4K HDR MULTI-FORMAT VIDEO SWITCHER

V-600UHD

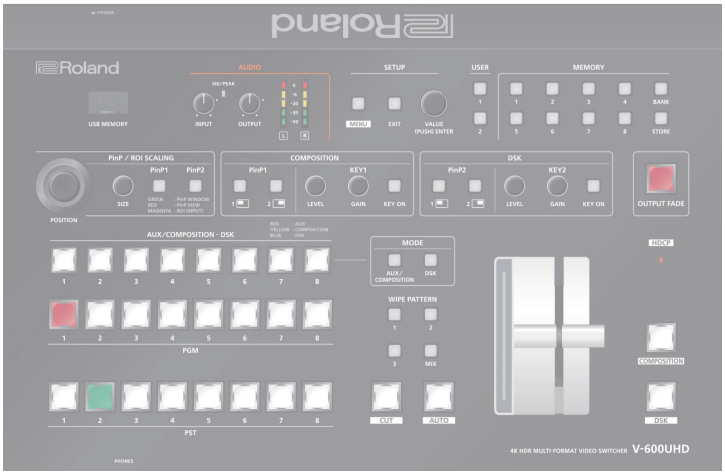
Reference Manual

Support for the following functions is planned via an update.

- SDI OUT 3G Level B output
- Output Freeze function
- Functions that use the RS-232 connector and LAN port
- SDI IN audio functionality

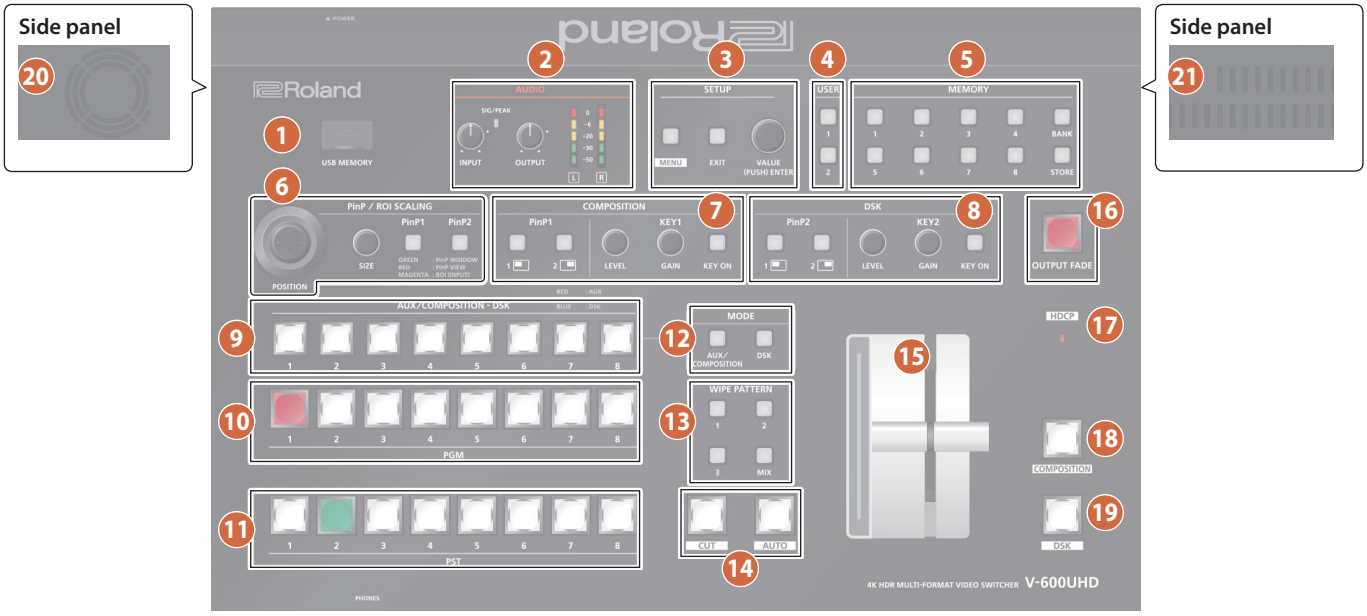
Recommended cables

When inputting or outputting 4K resolution video (2160p (UHD), 2160p (DCI), 3840x2160, 4096x2160), please use premium high-speed HDMI cables and SDI cables that support 12G SDI.



Panel Descriptions

Top Panel / Side Panel



Name	Explanation
1 USB MEMORY port	This is for connecting a USB flash drive. You use this when importing still images, or when saving or loading settings. * 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.
[SIZE] knob	Enlarges or reduces the size of the input video or PinP inset screen.
[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) **[PinP2] button** Lit green: PinP2 window Lit red: Video shown in the PinP2 inset screen Lit magenta: ROI (input video)
* 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.
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

Name	Explanation
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.
10 PGM	
Cross-point [1]–[8] buttons	Selects the final output video. The button of the channel for final output is lit red.
11 PST	
Cross-point [1]–[8] buttons	Selects the preset video (the video to output next). The button of the channel for preset video 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.

Name	Explanation
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 **[DSK] button** Lit blue: DSK
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. 40) is "Aux."

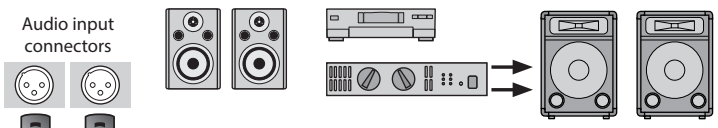
*2 Only AUX can be selected if the Aux/Composition (p. 40) setting is "Aux," and only COMPOSITION can be selected if the Aux/Composition setting is "Cpmposition."

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.

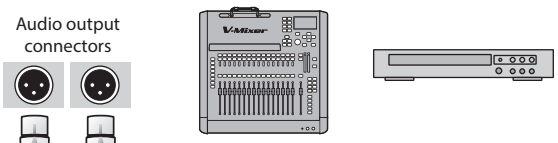
AUDIO OUT L, R connector

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



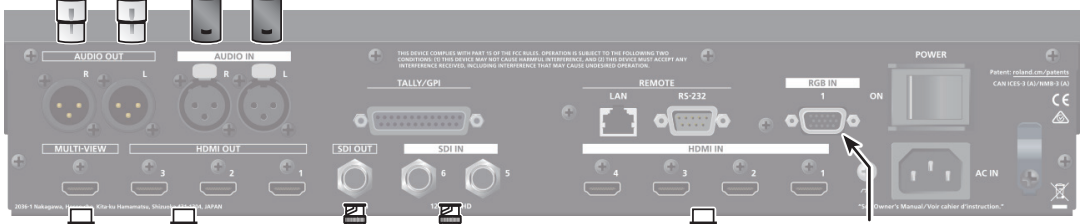
AUDIO IN L, R connector

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



Pin assignment of AUDIO IN connectors

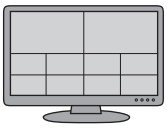
Pin assignment of AUDIO OUT connectors



MULTI-VIEW connector

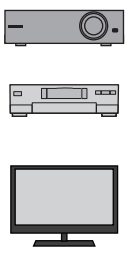
Outputs an input/output video list (final output, preview output, and input channels 1–8) and menus.
Connect a multi-view monitor here.

* The multi-view output is fixed at 1080p/Rec.709/SDR/HDCP 1.4.



HDMI input connector

HDMI OUT 1–3 connectors / SDI OUT connector

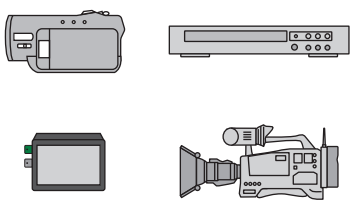


HDMI input connector

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.

