VR-3EX
AV MIXER

Owner's Manual

Roland

📖 **Owner's Manual** (this document)

Read this first. It explains the basic things you need to know in order to use the VR-3EX.

📖 **PDF Manual** (download from the Web)

- **Remote Control Guide**

  This manual covers remote control of the unit via MIDI. It also describes MIDI Implementations (detailed documentation of MIDI messages).

📖 **To obtain the PDF manual**

1. Enter the following URL in your computer.

http://www.rolandsystemsgroup.net/

▼

2. Choose **"VR-3EX"** as the product name.

Check the Included Items

The VR-3EX includes the following items. Please take a moment to confirm that all of these items have been included with the VR-3EX. If you find that any item is missing, contact the nearest authorized Roland distributor in your country.

☐ **VR-3EX**

☐ **AC Adaptor/Power Cord**

☐ **Owner's Manual**

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

Conventions in this manual

In order to explain the operations as clearly as possible, this manual uses the following conventions.

- Text enclosed in square brackets [ ] indicates the name of a button or a knob, such as the [SETUP] button, [VALUE] knob.

- Text enclosed in angle brackets < > indicates text that appears in the screen, such as <SETUP>.

- When the manual instructs you to "touch" something, it means that you should touch that location in the touch panel screen.

* The explanations in this manual include illustrations that depict what should typically be shown by the display. Note, however, that your unit may incorporate a newer, enhanced version of the system (e.g., includes newer sounds), so what you actually see in the display may not always match what appears in the manual.

USING THE UNIT SAFELY

Before using this unit, carefully read the sections entitled "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (p. 6). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature of your new unit, read Owner's manual in its entirety. This manual should be saved and kept on hand as a convenient reference.

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠ WARNING and ⚠ CAUTION Notices

⚠ WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠ CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
🚫	The ◯ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
🔌	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠ WARNING

To completely turn off power to the unit, pull out the plug from the outlet

Even with the power switch turned off, this unit is not completely separated from its main source of power. When the power needs to be completely turned off, turn off the power switch on the unit, then pull out the plug from the outlet. For this reason, the outlet into which you choose to connect the power cord's plug should be one that is within easy reach and readily accessible.

Concerning the Auto Off function

The power to this unit will be turned off automatically after a predetermined amount of time has passed since its buttons or controls were operated (Auto Off function). If you do not want the power to be turned off automatically, disengage the Auto Off function (p. 44).

Do not disassemble or modify by yourself

Do not carry out anything unless you are instructed to do so in the owner's manual. Otherwise, you risk causing malfunction.

Do not repair or replace parts by yourself

Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information."

Do not use or store in the following types of locations

- Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
- Damp (e.g., baths, washrooms, on wet floors); or are
- Exposed to steam or smoke; or are
- Subject to salt exposure; or are
- Exposed to rain; or are
- Dusty or sandy; or are
- Subject to high levels of vibration and shakiness.

⚠ WARNING

Do not place in an unstable location

Otherwise, you risk injury as the result of the unit toppling over or dropping down.

Use only the supplied AC adaptor and the correct voltage

Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.

Use only the supplied power cord

Use only the attached power cord. Also, the supplied power cord must not be used with any other device.

Do not bend the power cord or place heavy objects on it

Otherwise, fire or electric shock may result.

Avoid extended use at high volume

Use of the unit at high volume for extended periods of time may cause hearing loss. If you ever experience any hearing loss or ringing in the ears, you should immediately stop using the unit and consult a specialized physician.

Do not allow foreign objects or liquids to enter unit; never place containers with liquid on unit

Do not place containers containing liquid (e.g., flower vases) on this product. Never allow foreign objects (e.g., flammable objects, coins, wires) or liquids (e.g., water or juice) to enter this product. Doing so may cause short circuits, faulty operation, or other malfunctions.

⚠ WARNING

Turn off the unit if an abnormality or malfunction occurs

Immediately turn the unit off, remove the AC adaptor from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" when:

- The AC adaptor or the power cord has been damaged; or
- If smoke or unusual odor occurs; or
- Objects have fallen into, or liquid has been spilled onto the unit; or
- The unit has been exposed to rain (or otherwise has become wet); or
- The unit does not appear to operate normally or exhibits a marked change in performance.

Be cautious to protect children from injury

Always make sure that an adult is on hand to provide supervision and guidance when using the unit in places where children are present, or when a child will be using the unit.

Do not drop or subject to strong impact

Otherwise, you risk causing damage or malfunction.

Do not share an outlet with an unreasonable number of other devices

Otherwise, you risk overheating or fire.

Do not use overseas

Before using the unit in overseas, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information."

⚠ CAUTION

Place in a well ventilated location

The unit and the AC adaptor should be located so their location or position does not interfere with their proper ventilation.

When disconnecting the power cord, grasp it by the plug

To prevent conductor damage, always grasp the power cord by its plug when disconnecting it from this unit or from a power outlet.

Periodically clean the power plug

An accumulation of dust or foreign objects between the power plug and the power outlet can lead to fire or electric shock.

At regular intervals, be sure to pull out the power plug, and using a dry cloth, wipe away any dust or foreign objects that may have accumulated.

Disconnect the power plug whenever the unit will not be used for an extended period of time

Fire may result in the unlikely event that a breakdown occurs.

Route all power cords and cables in such a way as to prevent them from getting entangled

Injury could result if someone were to trip on a cable and cause the unit to fall or topple.

Avoid climbing on top of the unit, or placing heavy objects on it

Otherwise, you risk injury as the result of the unit toppling over or dropping down.

Never connect/disconnect a power plug if your hands are wet

Otherwise, you could receive an electric shock.

Disconnect all cords/cables before moving the unit

Before moving the unit, disconnect the power plug from the outlet, and pull out all cords from external devices.

Before cleaning the unit, disconnect the power plug from the outlet

If the power plug is not removed from the outlet, you risk receiving an electric shock.

Whenever there is a threat of lightning, disconnect the power plug from the outlet

If the power plug is not removed from the outlet, you risk receiving an electric shock.

Handle the ground terminal carefully

If you remove the screw from the ground terminal, be sure to replace it; don't leave it lying around where it could accidently be swallowed by small children. When refastening the screw, make that it is firmly fastened, so it won't come loose.

⚠ CAUTION

Precautions concerning use of phantom power supply

Always turn the phantom power off when connecting any device other than condenser microphones that require phantom power. You risk causing damage if you mistakenly supply phantom power to dynamic microphones, audio playback devices, or other devices that don't require such power. Be sure to check the specifications of any microphone you intend to use by referring to the manual that came with it.

(This instrument's phantom power: 48V DC, 10 mA Max)

IMPORTANT NOTES

Power Supply

- Do not connect this unit to same electrical outlet that is being used by an electrical appliance that is controlled by an inverter or a motor (such as a refrigerator, washing machine, microwave oven, or air conditioner). Depending on the way in which the electrical appliance is used, power supply noise may cause this unit to malfunction or may produce audible noise. If it is not practical to use a separate electrical outlet, connect a power supply noise filter between this unit and the electrical outlet.

- The AC adaptor will begin to generate heat after long hours of consecutive use. This is normal, and is not a cause for concern.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.

- This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.

- Noise may be produced if wireless communications devices, such as cell phones, are operated in the vicinity of this unit. Such noise could occur when receiving or initiating a call, or while conversing. Should you experience such problems, you should relocate such wireless devices so they are at a greater distance from this unit, or switch them off.

- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.

- When moved from one location to another where the temperature and/or humidity is very different, water droplets (condensation) may form inside the unit. Damage or malfunction may result if you attempt to use the unit in this condition. Therefore, before using the unit, you must allow it to stand for several hours, until the condensation has completely evaporated.

- Depending on the material and temperature of the surface on which you place the unit, its rubber feet may discolor or mar the surface.
  You can place a piece of felt or cloth under the rubber feet to prevent this from happening. If you do so, please make sure that the unit will not slip or move accidentally.

- Do not place containers or anything else containing liquid on top of this unit. Also, whenever any liquid has been spilled on the surface of this unit, be sure to promptly wipe it away using a soft, dry cloth.

Maintenance

- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.

- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

- Before sending the unit away for repairs, be sure to make a backup of the data stored within it; or you may prefer to write down the needed information. Although we will do our utmost to preserve the data stored in your unit when we carry out repairs, in some cases, such as when the memory section is physically damaged, restoration of the stored content may be impossible. Roland assumes no liability concerning the restoration of any stored content that has been lost.

Additional Precautions

- Any data stored within the unit can be lost as the result of equipment failure, incorrect operation, etc. To protect yourself against the irretrievable loss of data, try to make a habit of creating regular backups of the data you've stored in the unit.

- Roland assumes no liability concerning the restoration of any stored content that has been lost.

- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.

- Never strike or apply strong pressure to the display.

- When disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.

- To avoid disturbing others nearby, try to keep the unit's volume at reasonable levels.

- When you need to transport the unit, pack it in shock-absorbent material. Transporting the unit without doing so can cause it to become scratched or damaged, and could lead to malfunction.

- This unit allows you to switch images at high speed. For some people, viewing such images can cause headache, nausea, or other discomfort. Do not use this unit to create video that might cause these types of health problems. Roland Corporation will accept no responsibility for any such health problems that may occur in yourself or in viewers.

Copyrights/Licenses/Trademarks

- It is forbidden by law to make an audio recording, video recording, copy or revision of a third party's copyrighted work (musical work, video work, broadcast, live performance, or other work), whether in whole or in part, and distribute, sell, lease, perform, or broadcast it without the permission of the copyright owner.

- Do not use this product for purposes that could infringe on a copyright held by a third party. We assume no responsibility whatsoever with regard to any infringements of third-party copyrights arising through your use of this product.

- This product can be used to record or duplicate audio or visual material without being limited by certain technological copy-protection measures. This is due to the fact that this product is intended to be used for the purpose of producing original music or video material, and is therefore designed so that material that does not infringe copyrights belonging to others (for example, your own original works) can be recorded or duplicated freely.

- MMP (Moore Microprocessor Portfolio) refers to a patent portfolio concerned with microprocessor architecture, which was developed by Technology Properties Limited (TPL). Roland has licensed this technology from the TPL Group.

- Roland is either registered trademark or trademark of Roland Corporation in the United States and/or other countries.

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Contents

Panel Descriptions

Top Panel/Front Panel

No.	Name	Explanation	Page
1	Internal Microphones	These are internal microphones for picking up ambient audio. To adjust the level, use 11 the [INTERNAL MIC] knob. * The internal microphones are sensitive enough to pick up sounds of the VR-3EX's buttons and faders being operated.	p. 35
2	[MENU] Button	This displays the menu screen on the monitor.	p. 18
3	[VALUE] Knob	This selects menu items and changes setting values. Pressing the [VALUE] knob selects a menu item or applies changes made to a setting value.	p. 18
4	Monitor (Touch Screen)	• This displays the incoming video from the sources, the VR-3EX's output video, a volume level meter, menu screens, and the like. To change the monitor's view mode, use 13 the [MONITOR] buttons. • You change the picture and select menu items by touching the screen. * Don't touch the screen in two or more locations simultaneously; the locations cannot be detected correctly.	p. 17 p. 18 p. 24
5	PHONES Jacks	You can use these to connect standard-type (1/4-inch) and mini-stereo headphones. You can use both at the same time.	p. 15

Audio Section

This section is for mixing audio and adjusting the input sensitivity of the audio channels.

| No.	Name	Explanation	Page
6	SIG/PEAK Indicators	These display the input level of the audio channels. • Lighted in green: Input detected • Lighted in red: Volume exceeded maximum input level	p. 34
	[GAIN] Knob	These adjust the gain (input sensitivity) of the audio channels.	
	[EQ] Knobs	You use the [HI], [MID], and [LO] knobs to adjust the sound quality of the audio channels. These let you emphasize or attenuate the high (HI), midrange (MID), and low (LO) bands.	p. 36
	[SETUP] Button	These display the setup screens for the audio channels on the monitor.	—
7	Channel Faders	These adjust the volume levels of the audio channels	p. 35
8	Level Meter	This displays the volume level of the main output audio.	p. 35
	[REVERB] Knob	This adjusts the return level from reverb of the audio.	p. 37
	[MAIN] Fader	This adjusts the volume level of the main output audio.	p. 35
	[SETUP] Button	This displays the setup screen for main audio output on the monitor.	—

| No.	Name	Explanation	Page
9	**[HDMI] Knob**	This adjusts the volume level of HDMI audio (embedded audio).	p. 35
	[SETUP] Button	This displays the setup screen for HDMI audio on the monitor.	—
10	**[USB LEVEL] Knob**	This adjusts the volume level of audio output via USB.	p. 35
11	**[INTERNAL MIC] Knob**	This adjusts the volume level of the internal microphones.	p. 35
	[SETUP] Button	This displays the setup screen for the internal microphones on the monitor.	—
12	**[PHONES] Knob**	This adjusts the volume of headphones connected to the PHONES jacks.	—

Video Section

This section is for making picture transitions, compositing video, and making effect settings.

No.	Name	Explanation	Page
13	**[MONITOR] Buttons**	You use the [INPUT], [OUTPUT], and [IN+OUT] buttons to switch the view mode for the monitor. • **[INPUT] Button (Input Mode)** This displays the input video from the respective source devices as a four-way split screen. You change the picture by touching the screen. • **[OUTPUT] Button (Input Mode)** This displays the results of video mixing (main output video). You also use it to adjust the location and size of the inset screen for Picture-in-Picture. • **[IN + OUT] Button (In/Out Mode)** This displays the currently output video overlaid on the four-way split screen of input video.	p. 17
14	**HDCP Indicator**	This lights up, flashes, or goes dark according to the VR-3EX's "HDCP" setting and the connected status of HDCP-compatible equipment.	p. 23
15	**[IN/OUT SETUP] Button**	This displays the input/output setup screen for video on the monitor. You use it to set the video input connectors assigned to the respective video channels. You also use it to specify which video signals are output from the video output connectors	p. 20 p. 21
16	**[TRANSITION] Buttons**	You use the [CUT], [MIX], and [WIPE] buttons to select video transition effects. • **[CUT] Button** The picture switches instantly. • **[MIX] Button** In this transition, as the original picture gradually disappears, the next video is overlaid and progressively grows more visible. • **[WIPE] Button** In this transition, the original video is broken into by the next video.	p. 24
17	**[COMPOSITION] Buttons**	You use the [PinP], [SPLIT], and [QUAD] buttons to select video composition effects. • **[PinP] Button** This composites video in an inset screen over a background video. • **[SPLIT] Button** This composites two video streams in a split screen. • **[QUAD] Button** This composites the input pictures on video channels 1 through 4 in a single screen.	p. 27
18	**[OUTPUT] Knob**	This performs a fade-in or fade-out for the main output video. Turning the control clockwise applies a white fade. Turning it counterclockwise applies a black fade. The indicator above the [OUTPUT] knob shows the status of the fade. • Flashing: Fade-in/fade-out in progress • Lighted: Normal output	p. 26
	[FREEZE] Button	This stops (freezes) the current output video. The [FREEZE] button lights up during a freeze.	p. 26
19	**[TRANSITION] Knob**	This sets the video transition time (in seconds).	p. 24
	[SETUP] Button	This displays the setup screen for transition effects on the monitor. You use it to specify the transition effects to the [MIX] button and the [WIPE] button.	p. 25
20	**[VIDEO FX] Knob**	This turns the effect applied to the output video on and off. Turning the control clockwise or counterclockwise turns on the effect assigned to the respective direction. When the control is centered, effects are set to "off." Also, depending on effect type, this control adjusts the degree of effect applied or changes the setting value.	p. 33
	[SETUP] Button	This displays the setup screen for effects on the monitor. You use it to specify the effects assigned to the [VIDEO FX] knob.	
21	**[KEY] Button**	This switches key composition on or off. When on, the [KEY] button lights up.	p. 30
	[KEY LEVEL] Knob	This adjusts the amount of keying for key composition. • Turning the control clockwise ([T]) performs luminance-key composition. • Turning the control counterclockwise ([👤]) performs chroma-key composition.	p. 30 p. 31
22	**[VIDEO SELECT] buttons**	You use these buttons to switch the video.	p. 24

Panel Descriptions

Rear Panel/Side Panel

No.	Name	Explanation	Page
1	**[POWER] Switch**	This turns the power to the VR-3EX on and off.	p. 17
2	**AC Adaptor Jack**	This is for connecting the included AC adaptor.	p. 16
3	**Power Cord Hook**	Use this to secure the AC adapter cord in place.	
4	**Audio Output Connectors**	These output the results of audio mixing. Here you connect a video recorder or other recording equipment, or an amplifier or speakers. * The VR-3EX has two internal audio buses (the MAIN bus and the AUX bus), and you can select the audio bus to output for each individual connector. • **AUDIO OUT Connectors (L, R)** These accept RCA phono type plugs. • **AUX OUT Connectors (L, R)** These accept 1/4-inch phone type plugs.	p. 15
5	**Video Output Connectors**	These output the results of video mixing (main output video). • **VIDEO output Connector** Here you can connect a video monitor, recording unit, or other device equipped with a composite input connector. * You can also output the incoming video on video channels 1 through 4 as a four-way split screen. • **RGB/COMPONENT Output Connector** Here you connect equipment such as a projector or recording unit that is equipped with an analog RGB/component input connector. • **HDMI Output Connector** Here you connect an external display or other device equipped with an HDMI input connector.	p. 14
6	**Video Input Connectors 1–4**	These are for inputting video signals from a computer or video devices such as video cameras and DVD players. • **VIDEO Input Connectors (video channels 1–4)** Here you connect video cameras, DVD players, and other devices equipped with composite output connectors. • **RGB/COMPONENT Input Connector (video channel 4)** Here you connect a device such as a computer that is equipped with an analog RGB/component output connector. • **HDMI Input Connectors (video channels 1–4)** Here you connect video cameras and other devices equipped with HDMI output connectors. * You can specify the video input connector assigned to each individual video channel.	
7	**Audio Input Connectors 1–7/8**	These are for inputting audio signals from video decks, microphones, audio mixers, and other such audio equipment. You can connect video decks, CD players, microphones, and other devices. • **AUDIO INPUT (XLR/TRS) Connectors 1–4** These accept XLR and TRS 1/4-inch phone type plugs. Input via XLR/TRS connectors 1 through 4 is assigned to audio channels 1 through 4. * You can supply phantom power (+48 V) from the XLR connectors. • **AUDIO IN 5/6 Connectors (L, R)** These accept RCA phono type plugs. Input via the AUDIO IN 5 and 6 connectors is assigned to audio channel 5 and 6. • **AUDIO IN 7/8 Connector (L, R)** This accepts a miniature stereo phone plug. Input via the AUDIO IN 7/8 connector is assigned to audio channels 7 and 8.	p. 15
8	**USB port**	• This outputs the results of video and audio mixing. You can connect a computer and send video and audio over the Internet, or record it on the computer. * You can also output the incoming video on video channels 1 through 4 as a four-way split screen. • You can use VR-3EX RCS dedicated software to operate the VR-3EX remotely from a connected computer.	p. 16 p. 41

No.	Name	Explanation	Page
9	**PVW OUT Connector**	This outputs the incoming video on video channels 1 through 4 as a four-way split screen. You can connect a preview monitor equipped with an HDMI input connector. * You can also output the same video as the VIDEO OUT connectors (main output video).	p. 14
10	**Grounding Terminal**	You use this to connect the unit to an external ground.	p. 16
11	**[PHANTOM] Switches**	This switches the phantom power of the AUDIO INPUT (XLR) connectors on and off. The unit has separate switches for audio channels 1/2 and audio channels 3/4, so you can set these individually. **NOTE** Always turn the phantom power "OFF" when connecting any device other than condenser microphones that require phantom power. You risk causing damage if you mistakenly supply phantom power to dynamic microphones, audio playback devices, or other devices that don't require such power.	p. 15
12	**Security Slot (K SECURITY LOCK)**	You can attach a commercially available security lock here. For details, refer to the following website: http://www.kensington.com/	—
13	**MIDI IN Connector MIDI OUT/THRU Connector**	You can connect external MIDI devices to remotely control the VR-3EX.	p. 41

Signal Flow

Signal flow inside the VR-50HD is as shown in the figure below.

