

GAIA

SYNTHESIZER SH-01

Owner's Manual

Roland

Main Features

Able to produce a broad range of sounds with simple operation, the GAIA SH-01 is a compact and light-weight, yet full-fledged virtual analog synthesizer that's a great choice for live performance or in the studio.

Rich sound equivalent to three synthesizers

A synthesizer consists of sections such as the OSC (p. 30), FILTER (p. 32), AMP (p. 35), various ENV units (p. 32, p. 34, p. 35), and an LFO (p. 36). The GAIA SH-01 uses a newly developed, dedicated sound generator that provides three such synthesizers simultaneously.

From simple sounds to richly complex sounds, you can easily create sounds using a wide variety of combinations.

Panel design that makes synthesis understandable

The OSC, FILTER, and AMP sections, which provide the essential components needed for creating a sound, are laid out on the panel in a logical order from left to right, ending with the OUTPUT section. Even if you're using a synthesizer for the first time, this layout makes it easy to learn the process of creating sound (p. 10).

If you already have basic knowledge of analog synthesizers, you can easily access the parameters that you want to adjust.

Effects section for even broader sound-creating potential

A powerful effects section is provided, containing five effects that can be used simultaneously: distortion, modulation, delay, reverb, and low boost (p. 38). By combining these effects you can expand your sonic possibilities even farther.

Simply pressing the LOW BOOST button will boost the low-frequency range—particularly effective for bass sounds.

Compact, space-saving body

The GAIA SH-01 newly features 37 keys, and a light-weight, compact body.

Since battery operation is supported (p. 13), you can use it not only for practice at home or for live performance, but also for playing on the street.

EXT IN jack lets you mix in your favorite music

The EXT IN jack (p. 40) allows you to connect a portable audio player or other device, and play back your favorite music without needing a mixer. This can expand your possibilities for practice or live performance.

The CENTER CANCEL function lets you eliminate sounds that are localized in the center. While listening to a favorite song as backing, you can use this function to eliminate the solo part and perform it yourself on the GAIA SH-01.

Powerful capabilities for live performance

D BEAM controller (p. 21)

The D BEAM controller lets you apply various effects simply by moving your hand above the sensor. You can also assign it to control panel knobs. This gives you fresh new performance possibilities that are not typically available with conventional keyboard playing.

Arpeggiator (p. 22)

Sixty-four built-in arpeggio patterns let you produce arpeggios simply by pressing a chord. Since you can save an arpeggio pattern in a patch as part of your favorite sound settings, it's easy to instantly recall them during a performance.

Phrase recorder (p. 24)

In addition to recording your performance, you can also record and play back control actions, such as knob movements.

For example, if you perform while playing back filter control data, a filter effect will automatically be applied to your performance.

USB memory for saving user data

The USB MEMORY connector allows you to connect USB memory (sold separately) for storing user patches or phrases. This is also a good way to back up your important user data.

Saved patches or phrases can be recalled directly from USB memory.

It's also easy to recall a desired patch or phrase from USB memory, and then re-save it to internal memory.

USB COMPUTER connector for connecting your computer

Since the GAIA SH-01 supports USB MIDI/ AUDIO, you can use DAW software on your computer to record a performance from the GAIA SH-01 or to record the sound from the EXT IN jack.

MIDI data played back by your DAW software can be sounded by GAIA SH-01's sound generator, or audio played back by your DAW software can be output via the GAIA SH-01.

Before using this unit, carefully read the sections entitled: "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (p. 4; 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 provided by your new unit, Owner's manual should be read in its entirety. The manual should be saved and kept on hand as a convenient reference.

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USING THE UNIT SAFELY

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

- Do not open (or modify in any way) the unit or its AC adaptor.

- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

- Never install the unit in any of the following 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
 - Humid; or are
 - Exposed to rain; or are
 - Dusty or sandy; or are
 - Subject to high levels of vibration and shakiness.

- This unit should be used only with a rack or stand that is recommended by Roland.

- When using the unit with a rack or stand recommended by Roland, the rack or stand must be carefully placed so it is level and sure to remain stable. If not using a rack or stand, you still need to make sure that any location you choose for placing the unit provides a level surface that will properly support the unit, and keep it from wobbling.

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

⚠ WARNING

- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards!

- This unit, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist.

- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

- Immediately turn the power 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" page when:
 - The AC adaptor, the power-supply cord, or the plug has been damaged; or
 - If smoke or unusual odor occurs
 - 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.

- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

- Protect the unit from strong impact. (Do not drop it!)

WARNING

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.



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



- Batteries must never be recharged, heated, taken apart, or thrown into fire or water.



- DO NOT play a CD-ROM disc on a conventional audio CD player. The resulting sound may be of a level that could cause permanent hearing loss. Damage to speakers or other system components may result.



- Never expose a nickel metal hydride batteries to excessive heat such as sunshine, fire or the like.



CAUTION

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



- This (GAIA SH-01) for use only with Roland stand KS-18Z. Use with other stands is capable of resulting in instability causing possible injury.



- Please be sure to read and adhere to the cautionary notices contained in the instructions that came with this product. Please note that, depending on the manner in which keyboard performances are carried out, you may encounter situations where the keyboard falls off the stand or the stand topples over, even though you have followed all of the instructions and advice contained within the product's manual. For this reason, you should always perform a safety check each time you use the stand.



- Always grasp only the plug on the AC adaptor cord when plugging into, or unplugging from, an outlet or this unit.



- At regular intervals, you should unplug the AC adaptor and clean it by using a dry cloth to wipe all dust and other accumulations away from its prongs. Also, disconnect the power plug from the power outlet whenever the unit is to remain unused for an extended period of time. Any accumulation of dust between the power plug and the power outlet can result in poor insulation and lead to fire.



- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.



CAUTION

- Never climb on top of, nor place heavy objects on the unit.



- Never handle the AC adaptor or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit.



- Before moving the unit, disconnect the AC adaptor and all cords coming from external devices.



- Before cleaning the unit, turn off the power and unplug the AC adaptor from the outlet (p. 13).



- Whenever you suspect the possibility of lightning in your area, disconnect the AC adaptor from the outlet.



- If used improperly, batteries may explode or leak and cause damage or injury. In the interest of safety, please read and observe the following precautions (p. 13).

- Carefully follow the installation instructions for batteries, and make sure you observe the correct polarity.

- Avoid using new batteries together with used ones. In addition, avoid mixing different types of batteries.



- Remove the batteries whenever the unit is to remain unused for an extended period of time.



- If a battery has leaked, use a soft piece of cloth or paper towel to wipe all remnants of the discharge from the battery compartment. Then install new batteries. To avoid inflammation of the skin, make sure that none of the battery discharge gets onto your hands or skin. Exercise the utmost caution so that none of the discharge gets near your eyes. Immediately rinse the affected area with running water if any of the discharge has entered the eyes.



- Never keep batteries together with metallic objects such as ballpoint pens, necklaces, hairpins, etc.

- Used batteries must be disposed of in compliance with whatever regulations for their safe disposal that may be observed in the region in which you live.



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 (such as a refrigerator, washing machine, microwave oven, or air conditioner), or that contains a motor. 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.
- The use of an AC adaptor is recommended as the unit's power consumption is relatively high. Should you prefer to use nickel metal hydride batteries.
- When installing or replacing batteries, always turn off the power on this unit and disconnect any other devices you may have connected. This way, you can prevent malfunction and/or damage to speakers or other devices.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.
- If batteries are installed, disconnecting or reconnecting the power cord at the AC outlet or disconnecting the DC plug from the unit's rear panel while the power is on will cause the power to turn off. You must turn off the power before you connect or disconnect the power cord or AC adaptor.

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 device may interfere with radio and television reception. Do not use this device 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.
- Do not allow objects to remain on top of the keyboard. This can be the cause of malfunction, such as keys ceasing to produce sound.
- 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.

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 benzene, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

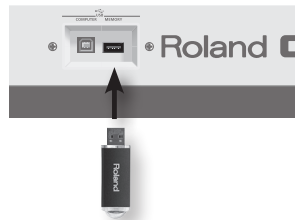
- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be backed up on a computer, or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of losing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit's memory on a computer.
- Unfortunately, it may be impossible to restore the contents of data that was stored on a computer once it has been lost. Roland Corporation assumes no liability concerning such loss of data.
- 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.
- When connecting / 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 your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.
- Use only the specified expression pedal (EV-5; sold separately). By connecting any other expression pedals, you risk causing malfunction and/or damage to the unit.
- Some connection cables contain resistors. Do not use cables that incorporate resistors for connecting to this unit. The use of such cables can cause the sound level to be extremely low, or impossible to hear. For information on cable specifications, contact the manufacturer of the cable.
- The usable range of D BEAM controller will become extremely small when used under strong direct sunlight. Please be aware of this when using the D BEAM controller outside.
- The sensitivity of the D BEAM controller will change depending on the amount of light in the vicinity of the unit. If it does not function as you expect, adjust the sensitivity as appropriate for the brightness of your location.

Before Using USB Memory

- Carefully insert the USB memory all the way in—until it is firmly in place.




- Use USB memory made by Roland.
- Never touch the terminals of the USB memory. Also, avoid getting the terminals dirty.
- USB memories are constructed using precision components; handle the USB memories carefully, paying particular note to the following.
 - To prevent damage to the USB memories from static electricity, be sure to discharge any static electricity from your own body before handling the USB memories.
 - Do not touch or allow metal to come into contact with the contact portion of the USB memories.
 - Do not bend, drop, or subject USB memories to strong shock or vibration.
 - Do not keep USB memories in direct sunlight, in closed vehicles, or other such locations.
 - Do not allow USB memories to become wet.
 - Do not disassemble or modify the USB memories.

Handling CD-ROMs (DRIVER), DVD

- Avoid touching or scratching the shiny underside (encoded surface) of the disc. Damaged or dirty CD-ROM/DVD discs may not be read properly. Keep your discs clean using a commercially available disc cleaner.

Copyright

- Do not use this unit 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 unit.

- All product names mentioned in this document are trademarks or registered trademarks of their respective owners.
- MatrixQuest™ 2010 TEPCO UQUEST, LTD. All rights reserved. The GAIA SH-01's USB functionality uses MatrixQuest middleware technology from TEPCO UQUEST, LTD. 
- 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.

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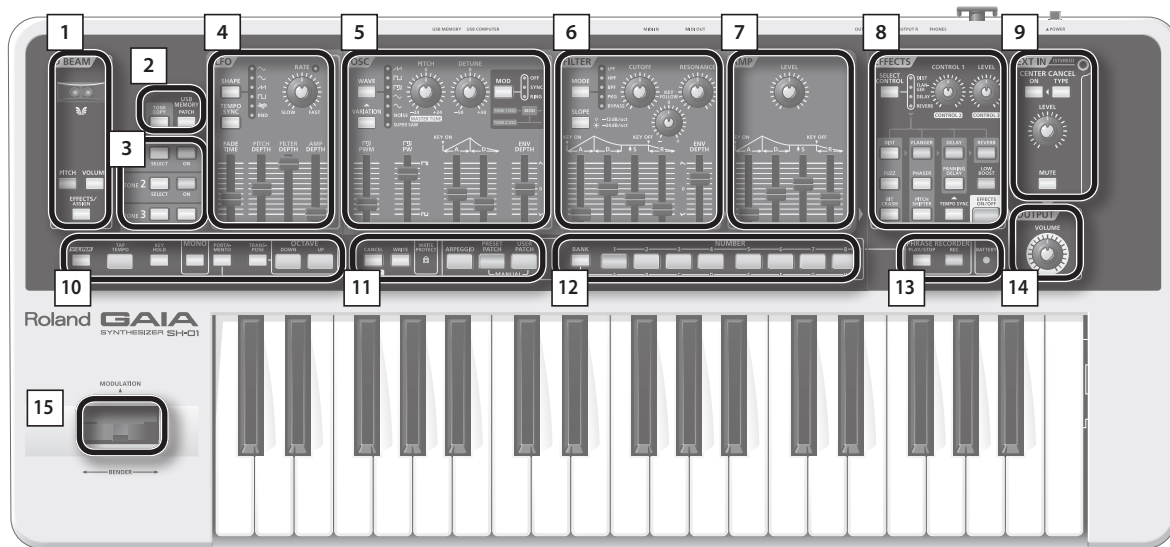
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Names of Things and What They Do

Top Panel



1 D BEAM (p. 21)

Here you can turn the D BEAM function on/off. By moving your hand above the D BEAM controller, you can apply a variety of effects.

2

[TONE COPY] Button (p. 30)

This copies all of a tone's parameters to another tone.

USB MEMORY [PATCH] Button (p. 55)

Here you can save patches or phrases to USB memory, or load them from USB memory into the GAIA SH-01.

3 TONE 1–3 (p. 29)

Here you can select the tone you want to edit, and specify which tones will be heard.

4 LFO (Low-Frequency Oscillator) (p. 36)

Here you can apply cyclic modulation to the pitch (producing vibrato), the volume (producing tremolo), or to the filter (producing a wah effect).

5 OSC (Oscillator) (p. 30)

Here you can select the waveform that determines the basic character of the sound, and specify the pitch.

6 FILTER (p. 32)

Allows you to modify the brightness or fatness of the sound. You can also create a distinctive tonal character that is typical of synthesizers.

7 AMP (p. 35)

Here you can specify the loudness of the sound that has passed through the filter section.

8 EFFECTS (p. 38)

The GAIA SH-01 has five built-in effects: distortion, flanger, delay, reverb, and low boost. You can make settings independently for each effect.

9 EXT IN (External Input, p. 40)

Here you can specify how the device connected to the EXT IN jack will be heard. If you use the CENTER CANCEL function, you can eliminate vocals or other sounds localized at the center.

10

[V-LINK] Button (p. 27)

This button turns V-LINK on/off.

[TAP TEMPO] Button (p. 23)

You can use this button to set the tempo of the arpeggio or phrase recorder.

[KEY HOLD] Button (p. 22)

This button holds the notes even after you release your fingers from the keyboard.

[MONO] Button (p. 20)

Use this button when you want to simulate the performance techniques of a solo instrument.

[PORTAMENTO] Button (p. 20)

This button turns portamento on/off.

[TRANSPOSE] Button (p. 20)

By holding down the [TRANSPOSE] button and pressing the OCTAVE [UP/+] or [DOWN/-] button you can raise or lower the pitch of the keyboard in steps of a semitone (-5 to +6 semitones).

OCTAVE [UP/+], [DOWN/-] Buttons (p. 20)

Use these buttons to raise or lower the pitch of the keyboard in steps of an octave (-3 to +3). These buttons are also used in combination with other function buttons to edit parameters.

11

[CANCEL/SHIFT] Button

This button cancels the operation that's being executed.

This button is also used in combination with other buttons to carry out various functions.

[WRITE] Button (p. 25, p. 39)

Use this button to save patches or phrases.

