.000	1440x480	Prog	N	N	ANALOG	YPbPr	3D 480p60 Side_full		
1833	31.25	50.00	54.000	1440x576	Prog	N	N	ANALOG	YPbPr	3D 576p50 Side_full		
1834	15.73	59.94	54.000	2880x480	Int	N	N	ANALOG	YPbPr	3D 480i60 Side_full		
1835	15.63	50.00	54.000	2880x576	Int	N	N	ANALOG	YPbPr	3D 576i50 Side_full		
1836	31.47	59.94	50.350	1280x480	Prog	N	N	ANALOG	RGB	3D VGAp60 Side_full		
1837	67.43	59.94	148.352	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p60 Side_half		
1838	56.25	50.00	148.500	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p50 Side_half		
1839	26.97	23.98	74.176	1920x1080	Prog	P	P	ANALOG	YPbPr	3D 1080p24 Side_half		
1840	33.72	59.94	74.176	1920x1080	Int	P	P	ANALOG	YPbPr	3D 1080i60 Side_half		

Internal Program Data : No. 1821 ~ 1840

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1850	37.86	85.08	31.500	640x400	Prog	N	P	ANALOG	RGB	VESA400-85		
1851	37.86	72.81	31.500	640x480	Prog	N	N	ANALOG	RGB	VESA480-72		
1852	37.50	75.00	31.500	640x480	Prog	N	N	ANALOG	RGB	VESA480-75		
1853	35.16	56.25	36.000	800x600	Prog	P	P	ANALOG	RGB	VESA600-56		
1854	37.88	60.32	40.000	800x600	Prog	P	P	ANALOG	RGB	VESA600-60		
1855	48.08	72.19	50.000	800x600	Prog	P	P	ANALOG	RGB	VESA600-72		
1856	48.36	60.00	65.000	1024x768	Prog	N	N	ANALOG	RGB	VESA768-60		
1857	56.48	70.07	75.000	1024x768	Prog	N	N	ANALOG	RGB	VESA768-70		
1858	60.02	75.03	78.750	1024x768	Prog	P	P	ANALOG	RGB	VESA768-75		
1859	79.98	75.02	135.000	1280x1024	Prog	P	P	ANALOG	RGB	VESA1024-75		
1860	91.15	85.02	157.500	1280x1024	Prog	P	P	ANALOG	RGB	VESA1024-85		
1861	75.00	60.00	162.000	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-60		
1862	81.25	65.00	175.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-65		
1863	87.50	70.00	189.000	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-70		
1864	93.75	75.00	202.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-75		
1865	100.00	80.00	216.000	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-80		
1866	106.25	85.00	229.500	1600x1200	Prog	P	P	ANALOG	RGB	VESA1200-85		
1867	98.21	70.05	236.500	1800x1350	Prog	N	P	ANALOG	RGB	VESA1350-70		
1868	18.44	49.83	16.260	720x350	Prog	N	N	ANALOG	RGB	MDA		
1869	15.75	60.10	14.360	640x200	Prog	N	N	ANALOG	RGB	CGA		
1870	21.85	59.71	16.260	640x350	Prog	N	N	ANALOG	RGB	EGA		

Internal Program Data : No. 1850 ~ 1870

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1871	30.48	60.00	24.870	640x400	Prog	N	N	ANALOG	RGB	PGA		
1872	31.47	50.03	28.320	720x350	Prog	N	N	ANALOG	RGB	VGA-TEXT350-50		
1873	31.47	59.94	28.320	720x350	Prog	N	N	ANALOG	RGB	VGA-TEXT350-60		
1874	31.47	70.08	28.320	720x350	Prog	N	N	ANALOG	RGB	VGA-TEXT350-70		
1875	31.47	50.03	28.320	720x400	Prog	N	N	ANALOG	RGB	VGA-TEXT400-50		
1876	31.47	59.94	28.320	720x400	Prog	N	N	ANALOG	RGB	VGA-TEXT400-60		
1877	31.47	70.08	28.320	720x400	Prog	N	N	ANALOG	RGB	VGA-TEXT400-70		
1878	31.47	50.03	25.175	640x350	Prog	N	N	ANALOG	RGB	VGA350-50		
1879	31.47	59.94	25.175	640x350	Prog	N	N	ANALOG	RGB	VGA350-60		
1880	31.47	70.09	25.175	640x350	Prog	N	N	ANALOG	RGB	VGA350-70		
1881	31.47	50.03	25.175	640x400	Prog	N	N	ANALOG	RGB	VGA400-50		
1882	31.47	59.94	25.175	640x400	Prog	N	N	ANALOG	RGB	VGA400-60		
1883	31.47	70.09	25.175	640x400	Prog	N	N	ANALOG	RGB	VGA400-70		
1884	31.47	50.03	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-50		
1885	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1886	35.16	56.16	36.000	800x600	Prog	N	N	ANALOG	RGB	S-VGA-56		
1887	48.08	72.19	50.000	800x600	Prog	N	N	ANALOG	RGB	S-VGA-72		
1888	46.88	75.00	49.500	800x600	Prog	N	N	ANALOG	RGB	S-VGA-75		
1889	48.08	59.80	65.000	1024x768	Prog	N	N	ANALOG	RGB	XGA-60		
1890	53.95	66.11	71.640	1024x768	Prog	N	N	ANALOG	RGB	XGA-66		

Internal Program Data : No. 1871 ~ 1890

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1891	56.48	70.07	75.000	1024x768	Prog	N	N	ANALOG	RGB	XGA-70		
1892	60.68	57.03	100.000	1280x1024	Prog	N	N	ANALOG	RGB	SXGA-57		
1893	63.5	59.68	106.930	1280x1024	Prog	N	N	ANALOG	RGB	SXGA-60A		
1894	63.75	59.75	110.160	1280x1024	Prog	N	N	ANALOG	RGB	SXGA-60B		
1895	63.72	60.00	109.470	1280x1024	Prog	N	N	ANALOG	RGB	SXGA-60C		
1896	78.91	74.16	132.880	1280x1024	Prog	N	N	ANALOG	RGB	SXGA-70		
1897	74.63	59.94	160.000	1600x1200	Prog	N	N	ANALOG	RGB	UXGA1200-60		
1898	107.42	85.05	220.000	1600x1200	Prog	N	N	ANALOG	RGB	UXGA1200-85A		
1899	106.48	85.05	230.000	1600x1200	Prog	N	N	ANALOG	RGB	UXGA1200-85B		
1900	107.42	80.05	220.000	1600x1280	Prog	N	N	ANALOG	RGB	UXGA1280-80A		
1901	106.48	80.06	230.000	1600x1280	Prog	N	N	ANALOG	RGB	UXGA1280-80B		
1902	106.4	80.00	238.340	1600x1280	Prog	N	N	ANALOG	RGB	UXGA1280-80C		
1903	109.82	80.40	246.000	1600x1280	Prog	N	N	ANALOG	RGB	UXGA1280-82		
1904	35.52	86.96	44.900	1024x768	Int	N	N	ANALOG	RGB	IBM 8514A		
1905	63.36	60.00	89.210	1024x1024	Prog	N	N	ANALOG	RGB	IBM 5080		
1906	29.58	73.14	24.020	640x754	Int	N	N	ANALOG	RGB	IBM 5550		
1907	63.36	60.00	111.520	1280x1024	Prog	N	N	ANALOG	RGB	IBM 6000		
1908	15.71	59.98	6.380	323x246	Prog	N	N	ANALOG	RGB	NAVIGATION		
1909	35.00	66.67	30.240	640x480	Prog	N	N	ANALOG	RGB	Mac 480-66A		
1910	34.97	66.60	31.330	640x480	Prog	N	N	ANALOG	RGB	Mac 480-66B		

Internal Program Data : No. 1891 ~ 1910

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1911	48.83	66.89	50.000	800x600	Prog	N	N	ANALOG	RGB	Mac 600-66		
1912	49.72	74.55	57.280	832x624	Prog	N	N	ANALOG	RGB	Mac 624-57		
1913	48.78	59.56	64.000	1024x768	Prog	N	N	ANALOG	RGB	Mac 768-60		
1914	60.24	74.93	80.000	1024x768	Prog	N	N	ANALOG	RGB	Mac 768-75		
1915	68.68	75.06	100.000	1152x870	Prog	N	N	ANALOG	RGB	Mac 870-75		
1916	24.82	56.42	21.050	640x400	Prog	N	N	ANALOG	RGB	NEC PC9801		
1917	32.86	79.84	47.840	1120x750	Int	N	N	ANALOG	RGB	NEC PC9801XL		
1918	50.02	60.05	78.430	1120x750	Prog	N	N	ANALOG	RGB	NEC 768-60A		
1919	56.48	70.07	75.000	1024x768	Prog	N	N	ANALOG	RGB	NEC 768-70		
1920	64.6	59.93	107.500	1280x1024	Prog	N	N	ANALOG	RGB	NEC 1024-60		
1921	74.88	69.85	127.000	1280x1024	Prog	N	N	ANALOG	RGB	NEC 1024-70		
1922	78.86	74.11	135.000	1280x1024	Prog	N	N	ANALOG	RGB	NEC 1024-75		
1923	48.36	60.08	65.000	1024x768	Prog	N	N	ANALOG	RGB	NEC 768-60B		
1924	61.8	65.95	92.940	1152x900	Prog	N	N	ANALOG	RGB	SUN 900-66		
1925	71.73	76.07	105.590	1152x900	Prog	N	N	ANALOG	RGB	SUN 900-76		
1926	70.84	84.03	92.940	1024x800	Prog	N	N	ANALOG	RGB	SUN 800-84		
1927	81.13	76.11	135.000	1280x1024	Prog	N	N	ANALOG	RGB	SUN 1024-76		
1928	63.38	60.02	107.500	1280x1024	Prog	N	N	ANALOG	RGB	SONY NEWS		
1929	78.86	74.11	135.000	1280x1024	Prog	N	N	ANALOG	RGB	SONY 1024-74		
1930	78.86	74.11	135.000	1280x1024	Prog	N	N	ANALOG	RGB	SONY 1024-74		