Video signals

Audio signals

480p/576p

Scaler up to 1080p

OUTPUT — HDMI

OUTPUT — RGB/Component (*)

ENCODER (Motion JPEG) — USB STREAMING (*)

PVW OUT — HDMI PVW

OUTPUT + MULTI

P/I Converter — Composite (*)

480p/576p

OSD

| 1 | OUT | 2 |
| 3 | | 4 |

Built-In Monitor
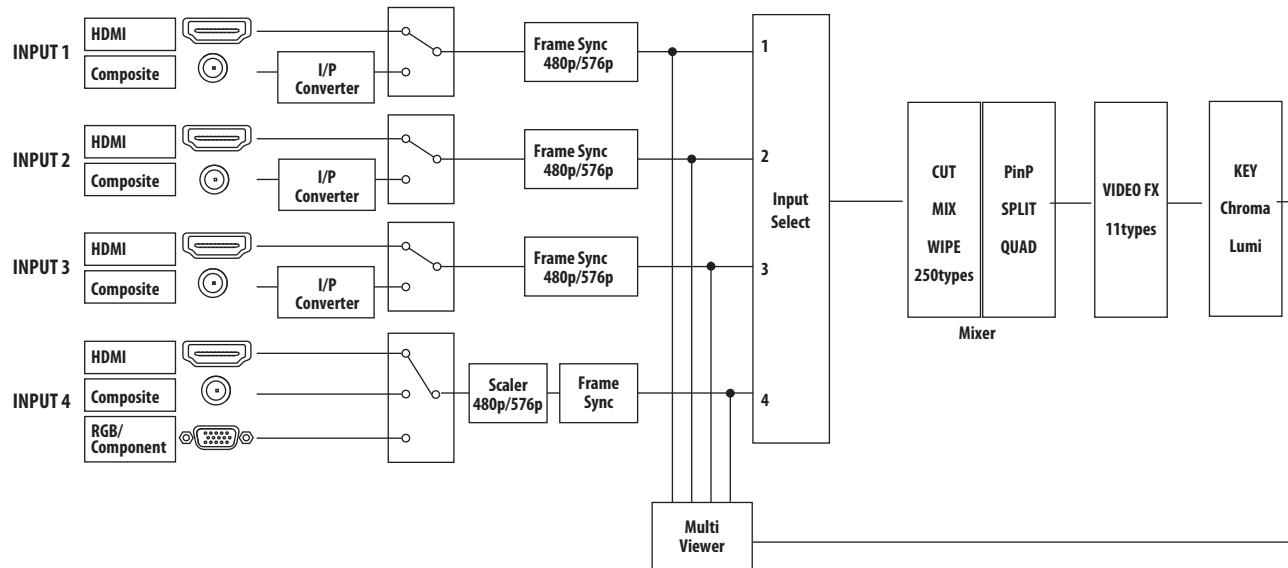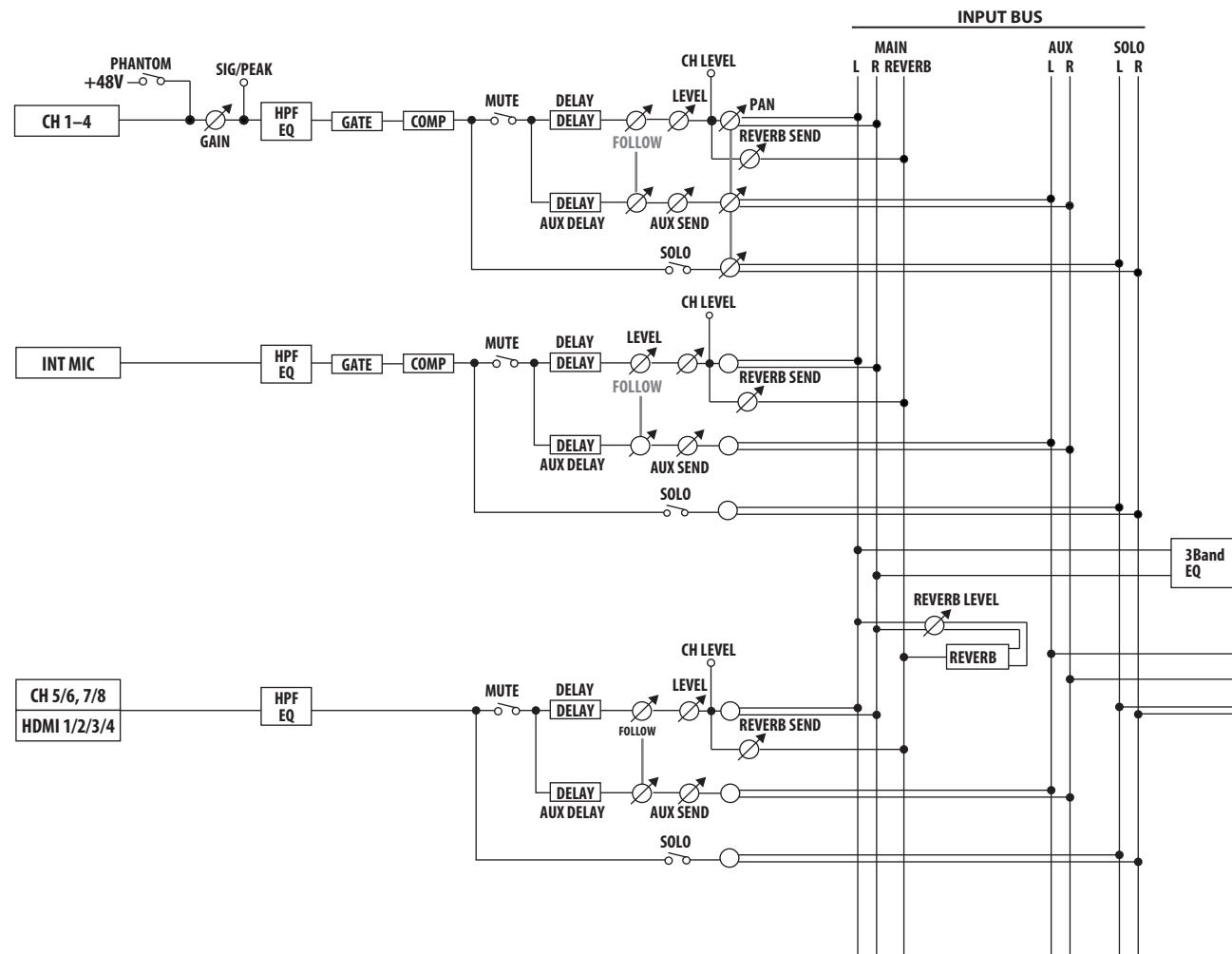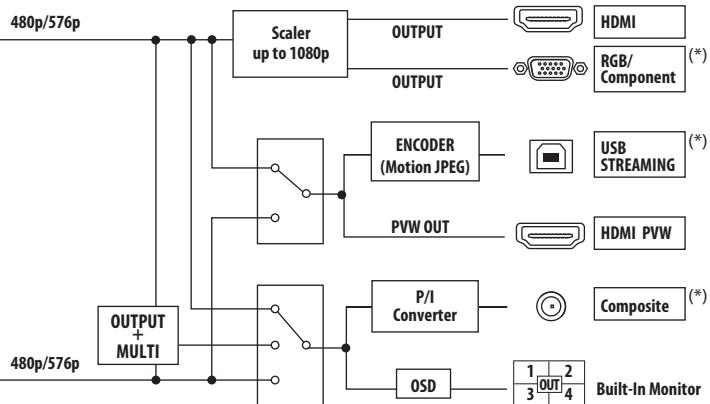
* Total latency: 2 frames (from Input 1–3 to Output), 3 frames (from Input 4 to Output)
* Internal Processing: 480/59.94p when set to NTSC, 576/50p when set to PAL
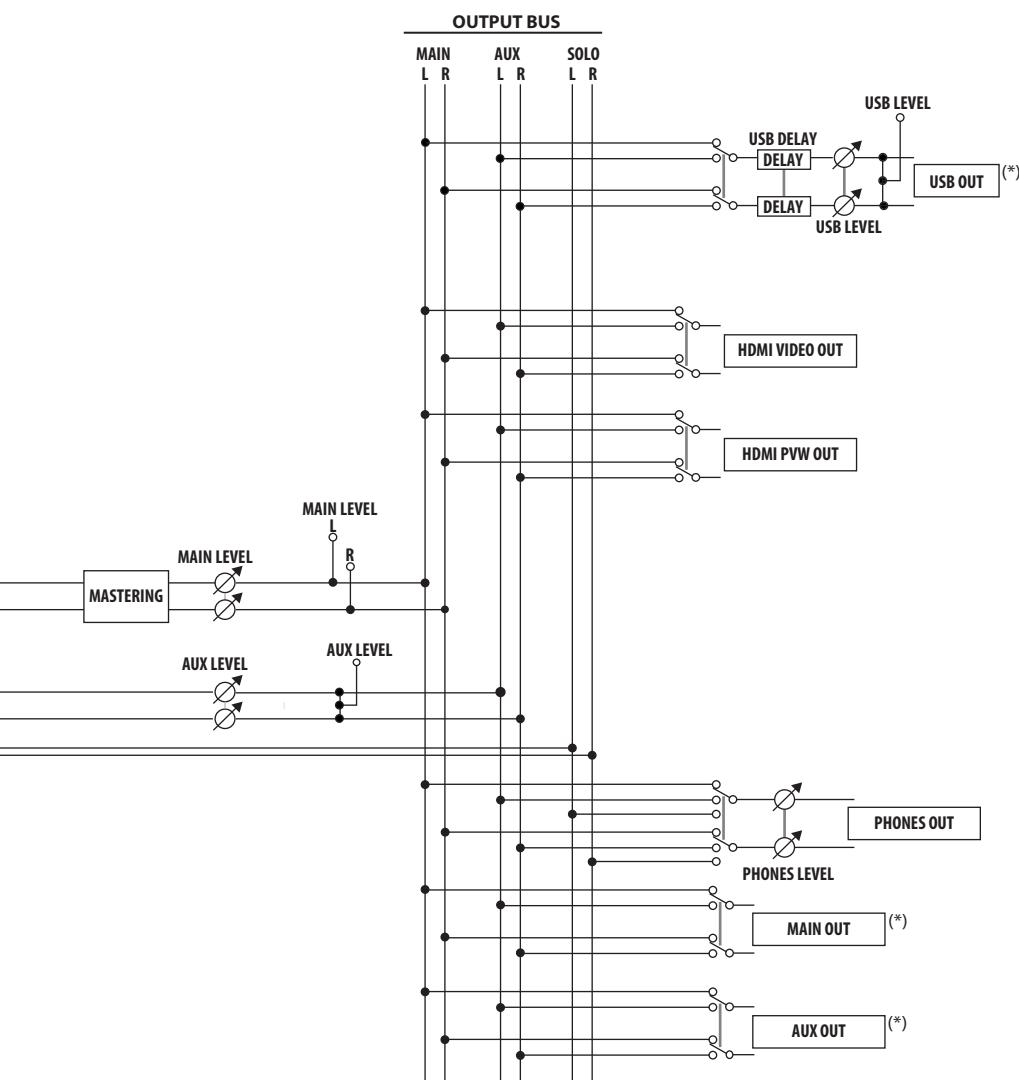
* When "HDCP" is set to "ON" (p. 23), no audio and video signals are output from these connectors. Audio output to PHONES jacks are always on.

OUTPUT BUS

MAIN L R   AUX L R   SOLO L R

USB LEVEL

USB DELAY
DELAY

USB OUT (*)

DELAY

USB LEVEL

HDMI VIDEO OUT

HDMI PVW OUT

MAIN LEVEL L R

MAIN LEVEL

MASTERING

AUX LEVEL

AUX LEVEL

PHONES OUT

PHONES LEVEL

MAIN OUT (*)

AUX OUT (*)

Connecting External 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 adapter plugs with the proper connectors matching those of the other devices you are using.

Connecting Video Source/Output Equipment

After making the connections, press the [IN/OUT SETUP] button and specify the video input connector for inputting video channels 1 through 4 (p. 20).

Computer

Analog RGB output connector

Video source equipment Video cameras, DVD players, etc.

Component output connectors

Composite output connector

HDMI output connector

* Set the output from HDMI devices connected to HDMI input connectors 1 through 3 to 480p (when set to NTSC) or 576p (when set to PAL).

Composite input connector

HDMI input connector

Analog RGB input connector

Component input connectors

HDMI input connector

Main video output equipment Displays, projectors, recording units, etc.

Preview monitor

Connecting Audio Source/Output Equipment

Audio output equipment Amplifiers, speakers, recording units, etc.

* The VR-3EX has two internal audio buses (the MAIN bus and the AUX bus), and you can select the audio bus to output for each individual connector (p. 39).

Audio input connectors

Audio source equipment Video decks, CD players, etc.

Audio output connectors

Headphones

Front Panel

AUDIO OUT R L   VIDEO OUT RGB/COMPONENT   VIDEO IN 4 RGB/COMPONENT 4 3 2 1   AUX OUT 2/R 1/L   AUDIO 6/R 5/L

VIDEO STREAM ← USB   HDMI   PVW OUT   HDMI   HDMI (480p/576p) 4 3 2 1   Roland Corporation SER. NO.   7/8   MODEL : VR-3EX MADE IN TAIWAN

* AUDIO INPUT connectors 1 through 4 are balanced-type (XLR/TRS) input jacks, and are wired as shown in the figure below. Make connections after first checking the wiring diagrams of other equipment you intend to connect.

TIP: **HOT**
RING: **COLD**
SLEEVE: **GND**

2: HOT   1: GND
3: COLD

* When connection cables with resistors are used, the volume level of equipment connected to the AUDIO INPUT connectors may be low. If this happens, use connection cables that do not contain resistors.

* Acoustic feedback could be produced depending on the location of micro-phones relative to speakers. This can be remedied by:

• Changing the orientation of the microphone(s).

• Relocating microphone(s) at a greater distance from speakers.

• Lowering volume levels.

**Audio source equipment** Microphones, audio mixers, etc.

Audio output connectors

Using Phantom Power

The VR-3EX supports phantom power. When using a condenser microphone that requires phantom power, set the [PHANTOM] switch to "ON."

NOTE

Always turn the phantom power off when connecting any device other than condenser microphones that require phantom power. You risk causing dam-age if you mistakenly supply phantom power to dynamic microphones, audio playback devices, or other devices that don't require such power. Be sure to check the specifications of any microphone you intend to use by referring to the manual that came with it.

(This instrument's phantom power: 48V DC, 10 mA Max)
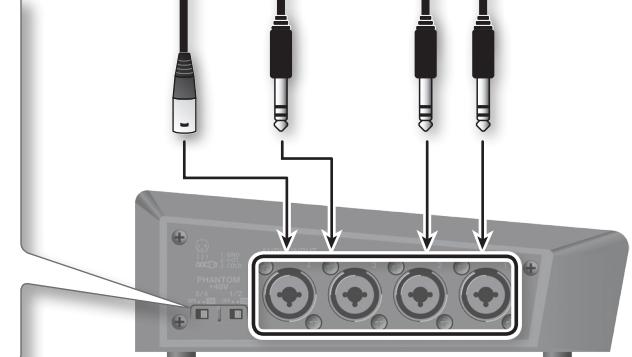
Connecting a Computer Via USB

* Making the connection using an extension cable or USB hub might result in the computer failing to recognize the VR-3EX. We recommend using a direct connection between the VR-3EX and the computer.

USB2.0 port

Supported Operating Systems

Windows

- Windows XP Home Edition / Professional Edition Service Pack 3 or later
- Windows Vista Service Pack 2 or later
- Windows 7
- Windows 8
- Windows 8.1

Mac

- Mac OS X 10.6 or later

* Connection and operation of the VR-3EX with standard computers running the operating systems described above have been verified, but connection and operation with all computers satisfying such conditions is not assured. Connection or operation may be impossible due to differences in setting specifications or the usage environment that are specific to the equipment.

Making the Connection to a Computer

1. Using a USB cable, connect a USB 2.0 port on the computer to the USB port on the VR-3EX.

2. Turn on the power to the VR-3EX (p. 17).

3. Start the computer.

4. Wait for communication between the VR-3EX and the computer to be established.

When communication with the computer starts, the operating system's standard driver is automatically installed.

* The VR-3EX is seen as a USB video device or USB audio device by the computer.

Connecting the AC Adaptor

To prevent the inadvertent disruption of power to your unit (should the plug be pulled out accidentally), and to avoid applying undue stress to the AC adaptor jack, anchor the power cord using the cord hook, as shown in the illustration.

AC adaptor (included)

Power cord (included)
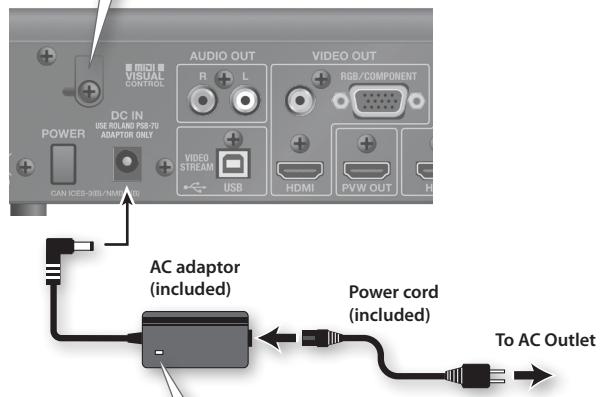
To AC Outlet

Place the AC adaptor so the side with the indicator (see illustration) faces upwards and the side with textual information faces downwards. The indicator will light when you plug the AC adaptor into an AC outlet.

About the Grounding Terminal

Depending on the circumstances of a particular setup, you may experience a discomforting sensation, or perceive that the surface feels gritty to the touch when you touch this device, microphones connected to it, or the metal portions of other objects. This is due to an infinitesimal electrical charge, which is absolutely harmless. However, if you are concerned about this, connect the ground terminal (see figure) with an external ground. When the unit is grounded, a slight hum may occur, depending on the particulars of your installation. If you are unsure of the connection method, contact the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

Unsuitable places for connection

- Water pipes (may result in shock or electrocution)
- Gas pipes (may result in fire or explosion)
- Telephone-line ground or lightning rod (may be dangerous in the event of lightning)

Basic Operations

Turning the Power On and Off

Once everything is properly connected (p. 14), be sure to follow the procedure below to turn on their power. If you turn on equipment in the wrong order, you risk causing malfunction or equipment failure.

* 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 to the VR-3EX.
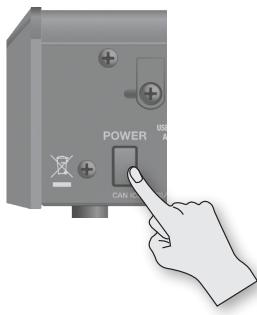
* The VR-3EX is equipped with a protection circuit. A brief interval (a few seconds) after turning the unit on is required before it will operate normally.

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 VR-3EX.

4. Turn on the power to the output devices.

Turn on the power to projectors or other devices connected to output connectors on the VR-3EX.

Turning the power off

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

2. Press the [POWER] button on the VR-3EX to turn off the power.

About the Auto Off function

The power to the VR-3EX turns off automatically when all of the following states persist for 240 minutes (Auto Off function).

- No operation (including remote-control operation) performed on the VR-3EX
- No audio or video input

* If you do not want the power to be turned off automatically, disengage the Auto Off function (p. 44).

* When the power has been turned off by the Auto Off function, to restart, first press the [POWER] button to return it, then turn on the power.

NOTE

Any settings that you are in the process of editing will be lost when the power is turned off. If you have any settings that you want to keep, you should save them beforehand.

Switching the Monitor View Mode

The monitor on the VR-3EX has three view modes.

You use the [MONITOR] buttons to switch the view mode. The selected button lights up.
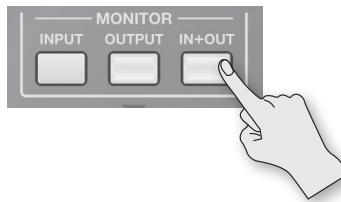
[INPUT] button: Input mode

This displays video input from source equipment on a four-way split screen.

The input video (channels 1 through 4) is arranged as shown below.

Channel 1	Channel 2
Channel 3	Channel 4

[OUTPUT] button: Output mode

This displays the video currently being output.

[IN + OUT] button: In/Out mode

This displays the current video output overlaid on a four-way split screen displaying the input from source equipment.
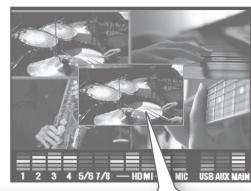
You can change the size and location of the output screen.

- Turning the [VALUE] knob clockwise enlarges the size, and turning it counterclockwise reduces it. You can enlarge or reduce the screen size in greater increments by holding down the [VALUE] knob as you turn it.
- To change the display location of the output screen, touch and drag the screen with your finger.

