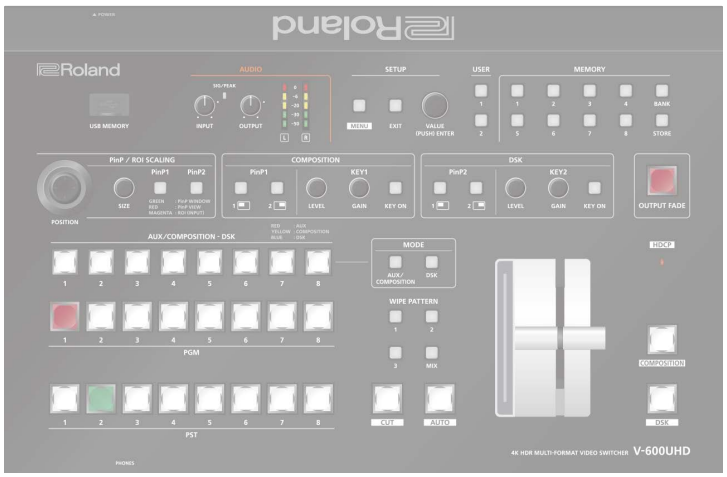
4K HDR MULTI-FORMAT VIDEO SWITCHER

V-600UHD

Reference Manual



■ Recommended cables

When inputting or outputting 4K resolution video (2160p (UHD), 2160p (DCI), 3840x2160, 4096x2160), please use HDMI cable that support HDMI 2.0 (Premium High Speed) and SDI cables that support 12G-SDI.

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Update History

Ver.3.00

Additional functions

- Support for the following resolutions and frame rates on HDMI inputs have been added.

  720p: 1280 x 720p, 60 Hz

  1080i: 1920 x 1080i, 60 Hz

  1080p: 1920 x 1080p, 23.98/24/25/29.97/100/119.88/120 Hz

  2160p (UHD): 3840 x 2160p, 23.98/25/29.97 Hz

  2160p (DCI): 4096 x 2160p, 23.98/25/29.97 Hz

  1280x800 (WXGA): 60 Hz

  2560x1440 (WQHD): 60/120 Hz (Reduced blanking)

- The following values have been added to the EDID paramater of the HDMI input.

  2160p (DCI) 23/24 Hz, 2160p (DCI) 25 Hz, 2160p (DCI) 29/30 Hz, 2160p (DCI) 50 Hz, 2160p(DCI) 59/60 Hz

  2160p (UHD) 23/24 Hz, 2160p (UHD) 25 Hz, 2160p (UHD) 29/30 Hz, 2160p (UHD) 50Hz, 2160p (UHD) 59/60 Hz

  1080p 23/24 Hz, 1080p 25 Hz, 1080p 29/30 Hz, 1080p 50 Hz, 1080p 59/60 Hz

  2560x1440/60 Hz, 1400x1050/60 Hz, 1280x1024/60 Hz, 1280x800/60 Hz, 1024x768/60 Hz

  1080p 100 Hz, 1080p 120 Hz, 2560x1440/120 Hz

  2160p (DCI) 50 Hz (420), 2160p (DCI) 59/60 Hz (420), 2160p(UHD) 50 Hz (420), 2160p(UHD) 59/60 Hz (420)

- Support for the following resolutions and frame rates on SDI inputs have been added.

  720p: 1280 x 720p, 50/59.94/60 Hz

  1080i: 1920 x 1080i, 60 Hz

  1080p: 1920 x 1080p, 23.98/24/25/29.97/30/60 Hz

  1080p (2K DCI): 2048 x 1080p, 23.98/24/25/29.97/30/47.95/48/50 /59.94/60 Hz

  2160p (UHD): 3840 x 2160p, 23.98/24/25/29.97/30/60 Hz

  2160p (DCI): 4096 x 2160p, 23.98/24/25/29.97/30/47.95/48/60 Hz

- Support for the following frame rates on HDMI outputs have been added.

  1920 x 1080 (FHD): 50/59.94 Hz

  1920 x 1080 (FHD): 23.98/24/25/29.97/50/59.94 Hz (Available when Down Convert is set to "FHD")

  3840 x 2160 (UHD): 23.98/24/25/29.97/50/59.94 Hz

  4096 x 2160 (DCI): 23.98/24/25/29.97/50/59.94 Hz

- YCbCr 4:2:0 down sampling function added to HDMI 4K output.

  Available when the setting System menu → Processing → Format is 2160p (UHD), 2160p (DCI), 3840 x 2160 or 4096 x 2160.

  YCbCr 4:2:0 Down Sampling function and FHD Down Convert function cannot be used at the same time.

- Added function to change the bus selection of HDMI outputs by the user button.

  Example: You can set up USER button 1 to change HDMI output 2 from PGM to AUX output.

- Added Composition/DSK source display to the Status Bar on the MULTI-VIEW.

  Also, the position of the Status Bar can be selected as Upper/Lower.

- HDCP on the MULTI-VIEW output is now linked with the system setting.

- Added detailed information on the video signal to the signal status display of the input channel.

- Added Password for LAN command control and WebRCS function.

Bug Fix

- Fix some bugs in the display of WebRCS.

Ver.2.04

Functionality improvements

- Internal processing has been improved.

* There is no change affecting the product specification.

Ver.2.03

Bug Fix

- The following bug was fixed.

- Camera Remote Control sometimes becomes impossible when using some PTZ cameras.

Ver.2.02

Bug Fix

- Fixed issue that PGM/PVW switching doesn't work when receiving unsupported signals.

- The recall memory control and tally lamp control of PTZ cameras works properly.

Ver.2.01

Bug Fix

- Fixed issues when using 3840 x 2160/50 Hz and 3840 x 2160/30 Hz signals from HDMI IN.

- The tally lamp control of SONY and Panasonic PTZ cameras works properly.

Ver.2.00

Additional Functions

- Added new "Automatic ROI" function, which uses facial recognition information from compatible Canon camcorders to control the ROI (Region of Interest) function of the V-600UHD.

  For information on supported video cameras, check "V-600UHD Ver.2.0 Camera Remote Control Compatibility Information".

- Added network control for Canon and JVC camcorders, as well as PTZ cameras from JVC, Panasonic, PTZOptics, Avonic, and PTZ cameras that support VISCA over IP (such as SONY PTZ cameras).

  For information on supported cameras, check "V-600UHD Ver.2.0 Camera Remote Control Compatibility Information".

- Added settings for the Multi-View monitor output labels: Turning display on or off. Changing position, size and background transparency.
- Added a Status Bar to display signal status and AUX source selection on the Multi-View monitor output.
- Added Recall Safe function that helps you recall only specified settings with memory presets.
- Added the function to specify the memory to load during boot.
- Added Panel Lock function to help prevent operation mistakes.
- Added additional functions to the USER buttons: Turning display on or off the Status Bar on the Multi-View monitor. Changing Still Image selection.
- Redesigned the Setup Menu.

Bug Fix

- Fixed an issue when adjusting the ROI position with the POSITION stick when the Input Scaler Zoom was greater than 100%.

Ver.1.11

Bug fix

- The audio follow function works properly.
- When recalling a memory, the parameters of key composition is now set correctly.
- When changing the cross-point assignment from "Blank" or "None" to an input channel whose video source is set to "STILL1" or "PG/STILL2", the color is now displayed correctly on the multi-view monitor.

Additional functions

- The option of also loading still images when loading a settings file has been added.

Functionality improvements

- Improved way for determining SDR or HDR on SDI inputs.
- The state of button such as output fade, output freeze, etc. are now initialized during a Factory Reset.
- "Processing"... message is displayed during system configuration after Factory Reset or after loading an unit's setting file.
- Located in the file list display of the unit's setting files and the still image files, the name scrolls when the file name is long.

Ver.1.10

Additional functions

- A function for capturing a still image from the final output video (PGM or PVW) has been added.
  Captured still images can be stored on a USB flash drive and loaded from the USB flash drive during boot.
  * Still images captured from copyright protected (HDCP) video cannot be stored on a USB flash drive.
- The number of still images that can be loaded from a USB flash drive was increased from 2 to 8.
  You can load or capture up to 8 still images. And you can choose from 8 still images as the source for Ch.7 (STILL1) or Ch.8 (STILL2).
- PNG has been added as a file format that can be imported via a USB flash drive.
  * The alpha channel of PNG files cannot be imported.
- A function for freezing the final output video (PGM) has been added.
- Support for the following output formats on HDMI outputs have been added.
  1920 x 1080/30 Hz (FHD) (*1)
  3840 x 2160/30 Hz (UHD 4K)
  4096 x 2160/30 Hz (DCI 4K)

  (*1) "1920 x 1080/30 Hz (FHD)" is output when the following settings are used.
  – In System menu → Processing → Format: 3840x2160
  – In System menu → Frame Rate: 30Hz
  – In Output menu → HDMI OUT 1–3 → Down Convert: Enabled
- Support for the following resolutions and frame rates on HDMI inputs have been added.
  720/50p, 720/59.94p
  1024 x 768/60 Hz (XGA)
  1280 x 768/60 Hz (WXGA)
  1280 x 1024/60 Hz (SXGA)
  1400 x 1050/60 Hz (SXGA+)
  1600 x 1200/60 Hz (UXGA)
  1920 x 1080/30 Hz (FHD)
  3840 x 2160/24 Hz (UHD 4K)
  4096 x 2160/24 Hz (DCI 4K)
- A function for selecting the EDID setting for HDMI inputs has been added.
- Added SDI input function that determines if source is SDR or HDR, based on SDI Video Payload ID.
- Added SDI output parameter to set the Video Payload ID.
- Parameters for changing the display and color of ROI border shown on the multi-view monitor have been added.
- In the Input Scaling menu, functions for adjusting ROI size to FHD and resetting parameters have been added.
- 1k stereo test tone output has been added. (L:1k + R:1k)
- A function for erasing individual stored MEMORY settings has been added.
- A function for erasing imported still images and captured still images has been added.

Functionality improvements

- Automatically recall the position of the AUDIO OUTPUT knob at startup and after Factory Reset.
- Improved processing with 1080/50i and 1080/59.94i inputs.
- Adjusted synchronization timing when Reference Source is "SDI IN5".

Ver.1.08

Bug fix

- The problem of the V-600UHD experiencing a system lockup in extremely rare cases was corrected.

Ver.1.07

Additional functions

- SDI OUT 3G Level B output
- Functions that use the RS-232 connector and LAN port (LAN/RS-232 command and WebRCS)
- SDI IN audio functionality (*1)

(*1) Immediately after updating to Ver.1.07, the SDI IN audio parameter is muted.
If you want to use SDI IN audio, perform one of the following operations.

– In Audio menu → SDI IN 5/6 screen, edit the Mute, Level, Aux Send, and Mix Ch.1–16 parameters.

– Execute Factory Reset.

Ver.1.06

Functionality improvements

- The stability of HDMI and SDI input and output has been improved.
- The display of signal status when a Mac computer is connected has been improved.

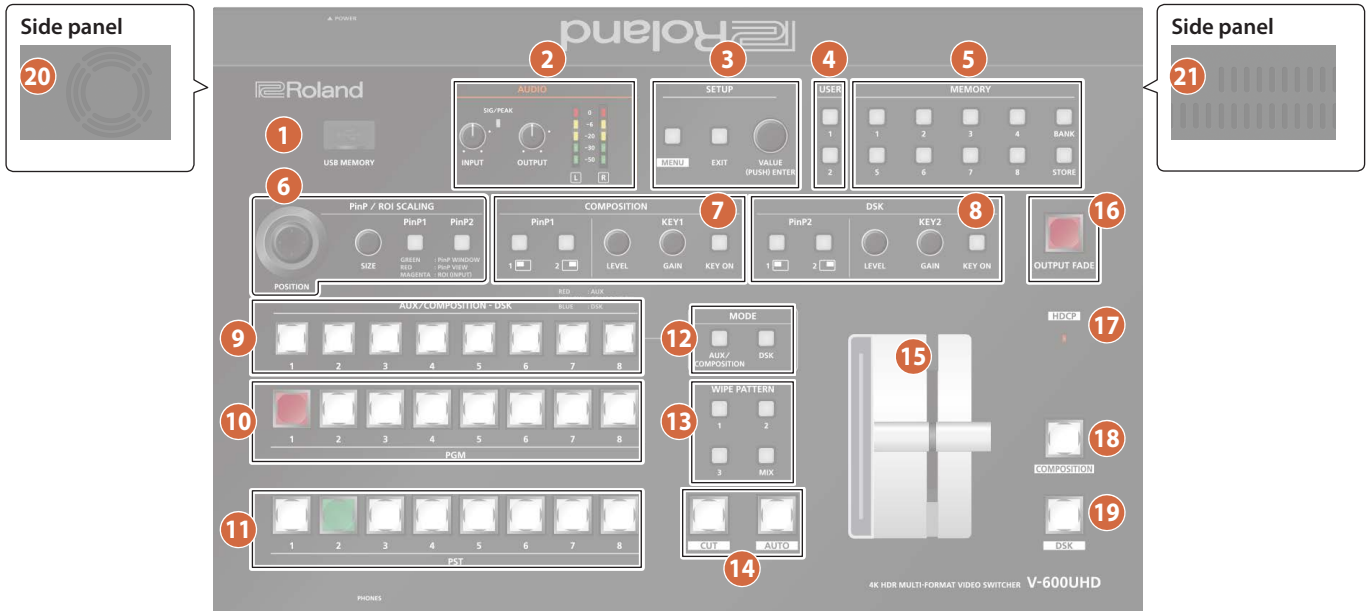
Ver.1.05

Bug fix

- The possibility that in extremely rare cases signals to HDMI IN might fail to be received correctly has been circumvented.

Panel Descriptions

Top Panel / Side Panel



Name	Explanation
1 USB MEMORY port	This is for connecting a USB flash drive. Use this to load a still image, save or load settings, or save a captured still image. * Never turn off the power or remove the USB flash drive while the USB flash drive is being accessed.
2 AUDIO	
[INPUT] knob	Adjusts the volume level (digital gain) for AUDIO IN L/R.
SIG/PEAK indicator	Lit green when input is detected at AUDIO IN L/R, and lit red when the volume is excessive.
[OUTPUT] knob	Adjusts the audio output/headphones volume.
Level meter	Indicates the audio output (L/R) volume level.
3 SETUP	
[MENU] button	Switches between displaying or hiding the menu. The menu appears on the multi-view monitor connected to the MULTI-VIEW connector.
[EXIT] button	Returns you to the menu one level higher.
[VALUE] knob	Turning: Selects a menu item or changes a setting value. Pressing: Accepts the selected menu item or applies changes to a setting. It also executes operations.
4 USER	
[1], [2] buttons	Execute the functions that are assigned by the menu settings.
5 MEMORY	
[1]–[8] buttons	Save the current settings (such as video settings and operating panel status) to memory, or recall settings from memory. Button functioning is switched according to whether the [STORE] button is on/off. [STORE] on (lit): Saves current settings in memory. [STORE] off (unlit): Recalls settings that are saved in memory.
[BANK] button	When this is turned on (lit), the [1]–[8] buttons function as bank selection buttons for memories.
[STORE] button	When this is turned on (lit), you can save settings in memories.

Name	Explanation
6 PinP / ROI SCALING	
[POSITION] stick	Adjusts the display position of the input video or PinP inset screen. You can use the camera controls to adjust Pan and Tilt.
[SIZE] knob	Enlarges or reduces the size of the input video or PinP inset screen. You can use the camera controls to adjust Zoom and Focus.
[PinP1], [PinP2] buttons (*1)	Select what is controlled by operating the [POSITION] stick and [SIZE] knob. **[PinP1] button** Lit green: PinP1 window Lit red: Video shown in the PinP1 inset screen Lit magenta: ROI (input video) Lit light blue: Camera control **[PinP2] button** Lit green: PinP2 window Lit red: Video shown in the PinP2 inset screen Lit magenta: ROI (input video) Lit light blue: Camera control
* When selecting "ROI", you can adjust the input video selected as the preset video.	
7 COMPOSITION (*1)	
PinP1 [1], [2] buttons	Turns picture-in-picture video compositing on/off. The selected button lights up when it is switched on. The color of the lit button indicates the output destination of the compositing results. Lit green: PinP1 composition on Lit red: Final output Unlit: PinP1 composition off
KEY1 [LEVEL] knob	During key compositing, this adjusts the amount of keying (transparency).
KEY1 [GAIN] knob	During key compositing, this adjusts the degree of edge blur (the semi-transmissive region) for keying.

Name	Explanation
KEY1 [KEY ON] button	Turns key composition on/off. When on, the KEY1 [KEY ON] button lights up. The color of the lit button indicates the output destination of the compositing results. Lit green: KEY1 composition on Lit red: Final output Unlit: KEY1 composition off
8 DSK	
PinP2 [1], [2] buttons	Turns picture-in-picture video compositing on/off. The selected button lights up when it is switched on. The color of the lit button indicates the output destination of the compositing results. Lit green: PinP2 composition on Lit red: Final output Unlit: PinP2 composition off
KEY2 [LEVEL] knob	During key compositing, this adjusts the amount of keying (transparency).
KEY2 [GAIN] knob	During key compositing, this adjusts the degree of edge blur (the semi-transmissive region) for keying.
KEY2 [KEY ON] button	Turns key composition on/off. When on, the KEY2 [KEY ON] button lights up. The color of the lit button indicates the output destination of the compositing results. Lit green: KEY2 composition on Lit red: Final output Unlit: KEY2 composition off
9 AUX/COMPOSITION - DSK	
Cross-point [1]–[8] buttons (*2)	Indicates the status of video input to the cross-points. Here you can also select the video that is sent to the destination specified by the MODE [AUX/COMPOSITION] button and [DSK/ROI] button. Unlit: Video is not being input. Lit green: Valid video is being input. Lit red: Video is being sent to AUX. You can use the [1]–[8] buttons to change the video that is sent to AUX. Lit yellow: Video is being sent to COMPOSITION. You can use the [1]–[8] buttons to change the video that is sent to COMPOSITION. Lit blue: Video is being sent to DSK. You can use the [1]–[8] buttons to change the video that is sent to DSK. If a Camera ID is selected Unlit: Not selected for a Camera ID. Lit white: A valid camera is connected. Lit cyan: Selected for a Camera ID. If a Camera Preset is selected Unlit: No Camera Preset is recalled. Lit cyan: **If All Cameras Recall is "Off"** A Camera Preset is recalled. Lit magenta: **If All Cameras Recall is "On"** A Camera Preset is recalled.
10 PGM	
Cross-point [1]–[8] buttons	Selects the final output video. The selected cross-point button is lit red.

Name	Explanation
11 PST	
Cross-point [1]–[8] buttons	Selects the preset video (the video to output next). The selected cross-point button is lit green. While compositing of the video is in progress it lit red. * When the menu is not shown, you can hold down the [MENU] button and press a PST cross-point [1]–[8] button to successively switch the input source setting.
12 MODE	
[AUX/COMPOSITION] button **[DSK] button (*2)**	Selects the destination of the video. The video selected by the AUX/COMPOSITION - DSK cross-point [1]–[8] button is sent. **[AUX/COMPOSITION] button** Lit red: AUX Lit yellow: COMPOSITION Lit light blue: Camera ID selected **[DSK] button** Lit blue: DSK Lit light blue: Camera Preset selected
13 WIPE PATTERN	
[1]–[3] buttons **[MIX] button**	Selects the video transition effects. The selected button lights up. [1]–[3]: The original video is broken into by the next video. [MIX]: The two pictures are blended together as the video is switched.
14 [CUT] button **[AUTO] button**	Makes the preset video (the video to output next) the final output. [CUT]: The picture switches instantly. [AUTO]: The picture switches with a transition effect applied.
15 Video fader	Makes the preset video (the video to output next) the final output.
16 [OUTPUT FADE] button	Performs a fade-in or fade-out for the final output video. Lit: Fade-out Blink: Fade-in/fade-out in progress Unlit: Normal output
17 HDCP indicator	This lights up, blinks, or becomes unlit according to HDCP (High-bandwidth Digital Content Protection) settings and the connection status of HDCP-compatible equipment.
18 [COMPOSITION] button	If this is on (lit), the composited result COMPOSITION (PinP1/KEY1) is the final output.
19 [DSK] button	If this is on (lit), the composited result DSK (PinP2/KEY2) is the final output.
20 Cooling-fan exhaust port	Expels internal heat to keep temperatures inside the V-600UHD cool. **NOTE** Do not block the cooling-fan intake and exhaust ports. Blocking the intake and exhaust ports might result in a temperature rise inside the V-600UHD and lead to malfunction due to heat.
21 Cooling-fan intake port	

*1 COMPOSITION (PinP1/KEY1) operation is not possible if the Aux/Composition setting (p. 53) is "Aux".

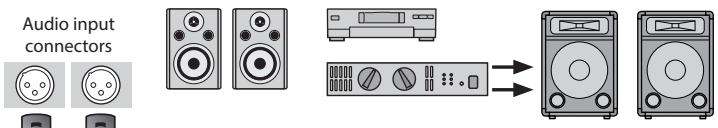
*2 Only AUX can be selected if the Aux/Composition (p. 53) setting is "Aux", and only COMPOSITION can be selected if the Aux/Composition setting is "Composition".

Rear Panel / Front Panel (Connecting Your Equipment)

* To prevent malfunction and equipment failure, always turn down the volume, and turn off all the units before making any connections.
* Be sure to use cables and adaptor plugs with the proper connectors matching those of the other devices you are using.

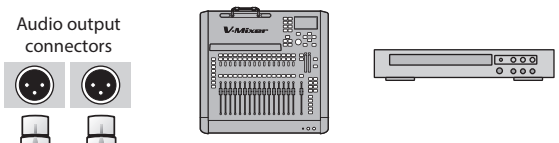
AUDIO OUT L, R connectors

Output the results of audio mixing.
Connect an audio recorder, amplifier, speakers, or other such equipment.



AUDIO IN L, R connectors

Inputs the audio signals.
Connect an audio mixer, CD players, or other such audio equipment.

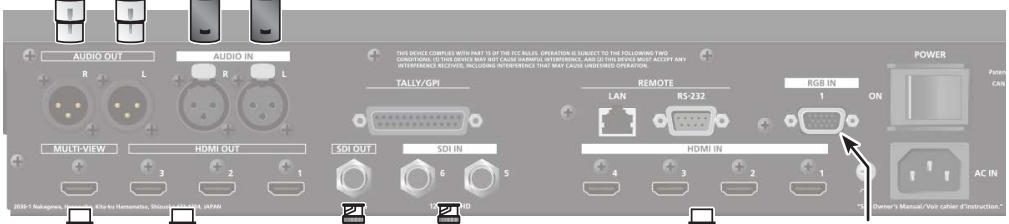


Pin assignment of AUDIO IN connectors



Pin assignment of AUDIO OUT connectors

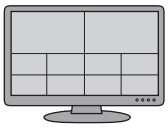




MULTI-VIEW connector

Outputs an input/output video list (final output, preview output, and input channels 1–8) and menus.
Connect a multi-view monitor here.