Holding down the [CANCEL/SHIFT] button while you press the [WRITE] button initializes the selected patch.

WRITE PROTECT Indicator (p. 39)

This indicator will light if you've selected a patch that is write protected.

To turn write protect on/off, hold down the [CANCEL/SHIFT] button and press the current NUMBER button.

[ARPEGGIO] Button (p. 22)

This button turns the arpeggio on/off.

[PRESET PATCH] Button (p. 18)

Use this button to select preset patches.

[USER PATCH] Button (p. 18)

Use this button to select user patches.

By pressing the [PRESET PATCH] button and [USER PATCH] button simultaneously, you can activate the Manual function, which changes the parameter values so that they match the positions of the knobs and sliders (p. 30).

12

[BANK] Button (p. 18)

Use this button in combination with the NUMBER [A]–[H] buttons to switch banks.

NUMBER [1]–[8] Buttons (p. 18)

Use these buttons to select patches or phrases.

13

PHRASE RECORDER (p. 24)

[PLAY/STOP] Button

Press this button to play or stop the phrase recorder.

[REC] Button

Press this button to record on the phrase recorder.

BATTERY Indicator (p. 14)

When using batteries, this indicates the remaining battery power.

Normally, this will be unlit. When the batteries run low, the indicator will light. If you continue operating the GAIA SH-01, the indicator will blink; stop use and charge the batteries.

* If you continue playing even when the BATTERY indicator is blinking, the unit will eventually become inoperable.

14

OUTPUT (p. 18)

[VOLUME] knob

This knob adjusts the overall volume that is output from the OUTPUT jacks and PHONES jack on the rear panel.

15

Pitch Bend/Modulation Lever (p. 19)

You can use this to modify the pitch or to apply vibrato.

Rear Panel



16 Security Slot (🔒)

<http://www.kensington.com/>

17

[POWER] Switch (p. 15)

This switch turns the power on/off.

DC IN (AC Adaptor) Connector (p. 13)

Connect the included AC adaptor here.

Cord Hook (p. 13)

Fasten the cord from the AC adaptor here to prevent accidental disconnection.

18

PHONES (Headphones) Jack (p. 15)

Connect your headphones (sold separately) here.

OUTPUT L/MONO, R Jacks (p. 14)

These jacks output the audio signal in stereo to your amp or mixer. To employ mono output, connect your equipment to the L jack.

19 PEDAL

PEDAL Jack (p. 26)

Connect an expression pedal (EV-5; sold separately) or pedal switch (DP series, FS-5U; sold separately) here.

20 MIDI Connectors (OUT/IN) (p. 43)

Connect these when you want to transmit or receive MIDI messages to or from another MIDI device.

21 USB

USB COMPUTER Connector (p. 42)

This connector lets you use a USB cable to connect the GAIA SH-01 to your computer.

USB MEMORY Connector (p. 55)

Connect USB memory (sold separately) here.

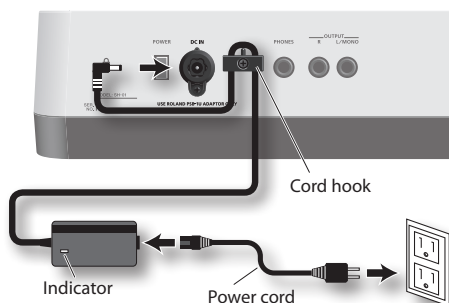
*** Connect USB memory after you've powered up the GAIA SH-01. Never disconnect USB memory while the power is turned on.**

*** When inserting USB memory, make sure that the connector is oriented correctly, and insert the connector all the way in. Do not use excessive force.**

Getting Ready

Connecting the AC Adaptor

Connect the included AC adaptor to the DC IN connector on the rear panel of the GAIA SH-01.



NOTE

- 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.
- 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 connect the AC adaptor to an AC outlet.

Installing Batteries

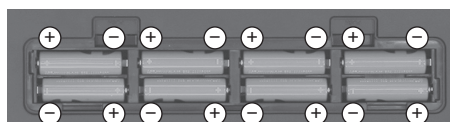
The GAIA SH-01 can operate on eight commercially available AA nickel-metal hydride batteries.

1. Press in the tabs of the battery compartment cover on the bottom panel of the GAIA SH-01, and remove the cover.



NOTE

- Take care that foreign objects (flammable items, coins, pins, etc.) or liquids (water, juice, etc.) do not enter the unit while the battery compartment cover is removed.
 - When turning the unit upside-down, get a bunch of newspapers or magazines, and place them under the four corners or at both ends to prevent damage to the buttons and controls. Also, you should try to orient the unit so no buttons or controls get damaged.
 - When turning the unit upside-down, handle with care to avoid dropping it, or allowing it to fall or tip over.
2. Insert the batteries into the battery compartment, taking care to observe the correct polarity (+/- orientation).



NOTE

- Insert the batteries correctly (be careful of +/- orientation), as indicated.
 - Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.
3. Close the battery compartment cover.

NOTE

- If you connect the AC adaptor and turn on the power when batteries are installed, AC adaptor operation will take priority.
- If you want to operate the unit on batteries, disconnect the AC adaptor from the unit.
- If batteries are installed, the power will turn off if you disconnect the power cord from the AC outlet or disconnect the AC adaptor's DC plug from the unit while it is powered up. You must turn off the power before connecting or disconnecting the power cord or AC adaptor.

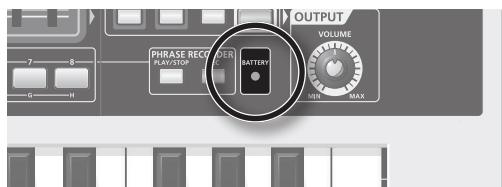
Removing the Batteries

If you want to remove the batteries, turn off power to the GAIA SH-01 first; then open the battery compartment cover, and take out the batteries.

When to Replace the Batteries (BATTERY indicator)

When the batteries run low, the BATTERY indicator will light.

If you continue using the unit, the BATTERY indicator will blink. Cease operation, and charge the batteries.



NOTE

- If you continue to play the instrument even though the BATTERY indicator is flashing, eventually all indicators other than the BATTERY indicator will go out, and the instrument will become inoperable.
- The BATTERY indicator is only an approximate indication.

Batteries that can be used

- You can use nickel-metal hydride batteries.

NOTE

Do not use alkaline batteries or zinc carbon batteries.

- When using nickel-metal hydride batteries, the battery life will be approximately five hours of continuous use at room temperature. However, if USB memory is connected, the battery life will be approximately four hours. The battery life for continuous use will depend on factors such as the conditions of use.

Battery handling

- Do not mix fresh batteries with partially used batteries or batteries of a different type.
- If you won't be using the unit for an extended period of time, save your stored settings to USB memory, and remove the batteries.
- Incorrect use of batteries, rechargeable batteries, or battery chargers can cause leakage, overheating, fire, or explosion. Before use, carefully read and observe the instructions that accompanied your batteries, rechargeable batteries, or battery charger.

POWER SAVE MODE

You can set the GAIA SH-01 so it will automatically enter power-save mode when a certain length of time has passed without any operation being performed. (When shipped from the factory, the SH-01 is set so it won't enter power-save mode.)

To return from power-save mode to normal operation, perform an operation such as turning a knob or playing the keyboard.

You can set the amount of time that is to pass before the unit will enter Power Save mode.

For details, see "Time setting for POWER SAVE MODE" (p. 54).

Connecting Headphones or Speakers

The GAIA SH-01 does not contain speakers. In order to hear sound, you'll need to connect it to an audio device, such as monitor speakers or a stereo system, or connect headphones.

- * To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.

Connecting monitor speakers or a stereo system

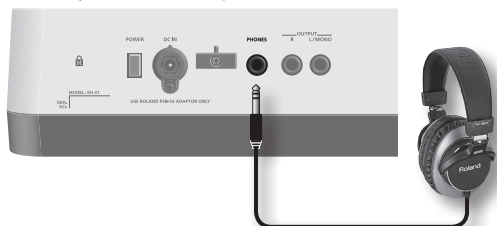
Use cables to connect the GAIA SH-01's rear panel OUTPUT jacks to your monitor speaker or stereo set.



- * In order to take full advantage of the GAIA SH-01's capabilities, we recommend that you use it in stereo. To use it in mono, connect to the OUTPUT L/MONO jack.

Using headphones

Connect commercially available headphones to the PHONES jack on the rear panel.



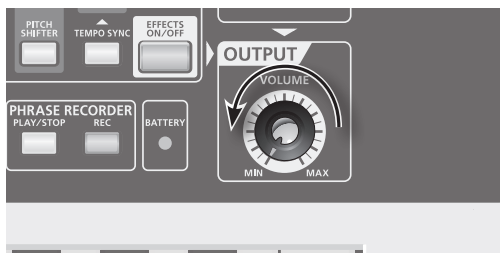
- * Sound will be output from the OUTPUT jacks even if headphones are connected.

Turning the Power On/Off

- * Once the connections have been completed (p. 13–p. 14), turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.
- * Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.

Turning the Power On

1. Check the following before you turn on the power.
 - Are your speakers or headphones connected correctly?
 - Is power to the connected equipment switched off?
2. Turn the [VOLUME] knob on the top panel all the way to the left.



3. Press the [POWER] switch on the rear panel to turn on the power.



- * When turning on the power, do not touch the pitch bend/modulation lever located at the left of the keyboard. If you turn on the power while touching this lever, the system may not operate correctly.
4. Switch on power to the connected equipment, and raise the volume to an appropriate level.
 5. While playing the keyboard, slowly turn the [VOLUME] knob toward the right to adjust the volume.

Turning the Power Off

1. Check the following before you turn off the power.
 - Have you minimized the volume of the connected equipment?
 - Have you saved any sound you've created? (p. 39)
2. Switch off power to the connected equipment.
3. Press the GAIA SH-01's [POWER] switch to turn off the power.

How the GAIA SH-01 is Organized

Basic Structure

Broadly speaking, the GAIA SH-01 consists of a controller section, a sound generator section, and effects.

Controller section

The controller section is what you play.

For example, the performer's actions, such as "playing the keyboard" are conveyed by the controller section to the sound generator section, causing it to produce sound.

The GAIA SH-01's controller section consists of the keyboard, the pitch bend/modulation lever, the D BEAM controller, the panel buttons and knobs, and pedals connected to the rear panel.

Sound generator section

This section produces the sound.

It receives the performance data sent by the controller section, electronically creates the basic waveform, and modifies the brightness and loudness of the sound to create a broad range of tonal characteristics.

The GAIA SH-01's sound generator section allows you to instantly adjust numerous elements that determine the sound's character (waveform, pitch, brightness, loudness, etc.) using the knobs and buttons of the panel.

Effects

The GAIA SH-01 contains a variety of effects, and each can be adjusted independently.

Performance Functions

The GAIA SH-01 contains a variety of effects, and each can be adjusted independently.

Arpeggiator (p. 22)

This allows you to produce arpeggios simply by pressing a chord on the keyboard.

Tempo (p. 23)

You can easily change the tempo of the arpeggiator or phrase recorder by pressing the [TAP TEMPO] button several times in rhythm with the desired tempo.

Octave (p. 20)

You can shift the keyboard's pitch range in steps of an octave, for a maximum shift of three octaves upward or downward.

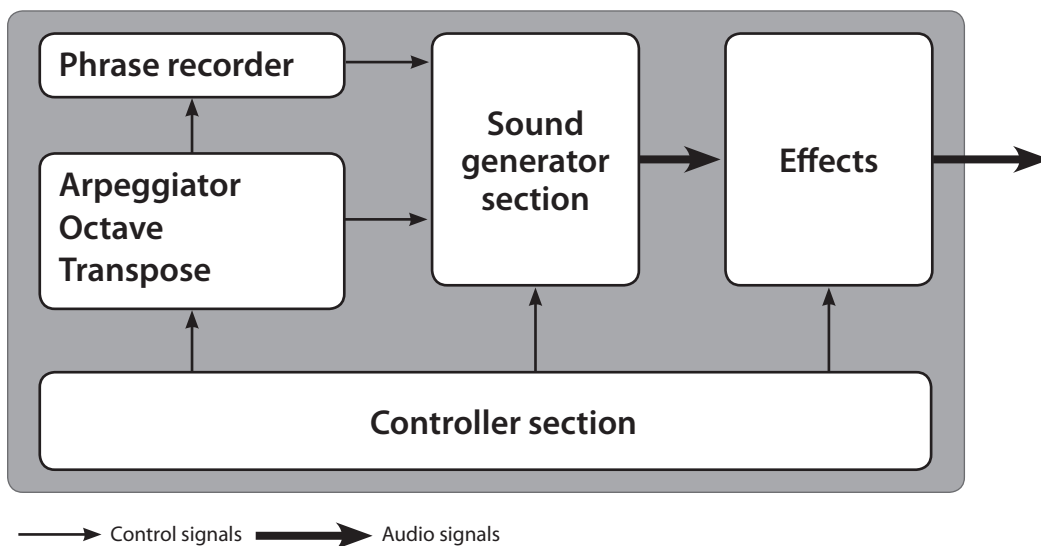
Transpose (p. 20)

This function shifts the keyboard's pitch range in steps of a semitone, for a maximum shift of -5+6 semitones.

Phrase recorder (p. 24)

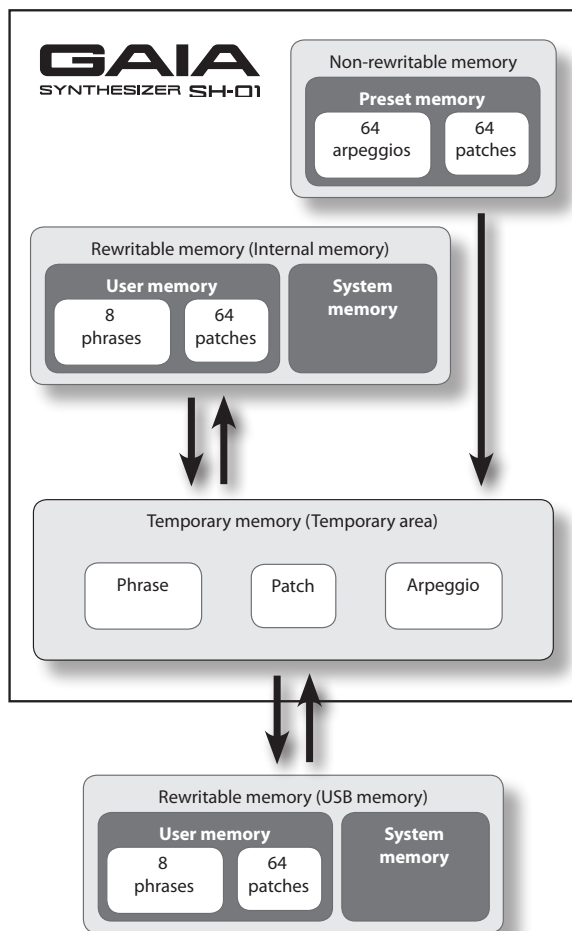
This allows you to record a phrase of several measures. By recording only control operations such as knob movements, you can also make the knobs operate automatically.