MEMO

- You can select either "16:9" or "4:3" as the aspect ratio for video displayed on the monitor. Use [MENU] → <SETUP> → <LCD PREVIEW ASPECT> to select.
- You can select either "LOW" (dark) or "HIGH" (bright) as the brightness level of the monitor. Use [MENU] → <SETUP> → <LCD BRIGHTNESS> to select.
- You can dim the background screen (four-way split screen) in the in/out mode. Use [MENU] → <SETUP> → <BCKGRD LEV-OVERLAY> to adjust.
- You can hide the level meter displayed at the bottom of the screen. Use [MENU] → <SETUP> → <LEVEL METER DISPLAY> to set the value to "OFF."

Menu Operations

To make various settings on the VR-3EX, you display and use the menu screen and the respective setup screens.

MEMO

- Settings made at the menu screen and setup screens are saved in the VR-3EX's internal memory when you quit the screen.
- If you want to make the video preview disappear and display only the menu, press the currently lighted [MONITOR] button to make it go dark.
- To display a setup screen, press its [SETUP] button. Except for the step of selecting a category, the procedure is the same as for using the menu screen. At the setup screen for HDMI audio, touch ▲ and ▼ at the upper left of the screen to select HDMI audio 1 through 4.

1. Press the [MENU] button to display the menu screen.
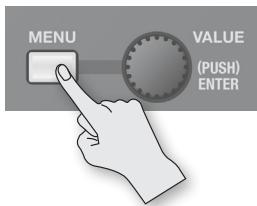
Menu category icons are displayed at the bottom of the screen.

2. Touch an icon to choose a category.

- Touching ◀ or ▶ next to an icon switches the screen and lets you select a different icon.
- You can also choose an icon by turning and pressing the [VALUE] knob.

A list of menu items for the selected category is displayed.

3. Touch the screen to select a setting item.

H.POSITION	450
V.POSITION	160
4:3 HV.SIZE	70
H.SIZE	70
V.SIZE	70
BORDER	3
BORDER COLOR	WHITE
SHADOW	0

The selected setting item is displayed with a red background.

- Depending on the item, the setting items might not all fit on a single screen. In such cases, touch the ▲ or ▼ cursor to scroll the display.

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

- You can change the setting value in larger steps by holding down the [VALUE] knob as you turn it.

5. Press the [VALUE] knob to apply the setting.
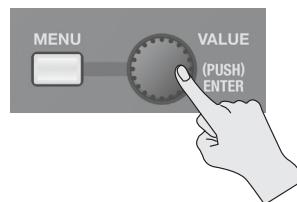
- Changes made to the following setting items are not updated until you apply the setting value.

Category	Setting item
VIDEO CH4	RESOLUTION
VIDEO OUTPUT	OUTPUT RESOLUTION
	OUTPUT DVI-HDMI
SETUP	HDCP
	NTSC/PAL

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

Pressing the [MENU] button once returns you to the menu screen. Pressing the [MENU] button a second time quits the menu screen.

MEMO

- You can adjust the brightness of the menu display. Use [MENU] → <SETUP> → <MENU DISPLAY LEVEL> to adjust.
-

Supported Video Formats

Input Formats

You can input signals of different video formats via the VIDEO IN connectors on the VR-3EX. The individual connectors support the input formats shown below.

Connector name (VIDEO IN)	When set to NTSC	When set to PAL
HDMI (1–3)	480/59.94p	576/50p
HDMI (4)	480/59.94i	576/50i
	480/59.94p	576/50p
	720/59.94p	720/50p
	1080/59.94i	1080/50i
	1080/59.94p	1080/50p
	640 x 480/60 Hz	640 x 480/60 Hz
	800 x 600/60 Hz	800 x 600/60 Hz
	1024 x 768/60 Hz	1024 x 768/60 Hz
	1280 x 768/60 Hz	1280 x 768/60 Hz
	1280 x 1024/60 Hz	1280 x 1024/60 Hz
	1366 x 768/60 Hz	1366 x 768/60 Hz
	1400 x 1050/60 Hz	1400 x 1050/60 Hz
	1600 x 1200/60 Hz	1600 x 1200/60 Hz
	1920 x 1200/60 Hz	1920 x 1200/60 Hz
COMPONENT (4)	480/59.94i	576/50i
	480/59.94p	576/50p
	720/59.94p	720/50p
	1080/59.94i	1080/50i
	1080/59.94p	1080/50p
RGB (4)	640 x 480/60 Hz	640 x 480/60 Hz
	800 x 600/60 Hz	800 x 600/60 Hz
	1024 x 768/60 Hz	1024 x 768/60 Hz
	1280 x 768/60 Hz	1280 x 768/60 Hz
	1280 x 1024/60 Hz	1280 x 1024/60 Hz
	1366 x 768/60 Hz	1366 x 768/60 Hz
	1400 x 1050/60 Hz	1400 x 1050/60 Hz
	1600 x 1200/60 Hz	1600 x 1200/60 Hz
	1920 x 1200/60 Hz	1920 x 1200/60 Hz
VIDEO (Composite, 1–4)	480/59.94i	576/50i

MEMO
- The refresh rates noted above are the maximum values for the respective resolutions.
- The input format is detected automatically.
  Note, however, that you can set the input format for incoming signals at the RGB/COMPONENT input connector and the HDMI input connector for video channel 4 (p. 22).
- The input signal format for HDMI audio is 24 bits, 48 kHz, 2 channels, linear PCM.

NOTE
Internal processing by the VR-3EX is carried out at 480p (when set to NTSC) or 576p (when set to PAL).

This means that an interlaced signal that is input is internally converted to a progressive signal by the VR-3EX. The picture might appear jagged at this time. This is due to progressive conversion, and is not a malfunction.

Output Formats

The individual VIDEO OUT connectors support the output formats shown below.

| Connector name (VIDEO OUT)	When set to NTSC	When set to PAL
HDMI	480/59.94i	576/50i
	480/59.94p	576/50p
	720/59.94p	720/50p
	1080/59.94i	1080/50i
	1080/59.94p	1080/50p
	640 x 480/60 Hz	640 x 480/75 Hz
	800 x 600/60 Hz	800 x 600/75 Hz
	1024 x 768/60 Hz	1024 x 768/75 Hz
	1280 x 768/60 Hz	1280 x 768/75 Hz
	1280 x 1024/60 Hz	1280 x 1024/75 Hz
	1366 x 768/60 Hz	1366 x 768/75 Hz
	1400 x 1050/60 Hz	1400 x 1050/75 Hz
	1600 x 1200/60 Hz	1600 x 1200/50 Hz
	1920 x 1200/60 Hz	1920 x 1200/50 Hz
COMPONENT	480/59.94i	576/50i
	1080/59.94i	1080/50i
RGB	480/59.94p	576/50p
	720/59.94p	720/50p
	1080/59.94p	1080/50p
	640 x 480/60 Hz	640 x 480/75 Hz
	800 x 600/60 Hz	800 x 600/75 Hz
	1024 x 768/60 Hz	1024 x 768/75 Hz
	1280 x 768/60 Hz	1280 x 768/75 Hz
	1280 x 1024/60 Hz	1280 x 1024/75 Hz
	1366 x 768/60 Hz	1366 x 768/75 Hz
	1400 x 1050/60 Hz	1400 x 1050/75 Hz
	1600 x 1200/60 Hz	1600 x 1200/50 Hz
	1920 x 1200/60 Hz	1920 x 1200/50 Hz
VIDEO (Composite)	480/59.94i	576/50i
PVW OUT	480/59.94p	576/50p
USB	720 x 480 pixels/ Motion JPEG	720 x 756 pixels/ Motion JPEG

MEMO
- Output video from the HDMI and RGB/COMPONENT output connectors all has the same video format. Selecting individual video formats for these is not possible. To set the video format, refer to "Setting the Video Output Format" (p. 20).
- The output signal format of HDMI audio is 24 bits, 48 kHz, linear PCM.
- The output signal format of USB audio is 16 bits, 48 kHz, linear PCM.

Video Input/Output Settings

Assigning Video Sources to Video Channels

On the VR-3EX, each video channel is provided with two or three video input connectors. You assign the video input connector carrying the incoming signal you want to use to each individual video channel.

1. **Press the [IN/OUT SETUP] button.**
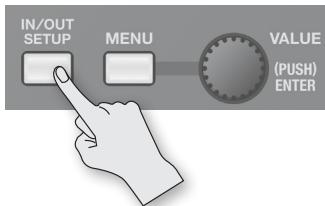
The input/output setup screen for video is displayed.

2. **Touch the switch section of the video channel you want to set.**
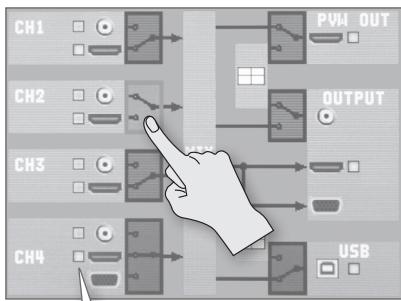
> **Video input indicator**
>
> This indicates the input status of the video signal. The indicators for video input connectors carrying an incoming video signal light up in orange.
>
> * The indicator for the CH4 RGB/COMPONENT input connector is displayed only when the connector has been selected.

3. **Turn the [VALUE] knob to select the video input connector.**

4. **Press the [IN/OUT SETUP] button to quit the setup screen.**

Setting the Video Output Format

By factory default, the format of video output via the HDMI and RGB/COMPONENT output connectors is set at "AUTO" (the setting for automatic detection).

If you want to specify an output format of your choosing, change the setting to match the setting on the device receiving the output from the VR-3EX.

MEMO

- For a list of supported output formats, refer to "Output Formats" (p. 19).
- Output video from the HDMI and RGB/COMPONENT output connectors all has the same video format. Selecting individual video formats for these is not possible.

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

2. **Touch <VIDEO OUTPUT>.**
The VIDEO OUTPUT menu is displayed.

3. **Touch <OUTPUT RESOLUTION>.**
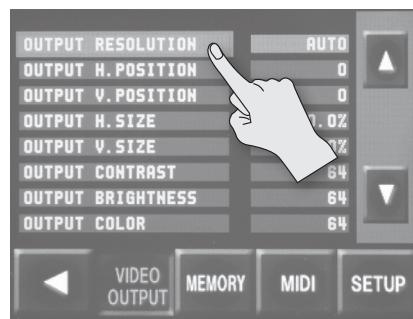
4. **Turn the [VALUE] knob to set the output format.**
Set the output format to match the device receiving output from the VR-3EX.

Value		Video signal that is output	
		RGB/COMPONENT connector	HDMI connectors
480/576i	1080i	Component	HDMI
480/576p	720p	RGB	
1080p	640×480		
800×600	1024×768		
1280×768	1280×1024		
1366×768	1400×1050		
1600×1200	1920×1200		
AUTO		The output format is automatically set to match the connected equipment.	

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

6. **Press the [MENU] button twice to quit the menu screen.**

Adjusting the Main Output Video

You adjust the main output video to match the equipment receiving output from the VR-3EX.

MEMO

You can output a color bar, useful for adjusting the image quality of a display. Use [MENU] → <SETUP> → <COLOR BAR OUTPUT> to set the value to "ON."

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

2. Touch <VIDEO OUTPUT>.

The VIDEO OUTPUT menu is displayed.
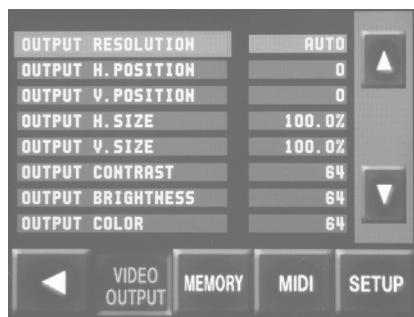
3. Adjusting the Main Output Video.

You can make the settings for the items described below.

| Setting item	Explanation
OUTPUT RESOLUTION	This sets the output format. → "Setting the Video Output Format" (p. 20)
OUTPUT H. POSITION	This adjusts the display position in the horizontal direction.
OUTPUT V. POSITION	This adjusts the display position in the vertical direction.
OUTPUT H. SIZE	This adjusts the size in the horizontal direction.
OUTPUT V. SIZE	This adjusts the size in the vertical direction.
OUTPUT CONTRAST	This adjusts the contrast.
OUTPUT BRIGHTNESS	This adjusts the brightness.
OUTPUT COLOR	This adjusts the color.
OUTPUT COLOR SPACE	This sets the color space (system for representing colors in video) of the HDMI and RGB/COMPONENT output connectors.
OUTPUT DVI-D/HDMI	This sets the output mode of the HDMI output connector.
OUTFADE WHITE LEVEL	This adjusts the white level during output fade (p. 26).
OUTFADE BLACK LEVEL	This adjusts the black level during output fade (p. 26).

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

Changing the Video Output from the Video Output Connectors

You can switch the video output of the PVW OUT connector, VIDEO output connector, and USB port between the following two types.

(1) Main output video

(2) Four-way split screen of input video on video channels 1 through 4

1. Press the [IN/OUT SETUP] button.
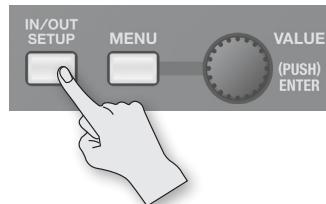
The input/output setup screen for video is displayed.

2. Touch the switch section for the connector you want to set (PVW OUT connector, VIDEO output connector, or USB port).
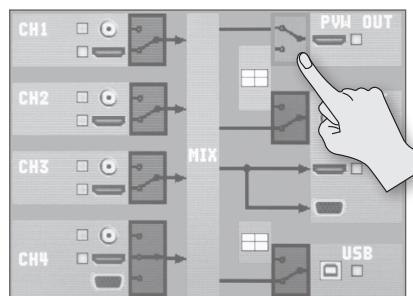
3. Turn the [VALUE] knob to select the output video.

4. Press the [IN/OUT SETUP] button to quit the setup screen.

Adjusting the Input Video on Video Channel 4

Of the input video streams on video channel 4, the RGB/COMPONENT and the HDMI inputs can have their input formats and image quality adjusted manually.

NOTE

Composite video (video input via the VIDEO input connector) on video channel 4 cannot be adjusted.

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

2. **Touch <VIDEO CH4>.**

The VIDEO CH4 menu is displayed.

RESOLUTION	AUTO
H. POSITION	0
V. POSITION	0
H. SIZE	100.0%
V. SIZE	100.0%
CONTRAST	64
BRIGHTNESS	64
SHARPNESS	0

VIDEO CH4 PinP SPLIT KEY ▶

3. **Adjust the input video on channel 4.**

You can make the settings for the items described below.

Setting item	Explanation
RESOLUTION	This sets the input format. (Refer to the chart at right.)
H. POSITION	This adjusts the display position in the horizontal direction.
V. POSITION	This adjusts the display position in the vertical direction.
H. SIZE	This adjusts the size in the horizontal direction.
V. SIZE	This adjusts the size in the vertical direction.
CONTRAST	This adjusts the contrast.
BRIGHTNESS	This adjusts the brightness.
SHARPNESS	This adjusts the sharpness of outlines.
FLICK FILTER	This reduces flicker.
COLOR	This adjusts the color.

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

Setting the Input Format

By factory default, the input format for video channel 4 is set at "AUTO" (setting for automatic detection).

If you want to specify an input format of your choosing, change the setting of "RESOLUTION" to match the incoming video signal.

Value		Video signal that is input (channel 4)	
		RGB/COMPONENT connector	HDMI connectors
480/576i	480/576p	Component	HDMI
720p	1080i		
1080p			
640×480	800×600	RGB	
1024×768	1280×768		
1280×1024	1366×768		
1400×1050	1600×1200		
1920×1200			
AUTO		The input format is automatically detected.	

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.

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

2. Touch <SETUP>.

The SETUP menu is displayed.

3. Touch <HDCP>.

4. Turn the [VALUE] knob to set the value to "ON."

Value	Explanation
ON	Copyright-protected (HDCP) video can be input.
OFF	Copyright-protected (HDCP) video cannot be input.

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

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

Checking HDCP-compatible Equipment

When "HDCP" is set to "ON," you can use the video input/output setup screen (p. 20) to check the status of HDCP support of connected equipment.

An HDCP icon is displayed according to the status of HDCP support.
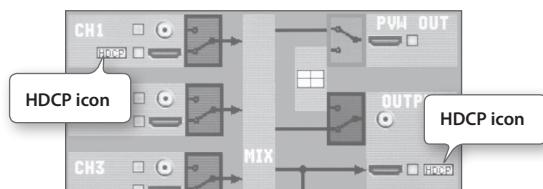
Connector	HDCP support status
HDMI input	Copyright-protected (HDCP) video is being input.
HDMI output	An HDCP-compatible device is connected.

Output from Connectors

When "HDCP" is set to "ON," video is output only from the HDMI output connector. No video is output from the other video output connectors or the USB port.
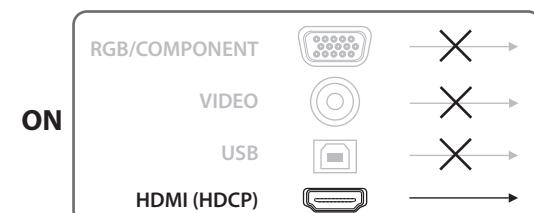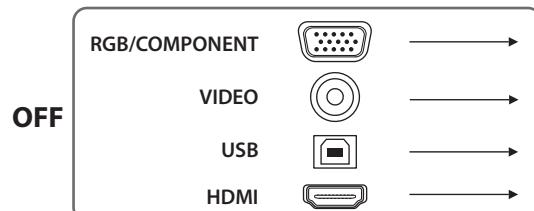
NOTE

- When "HDCP" is set to "ON", audio is output only from the HDMI output connectors. Connect audio/video amplifiers or televisions that are HDCP-compatible.
- Audio output to headphones is always on.

Operation of the HDCP indicator

The HDCP indicator on the top panel operates as follows, regardless of input.

| Indicator	"HDCP" setting	Connection status
Lighted	ON	An HDCP-compatible device is connected to the HDMI output connector.
Flashing	ON	No HDCP-compatible device is connected to the HDMI output connector. Alternatively, a device that does not support HDCP is connected.
Dark	OFF	—

Video Operations

Switching the Video

You can switch between the video inputs via channels 1 through 4.

Switching by Touching the Screen

Touch the channel screen on the monitor to switch the video.

1. Press the MONITOR [INPUT] button, making the button light up.

Input from the source equipment (channels 1–4) is displayed on the monitor.
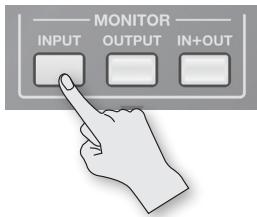
Channel 1　　　　　　　　　**Channel 2**

Channel 3　　　　　　　　　**Channel 4**
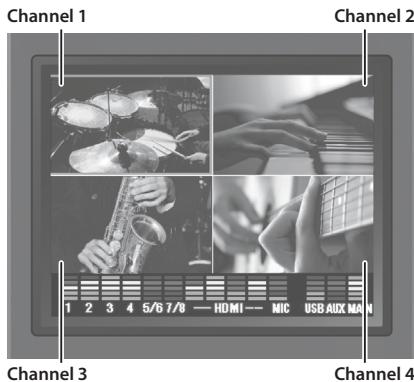
2. Press any of the TRANSITION [CUT]–[WIPE] buttons to select a transition effect.
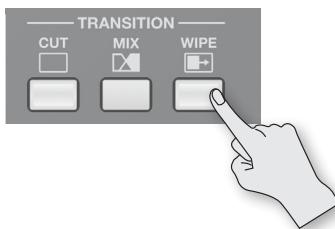
Button	Explanation
[CUT]	The picture switches instantly. A ⟶ B
[MIX]	In this transition, as the original picture gradually disappears, the next video is overlaid and progressively grows more visible. A ▸ A ▸ B
[WIPE]	In this transition, the original video is broken into by the next video. A ▸ A ▸ B

• You can change mix and wipe transition patterns. For details, refer to "Using a Different Transition Pattern" (p. 25).

**3.** Use the [TRANSITION] knob to set the length of time for applying the video transition.
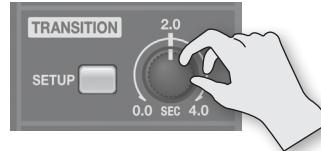
When a mix or wipe has been selected as the transition effect, you can set a video transition time in a range of 0.0 to 4.0 seconds. Adjust so that the video changes with the timing you want.

When the setting is 0.0 seconds, no transition effect is applied.

4. Touch the screen for the channel you want to output.

NOTE

Don't touch the screen in two or more locations simultaneously; the locations cannot be detected correctly.
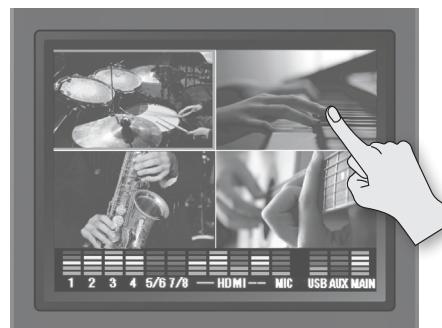
The video changes.