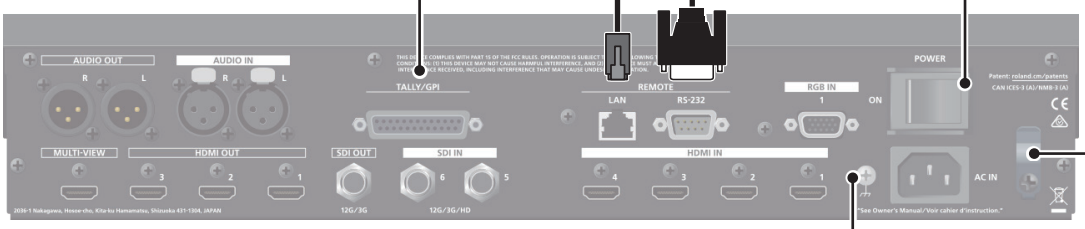
TALLY/GPI connector

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. 46.

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.

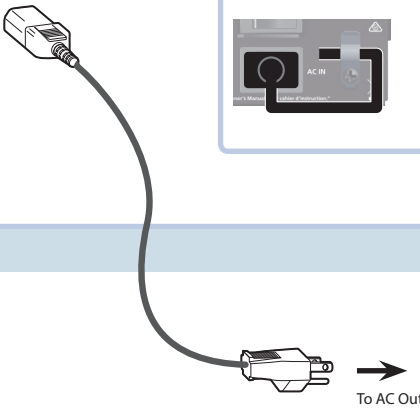
Ground terminal

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. 7).

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. 11) is not applied. * Changing the channel assignments at the cross-point (p. 24) 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" ➡ "Output" ➡ "MULTI-VIEW" ➡ "Label," then change the label name.

Basic Operations

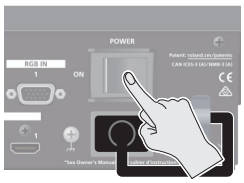
Turning the Power On/Off

* 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

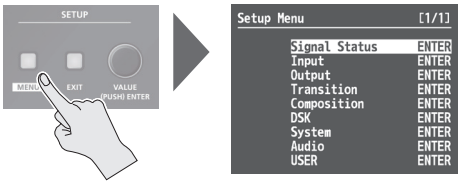
- Do not turn off the power while a message of "Executing..." is shown on menu display area of the multi-view monitor. Your settings may not be saved properly.
- If you need to turn off the power completely, first turn off the V-600UHD, then unplug the power cord from the power outlet.

Using the Menus

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

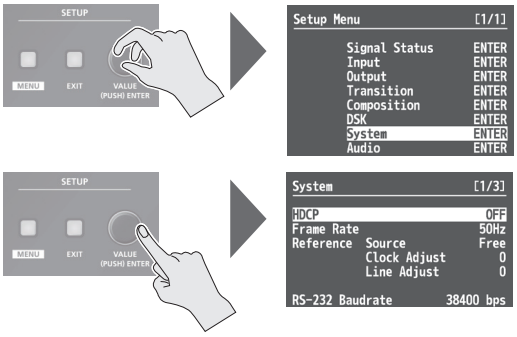
* Menus are shown only on the multi-view monitor connected to the MULTI-VIEW connector (p. 6).

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.



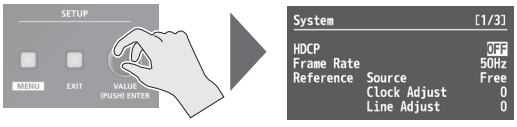
The menu for the selected category is displayed.

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.

List of Supported Formats

Input Formats

Input connector	Supported formats		Frame rate
HDMI IN	Video	CEA-861-F	1080/59.94i
			1080/50i
			1080/59.94p
			1080/50p
			2160/59.94p (UHD 4K)
			2160/50p (UHD 4K)
			2160/59.94p (DCI 4K)
			2160/50p (DCI 4K)
	PC	VESA DMT	1600 x 1200/60 Hz (UXGA)
		CEA-861-F	1920 x 1080/60 Hz (FHD)
		VESA CVT	1920 x 1200/60 Hz (WUXGA, Reduced blanking)
		CEA-861-F	3840 x 2160/30 Hz (UHD 4K)
			3840 x 2160/60 Hz (UHD 4K)
			4096 x 2160/30 Hz (DCI 4K)
			4096 x 2160/60 Hz (DCI 4K)
RGB IN	PC	VESA DMT	1600 x 1200/60 Hz (UXGA)
		CEA-861-F	1920 x 1080/60 Hz (FHD)
SDI IN	Video	SMPTE ST274	1080/59.94i
			1080/50i
			1080/59.94p
			1080/50p
		SMPTE ST2036	2160/59.94p (UHD 4K)
			2160/50p (UHD 4K)
		SMPTE ST2048	2160/59.94p (DCI 4K)
			2160/50p (DCI 4K)

Output Formats

Output connector	Supported formats	Output format, Flame rate		
		Video, When set at "59.94 Hz"	Video, When set at "50 Hz"	When set at PC format
HDMI OUT	CEA-861-F	1080/59.94p	1080/50p	1920 x 1080/60 Hz (FHD)
		2160/59.94p (UHD 4K)	2160/50p (UHD 4K)	3840 x 2160/60 Hz (UHD 4K)
		2160/59.94p (DCI 4K)	2160/50p (DCI 4K)	4096 x 2160/60 Hz (DCI 4K)
MULTI-VIEW	CEA-861-F	1080/60p		
SDI OUT	SMPTE ST274	1080/59.94p	1080/50p	N/A
	SMPTE ST2036	2160/59.94p (UHD 4K)	2160/50p (UHD 4K)	
	SMPTE ST2048	2160/59.94p (DCI 4K)	2160/50p (DCI 4K)	

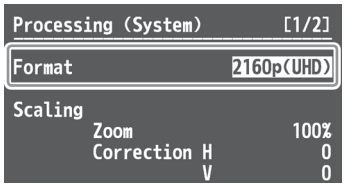
Video Input/Output Settings

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," and use the [VALUE] knob to set the output format.



➡ Details on menu items: see p. 41.

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," and use the [VALUE] knob to specify the video source to assign to the channel.

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.

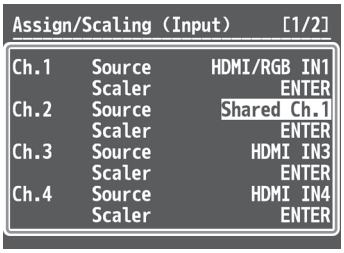
* The following settings cannot be individually specified for shared video sources.

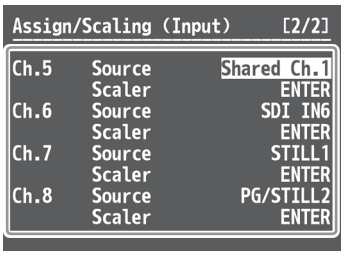
- Color Correction
- Color Gamut
- Dynamic Range

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.

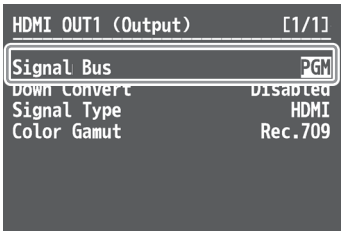
4. Press the [MENU] button to quit the menu.

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.