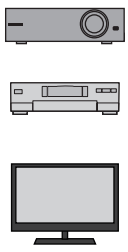
* The multi-view output is fixed at 1920 x 1080/60 Hz, RGB, SDR. When HDCP is "ON", the output signal is HDCP 1.4 compliant.





HDMI input connector

HDMI OUT 1–3 connectors / SDI OUT connector

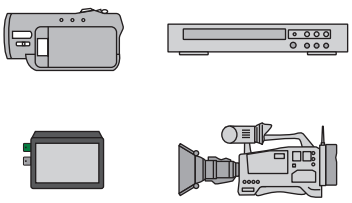




HDMI input connector | SDI input connector

Outputs the video/audio signals. Connect projectors, recording equipment, and external displays.

RGB IN 1 connector / HDMI IN 1–4 connectors / SDI IN 5, 6 connectors





SDI output connector | HDMI output connector | Analog RGB output connector

Input video and audio. Connect video cameras, BD players or other video devices, or computers.

- The input format is detected automatically.
- You can use the menu to check the format of the video that is input to each channel, and whether an HDCP signal is present.

* Use the menu to specify whether you will use the RGB IN 1 connector or the HDMI IN 1 connector.

Rear Panel / Front Panel (Connecting Your Equipment)

TALLY/GPI connector

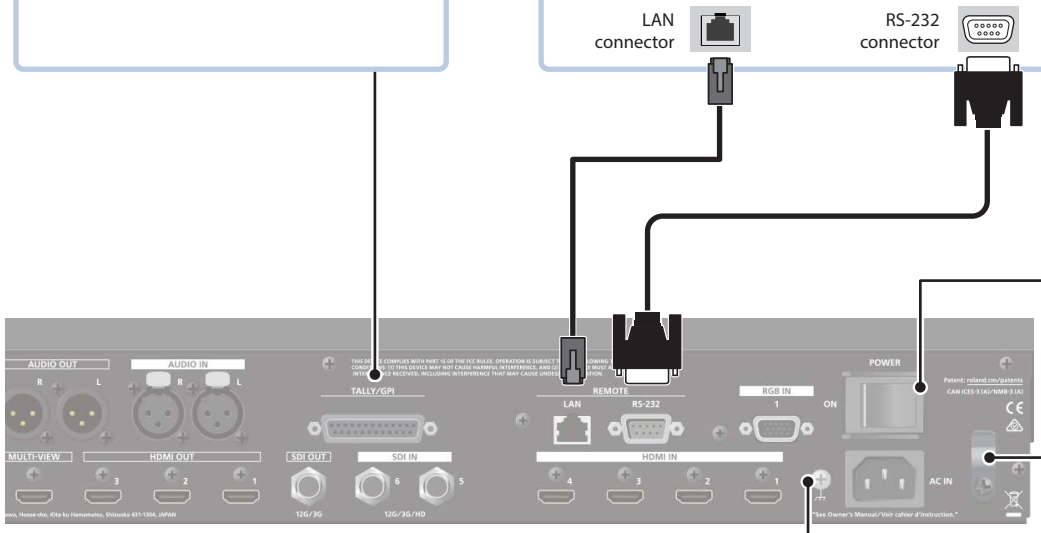
Connect devices provided with a tally-light feature or with control-signal output functionality to this connector.

* For details on the specifications of the TALLY/GPI connector, refer to p. 60.

LAN connector, RS-232 connector

- You can use a web browser or terminal software to remotely control this unit.
- You can connect a computer equipped with an RS-232 connector, and remotely control this unit.





[POWER] switch

Turns the power on/off.

Cord hook

Clamps the power cord to secure it in place.



Ground terminal

Connect this to an external earth or ground if necessary.

AC IN connector

Connects the included power cord.

* Be sure to use the included power cord for connecting the power supply.

* The shape of the power cord's plug varies depending on the country.

Front panel



PHONES jack (Stereo miniature type)

Connect headphones.

Multi-View Monitor Display

An input/output video list (final output, preview output, and input channels 1–8) and menus are displayed on a multi-view monitor connected to the MULTI-VIEW connector.

Pressing the [MENU] button displays the menu superimposed over the multi-view (p. 10).



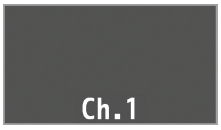
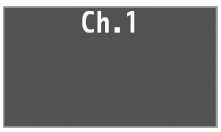
No.	Name	Explanation
1	**PVW (preview) section**	This displays the preset video (the video to be output next).
2	**PGM (program) section**	This displays the final output video.
3	**CH 1–8 section**	This monitors the video input via channels 1–8. A red border is displayed around the final video output. A green border is displayed around the preset video (the video to be output next). * Settings for scaling (p. 16) is not applied. * Changing the channel assignments at the cross-point (p. 31) also changes the order of displayed sources.

MEMO

- You can change the label names displayed on the multi-view monitor.
  Use the [MENU] button ➡ "System" ➡ "Multi-view" ➡ "Label", then change the label name.
  For details on how to enter characters, refer to Entering "Entering Characters" (p. 11)".
- You can show or hide the labels displayed in the multi-view monitor, switch their position between up and down, adjust their size, and change the transparency of the background.
- Information such as transparency amount and AUX source selection can also be shown as a Status Bar in the multi-view monitor.

Examples on how the lable/Status Bar is displayed

When Status Bar is not displayed

Display example	Menu item	Value
	**Label**	On
	Position	Lower
	Font	Large
	Status Bar	Off
	**Label**	On
	Position	Upper
	Font	Large
	Status Bar	Off

When Status Bar is displayed

Display example	Menu item	Value
	**Label**	On
	Position	Lower
	Font	Small
	Status Bar	On
	Position	Upper
	**Label**	On
	Position	Upper
	Font	Small
	Status Bar	On
	Position	Lower

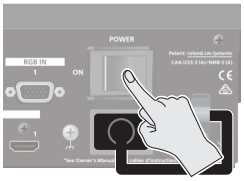
Turning the Power On/Off

* Before turning the unit on/off, always be sure to turn the volume down. Even with the volume turned down, you might hear some sound when switching the unit on/off. However, this is normal and does not indicate a malfunction.

Turning the power on

1. Make sure all devices are turned off.

2. Turn on the [POWER] switch on the V-600UHD to turn on the power.



3. Turn on the power to the source devices.

Turn on the power to video cameras or other source equipment connected to input connectors on the V-600UHD.

4. Turn on the power to the output devices.

Turn on the power to projectors or other devices connected to output connectors on the V-600UHD.

Turning the power off

1. Turn off the power in the sequence of first the output equipment, and then the sources.

2. Turn off the [POWER] switch on the V-600UHD to turn off the power.

NOTE

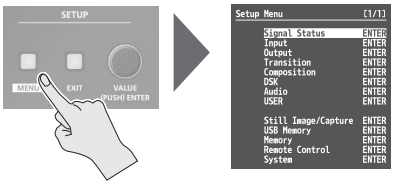
- Do not turn off the power while a message of "Executing"... is shown on menu display area of the multi-view monitor. Your settings may not be saved properly.
- If you need to turn off the power completely, first turn off the V-600UHD, then unplug the power cord from the power outlet.

Using the Menus

This explains how to display menus and make settings for video and for the V-600UHD itself.

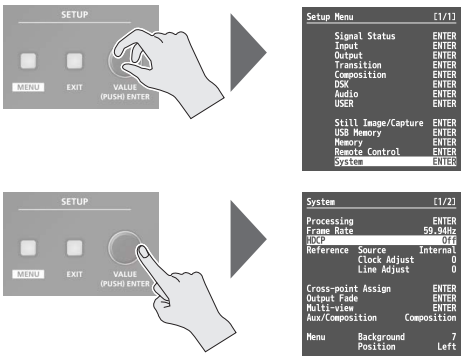
* Menus are shown only on the multi-view monitor connected to the MULTI-VIEW connector (p. 9).

1. Press the [MENU] button to display the menu.



The [MENU] button lights up, the menu categories are displayed.

2. Turn the [VALUE] knob to select a category, and press the [VALUE] knob to confirm.



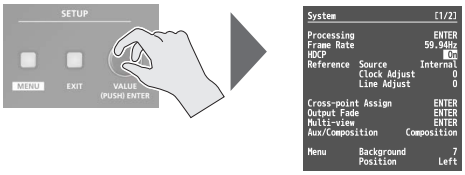
The menu for the selected category is displayed.

3. Turn the [VALUE] knob to select a menu item, then press the [VALUE] knob to confirm.

The cursor moves to the setting value.

- If the menu item is located at a deeper level, repeat step 3.
- Pressing the [EXIT] button moves you back one level higher.

4. Turn the [VALUE] knob to change the value of the setting.



- By turning the [VALUE] knob while pressing it, you can change the value more greatly.
- Pressing and holding the [VALUE] knob returns the current menu item you're setting to its default value.

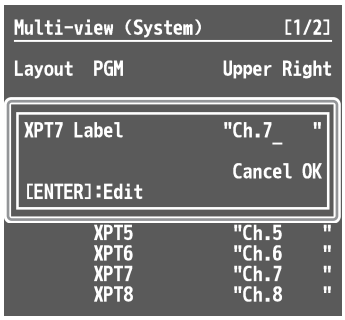
5. Press the [VALUE] knob to apply the setting.

The cursor returns to the menu item.

6. Press the [MENU] button to quit the menu.

Entering Characters

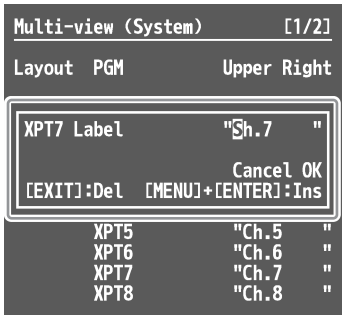
1. Turn the [VALUE] knob to move the cursor.



Function	Operation
Move the cursor to the beginning/end	Turn the [VALUE] knob while pressing it.

2. Press the [VALUE] knob to highlight the character at the cursor location.

3. Turn the [VALUE] knob to change the character.



Function	Operation
Change the edited character in the order of space → uppercase → lowercase → numerals → symbols	Turn the [VALUE] knob while pressing it.
Delete the character at the cursor location	Press the [EXIT] button.
Insert a space at the cursor location	Press the [VALUE] knob while pressing the [MENU] button.

4. Press the [VALUE] knob to confirm the character.

5. Repeat steps 1 through 4 as needed.

List of Supported Formats

Input Formats

Input connector	Format	Standard	Resolution	Frame rate	Video (YCbCr)	PC (RGB)
HDMI IN	720p	CEA-861-F	1280 x 720p	50/59.94/60	✓	–
	1080i	CEA-861-F	1920 x 1080i	50/59.94/60	✓	–
	1080p	CEA-861-F	1920 x 1080p	23.98/24/25/29.97/30/50/59.94/60/100/119.88/120	✓	–
	2160p (UHD)	CEA-861-F	3840 x 2160p	23.98/24/25/29.97/30/50/59.94/60	✓	–
	2160p (DCI)	CEA-861-F	4096 x 2160p	23.98/24/25/29.97/30/50/59.94/60	✓	–
	1024 x 768 (XGA)	VESA DMT	1024 x 768p	60	–	✓
	1280 x 768 (WXGA)	VESA CVT	1280 x 768p	60	–	✓
	1280 x 800 (WXGA)	VESA CVT	1280 x 800p	60	–	✓
	1280 x 1024 (SXGA)	VESA DMT	1280 x 1024p	60	–	✓
	1400 x 1050 (SXGA+)	VESA CVT	1400 x 1050p	60	–	✓
	1600 x 1200 (UXGA)	VESA DMT	1600 x 1200p	60	–	✓
	1920 x 1080 (FHD)	CEA-861-F	1920 x 1080p	30/60	–	✓
	1920 x 1200 (WUXGA)	VESA CVT	1920 x 1200p	60 RB	–	✓
	2560 x 1400 (WQHD)	VESA CVT	2560 x 1400p	60 RB/120 RB	–	✓
	3840 x 2160 (UHD)	CEA-861-F	3840 x 2160p	23.98/24/25/29.97/30/50/59.94/60	–	✓
	4096 x 2160 (DCI)	CEA-861-F	4096 x 2160p	23.98/24/25/29.97/30/50/59.94/60	–	✓
RGB IN	1600 x 1200 (UXGA)	VESA DMT	1600 x 1200p	60	–	✓
	1920 x 1080 (FHD)	CEA-861-F	1920 x 1080p	60	–	✓
SDI IN	720p	SMPTE ST296	1280 x 720p	50/59.94/60	✓	–
	1080i	SMPTE ST274	1920 x 1080i	50/59.94/60	✓	–
	1080p	SMPTE ST274	1920 x 1080p	23.98/24/25/29.97/30/50/59.94/60	✓	–
	1080p (2K DCI)	SMPTE ST2048-2	2048 x 1080p	23.98/24/25/29.97/30/47.95/48/50/59.94/60	✓	–
	2160p (UHD)	SMPTE ST2036-1	3840 x 2160p	23.98/24/25/29.97/30/50/59.94/60	✓	–
	2160p (DCI)	SMPTE ST2048-1	4096 x 2160p	23.98/24/25/29.97/30/47.95/48/50/59.94/60	✓	–

Output Formats

Output connector	Format	Standard	Resolution	Frame rate	Video (YCbCr)	PC (RGB)
HDMI OUT	1080p	CEA-861-F	1920 x 1080p	50/59.94	YCbCr 4:4:2/ YCbCr 4:4:4 (*1)	–
	2160p (UHD)	CEA-861-F	3840 x 2160p	50/59.94	YCbCr 4:4:2/ YCbCr 4:2:0 (*2)	–
	2160p (DCI)	CEA-861-F	4096 x 2160p	50/59.94	YCbCr 4:4:2/ YCbCr 4:2:0 (*2)	–
	1920 x 1080 (FHD)	CEA-861-F	1920 x 1080p	50/59.94/60	–	RGB Full/ RGB Limited
	1920 x 1080 (FHD) (*1)	CEA-861-F	1920 x 1080p	23.98/24/25/29.97/ 30/50/59.94/60	–	RGB Full/ RGB Limited
	3840 x 2160 (UHD)	CEA-861-F	3840 x 2160p	23.98/24/25/29.97/ 30/50/59.94/60	YCbCr 4:2:0 (*2)	RGB Full/ RGB Limited
	4096 x 2160 (DCI)	CEA-861-F	4096 x 2160p	23.98/24/25/29.97/ 30/50/59.94/60	YCbCr 4:2:0 (*2)	RGB Full/ RGB Limited
SDI OUT	1080p	SMPTE ST274	1920 x 1080p	50/59.94	YCbCr 4:2:2	–
	2160p (UHD)	SMPTE ST2036-1	3840 x 2160p	50/59.94	YCbCr 4:2:2	–
	2160p (DCI)	SMPTE ST2048-2	4096 x 2160p	50/59.94	YCbCr 4:2:2	–
MULTI-VIEW	1920 x 1080 (FHD)	CEA-861-F	1920 x 1080p	60	–	RGB Limited

(*1) Available when Format is set to "3840x2160" and Down Convert is set to "FHD".

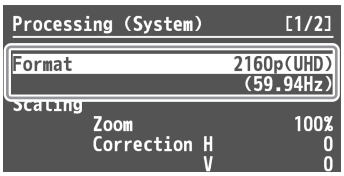
(*2) Available when Format is set to "2160p(UHD)" and Down Convert is set to "YCC420".

Video Input/Output Settings

Setting the Output Format

You set the output format to match the equipment you connect to the V-600UHD.

1. Select the [MENU] button ➡ "System" ➡ "Processing", and press the [VALUE] knob.
2. Select "Format", press the [VALUE] knob, use the [VALUE] knob to select the output format, and then press the [VALUE] knob.



➡ Details on menu items: see p. 54.

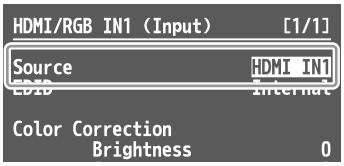
3. Press the [MENU] button to quit the menu.

Assigning a Video Source to Input Channels

You can specify an assigned video source for each individual input channel. You can assign the following video sources.

Channel 1	Video input via an HDMI IN1 connector or RGB IN1 connector
Channel 2–4	Video input via an HDMI IN2–4 connector
Channel 5–6	Video input via an SDI IN5–6 connector
Channel 7	Still1 picture
Channel 8	Pattern generator (background color) or still2 picture

1. Select the [MENU] button ➡ "Input" ➡ "HDMI/RGB IN1" or "PG/STILL2", and press the [VALUE] knob.
2. Select "Source", press the [VALUE] knob, use the [VALUE] knob to select the video source that you want to assign, and then press the [VALUE] knob.



HDMI/RGB IN1

Value	Explanation
HDMI IN1	This inputs video via an HDMI IN1 connector.
RGB IN1	This inputs video via an RGB IN1 connector.

PG/STILL2

Value	Explanation
PG	This assigns a pattern generator
STILL2	This assigns a still2 image

3. Press the [MENU] button to quit the menu.

Sharing a Video Source

You can share separate video sources among channels 1–8.

Sharing a video source assigns a single video source to two or more channels.

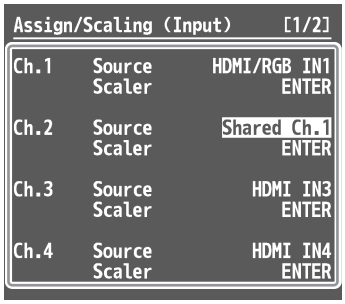
You can specify individual scaling settings for the shared video sources.

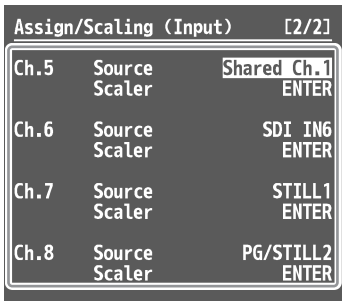
* The following settings cannot be individually specified for shared video sources.

- Color Correction
- Color Gamut
- Dynamic Range

1. Select the [MENU] button ➡ "Input" ➡ "Assign/Scaling", and press the [VALUE] knob.
2. Select the "Source" of the channel whose video source you want to share, and use the [VALUE] knob to select the share-source channel.

For example, if you want to share the video source of channel 1, select "Shared Ch.1".





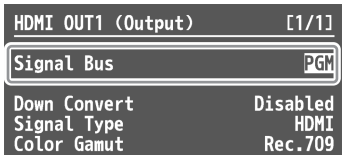
3. Repeat step 2 as many times as needed.
4. Press the [MENU] button to quit the menu.

Assigning a Bus to an Output Connector

The V-600UHD has three internal buses (PGM, PVW, and AUX).

For each individual output connector, you can select which bus to output.

1. Select the [MENU] button ➡ "Output" to select the output connector whose bus assignment you want to change, and press the [VALUE] knob.
2. Select "Signal Bus", and use the [VALUE] knob to select "PGM", "PVW", or "AUX", and set the assigned bus.



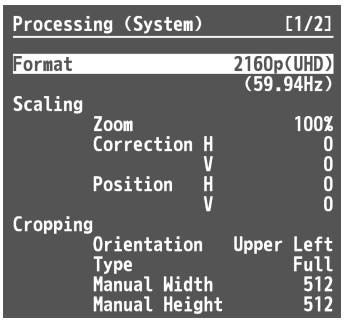
Menu item	Signal Bus setting
HDMI OUT 1	PGM, PVW, AUX
HDMI OUT 2	PGM, PVW, AUX
HDMI OUT 3	PGM, PVW, AUX
SDI OUT	PGM fixed

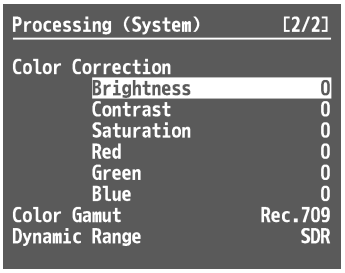
3. Press the [MENU] button to quit the menu.

Adjusting Final Output Video

You adjust the final video output to match the equipment receiving output from the V-600UHD.

1. Select the [MENU] button ➡ "System" ➡ "Processing", and press the [VALUE] knob.
2. Select a menu item, then use the [VALUE] knob to adjust the output video.





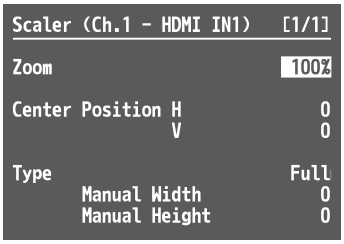
➡ Details on menu items: see p. 54.

3. Press the [MENU] button to quit the menu.

Adjusting the Input Video

You can adjust the image quality and scaling of video input via channels 1–8.

1. Select the [MENU] button ➡ "Input" ➡ "Assign/Scaling", and press the [VALUE] knob.
2. Select the Ch.1–8 "Scaler" and press the [VALUE] knob.
3. Select a menu item, then use the [VALUE] knob to adjust the input video.



➡ Details on menu items: see p. 36.

4. Press the [MENU] button to quit the menu.

3. Use the [POSITION] stick to adjust the display position of the video. Also, use the [SIZE] knob to enlarge or reduce the video.



The operation results are applied in the PVW section of the multi-view monitor.

* The video in the CH 1–8 section of the multi-view monitor is not updated.

MEMO

- In the CH 1–8 section of the multi-view monitor, a border can be shown for the region that is enlarged by the ROI function.
  To show the ROI border, select System menu "Multi-view" ➡ "ROI Border" and set it to either "Shared Ch" or "All On" (p. 55).
- The size (width x height) of the video after adjustment can be checked from Signal Status menu ➡ "Input Ch.1–Ch.8" ➡ "Scaling".

Using ROI SCALING to Adjust the Input Video

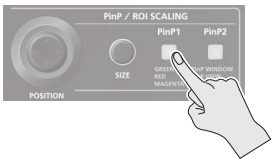
You can use the ROI (Region of Interest) function to extract a desired region from the input video.

You can operate the [POSITION] stick and the [SIZE] knob to adjust the position and size of the video to be extracted.

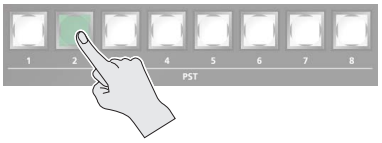
MEMO

By making settings to share video sources between channels 1–8 (p. 14), you can extract up to eight regions from a single input video.