While the transition effect is being applied, a green border is displayed around the channel screen for the video that is going live. When the effect has completed the previous source border changes from green to red.

Switching the Video Using Buttons

Press a [VIDEO SELECT] button to switch the video.

1. Carry out the operations described in steps 1 through 3 in the previous section.

2. Press one of the VIDEO SELECT [1]–[4] buttons to select the channel you want to output.
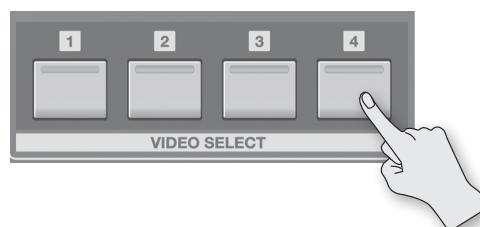
The video changes.

While the transition effect is being applied, a green border is displayed around the channel screen for the video that is going live. When the effect has completed the previous source border changes from green to red.

Switching Automatically

You can make the video on channels 1 through 4 switch automatically.

MEMO
- Any channels carrying no video input are skipped.
- Switching the video manually is not possible while an automatic switch is in progress.

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

2. Touch <SETUP>.

The SETUP menu is display.

3. Touch <AUTO CHANNEL SCAN>.

4. Turn the [VALUE] knob to set the value to "ON."

Value	Explanation
ON	Video automatic switching is turned on. The video on channels 1 through 4 is switched automatically.
OFF	The video automatic switching feature is turned off.

MEMO
You can set a video transition interval in a range of 1 to 120 seconds. Use [MENU] → <SETUP> → <AUTO SCAN TIME> to make the setting.

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

## Using a Different Transition Pattern

A variety of transition patterns are available for mix and wipe transition effects.

To use a different pattern, change the transition pattern assigned to the TRANSITION [MIX] or [WIPE] button.

MEMO
For a list of transition-pattern types, refer to "Transition Effects List" (p. 52).

1. Press the TRANSITION [SETUP] button.
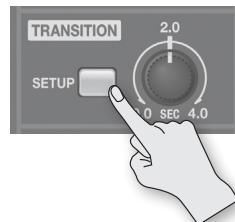
The setup screen for transition effects is displayed.

2. Touch <MIX> or <WIPE>.
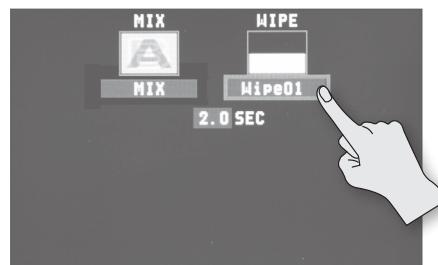
3. Turn the [VALUE] knob to change the transition pattern.

**4.** Press the TRANSITION [SETUP] to quit the setup screen.

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

You can apply fade to the VR-3EX's main output video.

This lets you make the main output video fade to a black (or white) picture at times when you want to suppress video output, such as during intervals in a band performance.

Applying a Fade-out

1. Turn the [OUTPUT] knob all the way clockwise or counterclockwise.
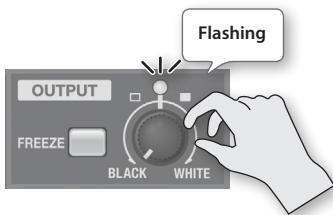

Turning the [OUTPUT] knob clockwise applies a white fade-out, and turning it counterclockwise applies a black fade-out.

Applying a fade makes the indicator above the knob flash.

Applying a Fade-in

1. Return the [OUTPUT] knob to its center position.
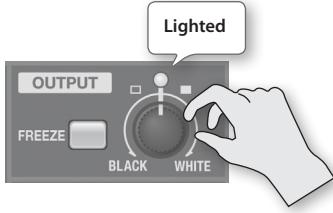
The indicator stops flashing and lights up steadily, and output starts.

> **MEMO**
>
> You can adjust the level of the fade color. Use [MENU] → <VIDEO OUTPUT> → <OUTFADE WHITE LEVEL> or <OUTFADE BLACK LEVEL> to adjust.

Stopping (Freezing) the Main Output Video

You can freeze the video on the main output.

When you are changing the connections between two computers during output, freezing the output before disconnecting the first computer and then ending the freeze after connecting the second computer makes it possible to change the connections without creating noise in the output.

1. Press the [FREEZE] button.
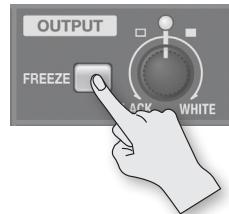
The [FREEZE] button lights up and the main output video freezes.

Pressing the [FREEZE] button a second time makes the [FREEZE] button go dark, and normal output returns.

Compositing the Video

The VR-3EX provides the following four types of video composition.

| Button	Video composition	Explanation
[PinP]	Picture-in-Picture	This composites video in an inset screen over a background video.
[SPLIT]	Split	This composites two video streams in a split screen.
[QUAD]	Quad	This composites the input pictures on video channels 1 through 4 in a single screen.
[KEY]	Key	This makes a portion of the video transparent and composites it with background video.

Compositing Using Picture-in-Picture (PinP)

This composites video in an inset screen over a background video.
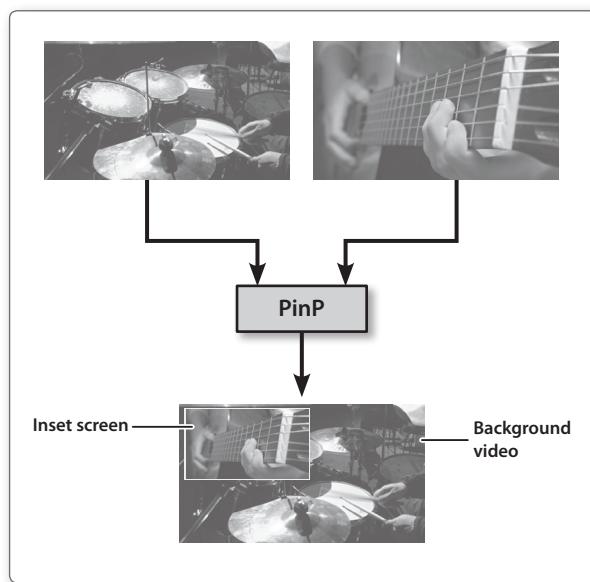

MEMO

- The duration of the fade when the inset screen appears or disappears is the length of time set for transition effects. Use the [TRANSITION] knob to adjust the fade time.
- While compositing of the video is in progress, the video switches with cuts regardless of the selected transition effect.

1. Press the MONITOR [INPUT] button, making the button light up.
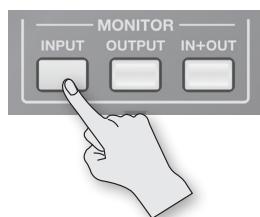
Input from the source equipment (channels 1–4) is displayed on the monitor.

2. Press the COMPOSITION [PinP] button.
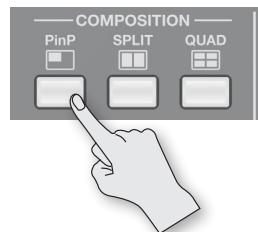
The [PinP] button lights up. At the same time, the VIDEO SELECT [1] through [4] buttons all flash in green.

3. Touch the channel screen you want to make the background video.

A red border is displayed around the selected channel screen.

4. Press one of the VIDEO INPUT SELECT [1] through [4] buttons to select the channel you want to make the inset screen.
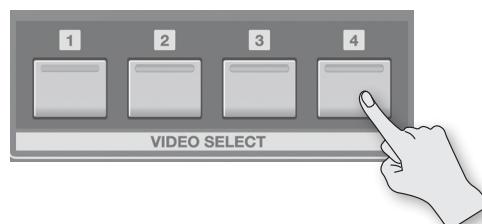
The indicator for the selected channel lights up in green, and the video selected becomes the inset screen and is composited.

5. If you want to delete the inset screen, press the [PinP] button again.

The [PinP] button goes dark and the inset screen disappears.

Changing the Position and Size of the Inset Screen

1. **Press the MONITOR [OUTPUT] button, making the button light up.**

The video currently being output is displayed on the monitor.

2. **Touch the inset screen and drag with your finger to move the screen.**
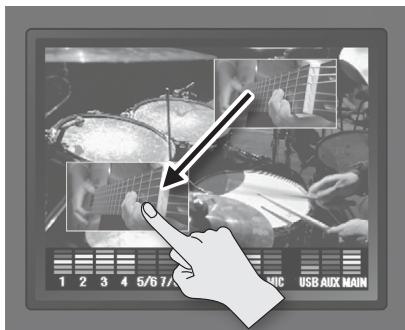
3. **Turn the [VALUE] knob to change the size of the inset screen.**

Turning clockwise enlarges the screen, and turning counterclockwise reduces it.

You can enlarge or reduce the screen size in greater increments by holding down the [VALUE] knob as you turn it.

Making Detailed Settings for the Inset Screen

You can make more-detailed settings for the inset screen, such as adjusting its edges and shadows.

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

2. **Touch <PinP> to display the PinP menu.**

3. **Adjust the inset screen.**

You can make the settings for the items described below.

Setting item	Explanation
H. POSITION	This adjusts the position of the inset screen in the horizontal direction.
V. POSITION	This adjusts the position of the inset screen in the vertical direction.
HV. SIZE	This adjusts the size of the inset screen at a fixed aspect ratio.
H. SIZE	This adjusts the horizontal size of the inset screen.
V. SIZE	This adjusts the vertical size of the inset screen.
BORDER	This adjusts the width of the border for the inset screen.
BORDER COLOR	This sets the color of the border for the inset screen.
SHADOW	This adjusts the length of the shadow added to the inset screen.
SHADOW COLOR	This sets the color of the shadow added to the inset screen.
TRIMMING	This adjusts the trimming width for the inset screen.
PREVIOUS SELECT	When set to "ON," the channel of the previously selected inset screen is selected automatically when the [PinP] button is pressed.

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

Compositing Using Split (SPLIT)

This composites two video streams in a split screen.
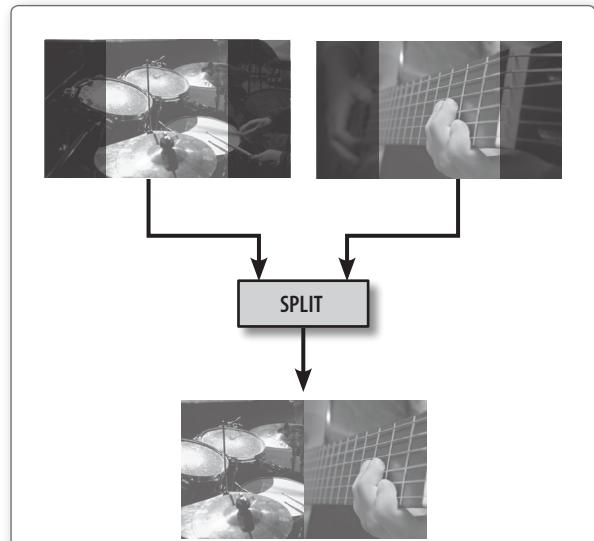
MEMO

While compositing of the video is in progress, the video switches with cuts regardless of the selected transition effect.

NOTE

Turning split composition on or off makes the output video briefly turn black.

Split Composition Patterns

The following four patterns are available for split composition.

To change the pattern, use [MENU] → <SPLIT> → <PATTERN>.

| Value	Explanation	
V. CENTER	This vertically crops the center section of the video.	
H. CENTER	This horizontally crops the center section of the video.	
V. STRETCH	This stretches the video vertically.	
H. STRETCH	This stretches the video horizontally.	

Compositing Using Split

1. Press the MONITOR [INPUT] button, making the button light up.
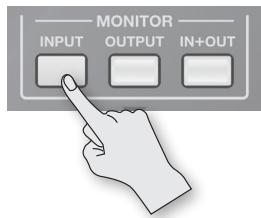
Input from the source equipment (channels 1–4) is displayed on the monitor.

2. Press the COMPOSITION [SPLIT] button.
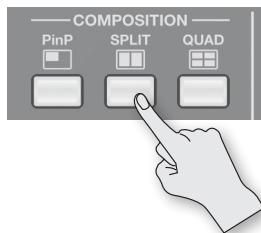
The [SPLIT] button lights up. At the same time, the VIDEO SELECT [1] through [4] buttons all flash in green.

3. Touch the channel screen you want to display on side A.
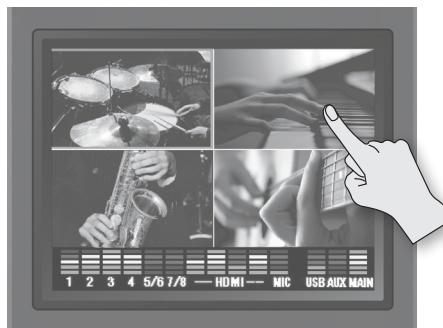
A red border is displayed around the selected channel screen.

4. Press one of the VIDEO INPUT SELECT [1] through [4] buttons to select the channel you want to display on side B.
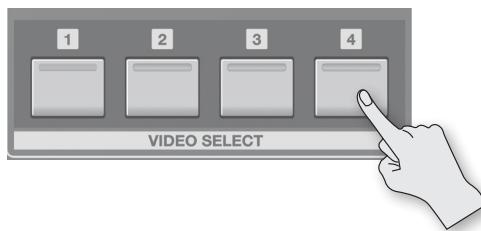
The indicator for the selected channel lights up in green, and the video streams you selected in steps 3 and 4 are composited.

5. To quit the split view, press the [SPLIT] button again.

The [SPLIT] button goes dark and the side-B screen disappears.

Making Detailed Settings for Split Composition

You can make more-detailed settings, such as the cropping location for the video.

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

2. Touch <SPLIT> to display the SPLIT menu.

3. Make the detailed settings.

You can make the settings for the items described below.

Setting item	Explanation
A-CENTER	This adjusts the center position of the video displayed on side A
B-CENTER	This adjusts the center position of the video displayed on side B.
SOFT EDGE	When set to "ON," this applies soft edges to split areas.
PATTERN	This sets the split pattern (p. 28).
PREVIOUS SELECT	When set to "ON," the previously selected channels for side A and side B are selected automatically when the [SPLIT] button is pressed.

* When "PATTERN" is set to "V. STRETCH" or "H. STRETCH," the "A-CENTER," "B-CENTER," and "SOFT EDGE" settings have no effect.

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

Compositing Four Video Streams on a Single Screen (QUAD)

This composites the input pictures on video channels 1 through 4 in a single screen.

The four input-video pictures are composited using the same layout as when the monitor view is in input mode.

MEMO

Switching the video during video compositing is not possible.

1. Press the COMPOSITION [QUAD] button.
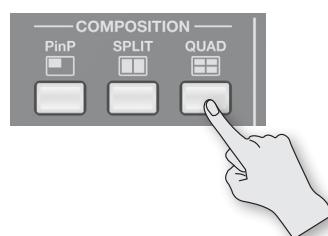
At the same time, the VIDEO SELECT [1] through [4] buttons all flash in green, and the input video on video channels 1 through 4 is composited on a single screen.

2. If you want to quit the split view, press the [QUAD] button again.

The [QUAD] button goes dark and normal output returns.

Compositing Using Luminance Key/Chroma Key

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

With key composition on the VR-3EX, you can take video that has added transitions and compositing and further composite it with other video, logos, or text.

For instance, you can carry out two-screen composition of live video feed from two cameras, then use key composition to add a program logo input from a computer.

Compositing Using Luminance Key

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

Using luminance keying lets you superimpose logos or text on a background picture, as shown below.
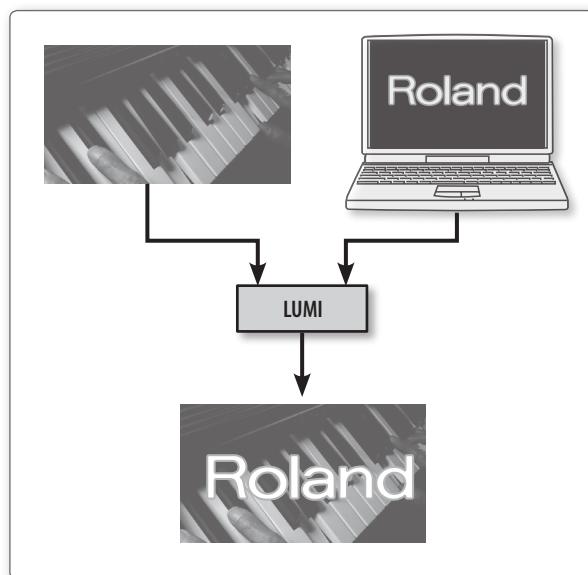
MEMO

- The duration of the fade during which the foreground picture and the logo or text appear or disappear is the length of time set for transition effects. Use the [TRANSITION] knob to adjust the fade time.
- You can set the extraction color for luminance keying and the degree of edge blur of the picture displayed in the foreground. Use [MENU] → <KEY> to make the settings.

Setting item	Explanation
LUMI KEY COLOR	This selects either "WHITE" or "BLACK" as the extraction color for luminance keying.
LUMI KEY EDGE	This adjusts the degree of edge blur for the foreground video, text, or logo.

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

2. Touch <KEY>.
The KEY menu is displayed.

3. Touch <KEY CHANNEL>.

4. Turn the [VALUE] knob to select the channel you want to display in the foreground (CH1 through CH4).

MEMO

- The selected channel (the channel shown in the foreground in key composition) is displayed on the channel screen with a KEY icon.

- You can disable operation of the [KEY] button by selecting the "OFF" item.

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

6. Press the MONITOR [INPUT] button, making the button light up.
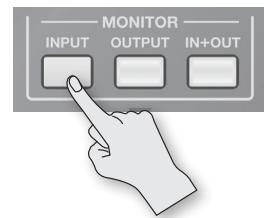
Input from the source equipment (channels 1–4) is displayed on the monitor.

7. Touch the channel screen you want to make the background video.
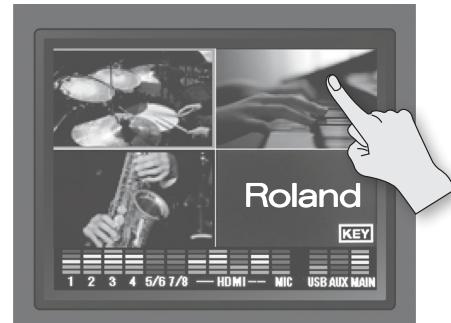
A red border is displayed around the selected channel screen.

8. **Press the [KEY] button.**

The [KEY] button lights up and the video on the channels you selected in steps 4 and 7 is composited.

9. **Turn the [KEY LEVEL] knob clockwise toward "LUMI ⊤" to adjust the amount of keying.**

Positioning the [KEY LEVEL] knob at center completely extracts the foreground picture, leaving only the background visible.

Turn the [KEY LEVEL] knob clockwise from center to find just the right amount of keying.

10. **To make the foreground video, logo, or text disappear, press the [KEY] button again.**

The [KEY] button goes dark and the picture, logo, or text displayed in the foreground disappears.

Compositing Using Chroma Key

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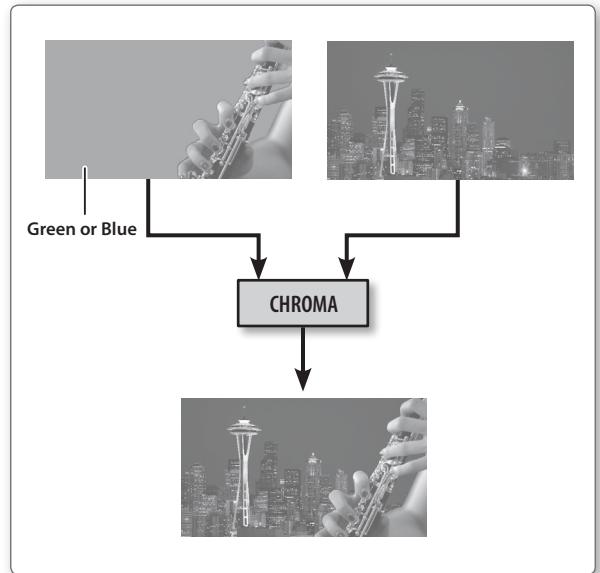
NOTE

Chroma-key composition sometimes leaves color or small artifacts at the edges of the extracted video, but this is not a malfunction.

MEMO

- The duration of the fade during which the foreground picture appears or disappears is the length of time set for transition effects. Use the [TRANSITION] knob to adjust the fade time.