Internal Program Data : No. 1911 ~ 1930

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1931	48.48	59.64	64.000	1024x768	Prog	N	N	ANALOG	RGB	SGI Indigo768-60		
1932	77.01	72.38	130.000	1280x1024	Prog	N	N	ANALOG	RGB	SGI Indigo1024-72		
1933	63.9	60.00	107.350	1280x1024	Prog	N	N	ANALOG	RGB	SGI IRIS4D		
1934	63.33	59.97	108.170	1280x1024	Prog	N	N	ANALOG	RGB	HP 9000t1		
1935	78.13	72.00	135.000	1280x1024	Prog	N	N	ANALOG	RGB	HP 9000t2		
1936	54	60.00	69.120	1024x864	Prog	N	N	ANALOG	RGB	VAX 768-60		
1937	70.66	66.47	119.840	1280x1024	Prog	N	N	ANALOG	RGB	VAX 1024-66		
1938	60.05	75.06	78.780	1024x768	Prog	N	N	ANALOG	RGB	Fujitsu FMV 1024-75		
1939	80.66	100.83	108.410	1024x768	Prog	N	N	ANALOG	RGB	Fujitsu FMV 1024-100		
1940	79.7	74.83	134.370	1280x1024	Prog	N	N	ANALOG	RGB	Fujitsu FMV5166		
1941	80.38	75.12	135.040	1280x1024	Prog	N	N	ANALOG	RGB	Fujitsu FMV5133		
1942	63.74	60.02	108.100	1280x1024	Prog	N	N	ANALOG	RGB	Fujitsu SIGMA		
1943	78.16	71.64	135.060	1280x1024	Prog	N	N	ANALOG	RGB	HITACHI SXGA		
1944	26.35	59.90	22.770	640x400	Prog	N	N	ANALOG	RGB	Panasonic M550		
1945	46.88	75.00	49.500	800x600	Prog	P	P	ANALOG	RGB	VESA600-75		
1946	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1947	31.47	59.95	28.640	746x471	Prog	N	N	ANALOG	RGB	ASTRO SC-2025		
1948	64.00	59.98	115.200	1400x1050	Prog	N	N	ANALOG	RGB	SXGA+		
1949	94.64	59.60	265.000	2048x1536	Prog	N	N	ANALOG	RGB	QXGA		
1950	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC		

Internal Program Data : No. 1931 ~ 1950

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1951	33.75	60.00	74.250	1920x1080	Int	N	N	HDTV1080	YPbPr	1080i		
1952	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1953	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1954	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1955	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1956	31.22	49.98	46.200	1170x1168	Int	N	N	ANALOG	RGB	MEDICAL-1I		
1957	31.22	50.03	46.200	1170x584	Prog	N	N	ANALOG	RGB	MEDICAL-1N		
1958	30.69	60.00	36.830	947x946	Int	N	N	ANALOG	RGB	MEDICAL-2I		
1959	30.69	60.06	36.830	947x473	Prog	N	N	ANALOG	RGB	MEDICAL-2N		
1960	37.93	85.04	35.500	720x400	Prog	N	P	ANALOG	RGB	VESA400-88		
1961	112.5	90.00	243.000	1600x1200	Prog	N	N	ANALOG	RGB	1200-90		
1962	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1963	63.98	60.02	108.000	1280x1024	Prog	P	P	ANALOG	RGB	VESA1024-60		
1964	15.63	50.00	13.500	702x574	Int	N	N	SECAM	YPbPr	SECAM		
1965	31.47	59.94	34.240	864x480	Prog	N	N	ANALOG	RGB	W-VGA		
1966	37.88	60.32	53.940	1072x600	Prog	N	N	ANALOG	RGB	W-SVGA		
1967	48.36	60.00	87.440	1376x768	Prog	N	N	ANALOG	RGB	W-XGA		
1968	15.73	59.94	13.500	712x484	Int	N	N	NTSC	YPbPr	NTSC		
1969	15.63	50.00	13.500	702x574	Int	N	N	PAL	YPbPr	PAL		
1970	67.5	60.00	148.500	1920x1080	Prog	N	N	HDTV1080	YPbPr	1080P		

Internal Program Data : No. 1951 ~ 1970

※Program filled with gray is not supported for VG-882. Error message appears.

Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1971	67.43	59.94	148.352	1920x1080	Prog	N	N	HDTV1080	YPbPr	1080P		
1972	33.75	60.00	74.250	1920x1080	Int	N	N	HDTV1080	YPbPr	1080i		
1973	33.72	59.94	74.176	1920x1080	Int	N	N	HDTV1080	YPbPr	1080i		
1974	33.75	60.00	74.250	1920x1035	Int	N	N	HDTV1080	YPbPr	1035i		
1975	33.72	59.94	74.176	1920x1035	Int	N	N	HDTV1080	YPbPr	1035i		
1976	45.00	60.00	74.250	1280x720	Prog	N	N	HDTV720	YPbPr	720P		
1977	44.96	59.94	74.176	1280x720	Prog	N	N	HDTV720	YPbPr	720P		
1978	31.47	59.94	27.000	720x483	Prog	N	N	ANALOG	YPbPr	483P		
1979	31.25	50.00	27.000	720x576	Prog	N	N	ANALOG	YPbPr	PAL*2		
1980	83.64	60.00	204.750	1792x1344	Prog	N	P	ANALOG	RGB	VESA1344-60		
1981	83.64	60.00	204.750	1792x1344	Prog	N	P	ANALOG	RGB	VESA1344-60		
1982	86.33	60.00	218.250	1856x1392	Prog	N	P	ANALOG	RGB	VESA1392-60		
1983	86.33	60.00	218.250	1856x1392	Prog	N	P	ANALOG	RGB	VESA1392-60		
1984	90.00	60.00	234.000	1920x1440	Prog	N	P	ANALOG	RGB	VESA1440-60		
1985	90.00	60.00	234.000	1920x1440	Prog	N	P	ANALOG	RGB	VESA1440-60		
1986	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1987	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1988	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1989	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1990	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		

Internal Program Data : No. 1971 ~ 1990


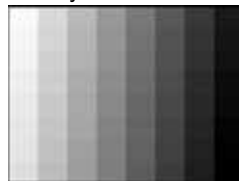
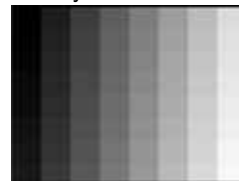
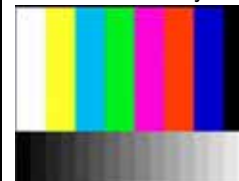
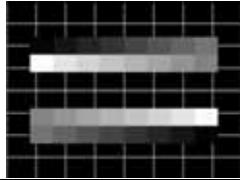
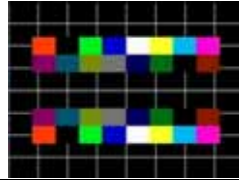
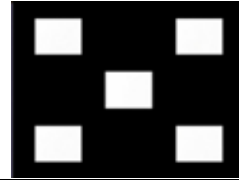
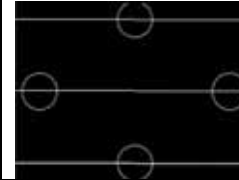
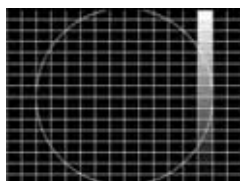





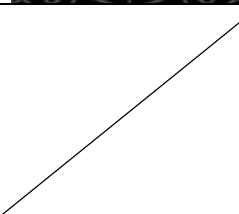

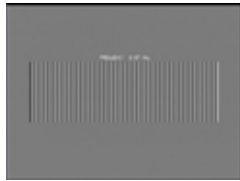

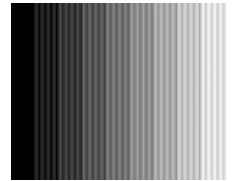




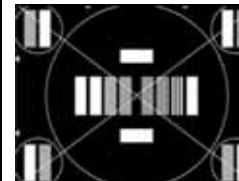

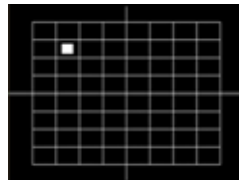


※Program filled with gray is not supported for VG-882. Error message appears.