Basic structure of the GAIA SH-01



About Memory

Memory provides storage locations where patches (p. 18) and other settings are stored. There are three types of memory: "temporary memory," "rewritable memory," and "non-rewritable memory."



Temporary memory

Temporary area

Data for the patch you select via the front panel buttons is called up to this area.

When you play the keyboard or play back the phrase recorder, sounds are produced according to the settings that are in the temporary area. When you edit a patch, the changes you make do not directly modify the data in memory; rather, the data is read into the temporary area, then modified.

The settings in the temporary area will be lost when you turn off the power or call up other settings. If you want to keep the data that's in the temporary area, you must store it into rewritable memory.

Rewritable memory

System memory

System memory contains system parameter settings that specify how the GAIA SH-01 is to operate.

User memory

Patches and phrases can be stored in user memory.

USB memory (p. 55)

Patches and phrases can be stored in USB memory in the same way as in user memory.

Non-rewritable memory

Preset memory

The data in preset memory cannot be rewritten.

If you've edited data that was recalled from preset memory, you can store it in rewritable memory (user memory or USB memory).

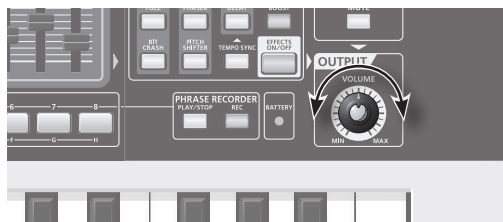
Performing

Adjusting the Volume (VOLUME)

Here's how to adjust the overall volume of the GAIA SH-01's sound, which is output from the OUTPUT jacks on the rear panel and the PHONES jack.

Turning the knob toward the right will increase the volume, and turning it toward the left will decrease the volume. There will be no sound if you turn the knob all the way to the left.

- * This knob does not affect the output volume of USB audio (p. 42).



Selecting Sounds



1. Press the [PRESET PATCH] button or the [USER PATCH] button.

These buttons switch you between the preset group and the user group.

If you want to select patches that are saved in USB memory, press the USB MEMORY [PATCH] button.

2. Press the [BANK] button, and then press one of the NUMBER [A]–[H] buttons.

These buttons allow you to select among banks A–H.

3. Press one of the NUMBER [1]–[8] buttons.

Patch 1–8 will be selected.

Example:

- If the USER A-1 patch is currently selected, pressing the NUMBER [6] button will switch you to the USER A-6 patch.
- If the PRESET A-4 patch is currently selected, pressing the [BANK] button and the NUMBER [C] button will switch you to the PRESET C-4 patch.
- If the PRESET B-5 patch is selected, pressing the [USER PATCH] button will switch you to the USER B-5 patch.

About Patches

The GAIA SH-01 lets you store the sounds that you create.

A sound you create is called a “patch”; you can use the buttons to recall a patch and then play it.

Patches are organized into a “preset group” and a “user group.” If you use USB memory (sold separately), you'll also be able to use the “USB memory group.”

Each group contains 64 patches, organized into eight banks with eight numbers in each bank.

Preset group (PRESET)

This group contains 64 patches that are already created for your use.

Although you cannot rewrite the contents of this group, you are free to create new sounds based on these patches.

To put the instrument in a special mode in which it functions as a PCM sound generator, hold down the [PRESET PATCH] button while you press a NUMBER [1]–[8] button. While in this mode, you can enjoy realistic instrumental performances that take full advantage of the PCM sound generator.

In this mode, the [PRESET PATCH] button will blink, and you can select eight PCM sounds by pressing the NUMBER [1]–[8] buttons.

- * The sounds provided by the PCM sound generator are read-only sounds. Although you will be able to perform a limited amount of editing and carry out performances that use effects (reverb), you won't be able to save any of the settings you make.

Note also that PRESET BANK H contains the sounds actually used for the supplied DVD.

User group (USER)

Sounds that you create can be saved in this group of 64 patches.

For details on how to save a sound, refer to “Saving a Sound You've Created (WRITE)” (p. 39).

USB memory group (USB MEMORY)

When using USB memory (sold separately), sounds that you create can be saved in this group. USB memory can hold 64 patches.

For details on how to save a sound, refer to “Saving a Sound You've Created (WRITE)” (p. 39).

Banks (BANK)

There are eight banks (A–H), and eight patches can be saved in each bank. The banks provide a convenient way to organize the 64 patches.

For example, you could use bank A to hold the patches you'll be using in the first song of your live performance, and bank B to hold the patches for the second song. Alternatively, you could use bank A to hold synth bass patches and bank B to hold lead patches.

Preset group/User group/ USB memory group

		NUMBER 1-8							
BANK A-H	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	
	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	
	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	
	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	
	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	
	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	
	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	
	H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	

Adding Dynamics to the Sound

The GAIA SH-01's keyboard allows you to vary the volume or brightness of the sound by changing your playing dynamics (key velocity).

When the instrument was shipped from the factory, this was set to "FIX," which means that a fixed value will constantly be used for Key Velocity.

If you want to have the strength of your playing affect the sound, you'll need to set "KEYBOARD VELOCITY" (p. 51) to "REAL."

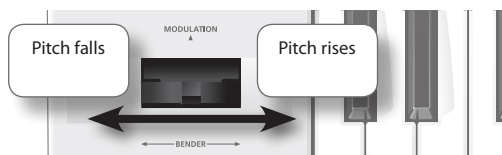
- * If you want to modify the way in which this change occurs, edit the patch parameters "Level Velocity Sens" (p. 45, volume) or "Filter Envelope Velocity Sens" (p. 45, brightness).

Changing the Pitch (BENDER)

While playing the keyboard, move the pitch bend/modulation lever to the left to lower the pitch, or toward the right to raise the pitch.

Moving the pitch bend/modulation lever all the way to the left will lower the pitch by two semitones.

Moving the pitch bend/modulation lever all the way to the right will raise the pitch by two semitones.



Pitch bend range

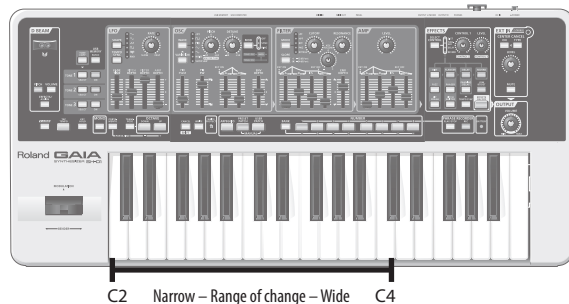
You can change the pitch bend range.

1. While holding down the [CANCEL/SHIFT] button, move the pitch bend/modulation lever all the way to the far left or right.

The OCTAVE [DOWN/-] and [UP/+] buttons will blink.

2. While holding down the OCTAVE [DOWN/-] button, press a key (C2-C4).

This specifies the amount of pitch change that will occur when you move the lever to the left.



3. While holding down the OCTAVE [UP/+] button, press a key (C2-C4).

This specifies the amount of pitch change that will occur when you move the lever to the right.

When you've finished making settings, press the [CANCEL/SHIFT] button.

Applying Vibrato (MODULATION)

While playing the keyboard, move the pitch bend/modulation lever away from yourself to apply vibrato.



Modulation speed and depth

You can specify the speed and depth of the effect that will be applied when you move the modulation lever away from yourself.

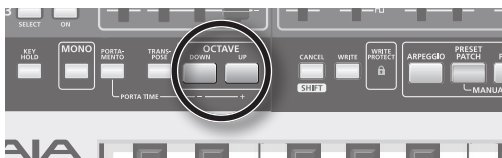
1. While holding down the [CANCEL/SHIFT] button, move the lever all the way away from yourself.
2. Make settings using the knobs and sliders in the LFO section of the panel.

For details, refer to "MODULATION LFO" (p. 37).

If you move the pitch bend/modulation lever to left or right and simultaneously away from yourself, both pitch bend and modulation will be applied at the same time.

Shifting the Keyboard's Pitch Range (OCTAVE UP/DOWN)

You can shift the keyboard's pitch range in steps of one octave, for a maximum of three octaves upward or downward.



1. To raise the range, press the **[OCTAVE [UP/+]** button, and to lower the range press the **[OCTAVE [DOWN/-]** button.

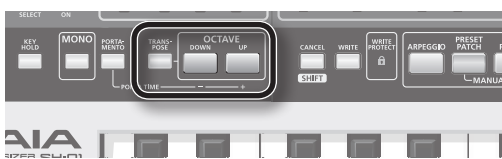
With each press of a button, the range is altered by one octave.

If the keyboard's pitch range is raised above its normal range, the **[OCTAVE [UP/+]** button will light. If the keyboard's pitch range is lowered, the **[OCTAVE [DOWN/-]** button will light.

If you press the **[OCTAVE [UP/+]** and **[OCTAVE [DOWN/-]** buttons simultaneously, the keyboard will return to its normal pitch range; both buttons will go out.

Shifting the Keyboard's Pitch Range in Semitones (TRANPOSE)

This function lets you shift the keyboard's pitch range in steps of a semitone, in a range of -5 to +6 semitones.



1. To turn transpose on, press the **[TRANPOSE]** button so it's lit.
2. To raise the range, hold down the **[TRANPOSE]** button and press the **[OCTAVE [UP/+]** button. To lower the range, hold down the **[TRANPOSE]** button and press the **[OCTAVE [DOWN/-]** button.

With each press of a button, the range is altered by one semitone.

When the keyboard's pitch range is raised above its normal range, the **[OCTAVE [UP/+]** button will light while the **[TRANPOSE]** button is held down. If lowered, the **[OCTAVE [DOWN/-]** button will light while the **[TRANPOSE]** button is held down.

If you hold down the **[TRANPOSE]** button and press the **[OCTAVE [UP/+]** button and **[OCTAVE [DOWN/-]** button simultaneously, the keyboard will return to its normal pitch range. Both buttons will go out.

Playing Single Notes (MONO)

This function is effective when you need to simulate the performance of a solo instrument.



1. Press the **[MONO]** button so it's lit; this puts the synth in mono mode.

Even if you hold down a chord on the keyboard, only a single note will sound. The last-played note will be heard.

When you press the **[MONO]** button once again to turn off its illumination, the Mono function will turn off.

Smoothly Connecting One Note to the Next (PORTAMENTO)

This allows you to create a smooth change in pitch from one note to the next.



1. Press the **[PORTAMENTO]** button so it's lit.

Changing the Rate of Pitch Change (Portamento Time)

To change the rate of the pitch change (the time over which the pitch change occurs), hold down the **[PORTAMENTO]** button and move the **[LFO [FADE TIME]** slider.

As you raise the slider, the portamento time will get longer and the pitch will change at a slower rate.

MEMO

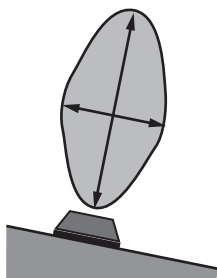
There's another way to adjust the portamento time; "PORTAMENTO TIME" (p. 45).

Changing the Pitch or Volume by Moving Your Hand (D BEAM)

By moving your hand above the D BEAM controller located at the upper left of the keyboard, you can vary the pitch or volume according to the height of your hand.



The D BEAM controller's effective range



The D BEAM controller's effective range is shown in the diagram at left. No effect will be obtained if you move your hand outside this range.

Adjusting the D BEAM controller's sensitivity

The D BEAM controller's sensitivity will decrease if it's used in strong sunlight or strong illumination.

The GAIA SH-01 lets you adjust the sensitivity of the D BEAM controller.

1. **Hold down the [EFFECTS/ASSIGN] button and press one of the NUMBER [1]–[8] buttons.**

The higher the NUMBER button you press, the higher the sensitivity will be.

The current sensitivity is indicated by how many NUMBER buttons light red when you press the [EFFECTS/ASSIGN] button.

The more NUMBER buttons that are lit red, the higher the sensitivity.

Changing the Pitch (PITCH)

1. Press the [PITCH] button so it's lit.
2. **While playing the keyboard, position your hand over the D beam controller, then move it up and down.**

The pitch will change.

If you press the [PITCH] button once again, it will blink; now sound will be produced when you move your hand above the D BEAM controller.

Press the [PITCH] button once again to turn off its illumination; the D BEAM will turn off.

Changing the Volume to Add Expression (VOLUME)

1. Press the [VOLUME] button so it's lit.
2. **While playing the keyboard, position your hand over the D beam controller, then move it up and down.**

The volume will change, allowing you to add expression to your performance.

If you press the [VOLUME] button once again, it will blink; now sound will be produced when you move your hand above the D BEAM controller.

Press the [VOLUME] button to turn off its illumination; the D BEAM will turn off.

Changing the Assigned Parameter (EFFECTS/ASSIGN)

1. Press the [EFFECTS/ASSIGN] button so it's lit.
2. While playing the keyboard, position your hand over the D beam controller, then move it up and down.

Parameters assigned on an individual patch basis will change. Press the [EFFECTS/ASSIGN] button to turn off its illumination; the D BEAM will turn off.

Since you can assign a variety of functions to the [EFFECTS/ASSIGN] button, use it to apply various effects to the sound in real time (p. 48).

Determining the polarity of the D BEAM (D BEAM POLARITY)

The changes in the value of the parameter assigned to the D beam can be made to occur in either the positive or negative directions.

The polarity is determined by the direction that you move the knob at the time that the parameter is assigned.

When you move your hand near the D Beam controller, the value will change in the same direction as it did when you turned the knob.

For example, if you hold down the D BEAM [EFFECTS/ASSIGN] button while you turn the OSC [PITCH] knob to the right, the pitch will rise when you place your hand near the D beam controller.

Conversely, if you turn the OSC [PITCH] knob to the left while you hold down the D BEAM [EFFECTS/ASSIGN] button, the pitch will descend when you place your hand near the D beam controller.

Holding Notes After Removing Your Hand from the Keyboard (KEY HOLD)

You can make notes continue sounding even after you take your hand off the keyboard.

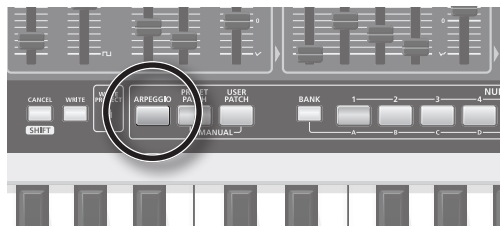


1. Press the [KEY HOLD] button so it's lit; key hold will be turned on.

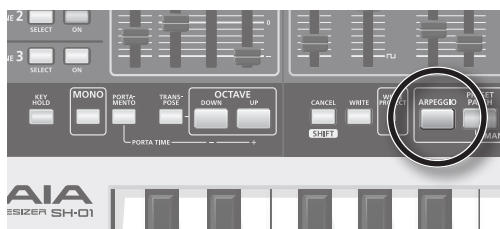
When you play a new key, the previously sounding note will stop sounding, and only the newly played note will be heard. If the arpeggiator is on, turning key hold on will cause the arpeggio to continue sounding.