- You can set the extraction color for chroma keying and the degree of edge blur of the picture displayed in the foreground. Use [MENU] → <KEY> to make the settings

| Setting item	Explanation
CHROMA KEY COLOR	This selects either "GREEN" or "BLUE" as the extraction color for luminance keying.
CHROMA KEY EDGE	This adjusts the degree of edge blur for the foreground video.

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

2. **Touch <KEY>.**

The KEY menu is displayed.

3. **Touch <KEY CHANNEL>.**

4. **Turn the [VALUE] knob to select the channel you want to display in the foreground (CH1 through CH4).**

Select the channel shot against the blue or green background.

MEMO

• The selected channel (the channel shown in the foreground in key composition) is displayed on the channel screen with a KEY icon.

KEY icon

• You can disable operation of the [KEY] button by selecting the "OFF" item.

5. **Press the [MENU] button twice to quit the menu screen.**

6. **Press the MONITOR [INPUT] button, making the button light up.**
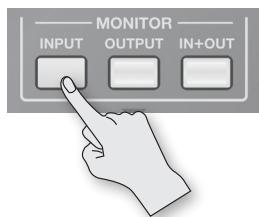
Input from the source equipment (channels 1–4) is displayed on the monitor.

7. **Touch the channel screen you want to make the background video.**

A red border is displayed around the selected channel screen.

8. **Press the [KEY] button.**

The [KEY] button lights up and the video on the channels you selected in steps 4 and 7 is composited.

9. **Turn the [KEY LEVEL] knob counterclockwise toward "CHR ▣" to adjust the degree of extraction.**

Positioning the [KEY LEVEL] knob at center completely extracts the foreground picture, leaving only the background visible.

Turn the [KEY LEVEL] knob clockwise from center to find just the right amount of keying.

10. **To make the foreground video disappear, press the [KEY] button again.**

The [KEY] button goes dark and the picture displayed in the foreground disappears.

Applying Effects to Video

You can apply effects to the main output video.

The VR-3EX has 11 types of built-in filter effects, including Afterimage and Colorize.

By factory default, "COLOR PASS" (FX1) and "SEPIA" (FX2) are assigned to the [VIDEO FX] knob. Changing the assigned effects enables you to use different ones.

Selecting an Effect

1. **Press the VIDEO FX [SETUP] button.**

The setup screen for effects is displayed.

2. **Touch <FX1> or <FX2>.**
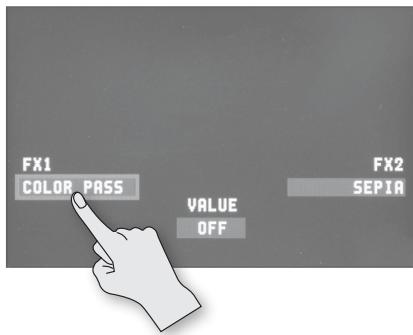
You can assign separate effects to the counterclockwise (FX1) and clockwise (FX2) directions of the [VIDEO FX] knob.

3. **Turn the [VALUE] knob to change the effect.**

Effect name	Explanation
STROBE	This adds a stop-motion effect to the video.
NEGATIVE	This inverts the brightness and colors.
COLORIZE	This adds color to the video.
FINDEDGE	This extracts contours.
SILHOUETTE	This separates the video into light and dark areas, and makes the dark areas black and adds a different color to the light areas.
MONOCHROME	This produces monochrome video.
SEPIA	This adds a sepia effect to the video.
EMBOSS	This adds a bas-relief effect to the video.
POSTERIZE	This changes the gradations in brightness.
COLOR PASS	This produces monochrome video with a specific color remaining.
MULTI	This divides the video vertically or horizontally to produce multiple screens.
OFF	This assigns no effect.

5. **Press the VIDEO FX [SETUP] button to quit the setup screen.**

Applying an Effect

NOTE

Some effects cannot be used simultaneously with certain compositing effects or transition effects.

Compositing/transition effect	Effects that cannot be used simultaneously
PinP	SILHOUETTE, MULTI
SPLIT	SILHOUETTE, MULTI
QUAD	STROBE, SILHOUETTE, MULTI
WIPE * When Slide or Stretch is selected.	MULTI
WIPE	SILHOUETTE

1. **Output the video to which you want to apply an effect (p. 24).**

2. **Turn the [VIDEO FX] knob to apply the effect.**

Turning the [VIDEO FX] knob counterclockwise applies the "FX1" effect. Turning it clockwise applies the "FX2" effect.

3. **Turn the [VIDEO FX] knob to adjust the amount of effect applied.**

MEMO

The following effects are only switched on and off by the [VIDEO FX] knob.
- MONOCHROME
- SEPIA
- EMBOSS

4. **When you want to turn off an effect, return the [VIDEO FX] knob to its "OFF" position.**

MEMO

When the "FX1" and "FX2" effects are set to "OFF" (no assigned effect), turning the [VIDEO FX] knob applies no effect.

This can help prevent inadvertently applying an effect to video through mistaken operation of the [VIDEO FX] knob.

Audio Operations

Adjusting the Volume Balance of Input Audio

You can adjust the input sensitivity, sound position, and volume balance of audio input to the VR-3EX.

> **NOTE**
>
> Lowering the [MAIN] fader all the way results in no audio output from the output connectors assigned to the MAIN bus (p. 39).

### Adjusting the Input Sensitivity

This adjusts the input sensitivity of source devices (such as microphones and audio mixers) connected to AUDIO INPUT connectors 1 through 4 on the side panel.

* Operate the knob and fader for the channel corresponding to the input connector.

1. Turn the [GAIN] knob all the way counterclockwise to turn down the input sensitivity.

2. Raise the channel fader to the bold line position (see the figure below).

Bold line position
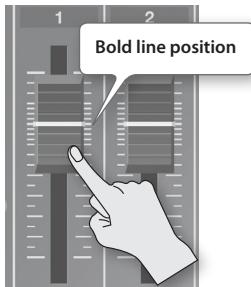
3. Slowly turn the [GAIN] knob clockwise to adjust the input sensitivity.

While actually playing the incoming audio, turn the [GAIN] knob to raise the input sensitivity.

Adjust so that the SIG/PEAK indicator above the [GAIN] knob briefly lights up in red when the audio from the source equipment is at its highest volume level.

- The SIG/PEAK indicator lights up as shown below according to the audio input.

Indicator	Status
Lighted green	Lights up in green when audio input is detected.
Lighted red	Lights up in red when volume exceeds maximum input level. If this happens, audio output from the VR-3EX might be distorted.

Adjusting the Sound Position (Pan)

The left-right position of audio is called the sound position (pan).

On the VR-3EX, you can adjust the sound position of sources connected to AUDIO INPUT jacks 1 through 4 on the side panel.

This lets you broaden the sound by moving its sound position farther to the left and right at times such as when you're transmitting feed of a performance using two microphones.

1. Press the [SETUP] button for the channel whose sound position you want to adjust.
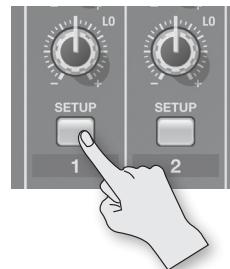
The setup screen is displayed.

2. Touch <PAN>.
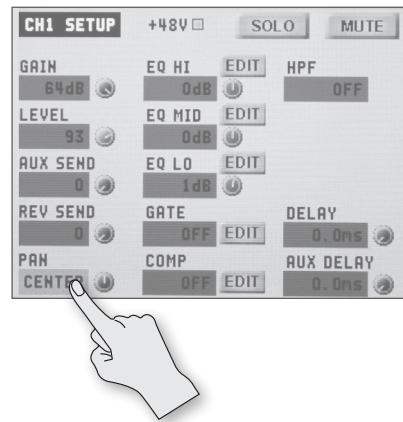
3. Turn the [VALUE] knob to adjust the sound position.

4. Press the [SETUP] button to quit the setup screen.

Adjusting the Volume Balance

This adjusts the volume balance of channels 1 through 7/8, the internal microphones, and HDMI audio.

1. Raise and lower the channel faders to adjust the volume balance on the respective channels
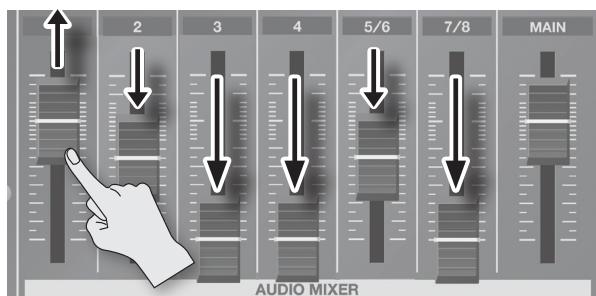
Raise the fader for a channel you want to make more prominent, such as, for example, a presenter's microphone, and lower the faders for other channels.

On channels that have no input or that carry audio that is not for output, lower their faders all the way.

2. Turn the [INTERNAL MIC] knob to adjust the volume level of the internal microphones.
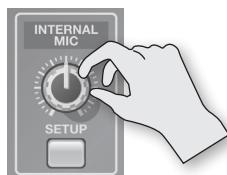
You can use the internal microphones to mix ambient sounds, such as the voices of nearby people, into the main output audio.

When you aren't using audio from the internal microphones, turn the [INTERNAL MIC] knob all the way counterclockwise to lower the volume level completely.

> **NOTE**
> The internal microphones are sensitive enough to pick up sounds of the VR-3EX's buttons and faders being operated.

3. Turn the HDMI [1] through [4] knobs to adjust the volume level of HDMI audio.
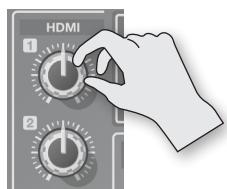
When you aren't using HDMI audio, turn the [HDMI] knobs all the way counterclockwise to lower the volume level completely.

You can check the level meter at the bottom of the screen to determine whether the volume has been adjusted to a suitable level. A level where indicators "-18" through "-6" light up when peak-volume audio is input is appropriate.

Input audio | **Output audio**

OVER / -6 dB / -18 dB / -30 dB / -48 dB
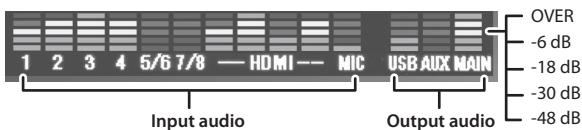
Adjusting the Volume Level of Main Output Audio

This adjusts the volume level of the main output audio.

1. See the level meter to check the volume level of the main output audio.

Excessive
Suitable
Insufficient
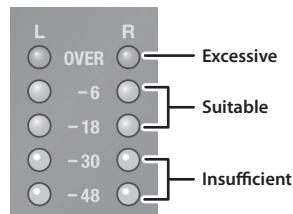
If OVER lights up, the volume level is excessive.

If only the indicators up to -48 or -30 light up, the volume level is insufficient.

2. Move the [MAIN] fader to adjust the volume level.
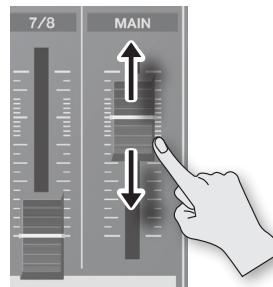
A level where indicators "-18" through "-6" light up when peak-volume audio is input is appropriate.

> **NOTE**
> If the volume level of speaker output is not suitable even after adjustment so that -18 to -6 light up, adjust the volume for the speakers or the amplifier. Using the [MAIN] fader to carry out further adjustment might result in distortion or degradation of sound quality

Adjusting the Volume Level of USB Output Audio

This adjusts the volume level of audio output from the USB port.

1. Turn the [USB LEVEL] knob.

Applying Effects to Audio

You can apply effects to audio that is input and output to adjust its sound quality.

Applying Effects to Input Audio

You can apply effects to the audio on each channel and the audio from the internal microphones and HDMI input, thereby adjusting its sound quality.

The following chart shows the effects you can use with input audio.

Input audio	Effects			
	Equalizer	Gate	Compressor	High-pass Filter
Channel 1–4	✓	✓	✓	✓
Channel 5/6, 7/8	✓	—	—	—
Internal microphones	✓	✓	✓	✓
HDMI 1–4	✓	—	—	—

1. Press the [SETUP] button for the input audio to which you want to apply an effect.

The setup screen is displayed.

2. Touch the setting item for the effect you want to use, then use the [VALUE] knob to adjust the value.
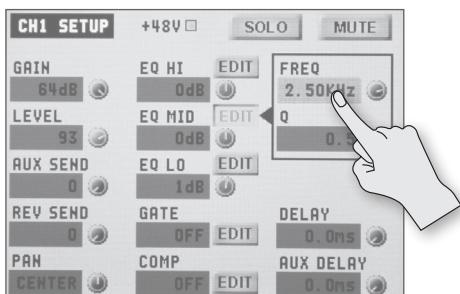
- Touching <EDIT> displays a popup dialog box for detailed settings.
- For more information about effects, refer to the following section.

3. Press the [SETUP] button to quit the setup screen.

NOTE

When the popup dialog box for detailed settings is displayed, on-screen setting values do not change when the [EQ] knobs, faders or other controls are operated.

Equalizer (EQ)

This adjusts the sound quality for each frequency band.

Setting item	Explanation
EQ HI	This boosts or attenuates the high band.
EQ MID	This boosts or attenuates the middle band.
EQ LO	This boosts or attenuates the low band.
FREQ (HI, MID, LO)	This adjusts the center frequency for changing sound quality.
Q (MID)	This adjusts the width of the frequency band when boosting or attenuating the middle band.

You can also use the [EQ] knobs on the top panel to adjust EQ HI, MID, and LO for channels 1 through 4.

Gate (GATE)

This removes audio that is below a specified level.

Setting item	Explanation
GATE	This sets gate on or off
THRESHOLD	This sets the level used as the threshold for removing audio. Audio below the level set here is removed.
RELEASE	This adjusts the length of time until the gate effect ends after audio falls below the threshold.

Compressor (COMP)

This compresses the audio.

Setting item	Explanation
COMP	This sets the compressor on or off.
THRESHOLD	This sets the level used as the threshold when compressing audio. Compression is applied to audio that exceeds the level set here.
RATIO	This specifies the degree of compression applied to the audio. The state in which no compression is applied is defined as "1."
ATTACK	This sets the time until compression starts when audio exceeding the threshold is input.
RELEASE	This adjusts the length of time until compression ends after audio falls below the threshold.

High-pass Filter (HPF)

This cuts off unneeded low-band audio. The cutoff frequency is 75 Hz.

| Setting item	Explanation
HPF	This sets the high-pass filter on or off.

Applying Effects to Main Output Audio

You can apply effects (Reverb, Equalizer, and Mastering) to main output audio to adjust its sound quality.

1. **Press MAIN [SETUP] button.**

The setup screen for main audio output is displayed.

2. **Touch the setting item for the effect you want to use, then use the [VALUE] knob to adjust the value.**
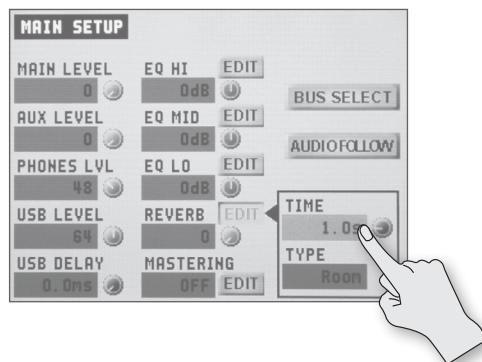
- Touching <EDIT> displays a popup dialog box for detailed settings.
- For more information about effects, refer to the following section.

3. **Press the MAIN [SETUP] button to quit the setup screen.**

NOTE

When the popup dialog box for detailed settings is displayed, on-screen setting values do not change when the [REVERB] knob, [MAIN] fader or other controls are operated.

Equalizer (EQ)

This adjusts the sound quality for each frequency band.

Setting item	Explanation
EQ HI	This boosts or attenuates the high band.
EQ MID	This boosts or attenuates the middle band.
EQ LO	This boosts or attenuates the low band.
FREQ (HI, MID, LO)	This adjusts the center frequency for changing sound quality.
Q (MID)	This adjusts the width of the frequency band when boosting or attenuating the middle band.

Mastering (MASTERING)

This adjusts the acoustic pressure and tone quality.

Setting item	Explanation
MASTERING	This switches mastering on and off.
NS	This adjusts the degree of application of the noise suppressor.
ENHANCER	This adjusts the degree of application of the enhancer.
MASTER HIGH	This suppresses high-frequency distortion and adjusts the sound to have sustained tones.
MASTER MID	This suppresses midrange distortion and adjusts the sound to have distinct tones.
MASTER LO	This suppresses low-frequency distortion and adjusts the sound to have stable tones.

Reverb (REVERB)

This adds lingering reverberations to the audio.

You can apply reverb to the audio on channels 1 through 4 and from the internal microphones and HDMI input.

Setting item	Explanation
REVERB	This adjusts the return level from reverb of the audio. A setting of "0" results in no reverb applied. * You can also use the [REVERB] knob on the top panel to adjust this.
TIME	This adjusts the length of the reverb.
TYPE	This specifies the type of reverb (Room or Hall). Room: Produces the natural reverberations of a highly resonant room. Hall: Produces reverberations like that of a performance in a concert hall or other such space.

1. **Press the [SETUP] button for the input audio to which you want to apply reverb.**

The setup screen is displayed.

2. **Touch <REV SEND>.**
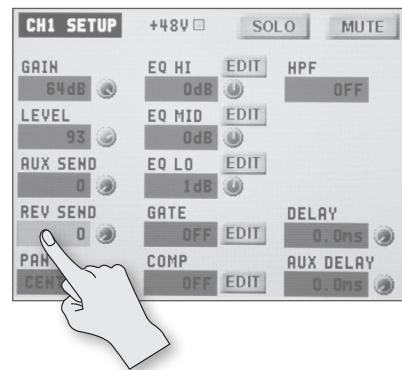
3. **Turn the [VALUE] knob to adjust the send level of audio to Reverb.**

You can set the send level of audio to Reverb for each separate input-audio stream, which lets you adjust the degree of reverb individually.

4. **Turn the [REVERB] knob to adjust the return level of audio from Reverb.**

This adjusts the depth of overall reverb applied while maintaining the balance in the degree of reverb applied to the individual input-audio streams.
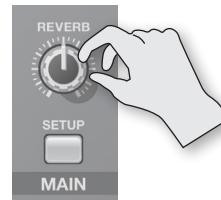
* Turning the [REVERB] knob all the way counterclockwise results in no reverb applied.

5. **Press the [SETUP] button to quit the setup screen.**

Hearing Only Specific Input Audio (Solo/Mute)

You can temporarily monitor specific input audio via headphones (Solo feature). You can also temporarily silence specific input audio (Mute feature).

> **MEMO**
>
> The Solo feature affects output to headphones. It has no effect on non-headphones audio output.

1. Press the [SETUP] button for the input audio on which you want to set Mute or Solo.

The setup screen is displayed.

2. Touch <SOLO> or <MUTE> to switch the feature on or off.

Each touch switches the feature on or off.
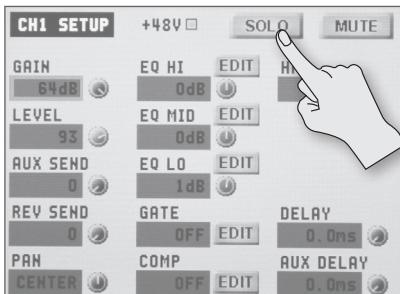
Setting item	Explanation
SOLO	When this is on, the <SOLO> indicator changes to blue. You can hear just the input audio for which this is turned on through the headphones.
MUTE	When this is on, the <MUTE> indicator changes to red. The input audio for which this is turned on is muted out.

3. Press the [SETUP] button to quit the setup screen.

Turning Off Solo/Mute Globally

1. Press the MAIN [SETUP] button.

The setup screen for main audio output is displayed.

2. Touch <SOLO CLEAR> or <MUTE CLEAR>.

When all Solo or Mute settings have been turned off, the <SOLO CLEAR> or <MUTE CLEAR> indication is grayed out.
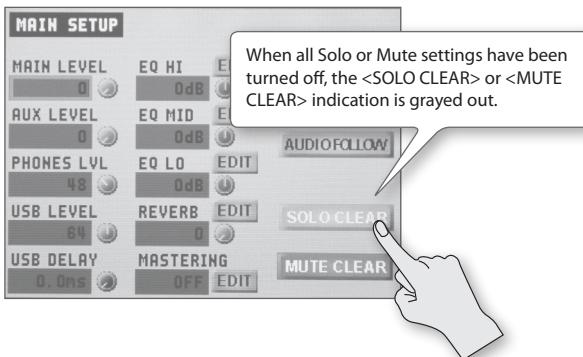
Aligning the Output Timing of Video and Audio (Lip-sync)

Normally, because video processing takes more time than audio processing, the video is output later than the audio, resulting in video and audio that are out of sync.