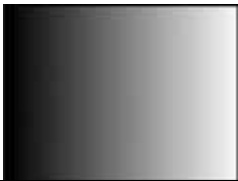

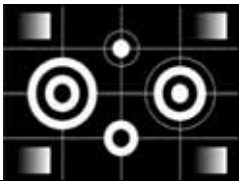

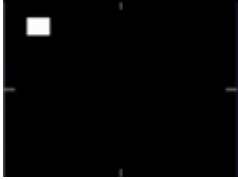



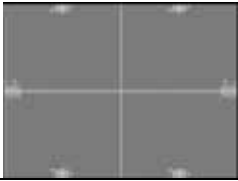
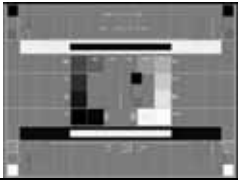
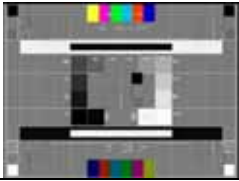
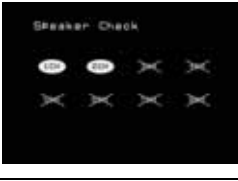
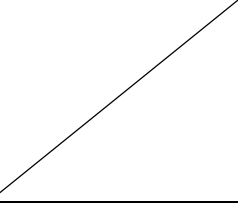
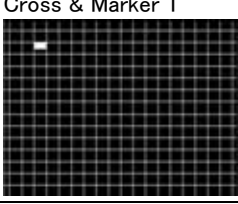
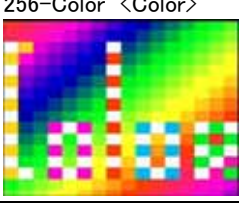
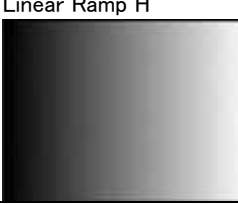

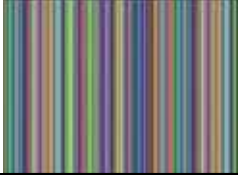
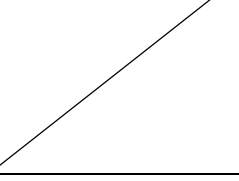
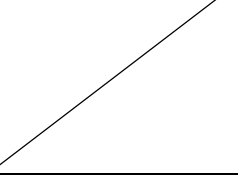
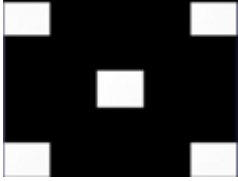

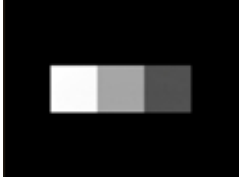
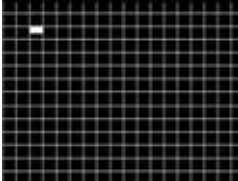
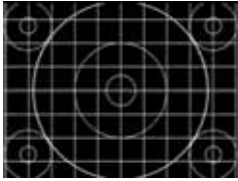
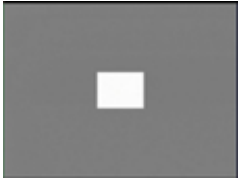






Program No.	Horizontal frequency [KHz]	Vertical frequency [Hz]	Dot clock frequency [MHz]	No. of display dots (HxV)	Int / Prog	Sync polarity		SyncType	Color difference	Timing data name	Pattern data	Pattern data name
						H	V					
1991	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1992	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1993	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1994	15.73	59.94	13.500	712x484	Int	N	N	NTSC-M	YPbPr	NTSC-M		
1995	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1996	31.47	59.94	25.175	640x480	Prog	N	N	ANALOG	RGB	VGA480-60		
1997	48.08	72.19	50.000	800x600	Prog	P	P	ANALOG	RGB	VESA600-72		
1998	56.48	70.07	75.000	1024x768	Prog	N	N	ANALOG	RGB	VESA768-70		
1999	79.98	75.02	135.000	1280x1024	Prog	P	P	ANALOG	RGB	VESA1024-75		

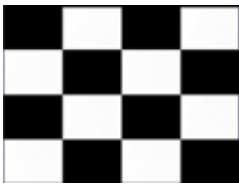
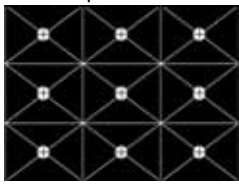

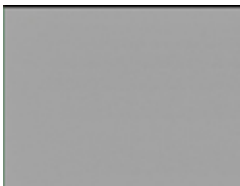
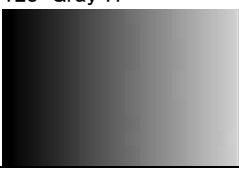
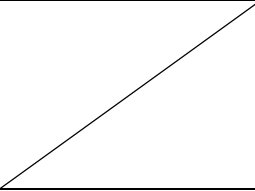
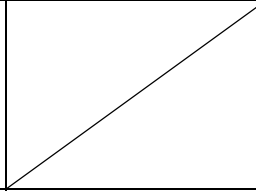
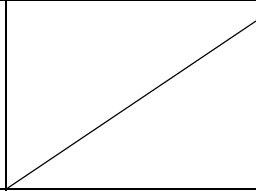
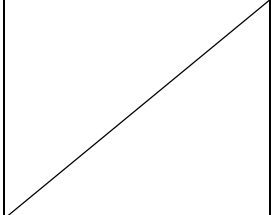
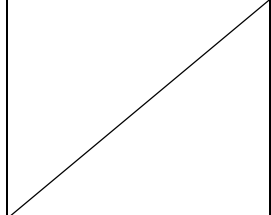
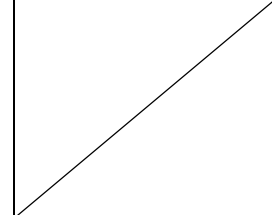
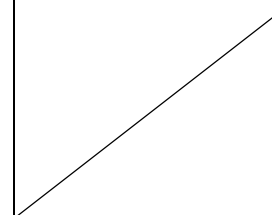
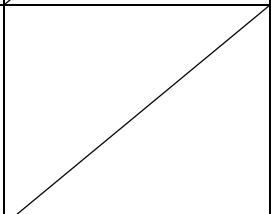
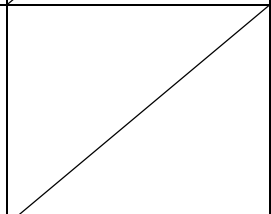
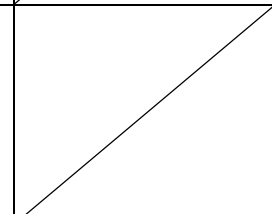
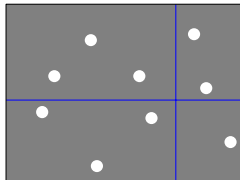
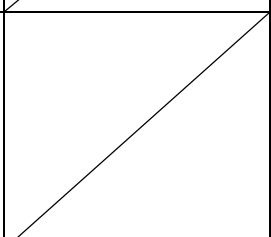
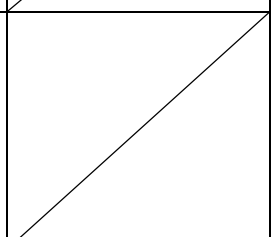

Internal Program Data: No. 1991 ~ 1999

10.2 Optional pattern data

The internal optional pattern data (No.1 to No.70) of the VG-882 is as shown below.

No.	Pattern Name	No.	Pattern Name	No.	Pattern Name	No.	Pattern Name
1	256-Color Block 	2	64Gray Block White-> 	3	64Gray Block Black-> 	4	8-Color & 16-Gray 
5	Gray & Cross Hatch 	6	Color & Cross Hatch 	7	Color Temperature 	8	Pairing 
9	Cross & Circle & Gray 	10	Cross & Circle & Color & H 	11	Circle & Line 	12	H-Character Line 
13	O-Character Line 	14	Cross Talk W = 90% 	15		16	NTSC Color 
17	Sign Wave Scroll 	18	Multi Burst 100% 	19	1/10MHz × 10step 	20	Gamma Ramp w $\gamma=2.5$ 
21	Gamma Ramp $\gamma=2.0$ 	22	Gamma Ramp $\gamma=0.5$ 	23	SMPTE Color 	24	SMPTE RP-27.1 
25	ITC 9-Window 	26	ITC Cross & Marker 	27	ITC H-Character 	28	32-Gray H 

29	64-Gray H 	30	64-Gray H & RGBW-Color 	31	Gray & Circle 	32	AFD 
33	Corner & Center Marker 	34	Cross Talk W = 60% 	35	Gamma Ramp $\gamma=2.2$ 	36	Gamma Ramp $\gamma=0.45$ 
37	Position Adjuster 	38	SMPTE RP-133 	39	SMPTE RP-133 Color 	40	SpeakerCheck / Youth 
41		42	Cross & Marker 1 	43	256-Color <Color> 	44	Linear Ramp H 
45	Linear Ramp V 	46	256-Color Random 	47		48	
49	Corner & Center Window 	50	32-Gray H2 	51	3gray-Window 	52	Cross & Marker 2 
53	Circle & Cross Hatch 	54	1dotChecker & Window 	55	32-Gray V 	56	64-Gray V 
57	Linear Ramp H 	58	Linear Ramp V 	59	Linear Ramp HV 	60	ANSI Setup 

61	ANSI Contrast 	62	ANSI 9-point 	63	ANSI H-Resolution 	64	ANSI V-Resolution 
65	128-Gray H 	66		67		68	
69		70		71		72	
73		74		75		76	9 Marker 
77		78		101	3D Pattern ※1 		

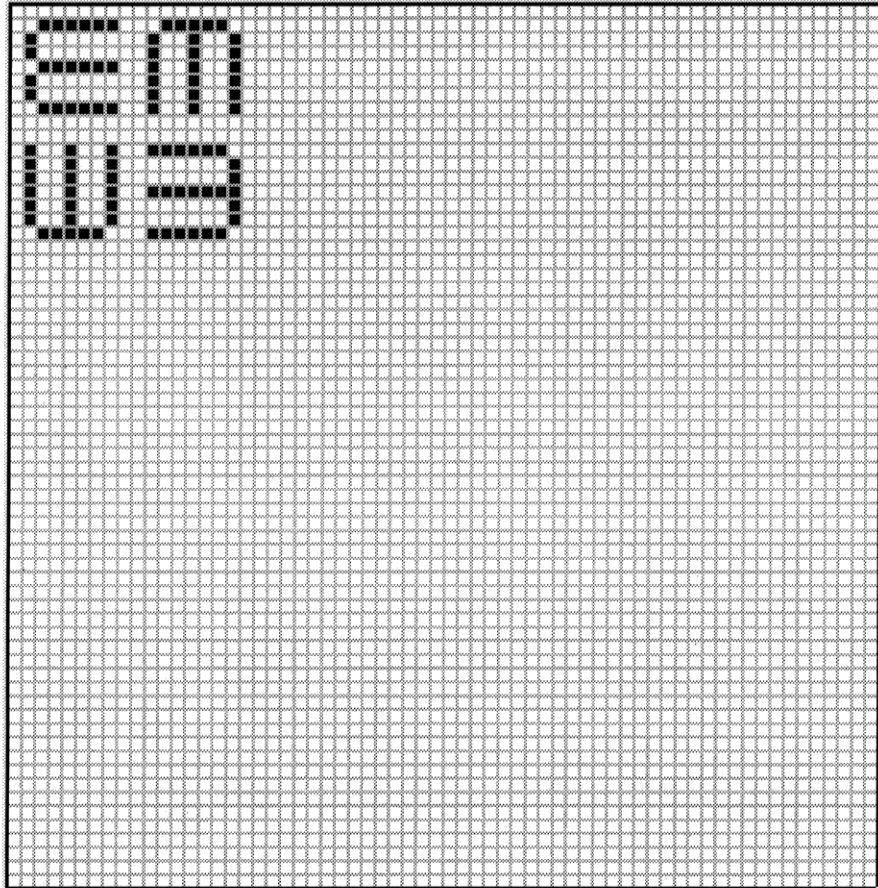
※1 license registration is required. For information on purchasing a license, contact an Astrodesign sales representative.