Automatically Playing Arpeggios (ARPEGGIO)

Press the [ARPEGGIO] button so it's lit; the arpeggiator will be on.



Playing an Arpeggio



1. Press the [ARPEGGIO] button so it's lit; the arpeggiator will be on.

Press a chord on the keyboard; an arpeggio will sound according to the settings stored for each patch.

If you press the [KEY HOLD] button so it's lit, the arpeggio will continue sounding.

When you play a chord on the keyboard, an arpeggio will be produced according to the settings stored for each patch, and the arpeggio will continue sounding even after you take your hand off the keyboard. When you play a different chord, the notes of the arpeggio will also change.

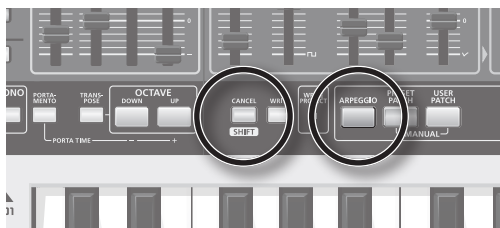
To stop the arpeggio, turn off the arpeggiator.

To turn off the arpeggiator, press the [ARPEGGIO] button so it goes out.

Selecting How the Arpeggio will Sound

The GAIA SH-01 lets you choose from 64 variations of arpeggio.

1. Hold down the [CANCEL/SHIFT] button and press the [ARPEGGIO] button.

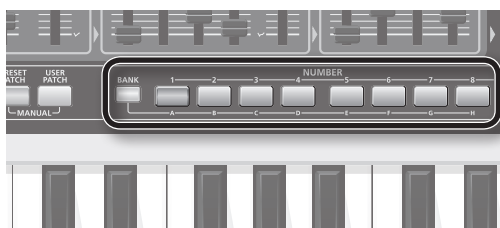


Now you can use the [BANK] button and NUMBER [1]–[8] buttons to select the arpeggio variation.

The NUMBER button corresponding to the currently selected variation will be lit; the other buttons will blink.

The arpeggio variations are organized into eight banks with eight variations in each bank.

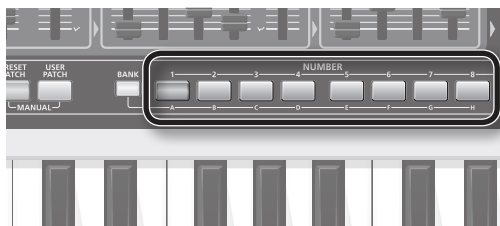
2. Press the [BANK] button and then a NUMBER [A]–[H] button to select the desired bank of arpeggio variations.



The bank corresponding to the button you pressed will be selected.

While you're selecting a bank, the button of the currently selected bank will be blinking, while the other buttons will remain unlit.

3. Press a NUMBER [1]–[8] button to select the desired arpeggio variation.



The corresponding arpeggio will be selected.

While you're selecting an arpeggio, the button of the currently selected NUMBER will be lit, and the other buttons will blink.

4. Press the [CANCEL/SHIFT] button.

MEMO

There are also other ways to change the way in which the arpeggio is sounded "ARPEGGIO VARIATION" (p. 45).

Changing the Tempo (TAP TEMPO)



1. Press the [TAP TEMPO] button four or more times at quarter-note intervals of the desired tempo.

You can also change the tempo by holding down the [TAP TEMPO] button and pressing the OCTAVE [UP/+] or OCTAVE [DOWN/-] button.

The [TAP TEMPO] button will be constantly blinking green at quarter-note intervals of the phrase recorder and arpeggio (p. 22) tempo.

When the phrase recorder is recording or playing back, the [TAP TEMPO] button will light red only for the first beat of the measure.

- * If the SYSTEM parameter CLOCK SOURCE (p. 52) is set to PATCH, these operations will change the PATCH TEMPO.
- * If the SYSTEM parameter CLOCK SOURCE (p. 52) is set to SYSTEM, these operations will change the SYSTEM TEMPO.
- * If the SYSTEM parameter CLOCK SOURCE (p. 52) is set to MIDI or USB, the TAP TEMPO operations are not available.

Recording Operations (PHRASE RECORDER)

You can record your keyboard performance and knob operations, and play them back repeatedly.

The recorded performance is called a “phrase.”

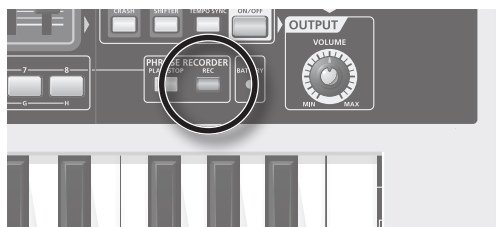
You can record up to eight phrases, and each phrase can be up to eight measures long.

The GAIA SH-01’s phrase recorder does not record the sound that’s actually being produced; rather, it records performance data (MIDI messages) such as “which key was pressed when and how strongly.”

- * The phrase does not record the patch you’re using, nor does it record patch changes or tempo changes you made during the phrase.

Recording

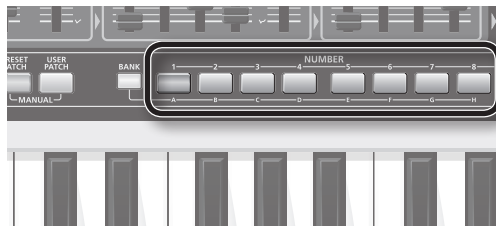
1. Press the [REC] button to make it blink; the phrase recorder will enter Rec Standby mode.



The metronome will start sounding.

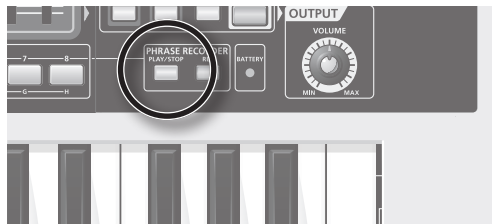
2. Press one of the NUMBER [1]–[8] buttons to specify the length (number of measures in the phrase you’re going to record).

The number of measures is indicated by the number of NUMBER buttons that are blinking, counting from the left.



- * When you specify the length of the phrase, any data previously recorded in that phrase will be erased.

3. Press the [PLAY/STOP] button.



You’ll hear a one-measure (four-beat) count, and then recording will begin.

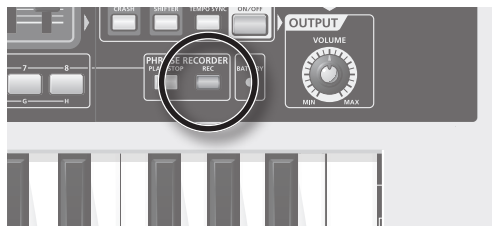
The [REC] button, which was blinking, will now light steadily.

4. To stop recording, press the [PLAY/STOP] button once again.

Rehearsing

While recording a phrase, you can temporarily suspend recording while you rehearse an idea.

1. During recording, press the [REC] button.



The [REC] button will blink. Your performance will not be recorded while the button is blinking.

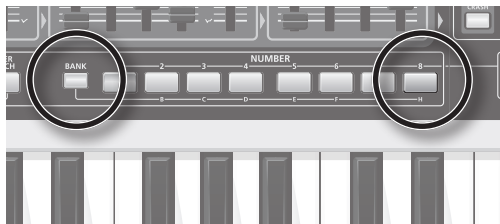
2. Press the [REC] button once again.

The [REC] button will light, and normal recording will resume.

Erasing Recorded Operations

While recording a phrase, you can erase unwanted notes from the recording.

1. During recording, press the [BANK] button.



2. Press the NUMBER [8] button at the location where you want to erase notes

All recorded notes will be erased for the duration that you hold down the NUMBER [8] button.

3. At the end of the region that you want to erase, release the NUMBER [8] button.

Normal recording will resume.

Choosing the Type of Data to be Recorded or Erased

While in Rec Standby mode, or while recording a phrase, you can choose the type of data that will be recorded or erased.

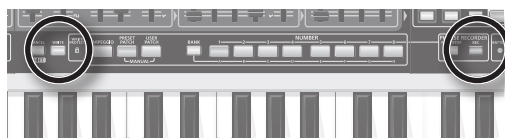
1. While in standby mode or during recording, press the [BANK] button
2. Select the type of data by pressing one of the NUMBER [1]–[4] buttons.
 - NUMBER [1] (All): All recorded data (this is the default)
 - NUMBER [2] (Bender): Only operations of the pitch bend/modulation lever
 - NUMBER [3] (Controller): Knob operations
 - NUMBER [4] (Notes): Only keyboard performance data

Saving the Recorded Phrase

The phrase you record will be lost when you switch off the GAIA SH-01's power, or when you select a different phrase.

When you've finished recording a phrase, it's a good idea to save it.

1. Hold down the [REC] button and press the [WRITE] button.



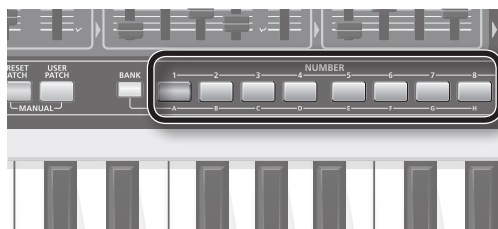
The NUMBER button corresponding to the currently selected phrase number will blink, and the other seven NUMBER buttons will light. The [WRITE] button will also blink.

MEMO

If you want to save the phrase to USB memory (sold separately), press the USB MEMORY [PATCH] button so it's lit.

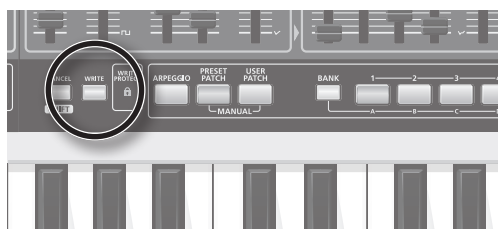
To store it internally, press the USB MEMORY [PATCH] button so its illumination is turned off.

2. Press the NUMBER [1]–[8] button for the phrase number in which you want to save the phrase you recorded.



The NUMBER button you pressed will blink, and the NUMBER buttons that were blinking will change to steadily lit.

3. Press the [WRITE] button.



The phrase will be saved.

The NUMBER [1]–[8] buttons will return to their function of selecting patches.

- * If you decide not to save the phrase, press the [CANCEL/SHIFT] button before pressing the [WRITE] button in step 3.

Choosing the phrase to play back

Here's how to select a phrase that's saved in internal memory or USB memory.

1. Hold down the [REC] button.

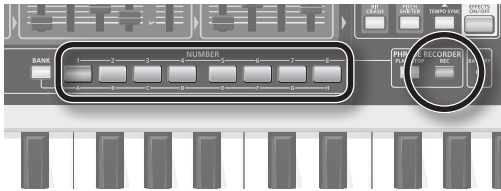
While you hold down the [REC] button, the NUMBER [1]–[8] buttons will select phrases.

To select a phrase that's saved in USB memory, hold down the [REC] button and press the USB MEMORY [PATCH] button so it's lit.

If this button is unlit, you'll be selecting phrases that are saved in internal memory.

The NUMBER button for the currently selected phrase number will blink, and the other seven NUMBER buttons will light.

2. Continue holding down the [REC] button, and press the NUMBER [1]–[8] button of the phrase that you want to play back.



The NUMBER button you pressed will blink, and the other NUMBER buttons will light.

3. Take your finger off the [REC] button.

The phrase has now been selected.

If playback is still taking place when you select a phrase, the selection will be switched after the previous phrase has finished playing.

Playing or stopping the phrase

1. Press the [PLAY/STOP] button.



The currently selected phrase will start playing.

The phrase will continue playing repeatedly until you press PLAY/STOP once again.

2. Press the [PLAY/STOP] button once again to stop phrase playback.

* No data for the phrase that is played will be output from MIDI OUT.

Using a Pedal

If you connect a pedal switch (DP series, FS-5U; sold separately) or expression pedal (EV-5; sold separately) to the rear panel PEDAL jack, you can use it to control a variety of functions that you've assigned.

Sustaining the Notes (HOLD)

If you connect a pedal switch (DP series, FS-5U; sold separately), the notes will be sustained as long as you continue holding down the pedal even after you take your hands off the keyboard.



Setting things so a pedal switch can be used to sustain the sound

1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button.
2. Hold down the [PORTAMENTO] button and press one of the NUMBER [1] buttons.
3. Press the [CANCEL/SHIFT] button.
 - MODULATION
 - VOLUME
 - BEND MODE
 - D BEAM SYNC
 - TAP TEMPO

Adding Expression to Your Performance (EXPRESSION)

If you connect an expression pedal (EV-5; sold separately), you'll be able to use the expression pedal to control the volume and add expression to your performance.



Setting things so an expression pedal can be used to add expression to a performance

1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button.
2. Hold down the [PORTAMENTO] button and press one of the NUMBER [4] buttons.
3. Press the [CANCEL/SHIFT] button.

* Use only the specified expression pedal (EV-5; sold separately). By connecting any other expression pedals, you risk causing malfunction and/or damage to the unit.

MEMO

In addition to Hold and Expression, the following functions can be assigned to the pedal "PEDAL ASSIGN" (p. 52).

- MODULATION
- VOLUME
- BEND MODE
- D BEAM SYNC
- TAP TEMPO

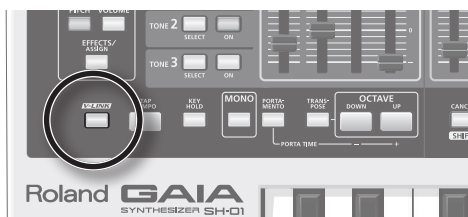
Using V-LINK

What is V-LINK?

V-LINK (**V-LINK**) is functionality that allows you to perform music and video simultaneously. If the GAIA SH-01 is connected via MIDI to a V-LINK compatible device, you'll be able to enjoy a variety of video effects that are synchronized to the expressive elements of your performance.

The GAIA SH-01 can control images on a V-LINK compatible video device that's connected via MIDI.

Press the [V-LINK] button to turn V-LINK on.



You can control the presentation of images so they're matched with the music you play on the GAIA SH-01, simply by pressing buttons or operating sliders on the GAIA SH-01.