On the VR-3EX, you can delay output of the audio on the respective channels and from the internal microphones and HDMI input. Delaying audio output lets you output video and audio at the same timing.

1. Input the audio and video from a video camera or other source.

2. Output the video to a projector or other display device and the audio to speakers or headphones.

3. Check whether the video and audio are out of sync.

For example, in a scene showing a drum performance, the sound of the drums being hit might be heard ahead of the video.

4. Press the [SETUP] button for the input audio to which you want to delay output of the audio.

The setup screen is displayed

5. Touch <DELAY>.

• When you want to align the output timing of AUX bus audio (p. 39) and video, touch <AUX DELAY>.
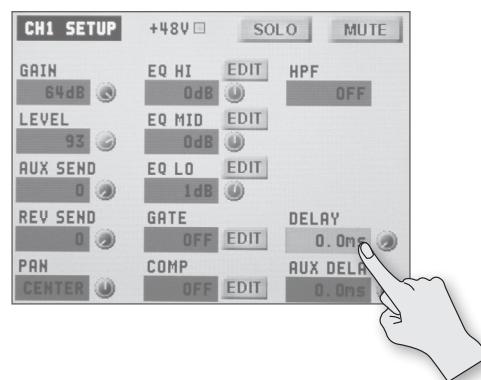
6. Turn the [VALUE] knob to adjust the length of the delay for the audio.

Delay the audio until it is aligned with the video.

> **MEMO**
>
> The amount of delay you apply to the audio depends on the entire system, including the projector.

7. Press the [SETUP] button to quit the setup screen.

> **MEMO**
>
> You can also delay output just for the audio output via the USB port. Use MAIN [SETUP] → <USB DELAY> to adjust the delay time for the audio output via USB.

Using the AUX Bus

The VR-3EX has two built-in audio buses (a MAIN bus and an AUX bus). You can select the audio bus to output for each individual connector.

MAIN bus	This receives all input audio as a group and sends it to output (main output audio).
AUX bus	This lets you selectively choose and mix the input audio to send, and sends it to output. You can output different audio than the main output audio.

For example, you can use this at a live performance venue to output a mix of all input audio (MAIN bus), and when recording or streaming a broadcast, you can use this to output just certain specific input-audio streams (AUX bus).

MEMO

- Reverb (p. 37) is not applied to audio on the AUX bus.
- You can align the timing of AUX bus audio and video. For details, refer to "Aligning the Output Timing of Video and Audio (Lip-sync)" (p. 38).

Assigning an Audio Bus to Audio Output Connectors

1. Press the MAIN [SETUP] button.

The setup screen for main audio output is displayed.
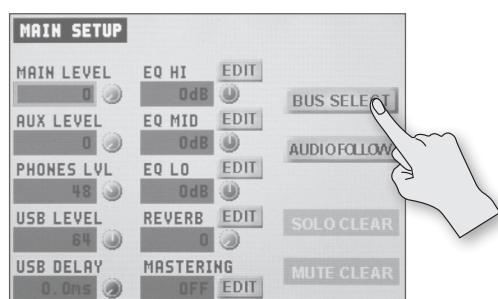
2. Touch <BUS SELECT>.

The BUS SELECT screen is displayed.

3. Touch the switch section for the output connector for which you want to change the audio bus for output
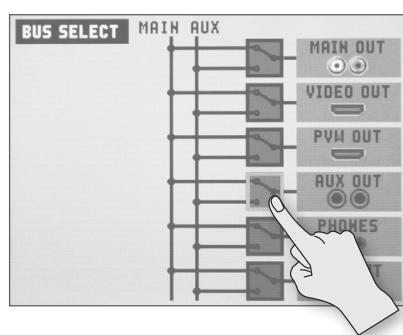
4. Turn the [VALUE] knob to select the MAIN bus or AUX bus.

5. Press MAIN [SETUP] button twice to quit the BUS SELECT screen.

Sending Audio to the AUX Bus

1. Press the [SETUP] button for the input audio you want to use on the AUX bus.

The setup screen is displayed.

2. Touch <AUX SEND>.
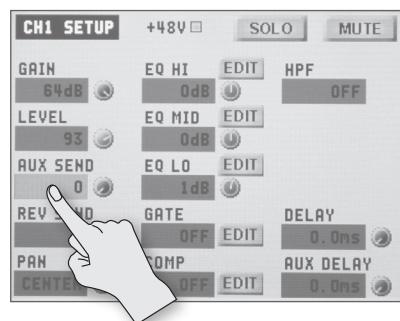
3. Turn the [VALUE] knob to adjust the send level for the audio to the AUX bus.

4. Press the [SETUP] button to quit the setup screen.

Adjusting the Volume Level of Output Audio on the AUX Bus

1. Press the MAIN [SETUP] button.

The setup screen for main audio output is displayed.

2. Touch <AUX LEVEL>.
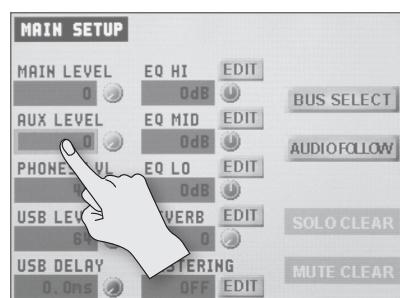
3. Turn the [VALUE] knob to adjust the volume level of AUX-bus output audio.

4. Press MAIN [SETUP] button to quit the setup screen.

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.

NOTE

When the Audio Follow feature is on, only the switching for output and muting is performed automatically.
The positions of volume-adjusting faders and knobs do not change automatically.

1. Follow the procedure in "Adjusting the Volume Balance of Input Audio" (p. 34) to adjust to the volume level you want to output.

2. Press the MAIN [SETUP] button.

The setup screen for main audio output is displayed.
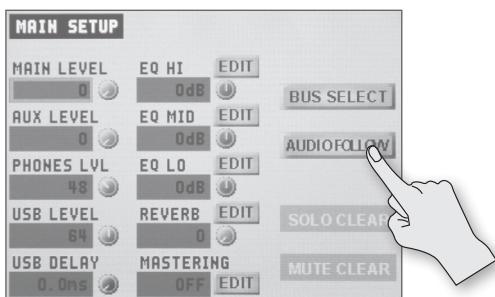
3. Touch <AUDIO FOLLOW>.

The AUDIO FOLLOW screen is displayed.

4. Touch the matrix chart and turn the [VALUE] knob to make the settings for Audio Follow.
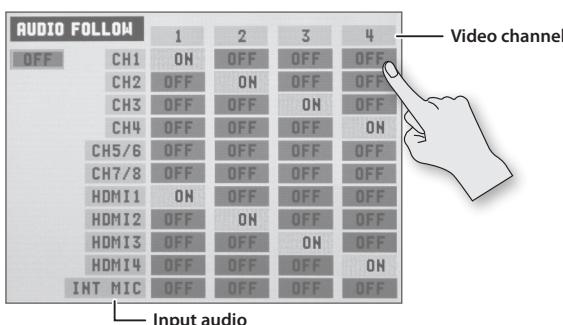
For each video channel, specify the input audio to use with Audio Follow.

Value	Explanation
ON	Used by Audio Follow.
OFF	Not used by Audio Follow.

5. Touch the Audio Follow switch (Refer to the figure below.) and turn the [VALUE] knob to set the Audio Follow feature to "ON."
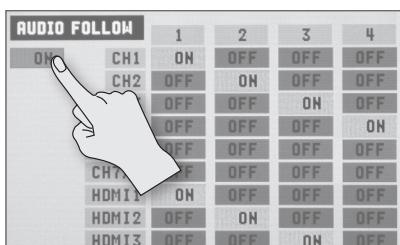
6. Press MAIN [SETUP] button twice to quit the AUDIO FOLLOW screen.

7. Switch the video channel (p. 24).

When the video is switched, only the audio interlinked with it by Audio Follow in step 4 is output.

MEMO

When the Audio Follow feature is on, you can check the text color of <LEVEL> on the respective setup screens to determine what audio is output or muted.

| Light blue: | Audio interlinked with the video is output. |
| Blue: | Audio is muted. |
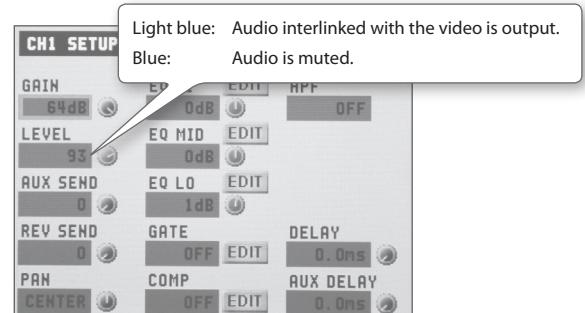
Operations Using a Computer

Outputting Streaming-use Video/Audio to a Computer

NOTE

For the video and audio signals from the VR-3EX to be viewed and heard correctly on the computer, software that supports USB video class and USB audio class must be installed and set up on the computer.

1. **Follow the procedure in "Making the Connection to a Computer" (p. 16) to connect the VR-3EX and a computer using a USB cable.**

2. **Put the VR-3EX in a state capable of outputting video or audio.**

Operate the VR-3EX to get it ready to output video or audio to the computer.

3. **On the computer, confirm the input from the VR-3EX.**

Start a program that supports USB video class or audio class, and check the video or audio input from the VR-3EX.

If necessary, make the following settings on the VR-3EX.
- Adjust the volume balance of the input audio (p. 35).
- Adjust the volume level of the main output audio (p. 35).
- Use the [USB LEVEL] knob to adjust the volume level of audio output from the USB port (p. 35).
- Correct any deviation in the video and audio output via USB (p. 38).
- You can also delay output just for the audio output via the USB port. Use MAIN [SETUP] → <USB DELAY> to adjust the delay time for the audio output via USB.
- Specify whether the audio output via the USB port is on the MAIN bus or the AUX bus (p. 39).
- Specify which of the following applies for the video output via the USB port (p. 21).

  (1) Main output video

  (2) Four-way split screen of input video on video channels 1 through 4

Output Signals

Signals in the following video and audio formats are output from the VR-3EX's USB port.

Video		Audio
When set to NTSC	**When set to PAL**	
720 x 480 pixels/ Motion JPEG	720 x 756 pixels/ Motion JPEG	16 bits, 48 kHz, linear PCM.

Recording Video on a Computer

You can use the dedicated Video Capture for VR software to capture (record) video and audio output from the VR-3EX on a computer connected via USB.

Video Capture for VR can be downloaded from the following Roland website.

For more information about operation methods, refer to the owner's manual included with Video Capture for VR.

http://www.rolandsystemsgroup.net/

Operating the VR-3EX by Remote Control

You can use the VR-3EX RCS dedicated software to operate the VR-3EX by remote control from a computer connected via USB.

VR-3EX RCS can be downloaded from the Roland website mentioned above.

For more information about operation methods, refer to the owner's manual included with VR-3EX RCS.

About Remote Control Via MIDI

The VR-3EX also supports remote control by equipment compatible with MIDI Visual Control.

For information on remote control via MIDI, download and refer to the "VR-3EX Remote Control Guide" (PDF) from the Roland website mentioned above.

What's MIDI Visual Control?

MIDI Visual Control is an internationally-used recommended practice that was added to the MIDI specification so that visual expression could be linked with musical performance.

Video equipment that is compatible with MIDI Visual Control can be connected to electronic musical instruments via MIDI in order to control video equipment in tandem with a performance.

Other Features

Saving/Recalling Settings (Memory)

You can take the current settings, including audio and video settings and the panel state, and save them as a single set in the VR-3EX's internal memory, for later recall and use when needed.

You can save four sets of settings in internal memory.

Saving

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

2. **Touch <MEMORY>.**
   The MEMORY menu is displayed.

3. **Touch <SAVE SETTING>.**

4. **Turn the [VALUE] knob to select the memory number (1 through 4) where you want to save the settings.**

5. **Press the [VALUE] knob.**

6. **Check the message and press the [VALUE] knob.**
   (If you want to quit, press the [MENU] button.)
   The current settings are saved.

7. **Press the [MENU] button twice to quit the menu screen.**

   MEMO
   You can back up setting information from the VR-3EX to a computer connected via USB. For details, refer to "Backing Up/Restoring the VR-3EX's Settings" (p. 43).

Recalling

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

2. **Touch <MEMORY>.**
   The MEMORY menu is displayed.

3. **Touch <LOAD SETTING>.**
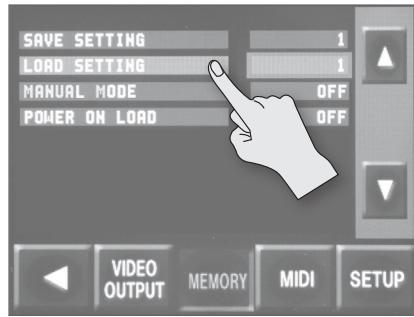
4. **Turn the [VALUE] knob to select the memory number (1 through 4) containing the settings you want to recall.**

5. **Press the [VALUE] knob.**

6. **Check the message and press the [VALUE] knob.**
   (If you want to quit, press the [MENU] button.)
   The settings are recalled.

   NOTE
   Screen corruption occurs when settings are recalled
   When settings in memory are recalled, corruption of the output video occurs when the input connectors are switched or the output format changes.

7. **Press the [MENU] button twice to quit the menu screen.**

   MEMO
   • You can maintain the current positions of controls without overwriting them when settings are recalled from memory. Use [MENU] → <MEMORY> → <MANUAL MODE> to set the value to "ON."
   • You can also recall settings from a specified memory number at startup. Use [MENU] → <MEMORY> → <POWER ON LOAD> to specify the memory number whose settings you want to recall.
   When "POWER ON LOAD" is set to "OFF," the settings at memory number 1 are recalled at startup.

Backing Up/Restoring the VR-3EX's Settings

You can back up the values of settings on the VR-3EX to a computer connected via USB. You can then restore the backed-up data to the VR-3EX when needed.

Preparing the Computer

To back up and restore data, the VR-3EX RCS dedicated software must be installed and set up on the computer. Download and use VR-3EX RCS from the following Roland website.

http://www.rolandsystemsgroup.net/

*   * Also refer to the owner's manual included with VR-3EX RCS.

Backing Up

1. **Using a USB cable, connect the VR-3EX and the computer.**

2. **On the computer, double-click "VR-3EXRCS.exe" to start VR-3EX RCS.**

3. **In VR-3EX RCS, click [Backup].**
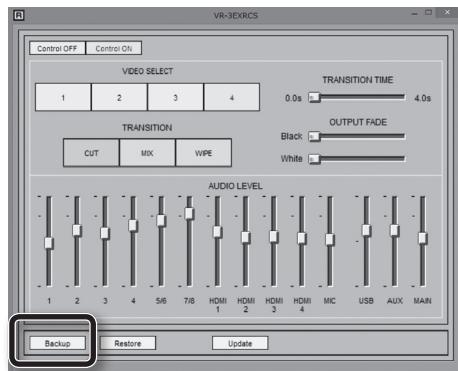
   A popup dialog box appears.
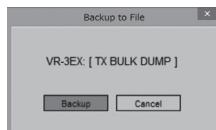
4. **On the VR-3EX, touch [MENU] → <MIDI> → <STD: Tx BULK DUMP>.**

5. **Press the [VALUE] knob on the VR-3EX.**

   The settings on the VR-3EX are sent to the computer. When sending finishes, a popup dialog box appears.
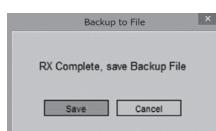
6. **In the popup dialog box, click [Save].**
   (To quit without backing up, click [Cancel].)

   A dialog box for saving the file appears.

7. **Specify the destination for saving the file and a file name (*.txt), then click [OK].**

   The VR-3EX's setting are backed up as a file on the computer. When the message "Complete" appears, the operation has finished.

Restoring

   NOTE

   Restoring backed-up data overwrites the current values of settings on the VR-3EX.

1. **Using a USB cable, connect the VR-3EX and the computer.**

2. **On the computer, double-click "VR-3EXRCS.exe" to start VR-3EX RCS.**

3. **In VR-3EX RCS, click [Restore].**
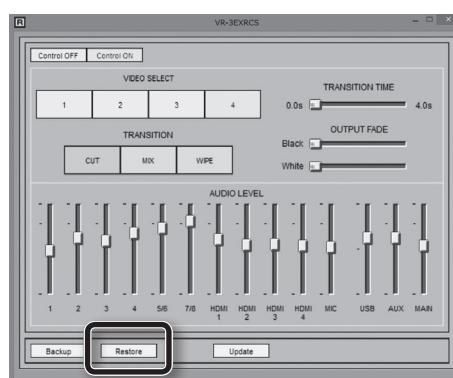
   A popup dialog box appears.

4. **In the popup dialog box, click [Load].**

   A dialog box for selecting the file appears.
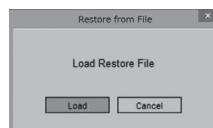
5. **Select the backed-up data to restore, then click [OK].**

   A popup dialog box appears.
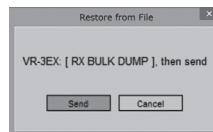
6. **On the VR-3EX, touch [MENU] → <MIDI> → <STD: Rx BULK DUMP>.**

7. **Press the [VALUE] knob on the VR-3EX.**

8. **In the popup dialog box, click [Send].**
   (To quit without restoring, click [Cancel].)

   The restore operation is executed. When the message "Complete" appears, the operation has finished.

Other Features

Turning Off the Power Automatically (Auto Off)

Auto Off is a feature that automatically turns off the power after no operation for a specific period of time. This helps prevent wasting electrical power.

By factory default, the Auto Off function is set on. When the states described below persist for 240 minutes, the Auto Off function acts to automatically turn off the power.

- No operation (including remote-control operation) performed on the VR-3EX
- No audio or video input

To turn the Auto Off function off or on, follow the steps below to change the setting.

MEMO

When the power has been turned off by the Auto Off function, to restart, first press the [POWER] button to return it, then turn on the power.

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

2. Touch <SETUP>.

The SETUP menu is displayed.

3. Touch <AUTO OFF>.
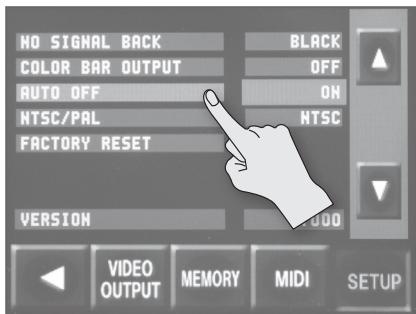
4. Turn the [VALUE] knob to set the Auto Off function on or off.

Value	Explanation
ON	The Auto Off function is turned on. Power is turned off automatically.
OFF	The Auto Off function is turned off. Power is not turned off automatically.

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

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

You can return the values of settings on the VR-3EX to their factory defaults.

If operation that differs from what is described in the owner's manual occurs even when the steps described are followed correctly, try performing a factory reset.

NOTE

Performing a factory reset causes all settings made and values saved in memory (p. 42) to be lost.

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

2. Touch <SETUP>.

The SETUP menu is displayed.

3. Touch <FACTORY RESET>.
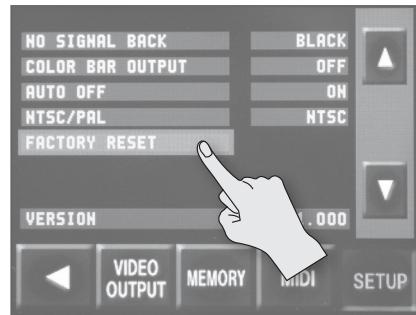
4. Check the message and press the [VALUE] knob.
(If you want to quit, press the [MENU] button.)
A factory reset is executed.

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

Switching Between the NTSC and PAL Formats

On the VR-3EX, for the video system format, you can select either the NTSC standard used in Japan and the U.S.A. or the PAL standard used in Europe and elsewhere. Switch this to suit the application.

MEMO

Changing the video system also changes the frame rate of the output format for the component video signal (p. 19).

NTSC standard: Frame rate at "59.94"

PAL standard: Frame rate at "50"

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

2. **Touch <SETUP>.**

The SETUP menu is displayed.

3. **Touch <NTSC/PAL>.**
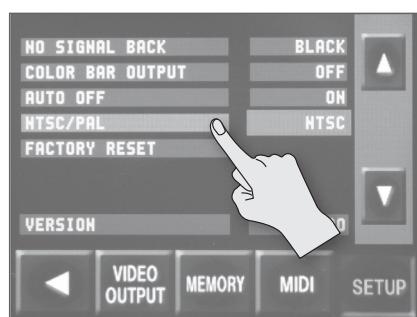
4. **Turn the [VALUE] knob to select "NTSC" or "PAL."**

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

6. **Check the message, then reset the power on the VR-3EX.**

Resetting the power enables the setting and switches the video system.