10.3 User character pattern data

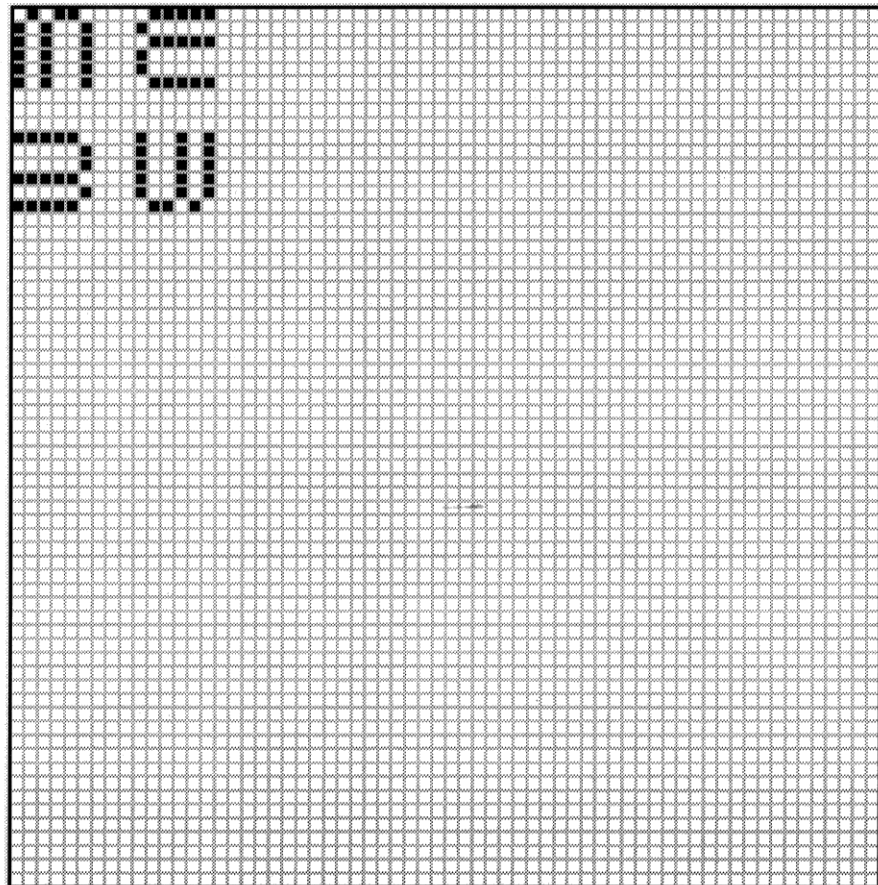
Code (H)	Description	Cell size	Reference page
F0	Letters "me" #1	18 x 18	p.287
F1	Letters "me" #2 (VESA specifications)	18 x 18	p.287
F2	Chinese character "AI"	64 x 64	p.288
F3	Chinese character "BI"	64 x 64	p.288
F4	Chinese character "TAKA"	32 x 32	p.289
F5	Chinese character "KIRI"	32 x 32	p.289
F6	Chinese character "KEN"	32 x 32	p.290
F7	Burst	64 x 64	p.290
F8			
F9			
FA			
FB			
FC			
FD			
FE			
FF			

■ F0H [letters "me" #1]/F1H [letters "me" #2 (VESA specifications)]

F0H

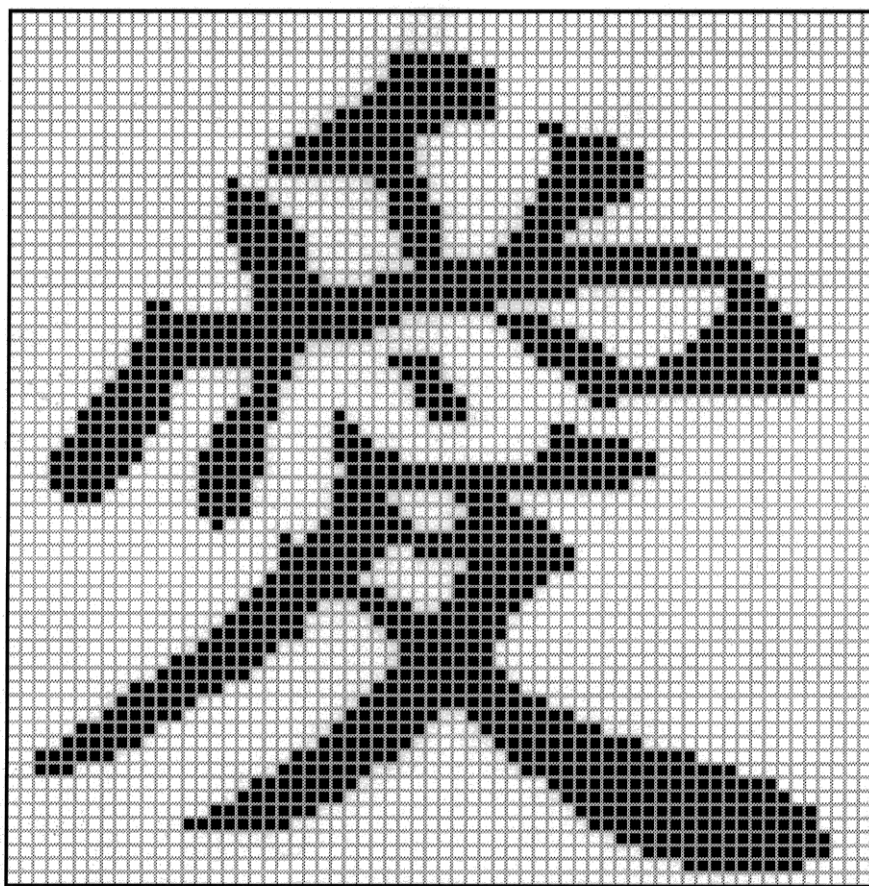


F1H

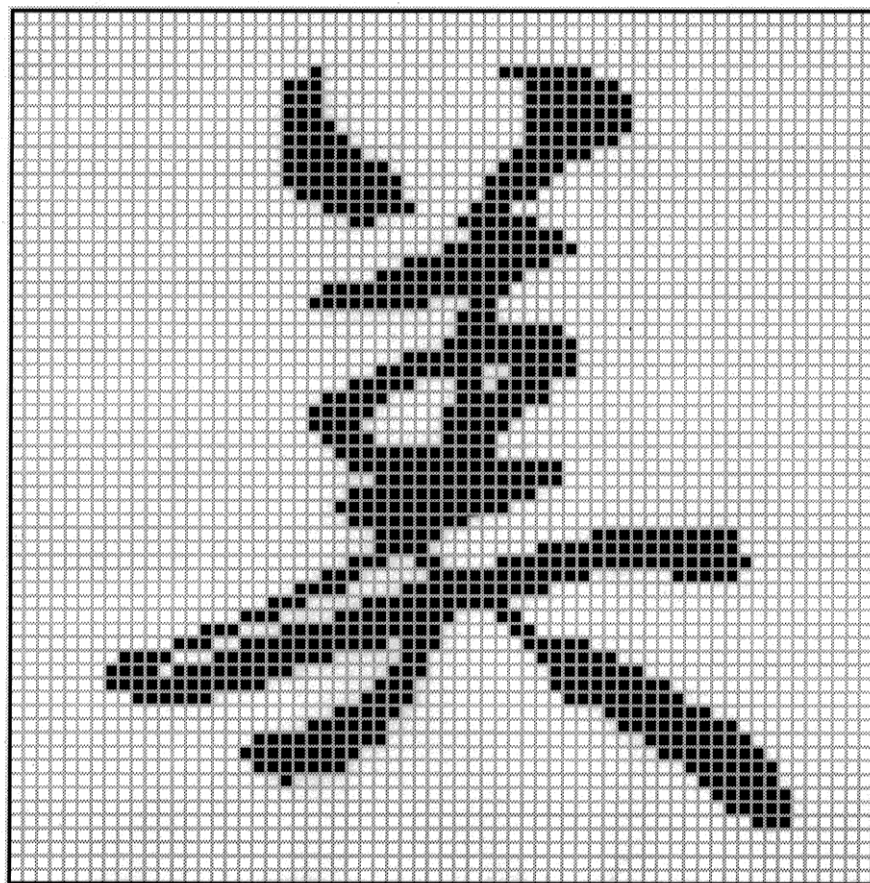


■ F2H [Chinese character “AI”]/F3H [Chinese character “BI”]