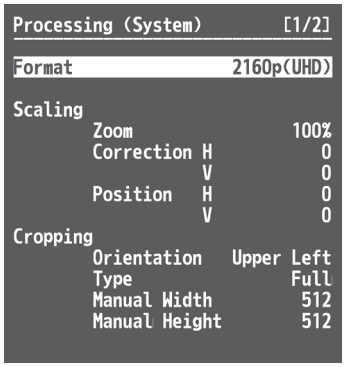
Menu item	Signal Bus setting
HDMI OUT 1	PGM, PVW, AUX
HDMI OUT 2	PGM, PVW, AUX
HDMI OUT 3	PGM, PVW, AUX
SDI OUT	PGM fixed
MULTI-VIEW	No bus selection

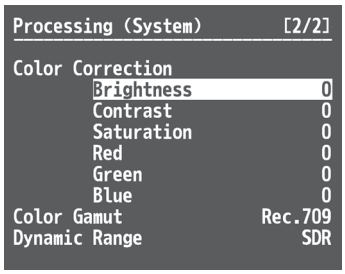
3. Press the [MENU] button to quit the menu.

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.





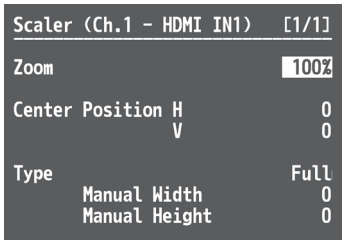
➡ Details on menu items: see p. 41.

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. 28.**

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

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.

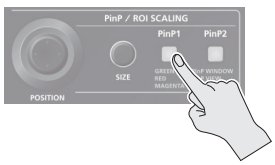
You can operate the [POSITION] stick and the [SIZE] knob to adjust the position and size of the video to be extracted.

MEMO

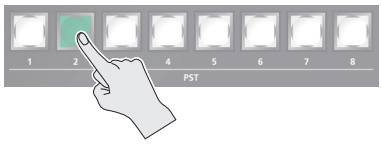
By making settings to share video sources between channels 1–8 (p. 9), you can extract up to eight regions from a single input video.

1. **Press the [PinP1] button or the [PinP2] button several times to make both buttons light magenta.**

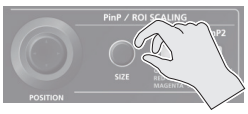
ROI (INPUT) is selected.



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



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.

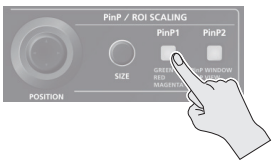
* In the section that is specified as Shared Input, a frame is shown around the region that is being magnified by ROI.

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.**



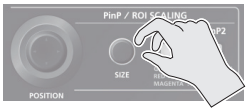
[PinP1] button

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.

Inputting Copyright-protected (HDCP) Video

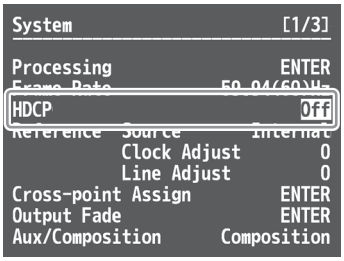
To input copyright-protected (HDCP) video from a Blu-ray Disc player or the like, follow the steps described below to change the "HDCP" setting.

* 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 set this to "On."

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.

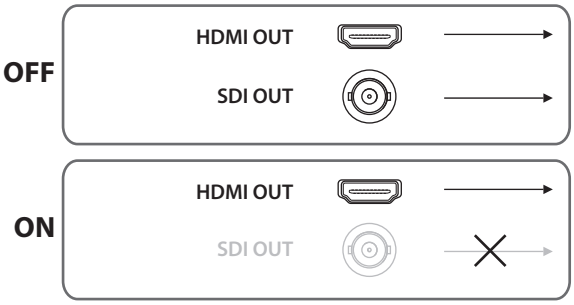
3. Press the [MENU] button to quit the menu.

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.



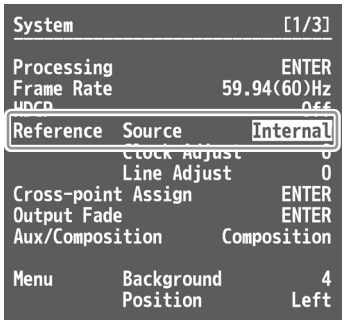
Operation of the HDCP indicator

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	—

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 specify the reference clock.

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.

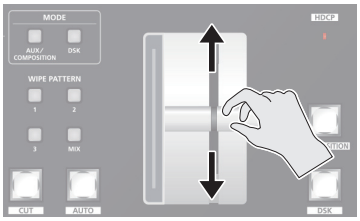
Switching the Video

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

Switching Using the Video Fader

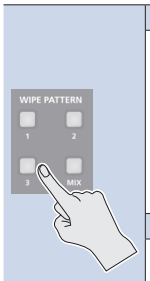
The video in the PGM section always becomes the final output. You use the PST section to select and check the preset video (the video to output next), then switch it.

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

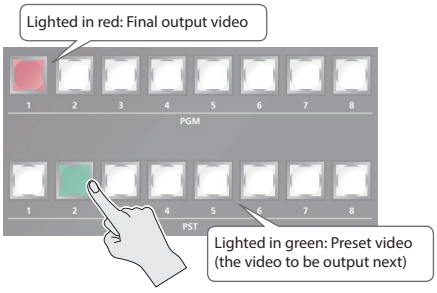
In this transition, the original video is broken into by the next video.

* You can change the wipe pattern and wipe direction (p. 31).

[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.

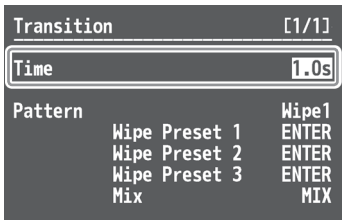
MEMO

Directly selecting the video channel 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

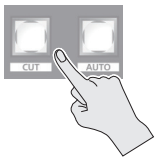
You can use the [AUTO] or [CUT] button to switch video automatically, without using the video fader.

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 take a still image imported from a USB flash drive and assign it to channel 7 or 8, then output it in the same way as video.

NOTE

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

Importing a Still Image from a USB Flash Drive

This imports into the unit a still image saved on a USB flash drive.

Supported still-image formats and resolutions

Still-image file formats that can be imported are as follows.

Format	Bitmap (.bmp), 24-bit, uncompressed
Resolution	Maximum 4096×2160 pixels
File name	8 single-byte alphanumeric characters * Be sure to append the ".bmp" file extension.

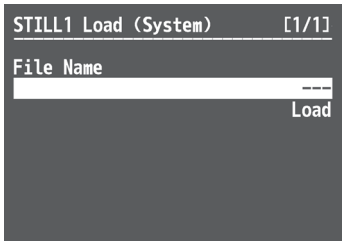
Importing a still image

* When you're using a USB flash drive for the first time, be sure to format it on the V-600UHD (p. 24).

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 ➡ "System" ➡ USB Memory/Still Image "STILL1 Load" or "STILL2 Load," and press the [VALUE] knob.



4. Use the [VALUE] knob to select the still image file you want to import.

5. Select "Load," and press the [ENTER] button.

The message "Are you sure?" appears.

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

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

The still image is imported into the unit.

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

Assigning a Still Image to Channel 7 or 8

This takes a still image imported from a USB flash drive and assigns it to channel 7 or 8.

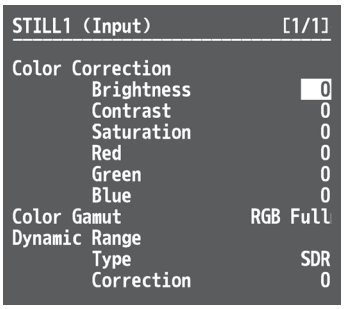
1. Channel 7

Select the [MENU] button ➡ "System" ➡ "HDCP," 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 a menu item, then use the [VALUE] knob to make the detailed settings.