1. Press the [PinP1] button or the [PinP2] button several times to make both buttons light magenta.
   ROI (INPUT) is selected.



2. Press PST cross-point buttons [1]–[8] to select the video that you want to control.

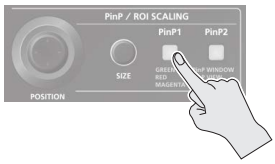


Adjusting the PinP Size

Operate the [POSITION] stick and the [SIZE] knob to adjust the position and size of the PinP inset screen.

* This cannot be controlled if PinP is being applied to the final output video.

1. Press the [PinP1] button or [PinP2] button to select the object of control.



[PinP1] button

Lit green	PinP1 window
Lit red	Video shown in the PinP1 inset screen

[PinP2] button

Lit green	PinP2 window
Lit red	Video shown in the PinP2 inset screen

2. Use the [POSITION] stick to adjust the display position of the video. Also, use the [SIZE] knob to enlarge or reduce the video.



The operation results are applied in the PVW section of the multi-view monitor.

Using the Camera Controls to Adjust the Input Video

You can operate the [POSITION] stick and [SIZE] knob to adjust the camera's Pan, Tilt, Zoom, and Focus.

1. **Long-press the MODE [AUX/COMPOSITION] button so that it turns light blue.**
   Now you can select the Camera ID.
2. **Press AUX/COMPOSITION - DSK cross-point [1]–[6] buttons to select the camera that you want to control.**
3. **Press the [PinP1] button or the [PinP2] button several times to make both buttons illuminate in light blue.**
4. **Use the [POSITION] stick to adjust Pan and Tilt, and use the [SIZE] knob to adjust Zoom or Focus.**
   In Remote Control menu ➡ "Camera Control", for each Camera ID, set "SCALING SIZE Knob Assign" to specify whether the [SIZE] knob adjusts Zoom or Focus.

Inputting Copyright-Protected (HDCP) Video

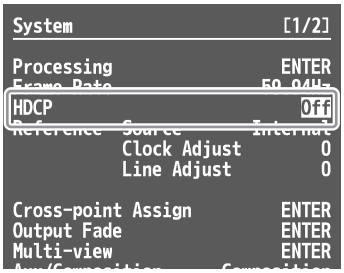
To input copyright-protected (HDCP) video from a Blu-ray Disc player or the like, follow the steps described below to change the "HDCP" setting.

* The V-600UHD must be connected to an HDCP compatible display for HDCP protected video to be connected.

What's HDCP?

HDCP is copyright-protection technology that prevents unlawful copying of content by encoding the path when sending digital signals from a video playback device to a display monitor or other display equipment.

1. Select the [MENU] button ➡ "System" ➡ "HDCP", and press the [VALUE] knob.



2. Use the [VALUE] knob to select "On", and then press the [VALUE] knob.

Value	Explanation
On	Copyright-protected (HDCP) video can be input. HDCP is also added to the video that is output.
Off	Copyright-protected (HDCP) video cannot be input.

The message "Keep the HDCP on setting?" appears.



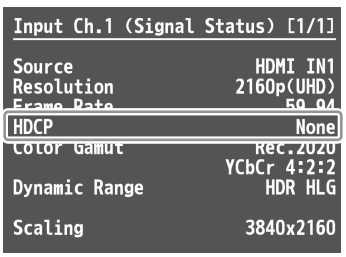
3. Use the [VALUE] knob to select "YES", and then press the [VALUE] knob.

If "YES" is not selected within 10 seconds, "HDCP" returns to "Off".

4. Press the [MENU] button to quit the menu.

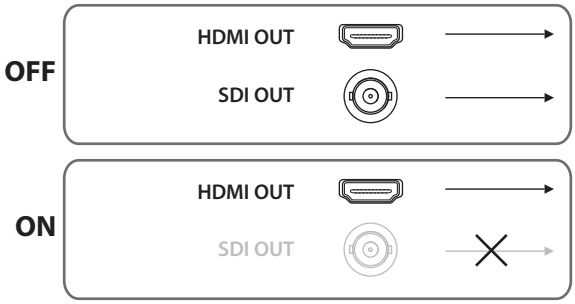
Checking HDCP-compatible equipment

When "HDCP" is set to "On", you can use the [MENU] button ➡ "Signal Status" ➡ "Input Ch.1–8" ➡ "HDCP" ➡ the Input menu to check the status of HDCP compatibility of source equipment.



Output from Connectors

When "HDCP" is set to "On", video is output only from the HDMI OUT connectors.



Operation of the HDCP indicator



Indicator	HDCP	Connection status
Lighted	On	An HDCP-compatible device is connected to the HDMI OUT connector.
Flashing	On	A device that does not support HDCP is connected.
	Off	Video for which copy protection (HDCP) must be enabled is being input from the HDMI IN connector.
Dark	Off	—

Turning the power on with HDCP disabled

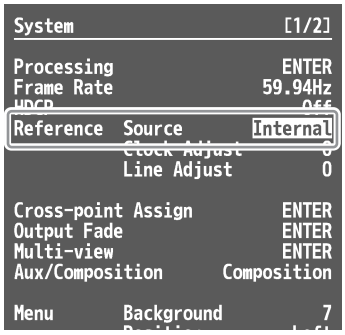
When an external monitor that does not support HDCP is connected to the MULTI-VIEW connector and HDCP is set to "On", the menu cannot be displayed. In such a case, follow the step below to turn on the power of the unit with HDCP disabled.

1. While holding down the [MENU] button, turn on the [POWER] switch to turn on the power.

Specifying a Reference Clock

You can specify a clock to which operation of the V-600UHD is referenced (a reference clock).

1. Select the [MENU] button ➡ "System" ➡ "Reference Source", and press the [VALUE] knob.



2. Use the [VALUE] knob to select the reference clock, and then press the [VALUE] knob.

Value	Explanation
Internal	The V-600UHD's internal clock is used as the reference clock.
SDI IN5	A signal input via an SDI IN5 connector is used as the reference clock.

When set to "SD IN5", adjust the following System menu items as needed.

Value	Explanation
Clock Adjust	This adjusts the phase horizontally. Adjust this when output is horizontally out of sync with the operation of other devices using the same clock.
Line Adjust	This adjusts the phase vertically. Adjust this when output is vertically out of sync with or field-shifted from the operation of other devices using the same clock.

3. Press the [MENU] button to quit the menu.

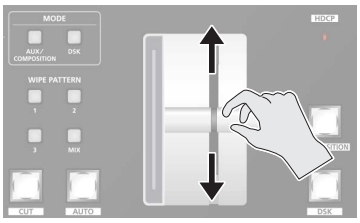
Switching the Video

You can switch the output of video input into the V-600UHD.

Switching Using the Video Fader

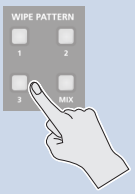
The video in the PGM section always becomes the final output. You use the PST section to select and check the preset video (the video to output next), then switch it.

1. Move the video fader all the way to one end or the other.



2. Press one of the WIPE PATTERN [1]–[3] buttons or the [MIX] button to select the transition effect.

The selected button lights up.



WIPE PATTERN [1]–[3] buttons

In this transition, the original video is broken into by the next video.



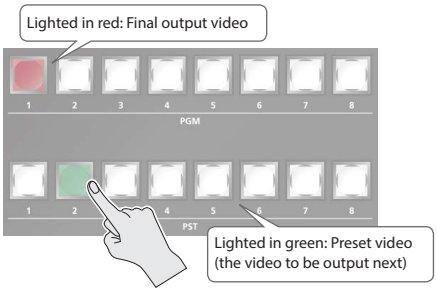
* You can change the wipe pattern and wipe direction (p. 41).

[MIX] button

The two pictures are blended together as the video is switched.



3. Press a cross-point [1]–[8] button in the PST section to select the preset video (the video to output next).



The preset video appears in the PVW section of the multi-view monitor.

4. Move the video fader in the direction opposite to the direction in step 1.

The output video is switched.

When the video has been switched completely, the lighted buttons for the PGM position and PST position change places.

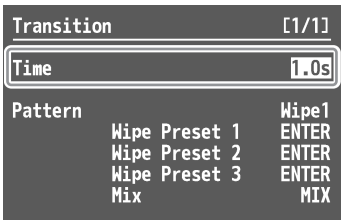
MEMO

Directly selecting the cross-point at the PGM position of the video currently being output switches the video with a cut, regardless of any selection of a transition effect.

Using the [AUTO] or [CUT] Button to Switch Video

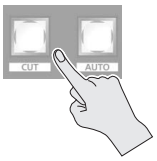
You can use the [AUTO] or [CUT] button to switch video automatically, without using the video fader.

1. Select the [MENU] button ➡ "Transition" ➡ "Time", and use the [VALUE] knob to set the transition time.



2. Press the [MENU] button to quit the menu.

3. Press the [AUTO] or [CUT] button at the desired timing for switching the video.



[CUT] button	The picture switches instantly.
[AUTO] button	The picture switches with a transition effect applied.

MEMO

When you use the [AUTO] or [CUT] button to switch video, the actual output might come to differ from the position of the video fader.

Using Imported Still Images

You can assign loaded a still image to channel 7 or 8, then output it in the same way as video. There are two ways to load a still image: you can capture from output video, or you can load from a USB flash drive.

The V-600UHD can handle up to eight still images.

Capturing a Still Image from the Output Video

Here's how to capture a still image from the output video.

MEMO

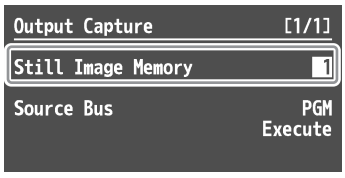
- A captured still image cannot be saved in this unit. When you turn off the power, the still image data is lost.

  If you've saved a captured still image to a USB flash drive, that still image can be automatically loaded from the USB flash drive at startup.

  For details, refer to "Saving a still image to a USB flash drive".
- The following restrictions apply to still images captured from copy-protected (HDCP) video.
  - If "HDCP" (p. 18) is off, the still image cannot be used as a video source.
  - The still image cannot be saved to a USB flash drive.

1. Select the [MENU] button ➡ "Still Image/ Capture" ➡ "Output Capture", and press the [VALUE] knob.

2. Select "Still Image Memory", and use the [VALUE] knob to select a still image memory number (1–8).



* Memory numbers that contain a still image are indicated by a "✻" symbol.

3. Select "Source Bus", then use the [VALUE] knob to specify the bus for the video source (PGM or PVW).

4. Select "Execute", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

5. Select "YES", and press the [VALUE] knob.

Capturing is carried out.

6. Press the [MENU] button to quit the menu.

Saving a still image to a USB flash drive

Here's how a captured still image can be saved to a USB flash drive.

The saved still image is automatically loaded into the V-600UHD if the unit is started-up with the USB flash drive connected.

MEMO

* Depending on the USB flash drive, recognition of the flash drive might take some time.

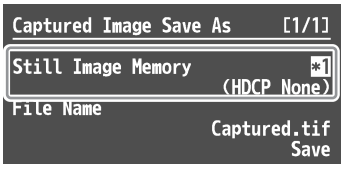
* When you're using a USB flash drive for the first time, be sure to format it on the V-600UHD (p. 31).

- The still image is saved in TIFF format. If you will be using the still image on a computer, we recommend that you specify the output format (p. 14) as "1920 x 1080", "3840 x 2160", or "4096 x 2160".

1. Connect the USB flash drive to the USB MEMORY port.

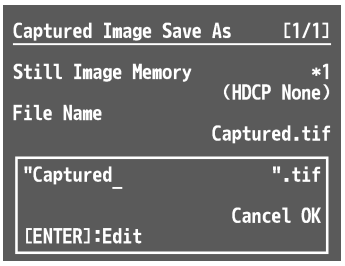
2. Select the [MENU] button ➡ "Still Image/ Capture" ➡ select the Output Capture "Save As", and press the [VALUE] knob.

3. Select "Still Image Memory", and use the [VALUE] knob to select a memory number (1–8) for the still image that you want to save.



* Only memory numbers that contain a captured still image are shown.

4. Select "File Name", then specify the file name (p. 11).



* The extension of the file name is ".tif".

* While "File Name" is selected, long-press the [VALUE] knob to display the file list.

You can edit the file name based on the file name selected from the file list.

5. Select "OK", and press the [VALUE] knob.

If you want to cancel the operation, select "Cancel", and press the [VALUE] knob.

6. Select the File Name "Save", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

7. Select "YES", and press the [VALUE] knob.

The still image (.tif) is saved to the USB flash drive.

8. Press the [MENU] button to quit the menu.

Loading a Still Image from a USB Flash Drive

Here's how to load a still image from a USB flash drive into the unit.

Formats supported for loading

BMP

Format	Windows Bitmap file (.bmp), 24-bit color, uncompressed
Resolution	Maximum 4096 × 2160 pixels
File name	Single-byte alphanumeric characters * Be sure to append the ".bmp" file extension.

PNG

Format	PNG File (.png) * PNG alpha channel is not supported.
Resolution	Maximum 4096 × 2160 pixels
File name	Single-byte alphanumeric characters * Be sure to append the ".png" file extension.

Loading a still image

MEMO

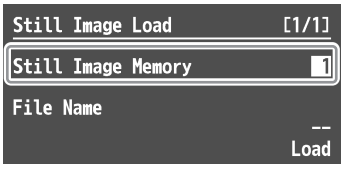
- Depending on the USB flash drive, recognition of the flash drive might take some time.
- When you're using a USB flash drive for the first time, be sure to format it on the V-600UHD (p. 31).
- The loaded still image cannot be saved in the unit. When you turn off the power, the still image data is lost.

1. Save the still image in the root directory of the USB flash drive.

2. Connect the USB flash drive containing the saved still image to the USB MEMORY port.

3. Select the [MENU] button ➡ "Still Image/Capture" ➡ select the Still Image Memory "Load", and press the [VALUE] knob.

4. Select "Still Image Memory", and use the [VALUE] knob to select a still image memory number (1–8).



* Memory numbers that contain a still image are indicated by a "✻" symbol.

5. Select the "File Name", and press the [VALUE] knob.

A list of the still image on the USB flash drive appears.

6. Select the still image that you want to load, then press the [VALUE] knob.

7. Select the File Name "Load", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

8. Select "YES", and press the [VALUE] knob.

The still image is loaded into the unit.

9. Press the [MENU] button to quit the menu.

MEMO

- You can make the previously-loaded still image be automatically loaded at startup. Save the same file in the root directory of the USB flash drive, and start the V-600UHD with the USB flash drive connected.
- If you want to delete a still image, use the Still Image/Capture menu's Still Image "Delete" ➡ "Still Image Memory" to select the memory number of the still image that you want to delete, and then execute "Delete".

Assigning a Still Image to Channel 7 or 8

Here's how a still image that was captured or loaded from a USB flash drive can be assigned to channel 7 or 8.

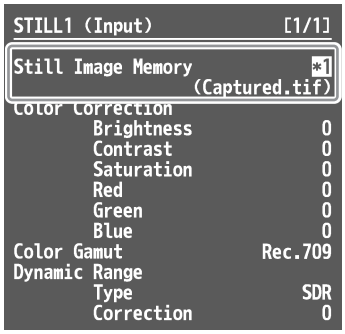
1. **Channel 7**

Select the [MENU] button ➡ "Input" ➡ "STILL1", and press the [VALUE] knob.

Channel 8

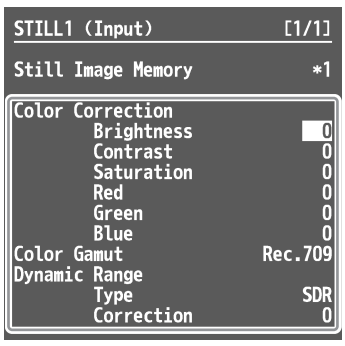
Select the [MENU] button ➡ "Input" ➡ "PG/STILL2" ➡ specify "STILL2" as the source assignment ➡ press the [VALUE] knob.

2. Select "Still Image Memory", and select the memory number of the still image that you want to assign to STILL1 or STILL2.



* Memory numbers that contain a still image are indicated by a "✻" symbol.

3. Select a menu item, then use the [VALUE] knob to make the detailed settings.



➡ **Details on menu items: see p. 38.**

4. Press the [MENU] button to quit the menu.

Fading-In/Out the Final Output Video

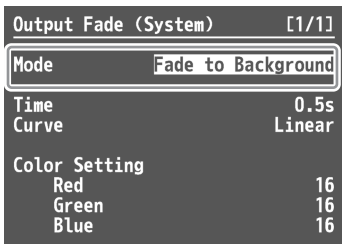
This applies a fade to final video output. This lets you make the final output fade to a monochrome picture (background color) when you want to suppress video output.

Setting the operation mode

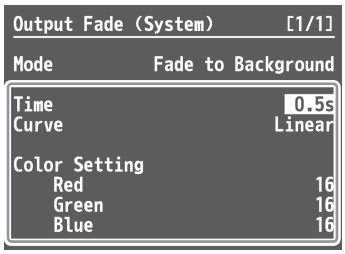
Here's how to specify the operation mode of the [OUTPUT FADE] button.

1. Select the [MENU] button ➡ "System" ➡ "Output Fade", and press the [VALUE] knob.

2. Select "Mode", and use the [VALUE] knob to set the operation mode of the [OUTPUT FADE] button to "Fade to Background".



3. Select a menu item, then use the [VALUE] knob to make the detailed settings.

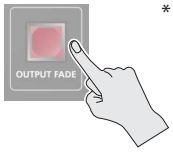


➡ Details on menu items: see p. 53.

4. Press the [MENU] button to quit the menu.

Fading-in/out the final output video

1. Press the [OUTPUT FADE] button to perform a fade-out.



* During the fade, the [OUTPUT FADE] button flashes.

When the fade-out is complete, the [OUTPUT FADE] button lights up.

2. To perform a fade-in, press the [OUTPUT FADE] button again.

When the fade-in is complete, the [OUTPUT FADE] button goes dark.

Freezing the Final Output Video (Freeze)

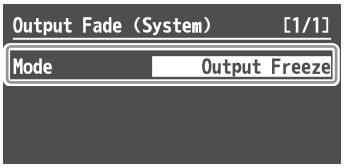
You can temporarily freeze the final output video (freeze function).

Setting the operation mode

Here's how to specify the operation mode of the [OUTPUT FADE] button.

1. Select the [MENU] button ➡ "System" ➡ "Output Fade", and press the [VALUE] knob.

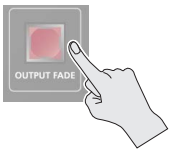
2. Select "Mode", and use the [VALUE] knob to set the operation mode of the [OUTPUT FADE] button to "Output Freeze".



3. Press the [MENU] button to quit the menu.

Freezing the final output video

1. Press the [OUTPUT FADE] button to turn freeze on (lit).



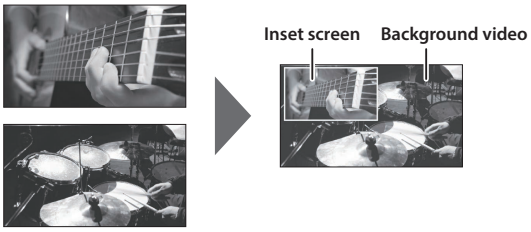
The program output video freezes.

2. To turn off freeze, press the [OUTPUT FADE] button once again.

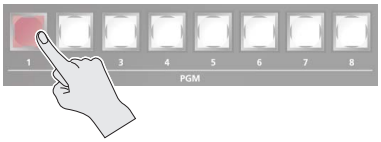
The [OUTPUT FADE] button goes dark, and normal output resumes.

Compositing Using Picture-in-Picture (PinP)

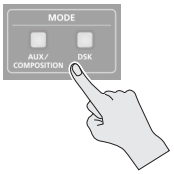
This composites video in an inset screen onto a different background video.



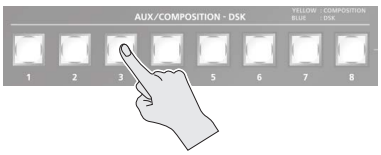
1. Press a cross-point [1]–[8] button in the PGM section to select the video you want to make the background video.



2. Press the MODE [AUX/COMPOSITION] button or [DSK] button to select the send-destination for the video.



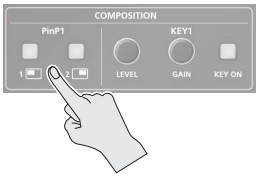
3. Press a cross-point [1]–[8] button in the AUX/COMPOSITION - DSK section to select the video you want to make the inset screen.



4. According to the button that you pressed in step 2, press one of the following buttons to turn video compositing on (lit).

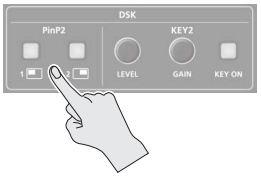
If you pressed the [AUX/COMPOSITION] button

Press the COMPOSITION PinP1 [1] or [2] button.



If you pressed the [DSK] button

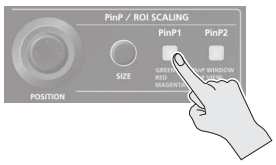
Press the DSK PinP2 [1] or [2] button.



The selected button lights up in green, and a preview of the composition results is displayed in the PVW section of the multi-view monitor.

At this stage, the final output has not yet been changed.

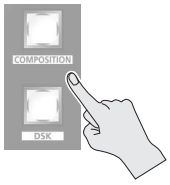
5. Press the PinP/ROI SCALING [PinP1] or [PinP2] button to select the object of control.



6. Use the [POSITION] stick and the [SIZE] knob to adjust the position and size of the inset screen.



7. If the object of control is PinP1, press the [COMPOSITION] button; if PinP2, press the [DSK] button.



At this time, the PinP [1] or [2] button light up in red.

Pressing the [COMPOSITION] or [DSK] button a second time makes the inset screen disappear.

8. To turn video compositing off, make the [COMPOSITION] or [DSK] button go dark, and then press the PinP [1] or [2] button.

Making detailed settings for the inset screen

For each of the COMPOSITION PinP1 [1] and [2] buttons and the DSK PinP2 [1] and [2] buttons, you can make settings such as the position and size of the inset screen and the border that is added to the inset screen.

PinP1 [1], [2] buttons

Select the [MENU] button ➡ "Composition" ➡ for PinP1, select "Position 1" or "Position 2".

➡ **Details on menu items: see p. 42.**

PinP2 [1], [2] buttons

Select the [MENU] button ➡ "DSK" ➡ for PinP2, select "Position 1" or "Position 2".