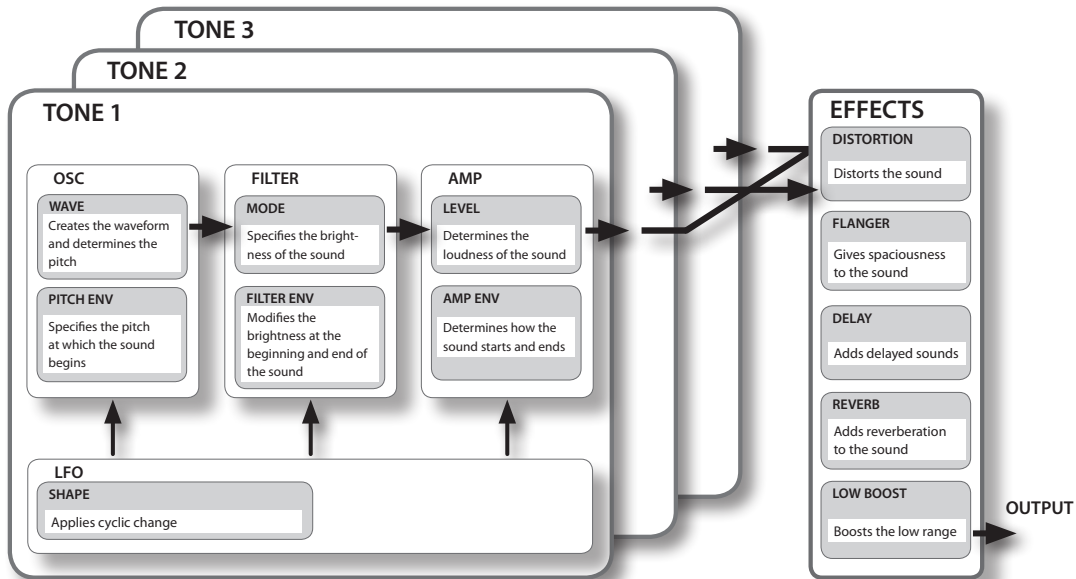
BANK, NUMBER [1]–[8] buttons	Pressed to select among image choices.
[CUTOFF] knob	Controls the hue and brightness.
[RESONANCE] knob	Controls the chrominance.
[LFO FADE TIME] slider	Controls the timing of image switching.
Pitch Bend Lever	Controls the speed of playback.

To cancel V-LINK, press the [V-LINK] button once again.

Creating Sounds

Sound-Creating Workflow

The following illustration shows the basic workflow for creating sounds on the GAIA SH-01.



The Three Elements of Sound (OSC, FILTER, AMP)

There are three elements that determine the character of a sound: the pitch, the brightness, and the loudness.

On the GAIA SH-01, these three elements are determined by the following sections.

Pitch: OSC (Oscillator, p. 30)

The pitch is determined by the speed at which the waveform repeats. A waveform that takes one second to repeat is said to have a frequency of 1 Hertz (1 Hz). The higher the frequency, the higher the pitch. Conversely, the lower the frequency, the lower the pitch.

Brightness: FILTER (Filter, p. 32)

The brightness of a sound can be modified by boosting or cutting specific frequency ranges. Boosting the high-frequency range produces a brighter sound, while boosting the low-frequency range produces a darker sound.

Loudness: AMP (Amp, p. 35)

The loudness of a sound is determined by the amplitude of the waveform. Greater amplitude means more volume, while lesser amplitude means less volume.

Time-Varying Change (ENVELOPE)

“Envelope” refers to the way in which an aspect of the sound changes over time. The OSC, FILTER, and AMP each have an envelope that operates each time you play a key, applying time-varying change to the pitch, tonal character, and volume.

Each aspect of the sound is controlled by its own envelope, as follows.

Pitch:

PITCH ENV (Pitch Envelope, p. 32)

Brightness:

FILTER ENV (Filter Envelope, p. 34)

Loudness:

AMP ENV (Amp Envelope, p. 35)

By taking full advantage of these envelopes, you can create more richly expressive sounds.

For example, you can use the pitch envelope to make the pitch momentarily lower at the beginning of each note, or use the amp envelope to make the volume gradually increase.

Cyclic Change (LFO)

The OSC, FILTER, and AMP can be modulated at a rate specified by the LFO (p. 36) to create vibrato (by modulating the pitch) or tremolo (by modulating the volume).

The GAIA SH-01 has three LFOs; you can use one LFO for each tone.

Effects (EFFECTS)

You can apply effects to add a finishing touch to the sound.

Five types of effects can be used simultaneously: distortion, modulation, delay, reverb, and low boost.

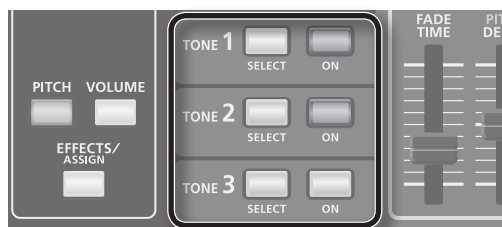
Tones (TONE)

On the GAIA SH-01, “tones” are the smallest unit by which sound is produced.

Each tone consists of an OSC (oscillator) x 1, FILTER (filter) x 1, AMP (amp) x 1, and LFO (Low-Frequency Oscillator) x 1; you’ll use these to create the sound of the tone.

The GAIA SH-01 lets you use three tones simultaneously.

Selecting a Tone



[SELECT] buttons

Use these buttons to select the tone that you want to edit.

The selected tone is called the “current tone.”

[ON] buttons

Use these buttons to turn on the tones that you want to be heard.

What the buttons do and how they light

	[SELECT] button	[ON] button
TONE 1	Select tone 1	Turn tone 1 on/off
	ON: lit (green) OFF: unlit	ON: lit (red) SYNC, RING: lit (orange) OFF: unlit
TONE 2	Select tone 2	Turn tone 2 on/off
	ON: lit (green) OFF: unlit	ON: lit (red) SYNC, RING: lit (orange) OFF: unlit
TONE 3	Select tone 3	Turn tone 3 on/off
	ON: lit (green) OFF: unlit	ON: lit (red) OFF: unlit

Editing multiple tones

Simultaneously press the [SELECT] buttons for the tones that you want to edit.

Example 1:

Press the tone 1 [SELECT] button and the tone 2 [SELECT] button, making them light.

Tones 1 and 2 will be the current tones, and the tone 1 and tone 2 buttons will both light green.

Example 2:

Press the [SELECT] buttons of all tones, making them light.

All tones will be the current tones, and the tone 1, tone 2, and tone 3 buttons will all light green.

Knob operations when you switch tones

When you switch tones, the knob or slider positions might not match the actual values of the settings.

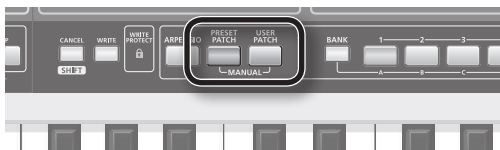
When you move a knob or slider, the GAIA SH-01 will modify its sound according to the position of that knob or slider.

Making the sound reflect the physical positions of the knobs and sliders (MANUAL)

The Manual function changes the parameter values to match the physical positions of the knobs and sliders, allowing you to edit in a straightforward manner. When you edit a patch to modify its sound, the actual value of each parameter will not necessarily match the physical positions of the knobs and sliders.

By executing the Manual function, you can change the sound to match the settings of the knobs and sliders. This is convenient when you're editing a sound from scratch.

When you execute the Manual function, the patch parameters will be set according to the physical positions of the knobs and sliders.



1. Hold down the [PRESET PATCH] button and press the [USER PATCH] button.

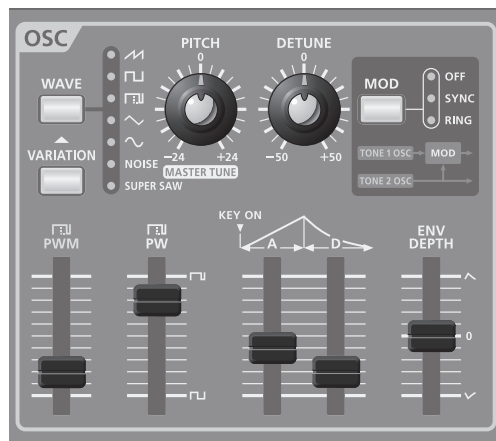
The [PRESET PATCH] button and [USER PATCH] button will both blink, and settings that are made will reflect the knob and slider positions.

Copying a tone (TONE COPY)

You can copy the settings of a tone to another tone.

1. Press the [TONE COPY] button.
The [TONE COPY] button and the [SELECT] buttons for all tones will start blinking.
 2. Press the [SELECT] button of the copy-source tone.
The [SELECT] button for the tone you've selected will change from blinking to steadily lit.
 3. Press the [SELECT] button of the copy-destination tone.
The copy will be completed, and the copy-destination tone will become the current tone.
- * If you decide not to save the phrase, press the [CANCEL/SHIFT] button before pressing the [SELECT] button in step 3.

Specifying the Waveform and Pitch (OSC)



The OSC (oscillator) section produces the waveform that is the basis of the sound.

Selecting a waveform will also determine the pitch.






The GAIA SH-01 has an oscillator for each tone 1–3.

These three oscillators can be used independently, or in combination to create thick or complex sounds.

You can also combine tone 1 and tone 2 to create thick sounds or metallic sounds.

[WAVE] button

This button selects the waveform that is the basis of the sound. The waveform whose indicator is lit is the selected waveform.

Lit indicator	Characteristics
 Sawtooth wave	This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at all integer multiples of that fundamental.
 Square wave	This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at odd-numbered multiples of that fundamental.
 Pulse/PWM	The overtone structure of this waveform will vary significantly depending on the width of the upper portion of the waveform (Pulse Width, p. 31).
 Triangle wave	This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at even-numbered multiples of that fundamental.
 Sine wave	This is the simplest of all waveforms, containing only a single frequency.

NOISE Noise	This waveform contains all frequencies. It is suitable for percussion instrument sounds or sound effects.
SUPER SAW Super Saw	This produces a tone similar to seven sawtooth waves heard simultaneously. Pitch-shifted sounds are added to the center sound. It is suitable for strings sounds, and for creating thick sounds.

[VARIATION] button

You can select variations of waveforms.

There are three variations for each waveform, and the [WAVE] button will change color according to the selected variation, as follows: unlit → red → green → unlit ...

[PITCH] knob

This knob sets the pitch.

- Turning the knob toward the right will raise the pitch in semitone steps. Turning the knob all the way to the right will make the pitch two octaves higher than when the knob is in the center position.
- Turning the knob toward the left will lower the pitch in semitone steps. Turning the knob all the way to the left will make the pitch two octaves lower than when the knob is in the center position.

[DETUNE] knob

This knob adjusts the pitch in finer steps than the [PITCH] knob.

By layering tones and slightly shifting their pitches away from each other, you can create a sense of modulation and depth (a “detune” effect).

- Turning the knob toward the right will raise the pitch. Turning the knob all the way to the right will make the pitch 50 cents higher than when the knob is in the center position.
- Turning the knob toward the left will lower the pitch. Turning the knob all the way to the left will make the pitch 50 cents lower than when the knob is in the center position.

[MOD] button

This button combines the sound of tone 1 and tone 2 in order to create more complex sounds.

Press the button to select the way in which these tones will be combined; the corresponding indicator will light.

Pressing the button cycles you through the available choices, as follows: OFF → SYNC → RING → OFF ...

OFF

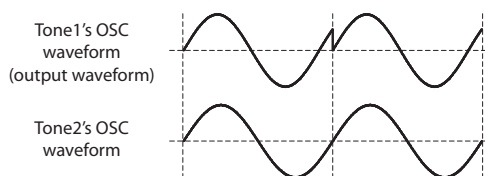
Tone 1 and tone 2 will sound independently.

SYNC (Oscillator sync)

Tone 1 will forcibly be reset to the beginning of its cycle at the frequency of tone 2, creating a complex waveform.

The tone1’s OSC waveform will change as shown in the illustration, and tone2’s OSC will be output with its original waveform.

This is effective when the tone 1 pitch is higher than the tone 2 pitch.

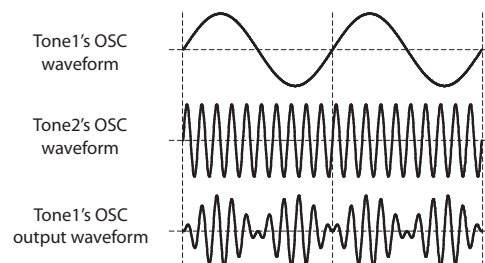


* If you’ve selected SYNC (oscillator sync), the MONO setting will be forcibly chosen.

RING (Ring modulator)

By multiplying tone1’s OSC and tone2’s OSC, this creates a complex, metallic-sounding waveform like that of a bell.


The tone1’s OSC waveform will change as shown in the illustration, and tone2’s OSC will be output with its original waveform.




* PW and PWM cannot be used for tones 1 and 2 if you’ve turned on SYNC (Oscillator Sync) or RING (Ring Modulator).

Also, if the OSC section’s asymmetric rectangular wave is selected, variations for the OSC become invalid, and the resulting tonal quality will be somewhat different compared to what it would be with the original wave selection.

[PWM] slider

If the [WAVE] button (p. 30) has selected  (asymmetrical square wave), you can use this slider to specify the amount of LFO modulation applied to PW (pulse width).

[PW] slider

If the [WAVE] button (p. 30) has selected  (asymmetrical square wave), you can use this slider to specify the width of the upper portion of the square wave (the pulse width) as a percentage of the entire cycle.

- Moving the slider downward will narrow the pulse, making it approach a square wave (pulse width = 50%).
- Moving the slider upward will broaden the pulse, producing a more idiosyncratic sound.

PITCH ENV (Pitch envelope)

On wind instruments such as a trumpet, the beginning of the note (i.e., the moment at which the musician begins to blow) may be slightly different than the pitch at which the note stabilizes.

The pitch envelope lets you create this type of time-varying pitch change.

[A] (Attack time) slider

This specifies the time from the moment you press the key until the pitch reaches its highest (or lowest) point.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

[D] (Decay time) slider

This specifies the time from the moment the pitch reaches its highest (or lowest) point until it returns to the pitch of the key you pressed.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

[ENV DEPTH] (Envelope depth) slider

This specifies how much the pitch envelope will affect the pitch.

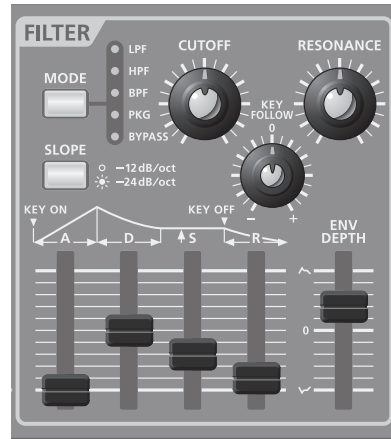
- If the slider is in the upward (+) half of its range, the pitch will initially rise and then return to the pitch of the key you pressed. Moving the slider upward will increase the distance by which the pitch rises.
- If the slider is in the downward (-) half of its range, the pitch will initially fall and then return to the pitch of the key you pressed. Moving the slider downward will increase the distance by which the pitch falls.