F2H

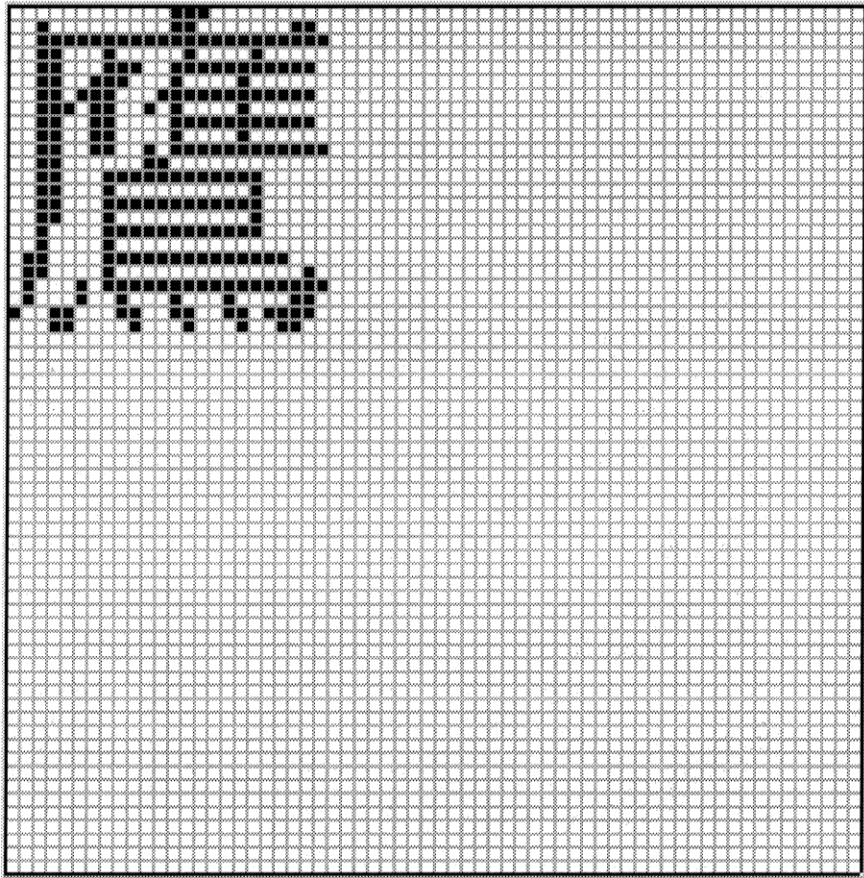


F3H

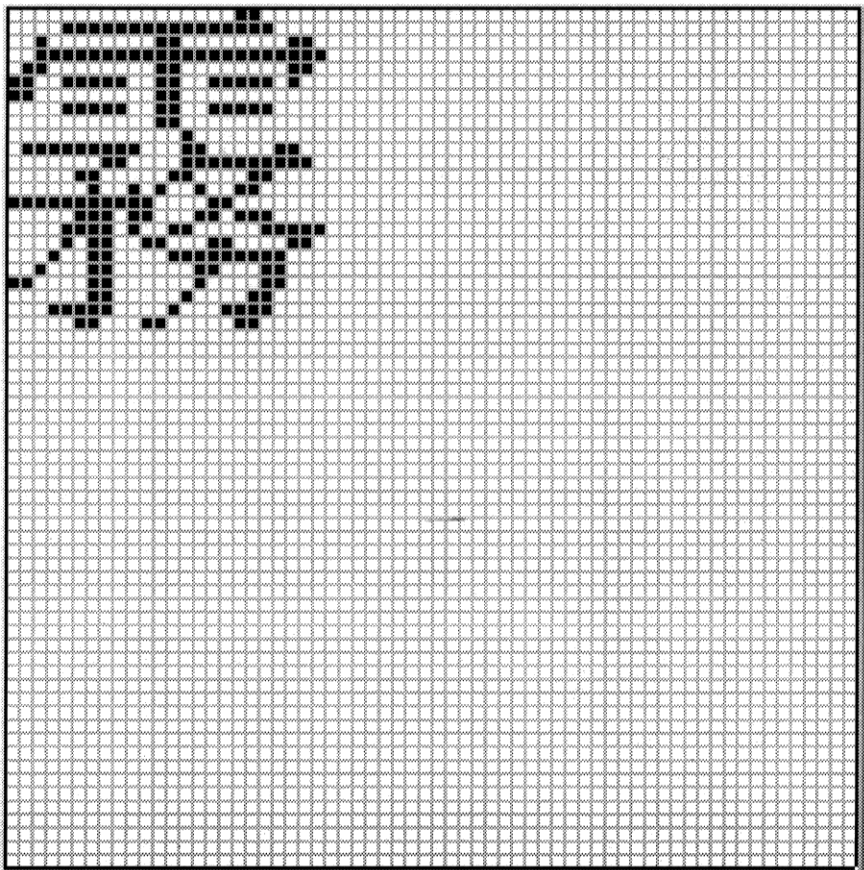


■F4H [Chinese character “TAKA”]/F5H [Chinese character “KIRI”]

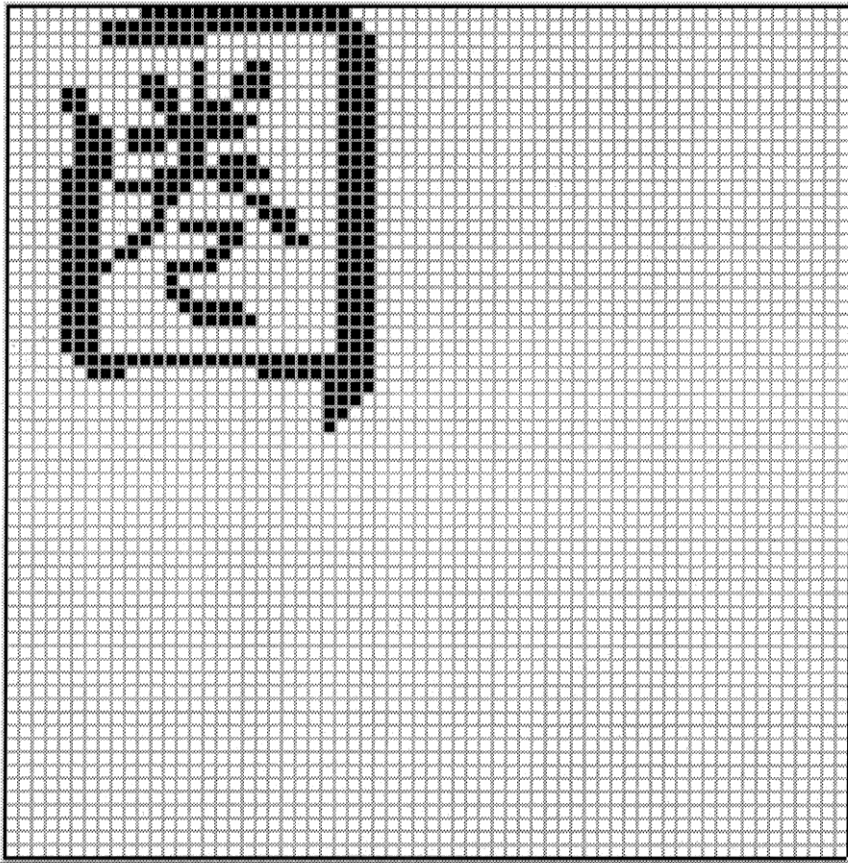
F4H



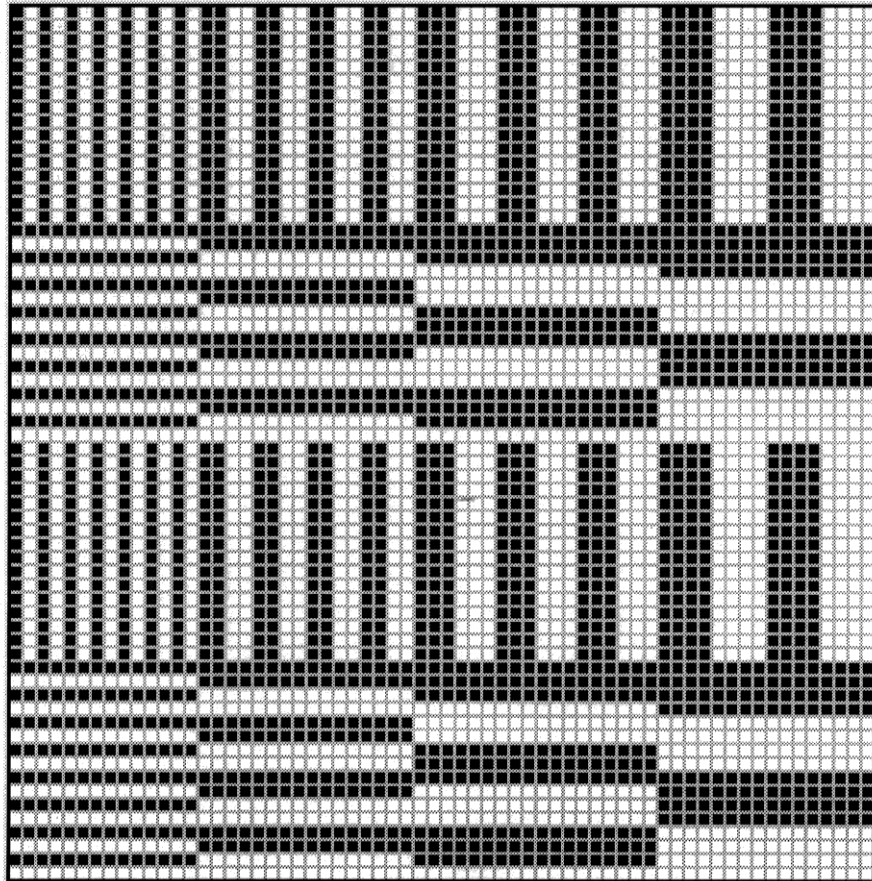
F5H



■ F6H [Chinese character "KEN"]/F7H [Burst]
F6H



F7H



10.4 Character pattern data

■ 5 × 7 character pattern table (1 of 2)