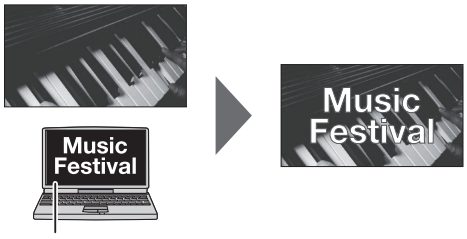
➡ **Details on menu items: see p. 44.**

Compositing Using Luminance Key/Chroma Key

This makes a portion of the video transparent and composites it onto a background video.

Luminance Key

This takes video in which white or black areas are made transparent, and composite it overlaid on a background picture.



Black or White

Chroma Key

This composites video shot against a blue or green background onto a different background video.



Blue or Green

Setting the key type and extraction color

To change the key type and extraction color to match the video you want to composite.

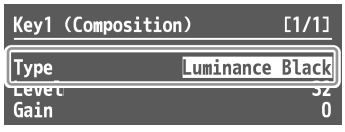
1. COMPOSITION

Select the [MENU] button ➡ "Composition" ➡ "Key1", and press the [VALUE] knob.

DSK

Select the [MENU] button ➡ "DSK" ➡ "Key2", and press the [VALUE] knob.

2. Select "Type", and use the [VALUE] knob to specify the key type (extraction color) to use when compositing.

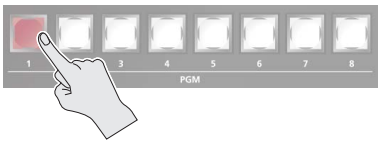


Value	Explanation
Luminance White	This uses a brightness threshold to make white transparent.
Luminance Black	This uses a brightness threshold to make black transparent.
Chroma Blue	This uses a color threshold to make blue transparent.
Chroma Green	This uses a color threshold to make green transparent.
Chroma Manual	This uses a color threshold to make manual color transparent.

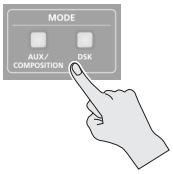
3. Press the [MENU] button to quit the menu.

Compositing using key

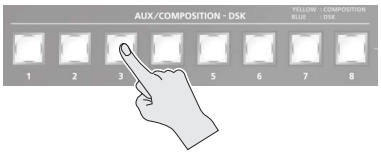
1. Press a cross-point [1]–[8] button in the PGM section to select the video you want to make the inset screen.



2. Press the MODE [AUX/COMPOSITION] button or [DSK] button to select the send-destination for the video.



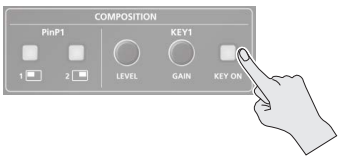
3. Press a cross-point [1]–[8] button in the AUX/COMPOSITION - DSK section to select the video to overlay.



4. According to the button that you pressed in step 2, press one of the following buttons to turn key compositing on (lit).

If you pressed the [AUX/COMPOSITION] button

Press the COMPOSITION KEY1 [KEY ON] button.



If you pressed the [DSK] button

Press the DSK KEY2 [KEY ON] button.



The KEY1 [KEY ON] or KEY2 [KEY ON] button lights up in green, and a preview of the composition results is displayed in the PVW section of the multi-view monitor.

At this stage, the final output has not yet been changed.

5. Turn the KEY [LEVEL] or [GAIN] knob (KEY1 or KEY2) to adjust the degree of effect applied.



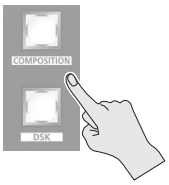
KEY [LEVEL] knob

This adjusts the degree of extraction (transparency) for the key.

KEY [GAIN] knob

This adjusts the degree of edge blur (semi-transmissive region) for the key.

6. If the object of control is KEY1, press the [COMPOSITION] button; if KEY2, press the [DSK] button.



The video you selected in steps 1 and 3 is composited and output. At this time, the KEY1 or KEY2 [KEY ON] button light up in red.

Pressing the [AUTO] or [CUT] button a second time makes the overlaid video disappear.

MEMO

- When you combine PinP (p. 24) with the compositing results from luminance or chroma key, the superimposed video becomes the inset screen.
  You can also use the [POSITION] stick and the [SIZE] knob to adjust the display position and size of the overlaid video.

Making advanced settings for chroma key

When the key type is "Chroma Manual", you can use the Key menu to fine-tune the key color.

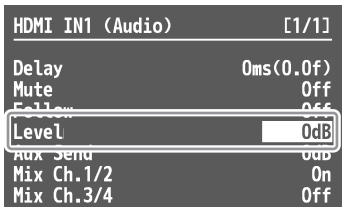
Menu item		Explanation
Hue	Center	This adjusts the center position for hue of key color.
	Width	This adjusts the hue width (range) of key color.
Saturation	Center	This adjusts the center position for saturation of key color.
	Width	This adjusts the saturation width of key color.

Audio Operations

Adjusting the Input/Output Volume

Here's how to adjust the audio volume (Level) that is being input to or output from the V-600UHD.

1. Use [MENU] button ➡ "Audio" ➡ "Input"/"Output" to select the object of volume adjustment, and then press the [VALUE] knob.
2. Select "Level", and use the [VALUE] knob to adjust the volume.

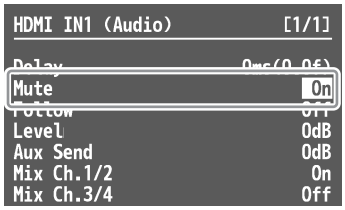


3. Press the [MENU] button to quit the menu.

Muting the Input Audio

Here's how to silence a specific audio input (mute function).

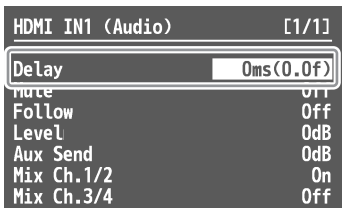
1. Use [MENU] button ➡ "Audio" ➡ "Input" to select the object for muting, and press the [VALUE] knob.
2. Select "Mute", and use the [VALUE] knob to set this to "On".



3. Press the [MENU] button to quit the menu.

Matching the Timing of the Input/Output Audio with the Video

1. Use [MENU] button ➡ "Audio" ➡ "Input"/"Output" to select the object of timing adjustment, and then press the [VALUE] knob.
2. Select "Delay", and use the [VALUE] knob to specify the time by which the audio is delayed.

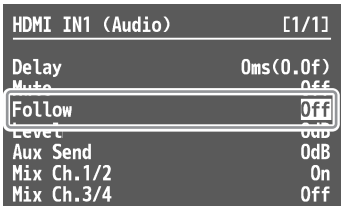


3. Press the [MENU] button to quit the menu.

Interlinking Audio Output to Video Switching (Audio Follow)

Here's how to make the specified audio be automatically output or muted in linkage with video switching.

1. Use [MENU] button ➡ "Audio" ➡ "Input" to select the object for audio follow, and press the [VALUE] knob.
2. Select "Follow", and use the [VALUE] knob to turn the setting On/Off.

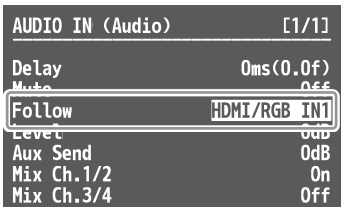


Value	Explanation
On	This enables the Audio Follow feature. Muting is performed automatically when video on another channel is output.
Off	This disables the Audio Follow feature.

3. Press the [MENU] button to quit the menu.

Applying Audio Follow to AUDIO IN

1. Select the [MENU] button ➡ "Audio" ➡ "Input" ➡ "AUDIO IN", and press the [VALUE] knob.
2. Select "Follow", and use the [VALUE] knob to select the input to which audio follow will be applied.



Value	Explanation
HDMI/RGB IN1 HDMI IN2–4 SDI IN5, 6	This sets the video channel to interlink with input audio using Audio Follow. Audio from AUDIO IN is muted out for video channels other than what you specified.
Off	This assigns no video channel to Audio Follow.

3. Press the [MENU] button to quit the menu.

Mixing Input Audio with HDMI Video or SDI Video

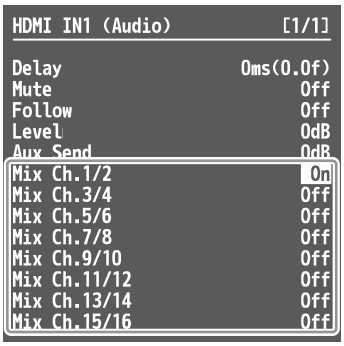
The SDI connectors of the V-600UHD support 16 channels of embedded audio. The HDMI connectors support two channels of embedded audio.

The MAIN bus of the V-600UHD's audio mixer has a 16-channel structure.

Selecting the audio input channels to mix

You can select the MAIN bus channels into which the HDMI IN, SDI IN, and AUDIO IN audio will be mixed.

1. **Use [MENU] button ➡ "Audio" ➡ "Input" to select HDMI IN 1–4, SDI IN5–6, or AUDIO IN, and press the [VALUE] knob.**
2. **Select "Mix Ch.1/2"–"Mix Ch.15/16", and use the [VALUE] knob to turn the setting On/Off.**
   The SDI IN audio can be switched on/off by the "Mix Ch.1-16" settings.



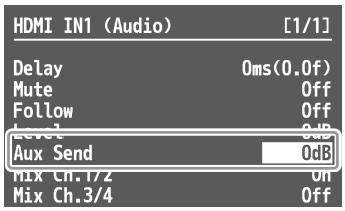
3. **Press the [MENU] button to quit the menu.**

Mixing input audio into the AUX bus

The V-600UHD has a two-channel AUX bus, and you can specify whether input audio is mixed into the AUX bus.

* The first two channels of SDI IN audio can be mixed into the AUX bus.

1. **Use [MENU] button ➡ "Audio" ➡ "Input" to select HDMI IN 1–4, SDI IN5–6, or AUDIO IN, and press the [VALUE] knob.**
2. **Select "Aux Send", and use the [VALUE] knob to specify the volume that is sent to the aux bus.**



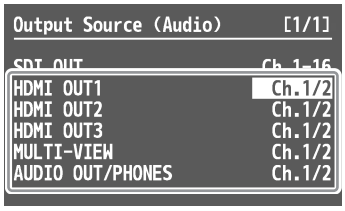
3. **Press the [MENU] button to quit the menu.**

Selecting the audio source that is output

For each output connector, you can select either a specified channel of the MAIN bus or the AUX bus as the source that will be output.

* For SDI OUT audio, you can select either the entire MAIN bus or the AUX bus.

1. **Select the [MENU] button ➡ "Audio" ➡ "Output" ➡ "Source", and press the [VALUE] knob.**
2. **Select the connector for which you want to make settings, and use the [VALUE] knob to specify the channel.**



3. **Press the [MENU] button to quit the menu.**

Saving/Recalling Settings (Memory)

You can save video settings, the state of the operation panel, and other current settings in memory and call them up for use when needed.

The V-600UHD has 8 internal banks for saving settings in memory.

You can save settings in 8 memories in each bank, letting you use up to 64 memories for saving.

About the Last Memory function

When you use the Last Memory function, the current settings are automatically saved when you exit a menu or change the setting. To use the Last Memory function, go to the Memory menu and set "Auto Memory" to "ON".

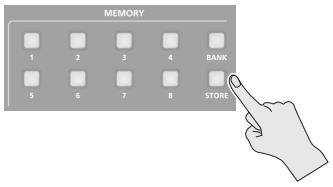
If you want the unit to recall a specified memory at start-up, use Memory menu ➡ "Start Up" to specify the memory number.

Saving a memory

NOTE

- When the Memory menu item "Protect" is set to "On", settings cannot be saved to a memory.
- The following settings are not saved in memory.
  - The state of the following operation panel buttons
    PinP SCALING [PinP1] [PinP2]
    MODE [AUX/COMPOSITION] [DSK]
    USER [1] [2]
    [OUTPUT FADE]
  - The items of the Output, USER, Still Image/Capture, USB Memory, Memory, Remote Control, and System menus

1. Press the [STORE] button (lit red) to enable saving settings to a memory.



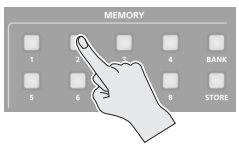
2. Press the [BANK] button (lit green), then press the MEMORY button for the bank number where you want to save the settings.



When you press the [BANK] button to make it light, the MEMORY button of the currently selected bank number is lit green.

When the bank is switched, the [BANK] button and the MEMORY button go dark.

3. Press the MEMORY button for the number whose setting you want to save.



Button illumination color when selecting memories

Lit light blue	Current blue
Lit blue	Memory in which current settings are saved
Unlit	Memory in which no settings are saved

The [STORE] button blinks, the current settings are saved, and then the [STORE] button goes dark.

MEMO

If you don't want to change the save-destination bank, steps 2 are not required.

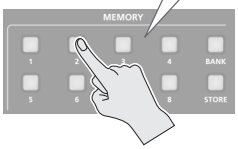
Recalling a memory

1. Press the [BANK] button (lit green), then press the MEMORY button for the bank number whose settings you want to recall.



2. Press the MEMORY button for the number whose setting you want to recall.

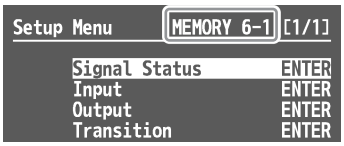
After you switch the bank, the MEMORY buttons of numbers in which settings are saved blink blue until a memory is recalled.



The memory is recalled. The MEMORY button of the current memory is lit light blue.

MEMO

- If you don't want to change the recall-source bank, steps 1 are not required.
- The top screen of the menu shows the "bank number–memory number" of the currently selected memory.



Recalling Only Specified Settings from a Memory

When recalling a memory, you can specify in advance which settings will be recalled, so that only a portion of the saved settings are actually recalled.

In "Memory menu" ➡ "Recall Safe", set "Recall Safe" to "Enabled" and specify for each item whether settings are recalled (Off) or not recalled (On).

For details on each item, refer to the menu list.

Regardless of the Recall Safe settings, all settings are recalled for the memory that is recalled at start-up.

Saving the Unit's Settings on a USB Flash Drive

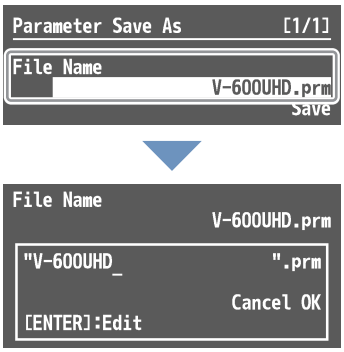
You can group together the unit's settings into a single file (.prm) and save it to a USB flash drive connected to the USB MEMORY port. You can access the saved file on the USB flash drive and load it into the unit for use when needed.

* When you're using a USB flash drive for the first time, be sure to format it on the V-600UHD (p. 31).
* Depending on the USB flash drive, recognition of the flash drive might take some time.
* Still images (p. 21) are not saved in the file.

Choose save new

1. Select the [MENU] button ➡ "USB Memory" ➡ select the Parameter "Save As", and press the [VALUE] knob.

2. Select "File Name", then specify the file name (p. 11).



* The extension of the file name is ".prm".
* While "File Name" is selected, long-press the [VALUE] knob to display the file list.

  You can edit the file name based on the file name selected from the file list.

3. Select "OK", and press the [VALUE] knob.

If you want to cancel the operation, select "Cancel", and press the [VALUE] knob.

4. Select "Save", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

5. Select "YES", and press the [VALUE] knob.

The file (.prm) is newly saved on the USB flash drive.

6. Press the [MENU] button to quit the menu.

Saving by Overwriting

1. Select the [MENU] button ➡ "USB Memory" ➡ select the Parameter "Save", and press the [VALUE] knob.

2. Select the file that you want to overwrite, select "Save", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

3. Select "YES", and press the [VALUE] knob.

The file is saved by overwriting.

4. Press the [MENU] button to quit the menu.

Loading

Here's how to load this unit's settings that you saved on a USB flash drive. When you load settings, the current settings are overwritten.

1. Select the [MENU] button ➡ "USB Memory" ➡ select the Parameter "Load", and press the [VALUE] knob.

2. Select the file that you want to load, select "Load", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

3. Select "YES", and press the [VALUE] knob.

The settings are loaded, and the values in the unit's settings are overwritten.

MEMO

If you set "Include Still Image" to "Enabled" and recall a settings file from a USB flash drive, the still images registered in the settings file can be loaded as well.

4. Press the [MENU] button to quit the menu.

Deleting a file on a USB flash drive

1. Select the [MENU] button ➡ "USB Memory" ➡ select the Parameter "Delete", and press the [VALUE] knob.

2. Select the file that you want to delete, select "Delete", and press the [VALUE] knob.

The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

3. Select "YES", and press the [VALUE] knob.

The settings are deleted from the USB flash drive.

4. Press the [MENU] button to quit the menu.

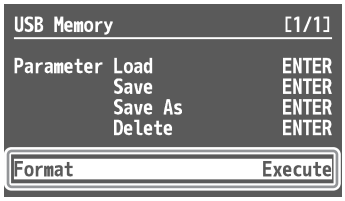
Formatting USB Flash Drives

When you're using a USB flash drive for the first time, it must first be formatted on the V-600UHD.

NOTE

- The V-600UHD does not recognize unformatted USB flash drives.
- Operation has been tested for commonly available USB flash drives, but operation of all USB flash drives is not assured. Depending on the manufacturer and type of the USB flash drive, correct operation may not be possible.
- Performing formatting causes all data already saved on the USB flash drive to be deleted. If the flash drive contains necessary data, back it up onto a computer or elsewhere before formatting the drive.
- Depending on the USB flash drive, recognition of the flash drive might take some time.

1. Select the [MENU] button ➡ "USB Memory" ➡ select "Format", and press the [VALUE] knob.



The message "Are you sure?" appears.

If you want to cancel the operation, select "NO", and press the [VALUE] knob.

2. Select "YES", and press the [VALUE] knob.

Formatting of the USB flash drive is carried out.

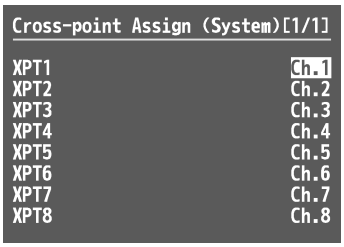
3. Press the [MENU] button to quit the menu.

Changing Cross-Point Assignments

You can change the channels assigned to the cross-point [1]–[8] buttons.

1. Select the [MENU] button ➡ "System" ➡ "Cross-point Assign", and press the [VALUE] knob.

2. Select cross-point cross point (from XPT1 to 8), then use the [VALUE] knob to specify the channel number (Ch. 1 to 8) to assign to the cross point.



Value	Explanation
Ch.1–8	Assigns an input channel.
Blank	Assigns no input channel. If you press the cross-point button, a black screen is output.
None	Disables operation of the cross-point button.

3. Press the [MENU] button to quit the menu.

Using the USER Buttons to Change the Bus Selection of HDMI 1-3 Outputs

You can use the USER [1] and [2] buttons to change the bus selection of HDMI 1-3 outputs.

Memo

- When you release the USER button quickly after pressing it, it operates as a latch to switch between the PGM bus and AUX bus with each press.
- When you release the USER button and press it after a longer interval, it operates as a momentary switch that switches only while held down.
- The USER button LED is lit when the PGM bus is selected.

➡ **Details on menu items: see p. 48.**

Preventing Unintended Operation (Panel Lock)

This locks operation of buttons and knobs to prevent unintended operation of the V-600UHD.

1. **Select the [MENU] button ➡ "System" ➡ "Panel Lock", and press the [VALUE] knob.**
   The Panel Lock menu appears.
2. **Select the target of panel lock, and use the [VALUE] knob to specify whether panel lock applies (On) or does not apply (Off).**
3. **Press the [VALUE] knob to apply the setting.**
   Repeat steps 2 through 3 as needed.
4. **Press the [MENU] button to quit the menu.**
5. **Press and hold the [EXIT] button and the [MENU] button at the same time (for 3 seconds or longer).**
   The message "PANEL LOCKED" is displayed, and panel lock is turned on. The button and controls that you set to applied (ON) in step 2 are locked.
6. **To turn off panel lock, again press and hold the [EXIT] button and the [MENU] button at the same time (for 3 seconds or longer).**
   The message "LOCK RELEASED" is displayed, and panel lock is turned off.

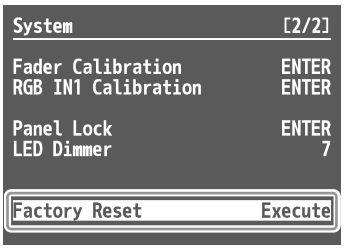
Returning to the Factory Settings (Factory Reset)

You can return the values of settings on the V-600UHD to their factory defaults.

NOTE

Executing a factory reset causes all values that have been set, settings saved in memories (p. 29), and still images saved in the unit to be lost.

1. **Select the [MENU] button ➡ "System" ➡ "Factory Reset", and press the [VALUE] knob.**



   The message "Are you sure?" appears.
   If you want to cancel the operation, select "NO", and press the [VALUE] knob.
2. **Select "YES", and press the [VALUE] knob.**
   A factory reset is executed.
3. **Press the [MENU] button to quit the menu.**

Menu List

Press the [MENU] button to call up the menu items. The menu will appear on the multi-view monitor connected to the V-600UHD.

* Menus are shown only on the multi-view monitor connected to the HDMI OUT connector.



The menu categories are displayed at first. Choose the menu category whose setting you want to change.

Category	Explanation
Signal Status	This is for showing input signal status.
Input	This is for input setup like source assign etc.
Output	This is for output setup.
Transition	This is for transition setup.
Composition	This is for Picture in Picture setup, luminance and chroma key setup.
DSK	This is for Picture in Picture setup, luminance and chroma key setup.
Audio	This is for audio setup.
USER	This is for setup of user function.
Still Image/ Capture	This is for Still Images and Capturing function.
USB Memory	This is for USB Flash Drive function.
Memory	This is for Saving/Recalling Settings (Memory).
Remote Control	This is for Remote Control function.
System	This is for system setup of the V-600UHD.

MEMO

- When a setting value has menu items that let you make more-detailed settings, "ENTER" is displayed at the top of the screen. Press the [VALUE] knob to go down a level.
- To execute an operation, press the [VALUE] knob.
- You can change a setting value rapidly by holding down the [VALUE] button and turning.
- Long-press the [VALUE] knob returns the currently selected setting to its default value.
- You can jump the cursor position by holding down the [MENU] button and turning the [VALUE] knob.