MEMO

When the VR-3EX starts, the setting for the video system (NTSC or PAL) is displayed on the monitor for several seconds.

Appendices

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			
No picture is input.	Does the equipment connected at HDMI input connectors 1 to 3 support 480p/576p output?	When attaching equipment that does not support 480p/576p output, connect it to HDMI input connector 4.	—
	Have the video sources been assigned correctly for each video channel?	Set which video source is assigned to each individual video channel.	p. 20
A logo cannot be input from a computer.	Is the RGB output from the computer compatible with the input formats on the VR-3EX?	RGB signals that are not compatible with the input formats of the VR-3EX cannot be input correctly.	p. 19
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.	—
No picture is output.	Is "HDCP" set to "ON"?	When "HDCP" is set to "ON," video is output only from the HDMI output connectors. No video is output from the other video output connectors or the USB port.	p. 23
	Has the [OUTPUT FADE] knob been turned clockwise or counterclockwise?	[When the [OUTPUT FADE] knob is turned clockwise or counterclockwise, fade is applied to the main output video. When outputting video, adjust the [OUTPUT FADE] knob to its center position.	p. 26
	Is the monitor connected correctly?	• **HDMI output connectors** When outputting copyright-protected (HDCP) video, connect an HDCP-compatible monitor. • **PVW OUT connector** Connect a monitor that supports 480/59.94p (when set to NTSC) or 576/50p (when set to PAL).	—
Video cannot be switched by touching the screen.	Is the menu screen displayed?	The touch screen cannot be used for switching video while the menu screen is displayed. Exit the menu screen.	—
No transition effect (Mix/Wipe) is applied.	Has the [TRANSITION] knob been turned all the way counterclockwise?	When the [TRANSITION] knob has been turned counterclockwise all the way, the transition time is set at 0.0 seconds and no transition effect is applied. Turn the [TRANSITION] knob to adjust the transition time for the video.	p. 24
Compositing a logo or text is not possible.	Is the key extraction color set correctly?	Set the extraction color (white or black) to match the background color of the logo or text.	p. 30
	Has the [KEY LEVEL] knob been turned in the correct direction?	When compositing using luminance key, turn the control clockwise (T).	p. 30
The video is reddish. **The video is black and white (monochrome).**	Has the [VIDEO FX] knob been turned clockwise or counterclockwise?	When the [VIDEO FX] knob has been turned clockwise or counterclockwise, an effect is applied to the main output video. Return the [VIDEO FX] knob to its "OFF" position to turn off the effect.	p. 33
A black picture is inserted into the output video.	Was key composition and split composition that inserts a black picture into output used at the same time?	During simultaneous use of key composition and split composition, a black picture is inserted into the output video when split composition is turned on or off.	—
Audio-related Problems			
No audio is output. **Audio volume is low.**	Is the volume turned down on the connected amplifications or speakers?	Adjust to an appropriate volume level.	—
	Is the volume turned down on the VR-3EX?	Adjust each input-audio stream to an appropriate volume level. Also, use the [MAIN] fader to adjust the overall volume level.	p. 35
	Is the volume of USB output audio turned down?	Turn the [USB LEVEL] knob to adjust to an appropriate volume level.	p. 35
	Is "HDCP" set to "ON"?	When "HDCP" is set to "ON," audio is output only from the HDMI output connectors. Connect audio/video amplifiers or televisions that are HDCP-compatible.	p. 23
	Is there input audio for which the Solo feature is turned on?	When Solo is set for an input-audio stream, only the input audio for which Solo has been turned on is heard through headphones. Turn off the Solo feature.	p. 38
	Has the input sensitivity of audio channels 1 through 4 been turned down?	On audio channels 1 through 4, no audio is output when the input sensitivity has been turned downed, even when the faders are raised. Turn the [GAIN] knob to adjust the input sensitivity.	p. 34
	Is a condenser microphone connected?	When connecting a condenser microphone or other device requiring phantom power, set the [PHANTOM] switch to "ON."	p. 15
	Are you using connection cables that contain resistors?	If this happens, use connector cables that do not contain resistors.	—
No reverb is applied when the [REVERB] knob is turned.	Is the amount of audio sent to Reverb set at an appropriate level?	If the send level for audio to Reverb is too low, the amount of reverb effect might be difficult to discern. Adjust the send level of the audio to Reverb.	p. 37

Menu List

* The default value is printed in bold characters.

Menu Screens ([MENU] button)

Category	Setting item	Value	Explanation
VIDEO CH4		Of the input video streams on video channel 4, this makes the settings for the video that is input via the RGB/COMPONENT input connector and the HDMI input connector.	
		* Composite video (video input via the VIDEO input connector) on video channel 4 cannot be adjusted.	
	RESOLUTION	**AUTO**, 480/576i, 480/576p, 720p, 1080i, 1080p, 640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1280 x 102 4, 1366 x 768, 1400 x 1050, 1600 x 1200, 1920 x 1200	This sets the input format of the video input via the RGB/COMPONENT input connector and the HDMI input connector.
	H. POSITION	-200–**0**–500	This adjusts the display position in the horizontal direction.
	V. POSITION	-200–**0**–500	This adjusts the display position in the vertical direction.
	H. SIZE	**100.0**–150.0 %	This adjusts the size in the horizontal direction.
	V. SIZE	**100.0**–150.0 %	This adjusts the size in the vertical direction.
	CONTRAST	0–**64**–127	This adjusts the contrast.
	BRIGHTNESS	0–**64**–127	This adjusts the brightness.
	SHARPNESS	**0**–127	This adjusts the sharpness of outlines.
	FLICK FILTER	0–**7**–10	This reduces flicker.
	COLOR	0–**64**–127	This adjusts the color.
		* The valid ranges for "H. POSITION" and "V. POSITION" vary according to the format of the input video. Setting a value that is within an invalid range results in no change in the position of the video.	
PinP	H. POSITION	0–705	This adjusts the position of the inset screen in the horizontal direction.
	V. POSITION	0–239	This adjusts the position of the inset screen in the vertical direction.
	HV. SIZE	1–220	This adjusts the size of the inset screen at a fixed aspect ratio.
	H. SIZE	1–220	This adjusts the horizontal size of the inset screen.
	V. SIZE	1–220	This adjusts the vertical size of the inset screen.
	BORDER	0–**3**–15	This adjusts the width of the border for the inset screen.
	BORDER COLOR	BLACK, **WHITE**, GRAY, RED, GREEN, BLUE, YELLOW, CYAN, MAGENTA, ORANGE, GREN-CYAN, BLUE-MGNT, YELW-GREN, BLUE-CYAN, PINK	This sets the color of the border for the inset screen.
	SHADOW	**0**–15	This adjusts the length of the shadow added to the inset screen.
	SHADOW COLOR	**BLACK**, WHITE, GRAY, RED, GREEN, BLUE, YELLOW, CYAN, MAGENTA, ORANGE, GREN-CYAN, BLUE-MGNT, YELW-GREN, BLUE-CYAN, PINK	This sets the color of the shadow added to the inset screen.
	TRIMMING	0–**5**–30	This adjusts the trimming width for the inset screen.
	PREVIOUS SELECT	ON, **OFF**	When set to "ON," the channel of the previously selected inset screen is selected automatically when the [PinP] button is pressed.
SPLIT	A-CENTER	0–**50**–100 %	This adjusts the center position of the video displayed on side A
	B-CENTER	0–**50**–100 %	This adjusts the center position of the video displayed on side B.
	SOFT EDGE	ON, **OFF**	When set to "ON," this applies soft edges to split areas.
	PATTERN	**V. CENTER**, H. CENTER, V. STRETCH, H. STRETCH	This sets the split pattern.
	PREVIOUS SELECT	ON, **OFF**	When set to "ON," the previously selected channels for side A and side B are selected automatically when the [SPLIT] button is pressed.
KEY	KEY CHANNEL	CH1–**CH4**, OFF	This sets the channel for key composition. When set to "OFF," operating the [KEY] button has no effect.
	CHROMA KEY COLOR	**BLUE**, GREEN	This sets the extraction color for chroma key.
	CHROMA KEY EDGE	0–**128**–255	This adjusts the degree of edge blur for chroma key.
	LUMI KEY COLOR	WHITE, **BLACK**	This sets the separation color for luminance key.
	LUMI KEY EDGE	0–**128**–255	This adjusts the degree of edge blur for luminance key.

Appendices

Category	Setting item	Value	Explanation
VIDEO OUTPUT	OUTPUT RESOLUTION	**AUTO**, 480/576i, 480/576p, 720p, 1080i, 1080p, 640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1280 x 1024, 1366 x 768, 1400 x 1050, 1600 x 1200, 1920 x 1200	This sets the output format for video output from the HDMI output connector and RGB/COMPONENT output connector.
	OUTPUT H. POSITION	-200–**0**–500	This adjusts the horizontal position of the main output video.
	OUTPUT V. POSITION	-200–**0**–500	This adjusts the vertical position of the main output video
	OUTPUT H. SIZE	50.0–**100.0**–150.0 %	This adjusts the horizontal size of the main output video.
	OUTPUT V. SIZE	50.0–**100.0**–150.0 %	This adjusts the vertical size of the main output video.
	OUTPUT CONTRAST	0–**64**–127	This adjusts the contrast of the main output video.
	OUTPUT BRIGHTNESS	0–**64**–127	This adjusts the brightness of the main output video.
	OUTPUT COLOR	0–**64**–127	This adjusts the color of the main output video.
	OUTPUT COLOR SPACE	**AUTO**, RGB-FULL, RGB-LIMIT, YCbCr	This sets the color space (system for representing colors in video) of the HDMI and RGB/COMPONENT output connectors.
	OUTPUT DVI-D/HDMI	**AUTO**, DVI-D, HDMI	This sets the output mode of the HDMI output connector.
	OUTFADE WHITE LEVEL	0–**255**	This adjusts the white level during output fade.
	OUTFADE BLACK LEVEL	**0**–255	This adjusts the black level during output fade.
MEMORY	SAVE SETTING	**1**–4	This sets the memory number of the destination for saving.
	LOAD SETTING	**1**–4	This sets the memory number to recall.
	MANUAL MODE	ON, **OFF**	When set to "ON," the settings in memory are recalled while maintaining the settings for the current control positions.
	POWER ON LOAD	**OFF**, 1–4	Selecting a memory number (1 through 4) causes the settings at the selected memory number to be recalled at startup.
MIDI		For information on remote control via MIDI, download and refer to the "VR-3EX Remote Control Guide" (PDF) from the following Roland website. **http://www.rolandsystemsgroup.net/**	
SETUP	HDCP	ON, **OFF**	When set to "ON," copyright-protected (HDCP) video can be input.
	AUTO CHANNEL SCAN	ON, **OFF**	When set to "ON," channels 1 through 4 are switched automatically.
	AUTO SCAN TIME	1–**5**–120 sec	This sets the interval time for automatic switching.
	LCD PREVIEW ASPECT	**16:9**, 4:3	This sets the aspect ratio of the monitor display.
	LCD BRIGHTNESS	LOW, **HIGH**	This sets the brightness of the monitor.
	MENU DISPLAY LEVEL	5–**13**–15	This adjusts the brightness of the menu display.
	BCKGND LEV - OVERLAY	1–**12**	This adjusts the brightness of overlaid background when the monitor view is in the in/out mode.
	LEVEL METER DISPLAY	**ON,** OFF	This turns display of the volume level meter on or off.
	NO SIGNAL BACK	**BLACK**, BLUE	This sets the color of the background during no video input.
	COLOR BAR OUTPUT	ON, **OFF**	When set to "ON," a color bar is output.
	AUTO OFF	**ON,** OFF	When set to "ON," the power to the VR-3EX is automatically turned off after 240 minutes of no operation.
	NTSC/PAL	NTSC, PAL	This switches between the NTSC and PAL standards.
	FACTORY RESET	This returns the unit to its factory defaults.	

Setup Screens

Audio Channels 1–4 (Audio Channel 1–4 [SETUP] Buttons)

Setting item	Value	Explanation
GAIN	0–64 dB	This adjusts the input sensitivity.
LEVEL	0–127	This adjusts the volume level of audio channels 1 through 4.
AUX SEND	0–**100**–127	This adjusts the send level of audio to the AUX bus.
REV SEND	0–**100**–127	This adjusts the send level of audio to Reverb.
PAN	LEFT–**CENTER**–RIGHT	This adjusts the sound position (pan).
EQ HI	-15–15 dB	This boosts or attenuates the high band.
FREQ	700 Hz–**8.00 KHz**–11.0 KHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ MID	-15–15 dB	This boosts or attenuates the middle band.
FREQ	20.0 Hz–**2.50 KHz**–10.0 KHz	This adjusts the center frequency when changing the sound quality in the middle band.
Q	**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ LO	-15–15 dB	This boosts or attenuates the low band.
FREQ	55 Hz–**110 Hz**–800 Hz	This adjusts the center frequency when changing the sound quality in the low band.
GATE	ON, **OFF**	This sets gate on or off.
THRESHOLD	-50–**-48**–0 dB	This sets the level used as the threshold for removing audio. Audio below the level set here is removed.
RELEASE	30–**500**–5000 ms	This adjusts the length of time until the gate effect ends after audio falls below the threshold.
COMP	ON, **OFF**	This sets the compressor on or off.
THRESHOLD	-50–**-16**–0 dB	This sets the level used as the threshold when compressing audio. Compression is applied to audio that exceeds the level set here.
RATIO	1.0:1, 1.2:1, 1.5:1, 2.0:1, 2.8:1, 4.0:1, 8.0:1, 16:1, **INF:1**	This specifies the degree of compression applied to the audio. The state in which no compression is applied is defined as "1."
ATTACK	0.2–**50**–100 ms	This sets the time until compression starts when audio exceeding the threshold is input.
RELEASE	30–**500**–5000 ms	This adjusts the length of time until compression ends after audio falls below the threshold.
HPF	ON, **OFF**	This sets the high-pass filter on or off.
DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio.
AUX DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio sent to the AUX bus.
SOLO	ON (blue), **OFF**	This sets the Solo feature on or off. Only the input audio for the channel which has solo "ON" can be monitored via headphones.
MUTE	ON (red), **OFF**	This sets the Mute feature on or off. Input audio for which this is set to "ON" is silenced.

Audio Channels 5/6 and 7/8 (Audio Channel 5/6 and 7/8 [SETUP] Buttons)

Setting item	Value	Explanation
LEVEL	0–127	This adjusts the volume level of audio channels 5/6 and 7/8.
AUX SEND	0–**100**–127	This adjusts the send level of audio to the AUX bus.
REV SEND	0–**100**–127	This adjusts the send level of audio to Reverb.
EQ HI	-15–15 dB	This boosts or attenuates the high band.
FREQ	700 Hz–**8.00 KHz**–11.0 KHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ MID	-15–15 dB	This boosts or attenuates the middle band.
FREQ	20.0 Hz–**2.50 KHz**–10.0 KHz	This adjusts the center frequency when changing the sound quality in the middle band.
Q	**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ LO	-15–15 dB	This boosts or attenuates the low band.
FREQ	55 Hz–**110 Hz**–800 Hz	This adjusts the center frequency when changing the sound quality in the low band.
DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio.
AUX DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio sent to the AUX bus.
SOLO	ON (blue), **OFF**	This sets the Solo feature on or off. Only the input audio for the channel which has solo "ON" can be monitored via headphones.
MUTE	ON (red), **OFF**	This sets the Mute feature on or off. Input audio for which this is set to "ON" is silenced.

HDMI Audio 1–4 (HDMI [SETUP] button → ▲ / ▼)

Setting item	Value	Explanation
LEVEL	0–127	This adjusts the volume level of HDMI audio.
AUX SEND	0–**100**–127	This adjusts the send level of audio to the AUX bus.
REV SEND	0–**100**–127	This adjusts the send level of audio to Reverb.
EQ HI	-15–**0**–15 dB	This boosts or attenuates the high band.
FREQ	700 Hz–**8.00 KHz**–11.0 KHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ MID	-15–**0**–15d Bu	This boosts or attenuates the middle band.
FREQ	20.0 Hz–**2.50 KHz**–10.0 KHz	This adjusts the center frequency when changing the sound quality in the middle band.
Q	**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ LO	-15–**0**–15 dB	This boosts or attenuates the low band.
FREQ	55 Hz–**110 Hz**–800 Hz	This adjusts the center frequency when changing the sound quality in the low band.
DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio.
AUX DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio sent to the AUX bus.
SOLO	ON (blue), **OFF**	This sets the Solo feature on or off. Only the input audio for the channel which has solo "ON" can be monitored via headphones.
MUTE	ON (red), **OFF**	This sets the Mute feature on or off. Input audio for which this is set to "ON" is silenced.

Internal Microphone (INTERNAL MIC [SETUP] button)

Setting item	Value	Explanation
LEVEL	0–127	This adjusts the volume level of the internal microphones.
AUX SEND	0–**100**–127	This adjusts the send level of audio to the AUX bus.
REV SEND	0–**100**–127	This adjusts the send level of audio to Reverb.
EQ HI	-15–**0**–15 dB	This boosts or attenuates the high band.
FREQ	700 Hz–**8.00 KHz**–11.0 KHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ MID	-15–**0**–15 dB	This boosts or attenuates the middle band.
FREQ	20.0 Hz–**2.50 KHz**–10.0 KHz	This adjusts the center frequency when changing the sound quality in the middle band.
Q	**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ LO	-15–**0**–15 dB	This boosts or attenuates the low band.
FREQ	55 Hz–**110 Hz**–800 Hz	This adjusts the center frequency when changing the sound quality in the low band.
GATE	**ON**, OFF	This sets gate on or off.
THRESHOLD	-50–-**24**–0 dB	This sets the level used as the threshold for removing audio. Audio below the level set here is removed.
RELEASE	30–**500**–5000 ms	This adjusts the length of time until the gate effect ends after audio falls below the threshold.
COMP	ON, **OFF**	This sets the compressor on or off.
THRESHOLD	-50–-**16**–0 dB	This sets the level used as the threshold when compressing audio. Compression is applied to audio that exceeds the level set here.
RATIO	1.0:1, 1.2:1, 1.5:1, 2.0:1, 2.8:1, 4.0:1, 8.0:1, 16:1, **INF:1**	This specifies the degree of compression applied to the audio. The state in which no compression is applied is defined as "1."
ATTACK	0.2–**50**–100 ms	This sets the time until compression starts when audio exceeding the threshold is input.
RELEASE	30–**500**–5000 ms	This adjusts the length of time until compression ends after audio falls below the threshold.
HPF	ON, **OFF**	This sets the high-pass filter on or off.
DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio.
AUX DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio sent to the AUX bus.
SOLO	ON (blue), **OFF**	This sets the Solo feature on or off. Only the input audio for the channel which has solo "ON" can be monitored via headphones.
MUTE	ON (red), **OFF**	This sets the Mute feature on or off. Input audio for which this is set to "ON" is silenced.

Main Output Audio (MAIN [SETUP] button)

Setting item	Value	Explanation
MAIN LEVEL	0–127	This adjusts the volume level of the main output audio.
AUX LEVEL	**0**–127	This adjusts the volume level of audio output from the AUX bus.
PHONES LVL	0–127	This adjusts the volume of headphones connected to the PHONES jacks.
USB LEVEL	-63–+63	This adjusts the volume level of audio output from the USB port.
USB DELAY	**0.0**–500.0 ms	This adjusts the delay time for audio output from the USB port.
EQ HI	-15–**0**–15 dB	This boosts or attenuates the high band.
FREQ	700 Hz–**8.00 KHz**–11.0 KHz	This adjusts the center frequency when changing the sound quality in the high band.
EQ MID	-15–**0**–15 dB	This boosts or attenuates the middle band.
FREQ	20.0 Hz–**2.50 KHz**–10.0 KHz	This adjusts the center frequency when changing the sound quality in the middle band.
Q	**0.5**–16.0	This adjusts the width of the frequency band when boosting or attenuating the middle band.
EQ LO	-15–**0**–15 dB	This boosts or attenuates the low band.
FREQ	55 Hz–**110 Hz**–800 Hz	This adjusts the center frequency when changing the sound quality in the low band.
REVERB	0–127	This adjusts the return level from reverb of the audio. A setting of "0" results in no reverb applied.
TIME	0.0–**1.0**–5.0 s	This adjusts the length of the reverb.
TYPE	**Room**, Hall	This specifies the type of reverb.
MASTERING	ON, **OFF**	This switches mastering on and off.
NS	**0**–127	This adjusts the degree of application of the noise suppressor.
ENHANCER	**0**–127	This adjusts the degree of application of the enhancer.
MASTER HIGH	**0**–127	This suppresses high-frequency distortion and adjusts the sound to have sustained tones.
MASTER MID	**0**–127	This suppresses midrange distortion and adjusts the sound to have distinct tones.
MASTER LO	**0**–127	This suppresses low-frequency distortion and adjusts the sound to have stable tones.
BUS SELECT	—	This displays the BUS SELECT screen (p. 39).
AUDIO FOLLOW	—	This displays the AUDIO FOLLOW screen (see below).
SOLO CLEAR	—	This clears all Solo settings.
MUTE CLEAR	—	This clears all Mute settings.