Using the pitch envelope

If you want the pitch to be momentarily sharp at the beginning of the note (e.g., as it is the instant a trumpeter begins blowing), set [A] and [D] to very short times, and move ENV DEPTH slightly in the "+" direction.

By setting [A] to the shortest time (the slider all the way down), setting [D] a bit longer, and raising ENV DEPTH to the maximum, you can simulate the downward-swooping electronic drum sound that was popular in the 80's.

Adjusting the Brightness and Thickness (FILTER)



The FILTER section contains parameters that determine the character and distinctive features of the sound.

You can modify the tonal character by changing the filter settings. There are various types of filters; for example a low-pass filter (LPF) passes only the portion of the sound that is below a specific frequency (the cutoff frequency), and a high-pass filter (HPF) passes only the portion that is above that frequency.

By changing the cutoff frequency of a low-pass filter, you can make the sound brighter or darker. The cutoff frequency can be controlled by the envelope to change over time.

By adjusting the filter and envelope settings, you can create sounds that have movement and expressiveness.

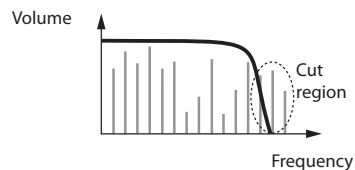
The filter parameters are described below.

Filter types

LPF (Low-Pass Filter)

This type of filter cuts the frequency range that is above the cutoff frequency, making the sound more mellow.

This is the most frequently used type of filter.



HPF (High-Pass Filter)

This type of filter cuts the frequency range that is below the cutoff frequency, emphasizing the high-frequency range.

This can be used to create percussion instrument sounds with a distinctive high-frequency range.

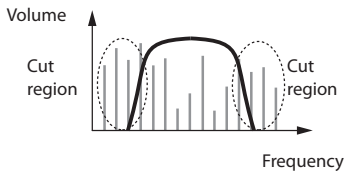


BPF (Band Pass Filter)

This type of filter passes only the range of frequencies in the region of the cutoff frequency, cutting the other frequencies.

This is suitable for creating distinctive sounds.

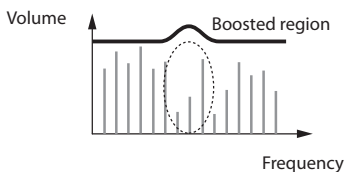
If you've selected "NOISE" as the oscillator waveform, selecting this filter type will allow only a specific frequency region of the noise to be heard, allowing you to play "pitched noise."



PKG (Peaking Filter)

This type of filter boosts the range of frequencies in the region of the cutoff frequency.

By using the LFO to cyclically modulate the cutoff frequency, you can use this to produce a wah effect.



BYPASS

The sound will not be sent through the filter. The oscillator's sound will be output without change.

[MODE] button

This button selects the type of filter that will be applied to the waveform.

Press the button to make the indicator light for the desired type of filter.

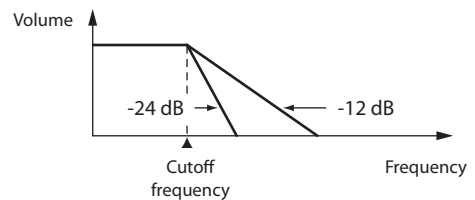
Pressing the button cycles you through the available choices, as follows: LPF → HPF → BPF → PKG → BYPASS → LPF → ...

[SLOPE] button

This button selects the slope (steepness) of the filter.

Press the button to toggle the indicator between unlit and lit. This allows you to switch between slopes of -12 dB and -24 dB per octave.

Example: LPF (Low-Pass Filter) slope



Unlit (-12 dB)

The filter slope will be gentle; some sound near the cutoff frequency will remain.

Lit (-24 dB)

The filter slope will be steep; the sound immediately above (or below) the cutoff frequency will be cut.

[CUTOFF] knob

This knob specifies the filter cutoff frequency.

LPF

Turning the knob toward the right will brighten the sound; turning it toward the left will make the sound darker (more mellow).

HPF

Turning the knob toward the right will make the sound lighter (thinner); turning it toward the left will make the sound heavier (thicker).

BPF

Turning the knob toward the right allows the high-frequency range to be heard; turning it toward the left allows the low-frequency range to be heard.

PKG

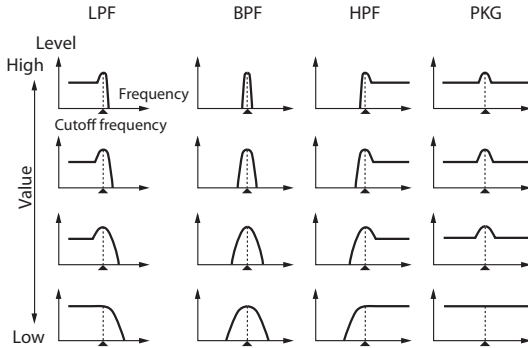
Turning the knob toward the right will move the boosted region toward the high-frequency range; turning it toward the left will move the boosted region toward the low-frequency range.

* If "BYPASS" is selected as the filter mode, turning the [CUTOFF] knob will not affect the sound.

[RESONANCE] knob

Resonance emphasizes the sound in the region of the filter cutoff frequency.

Increasing the resonance setting will increase this emphasis, producing a distinctive sound that is characteristic of synthesizers. If you want to accentuate the resonance effect, it's a good idea to lower the cutoff slightly.



- Turning the knob toward the right will emphasize the sound in the region of the cutoff frequency, producing a more distinctive sound.
- Turning the knob toward the left will remove the emphasis from the sound in the region of the cutoff frequency, producing a milder sound.
- * If "BYPASS" is selected as the filter mode, turning the [RESONANCE] knob will not affect the sound.

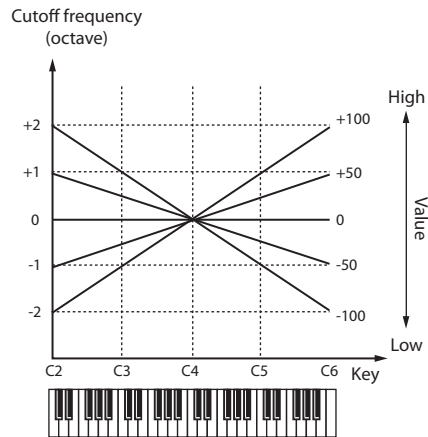
NOTE

In response to demands by pro sound designers for tonechanging capabilities, the GAIA SH-01 permits a wide variety of resonance settings. Because of this, raising the resonance level too much results in extremely high output levels in specific frequency ranges. Be careful to keep the volume settings down when creating sounds in order to prevent overloading audio playback equipment.

[KEY FOLLOW] knob

Here's how you can make the filter cutoff frequency to vary according to the key you play.

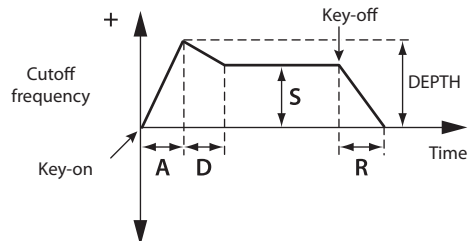
- Turning the knob toward the right (maximum value is +100) will make the cutoff frequency rise as you play toward the right side of the keyboard, and fall as you play toward the left side of the keyboard.
- Turning the knob toward the left (maximum value is -100) will make the cutoff frequency fall as you play toward the right side of the keyboard, and rise as you play toward the left side of the keyboard.
- If the knob is in the center position (0), the cutoff frequency will not be affected by the notes you play.
- * If "BYPASS" is selected as the filter mode, changing this setting will not affect the sound.



FILTER ENV (Filter envelope)

On instruments such as a piano, the beginning of each note has a bright sound, which gradually becomes darker (more mellow) as the note decays.

The filter envelope lets you simulate this and many other kinds of time-varying changes in brightness.



[A] (Attack time) slider

This specifies the time from the moment you press the key until the cutoff frequency reaches its highest (or lowest) point.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

[D] (Decay time) slider

This specifies the time from when the cutoff frequency reaches its highest (or lowest) point, until it decays to the sustain level.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

[S] (Sustain level) slider

This specifies the cutoff frequency that will be maintained from when the decay time has elapsed until you release the key.

Moving the slider upward will raise the cutoff frequency (or lower it if DEPTH is set to a "-" value).

[R] (Release time) slider

This specifies the time from when you release the key until the cutoff frequency reaches its minimum value.

Moving the slider upward will lengthen the time, and moving it downward will shorten the time.

[ENV DEPTH] (Envelope depth) slider

This specifies the direction and depth to which the cutoff frequency will change.

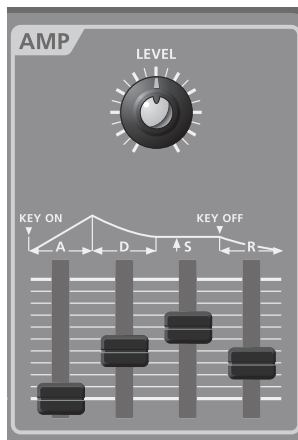
- If the slider is moved upward ("+" settings), the filter envelope will raise the cutoff frequency. The farther upward the slider is set, the more the cutoff frequency will be raised by the filter envelope.
- If the slider is moved downward ("- settings), the filter envelope will lower the cutoff frequency. The farther downward the slider is set, the more the cutoff frequency will be lowered by the filter envelope.

Filter envelope velocity sensitivity

Here's how you can make the filter envelope depth vary according to the strength with which you play the key.

1. **Hold down the [CANCEL/SHIFT] button and turn the [CUTOFF] knob.**
 - Turning the knob toward the right (maximum value is +63) will make the filter envelope depth rise as you play more strongly, and fall as you play more softly. .
 - If this setting is at the minimum value (0), the cutoff frequency will not be affected by the strength with which you play the key.
 - * If "BYPASS" is selected as the filter mode, changing this setting will not affect the sound.
 - * This effect can be obtained only when KEYBOARD VELOCITY (p. 51) is set to "REAL."

Specifying the Sound's Attack and Decay (AMP)



The AMP section contains parameters that control the volume. Raising a value will increase the volume.

[LEVEL] knob

This sets the volume. Turning the knob toward the right will increase the volume, and turning it toward the left will decrease the volume.

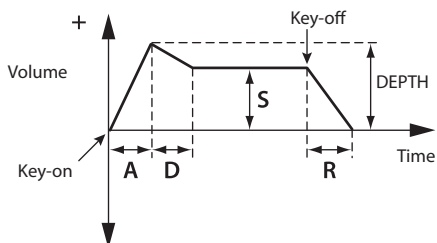
If the knob is turned all the way to the left, there will be no sound.

AMP ENV (Amp envelope)

When a note is played on a piano, the sound begins immediately, and then gradually diminishes.

On instruments such as an organ, the sound continues at a fixed volume as long as the key is held down.

The amp envelope allows you to create these and many other types of volume change over time.

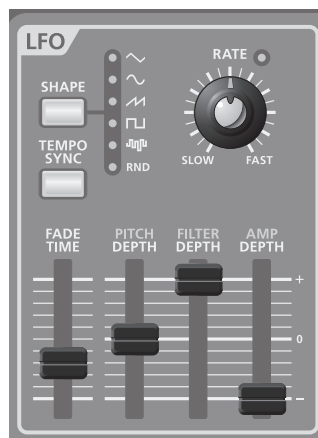


[A] (Attack time) slider

This specifies the time from the moment you press the key until the maximum volume is reached.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

Modulating the Sound (LFO)



[D] (Decay time) slider

This specifies the time from when the maximum volume is reached, until it decays to the sustain level.

Moving the slider upward will lengthen this time, and moving it downward will shorten the time.

[S] (Sustain level) slider

This specifies the volume level that will be maintained from when the attack and decay times have elapsed until you release the key.

Moving the slider upward will raise the volume.

[R] (Release time) slider

This specifies the time from when you release the key until the volume reaches its minimum value.

Moving the slider upward will lengthen the time, and moving it downward will shorten the time.

PAN

Here's how to change the stereo position of the sound.

1. Hold down the [CANCEL/SHIFT] button and turn the [DETUNE] knob.

Turning the knob toward the left moves the stereo position to the left, and turning the knob toward the right moves the stereo position to the right. If the knob is in the center, the sound will also be in the center.

LEVEL VELOCITY SENS

Here's how you can make the volume vary according to the strength with which you play the keyboard.

1. Hold down the [CANCEL/SHIFT] button and turn the AMP [LEVEL] knob.

- Turning the knob toward the right (maximum value is +63) will make the volume rise as you play more strongly, and fall as you play more softly.
- If this setting is at the minimum value (0), the volume will not be affected by the strength with which you play the keyboard.

* This effect can be obtained only when KEYBOARD VELOCITY (p. 51) is set to "REAL."






LFO stands for Low-Frequency Oscillator. This is an oscillator with a very low frequency. It can output several different waveforms, including sine wave, triangle wave, square wave, and sawtooth wave.

By using the LFO to modulate various aspects of the audio signal, you can apply effects such as vibrato or tremolo.

- Applying the LFO to the pitch (OSC) will produce vibrato.
- Applying the LFO to the cutoff (FILTER) will produce wah-wah.
- Applying the LFO to the volume (AMP) will produce tremolo.
- Applying the LFO to the PAN will produce auto panning effect.

[SHAPE] button

This selects the LFO waveform. The indicator of the selected waveform will light.

Lit indicator	Waveform
	Triangle wave
	Sine wave
	Sawtooth wave
	Square wave
	Sample and Hold (The LFO value will change once each cycle.)
RANDOM	Random wave

[TEMPO SYNC] button

This button lets you specify the LFO speed as a note value relative to the arpeggio or phrase recorder tempo.

If you press the [TEMPO SYNC] button so it's lit, and then turn the [RATE] knob, the LFO speed (cycle) will change in steps of note lengths "RATE" (p. 47).

If you press the [TEMPO SYNC] button once again to turn off its illumination, the [RATE] knob will return to its original operation.

- * The [TAP TEMPO] button (p. 23) blinks at quarter-note intervals to indicate the tempo of the arpeggio or phrase recorder.

[RATE] knob

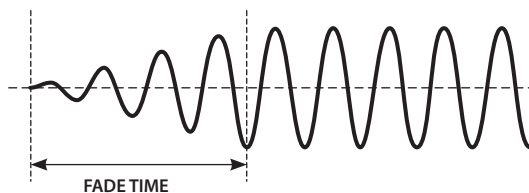
This determines the speed of the LFO.

Turning the knob toward the right will make the modulation faster, and turning it toward the left will make the modulation slower.

- * The indicator above the [RATE] knob blinks in synchronization with the LFO speed (cycle).

[FADE TIME] slider

This specifies the time from when the tone sounds until the LFO reaches its maximum amplitude.



[PITCH DEPTH] slider

This allows the LFO to modulate the pitch, producing a vibrato effect.