Signal Status

Menu item	Displayed value	Explanation
Input Ch.1–8	This displays input status. Pressing the [VALUE] knob displays the detailed information.	
	■ Ch.1–4	
	No Signal	No signal
	RESOLUTION	Video Format: 720pRATE, 1080iRATE, 1080pRATE, 2160p(UHD)RATE, 2160p(DCI)RATE, Unsupported PC Format: WxH@RATE, Unsupported
	Shared Ch.1–8	This enables sharing of the video source on the other channel.
	■ Ch.5– 6	
	No Signal	No signal
	RESOLUTION	Video Format: 720pRATE, 1080iRATE, 1080pRATE, 2160p(UHD)RATE, 2160p(DCI)RATE, Unsupported
	Shared Ch.1–8	This enables sharing of the video source on the other channel.
	■ Ch.7– 8	
	No Image	No signal
	RESOLUTION	Maximum 4096 x 2160, No Image
	Shared Ch.1–8	This enables sharing of the video source on the other channel.
Output	This display output status. Pressing the [VALUE] knob displays the detailed information.	
	RESOLUTION	Video Format: 1080pRATE, 2160p(UHD)RATE, 2160p(DCI)RATE PC Format: WxH@RATE

Input Ch.1–Ch.8 → [VALUE]

Menu item	Displayed value		Explanation
Source	Input Ch.1	HDMI IN1, RGB IN1, Shared Ch.2–8	This part displays the video source to assign to the channel.
	Input Ch.2–4	HDMI IN2–4, Shared Ch.1–8	
	Input Ch.5–6	SDI IN5–6, Shared Ch.1–8	
	Input Ch.7	STILL1, Shared Ch.1–8	
	Input Ch.8	PG, STILL2 , Shared Ch.1–7	
Resolution (*1)	Input Ch.1–4	1024x768–4096x2160, 720p, 1080i, 1080p, 2160p(UHD), 2160p(DCI), No Signal	This part displays the current input format.
	Input Ch.5–6	720p, 1080i, 1080p, 2160p(UHD), 2160p(DCI), No Signal	
	Input Ch.7–8	Maximum 4096 x 2160, No Image	
Frame Rate (*1)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60, 100, 119.88, 120, –		
HDCP (*1)	1.x, 2.2, None, –		
Color Gamut (*1)	Input Ch.1–6	Rec.709, Rec.2020, RGB Full, RGB Limited, –	
	Input Ch.7–8	SDR	
Dynamic Range (*1)	Input Ch.1–6	SDR, HDR PQ, HDR HLG, –	
	Input Ch.7–8	RGB Full, RGB Limited	
Scaling	Input Ch.1–8	(Width x Height)	Scaling: Indicates the size in pixel units that is being extracted from the input video by the ROI function.

(*1) If an unsupported signal is input, the displayed value blinks. When Color Gamut is set to "Rec.709" or "Rec.2020", detailed information is displayed such as "YCbCr 4:2:2".

Output → [VALUE]

Menu item	Displayed value	Explanation
Format	1920x1080, 3840x2160, 4096x2160, 1080p, 2160p(UHD), 2160p(DCI)	This part displays the current output format.
Frame Rate	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
HDCP	Off, On	
Color Gamut	Rec.709, Rec.2020, RGB Full, RGB Limited	
Dynamic Range	SDR, HDR PQ, HDR HLG	
■ HDMI1		This part displays output bus settings and down convert settings.
BUS	PGM, PVW, AUX	
Down Convert	Disabled, FHD, YCC420	
■ HDMI2		
BUS	PGM, PVW, AUX	
Down Convert	Disabled, FHD, YCC420	
■ HDMI3		
BUS	PGM, PVW, AUX	
Down Convert	Disabled, FHD, YCC420	
■ SDI		
BUS(*1)	Disabled, PGM	
Down Convert	Disabled, Enabled	

(*1) If HDCP is "On" or the resolution is PC, "Disabled" is displayed.

Input

Assign/Scaling → [VALUE]

Menu item	Value (Bold: default)	Explanation
■ Ch.1		This sets the video source to assign to the channel. **default value of Ch.2–6** Ch.2: HDMI IN2 Ch.3: HDMI IN3 Ch.4: HDMI IN4 Ch.5: SDI IN5 Ch.6: SDI IN6
Source	**HDMI/RGB IN1**, Shared Ch.2–8	
■ Ch.2–4		
Source	HDMI IN2–4, Shared Ch.1–8	
■ Ch.5–6		
Source	SDI IN5–6, Shared Ch.1–8	
■ Ch.7		
Source	**STILL1**, Shared Ch.1–8	
■ Ch.8		
Source	**PG/STILL2** , Shared Ch.1–7	
■ Ch.1–8		Pressing the [VALUE] knob displays the detailed settings menu.
Scaler	ENTER	

Scaler → [VALUE]

You use the following items to make settings for scaling.

Menu item	Value (Bold: default)		Explanation
Zoom	10–**100**–1000%		This adjusts the zoom ratio.
Center Position H	-4096–**0**–+4096		This adjusts the display position in the horizontal direction.
V	-2160–**0**–+2160		This adjusts the display position in the vertical direction.
Type	This sets the scaling type.		
	Full	The input image will be displayed fully on output screen. The aspect ratio will be changed.	
	Letterbox	The entirety of the input image will be displayed on output screen. The aspect ratio will be maintained.	
	Crop	The input image will be displayed fully on the output screen. The aspect ratio will be maintained.	
	DotByDot	Scaling will not be executed.	
	Manual	This performs scaling according to the "Manual Width" and "Manual Height" settings.	
Manual Width (*1)	-4000–**0**–+4000		This adjusts the horizontal size.
Manual Height (*1)	-4000–**0**–+4000		This adjusts the vertical size.
Adjust to FHD (*2)	Execute		Scales to FHD (1920 x 1080).
Adjust to 2K (*3)	Execute		Scales to 2K (2048 x 1080)
Reset	Execute		Returns the scaling settings to the default value. The Type setting is maintained.

(*1) Available when Type is set to "Manual".
(*2) Shown when Format is other than "2160p (DCI)" or "4096x2160".
(*3) Shown when Format is "2160p (DCI)" or "4096x2160".

Menu item		Value (Bold: default)	Explanation
Automatic ROI		**Disabled**, Enabled	This sets whether to reflect Automatic ROI information to scaling parameters.
	Zoom	This sets the way to zoom.	
		Off	Do not zoom (Adjust only the position, leaving the Scaler - Zoom setting unchanged.)
		Close Up	Zoom face area
		Up Shot	Zoom the area above from the neck
		Bust Shot	Zoom the area above from the bust
		Group	Zoom as group enters in frame
		Center Fixed	Fixed center position, zoom as a face enters in frame
	Area	This sets the area to be detected.	
		All	All area
		Left	Left side
		Right	Right side
		Upper	Upper side
		Lower	Lower side
	Face Number	**1**, 2	This sets the person to detect.
	Adjust	-10%–**0%**–10%	This adjust the zoom size.
	Lost Zoom Out	This sets the way to zoom out when lost detection.	
		Off	Do not zoom out
		Slow	Zoom out slowly
		Fast	Zoom out faster
	Tracking	This sets the way to track.	
		Off	Do not track
		Slow	Track slowly
		Fast	Track faster
	Look Ahead	This sets how to guess the tracking.	
		Off	Do not guess the tracking
		On	Guess the tracking
	Offset H	-4096–**0**–4096	This adjusts horizontal offset of zoom.
	V	-2160–**0**–2160	This adjusts vertical offset of zoom.
	Hold Time	0.0–**0.5s**–5.0s	This sets the hold time of zoom.

HDMI/RGB IN1, HDMI IN2–4, SDI IN5–6, STILL1, PG/STILL2 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Source	**HDMI IN1**, RGB IN1	This sets the input connector assigned to channel 1.
	PG, STILL2	This assigns a pattern generator (Test Pattern) or still image to channel 8.
EDID	**Internal** 4096x2160, 2160p(DCI) 3840x2160, 2160p(UHD) 1920x1080, 1080p 1080i 1920x1200/60Hz 1600x1200/60Hz 2160p(DCI) 23/24Hz 2160p(DCI) 25Hz 2160p(DCI) 29/30Hz 2160p(DCI) 50Hz 2160p(DCI) 59/60Hz 2160p(UHD) 23/24Hz 2160p(UHD) 25Hz 2160p(UHD) 29/30Hz 2160p(UHD) 50Hz 2160p(UHD) 59/60Hz 1080p 23/24Hz 1080p 25Hz 1080p 29/30Hz 1080p 50Hz 1080p 59/60Hz 2560x1440/60Hz 1400x1050/60Hz 1280x1024/60Hz 1280x800/60Hz 1024x768/60Hz 1080p 100Hz 1080p 120Hz 2560x1440/120Hz 2160p(DCI) 50Hz (420) (*1) 2160p(DCI) 59/60Hz (420) (*1) 2160p(UHD) 50Hz (420) (*1) 2160p(UHD) 59/60Hz (420) (*1)	This selects the EDID specified for the HDMI IN 1–4 connectors.
Still Image Memory (*2)	1–8	Selects the memory number in which the still image is saved, and assigns the still image to either STILL1 or STILL2. * Memory numbers that contain a still image are indicated by a "✻" symbol.
Color Correction	You use the following items to perform color correction. * Not available when source is "PG".	
Brightness	-64–**0**–+63	This adjusts the brightness.
Contrast	-64–**0**–+63	This adjusts the contrast.
Saturation	-64–**0**–+63	This adjusts the color saturation.
Red	-64–**0**–+63	This adjusts the red level.
Green	-64–**0**–+63	This adjusts the green level.
Blue	-64–**0**–+63	This adjusts the blue level.
Color Gamut	Rec.709, Rec.2020, RGB Full, RGB Limited, **Auto**	This part select color gamut or color spaces of Input Ch.1–6.
	RGB Full, RGB Limited	This part select color gamut or color spaces of Input Ch.7–8. * In the case of a captured still image, this shows the color space of the image.

(*1) YCbCr 4:2:0 only

(*2) Only for STILL1 and PG/STILL2 (Source: STILL2).

Menu item	Value (Bold: default)	Explanation
Dynamic Range		
Type	SDR, HDR PQ, HDR HLG, **Auto**	This part select dynamic range of Input Ch.1–6. * The dynamic range of Input Ch.7–Ch.8 cannot be changed. • In the case of a still image loaded from a USB flash drive, this is fixed at SDR. • In the case of a captured still image, this shows the dynamic range of the image.
Correction	-64–**0**–+63	This adjust dynamic range.
Sampling	You use the following items for make settings for sampling. * Available when Source is set to "RGB IN1".	
Auto Sampling	Execute	This executes automatic settings for sampling. After executing this, you can use the following menu items (Frequency, Phase, Gain, Position H, and Position V) to adjust the setting values.
Frequency	-8–**0**–+8 (*3)	This adjusts the sampling frequency.
Phase	-8–**0**–+8 (*3)	This adjusts the sampling phase.
Gain	-20–**0**–+20 (*3)	This adjusts the sampling gain.
Position H	-16–**0**–+16 (*3)	This adjusts the horizontal start position of sampling.
V	-16–**0**–+16 (*3)	This adjusts the vertical start position of sampling.
Pattern (*4)	**Colorbar75%**, Colorbar100%, Ramp, Step, Hatch, Frame, Circle, Red, Green, Blue, White, Black	Specifies the test pattern.
Motion (*4)	**Disabled**, Slow, Medium, Fast	Specifies the scroll speed of the test pattern.

(*3) The setting value does not change even if Auto Sampling is executed.
(*4) Available when Source is set to "PG" in Ch.8.

Output

HDMI OUT1–3 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Signal Bus	PGM, PVW, AUX **(*1)**	This sets the bus to be sent to HDMI OUT 1–3 connectors.
Down Convert	**Disabled**	The down convert and down sampling are disabled.
	FHD	This enables down convert from 4K to FHD. * Available when Format is set to "2160p(UHD)" or "3840x2160".
	YCC420	This enables down sampling to YCbCr 4:2:0. * Available when Format is set to "2160p(UHD)", "2160p(DCI)", "3840x2160" or "4096x2160".
Signal Type	**HDMI**, DVI-D	This sets the output mode for HDMI output. * This can be selected if Format is "1920x1080".
Color Gamut	Rec.709, Rec.2020, RGB Full, RGB Limited	This part select color gamut or color spaces. * "RGB Full" and "RGB Limited" can be selected if Format is "1920x1080", "3840x2160", or "4096x2160", and Signal Type is "HDMI". * "Rec.709" and "Rec.2020" can be selected if Format is "1080p", "2160p(UHD)", or "2160p(DCI)".

(*1) HDMI OUT 1 : PGM, HDMI OUT 2: PVW, HDMI OUT 3: AUX

SDI OUT → [VALUE]

Menu item	Value (Bold: default)	Explanation
Signal Bus	PGM / Disabled	This part displays the output status of SDI Output. This is fixed at PGM in the case of video resolution, and fixed at Disabled in the case of PC resolution.
Down Convert	**Disabled**, Enabled	This specifies whether down convert from 4K to FHD is enabled or disabled. * Available when Format is set to "2160p(UHD)".
3G-SDI Mapping	**Level A**, Level B	This displays the mapping structure for 3G-SDI output. * Available when Format is set to "1080p". * This can be selected if Format is "2160p(UHD)" and Down Convert is "Enabled".
Video Payload ID	SMPTE SDR, **SMPTE SDR/HDR**	This specifies whether set HDR information on the Video Payload ID.

Transition

Menu item	Value (Bold: default)	Explanation
Time	0.0–**1.0**–4.0s	This sets the transition time.
Pattern	**Wipe1**, Wipe2, Wipe3, Mix	This sets the transition effect. * The WIPE PATTERN [1]–[3] buttons and the [MIX] button are "Wipe Pattern" shortcut buttons.
Wipe Preset 1	ENTER	This displays the Detailed Settings menu for the WIPE PATTERN [1]–[3] buttons.
Wipe Preset 2	ENTER	
Wipe Preset 3	ENTER	
Mix	FAM, NAM, **MIX**	This specifies the transition pattern assigned to the [MIX] button.

Wipe Preset 1–3 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Pattern	Horizontal, Vertical, Horizontal Open, Vertical Open, Upper Left, Upper Right, Lower Left, Lower Right, Box **(*1)**	This sets the wipe pattern.
Direction	**Normal**, Reverse, N/R	This sets the wipe direction.
Curve	**Linear**, Slow In, Cosine, Slow Out	This sets the wipe curve for video transition.
Position H (*2)	-100.0–**0**–+100.0%	This sets the horizontal position of start video transition.
V (*3)	-100.0–**0**–+100.0%	This sets the vertical position of start video transition.
Aspect ratio (*4)	1:1, 4:3, 3:2, **16:9**	This sets aspect ratio of video transition.
Correction H (*2)	-100.0–**0**–+100.0%	This adjusts the horizontal position of start video transition.
V (*3)	-100.0–**0**–+100.0%	This adjusts the vertical position of start video transition.
Border	You use the following items to adjust the border settings.	
Width	**0**–10pixel	This adjusts the border width.
Color H	**0**–359deg.	This sets the hue of border color.
S	**0**–100%	This sets the saturation of border color.
V	0–**50**–100%	This sets the value of border color.

(*1) Wipe Preset 1: Horizontal, Wipe Preset 2: Vertical, Wipe Preset 3: Box
(*2) Not valid when Pattern is set to "Horizontal", "Vertical", or "Vertical Open".
(*3) Not valid when Pattern is set to "Horizontal", "Vertical", or "Horizontal Open".
(*4) Not valid when Pattern is set to "Horizontal", "Vertical", "Horizontal Open", or "Vertical Open".

Composition

Menu item		Value (Bold: default)	Explanation
Status	PGM	**Off**, On	This specifies whether the result of PinP1/KEY1 compositing is sent to the final output (On) or is not sent (Off).
	PVW	Off, **On**	This specifies whether the result of PinP1/KEY1 compositing is sent to preview (On) or is not sent (Off).
Source Channel		XPT1–**XPT3**–XPT8	This sets the source channel of PinP1 and KEY1.
Type		**None**, PinP1-1, PinP1-2, Key1, PinP1-1+Key1, PinP1-2+Key1	This sets the type of PinP1 and KEY1.
PinP1	Position 1	ENTER	This displays the Detailed Settings menu for the PinP1 Position 1.
	Position 2	ENTER	This displays the Detailed Settings menu for the PinP1 Position 2.
Key1		ENTER	This displays the Detailed Settings menu for the KEY1.

PinP1 Position 1–2 → [VALUE]

Menu item		Value (Bold: default)	Explanation
View		Use the following items to adjust the video displayed in the inset screen.	
Size		10.0–**100.0**–1000.0%	This sets the zoom ratio.
Position	H	-4096–**0**–+4095	This adjusts the display position in the horizontal direction.
	V	-2160–**0**–+2159	This adjusts the display position in the vertical direction.
Window		Use the following items to make the settings for the inset screen.	
Size		10.0–**30.0**–100.0%	This adjusts the zoom ratio.
Aspect ratio		1:1, 4:3, 16:9, **System**	This sets the aspect ratio of the inset screen.
Correction	H	-100.0–**0**–+100.0%	This adjust the horizontal size of the inset screen.
	V	-100.0–**0**–+100.0%	This adjust the vertical size of the inset screen.
Position	H	-4096–+4096 **(*1)**	This adjusts the display position in the horizontal direction.
	V	-2160–**-270**–+2160	This adjusts the display position in the vertical direction.
Type		**Border**, Shadow	This sets the type of border for the inset screen.
Border		Use the following items to adjust the border. * Available when Type is set to "Border".	
Width		0–**10**–40pixel	This sets the border width.
Color	H	**0**–359deg.	This sets the hue of border color.
	S	**0**–100%	This sets the saturation of border color.
	V	0–**50**–100%	This sets the value of border color.
Shadow		* Available when Type is set to "Shadow".	
Position	H	-10.0–**0**–+10.0%	This sets the horizontal ratio of shadow to inset screen.
	V	-10.0–**0**–+10.0%	This sets the vertical ratio of shadow to inset screen.
Level		0–**50**–100%	This set darkness for shadow.

(*1) Position 1: -480, Position 2: +480

Key1 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Type	This sets the key type (extraction color) to use when compositing.	
	Luminance White	This uses a brightness threshold to make white transparent.
	Luminance Black	This uses a brightness threshold to make black transparent.
	Chroma Blue	This uses a color threshold to make blue transparent.
	Chroma Green	This uses a color threshold to make green transparent.
	Chroma Manual	This uses a color threshold to make manual color transparent.
Level	0–**32**–255	This adjusts the amount of extraction.
Gain	**0**–255	This adjusts the amount of edge blur.
Chroma Manual	* Available when Type is set to "Chroma Manual".	
Hue Center	0–**120**–359deg.	This adjusts the center position for hue of key color.
Width	0–**10**–359deg.	This adjusts the hue width (range) of key color.
Saturation Center	0–**90**–100%	This adjusts the center position for saturation of key color.
Width	0–**10**–100%	This adjusts the saturation width of key color.
Shadow		
Position H	**0**–32pixel	This part set shadow height for key effect.
Level	0–**255**	This part set shadow darkness for key effect.

DSK

Menu item		Value (Bold: default)	Explanation
Status	PGM	**Off**, On	This specifies whether the result of PinP2/KEY2 compositing is sent to the final output (On) or is not sent (Off).
	PVW	Off, **On**	This specifies whether the result of PinP2/KEY2 compositing is sent to preview (On) or is not sent (Off).
Source Channel		XPT1–**XPT8**	This sets the source channel of PinP2 and KEY2.
Type		**None**, PinP2-1, PinP2-2, DSK, PinP2-1+Key2, PinP2-2+Key2	This sets the type of PinP2 and KEY2.
PinP2	Position 1	ENTER	This displays the Detailed Settings menu for the PinP2 Position 1.
	Position 2	ENTER	This displays the Detailed Settings menu for the PinP2 Position 2.
Key2		ENTER	This displays the Detailed Settings menu for the KEY2.

PinP2 Position 1–2 → [VALUE]

Menu item		Value (Bold: default)	Explanation
View		Use the following items to adjust the video displayed in the inset screen.	
Size		10.0–**100.0**–1000.0%	This sets the zoom ratio.
Position	H	-4096–**0**–+4095	This adjusts the display position in the horizontal direction.
	V	-2160–**0**–+2159	This adjusts the display position in the vertical direction.
Window		Use the following items to make the settings for the inset screen.	
Size		10.0–**30.0**–100.0%	This adjusts the zoom ratio.
Aspect ratio		1:1, 4:3, 16:9, **System**	This sets the aspect ratio of the inset screen.
Correction	H	-100.0–**0**–+100.0%	This adjust the horizontal size of the inset screen.
	V	-100.0–**0**–+100.0%	This adjust the vertical size of the inset screen.
Position	H	-4096–+4096 **(*1)**	This adjusts the display position in the horizontal direction.
	V	-2160–**-270**–+2160	This adjusts the display position in the vertical direction.
Type		**Border**, Shadow	This sets the type of border for the inset screen.
Border		Use the following items to adjust the border. * Available when Type is set to "Border".	
Width		0–**10**–40pixel	This sets the border width.
Color	H	**0**–359deg.	This sets the hue of border color.
	S	**0**–100%	This sets the saturation of border color.
	V	0–**50**–100%	This sets the value of border color.
Shadow		* Available when Type is set to "Shadow".	
Position	H	-10.0–**0**–+10.0%	This sets the horizontal ratio of shadow to inset screen.
	V	-10.0–**0**–+10.0%	This sets the vertical ratio of shadow to inset screen.
Level		0–**50**–100%	This set darkness for shadow.

(*1) Position 1: -480, Position 2: +480

Key2 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Type	This sets the key type (extraction color) to use when compositing.	
	Luminance White	This uses a brightness threshold to make white transparent.
	Luminance Black	This uses a brightness threshold to make black transparent.
	Chroma Blue	This uses a color threshold to make blue transparent.
	Chroma Green	This uses a color threshold to make green transparent.
	Chroma Manual	This uses a color threshold to make manual color transparent.
Level	0–**32**–255	This adjusts the amount of extraction.
Gain	**0**–255	This adjusts the amount of edge blur.
Chroma Manual	* Available when Type is set to "Chroma Manual".	
Hue Center	0–**120**–359deg.	This adjusts the center position for hue of key color.
Width	0–**10**–359deg.	This adjusts the hue width (range) of key color.
Saturation Center	0–**90**–100%	This adjusts the center position for saturation of key color.
Width	0–**10**–100%	This adjusts the saturation width of key color.
Shadow		
Position H	**0**–32pixel	This part set shadow height for key effect.
Level	0–**255**	This part set shadow darkness for key effect.