➡ Details on menu items: see p. 29.

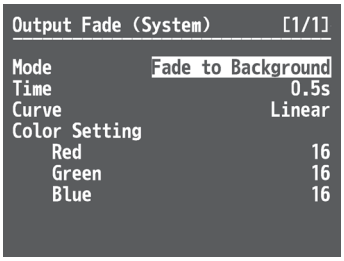
3. Press the [MENU] button to quit the menu.

Applying a Fade to the Final Output Video (Output Fade)

This applies a fade to final video output. This lets you make the final output fade to a monochrome picture (background color) or still image at times when you want to suppress video output, such as during intervals in a band performance. You can also stop (freeze) the final video output.

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

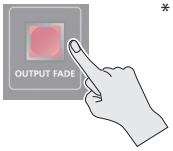
2. Select a menu item, then use the [VALUE] knob to make the detailed settings.



➡ Details on menu items: see p. 40.

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

Making the Final Video Output Fade Out/Fade In



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

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

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

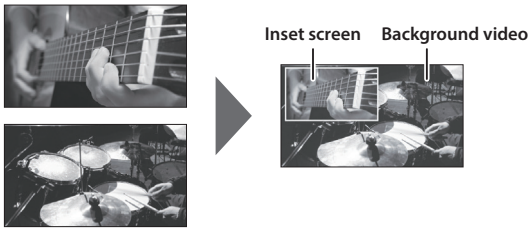
2. To perform a fade-in, press the [OUTPUT FADE] button again.

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

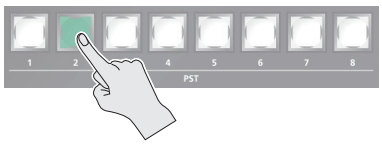
Video Composition Operations

Compositing Using Picture-in-Picture (PinP)

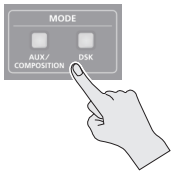
This composites video in an inset screen onto a different background video.



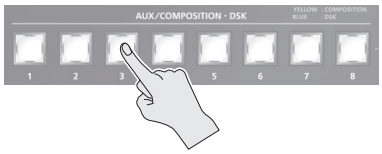
1. Press a cross-point [1]–[8] button in the PGM section to select the video you want to make the background video.



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



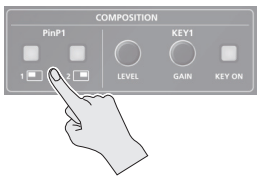
3. Press a cross-point [1]–[8] button in the AUX/COMPOSITION - DSK section to select the video you want to make the inset screen.



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

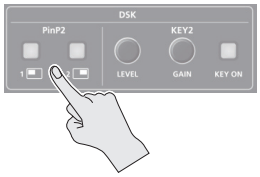
If you pressed the [AUX/COMPOSITION] button

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



If you pressed the [DSK] button

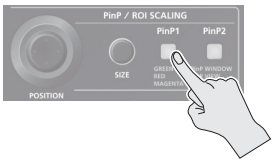
Press the DSK PinP2 [1] or [2] button.



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. 32.**

PinP2 [1], [2] buttons

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

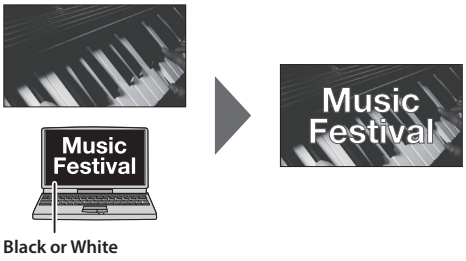
➡ **Details on menu items: see p. 34.**

Compositing Using Luminance Key/Chroma Key

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

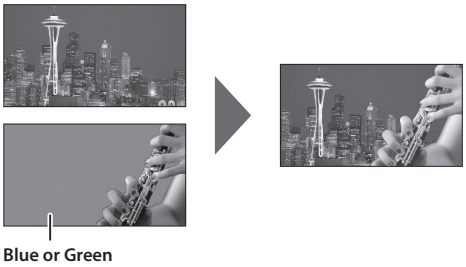
Luminance Key

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



Chroma Key

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



Setting the key type and extraction color

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

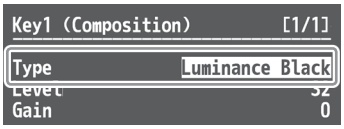
1. COMPOSITION

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.

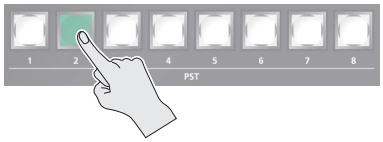


Value	Explanation
Luminance White	This uses a brightness threshold to make white transparent.
Luminance Black	This uses a brightness threshold to make black transparent.
Chroma Blue	This uses a color threshold to make blue transparent.
Chroma Green	This uses a color threshold to make green transparent.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

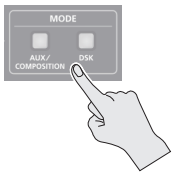
3. Press the [MENU] button to quit the menu.

Compositing using key

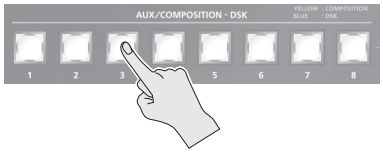
1. Press a cross-point [1]–[8] button in the PGM section to select the video you want to make the inset screen.



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



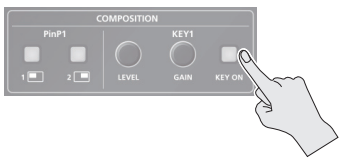
3. Press a cross-point [1]–[8] button in the AUX/ COMPOSITION - DSK section to select the video to overlay.



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.

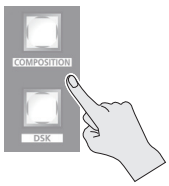
KEY [LEVEL] knob

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. 17) 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.

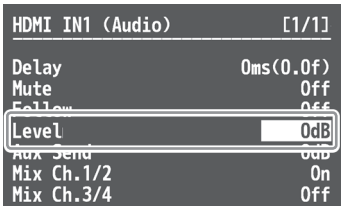
Menu item		Explanation
Hue	Center	This adjusts the center position for hue of key color.
	Width	This adjusts the hue width (range) of key color.
Saturation	Center	This adjusts the center position for saturation of key color.
	Width	This adjusts the saturation width of key color.

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.

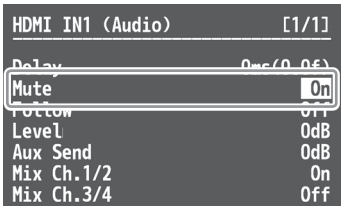


3. Press the [MENU] button to quit the menu.

Muting the Input/Output Audio

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

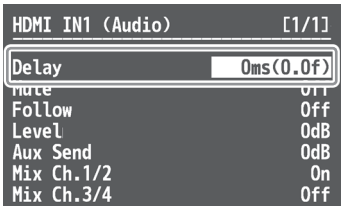
1. Use [MENU] button ➡ "Audio" ➡ "Input"/"Output" to select the object for muting, and press the [VALUE] knob.
2. Select "Mute," and use the [VALUE] knob to set this to "On."



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.

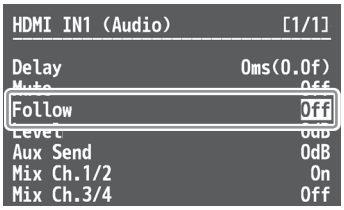


3. Press the [MENU] button to quit the menu.

Interlinking Audio Output to Video Switching (Audio Follow)

You can associate audio with a video switch so that when the video is switched, the specified audio alone is output automatically, and other audio is automatically muted.