20H	21H	22H	23H	24H	25H	26H	27H
28H	29H	2AH	2BH	2CH	2DH	2EH	2FH
30H	31H	32H	33H	34H	35H	36H	37H
38H	39H	3AH	3BH	3CH	3DH	3EH	3FH
40H	41H	42H	43H	44H	45H	46H	47H
48H	49H	4AH	4BH	4CH	4DH	4EH	4FH
50H	51H	52H	53H	54H	55H	56H	57H
58H	59H	5AH	5BH	5CH	5DH	5EH	5FH
60H	61H	62H	63H	64H	65H	66H	67H
68H	69H	6AH	6BH	6CH	6DH	6EH	6FH
70H	71H	72H	73H	74H	75H	76H	77H
78H	79H	7AH	7BH	7CH	7DH	7EH	7FH

■ 5 × 7 character pattern table (2 of 2)

80H 	81H 	82H 	83H 	84H 	85H 	86H 	87H
88H 	89H 	8AH 	8BH 	8CH 	8DH 	8EH 	8FH
90H 	91H 	92H 	93H 	94H 	95H 	96H 	97H
98H 	99H 	9AH 	9BH 	9CH 	9DH 	9EH 	9FH
A0H 	A1H 	A2H 	A3H 	A4H 	A5H 	A6H 	A7H
A8H 	A9H 	AAH 	ABH 	ACH 	ADH 	AEH 	AFH
B0H 	B1H 	B2H 	B3H 	B4H 	B5H 	B6H 	B7H
B8H 	B9H 	BAH 	BBH 	BCH 	BDH 	BEH 	BFH
C0H 	C1H 	C2H 	C3H 	C4H 	C5H 	C6H 	C7H
C8H 	C9H 	CAH 	CBH 	CCH 	CDH 	CEH 	CFH
D0H 	D1H 	D2H 	D3H 	D4H 	D5H 	D6H 	D7H
D8H 	D9H 	DAH 	DBH 	DCH 	DDH 	DEH 	DFH

■ 7 × 9 character pattern table (1 of 2)

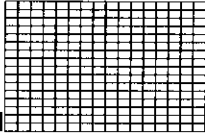
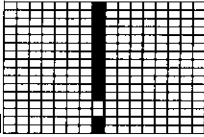
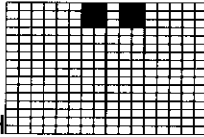
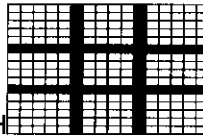
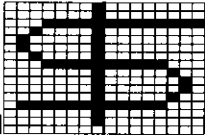
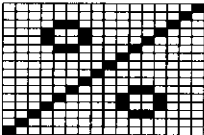
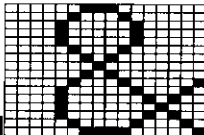
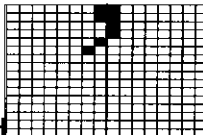
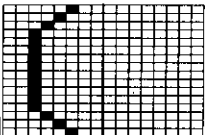
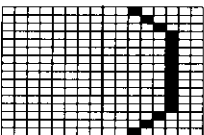
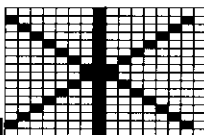
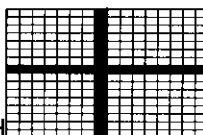
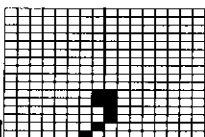
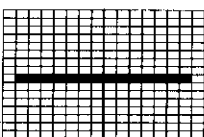
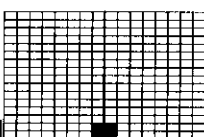
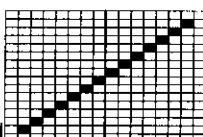
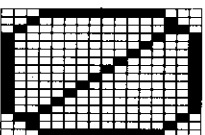
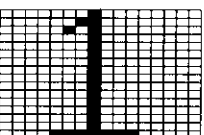
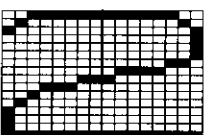
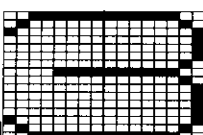
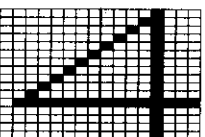
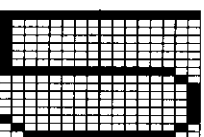
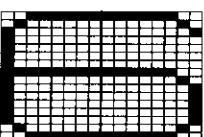
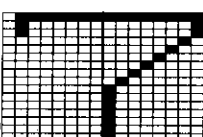
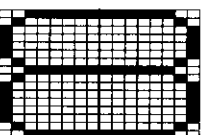
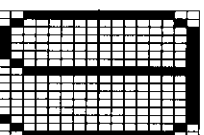
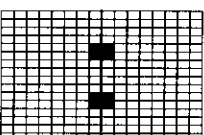
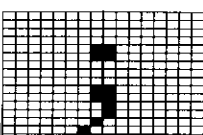
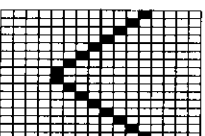
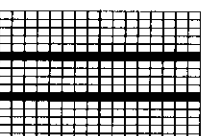
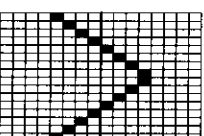
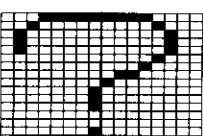
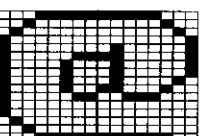
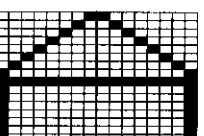
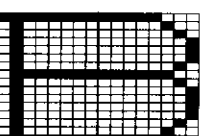
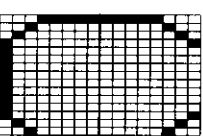
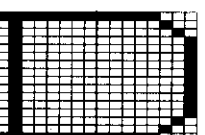

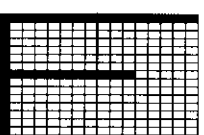
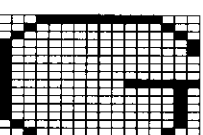

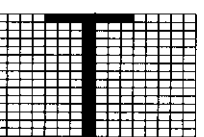
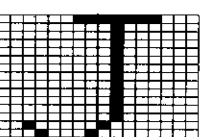
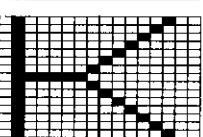
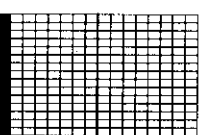
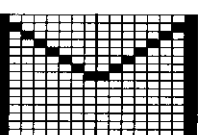
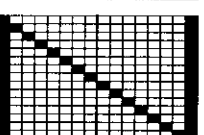
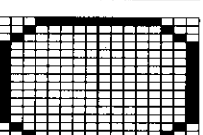
20H 	21H 	22H 	23H 	24H 	25H 	26H 	27H
28H 	29H 	2AH 	2BH 	2CH 	2DH 	2EH 	2FH
30H 	31H 	32H 	33H 	34H 	35H 	36H 	37H
38H 	39H 	3AH 	3BH 	3CH 	3DH 	3EH 	3FH
40H 	41H 	42H 	43H 	44H 	45H 	46H 	47H
48H 	49H 	4AH 	4BH 	4CH 	4DH 	4EH 	4FH
50H 	51H 	52H 	53H 	54H 	55H 	56H 	57H
58H 	59H 	5AH 	5BH 	5CH 	5DH 	5EH 	5FH
60H 	61H 	62H 	63H 	64H 	65H 	66H 	67H
68H 	69H 	6AH 	6BH 	6CH 	6DH 	6EH 	6FH
70H 	71H 	72H 	73H 	74H 	75H 	76H 	77H
78H 	79H 	7AH 	7BH 	7CH 	7DH 	7EH 	7FH

■ 7 × 9 character pattern table (2 of 2)