Audio

Input: HDMI IN1–4 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Delay	**0**–500ms	This adjusts the delay time for input audio (the frame value is also shown).
Mute	**Off**, On	This sets the Mute feature on or off. Input audio for which this is set to "On" is silenced.
Follow	**Off**, On	This switches the Audio Follow feature on or off. Video channels for which this is set to "On" are automatically muted when video on another channel is output.
Level	-INF–**0**–+10dB	This adjusts the send level to MAIN bus.
Aux Send	-INF–**0**–+10dB	This adjusts the send level to AUX bus.
Mix Ch.1/2	Off, **On**	This switches the sending input audio to Mix Ch.1/2 on or off.
Mix Ch.3/4	**Off**, On	This switches the sending input audio to Mix Ch.3/4 on or off.
Mix Ch.5/6	**Off**, On	This switches the sending input audio to Mix Ch.5/6 on or off.
Mix Ch.7/8	**Off**, On	This switches the sending input audio to Mix Ch.7/8 on or off.
Mix Ch.9/10	**Off**, On	This switches the sending input audio to Mix Ch.9/10 on or off.
Mix Ch.11/12	**Off**, On	This switches the sending input audio to Mix Ch.11/12 on or off.
Mix Ch.13/14	**Off**, On	This switches the sending input audio to Mix Ch.13/14 on or off.
Mix Ch.15/16	**Off**, On	This switches the sending input audio to Mix Ch.15/16 on or off.

Input: SDI IN5–6 → [VALUE]

Menu item	Value (Bold: default)	Explanation
Delay	**0**–500ms	This adjusts the delay time for input audio (the frame value is also shown).
Mute	**Off**, On	This sets the Mute feature on or off. Input audio for which this is set to "On" is silenced.
Follow	**Off**, On	This switches the Audio Follow feature on or off. Video channels for which this is set to "On" are automatically muted when video on another channel is output.
Level	-INF–**0**–+10dB	This adjusts the send level to MAIN bus.
Aux Send	-INF–**0**–+10dB	This adjusts the send level to AUX bus.
Mix Ch.1-16	Off, **On**	This switches the sending input audio to Mix Ch.1–16 on or off.

Input: AUDIO IN → [VALUE]

Menu item	Value (Bold: default)	Explanation
Delay	**0**–500ms	This adjusts the delay time for input audio (the frame value is also shown).
Mute	**Off**, On	This sets the Mute feature on or off. Input audio for which this is set to "On" is silenced.
Follow	**Off**, HDMI/RGB IN1, HDMI IN2–4, SDI IN5–6	This sets the video channel to interlink with input audio using Audio Follow. Audio from AUDIO IN is muted out for video channels other than what you specified. When this is set to "Off", no video channels using Audio Follow are assigned.
Level	-INF–**0**–+10dB	This adjusts the send level to MAIN bus.
Aux Send	-INF–**0**–+10dB	This adjusts the send level to AUX bus.
Mix Ch.1/2	Off, **On**	This switches the sending input audio to Mix Ch.1/2 on or off.
Mix Ch.3/4	**Off**, On	This switches the sending input audio to Mix Ch.3/4 on or off.
Mix Ch.5/6	**Off**, On	This switches the sending input audio to Mix Ch.5/6 on or off.
Mix Ch.7/8	**Off**, On	This switches the sending input audio to Mix Ch.7/8 on or off.
Mix Ch.9/10	**Off**, On	This switches the sending input audio to Mix Ch.9/10 on or off.
Mix Ch.11/12	**Off**, On	This switches the sending input audio to Mix Ch.11/12 on or off.
Mix Ch.13/14	**Off**, On	This switches the sending input audio to Mix Ch.13/14 on or off.
Mix Ch.15/16	**Off**, On	This switches the sending input audio to Mix Ch.15/16 on or off.

Input: Test Tone → [VALUE]

Menu item	Value (Bold: default)	Explanation
Test Tone	**Off**, L:1k+R:2k, L:1k+R:1k	This sets the test tone.
Level	-INF–**-20**–+10dB	This adjusts the send level to MAIN bus.
Aux Send	-INF–**-20**–+10dB	This adjusts the send level to AUX bus.
Mix Ch.1/2	Off, **On**	This switches the sending test tone to Mix Ch.1/2 on or off.
Mix Ch.3/4	**Off**, On	This switches the sending test tone to Mix Ch.3/4 on or off.
Mix Ch.5/6	**Off**, On	This switches the sending test tone to Mix Ch.5/6 on or off.
Mix Ch.7/8	**Off**, On	This switches the sending test tone to Mix Ch.7/8 on or off.
Mix Ch.9/10	**Off**, On	This switches the sending test tone to Mix Ch.9/10 on or off.
Mix Ch.11/12	**Off**, On	This switches the sending test tone to Mix Ch.11/12 on or off.
Mix Ch.13/14	**Off**, On	This switches the sending test tone to Mix Ch.13/14 on or off.
Mix Ch.15/16	**Off**, On	This switches the sending test tone to Mix Ch.15/16 on or off.

Output: Level/Delay → [VALUE]

Menu item	Value (Bold: default)	Explanation
Main		
Delay	**0**–500ms	This adjusts the delay time for MAIN bus (the frame value is also shown).
Level	-INF–**0**–+10dB	This adjusts the volume level for MAIN bus.
Aux		
Delay	**0**–500ms	This adjusts the delay time for AUX bus (the frame value is also shown).
Level	-INF–**0**–+10dB	This adjusts the volume level for AUX bus.
AUDIO OUT		
Level	-INF–**0**–+10dB	This adjusts the volume level for AUDIO OUT connectors.
PHONES		
Level	-INF–**0**–+10dB	This adjusts the volume level for PHONES connectors.
OUTPUT Knob Assign	**Main**, AUDIO OUT, PHONES	This sets assign of [OUTPUT] knob for controlling volume adjust.

Output: Source → [VALUE]

Menu item	Value (Bold: default)	Explanation
SDI OUT	**Ch.1-16**, AUX	This sets the embedded-audio channel that is output via the SDI OUT connector.
HDMI OUT1	**Ch.1/2**, Ch.3/4, Ch.5/6, Ch.7/8, Ch.9/10, Ch.11/12, Ch.13/14, Ch.15/16, AUX	This sets the embedded-audio channel that is output via the HDMI OUT1 connector.
HDMI OUT2	**Ch.1/2**, Ch.3/4, Ch.5/6, Ch.7/8, Ch.9/10, Ch.11/12, Ch.13/14, Ch.15/16, AUX	This sets the embedded-audio channel that is output via the HDMI OUT2 connector.
HDMI OUT3	**Ch.1/2**, Ch.3/4, Ch.5/6, Ch.7/8, Ch.9/10, Ch.11/12, Ch.13/14, Ch.15/16, AUX	This sets the embedded-audio channel that is output via the HDMI OUT3 connector.
MULTI-VIEW	**Ch.1/2**, Ch.3/4, Ch.5/6, Ch.7/8, Ch.9/10, Ch.11/12, Ch.13/14, Ch.15/16, AUX	This sets the embedded-audio channel that is output via MULTI-VIEW connector.
AUDIO OUT / PHONES	**Ch.1/2**, Ch.3/4, Ch.5/6, Ch.7/8, Ch.9/10, Ch.11/12, Ch.13/14, Ch.15/16, AUX	This sets the embedded-audio channel that is output via AUDIO OUT/ PHONES connectors.

USER

Menu item	Value (Bold: default)	Explanation
■ USER1		
Assign	This sets the functions assigned to the USER [1] button.	
	None	No function is assigned.
	Follow SW	This switches the Audio Follow feature on or off.
	Mute Group	This switches the Mute feature on or off globally for all audio assigned to a group.
	Output Capture	This captures a still image from the output video.
	Status Bar SW	This switches the Status Bar display on Multi-View screen.
	STILL1 Image Select	This changes the assignment of STILL1.
	STILL2 Image Select	This changes the assignment of STILL2.
	HDMI OUT1 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 1 connector.
	HDMI OUT2 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 2 connector.
	HDMI OUT3 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 3 connector.
LED Color	**Red**, Green, Blue, Cyan, Magenta, Yellow	This part set LED color of USER [1] button.
Mute Group Setup	ENTER	This displays detailed setup menu of mute group.
■ USER2		
Assign	This sets the functions assigned to the USER [2] button.	
	None	No function is assigned.
	Follow SW	This switches the Audio Follow feature on or off.
	Mute Group	This switches the Mute feature on or off globally for all audio assigned to a group.
	Output Capture	This captures a still image from the output video.
	Status Bar SW	This switches the Status Bar display on Multi-View screen.
	STILL1 Image Select	This changes the assignment of STILL1.
	STILL2 Image Select	This changes the assignment of STILL2.
	HDMI OUT1 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 1 connector.
	HDMI OUT2 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 2 connector.
	HDMI OUT3 PGM/ AUX Sel	This switches the bus to be sent to HDMI OUT 3 connector.
LED Color	Red, **Green**, Blue, Cyan, Magenta, Yellow	This part set LED color of USER [2] button.
Mute Group Setup	ENTER	This displays detailed setup menu of mute group.

Mute Group Setup → [VALUE]

Menu item	Value (Bold: default)	Explanation
HDMI IN1-4, SDI IN5-6, AUDIO IN	**Off**, On	This specifies whether each item is included in the USER 1–2 mute group.

Still Image/Capture

Menu item	Value (Bold: default)	Explanation
Still Image Load	ENTER	Shows a screen where you can select the still image file to be loaded.
Delete	ENTER	Shows a screen where you can select the still image to be deleted.
Information	ENTER	Shows information about the still image.
Output Capture	ENTER	Shows a screen where you can execute still image capture.
Save As	ENTER	Shows a screen where you can save the captured still image.

Output Capture

Menu item	Value (Bold: default)	Explanation
Still Image Memory	**1**–8	This selects the memory number to use as the destination for saving the captured still image. * A "*" symbol is displayed for memory where a still image is already saved.
	File Name	Shows the loaded still image, or the file name of the captured still image.
Source Bus	**PGM**, PVW	Specifies the bus of the video source that is the target of still image capture.
	Execute	Captures a still image from the output video.

USB Memory

Menu item	Value (Bold: default)	Explanation
USB Memory	Performs operations related to a USB flash drive.	
Parameter **Load**	ENTER	Shows a screen where you can select a parameter file to load. If "Include Still Image" is set to "Enabled" when you load a parameter file from the USB flash drive, the still image that is registered with the parameter file will also be loaded.
Save	ENTER	Shows a screen where you can select the parameter file that will be overwritten.
Save As	ENTER	Shows a screen where you can enter a name for the parameter file that will be saved as a new file.
Delete	ENTER	Shows a screen where you can select a parameter file for deletion.
Format	Execute	This formats the USB flash drive.

Memory

Menu item	Value (Bold: default)	Explanation
Protect	**Off**, On	When this is set to "On", the memories are protected, and settings cannot be saved to them.
Auto Memory	Off, **On**	If this is "On", the parameters are saved in Last Memory.
Start Up	**Last Memory**, MEMORY 1-1–MEMORY 8-8	This specifies the settings loaded at startup.
Recall Safe	ENTER	Shows the Recall Safe screen.
Delete	ENTER	Shows a screen where you can select a memory for deletion.

Recall Safe

Menu item	Value (Bold: default)	Explanation
Recall Safe	**Disabled**, Enabled	If this is set to "Enabled", only the specified settings are recalled from memory. For each of the following items, this specifies whether it will be recalled (Off) or not recalled (On).
Video Input	Off, **On**	Video input settings
Transition	**Off**, On	Transition effect settings
Composition	**Off**, On	Composition (PinP1, KEY1) settings
DSK	**Off**, On	DSK (PinP2, KEY2) settings
Cross-point	Off, **On**	Cross-point select button settings
Audio Input	Off, **On**	Audio input settings
Audio Output	Off, **On**	Audio output settings

Remote Control

Menu item	Value (Bold: default)	Explanation
RS-232	**Off**, On	Specifies whether remote control from an RS-232 device is disabled or enabled.
Baudrate	9600, **38400bps**	This sets the communication speed (bps) of the RS-232 connector.
LAN Control	ENTER	Shows the LAN control detailed settings menu.
Camera Control	ENTER	Shows the camera control detailed settings menu.
GPI	ENTER	Shows the GPI detailed settings menu.

LAN Control

Menu item	Value (Bold: default)	Explanation
Configure	Selects how the IP address and sub-net mask settings are made. * If you change the settings, they are applied at next start-up.	
	DHCP Server	Enables the DHCP server function. Settings needed for network connection are automatically assigned from this unit to the computers etc. that are on the LAN.
	DHCP Client	IP address and other settings needed for network connection are automatically obtained from the DHCP server on the LAN.
	Manually	IP address and sub-net mask are specified manually.
IP Address (*1)	192.168.2.254	This displays the IP address.
Subnet Mask (*1)	255.255.255.0	This displays the subnet mask.
MAC Address		This displays the MAC address.
Password		Displays the network password screen. Set the necessary password for network connection, using four characters. **Show password** **Password not set** : **Password set** : **** * Input the password that's set here when connecting a computer or other device on the same network to access the V-600UHD.
Reset	Execute	Reset the password to unset.
Remote Control URL	http://192.168.2.254:8080/	Shows the URL used to start the WebRCS web application in your web browser. * The URL is not shown if a network connection is not established.

(*1) This can be specified manually if Configure is set to "Manually".

Camera Control

Menu item	Value (Bold: default)	Explanation
Camera ID	**Camera 1**–Camera 6	This selects the camera to be controlled.
Protocol	**N/A**, JVC, Panasonic, Canon, VISCA over IP, PTZOptics, Avonic	This sets the camera's protocol.

When PROTOCOL = JVC, Panasonic, VISCA over IP, PTZOptics, Avonic

Menu item	Value (Bold: default)	Explanation
IP Address	Camera 1: **192.168.2.101** Camera 2: **192.168.2.102** Camera 3: **192.168.2.103** Camera 4: **192.168.2.104** Camera 5: **192.168.2.105** Camera 6: **192.168.2.106**	Input the camera's IP address.
Login Name	ENTER	The Login Name screen appears. Enter the log-in name needed to connect with the camera when "PROTOCOL" is "JVC".
Password	ENTER	The Password screen appears. Enter the password needed to connect with the camera when "PROTOCOL" is "JVC".

Menu item	Value (Bold: default)	Explanation
Camera Preset	Sets the camera presets.	
All Cameras Recall	**Off**	Recall presets from the camera that is being controlled.
	On	Simultaneously recall presets from all cameras (CAMERA 1–6).
Recall	ENTER	Select a Preset 1–Preset 8 containing the camera's settings. When you execute [Recall], the preset is recalled from the camera.
Store	ENTER	Select a Preset 1–Preset 8 to which the camera's settings will be stored. When you execute [Store], the camera's settings are stored in the preset. * Presets are saved in the camera itself.
Input Ch	Camera 1: **Ch.1** Camera 2: **Ch.2** Camera 3: **Ch.3** Camera 4: **Ch.4** Camera 5: **Ch.5** Camera 6: **Ch.6**	This specifies the channel that is inputting the camera video. When the camera video from the V-600UHD is the final output, the camera's tally light is lit.
SCALING SIZE Knob Assign	**Zoom**, Focus	Specifies whether the PinP/ROI SCALING [SIZE] knob controls Zoom or controls Focus.
Pan	This adjusts the horizontal position of the camera. When the cursor is located at this value, you can control the camera.	
	Left	While you hold down the [VALUE] button, the camera faces left.
	Right	While you hold down the [VALUE] button, the camera faces right.
Tilt	This adjusts the vertical position of the camera. When the cursor is located at this value, you can control the camera.	
	Down	While you hold down the [VALUE] button, the camera faces down.
	Up	While you hold down the [VALUE] button, the camera faces up.
Speed	1–**12**–24	Adjusts the speed at which the camera changes direction.
Zoom	This adjusts the camera's zoom position. When the cursor is located at this value, you can control the camera.	
	Wide (Fast)	While you hold down the [VALUE] button, the camera zooms-out at high speed.
	Wide (Slow)	While you hold down the [VALUE] button, the camera zooms-out at low speed.
	Tele (Slow)	While you hold down the [VALUE] button, the camera zooms-in at low speed.
	Tele (Fast)	While you hold down the [VALUE] button, the camera zooms-in at high speed.
Reset	(Execute)	Resets the zoom position.
Focus	This adjusts the focal point of the camera. When the cursor is located at this value, you can control the camera.	
	Far	While you hold down the [VALUE] button, the focal point moves farther away.
	Near	While you hold down the [VALUE] button, the focus moves closer.
Auto	**Off**, On	When this is set to "On", the focal point is set automatically.
Exposure	**Auto**, Manual	This sets the exposure mode.

When PROTOCOL = Canon

Menu item	Value (Bold: default)	Explanation
IP Address	Camera 1: **192.168.2.101** Camera 2: **192.168.2.102** Camera 3: **192.168.2.103** Camera 4: **192.168.2.104** Camera 5: **192.168.2.105** Camera 6: **192.168.2.106**	Input the camera's IP address.
Login Name	ENTER	The Login Name screen appears. Enter the log-in name needed to connect with the camera.
Password	ENTER	The Password screen appears. Enter the password needed to connect with the camera.
SD Card Slot	**A**, B	This specifies the SD card slot to use.
REC Status	—	This indicates the video recording status.
Remaining Time	—	This indicates the remaining available recording time.
Automatic ROI	**Disabled**, Enabled	Specifies whether Automatic ROI data is captured from the camera.
Input Ch	Camera 1: **Ch.1** Camera 2: **Ch.2** Camera 3: **Ch.3** Camera 4: **Ch.4** Camera 5: **Ch.5** Camera 6: **Ch.6**	This specifies the channel that is inputting the camera video.
SCALING SIZE Knob Assign	**Zoom**, Focus	Specifies whether the PinP/ROI SCALING [SIZE] knob controls Zoom or controls Focus.
Zoom	This adjusts the camera's zoom position. When the cursor is located at this value, you can control the camera.	
	Wide	While you hold down the [VALUE] button, the camera zooms-out.
	Tele	While you hold down the [VALUE] button, the camera zooms-in.
Position	**1**–6	Adjusts the zoom position in the six levels of 1 (WIDE)–6 (TELE).

Menu item	Value (Bold: default)	Explanation
Focus	This adjusts the focal point of the camera. When the cursor is located at this value, you can control the camera.	
	Far	While you hold down the [VALUE] button, the focal point moves farther away.
	Near	While you hold down the [VALUE] button, the focus moves closer.
Auto	**Off**, On	When this is set to "On", the focal point is set automatically.
Guide	**Off**,On	If this is "On", a focus guide is shown.
Exposure	**Auto**, Tv, Av, Manual	This sets the exposure mode.
ND	The values depend on the camera you're using.	This specifies the type of ND filter.
IRIS		This adjusts the aperture value.
Shutter		This adjusts the shutter speed.
Gain		This adjusts the gain.
AE Shift		This adjusts the amount of exposure compensation when using auto exposure.
White Balance	**Auto**, Daylight, Tungsten, Color Temperature, Set 1, Set 2	This specifies the white balance type.
Temperature	2000K–**5600K**–15000K	This specifies the color temperature. This is available when "White Balance" is set to "Color Temperature".
Set White Balance	Execute	When you press the [VALUE] knob, the reference white is loaded from the subject shown by the camera and stored. This is available when "White Balance" is set to "Set 1" or "Set 2".

GPI

Menu item	Value (Bold: default)	Explanation
GPI1–8	This sets the function assigned to the GPI channel. * When a control signal is input from an external source, the assigned function is executed. The GPI trigger is fixed at the trailing edge (low: ON). For details, refer to "Inputting a Control Signal".	
	None	No function is assigned.
	PGM XPT1–8	This switches the final output video.
	PST XPT1–8	This switches the preset video (the video to be output next).
	Memory Load1-1–Memory Load1-8	Recalls a memory. Only BANK 1 can be recalled.
	DSK SRC Sel1–8	When performing DSK compositing, this switches the cross-point for the superimposed logo or video.

System

Menu item	Value (Bold: default)	Explanation
Processing	ENTER	This displays detailed setup menu of processing.
Frame Rate	23.98, 24, 25, 29.97, 30, 50, **59.94**, 60Hz	This sets the frame rate. * For details on combinations of format and frame rate, refer to "Output Formats" (p. 13).
HDCP	**Off**, On	This turns on/off the HDCP mode.
Reference	This sets the reference clock of the V-600UHD.	
Source	**Internal**	The V-600UHD's internal clock is used as the reference clock.
	SDI IN5	A signal input via one of the SDI IN5 connectors is used as the reference clock.
Clock Adjust	-4096–**0**–+4096	This adjusts the phase horizontally. Adjust this when output is horizontally out of sync with the operation of other devices using the same clock.
Line Adjust	-2160–**0**–+2160	This adjusts the phase vertically. Adjust this when output is vertically out of sync with or field-shifted from the operation of other devices using the same clock.
Cross-point Assign	ENTER	This displays detailed setup menu of channel assign to cross-points.
Output Fade	ENTER	This displays detailed setup menu of output fade.
Multi-view	ENTER	This displays detailed setup menu of multi-view.
Aux/Composition	**Composition**, Aux	This sets which function to use, AUX or Composition.
Menu	Here you can make menu-related settings.	
Background	0–**4**–7	This adjust the transparency of the menu background.
Position	**Left**, Right	This switches the position of menu display.
Fader Calibration	ENTER	This calibrates the video fader.
RGB IN1 Calibration	ENTER	This calibrates the RGB IN 1. If you input white data to RGB IN 1 and execute "Auto", the red/green/blue reception levels are corrected automatically. Correction can also be done manually. When you long-press the [VALUE] knob, the red/green/blue values return to the corrected values.
Panel Lock	ENTER	This displays detailed setup menu of Panel Lock.
LED Dimmer	0–**7**	This adjusts the brightness of the top panel LEDs.
Factory Reset	Execute	This returns the unit to its factory defaults.
Version		This displays the version of the system program.