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.

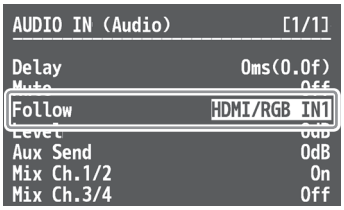


Value	Explanation
On	This enables the Audio Follow feature. Muting is performed automatically when video on another channel is output.
Off	This disables the Audio Follow feature.

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

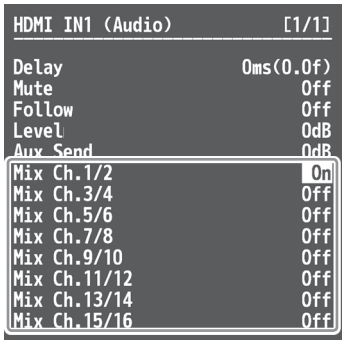
The SDI connectors of the V-600UHD support 16 channels of embedded audio. The HDMI connectors support two channels of embedded audio.
The MAIN bus of the V-600UHD's audio mixer has a 16-channel structure.

Selecting the audio input channels to mix

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

* You cannot specify the MAIN bus channels into which SDI IN audio will be mixed.

1. **Use [MENU] button ➡ "Audio" ➡ "Input" to select HDMI IN 1–4 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.**



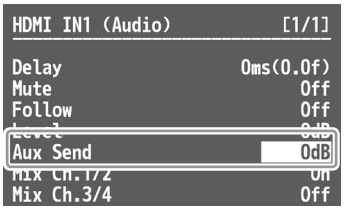
3. **Press the [MENU] button to quit the menu.**

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 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.**



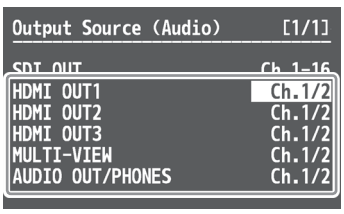
3. **Press the [MENU] button to quit the menu.**

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.**

Other Operations

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

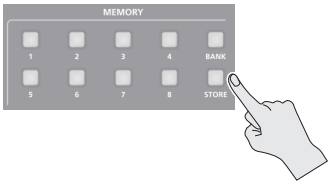
When you use the Last Memory function, the current settings are automatically saved in memory 1 of bank 1 when you exit a menu or recall a memory. To use the Last Memory function, go to the System menu and set "Auto Memory" to "ON."

Saving a memory

NOTE

- When the System menu item "Memory Protect" is set to "On," settings cannot be saved to a memory.
- The following settings are not saved in memory.
  - The state of the operating panel's [OUTPUT FADE] button
  - The items of the Output, USER, and System menus

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



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

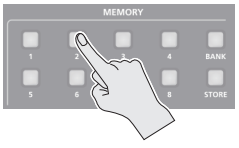
The bank changes.

Button illumination color when selecting banks

Lit green	Bank in which current memory is saved
Blinking green	Currently selected bank
Lit blue	Bank in which a memory is saved
Unlit	Bank in which no memory is saved

3. Press the [BANK] button to make the button go dark.

4. 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
Blinking blue	Memory in which current settings are saved (current memory has not been edited)
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

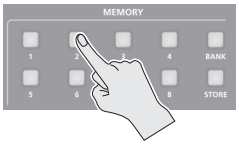
If you don't want to change the save-destination bank, steps 2–3 are not required.

Recalling a memory

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

2. Press the [BANK] button to make the button go dark.

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



MEMO

If you don't want to change the recall-source bank, steps 1–2 are not required.

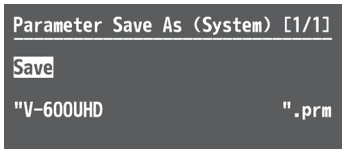
Saving the Unit's Settings to File on a USB Flash Drive

You can group together the values in the unit's memories (1-1 through 8-8) into a single file 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.

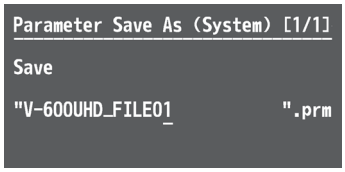
* When you're using a USB flash drive for the first time, be sure to format it on the V-600UHD (p. 24).
* Depending on the USB flash drive, recognition of the flash drive might take some time.

Choose save new

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



2. Specify the file name.



The extension of the file name is ".prm."

3. 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.

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

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

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

MEMO

Still images (p. 15) are not saved in the file (*.prm).

Saving by Overwriting

1. Select the [MENU] button ➡ "System" ➡ select the USB Memory "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.

Recalling

This recalls the settings in the unit's memories (1-1 through 8-8) that have been saved on a USB flash drive. Recalling settings overwrites any values in the unit's memories.

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

2. Select the file that you want to recall, 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 recalled, and the values in the unit's memories are overwritten.

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

Deleting a file on a USB flash drive

1. Select the [MENU] button ➡ "System" ➡ select the USB Memory "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 ➡ "System" ➡ for 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.

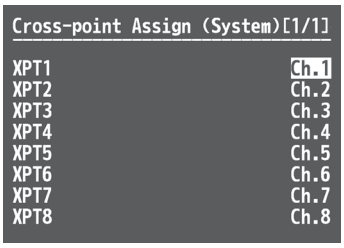
3. Press the [MENU] button to quit the menu.

Changing Cross-point Assignments

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

You can also disable operation of a cross-point button by assigning no channel to the button.

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.

* To assign no channel, specify "None."

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

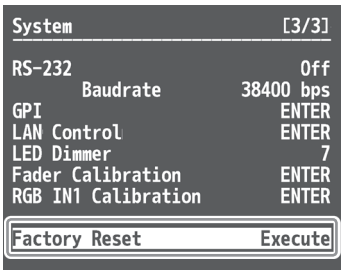
Returning Settings to the Factory-default State (Factory Reset)

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. 22), and still images saved in the unit to be lost.

1. Select the [MENU] button ➡ "System" ➡ "Factoy 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.

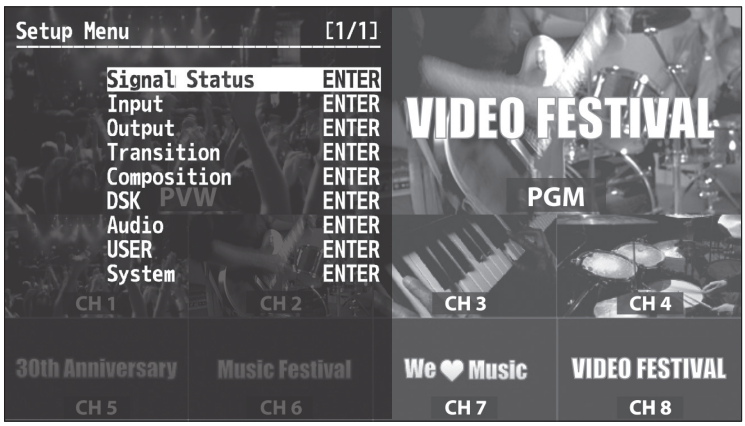
A factory reset is executed.

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.
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.
- Holding down the [VALUE] knob and pressing the [EXIT] button returns the currently selected setting to its default value.