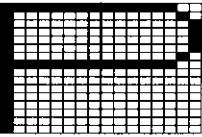
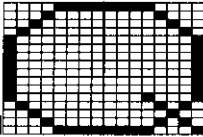
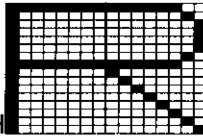
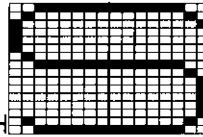
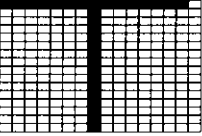
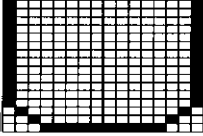
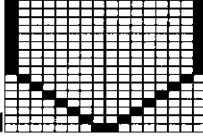
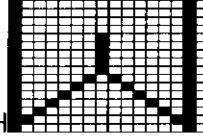
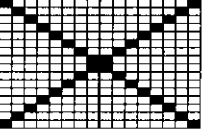
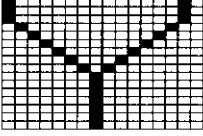
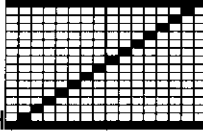
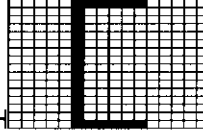
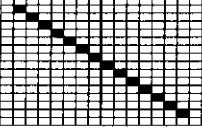
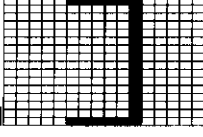
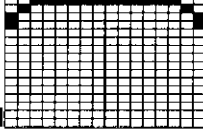
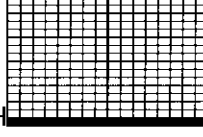
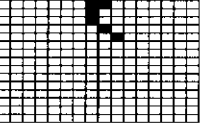
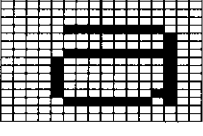
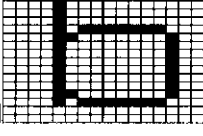
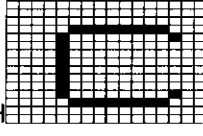
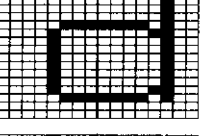
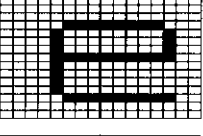
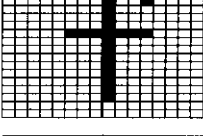
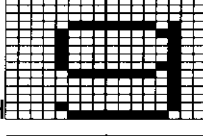
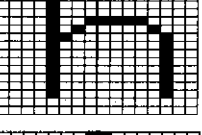
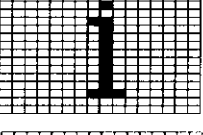
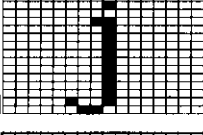
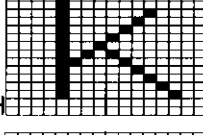
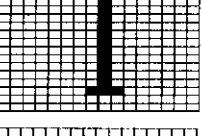
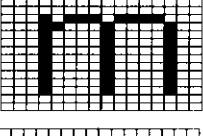
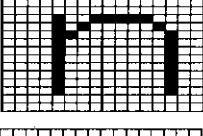
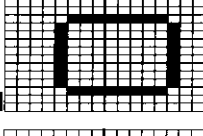
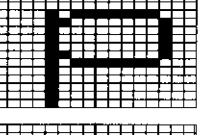
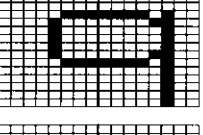
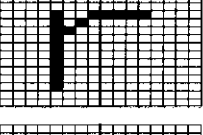
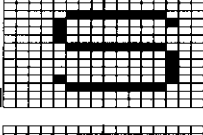
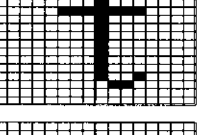
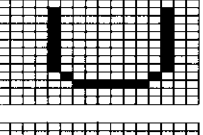
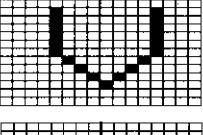
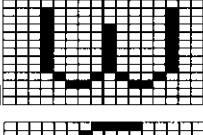
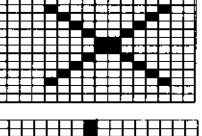
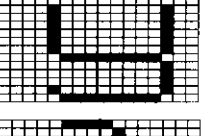
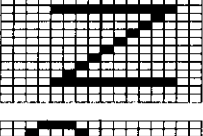
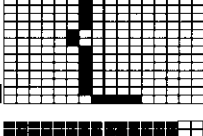
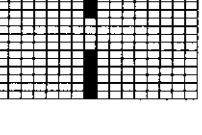
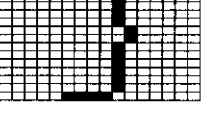


※8 × 9 dots are used for 80H to 8FH.

80H	81H	82H	83H	84H	85H	86H	87H
88H	89H	8AH	8BH	8CH	8DH	8EH	8FH
90H	91H	92H	93H	94H	95H	96H	97H
98H	99H	9AH	9BH	9CH	9DH	9EH	9FH
A0H	A1H	A2H	A3H	A4H	A5H	A6H	A7H
A8H	A9H	AAH	ABH	ACH	ADH	AEH	AFH
B0H	B1H	B2H	B3H	B4H	B5H	B6H	B7H
B8H	B9H	BAH	BBH	BCH	BDH	BEH	BFH
C0H	C1H	C2H	C3H	C4H	C5H	C6H	C7H
C8H	C9H	CAH	CBH	CCH	CDH	CEH	CFH
D0H	D1H	D2H	D3H	D4H	D5H	D6H	D7H
D8H	D9H	DAH	DBH	DCH	DDH	DEH	DFH

■ 16 × 16 character pattern table (1 of 4)

20H		21H		22H		23H	
24H		25H		26H		27H	
28H		29H		2AH		2BH	
2CH		2DH		2EH		2FH	
30H		31H		32H		33H	
34H		35H		36H		37H	
38H		39H		3AH		3BH	
3CH		3DH		3EH		3FH	
40H		41H		42H		43H	
44H		45H		46H		47H	
48H		49H		4AH		4BH	
4CH		4DH		4EH		4FH	

■ 16 × 16 character pattern table (2 of 4)

50H		51H		52H		53H	
54H		55H		56H		57H	
58H		59H		5AH		5BH	
5CH		5DH		5EH		5FH	
60H		61H		62H		63H	
64H		65H		66H		67H	
68H		69H		6AH		6BH	
6CH		6DH		6EH		6FH	
70H		71H		72H		73H	
74H		75H		76H		77H	
78H		79H		7AH		7BH	
7CH		7DH		7EH		7FH	

■ 16 × 16 character pattern table (3 of 4)

80H		81H		82H		83H	
84H		85H		86H		87H	
88H		89H		8AH		8BH	
8CH		8DH		8EH		8FH	
90H		91H		92H		93H	
94H		95H		96H		97H	
98H		99H		9AH		9BH	
9CH		9DH		9EH		9FH	
A0H		A1H		A2H		A3H	
A4H		A5H		A6H		A7H	
A8H		A9H		AAH		ABH	
ACH		ADH		AEH		AFH	

■ 16 × 16 character pattern table (4 of 4)

B0H		B1H		B2H		B3H	
B4H		B5H		B6H		B7H	
B8H		B9H		BAH		BBH	
BCH		BDH		BEH		BFH	
C0H		C1H		C2H		C3H	
C4H		C5H		C6H		C7H	
C8H		C9H		CAH		CBH	
CCH		CDH		CEH		CFH	
D0H		D1H		D2H		D3H	
D4H		D5H		D6H		D7H	
D8H		D9H		DAH		DBH	
DCH		DDH		DEH		DFH	

10.5 Tables of standard signals

■ Table of TV standard signals (1 of 2)

Signal format	Total no. of samples	Total no. of samples	Total no. of samples	Frame rate [Hz]	Scanning system	Subcarrier frequency [MHz]	Aspect ratio	Video level [mV]	Sync level [mV]	SETUP	Main countries where used
NTSC-J(Japan)	NTSC (RS-170A)	712 × 484	858 × 525	60/1.001	Interlaced	3.579545	4:3	714	286	No	Japan
NTSC-M	NTSC	712 × 484	858 × 525	60/1.001	Interlaced	3.579545	4:3	714	286	Yes	USA
NTSC-443	NTSC	712 × 484	858 × 525	60/1.001	Interlaced	4.43361875	4:3	714	286	Yes	
PAL-60	PAL	712 × 484	858 × 525	60/1.001	Interlaced	4.43361875	4:3	700	300	No	
PAL-M	PAL	712 × 484	858 × 525	60/1.001	Interlaced	3.57561189	4:3	714	286	Yes	Brazil
PAL (B/D/G/H/I/K)	PAL (BT.470-6)	702 × 574	864 × 625	50	Interlaced	4.43361875	4:3	700	300	No	U.K, Germany
PAL-N	PAL	718 × 574	864 × 625	50	Interlaced	4.43361875	4:3	714	286	Yes	Uruguay
PAL-Nc	PAL	702 × 574	864 × 625	50	Interlaced	3.58205625	4:3	700	300	No	Argentina
SECAM	SECAM	702 × 574	864 × 625	50	Interlaced	for=4.406250 fob=4.250000	4:3	700	300	No	France, Russia
483p (NTSC-PROG)	SMPTE293M	720 × 483	848 × 525	60/1.001	Progressive	–	4:3	700	300	–	–
576p (PAL-PROG)	BT.1358	720 × 574	864 × 625	50	Progressive	–	4:3	700	300	–	–

■ Table of TV standard signals (2 of 2)

Signal format	Total no. of samples	Total no. of samples	Total no. of samples	Frame rate [Hz]	Scanning system	Subcarrier frequency [MHz]	Aspect ratio	Video level [mV]	Sync level [mV]	SETUP	Main countries where used
720p	SMPTE296M	1280 × 720	1650 × 750	60	Progressive	-	16:9	700	300	-	-
			1650 × 750	60/1.001							
			1980 × 750	50							
			3300 × 750	30							
			3300 × 750	30/1.001							
			3960 × 750	25							
			4125 × 750	24							
			4125 × 750	24/1.001							
1035i	BTA S-001A	1920 × 1035	2200 × 1125	60	Interlaced	-	16:9	700	300	-	-
				60/1.001							
1080i	SMPTE274M	1920 × 1080	2200 × 1125	60	Interlaced	-	16:9	700	300		
			2200 × 1125	60/1.001							
			2640 × 1125	50							
1080p	SMPTE274M	1920 × 1080	2200 × 1125	60	Progressive	-	16:9	700	300		
			2200 × 1125	60/1.001							
			2640 × 1125	50							
			2200 × 1125	30							
			2200 × 1125	30/1.001							
			2640 × 1125	25							
			2750 × 1125	24							
			2750 × 1125	24/1.001							

■ Table of TV standard signal timing waveforms (1 of 3)

Signal	Sync signal waveform	Active line	Vertical blanking
NTSC-J	<p>ODD FIELD</p>	<p>$1/T = 13.5\text{MHz}$</p>	<p>1H: 858T</p>
NTSC-M	<p>EVEN FIELD</p>	<p>H SYNC</p>	<p>263LINE</p>
NTSC-443	<p>ODD FIELD</p>	<p>$1/T = 13.5\text{MHz}$</p>	<p>1H: 864T</p>
PAL-M	<p>EVEN FIELD</p>	<p>H SYNC</p>	<p>623LINE</p>
PAL-60	<p>ODD FIELD</p>	<p>$1/T = 13.5\text{MHz}$</p>	<p>1H: 864T</p>
PAL-B/D/G/H/I/K	<p>EVEN FIELD</p>	<p>H SYNC</p>	<p>313LINE</p>
PAL-N	<p>ODD FIELD</p>	<p>H SYNC</p>	<p>310LINE</p>

■ Table of TV standard signal timing waveforms (2 of 3)