Processing → [VALUE]

Menu item	Value (Bold: default)	Explanation
Format	1080p, **2160p(UHD)**, 2160p(DCI), 1920x1080, 3840x2160, 4096x2160	This part select V-600UHD's output (system) format.
Scaling	You use the following items to make settings for scaling.	
Zoom	10–**100**–1000%	This adjusts the zoom ratio.
Correction H	-4000–**0**–+4000	This adjusts the horizontal zoom size.
V	-4000–**0**–+4000	This adjusts the vertical zoom size.
Position H	-4096–**0**–+4096	This adjusts the display position in the horizontal direction.
V	-2160–**0**–+2160	This adjusts the display position in the vertical direction.
Cropping	You use the following items to make settings for cropping.	
Orientation	**Upper Left**, Upper Right, Lower Left, Lower Right, Center	This sets the orientation of cropping.
Type	This sets the orientation of cropping.	
	Full	When the "Zoom" value is "100%", the entirety of the image is shown on the output screen.
	4:3, 5:4, 16:9	The image will be cropped according to the selected aspect ratio. If the Zoom value is 100%, the image will be letterboxed.
	Manual	The image will be cropped according to the "Manual Width" and "Manual Height" settings.
Manual Width	0–**512**–4096	This adjusts the horizontal size.
Manual Height	0–**512**–2160	This adjusts the vertical size.
Color Correction	You use the following items to perform color correction.	
Brightness	-64–**0**–+63	This adjusts the brightness.
Contrast	-64–**0**–+63	This adjusts the contrast.
Saturation	-64–**0**–+63	This adjusts the color saturation.
Red	-64–**0**–+63	This adjusts the red level.
Green	-64–**0**–+63	This adjusts the green level.
Blue	-64–**0**–+63	This adjusts the blue level.
Color Gamut	**Rec.709**, Rec.2020	This part select output (system) color gamut. This can be selected if Format is "1080p", "2160p (UHD)", or "2160p (DCI)".
Dynamic Range	**SDR**, HDR PQ, HDR HLG	This part select output (system) dynamic range. This can be selected if Format is "1080p", "2160p (UHD)", or "2160p (DCI)".

Cross-point Assign → [VALUE]

Menu item	Value (Bold: default)	Explanation
XPT1	**Ch.1**–8, Blank, None	This sets the input channel to be assigned to Cross-point [1]–[8] buttons.
XPT2	Ch.1–**2**–8, Blank, None	
XPT3	Ch.1–**3**–8, Blank, None	
XPT4	Ch.1–**4**–8, Blank, None	
XPT5	Ch.1–**5**–8, Blank, None	
XPT6	Ch.1–**6**–8, Blank, None	
XPT7	Ch.1–**7**–8, Blank, None	
XPT8	Ch.1–**8**, Blank, None	

Output Fade → [VALUE]

Menu item	Value (Bold: default)	Explanation
Mode	This displays the operation mode of the [OUTPUT FADE] button.	
	Fade to Background	This makes the final video output fade to a monochrome picture (background color).
	Output Freeze	This freezes the final output video (freeze function).
Time	0–**0.5**–10.0s	This sets the fade time.
Curve	**Linear**, Slow In, Cosine, Slow Out	This sets the fade curve for fade to background.
Color Setting	You use the following items to set the background color.	
Red	0–**16**–255	This sets the red level.
Green	0–**16**–255	This sets the green level.
Blue	0–**16**–255	This sets the blue level.

Multi-view → [VALUE]

Menu item	Value (Bold: default)	Explanation
Layout PGM	Upper Left, **Upper Right**, Lower Left, Lower Right	This sets the position of PGM section in multi-view monitor.
Label PGM	**PGM**	Pressing the [VALUE] knob displays the label entry screen. Here you can edit the label name shown in the multi-view monitor. To confirm the label name, select "OK" and press the [VALUE] knob.
PVW	**PVW**	
XPT1	**CH.1**	
XPT2	**CH.2**	
XPT3	**CH.3**	
XPT4	**CH.4**	
XPT5	**CH.5**	
XPT6	**CH.6**	
XPT7	**CH.7**	
XPT8	**CH.8**	
Label	Off, **On**	Turns label display on/off.
Background	0–**5**–7	Adjusts the transparency of the label background.
Position	**Lower**, Upper	Switches the displayed position of the label.
Font	Small, **Large**	Specifies the font size of the label.
Status Bar	**Off**, On	Turns the status display on/off.
Position	Lower, **Upper**	Switches the displayed position of the status.
ROI Border	This specifies whether the ROI border is shown.	
	Shared Ch	A border is shown only for the channel specified as "Shared Ch".
	All On	A border is shown for all channels.
	Off	A border is not shown.
Color	**White**, Red, Green, Blue, Cyan, Magenta, Yellow, Black	Specifies the color of the ROI border.

Panel Lock

Menu item	Value (Bold: default)	Explanation
		These specify whether panel lock is applied (On) or not applied (Off) for each individual button and knob.
All	**Off**, On	All buttons and knobs
CUT Switch	**Off**, On	[CUT] button
AUTO Switch	**Off**, On	[AUTO] button
COMPOSITION Switch	**Off**, On	[COMPOSITION] button
DSK Switch	**Off**, On	[DSK] button
OUTPUT FADE Switch	**Off**, On	[OUTPUT FADE] button
MENU Switch	**Off**, On	[MENU] button
Video Fader	**Off**, On	Video fader
PGM Switch 1–8	**Off**, On	PGM bus cross-point [1]–[8] buttons
PST Switch 1–8	**Off**, On	PST bus cross-point [1]–[8] buttons
MODE Block	**Off**, On	MODE [AUX/COMPOSITION] [DSK] button

Menu item	Value (Bold: default)	Explanation
AUX/COMPOSITION-DSK Block		
AUX Switch 1–8	**Off**, On	AUX cross-point [1]–[8] buttons
COMPOSITION Switch	**Off**, On	COMPOSITION source select cross-point [1]–[8] buttons
DSK Switch	**Off**, On	DSK source select cross-point [1]–[8] buttons
Camera ID Switch	**Off**, On	Camera ID select [1]–[8] buttons
Camera Preset Switch	**Off**, On	Camera preset select [1]–[8] buttons
WIPE PATTERN Block	**Off**, On	WIPE PATTERN [1] [2] [3] [MIX] buttons
PinP/ROI SCALING Block	**Off**, On	PinP/ROI SCALING block buttons and knobs
COMPOSITION Block	**Off**, On	COMPOSITION (PinP1, KEY1) block buttons and knobs
DSK Block	**Off**, On	DSK (PinP2, KEY2) block buttons and knobs
MEMORY Block	**Off**, On	MEMORY block buttons
USER1 Switch	**Off**, On	USER [1] button
USER2 Switch	**Off**, On	USER [2] button
AUDIO Block	**Off**, On	AUDIO block knobs

LAN/RS-232 Command Reference

V-600UHD support two types of remote-interface communication: LAN and RS-232.

Using the LAN port or RS-232 connector to send specific commands to the V-600UHD from a controlling device lets you operate the V-600UHD remotely.

LAN Interface

This uses the LAN port on the V-600UHD.

You use Telnet to operate the V-600UHD remotely over a LAN (TCP/IP protocol).

Communication standards

Port	LAN port
Protocol	TCP
Port number	8023

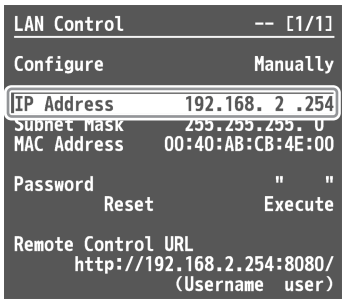
Setting the IP address of the V-600UHD

The method of setting the IP address depends on the Configure setting.

If the Configure setting is "Manually", use the following procedure to make the setting.

1. Select the [MENU] button ➡ "Remote Control" ➡ "LAN Control", and press the [VALUE] knob.

2. Select "IP Address", and use the [VALUE] knob to set the IP address.



➡ Details on menu items: see p. 50.

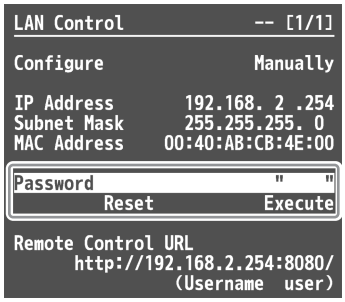
3. Press the [MENU] button to quit the menu.

Setting the necessary password for network connection

It's necessary to set the network password (four characters) when connecting a computer or other device on the same network to access the V-600UHD.

1. Select the [MENU] button ➡ "Remote Control" ➡ "LAN Control", and press the [VALUE] knob.

2. Select "Passowrd", and use the [VALUE] knob to set the network password.



3. Press the [MENU] button to quit the menu.

WebRCS Web Application

The WebRCS web application is remote control software that is built into this unit. It lets you remotely control this unit's operating panel and menu settings from the web browser of a computer or tablet on the network.

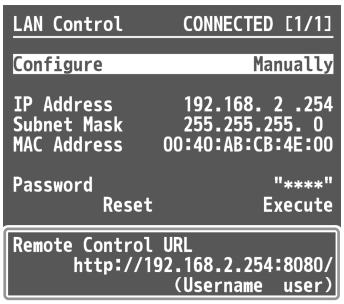
There is no need to install special software on your computer or tablet.

Starting up

1. Select the [MENU] button ➡ "Remote Control" ➡ "LAN Control", and press the [VALUE] knob.

The URL is shown in "Remote Control URL".

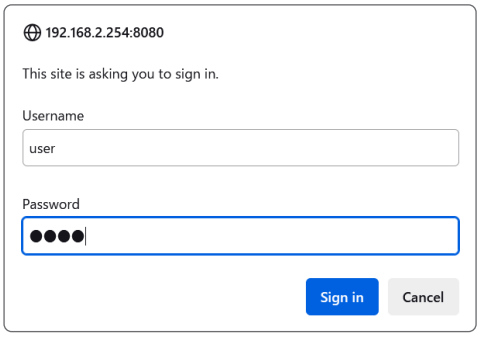
* The URL is not shown if a network connection is not established.



2. Start a web browser on your network-connected computer or tablet.

3. In the address field of your web browser, enter the URL that is shown in "Remote Control URL".

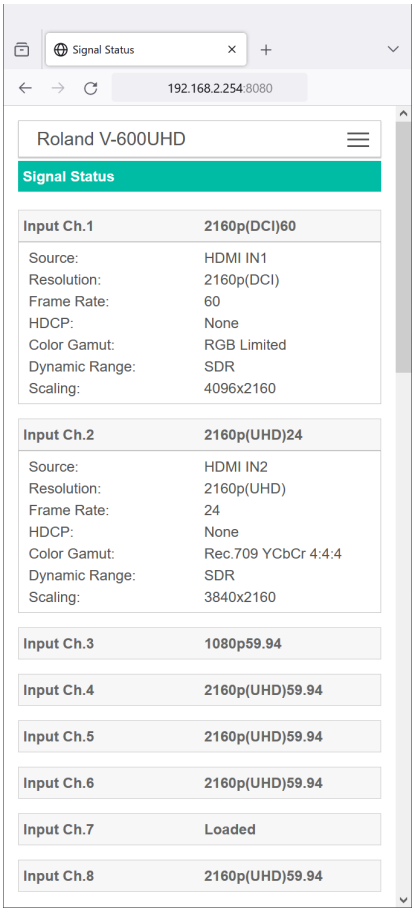
The sign in dialog box is shown.



4. Enter the "Username" and "Password" to sign in to the network.

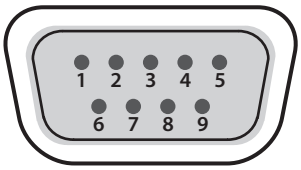
Username	user
Passowrk	Password that you set (p. 57)

This launches the WebRCS, and you can now remotely control the V-600UHD from your Web browser.



RS-232 Interface

RS-232 connector pin layout



DB-9 type (male)

Pin assignments

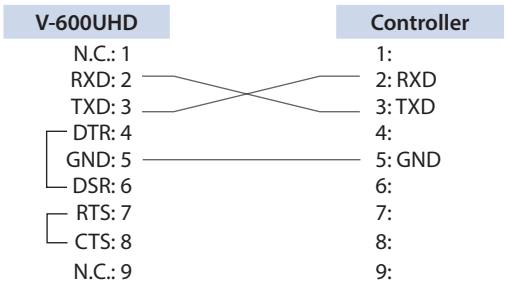
Pin No.	Signal
1	N.C.
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	N.C.

Communication standards

Communication method	Synchronous (asynchronous), full-duplex
Communication speed	9,600 bps/38,400 bps
Parity	none
Data length	8 bits
Stop bit	1 bit
Code set	ASCII
Flow control	XON/XOFF

Cable wiring diagram

Use an RS-232 crossover cable to connect the V-600UHD and the controller (an RS-232-compatible computer or other device).



(Crossover connection)

* The connections between 4 and 6 and between 7 and 8 are inside the V-600UHD.

Command Format

Commands are formatted using the configuration shown below. Commands are all in ASCII code.

stx	Command code	:	Parameter	,	Parameter	;

stx	ASCII code "02H" is a control code indicating the start of a command. "H" indicates that it is a hexadecimal value.
Command code	This specifies the command type (3 letters of the alphabet).
Parameter	This is appended to a command that requires one or more parameter. The command and the parameter portion are separated by a " : " (colon). When there are multiple parameters, they are each separated by " , " (comma) characters.
;	This is the code that the V-600UHD recognizes as the end of a command.

* The codes of stx (02H), ACK (06H), and XON (11H)/ XOFF (13H) are the control codes.

List of Commands

* When sending a sequence of commands to the V-600UHD from a controller, after each one, be sure to verify that an "ACK" response is returned before sending the next command. When controlling via LAN (TPC/IP protocol), omit "stx (02H)" from the sent command. When controlling via LAN (TPC/IP protocol), ACK is sent as "A (41H) C (43H) K (4BH) LF (0AH)" and omits "stx (02H)" from the response command.

Video-related operations

Item	Sent command	Response command	Parameter
Select PGM channel	stxPGM:a;	ACK	a: 0 (XPT 1) –7 (XPT 8)
Select PST channel	stxPST:a;	ACK	a: 0 (XPT 1) –7 (XPT 8)
Select channel to send to AUX bus	stxAUX:a;	ACK	a: 0 (XPT 1) –7 (XPT 8)
Select transition pattern	stxTRS:a;	ACK	a: 0 (WIPE 1), 1 (WIPE 2), 2 (WIPE 3), 3 (MIX)
Set video transition time	stxTIM:a;	ACK	a: 0 (0.0 sec) –40 (4.0 sec)
Press the [AUTO] button	stxATO;	ACK	
Press the [CUT] button	stxCUT;	ACK	
Select COMPOSITION type	stxCTY:a;	ACK	a: 0 (None), 1 (PinP1-1), 2 (PinP1-2), 3 (Key1), 4 (PinP1-1+Key1), 5 (PinP1-2+Key1)
Select DSK type	stxDTY:a;	ACK	a: 0 (None), 1 (PinP2-1), 2 (PinP2-2), 3 (DSK), 4 (PinP2-1+Key2), 5 (PinP2-2+Key2)
Press the [COMPOSITION] button	stxCMP;	ACK	
Press the [DSK] button	stxDSK;	ACK	
Set output fade on/off	stxFDE:a;	ACK	a: 0 (OFF), 1 (ON)
Set output fade time	stxFDT:a;	ACK	a: 0 (0.0 sec)–100 (10.0 sec)

Audio-related operations

Item	Sent command	Response command	Parameter
Adjust volume level of input audio	stxIAL:a,b;	ACK	a: 0 (HDMI IN1)–7 (TEST TONE) b: -801 (-INF dB), -800 (-80.0 dB)– 0 (0.0 dB)–100 (10.0 dB)
Adjust volume level for master out	stxOAL:a;	ACK	a: -801 (-INF dB), -800 (-80.0 dB)– 0 (0.0 dB)–100 (10.0 dB)
Adjust volume level for AUX-bus audio	stxOAX:a;	ACK	a: -801 (-INF dB), -800 (-80.0 dB)– 0 (0.0 dB)–100 (10.0 dB)

System-related operations

Item	Sent command	Response command	Parameter
Set HDCP on/off	stxHCP:a;	ACK	a: 0 (OFF), 1 (ON)
Call up memory	stxMEM:a;	ACK	a: 0 (1-1)–63 (8-8)
Acquire status of V-600UHD	stxACS;	ACK	
Version information	stxVER;	stxVER:V-600UHD,a;	a: Version * The version info is ASCII text strings.
Flow control	XON		
Flow control	XOFF		

Commands spontaneously sent from the V-600UHD

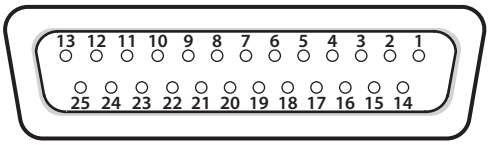
Item	Sent command	Response command	Parameter
Error detected		stxERR:a;	a: 0 (syntax error) The received command contains an error. 5 (out of range error) An argument of the received command is out of range.
Flow control		XON	
Flow control		XOFF	

Control Using the TALLY/GPI Connector

You can operate the V-600UHD remotely from an external device by inputting a GPI control signal via the TALLY/GPI connector.
And you can output a tally signal from the TALLY/GPI connector.

Specification of the TALLY/GPI Connector

Pin layout



DB-25 type (female)

Tally output

Trigger method	Open collector
Maximum input	12 V/200 mA

Control input

Trigger method	No-voltage contact (make-contact) triggering
Contact capacity	DC 24 V 0.1 A or higher
Input method	Photocoupler

Pin assignments

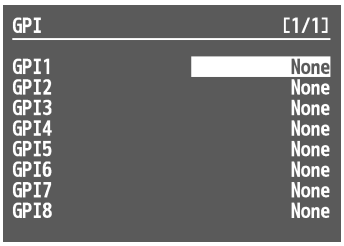
Pin No.	Function	Pin No.	Function
1	TALLY 1 PGM	14	TALLY 7 PST
2	TALLY 1 PST	15	TALLY 8 PGM
3	TALLY 2 PGM	16	TALLY 8 PST
4	TALLY 2 PST	17	GND
5	TALLY 3 PGM	18	GPI 1
6	TALLY 3 PST	19	GPI 2
7	TALLY 4 PGM	20	GPI 3
8	TALLY 4 PST	21	GPI 4
9	TALLY 5 PGM	22	GPI 5
10	TALLY 5 PST	23	GPI 6
11	TALLY 6 PGM	24	GPI 7
12	TALLY 6 PST	25	GPI 8
13	TALLY 7 PGM		

Inputting a Control Signal

To operate the V-600UHD remotely using control-signal input, you first assign the function to a GPI channel (1 through 8).

1. Select the [MENU] button ➡ "Remote Control" ➡ "GPI", and press the [VALUE] knob.

2. Use the [VALUE] knob to specify the function to assign to the GPI channel (1 through 8).



➡ Details on menu items: p. 52

3. Press the [MENU] button to quit the menu.

When a control signal is input from an external source, the assigned function is executed. The GPI trigger is fixed at the trailing edge (low: On).

Outputting a Tally Signal

A tally signal is output from the connector pin corresponding to the video channel being output, also including video composition and transition effects.

Remotely Controlling a Camera

You can connect up to six cameras via the LAN port and remotely control them from the V-600UHD.

You can control cameras made by JVC, Panasonic, PTZOptics, or Avonic, cameras that support VISCA over IP, and cameras made by Canon.

* Refer also to the owner's manual of your camera.

Network Settings on the Camera

In order to control a camera from the V-600UHD, you need to make network settings on the camera. You can register up to six cameras.

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control".**
2. **Select the menu item, and use the [VALUE] knob to make network settings.**

* If "Protocol" is "N/A", menu items following "Protocol" are not shown.

Menu item	Explanation
Camera ID	Selects the camera to be controlled.
Protocol	Specifies the camera's protocol. **N/A:** No protocol selected **JVC:** JVCKENWOOD camera **Panasonic:** Panasonic camera **Canon:** Canon camera **VISCA over IP:** Cameras that support VISCA over IP (such as cameras made by Sony) **PTZOptics:** PTZOptics camera **Avonic:** Avonic camera
IP Address	Input the camera's IP address.
Login Name	Press the [VALUE] knob to display the Login Name screen. Enter the log-in name needed to connect with the camera. This is shown if "Protocol" is "JVC" or "Canon".
Password	Press the [VALUE] knob to display the Password screen. Enter the password needed to connect with the camera. This is shown if "Protocol" is "JVC" or "Canon".

3. **Press the [VALUE] knob to apply the setting.**
4. **Press the [MENU] button to quit the menu.**

Controlling a JVC/Panasonic/PTZOptics/Avonic Camera or a Camera That Supports VISCA Over IP

Registering Camera Settings in a Preset

Up to eight sets of settings such as camera position and focus can be registered as presets.

A registered preset can be recalled when needed.

* Presets are saved in the camera itself.

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control" ➡ "Camera ID".**
2. **Use the [VALUE] knob to select the camera that you want to control, and press the [VALUE] knob to confirm.**
3. **Select a menu item, and use the [VALUE] knob to control the camera's setting.**
   Adjust the Pan, Tilt, Zoom, and Focus etc.
4. **Press the [VALUE] knob to apply the setting.**
5. **Select CAMERA PRESET "STORE".**
6. **Use the [VALUE] knob to select the preset (Preset 1–8) in which you want to register the settings, and press the [VALUE] knob.**
7. **7.Use the [VALUE] knob to select "Store", then press the [VALUE] knob.**
   The camera settings are registered in the preset.
8. **Press the [MENU] button to quit the menu.**

Recalling a Preset

Recalling from a Single Camera

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control" ➡ set Camera Preset "All Cameras Recall" to "Off".**
2. **Press and hold the MODE [DSK] button to make it light up in light blue.**
   The unit is in camera preset mode.
   The AUX/COMPOSITION - [DSK] buttons operate as preset select buttons.
3. **Using the [VALUE] knob, change the "CAMERA ID" to select the camera whose preset you want to recall.**
4. **Press the AUX/COMPOSITION - DSK [1]–[8] buttons for the preset number whose setting you want to recall.**
   The preset recalled from the camera.
   The selected button is lit light blue.
5. **To exit camera preset mode, press the MODE [DSK] button to make it light green or blue.**

Recalling from All Cameras Simultaneously

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control" ➡ set Camera Preset "All Cameras Recall" to "On".**
2. **Press and hold the MODE [DSK] button to make it light up in light blue.**
   The unit is in camera preset mode.
   The AUX/COMPOSITION - [DSK] buttons operate as preset select buttons.
3. **Press the AUX/COMPOSITION - DSK [1]–[8] buttons for the preset number whose setting you want to recall.**
   Presets are recalled from all cameras simultaneously.
   The selected button is lit magenta.
4. **To exit camera preset mode, press the MODE [DSK] button to make it light green or blue.**

Controlling a Canon Camera

Here's how to control the settings of the connected camera from the V-600UHD.

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control" ➡ "Camera ID".**
2. **Use the [VALUE] knob to select the camera that you want to control, and press the [VALUE] knob to confirm.**
3. **Select a menu item, and use the [VALUE] knob to control the camera's setting.**
   Adjust the Zoom and Focus etc.
4. **Press the [VALUE] knob to apply the setting.**
5. **Press the [MENU] button to quit the menu.**

Setting the Automatic ROI

The explanation here describes example settings for when a supported Canon camera is connected to HDMI IN1, and Automatic ROI is used to detect the person at the left in Input Ch. 1 and the person at the right in Input Ch. 2.