AUDIO FOLLOW Screen		
AUDIO FOLLOW	ON, **OFF**	This sets the Audio Follow feature on or off.
(Matrix chart)	ON, OFF	This sets the input audio to use with Audio Follow for each video channel. When set to "ON," Audio Follow is applied.

Video Effects (VIDEO FX [SETUP] button)

Setting item	Value	Explanation
FX1	STROBE, NEGATIVE, COLORIZE, FINDEDGE, SILHOUETTE, MONOCHROME, SEPIA, EMBOSS, POSTERIZE, **COLOR PASS**, MULTI, OFF	This sets the effect assign to "FX1" on the [VIDEO FX] knob. When set to "OFF," no effect is assigned.
FX2	STROBE, NEGATIVE, COLORIZE, FINDEDGE, SILHOUETTE, MONOCHROME, **SEPIA**, EMBOSS, POSTERIZE, COLOR PASS, MULTI, OFF	This sets the effect assign to "FX2" on the [VIDEO FX] knob. When set to "OFF," no effect is assigned.

Transition Effects (TRANSITION [SETUP] button)

| Setting item	Value	Explanation
MIX	**MIX**, FAM, NAM	This sets the transition pattern assigned to the TRANSITION [MIX] button.
WIPE	**Wipe01**–99, SWipe01–99, Slide01–26, Stretch01–26	This sets the transition pattern assigned to the TRANSITION [WIPE] button.

# Transition Effects List

MIX (MIX, FAM, NAM)

| Effect	Explanation
MIX	In this transition, as the original picture gradually disappears, the next video is overlaid and progressively grows more visible.
FAM	This is an abbreviation of "full additive mix." The A and B luminance levels are maintained during the transition.
NAM	This is an abbreviation of "non-additive mix." Display during transition starts with areas of high luminance.

WIPE (Wipe01–99, SWipe01–99, Slide01–26, Stretch01–26)

Normal (Wipe 01–99)

Wipe01	Wipe02	Wipe03	Wipe04	Wipe05	Wipe06	Wipe07	Wipe08

| Wipe09 | Wipe10 | Wipe11 | Wipe12 | Wipe13 | Wipe14 | Wipe15 | Wipe16 |

| Wipe17 | Wipe18 | Wipe19 | Wipe20 | Wipe21 | Wipe22 | Wipe23 | Wipe24 |

| Wipe25 | Wipe26 | Wipe27 | Wipe28 | Wipe29 | Wipe30 | Wipe31 | Wipe32 |

| Wipe33 | Wipe34 | Wipe35 | Wipe36 | Wipe37 | Wipe38 | Wipe39 | Wipe40 |

| Wipe41 | Wipe42 | Wipe43 | Wipe44 | Wipe45 | Wipe46 | Wipe47 | Wipe48 |

| Wipe49 | Wipe50 | Wipe51 | Wipe52 | Wipe53 | Wipe54 | Wipe55 | Wipe56 |

| Wipe57 | Wipe58 | Wipe59 | Wipe60 | Wipe61 | Wipe62 | Wipe63 | Wipe64 |

| Wipe65 | Wipe66 | Wipe67 | Wipe68 | Wipe69 | Wipe70 | Wipe71 | Wipe72 |

| Wipe73 | Wipe74 | Wipe75 | Wipe76 | Wipe77 | Wipe78 | Wipe79 | Wipe80 |

Wipe81	Wipe82	Wipe83	Wipe84	Wipe85	Wipe86	Wipe87	Wipe88

Wipe89	Wipe90	Wipe91	Wipe92	Wipe93	Wipe94	Wipe95	Wipe96

Wipe97	Wipe98	Wipe99

Soft Edge (SWipe01–99)

SWipe01	SWipe02	SWipe03	SWipe04	SWipe05	SWipe06	SWipe07	SWipe08

SWipe09	SWipe10	SWipe11	SWipe12	SWipe13	SWipe14	SWipe15	SWipe16

SWipe17	SWipe18	SWipe19	SWipe20	SWipe21	SWipe22	SWipe23	SWipe24

SWipe25	SWipe26	SWipe27	SWipe28	SWipe29	SWipe30	SWipe31	SWipe32

SWipe33	SWipe34	SWipe35	SWipe36	SWipe37	SWipe38	SWipe39	SWipe40

SWipe41	SWipe42	SWipe43	SWipe44	SWipe45	SWipe46	SWipe47	SWipe48

SWipe49	SWipe50	SWipe51	SWipe52	SWipe53	SWipe54	SWipe55	SWipe56

SWipe57	SWipe58	SWipe59	SWipe60	SWipe61	SWipe62	SWipe63	SWipe64

SWipe65	SWipe66	SWipe67	SWipe68	SWipe69	SWipe70	SWipe71	SWipe72

SWipe73	SWipe74	SWipe75	SWipe76	SWipe77	SWipe78	SWipe79	SWipe80

SWipe81	SWipe82	SWipe83	SWipe84	SWipe85	SWipe86	SWipe87	SWipe88

SWipe89	SWipe90	SWipe91	SWipe92	SWipe93	SWipe94	SWipe95	SWipe96

SWipe97	SWipe98	SWipe99

Slide: Normal Type (Slide01–20)

Slide01	Slide02	Slide03	Slide04	Slide05	Slide06	Slide07	Slide08

Slide09	Slide10	Slide11	Slide12	Slide13	Slide14	Slide15	Slide16

Slide17	Slide18	Slide19	Slide20
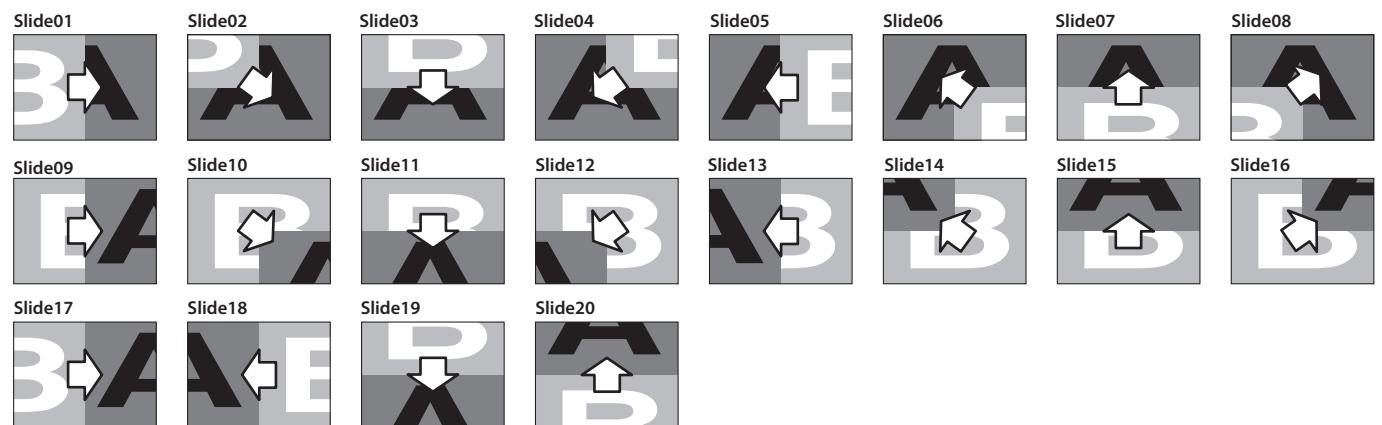
Slide: Sequence Type (Slide21–26)

Slide21		Slide22		Slide23		Slide24	
1. A ⇨ B	2. B ⇨ A	1. A ⇨ B	2. B ⇨ A	1. A ⇨ B	2. B ⇨ A	1. A ⇨ B	2. B ⇨ A

Slide25				Slide26			
1. A ⇨ B	2. B ⇨ A	3. A ⇨ B	4. B ⇨ A	1. A ⇨ B	2. B ⇨ A	3. A ⇨ B	4. B ⇨ A

Stretch (Stretch01–26)

Strecth01	Strecth02	Strecth03	Strecth04	Strecth05	Strecth06	Strecth07	Strecth08

Strecth09	Strecth10	Strecth11	Strecth12	Strecth13	Strecth14	Strecth15	Strecth16

Strecth17	Strecth18	Strecth19	Strecth20	Strecth21	Strecth22	Strecth23	Strecth24

Strecth25	Strecth26

Main Specifications

Roland VR-3EX : AV Mixer

Video Processing	
4:2:2 (Y/Pb/Pr), 8 bits (Internal Processing : 480/59.94p when set to NTSC, 576/50p when set to PAL)	

Audio Processing	
Sampling Rate	24 bits/48 kHz

Input Formats	
HDMI Video (VIDEO IN 1–3)	480/59.94p (when set to NTSC) 576/50p (when set to PAL)
HDMI Video (VIDEO IN 4)	480/59.94i, 480/59.94p, 720/59.94p, 1080/59.94i, 1080/59.94p (when set to NTSC) 576/50i, 576/50p, 720/50p, 1080/50i, 1080/50p (when set to PAL)
HDMI Audio (VIDEO IN 1–4)	Linear PCM, 24 bits/48 kHz, 2 ch
RGB/Component (VIDEO IN 4)	640 x 480/60Hz, 800 x 600/60Hz, 1024 x 768/60Hz, 1280 x 768/60Hz, 1280 x 1024/60Hz, 1366 x 768/60Hz, 1400 x 1050/60Hz, 1600 x 1200/60Hz, 1920 x 1200/60Hz * The refresh rate is the maximum value of each resolution. * Conforms to VESA DMT Version 1.0 Revision 11. * 1920 x 1200/60Hz : Reduced blanking
Composite Video (VIDEO IN 1–4)	NTSC, PAL

Output Formats			
HDMI and RGB/ Component Video (VIDEO OUT)	480/59.94i, 576/50i, 480/59.94p, 576/50p, 720/59.94p, 720/50p, 1080/59.94i, 1080/50i, 1080/59.94p, 1080/50p 640 x 480, 800 x 600, 1024 x 768, 1280 x 768, 1280 x 1024, 1366 x 768, 1400 x 1050, 1600 x 1200, 1920 x 1200 * The output format of HDMI and RGB/Component is always the same. When an interlaced format is selected, component signal is output from the RGB/COMPONENT connector. When a non-interlaced format is selected, RGB signal is output from the RGB/COMPONENT connector. * The refresh rates of RGB format is 60 Hz when set to NTSC, 75 Hz when set to PAL (excluding 1600 x 1200 and 1920 x 1200. The refresh rate of these 2 is 75 Hz when set to PAL.) * RGB formats : Conforms to VESA DMT Version 1.0 Revision 11. * 1920 x 1200/60Hz : Reduced blanking			
HDMI Audio (VIDEO OUT)	Linear PCM, 24 bits/48 kHz, 2 ch	**Preview Audio (PVW OUT)**	Linear PCM, 24 bits/48 kHz, 2 ch
Composite Video (VIDEO OUT)	NTSC, PAL	**USB Video**	720 x 480 when set to NTSC, 720 x 576 when set to PAL, Motion JPEG
Preview Video (PVW OUT)	480/59.94p when set to NTSC, 576/50p when set to PAL	**USB Audio**	Linear PCM, 16 bits/48 kHz, 2 ch

Input Connectors	
Video	VIDEO IN 1–4 (HDMI : Type A 19 pins) VIDEO IN 4 (RGB/Component : HD DB-15 type) VIDEO IN 1–4 (Composite : RCA phono Type)
Audio	AUDIO IN 1–4 (XLR/TRS combo type, phantom power) AUDIO IN 5--6 (Stereo RCA phono type) AUDIO IN 7/8 (Stereo miniature type) MIC (Internal stereo microphones)
Phantom Power	DC 48V (unloaded maximum), 10 mA (maximum load) * Current value per channel

Output Connectors	
Video	VIDEO OUT (HDMI: Type A 19 pins) VIDEO OUT (RGB/omponent : HD DB-15 type) VIDEO OUT (Composite : RCA phono type) PVW OUT (HDMI: Type A 19 pins)
Audio	AUDIO OUT L,R (Stereo RCA phono type) AUX OUT L,R (Stereo 1/4-inch phone type) PHONES (1/4-inch phone type) (headphones) PHONES (Stereo miniature type) (headphones)

Other Connectors			
MIDI	5 pins DIN type x 2 (IN, OUT/THRU)	**USB**	B type x 1 (for streaming and remote control)

Appendices

Signal Level and Impedance			Display	
Video	RGB/Compo-nent	Input/Output Signal Level : 1.0 Vp-p (luminance) 0.7 Vp-p (chroma) Input/Output Impedance : 75 ohms	Graphic Color LCD, 320 x 240 dots, touch panel	
			Video Effects	
			Transition	Cut, Mix (3 patterns), Wipe (250 patterns)
	Composite	Input/Output Signal Level : 1.0 Vp-p Input/Output Impedance : 75 ohms	**VIDEO FX**	Strobe, Negative, Colorize, Findedge, Silhouette, Monochrome, Sepia, Emboss, Posterize, Color pass, Multi (11 types)
Audio	XLR/TRS combo type	Input Signal Level : -60–+4 dBu (Maximum: +22 dBu) Input Impedance : 10 k ohms (GAIN 0–23 dB) 5 k ohms (GAIN 24–64 dB)	**Composition**	Picture in Picture, Split, Quad, Luminance Key, Chroma Key
			Others	Output Fade, Freeze
			Others	
	1/4-inch/RCA phono type	Input Signal Level : -10 dBu (Maximum: +8 dBu) Input Impedance : 15 k ohms Output Signal Level : -10 dBu (Maximum: +8 dBu) Output Impedance : 1 k ohms	**Power Supply**	AC adaptor
			Current Draw	2.0 A
			Dimensions	345 (W) x 203 (D) x 80 (H) mm 13-5/8 (W) x 8 (D) x 3-1/8 (H) inches
	Miniature type	Input Signal Level : -15 dBu (Maximum: +3 dBu) Input Impedance : 15 k ohms	**Weight excl. AC adaptor**	2.3 kg 5 lbs 2 oz
	Headphones	Output Signal Level : 25 mW + 25 mW Output Impedance : 10 ohms	**Accessories**	AC Adaptor, Power Cord, Owner's Manual

* 0 dBu = 0.775 V rms

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

Dimensions

Unit: mm

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For EU Countries

UK This symbol indicates that in EU countries, this product must be collected separately from household waste, as defined in each region. Products bearing this symbol must not be discarded together with household waste.

DE Dieses Symbol bedeutet, dass dieses Produkt in EU-Ländern getrennt vom Hausmüll gesammelt werden muss gemäß den regionalen Bestimmungen. Mit diesem Symbol gekennzeichnete Produkte dürfen nicht zusammen mit den Hausmüll entsorgt werden.

FR Ce symbole indique que dans les pays de l'Union européenne, ce produit doit être collecté séparément des ordures ménagères selon les directives en vigueur dans chacun de ces pays. Les produits portant ce symbole ne doivent pas être mis au rebut avec les ordures ménagères.

IT Questo simbolo indica che nei paesi della Comunità europea questo prodotto deve essere smaltito separatamente dai normali rifiuti domestici, secondo la legislazione in vigore in ciascun paese. I prodotti che riportano questo simbolo non devono essere smaltiti insieme ai rifiuti domestici. Ai sensi dell'art. 13 del D.Lgs. 25 luglio 2005 n. 151.

ES Este símbolo indica que en los países de la Unión Europea este producto debe recogerse aparte de los residuos domésticos, tal como esté regulado en cada zona. Los productos con este símbolo no se deben depositar con los residuos domésticos.

PT Este símbolo indica que nos países da UE, a recolha deste produto deverá ser feita separadamente do lixo doméstico, de acordo com os regulamentos de cada região. Os produtos que apresentem este símbolo não deverão ser eliminados juntamente com o lixo doméstico.

NL Dit symbool geeft aan dat in landen van de EU dit product gescheiden van huishoudelijk afval moet worden aangeboden, zoals bepaald per gemeente of regio. Producten die van dit symbool zijn voorzien, mogen niet samen met huishoudelijk afval worden verwijderd.

DK Dette symbol angiver, at i EU-lande skal dette produkt opsamles adskilt fra husholdningsaffald, som defineret i hver enkelt region. Produkter med dette symbol må ikke smides ud sammen med husholdningsaffald.

NO Dette symbolet indikerer at produktet må behandles som spesialavfall i EU-land, iht. til retningslinjer for den enkelte regionen, og ikke kastes sammen med vanlig husholdningsavfall. Produkter som er merket med dette symbolet, må ikke kastes sammen med vanlig husholdningsavfall.

SE Symbolen anger att i EU-länder måste den här produkten kasseras separat från hushållsavfall, i enlighet med varje regions bestämmelser. Produkter med den här symbolen får inte kasseras tillsammans med hushållsavfall.

FI Tämä merkintä ilmaisee, että tuote on EU-maissa kerättävä erillään kotitalousjätteistä kunkin alueen voimassa olevien määräysten mukaisesti. Tällä merkinnällä varustettuja tuotteita ei saa hävittää kotitalousjätteiden mukana.

HU Ez a szimbólum azt jelenti, hogy az Európai Unióban ezt a terméket a háztartási hulladéktól elkülönítve, az adott régióban érvényes szabályozás szerint kell gyűjteni. Az ezzel a szimbólummal ellátott termékeket nem szabad a háztartási hulladék közé dobni.

PL Symbol oznacza, że zgodnie z regulacjami w odpowiednim regionie, w krajach UE produktu nie należy wyrzucać z odpadami domowymi. Produktów opatrzonych tym symbolem nie można utylizować razem z odpadami domowymi.

CZ Tento symbol udává, že v zemích EU musí být tento výrobek sbírán odděleně od domácího odpadu, jak je určeno pro každý region. Výrobky nesoucí tento symbol se nesmí vyhazovat spolu s domácím odpadem.

SK Tento symbol vyjadruje, že v krajinách EÚ sa musí zber tohto produktu vykonávať oddelene od domového odpadu, podľa nariadení platných v konkrétnej krajine. Produkty s týmto symbolom sa nesmú vyhadzovať spolu s domovým odpadom.

EE See sümbol näitab, et EL-i maades tuleb see toode olemprügist eraldi koguda, nii nagu on igas piirkonnas määratletud. Selle sümboliga märgitud tooteid ei tohi ära visata koos olmeprügiga.

LT Šis simbolis rodo, kad ES šalyse šis produktas turi būti surenkamas atskirai nuo buitinių atliekų, kaip nustatyta kiekviename regione. Šiuo simboliu paženklinti produktai neturi būti išmetami kartu su buitinėmis atliekomis.

LV Šis simbols norāda, ka ES valstīs šo produktu jāievāc atsevišķi no mājsaimniecības atkritumiem, kā noteikts katrā reģionā. Produktus ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.

SI Ta simbol označuje, da je treba proizvod v državah EU zbirati ločeno od gospodinjskih odpadkov, tako kot je določeno v vsaki regiji. Proizvoda s tem znakom ni dovoljeno odlagati skupaj z gospodinjskimi odpadki.

GR Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεχρωμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεχρωμένο σύμβολο δεν πρέπει να απορρίπτονται μαζί με τα οικιακά απορρίμματα.

For China

有 关 产 品 中 所 含 有 害 物 质 的 说 明

本资料就本公司产品中所含的特定有害物质及其安全性予以说明。

本资料适用于 2007 年 3 月 1 日以后本公司所制造的产品。

环 保 使 用 期 限

此标志适用于在中国国内销售的电子信息产品，表示环保使用期限的年数。所谓环保使用期限是指在自制造日起的规定期限内，产品中所含的有害物质不致引起环境污染，不会对人身、财产造成严重的不良影响。
环保使用期限仅在遵照产品使用说明书，正确使用产品的条件下才有效。
不当的使用，将会导致有害物质泄漏的危险。

产 品 中 有 毒 有 害 物 质 或 元 素 的 名 称 及 含 量

部件名称	有毒有害物质或元素					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
外壳（壳体）	×	○	○	○	○	○
电子部件（印刷电路板等）	×	○	×	○	○	○
附件（电源线、交流适配器等）	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

　　因根据现有的技术水平，还没有什么物质能够代替它。