Signal	Sync signal waveform	Active line	Vertical blanking												
1080i 1035i	<p>Note: There are no video signals in line 40 for 1920 x 1035i.</p>	<p>1/T = 74.25MHz or 74.138MHz</p> <table border="1"> <thead> <tr> <th>Frame Rate</th> <th>AT</th> </tr> </thead> <tbody> <tr> <td>60/59.94</td> <td>44T</td> </tr> <tr> <td>50</td> <td>484T</td> </tr> </tbody> </table>	Frame Rate	AT	60/59.94	44T	50	484T	<p>T: 1-dot width</p>						
Frame Rate	AT														
60/59.94	44T														
50	484T														
1080p 720p	<p>Note: The figures in parentheses are the 1280 x 720p line numbers.</p>	<p>1/T = 74.25MHz or 74.138MHz</p> <table border="1"> <thead> <tr> <th>Frame Rate</th> <th colspan="2">AT</th> </tr> </thead> <tbody> <tr> <td>60/59.94</td> <td>1080p</td> <td>720p</td> </tr> <tr> <td></td> <td>44T</td> <td>70T</td> </tr> <tr> <td>50</td> <td>484T</td> <td>400T</td> </tr> </tbody> </table>	Frame Rate	AT		60/59.94	1080p	720p		44T	70T	50	484T	400T	
Frame Rate	AT														
60/59.94	1080p	720p													
	44T	70T													
50	484T	400T													
720x483p (NTSC-P)		<p>1/T = 27MHz</p>													
720x576p (PAL-P)		<p>1/T = 27MHz</p>													

■ Table of TV standard signal timing waveforms (3 of 3)

Signal	Sync signal waveform	Active line	Vertical blanking T: 1-dot width
1080i SMPTE-295M (中国)	ODD FIELD EVEN FIELD 	$1/T = 74.25\text{MHz}$ H SYNC	
1080p SMPTE-295M アナログ出力 のみ対応		$1/T = 74.25\text{MHz}$ H SYNC	
1152i (Australian)	ODD FIELD EVEN FIELD 	$1/T = 13.5\text{MHz}$ H SYNC	
1080i (1250) (Australian)	ODD FIELD EVEN FIELD 	$1/T = 13.5\text{MHz}$ H SYNC	



11

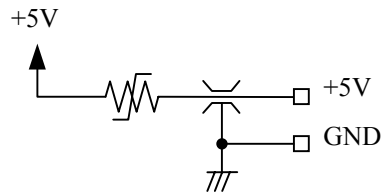
Restrictions

11.1 Concerning the DDC power supply

The supply voltage from the DDC power supply is supplied to each output of the VG-882. The maximum current supplied by the DDC power supply is described below.

- HDMI Output 0.5A for each channels
- Analog Output 0.5A for VGA Output

The DDC supply voltage is output as shown in the figure below.



DDC power supply output circuit

The supply voltage is described below.

- HDMI, Analog (DSUB) Output 5V fixed



- The DDC power supply incorporates an overcurrent protection device, but do not use a current which exceeds the rating.
- Do NOT supply power to the DDC power supply from the device connected to the VG-882. If such the voltage of such a power supply is connected, both the VG-882 and the connected device may fail.



12

LIST OF ERROR MESSAGES

12.1 Media-related error

Code (HEX)	Error message	Description
217	Flash ROM(User) Full	There is not enough free space in the internal memory.
228	No CF-Card	The CF card has not been inserted.
229	CF-Card Unformatted	The CF card has not been formatted.
22A	CF-Card Full	There is not enough free space on the CF card.
22C	OPT Data File Error	Error in the optional pattern data.
22F	Image Data File Error	Error in the image data.

12.2 General error

Code (HEX)	Error message	Description
302	'H-Timing DotClock' Over Limit	Dot clock in the horizontal timing data is outside the setting range.
303	'H-Timing Frontp' Over Limit	Frontp in the horizontal timing data is outside the setting range.
305	'H-Timing HD' Over Limit	HDstart+HDwidth in the horizontal timing data is outside the setting range.
307	'H-Timing Period' Over Limit	Period in the horizontal timing data is outside the setting range.
308	'H-Timing Disp' Over Limit	Disp in the horizontal timing data is outside the setting range.
309	'H-Timing Sync' Over Limit	Sync in the horizontal timing data is outside the setting range.
30A	'H-Timing Backp' Over Limit	Backp in the horizontal timing data is outside the setting range.
30B	'H-Timing Blanking' Over Limit	Blanking in the horizontal timing data is outside the setting range.
30C	H-Frequency Over Limit	The horizontal sync frequency in the horizontal timing data is outside the setting range.
30D	'H-Timing' Data Error	Error other than those described above in the horizontal timing data.
310	'Output' Data Error"	Error in the output condition data.
311	'Character' Data Error"	Error in the character pattern data.
312	'Cross Hatch' Data Error"	Error in the crosshatch pattern data.
313	'Dot' Data Error"	Error in the dot pattern data.
314	'Circle' Data Error"	Error in the circle pattern data.

Code (HEX)	Error message	Description
315	'Burst' Data Error"	Error in the burst pattern data.
316	'Window' Data Error"	Error in the window pattern data.
317	'Color Bar' Data Error"	Error in the color bar pattern data.
318	TERMINAL) Parameter Error	Error in a parameter in the terminal mode.
319	TERMINAL) Data Error	Error in the data in the terminal mode.
31B	'Video/Setup/Sync Level' Error	The video level (Video), setup level (Setup) and sync signal level (Sync) are outside the setting range. (Setting range: [Video ≥ Setup] and [Video ≥ Sync] and [Video ≥ (Setup + Sync)])
31E	TERMINAL) Communication Timeout	Time-out has occurred in the data during communication in the terminal mode.
31F	TERMINAL) Undefined Command	An undefined command was received in the terminal mode.
321	'Program No.' Error"	Error in the program number.
322	'Group No.' Error"	Error in the group number.
323	'Character Code' Error"	Error in a user character code.
32B	'OPT No.' Error"	Error in the optional pattern number.
32D	OPT Data File Not Found"	The optional pattern has not been registered.
32E	'Image No.' Error"	Error in the image pattern number.
330	Image Data File Not Found"	The image pattern has not been registered.
333	CURSOR Not Selected	The cursor pattern has not been selected (when SP-8870 CurTool is used).
338	'Gray Scale' Data Error	Error in the gray scale pattern data.
339	'OPT/Image' Data Error"	Error in the optional pattern or image pattern data.
33B	'Cursor' Data Error	Error in the cursor pattern data.
33C	'Program Name' Data Error	Error in the program name data.
33D	'□ × [ABC] Color' Data Error	Error in the □ × [ABC] color data.
33E	'Action' Data Error"	Error in the action data.
340	'V-Timing Total' Over Limit	Total in the vertical timing data is outside the setting range.
341	'V-Timing Disp' Over Limit"	Disp in the vertical timing data is outside the setting range.
342	'V-Timing Sync' Over Limit	Sync in the vertical timing data is outside the setting range.
343	'V-Timing Backp' Over Limit	Backp in the vertical timing data is outside the setting range.
344	'V-Timing Frontp' Over Limit	Frontp in the vertical timing data is outside the setting range.
345	'V-Timing Blanking' Over Limit	Blanking in the vertical timing data is outside the setting range.
346	V-Frequency Over Limit	The vertical sync frequency in the vertical timing data is outside the setting range.

Code (HEX)	Error message	Description
348	'V-Timing EQP-Fp' Over Limit	EQP-FP in the vertical timing data is outside the setting range.
349	'V-Timing EQP-Bp' Over Limit	EQP-BP in the vertical timing data is outside the setting range.
34A	'V-Timing' Data Error	Error other than those described above in the vertical timing data.
34E	DDC2 Line Error	ACK was not received in DDC2.
350	Macrovision Not Supported	An IC supporting Macrovision has not been installed in the unit.
352	EDID Header Error	Error in the EDID header.
353	EDID Check Sum Error	EDID checksum error.
354	EDID Header & Check Sum Error	Errors in both the EDID header and checksum.
355	User YPbPr Coefficient Error	Error in the color difference coefficients.
360	Image License Error	The image data license has not been supplied.
361	Data File Not Found	The data (other than the optional pattern and image data) cannot be found.
362	Copy Condition Error	<ul style="list-style-type: none"> • The copy source data and copy destination data are identical. • The number of copy source data and number of copy destination data are different.

12.3 HDCP-related error

Code (HEX)	Error message	Description
403	HDCP) Transmitter KSV Error	KSV of the transmitter does not contain twenty '0's and '1's.
404	HDCP) Receiver KSV Error	KSV of the receiver does not contain twenty '0's and '1's.
405	HDCP) Link Check Error	During initial validation, the values did not match (R0 ≠ R0').
406	HDCP) Encryption Error	Encryption was not completed.
407	HDCP) Hot Plug Error	The device to be connected is not connected.
408	HDCP) Ri Ready Error	The ready bit of the receiver was not set high.
412	HDCP) I2C Line Error	The I2C line is not working properly.
414	HDCP) Receiver Not HDMIMode	The connected device (receiver) was not set to the HDMI mode when the HDCP version was identified as 1.1 as a result of HDCP version:1.1 or HDCP version: EDID check.
415	HDCP) Ri NG	The values of Ri and Ri' do not match.
416	HDCP) FIFO Ready Time-out	FIFO Ready fails to occur within restricted time limit.
417	HDCP) DEPTH Error	The depth number has exceeded '7'.
418	HDCP) DEVICE_COUNT Error	The count number has exceeded '127'.
419	HDCP) List Error (V'≠V)	The values of V and V' do not match.

12.4 User-generated optional pattern-related error

Code (HEX)	Error message	Description
501	OPT Program Not Found	The user-generated optional pattern is not found.
502	Variables Stack Error	Variable stack error.
503	Register Stack Error	Register stack error.
504	Call Stack Error	Function stack error.
505	Illegal Instruction Code	Illegal instruction code.
506	Divide by Zero	An attempt was made to divide a number by zero.
539	OPT-USER License Error	The user-generated optional pattern license has not been supplied.

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