- Moving the slider upward ("+" settings) will deepen the modulation.
- If the slider is in the center position (0), the pitch will not be modulated by the LFO.
- Moving the slider downward ("- settings) will apply modulation with an inverted LFO waveform.

[FILTER DEPTH] slider

This allows the LFO to modulate the FILTER CUTOFF (cutoff frequency), producing a wah effect.

- Moving the slider upward ("+" settings) will deepen the modulation.
- If the slider is in the center position (0), the cutoff frequency will not be modulated by the LFO.
- Moving the slider downward ("- settings) will apply modulation with an inverted LFO waveform.

[AMP DEPTH] slider

This allows the LFO to modulate the AMP LEVEL (volume), producing a tremolo effect.

- Moving the slider upward ("+" settings) will deepen the modulation.
- If the slider is in the center position (0), the amp level will not be modulated by the LFO.
- Moving the slider downward ("- settings) will apply modulation with an inverted LFO waveform.

PAN DEPTH

Here's how to make the PAN (stereo position) vary (Auto Panning).

1. While holding down the [CANCEL/SHIFT] button, move the [AMP DEPTH] slider.

- Moving the slider upward ("+" direction) will deepen the modulation.
- If the slider is in the center position (0), there will be no modulation.
- Moving the slider downward ("- direction) will apply modulation with the LFO waveform in reversed phase.

MODULATION LFO

Each tone has two LFOs: an LFO that is always applied to the tone, and a MODULATION LFO that is used to apply modulation when the pitch bend/modulation lever is moved away from yourself.

1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself.

The LFO SHAPE indicator will blink.

2. Edit the following parameters.

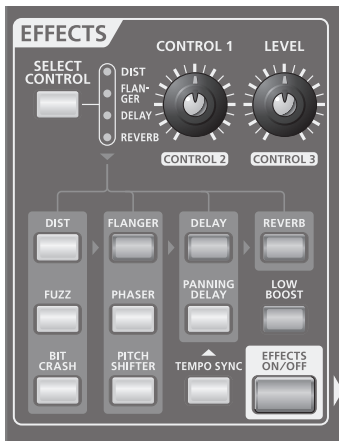
- SHAPE (p. 47)
- TEMPO SYNC (p. 47)
- RATE (p. 48)
- PITCH DEPTH (p. 48)
- FILTER DEPTH (p. 48)
- AMP DEPTH (p. 48)
- PAN DEPTH (p. 48)

LFO KEY TRIGGER and FADE TIME cannot be specified for the MODULATION LFO.

Speed and waveform of vibrato applied by the modulation lever

The speed and waveform of the vibrato applied when you move the modulation lever (p. 19) away from yourself is determined by the MODULATION LFO's SHAPE and RATE settings.

Adding Power, Spaciousness, and Reverb (EFFECTS)



“Effects” allow you to modify or enhance the sound in various ways, such as by adding reverberation or delaying the sound.

The GAIA SH-01 provides five different effects—DIST, FLANGER, DELAY, REVERB, and LOW BOOST—which give you a broad range of possibilities for modifying or enhancing the sound.

[SELECT CONTROL] button

Use this button to select the effect that you want to edit; DIST, FLANGER, DELAY, or REVERB.

Press the button to make the indicator light for the effect you want to edit. Each press of the button takes you to the next choice among the available effects, like this: DIST → FLANGER → DELAY → REVERB → DIST ...

[CONTROL 1]/[LEVEL] knob

Used to make changes in the parameters assigned to the effects.

It will alter the value for the effect that’s selected by SELECT CONTROL.

Parameter	Panel operation
CONTROL 1	Turn the [CONTROL 1] knob.
CONTROL 2	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
CONTROL 3	Hold down the [CANCEL/SHIFT] button and turn the [LEVEL] knob.
LEVEL	Turn the [LEVEL] knob.

For details, refer to “Effect Parameters” (p. 49).

Distortion effects

These are effects that distort the sound. They are particularly suitable for lead sounds.

[DIST] button

This is a guitar amp simulator that reproduces the thick and powerful sound containing numerous overtones that is often heard from electric guitars.

The sound will be mono even if the tone is panned.

[FUZZ] button

This is a guitar amp simulator with a different character of distortion than produced by DIST.

The sound will be mono even if the tone is panned.

[BIT CRASH] button

This drops the bit depth or sampling rate, producing a distortion characteristic of low-fi digital devices.

Modulation effects

Modulation means to vary the sound in a cyclic manner. By adding various sounds to the direct sound, you can produce more spaciousness and depth.

[FLANGER] button

This applies modulation to the direct sound, producing an effect that is reminiscent of a jet airplane taking off and landing.

[PHASER] button

This adds a phase-shifted sound to the direct sound, producing a phasing effect that gives the sound a sense of rotation.

[PITCH SHIFTER] button

This adds a sound of a different pitch to the direct sound, producing the impression that chords are being played even if you’re actually playing single notes.

Delay

Delay is an effect that delays the sound to create echo effects. By layering the delay sound with the direct sound, you can give the sound more depth and spaciousness.

[DELAY] button

This produces a stereo delay effect.

[PANNING DELAY] button

This is a delay for use only with stereo output. The delay time is distributed between the L and R channels.

[TEMPO SYNC] button

This button synchronizes the delay time to the GAIA SH-01's tempo, allowing you to easily create effect sounds that are synchronized to the tempo of your song.

Reverb

This effect adds the reverberation that is characteristic of a performance in a large hall.

[REVERB] button

This button applies the reverb effect.

Others

[LOW BOOST] button

If you press this button so it's lit, the low-frequency range will be boosted for emphasis.

[EFFECTS ON/OFF] button

This button turns all of the effect blocks on/off in a single operation.

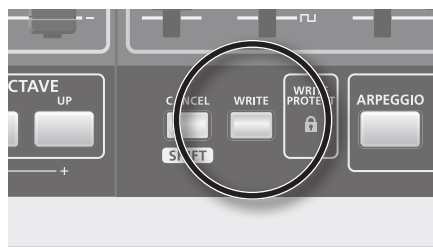
If the [EFFECTS ON/OFF] button is lit, the selected effects will be on.

If the [EFFECTS ON/OFF] button is unlit, all effects will be off.

Saving a Sound You've Created (WRITE)

The sound you create will change if you move a knob or select a different patch, and will be lost when you switch off the GAIA SH-01's power.

When you've created a sound you like, you should save it as a user patch.



1. Press the [WRITE] button.

The [USER PATCH] button will light; the [BANK] or NUMBER button that was selected, as well as the [WRITE] button, will blink.

MEMO

If you want to save your patch to USB memory, press the USB MEMORY [PATCH] button.

2. Press the [BANK] button and a NUMBER [A]–[H] button to specify the save-destination bank.

The BANK button and NUMBER button you pressed will blink.

3. Press a NUMBER [1]–[8] button to specify the destination at which you want to save your patch.

NOTE

The sound settings that were previously in the patch you selected as the destination of the save will be overwritten by the patch you're saving, and will be lost. Take care when choosing the destination of the save.

4. Press the [WRITE] button once again.

The selected BANK and NUMBER button, as well as the [USER PATCH] button, will light, and the [WRITE] button will go out.

The sound you created has been saved.

* If you decide not to save your sound, press the [CANCEL/SHIFT] button before you press the [WRITE] button in step 4.

* You can't save to a patch that is write protected. If you attempt to do so, the WRITE PROTECT indicator will blink rapidly.

WRITE PROTECT

This lets you prevent an important patch from being accidentally overwritten and lost.

By holding down the [CANCEL/SHIFT] button and pressing the current NUMBER button, you can "write protect" the patch.

To disable the write protect setting, hold down the [CANCEL/SHIFT] button and press the current NUMBER button.

If you've selected a patch that is write protected, the WRITE PROTECT indicator will light.



* WRITE PROTECT cannot be set with respect to patches stored on USB memory. WRITE PROTECT can only be set with respect to user patches contained within the unit.

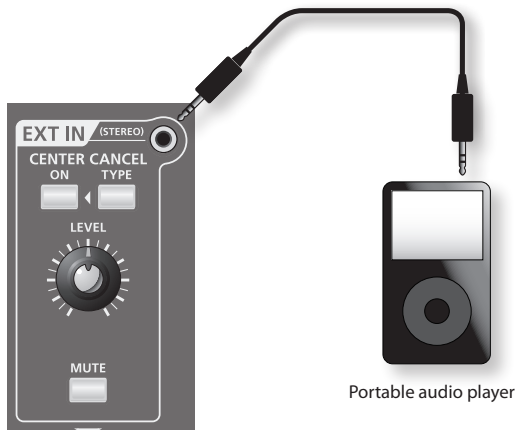
Performing with Sound from a Portable Audio Player

You can perform along with sound from a portable audio player, CD player, sampler, or other external device. You can also modify the sound of the external device.

Connections

1. Connect your portable audio player or other device to the GAIA SH-01's top panel EXT IN jack.

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



Adjusting the Volume

1. Switch on the power of the portable audio player or other device that's connected to the EXT IN jack, and raise the volume to an appropriate level.
2. While producing sound from the device that's connected to the EXT IN jack, turn the [LEVEL] knob to an appropriate volume.



The sound from the device connected to the EXT IN jack will be output from the OUTPUT jacks and the PHONES jack.

Eliminating Sound from the Center (CENTER CANCEL)

By using this function, sounds that are localized at the center (such as vocals) can be eliminated from the sound of the device connected to the EXT IN jack.

When you press the CENTER CANCEL [ON] button so it's lit, sounds localized at the center will be removed.



- * With some songs, you may not be able to eliminate the vocals.
- * The center cancel on/off setting is not stored in the patch.

Changing the way in which the center sound is eliminated (TYPE)

You can choose from types of the center cancel function.

There are three types, and the illumination of the CENTER CANCEL [TYPE] button will change as you step through the types, as follows: unlit → red → green → unlit ...



Type	Explanation
1 (unlit)	Mid-frequency and high-frequency sounds localized in the center will be eliminated.
2 (lit red)	Low-frequency sounds localized in the center will be eliminated.
3 (lit green)	All sounds localized in the center will be eliminated.

Muting the Input Sound (MUTE)

You can mute the sound of the device connected to the EXT IN jack.

Press the [MUTE] button so it's lit; the sound will be muted. Press the button again to turn off its illumination; the sound will be heard again.

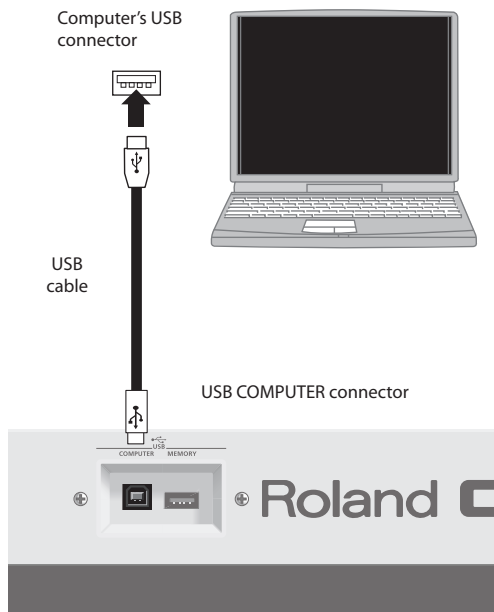


Using the GAIA SH-01 with a Computer or Sound Module

Recording the SH-01's Sound or Data on a Computer (USB)

If you use a commercially available USB cable to connect the SH-01's rear panel USB COMPUTER connector to a USB connector on your computer, you'll be able to do the following things.

- Use the SH-01 to hear audio or SMF files played back by MIDI software.
- Create more sophisticated music productions by sending MIDI data between the SH-01 and your sequencer software.



For details on operating requirements, refer to the Roland website.

NOTE

- For some models of computer, the system might not operate correctly. Refer to the Roland website for the operating systems that are supported.
- Use a computer with a USB connector that supports USB 2.0 Hi-Speed.
- Before you make connections to other equipment, turn down the volume and turn off the power on all equipment in order to prevent malfunction and/or speaker damage.
- A USB cable is not included. To purchase one, please contact the dealer where you purchased the SH-01.
- Use a USB cable that supports USB 2.0 Hi-Speed.
- Switch on the SH-01's power before you start up the DAW software on your computer. Do not switch the SH-01 on/off while your DAW software is running.

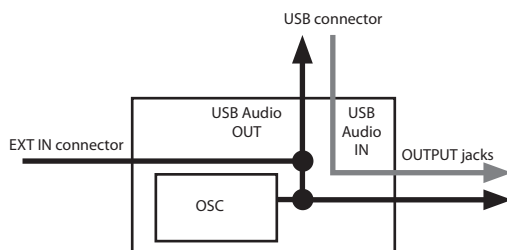
The USB driver is software that transfers data between the SH-01 and the application (e.g., DAW software) on your computer when the SH-01 is connected via USB to your computer.

The USB driver sends data from your application to the SH-01, and data from the SH-01 to your application.

USB audio

If the SH-01 is connected via a USB cable to your computer, DAW software on your computer will be able to record the sound of the SH-01 and the sound from the device connected to the SH-01's EXT IN jack. Sound played back by your DAW software can also be heard on the device connected to the SH-01's OUTPUT jacks.

The following illustration shows the USB audio signal flow.



USB MIDI

If the SH-01 is connected via USB to your computer, your DAW software can record the SH-01's performance data (MIDI data), and performance data (MIDI data) played back by your DAW software can play the SH-01's sound generator section.

Connecting the SH-01 to Your Computer

1. Install the USB driver on your computer.

The USB driver is on the included CD-ROM "GAIA SH-01 DRIVER CD-ROM."

The driver installation procedure will depend on your system, so be sure to carefully read the "Readme" file on the CD-ROM.

2. Use a USB cable (sold separately) to connect the SH-01 to your computer.

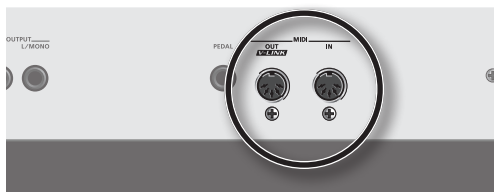
Using the SH-01 as a Controller or Sound Module (MIDI)

MIDI (Musical Instrument Digital Interface) is a universal standard for exchanging performance data and other information between electronic musical instruments and computers.

If you use MIDI cables to connect devices equipped with MIDI connectors, you'll be able to do things such as using a single MIDI keyboard to play multiple instruments, play an ensemble of MIDI instruments, or make settings change automatically as the song progresses.

MIDI Connectors

The SH-01 has the following two types of MIDI connectors.



MIDI IN connector

This receives MIDI messages sent from an external MIDI device.

When the SH-01 receives MIDI messages, it can play sounds or switch patches.

MIDI OUT connector

This transmits MIDI messages to an external MIDI device.

The SH-01 will transmit messages from its controller section via MIDI OUT.