Signal Status

Menu item	Displayed value	Explanation
Input Ch.1–8	This displayes input status. Pressing the [VALUE] knob displays the detailed information.	
	■ Ch.1–4	
	No Signal	No signal
	RESOLUTION	Video Format: 1080iRATE, 1080pRATE, 2160p(UHD)RATE, 2160p(DCI)RATE, Unsupported PC Format: WxH@RATE, Unsupported RATE is displayed only in integer part (example: 59.94 → 59).
	Shared Ch.1–8	This enables sharing of the video source on the other channel.
	■ Ch.5–8	
	No Signal	No signal
	RESOLUTION	Video Format: 1080iRATE, 1080pRATE, 2160p(UHD)RATE, 2160p(DCI)RATE, Unsupported RATE is displayed only in integer part (example: 59.94 → 59).
	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 RATE is displayed only in integer part (example: 59.94 → 59).

Input Ch.1–Ch.8 → [VALUE]

Menu item	Displayed value		Explanation
Source	Input Ch.1	HDMI IN1, RGB IN1, Shared Ch.1–8	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.1–8	
Resolution	Input Ch.1–4	1024x768–4096x2160, 1080i, 1080p, 2160p(UHD), 2160p(DCI), Unsupported, No Signal	This part displays the current input format.
	Input Ch.5–6	1080i, 1080p, 2160p(UHD), 2160p(DCI), Unsupported, No Signal	
	Input Ch.7–8	1024x768–4096x2160, No Image	
Frame Rate	30, 50, 59.94, 60, -		
HDCP	1.x, 2.2, None, -		
Color Gamut	Input Ch.1–6	Rec.709, Rec.2020, RGB Full, RGB Limited, -	
	Input Ch.7–8	SDR	
Dynamic Range	Input Ch.1–6	SDR, HDR PQ, HDR HLG, -	
	Input Ch.7–8	RGB Full, RGB Limited	

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	1080p, 2160p(UHD), 2160p(DCI), 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, Enabled	
■ HDMI2		
BUS	PGM, PVW, AUX	
Down Convert	Disabled, Enabled	
■ HDMI3		
BUS	PGM, PVW, AUX	
Down Convert	Disabled, Enabled	
■ SDI		
BUS	PGM, -	
Down Convert	Disabled, Enabled	

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.

(*1) Available when Type is set to "Manual."

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.
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.
Dynamic Range		
Type	SDR, HDR PQ, HDR HLG, **Auto**	This part select dynamic range of Input Ch.1–6. * Input Ch.7–Ch.8 are fixed at SDR.
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.
Frequency	-8–**0**–+8	This adjusts the sampling frequency.
Phase	-8–**0**–+8	This adjusts the sampling phase.
Gain	-20–**0**–+20	This adjusts the sampling gain.
Position H	-16–**0**–+16	This adjusts the horizontal start position of sampling.
V	-16–**0**–+16	This adjusts the vertical start position of sampling.
Pattern (*1)	**Colorbar75%**, Colorbar100%, Ramp, Step, Hatch, Frame, Circle, Red, Green, Blue, White, Black	Specifies the test pattern.
Motion (*1)	**Disabled**, Slow, Medium, Fast	Specifies the scroll speed of the test pattern.

(*1) 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**, Enabled	This specifies whether down convert from 4K to FHD is enabled or disabled. * Available when Output Format is set to "2160p(UHD)" or "3840x2160."
Signal Type	**HDMI**, DVI-D	This sets the output mode for HDMI output.
Color Gamut	Rec.709, Rec.2020, RGB Full, RGB Limited	This part select color gamut or color spaces

(*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 Output Format is set to "2160p(UHD)."
3G-SDI Mapping	**Level A**	This displays the mapping structure for 3G-SDI output.

MULTI-VIEW → [VALUE]

Menu item	Value (Bold: default)	Explanation
Layout **PGM**	Upper Left, **Upper Right**, Lower Left, Lower Right	This switches the position of PGM in Multi-View display.
Label	Pressing the [VALUE] knob displays the following label entry screen.	
PGM	**PGM**	To edit the label name, move the cursor to the label name and press the [VALUE] knob. To confirm the label name, move the cursor to "Execute" and press the [VALUE] knob. * If you do not change the PGM setting of Layout, the changed label name may not be reflected.
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**	

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.
Corrction	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.
Hue 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.
Saturation 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, Key2, 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.
Corrction	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–**0**–+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.
Hue 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.
Saturation 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.
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.
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 sned level to MAIN bus.
Aux Send	-INF–**0**–+10dB	This adjusts the sned 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.
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	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.
Level	-INF–**0**–+10dB	This adjusts the volume level for MAIN bus.
Aux		
Delay	**0**–500ms	This adjusts the delay time for AUX bus.
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 part select embedded audio bus via SDI out.
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 part select embedded audio bus via HDMI out1.
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 part select embedded audio bus via HDMI out2.
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 part select embedded audio bus via HDMI out3.
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 part select embedded audio bus via Multi-viw port.
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 part select audio bus via XLR audio out / Phones.

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.	
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.	
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.

System

Menu item	Value (Bold: default)	Explanation
Processing	ENTER	This displays detailed setup menu of processing.
Frame Rate	50, **59.94Hz**	This sets the frame rate.
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.
Aux/Composition	**Composition**, Aux	This sets which function to use, AUX or Composition.
Memory Protect	**Off**, On	When this is set to "On," the memories are protected, and settings cannot be saved to them.
Auto Memory	Off, **On**	Setting this to "On" enables last memory feature.
USB Memory	You use the following items to work with a USB flash drive.	
Parameter Load	ENTER	This displays the screen to select a file to load.
Save	ENTER	This displays the screen to select a file to save.
Save As	ENTER	This displays the screen to edit the file name.
Delete	ENTER	This displays the screen to select a file to delete.
Still Image STILL1 Load	ENTER	This displays the screen to select a file to load for still image 1.
STILL2 Load	ENTER	This displays the screen to select a file to load for still image 2.
Format	Execute	This executes formatting of a connected USB flash drive.
RS-232	**Off**, On	This turns valid/invalid of remote control from an external RS-232 device.
Baudrate	9600, **38400** bps	This sets the communication speed (bps) of the RS-232 connector.
GPI	ENTER	This displays detailed setup menu of GPI.
LAN Control	ENTER	This displays detailed setup menu of LAN control.
LED Dimmer	0–**7**	This adjusts the brightness of the top panel LEDs.
Fader Calibration	ENTER	This calibrates the video fader.
RGB IN1 Calibration	ENTER	This calibrates the RGB IN 1.
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.
Dynamic Range	**SDR**, HDR PQ, HDR HLG	This part select output (system) dynamic range.

Cross-point Assign → [VALUE]

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

GPI → [VALUE]

Menu item	Value (Bold: default)	Explanation
GPI1–8	This sets the function assigned to the GPI channel. * The GPI trigger is fixed at the trailing edge (low: On). For details, refer to "Inputting a Control Signal" (p. 46).	
	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 Load1-1–8	This loads a memory (Bank 1 only).
	DSK SRC Sel1–8	During DSK compositing, this switches the channel of the overlaid logo or image. * When a control signal is input from an external source, the assigned function is executed.

LAN Control → [VALUE]

Menu item	Value (Bold: default)	Explanation
Configure	Selects how settings are made for the IP address, subnet mask, and default gateway. * Changed settings are applied at next start-up.	
	DHCP Server	DHCP server functionality is enabled. The information needed for connecting to the network is assigned automatically by this unit to the computers that are on the LAN.
	DHCP Client	The IP address and other information needed for connecting to the network is obtained automatically from the DHCP server of the LAN.
	Manually	The IP address, subnet mask, and default gateway are specified manually.
IP Address (*1)	**192.168.2.254**	This sets the IP address.
Subnet Mask (*1)	**255.255.255.0**	This sets the subnet mask.
Default Gateway (*1)	**192.168.2.1**	This sets the default gateway.
Information	ENTER	Pressing the [VALUE] button displays the LAN control information.