Connecting the V-600UHD and Cameras

Use a network cable to connect the V-600UHD's LAN port to the Ethernet port of the Canon camera.

Use an HDMI cable to connect the V-600UHD's HDMI IN 1 connector to the Canon camera's HDMI OUT connector.

Making Settings on the Canon Camera

In Network Settings, add the following Ethernet settings.

Menu item	Value
IP address assignment mothod	Manually
IP Address	192.168.2.101
Subnet Mask	255.255.255.0

In Network Settings, enable the "Browser Remote" function.

In Display Setup, set "HDMI Max Resolution" to "3840x2160".

In Camera Setup, set "Face Detection & Tracking" to "On".

Making Network Settings for the V-600UHD

1. **Select the [MENU] button ➡ "Remote Control" ➡ "LAN Control", and press the [VALUE] knob.**
2. **Set each item as follows.**

Menu item	Value
Configure	Manually
IP Address	192.168.2.254
Subnet Mask	255.255.255.0

3. **Press the [MENU] button to quit the menu.**
4. **Turn the [POWER] switch off to turn the power off, and then turn the [POWER] switch on to turn the power on.**
   After the unit restarts, the changed network settings take effect.

Making Camera Control Settings for the V-600UHD

1. **Select the [MENU] button ➡ "Remote Control" ➡ "Camera Control" ➡ "Camera ID".**
2. **Use the [VALUE] knob to select the "Camera 1", and press the [VALUE] knob to confirm.**
3. **Set each item as follows.**

Menu item	Value
Protocol	Canon
IP Address	192.168.2.101
Automatic ROI	Enabled
Input Ch	Ch.1

4. **Press the [MENU] button to quit the menu.**

Making Input Assign/Scaling Settings for the V-600UHD

1. Select the [MENU] button ➡ "Input" ➡ "Assign/Scaling", and press the [VALUE] knob.
2. Set each item as follows.

Ch.1

Menu item	Value
Source	HDMI/RGB IN1

Ch.1 Scaler

Menu item	Value
Automatic ROI	Enabled
Zoom	Close Up
Area	Left
Face Number	1
Adjust	0%
Lost Zoom Out	Off
Tracking	Slow
Look Ahead	Off
Offset H	0
Offset V	0
Hold Time	0.5s

Ch.2

Menu item	Value
Source	Shared Ch.1

Ch.2 Scaler

Menu item	Value
Automatic ROI	Enabled
Zoom	Close Up
Area	Right
Face Number	2
Adjust	0%
Lost Zoom Out	Off
Tracking	Slow
Look Ahead	Off
Offset H	0
Offset V	0
Hold Time	0.5s

3. Press the [MENU] button to quit the menu.

Appendix

Troubleshooting

If you suspect a malfunction, please check the following points. If this does not resolve the problem, contact a nearby Roland Service Center.

Problem	Items to check	Action	Page
Video-related problems			
Nothing is displayed on the multi-view monitor.	Does the connected monitor support a resolution and refresh rate of 1920 x 1080/60 Hz (progressive) and HDCP?	Nothing is displayed if the monitor is not compatible. If a monitor that does not support HDCP is connected, set the System menu "HDCP" setting to "Off".	–
No picture is input.	Could you be inputting copy-protected (HDCP) video?	If you want to input copy-protected (HDCP) video, set the System menu "HDCP" setting to "On".	p. 18
Analog RGB input is not output.	Is the video source at the HDMI/RGB IN1 set to RGB IN1?	In the factory-default state, HDMI/RGB IN1 is assigned to HDMI IN1 input. The assignment must be changed to RGB IN1 input.	p. 14
Video from the computer is corrupted.	When a rapidly moving video is input from a computer, out-of-sync motion, flicker, or other picture corruption may occur.	This is called "tearing", and does not indicate an equipment malfunction.	–
Nothing is output from the SDI OUT connector.	Has the setting for inputting HDCP signal been made?	When "HDCP" at the System menu is set to "On", video is output only from the HDMI OUT connectors. No video is output via the SDI OUT connectors.	p. 18
Can't use COMPOSITION compositing	Could the System menu item "Aux/Composition" be set to "Aux"?	If the System menu item "Aux/Composition" is set to "Aux", you can't use COMPOSITION. If you want to use COMPOSITION, set "Aux/Composition" to "Composition".	p. 53
Still-image cannot be imported.	Are you importing a still image whose format and resolution are supported by the V-600UHD?	Still images of unsupported formats or resolutions are not recognized. Prepare a still image whose format and resolution are supported by the V-600UHD.	p. 21
Audio-related Problems			
No audio is output. **Audio volume is low.**	Could the volume of the connected amp or speaker be lowered?	Adjust the volume appropriately.	–
	Could the audio be muted?	In the Audio menu, defeat muting.	p. 46
Other Problems			
Switching is not complete even when the video fader is moved.	Factors such as continued use and transportation can sometimes cause the video to fail to be switched completely.	Perform calibration of the video fader. Execute calibration, select "Fader Calibrate" in System menu.	p. 53
The panel indicators are too bright/ dark.	Has indicator brightness been adjusted appropriately?	Go to the System menu and use "LED Dimmer" to adjust indicator brightness.	p. 53
A USB flash drive cannot be read.	Has the USB flash drive been formatted on the V-600UHD?	The V-600UHD does not recognize unformatted USB flash drives. Operation has been tested for commonly available USB flash drives, but operation of all USB flash drives is not assured. Depending on the manufacturer and type of the USB flash drive, correct operation may not be possible.	p. 31
Can't operate buttons or knobs	Could panel lock be on?	If the multi-view monitor indicates "Operation Locked"., panel lock is on. Hold down the [MENU] button and long-press the [EXIT] button (three seconds or longer) to turn panel lock off.	–

Shortcut List

While a menu is displayed

These shortcuts access a specific menu.

Shortcut	Menu display
[MENU] + USER [1]	USER (USER 1 Assign selected) (*1)
[MENU] + USER [2]	USER (USER 2 Assign selected) (*1)
[MENU] + COMPOSITION PinP1 [1]	PinP1 Position 1 (Comp.)
[MENU] + COMPOSITION PinP1 [2]	PinP1 Position 2 (Comp.)
[MENU] + COMPOSITION KEY1 [KEY ON]	Key1 (Composition)
[MENU] + DSK PinP2 [1]	PinP2 Position 1 (DSK)
[MENU] + DSK PinP2 [2]	PinP2 Position 2 (DSK)
[MENU] + DSK KEY2 [KEY ON]	Key2 (DSK)
[MENU] + [OUTPUT FADE]	Output Fade (System)
[MENU] + PST [1]–[8]	**While the Signal Status menu is displayed** Shows the detailed settings menu for each input channel. **While the Input menu is displayed** Shows the detailed settings menu for the corresponding input connector. **While the Audio menu is displayed** Shows the detailed settings menu for the corresponding audio input. **While the Still Image/Capture menu item Still Image Information is displayed** Shows information for the corresponding still image (1–8). **While a menu other than the above is displayed** Shows the detailed settings menu for each input channel's Scaler.
[MENU] + MODE [AUX/COMPOSITION]	System (Aux/Composition selected)
[MENU] + WIPE PATTERN [1]	Wipe Preset 1 (Transition)
[MENU] + WIPE PATTERN [2]	Wipe Preset 2 (Transition)
[MENU] + WIPE PATTERN [3]	Wipe Preset 3 (Transition)
[MENU] + WIPE PATTERN [MIX]	Transition (Pattern Mix selected)
[MENU] + [COMPOSITION]	Composition
[MENU] + [DSK]	DSK

(*1) If the USER1 and USER2 settings are "Mute Group" and "Mute Group Setup" is shown, you can use [MENU] + USER [1] to move to USER1 Mute Setup, or use [MENU] + USER [2] to move to USER2 Mute Setup.

While a menu is not displayed

Shortcut	Function
[MENU] + PST [1]–[8] [MENU] + [EXIT] + PST [1]–[8]	Switches to the video source of the input channel corresponding to the PST [1]–[8] button number. The video source switches each time you hold down the [MENU] button and press the PST button.  * If you perform the same operation while holding down the [EXIT] button, you switch to the previous video source.
[EXIT] + USER [1] [EXIT] + USER [2]	If the USER1/USER2 settings are "STILL1 Image Select"/"STILL2 Image Select", hold down the [EXIT] button and press the USER [1]/USER [2] button to switch the still image selection to the previous one.

Main Specifications

Roland V-600UHD: 4K HDR MULTI-FORMAT VIDEO SWITCHER

■ Video

Video Processing	YCbCr 4:4:4, 10-bit		
Number of Video Channels	6 channels		
Supported Video Input Formats (*1)	HDMI	Video, CEA-861-F	720p: 1280 x 720p, 50/59.94/60 Hz 1080i: 1920 x 1080i, 50/59.94/60 Hz 1080p: 1920 x 1080p, 23.98/24/25/29.97/30/50/59.94/60/100/119.88/120 Hz 2160p (UHD): 3840 x 2160p, 23.98/24/25/29.97/30/50/59.94/60 Hz 2160p (DCI): 4096 x 2160p, 23.98/24/25/29.97/30/50/59.94/60 Hz
		PC, VESA DMT	1024x768 (XGA): 60 Hz 1280x1024 (SXGA): 60 Hz 1600x1200 (UXGA): 60 Hz
		PC, VESA CVT	1280x768 (WXGA): 60 Hz 1280x800 (WXGA): 60 Hz 1400x1050 (SXGA+): 60 Hz 1920x1200 (WUXGA): 60 Hz (Reduced blanking) 2560x1440 (WQHD): 60/120 Hz (Reduced blanking)
		CEA-861-F	1920x1080 (FHD): 30/60 Hz 3840x2160 (UHD): 24/30/60 Hz 4096x2160 (DCI): 24/30/60 Hz
	SDI	Video, SMPTE ST296	720p: 1280 x 720p, 50/59.94/60 Hz
		Video, SMPTE ST274	1080i: 1920 x 1080i, 50/59.94/60 Hz 1080p: 1920 x 1080p, 23.98/24/25/29.97/30/50/59.94/60 Hz
		Video, SMPTE ST2048-2	1080p (2K DCI): 2048 x 1080p, 23.98/24/25/29.97/30/47.95/48/50/59.94/60 Hz
		Video, SMPTE ST2036-1	2160p (UHD): 3840 x 2160p, 23.98/24/25/29.97/30/50/59.94/60 Hz
		Video, SMPTE ST2048-2	2160p (DCI): 4096 x 2160p, 23.98/24/25/29.97/30/47.95/48/50/59.94/60 Hz
	RGB	PC, VESA DMT	1600 x 1200 (UXGA): 60Hz
		PC, CEA-861-F	1920 x 1080 (FHD): 60Hz
Supported Video Output Formats (*1)	HDMI	Video, CEA-861-F	1080p: 1920 x 1080p, 50/59.94 Hz 2160p (UHD): 3840 x 2160p, 50/59.94 Hz 2160p (DCI): 4096 x 2160p, 50/59.94 Hz
		PC, CEA-861-F	1920x1080 (FHD): 50/59.94/60 Hz 1920x1080 (FHD): 23.98/24/25/29.97/30/50/59.94/60 Hz (*2) 3840x2160 (UHD): 23.98/24/25/29.97/30/50/59.94/60 Hz 4096x2160 (DCI): 23.98/24/25/29.97/30/50/59.94/60 Hz
	SDI	Video, SMPTE ST274	1080p: 1920 x 1080p, 50/59.94 Hz
		Video, SMPTE ST2036-1	2160p (UHD): 3840 x 2160p, 50/59.94 Hz
		Video, SMPTE ST2048-2	2160p (DCI): 4096 x 2160p, 50/59.94 Hz
	MULTI-VIEW	PC, CEA-861-F	1920x1080 (FHD): 60 Hz
Still Image	Windows Bitmap File (.bmp), Maximum 4096 x 2160 pixels, 24-bit color, uncompressed PNG File (.png), Maximum 4096 x 2160 pixels (Alpha channel of PNG file is not loaded)		
Video Effects	Transition		Mix, Cut, Wipe (9 patterns)
	Composition		PinP, Key (*3), PinP + Key (*3)
	DSK		PinP, Key (*3), PinP + Key (*3)
	Pattern Generator:		12 patterns, 4 motions
	Others		Output Fade, Output Freeze, Output Capture

(*1) Color Gamut: Rec.709, Rec.2020
Dynamic Range: SDR, HDR PQ (HDR10), HDR HLG

(*2) Available when the following settings are used.
- In System menu → Processing → Format: 3840x2160
- In Output menu → HDMI OUT 1–3 → Down Convert: Enabled

(*3) Luminance Key, Chroma Key

■ Audio

Audio Processing	24 bits/48 kHz	
Number of Audio Channels	44 channels	
Audio formats	SDI IN/OUT	Linear PCM, 24 bits/48 kHz, 16 ch (Conforms to SMPTE 299M)
	HDMI IN/OUT	Linear PCM, 24 bits/48 kHz, 2 ch
Audio Effects	Matrix mixer Delay (1 ms units, max 500 ms) Test tone output	

■ Common Section

Other Functions	Memory (64 settings) EDID Emulator (HDMI IN) Panel Lock function Remote Camera Control (Up to 6 units)

■ Connectors

Video Input Connectors	HDMI IN 1–4 connectors		HDMI type A x 4 (HDMI 2.0)
	SDI IN 5–6 connectors		BNC type x 2 (12G/6G/3G/HD-SDI, Conforms to SMPTE 2082, 2081, 424M (Level-A, Level-B), 292M)
	RGB IN 1 connector		HD DB-15 type (Analog RGB, Select HDMI IN 1 or RGB IN 1 using menu)
Video Output Connectors	HDMI OUT 1–3 connectors		HDMI type A x 3 (HDMI 2.0)
	SDI OUT connector		BNC type (12G/3G-SDI, Conforms to SMPTE 2082, 424M (Level-A, Level-B))
	MULTI-VIEW connector		HDMI type A (HDMI 1.4)
Audio Input Connectors	Analog	AUDIO IN L/R connectors (*4)	XLR-3-31 type (balanced)
	Digital	HDMI IN 1–4 connectors	HDMI type A x 4
		SDI IN 5–6 connectors	BNC type x 2
Audio Output Connectors	Analog	AUDIO OUT L/R connectors (*4)	XLR-3-32 type (balanced)
		PHONES jack	Stereo miniature phone type
	Digital	HDMI OUT 1–3 connectors	HDMI type A x 3
		SDI OUT connector	BNC type
		MULTI-VIEW connector	HDMI type A
Other Connectors	USB MEMORY port		USB A type (for USB flash drive)
	RS-232 connector		DB-9 type (Male) (for Remote Control)
	LAN port		RJ45 type, 100BASE-TX (for Remote Control)
	TALLY/GPI port		DB-25 type (Female) (Tally: 16, GPI: 8)

(*4) XLR type: 1 GND, 2 HOT, 3 COLD

■ Audio Input/Output Characteristics

Input Level	AUDIO IN L/R	+4 dBu (Maximum: +24 dBu)
Input Impedance	AUDIO IN L/R	15 kΩ
Output Level	AUDIO OUT L/R	+4 dBu (Maximum: +24 dBu)
	PHONES	92 mW + 92 mW (32 Ω)
Output Impedance	AUDIO OUT L/R	600 Ω
	PHONES	10 Ω

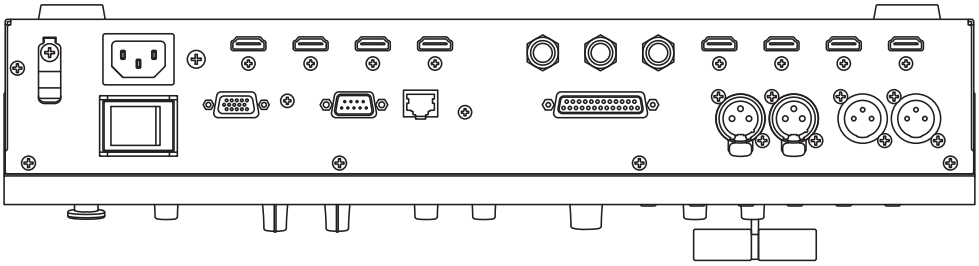
■ Others

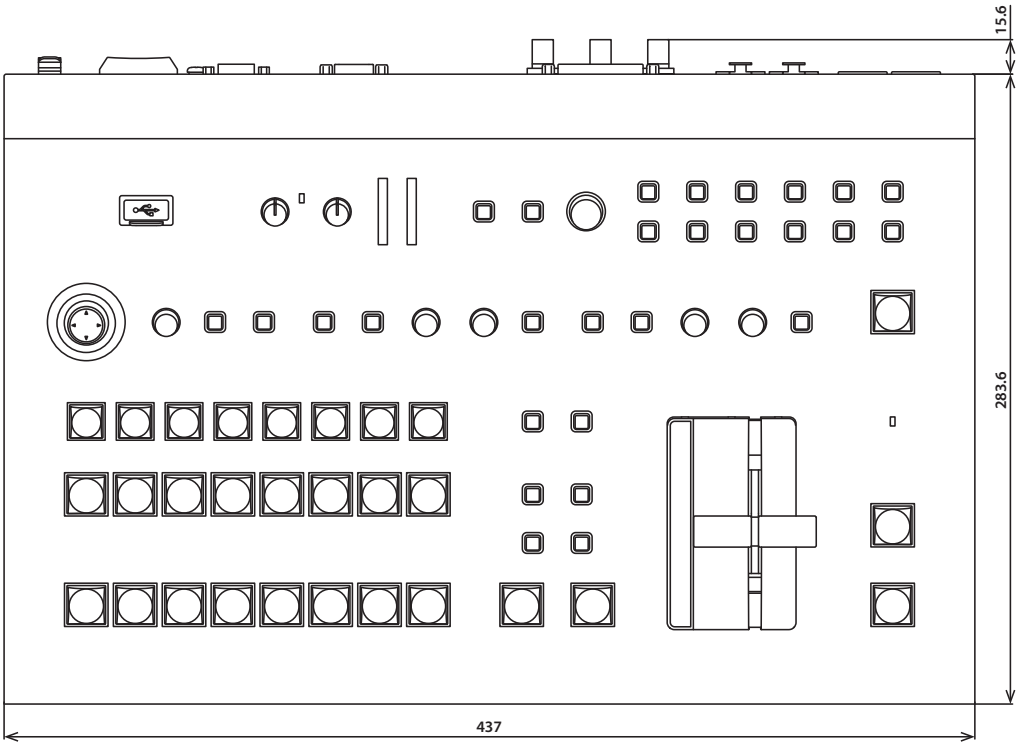
Power Consumption	80 W
Dimensions	482 (W) x 300 (D) x 116 (H) mm 19 (W) x 11-13/16 (D) x 4-5/8 (H) inches * When rack mount angles are fitted.
Weight	5.3 kg 11 lbs 11 oz * Including rack mount angles.
Operation Temperature	+5 to +40 degrees Celsius +41 to +104 degrees Fahrenheit
Accessories	Startup Guide Power cord Rack-mount angle x 2

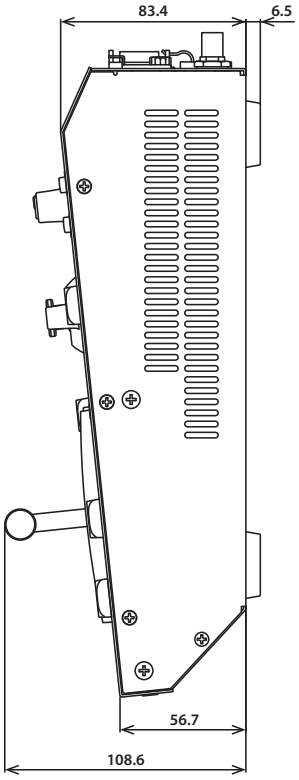
* 0 dBu = 0.775 Vrms
* This product is a Class A digital device under FCC part 15.

Dimensions

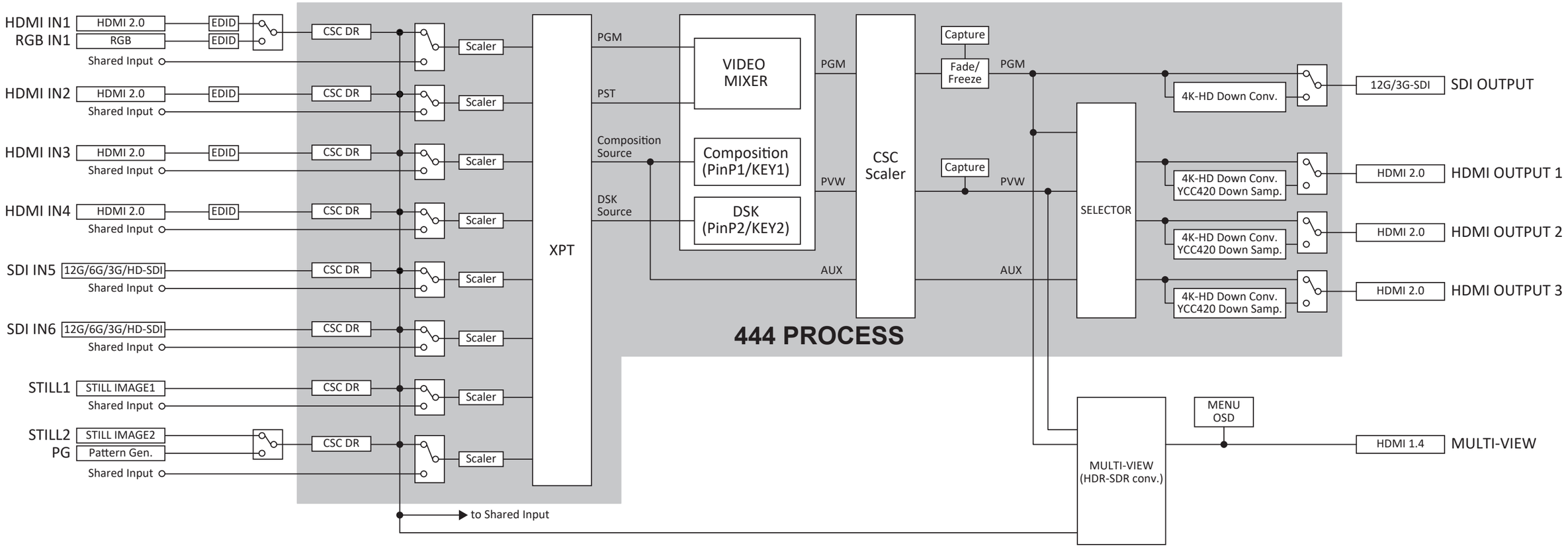
Unit: mm







VIDEO Block Diagram



AUDIO Block Diagram