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

Information → [VALUE]

Menu item	Value (Bold: default)	Explanation
Status		This displays the connection status.
IP Address (*2)	**192.168.2.254**	This displays the IP address.
Subnet Mask (*2)	**255.255.255.0**	This displays the subnet mask.
MAC Address		This displays the MAC address.
Remote Control URL	**http://192.168.2.254:8080/**	Shows the URL for starting 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."

LAN/RS-232 Command Reference

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

Using the CONTROL port (LAN) 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 CONTROL port on the V-600UHD.

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

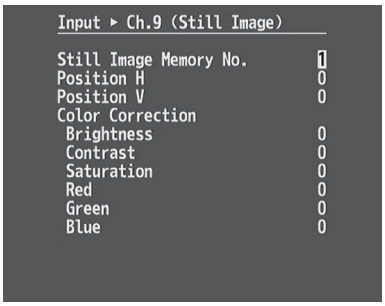
Communication standards

Port	CONTROL port (LAN)
Protocol	TCP
Port number	8023

Setting the IP address of the V-60HD

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

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



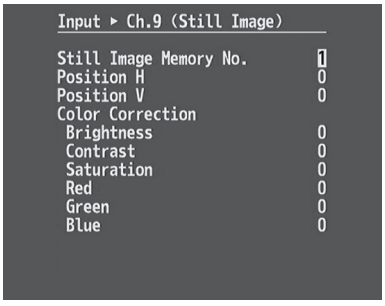
➡ **Details on menu items: see p. 42.**

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

Verifying the LAN information

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

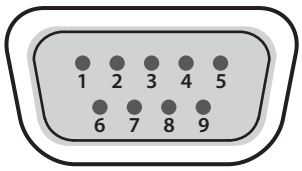
2. Select "Information," and press the [VALUE] knob.



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

RS-232 Interface

RS-232 connector pin layout



DB-9 type (male)

Pin assignments

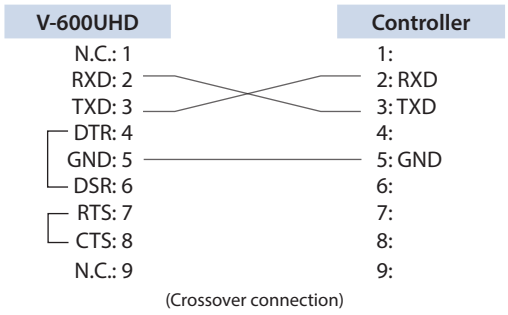
Pin No.	Signal
1	N.C.
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	N.C.

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.

Video-related operations

Item	Sent command	Response command	Parameter
Select PGM channel	stxPGM:a;	ACK	a: 0 (CH 1) –7 (CH 8)
Select PST channel	stxPST:a;	ACK	a: 0 (CH 1) –7 (CH 8)
Select channel to send to AUX bus	stxAUX:a;	ACK	a: 0 (CH 1) –7 (CH 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 (Key2), 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 (CH1)–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
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

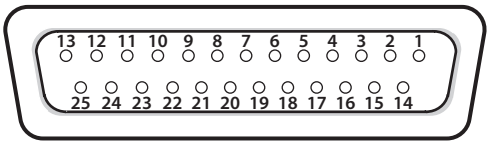
Item	Sent command	Response command	Parameter
Error detected		stxERR:a;	a: 0 (syntax error) The received command contains an error. 5 (out of range error) An argument of the received command is out of range.
Flow control		XON	
Flow control		XOFF	

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

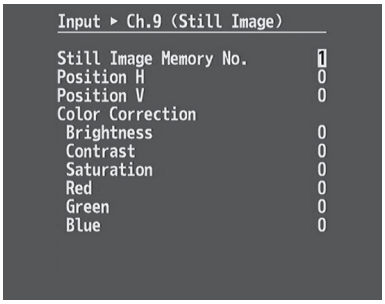
Pin assignments

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 ➡ "System" ➡ "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. 42**

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.

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.	–
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. 12
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. 9
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. 12
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. 40
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. 15
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. 36
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. 40
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. 40
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 USB flash drives is not assured. Depending on the manufacturer and type of the USB flash drive, correct operation may not be possible.	p. 24

Main Specifications

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

■ Processing

Video Processing	4:4:4 (Y/Pb/Pr), 10-bit		
Supported Video Input Formats (*1)	HDMI	Video, CEA-861-F	1080/59.94i, 1080/50i, 1080/59.94p, 1080/50p, 2160/59.94p (UHD 4K), 2160/50p (UHD 4K), 2160/59.94p (DCI 4K), 2160/50p (DCI 4K)
		PC, VESA DMT	1600 x 1200/60 Hz (UXGA)
		PC, CEA-861-F	1920 x 1080/60 Hz (FHD)
		PC, VESA CVT	1920 x 1200/60 Hz (WUXGA, Reduced blanking)
		PC, CEA-861-F	3840 x 2160/30 Hz (UHD 4K), 3840 x 2160/60 Hz (UHD 4K), 4096 x 2160/30 Hz (DCI 4K), 4096 x 2160/60 Hz (DCI 4K)
	RGB	PC, VESA DMT	1600 x 1200/60 Hz (UXGA)
		PC, CEA-861-F	1920 x 1080/60 Hz (FHD)
	SDI	Video, SMPTE ST274	1080/59.94i, 1080/50i, 1080/59.94p, 1080/50p
		Video, SMPTE ST2036	2160/59.94p (UHD 4K), 2160/50p (UHD 4K)
		Video, SMPTE ST2048	2160/59.94p (DCI 4K), 2160/50p (DCI 4K)
	Still Image		Windows Bitmap File (.bmp), Maximum 4096 x 2160 pixels, 24-bit per pixel, uncompressed
Supported Video Output Formats (*1)	HDMI	Video, CEA-861-F	1080/59.94p, 1080/50p, 2160/59.94p (UHD 4K), 2160/50p (UHD 4K), 2160/59.94p (DCI 4K), 2160/50p (DCI 4K)
		PC, CEA-861-F	1920 x 1080/60 Hz (FHD), 3840 x 2160/60 Hz (UHD 4K), 4096 x 2160/60 Hz (DCI 4K)
		MULTI-VIEW, Video, CEA-861-F	1080/60p
	SDI	Video, SMPTE ST274	1080/59.94p, 1080/50p
		Video, SMPTE ST2036	2160/59.94p (UHD 4K), 2160/50p (UHD 4K)
		Video, SMPTE ST2048	2160/59.94p (DCI 4K), 2160/50p (DCI 4K)
Video Effects	Transition		Mix, Cut, Wipe (9 patterns)
	Composition		PinP, Key (*2), PinP + Key (*2)
	DSK		PinP, Key (*2), PinP + Key (*2)
	Others		Output Fade
Audio Processing	24 bits/48 kHz		
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		

(*1) Conforms to VESA DMT, VESA CVT, CEA-861-F
Color Gamut: Rec.709, Rec.2020
Dynamic Range: SDR, HDR PQ (HDR10), HDR HLG

(*2) Luminance Key, Chroma Key

■ Connectors

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

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

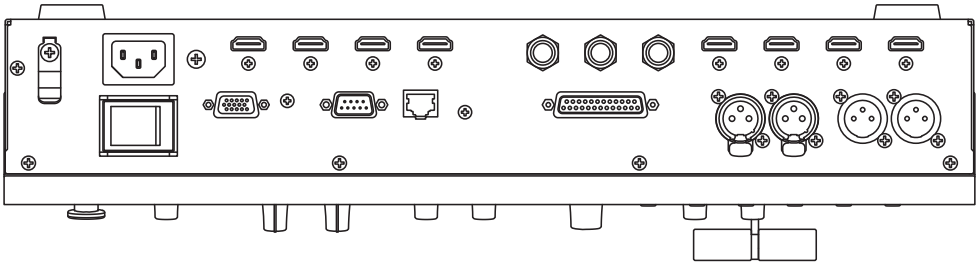
■ Audio Input/Output Characteristics		
Input Level	AUDIO IN L/R	+4 dBu (Maximum: +24 dBu)
Input Impedance	AUDIO IN L/R	15 kΩ
Output Level	AUDIO OUT L/R	+4 dBu (Maximum: +24 dBu)
	PHONES	92 mW + 92 mW (32 Ω)
Output Impedance	AUDIO OUT L/R	600 Ω
	PHONES	10 Ω

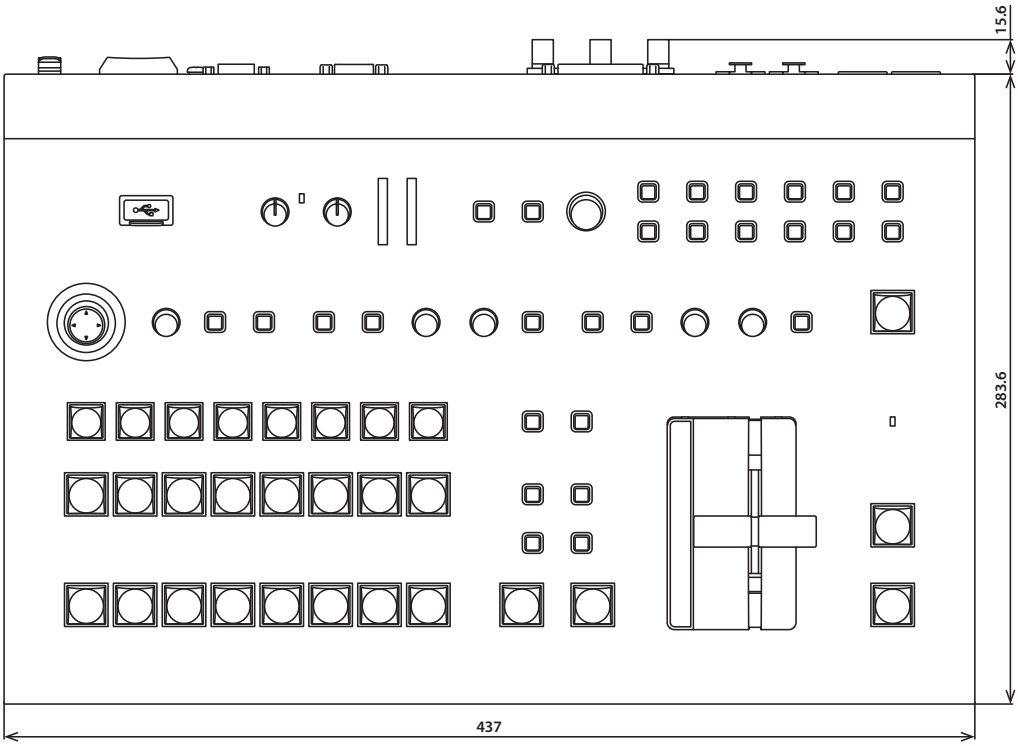
■ Others	
Power Consumption	80 W
Dimensions	482 (W) x 300 (D) x 109 (H) mm 19 (W) x 11-13/16 (D) x 4-5/16 (H) inches * When rack mount angles are fitted.
Weight	5.3 kg 11 lbs 11 oz * Including rack mount angles.
Operation Temperature	+5 to +40 degrees Celsius +41 to +104 degrees Fahrenheit
Accessories	Owner's Manual Power cord Rack-mount angle x 2

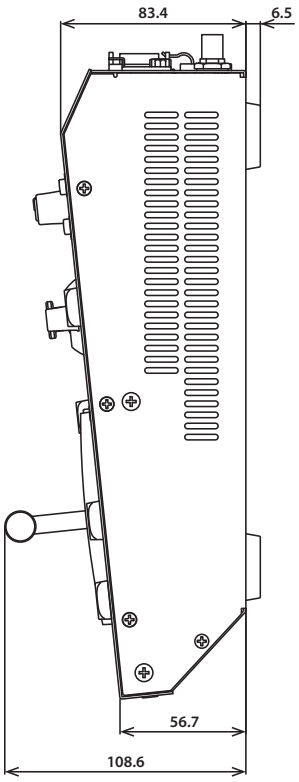
* 0 dBu = 0.775 Vrms
* This product is a Class A digital device under FCC part 15.

Dimensions

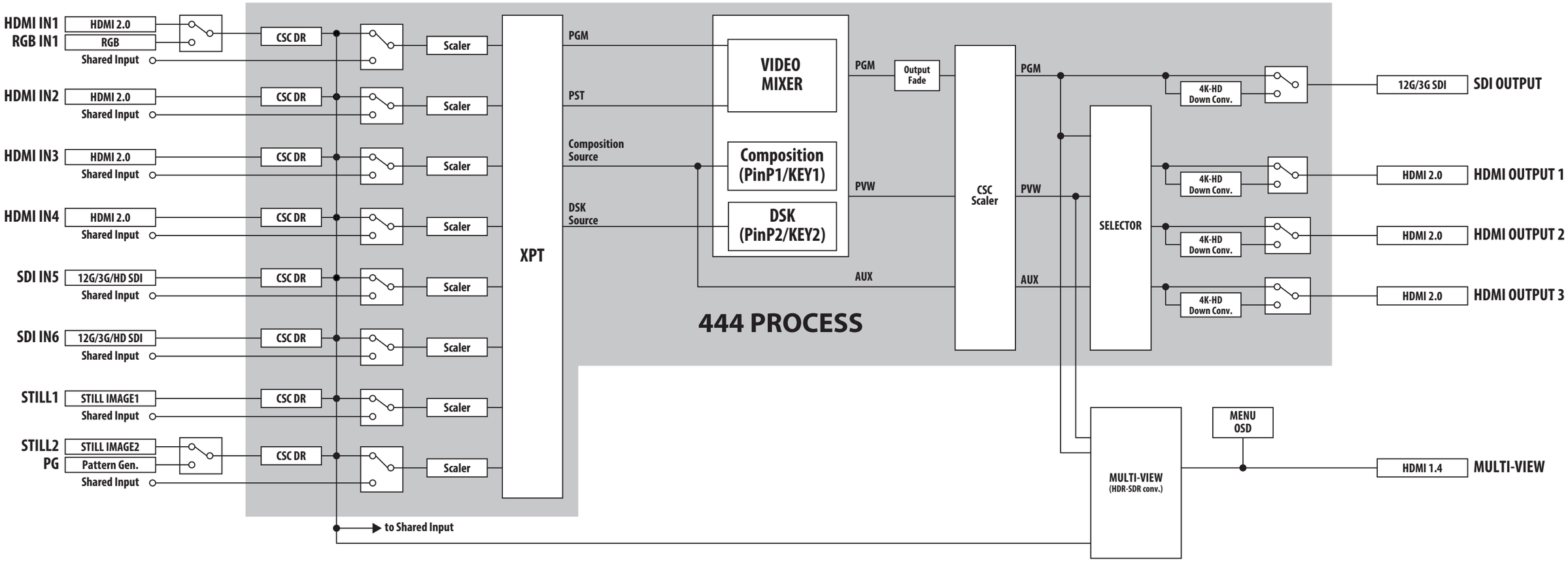
Unit: mm







VIDEO Block Diagram



AUDIO Block Diagram