About MIDI Channels

MIDI allows numerous streams of performance data to be sent via a single MIDI cable. This is made possible thanks to the concept of "MIDI channels."

MIDI channels allow an instrument to select and use just the messages that were intended for it.

MIDI channels are similar to television channels. By switching channels on your television, you can view programs that are being broadcast by different stations. This is because the television is singling-out only the data of the particular station you've chosen, and ignoring the data being transmitted by all the other stations. In the same way, a MIDI device uses only the messages that are intended for it.

There are sixteen MIDI channels, 1–16. Normally, you'll set the receiving device to receive only the desired MIDI channel out of the various channels of data that the transmitting device might be sending.

The SH-01's MIDI channel

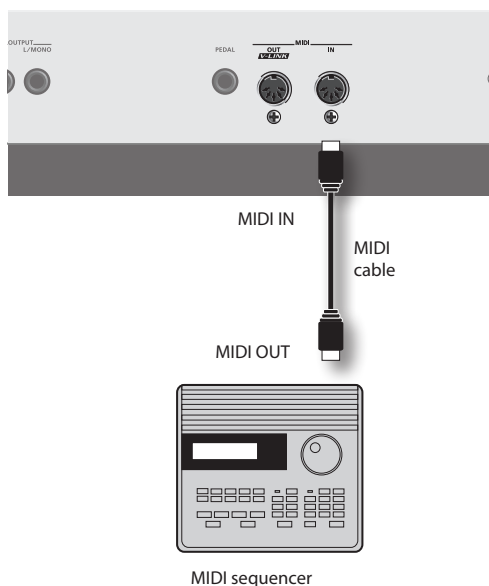
The SH-01's MIDI channel is set to "1."

You can change the MIDI channel (RX/TX CHANNEL, p. 52).

Using an External Sequencer to Play the SH-01's Sound Generator (MIDI IN)

Here's an example of using the SH-01 as a sound module.

Use a MIDI cable to connect the MIDI OUT connector of your sequencer (or other device) to the MIDI IN connector on the SH-01's rear panel.



When you play back your external sequencer, the SH-01's sound generator section will produce sound according to the performance data recorded on your sequencer.

For details, refer to the owner's manual of the MIDI sequencer you're using.

In addition to its dedicated sound generator, the SH-01 also comes with a multitimbral PCM sound generator that supports GM2 sound mapping.

This makes it possible for you to play SMFs (Standard MIDI Files) using an external sequencer.

MEMO

When the SH-01's MIDI channel is set to "1," GM2 sounds cannot be selected for the channel 1 track of SMFs you play.

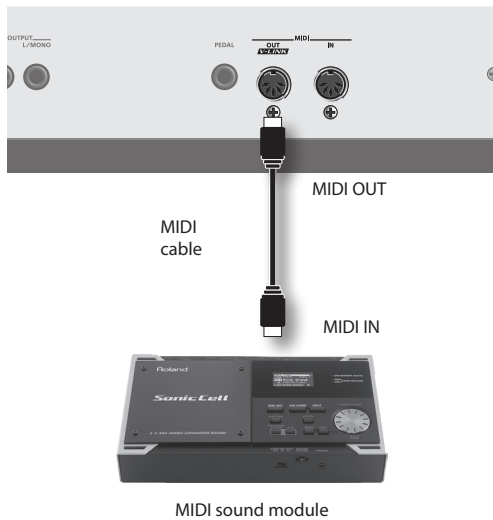
In order to have the intended sounds be selected, you'll need to set the SH-01's MIDI channel to a channel that isn't used by your SMFs.

For details, see "RX/TX CHANNEL" (p. 52).

Using the SH-01's Keyboard and Knobs to Play an External MIDI Sound Module (MIDI OUT)

You can use the SH-01 as a controller.

Use a MIDI cable (sold separately) to connect the SH-01's rear panel MIDI OUT connector to your MIDI sound module's MIDI IN connector.



For details, refer to the owner's manual of the MIDI sound module you're using.

Advanced Operation

In addition to editing its settings via the panel knobs and sliders, the GAIA SH-01 also allows you to edit the following parameters.

Patch Parameters

COMMON

Parameter	Range	Explanation	Panel operation
LFO KEY TRIGGER	OFF, ON	If this is on, the LFO cycle will be restarted when you press a key. The MODULATION LFO cannot be controlled with this setting.	Hold down the [CANCEL/SHIFT] button and press the LFO [TEMPO SYNC] button. Button lit: ON Button unlit: OFF
FILTER ENVELOPE VELOCITY SENS	0–+63	Specifies how the cutoff frequency will be affected by keyboard dynamics. This effect can be obtained only when KEYBOARD VELOCITY (p. 51) is set to “REAL.”	Hold down the [CANCEL/SHIFT] button and turn the [CUTOFF] knob.
LEVEL VELOCITY SENS	0–+63	Specifies how the volume will be affected by keyboard dynamics. This effect can be obtained only when KEYBOARD VELOCITY (p. 51) is set to “REAL.”	Hold down the [CANCEL/SHIFT] button and turn the AMP [LEVEL] knob.
PATCH TEMPO	5–300	Specifies the patch tempo. This effect can be obtained only when CLOCK SOURCE (p. 52) is set to “PATCH.”	<ol style="list-style-type: none"> 1. Press the [TAP TEMPO] button four or more times at quarter-note intervals of the desired tempo.
PITCH BEND RANGE DOWN	0–24	Specifies the amount of pitch change that will occur when the pitch bend/modulation lever is moved all the way to the left.	<ol style="list-style-type: none"> 2. Hold down the [SHIFT] button and move the pitch bend/modulation lever all the way to the left or right. 3. Hold down the OCTAVE [DOWN/-] button and press a key (C2–C4). 4. Press the [CANCEL/SHIFT] button.
PITCH BEND RANGE UP	0–24	Specifies the amount of pitch change that will occur when the pitch bend/modulation lever is moved all the way to the right.	<ol style="list-style-type: none"> 1. Hold down the [SHIFT] button and move the pitch bend/modulation lever all the way to the left or right. 2. Hold down the OCTAVE [UP/+] button and press a key (C2–C4). 3. Press the [CANCEL/SHIFT] button.
PORTAMENTO TIME	0–127	Specifies the time over which the pitch will change to the next note.	<p>While holding down the [PORTAMENTO] button, press the OCTAVE [UP/+] or OCTAVE [DOWN/-] button.</p> <p>Hold down the [PORTAMENTO] button and press one of the NUMBER [1]–NUMBER [8] buttons.</p> <p>Hold down the [PORTAMENTO] button and move the LFO [FADE TIME] slider.</p> <ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [PORTAMENTO] button. 2. Use any of the following three methods to set the portamento time. <ul style="list-style-type: none"> • Press one of the NUMBER [1]–NUMBER [8] buttons. • Turn the EFFECTS [CONTROL 1] knob. • Move the LFO [FADE TIME] slider. 3. Press the [CANCEL/SHIFT] button.
PATCH OCTAVE SHIFT	-3–+3	Sets the octave for the patch.	<p>Hold down the [CANCEL/SHIFT] button and press the OCTAVE [UP/+] or OCTAVE [DOWN/-] button.</p> <p>Hold down [ARPEGGIO] button, and use the [BANK] button and NUMBER [1]–NUMBER [8] button to select a bank and variation.</p>
ARPEGGIO VARIATION	A1–H8	Specifies how the arpeggio will be sounded.	<ol style="list-style-type: none"> 1. Hold down [CANCEL/SHIFT] button, and press the [ARPEGGIO] button. 2. Use the [BANK] button and NUMBER [1]–NUMBER [8] button to select the bank and variation. 3. Press the [CANCEL/SHIFT] button.
PAN	-63–+63	Set the panning of the tone. “-63” is far left, “0” is center, and “+63” is far right.	Hold down the [CANCEL/SHIFT] button and turn the OSC [DETUNE] knob.
PAN LFO DEPTH	0–127	Specifies the depth to which LFO will affect the pan.	Hold down the [CANCEL/SHIFT] button and move the LFO [AMP DEPTH] slider.

OSC

Parameter	Range	Explanation	Panel operation
WAVE	SAW, SQR, PULSE, TRI, SIN, NOISE, SUPER SAW	Selects the waveform that is the basis of the sound.	Press the [WAVE] button a number of times to make your selection.
VARIATION		You can select variations of the currently selected WAVE.	There are three variations for each waveform, and each time you switch the variation, the illumination of the [WAVE] button will change as follows: unlit → red → green → unlit ...
PITCH	-24+24	Adjusts the pitch in semitone steps.	Turn the [PITCH] knob.
DETUNE	-50+50	Adjusts the pitch in steps of one cent.	Turn the [DETUNE] knob.
SYNC/RING	OFF, SYNC, RING	Selects how tone 1 and tone 2 will be combined.	Press the [MOD] button to choose.
PWM	0-127	Specifies the amount (depth) of LFO applied to PW (Pulse Width).	Move the [PWM] slider.
PW	0-127	Specifies the pulse width.	Move the [PW] slider.
A	0-127	Specifies the attack time of the pitch envelope.	Move the [A] slider.
D	0-127	Specifies the decay time of the pitch envelope.	Move the [D] slider.
ENV DEPTH	-63+63	Specifies the depth to which the envelope will modulate the pitch.	Move the [ENV DEPTH] slider.

FILTER

Parameter	Range	Explanation	Panel operation
MODE	BYPASS, LPF, HPF, BPF, PKG	Selects the type of filter.	Press the [MODE] button to choose.
SLOPE	-12dB, -24dB	Specifies the slope of the filter.	Press the [SLOPE] button to choose.
CUTOFF	0-127	Specifies the cutoff frequency.	Turn the [CUTOFF] knob.
RESONANCE	0-127	Specifies the resonance.	Turn the [RESONANCE] knob.
CUTOFF KEY FOLLOW	-100+100	Specifies how the cutoff frequency will be affected by the keyboard position.	Turn the [KEY FOLLOW] knob.
A	0-127	Specifies the attack time of the filter envelope.	Move the [A] slider.
D	0-127	Specifies the decay time of the filter envelope.	Move the [D] slider.
S	0-127	Specifies the sustain level of the filter envelope.	Move the [S] slider.
R	0-127	Specifies the release time of the filter envelope.	Move the [R] slider.
ENV DEPTH	-63+63	Specifies the depth to which the envelope will modulate the filter.	Move the [ENV DEPTH] slider.

AMP

Parameter	Range	Explanation	Panel operation
LEVEL	0–127	Specifies the volume of the tone.	Turn the AMP [LEVEL] knob.
A	0–127	Specifies the attack time of the amp envelope.	Move the [A] slider.
D	0–127	Specifies the decay time of the amp envelope.	Move the [D] slider.
S	0–127	Specifies the sustain level of the amp envelope.	Move the [S] slider.
R	0–127	Specifies the release time of the amp envelope.	Move the [R] slider.

LFO

Parameter	Range	Explanation	Panel operation
SHAPE	TRI, SIN, SAW, SQR, S&H, RANDOM	Selects the LFO waveform.	Press the [SHAPE] button to choose.
TEMPO SYNC	OFF, ON	Specifies whether the LFO rate will be synchronized with the GAIA SH-01's tempo.	Press the LFO [TEMPO SYNC] button.
RATE	0–127 Specifies the rate of the LFO. When TEMPO SYNC is OFF: When TEMPO SYNC is ON: 16, 12, 8 (♩), 4 (♩), 2 (♩), 1 (♩), 3/4 (♩), 2/3 (♩), 1/2 (♩), 3/8 (♩), 1/3 (♩), 1/4 (♩), 3/16 (♩), 1/6 (♩), 1/8 (♩), 3/32, 1/12, 1/16, 1/24, 1/32		Turn the [RATE] knob.
FADE TIME	0–127	Specifies the time from when the tone begins to sound until the LFO reaches its maximum amplitude.	Move the [FADE TIME] slider.
PITCH DEPTH	-63–+63	Specifies the amount of modulation applied to the tone's pitch.	Move the [PITCH DEPTH] slider.
FILTER DEPTH	-63–+63	Specifies the amount of modulation applied to the tone's cutoff frequency.	Move the [FILTER DEPTH] slider.
AMP DEPTH	-63–+63	Specifies the amount of modulation applied to the tone's level.	Move the [AMP DEPTH] slider.
PAN DEPTH	-63–+63	Specifies the amount of modulation applied to the tone's pan.	Hold down the [CANCEL/SHIFT] button and move the [AMP DEPTH] slider.

MODULATION LFO

Parameter	Range	Explanation	Panel operation
SHAPE	TRI, SIN, SAW, SQR, S&H, RANDOM	Specifies the LFO waveform.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Press the [SHAPE] button to choose a waveform. 3. Press the [CANCEL/SHIFT] button.
TEMPO SYNC	OFF, ON	Specifies whether the LFO rate will be synchronized with the GAIA SH-01's tempo.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Press the LFO [TEMPO SYNC] button. 3. Press the [CANCEL/SHIFT] button.

Parameter	Range	Explanation	Panel operation
RATE	0–127	Specifies the LFO rate. When TEMPO SYNC is OFF:	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Turn the [RATE] knob. 3. Press the [CANCEL/SHIFT] button.
		When TEMPO SYNC is ON: 16, 12, 8 (♩), 4 (♩), 2 (♩), 1 (♩), 3/4 (♩), 2/3 (♩), 1/2 (♩), 3/8 (♩), 1/3 (♩), 1/4 (♩), 3/16 (♩), 1/6 (♩), 1/8 (♩), 3/32, 1/12, 1/16, 1/24, 1/32	
PITCH DEPTH	-63→+63	Specifies the amount of modulation applied to the tone's pitch.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Move the [PITCH DEPTH] slider. 3. Press the [CANCEL/SHIFT] button.
FILTER DEPTH	-63→+63	Specifies the amount of modulation applied to the tone's cutoff frequency.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Move the [FILTER DEPTH] slider. 3. Press the [CANCEL/SHIFT] button.
AMP DEPTH	-63→+63	Specifies the amount of modulation applied to the tone's level.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Move the [AMP DEPTH] slider. 3. Press the [CANCEL/SHIFT] button.
PAN DEPTH	-63→+63	Specifies the amount of modulation applied to the tone's pan.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and move the pitch bend/modulation lever away from yourself. 2. Hold down the [CANCEL/SHIFT] button and move the [AMP DEPTH] slider. 3. Press the [CANCEL/SHIFT] button.

D BEAM ASSIGN Parameters

This setting specifies the parameter whose value will be modified by the D BEAM controller when you press the D BEAM [EFFECTS/ASSIGN] button.

This setting applies to the current tone.

Hold down the D BEAM [EFFECTS/ASSIGN] button and operate the button, knob, or slider for one of the parameters listed below.

- * With the D BEAM ASSIGN parameter, you cannot assign the parameter to be changed by holding down the [CANCEL/SHIFT] button.

Parameter	Range	Explanation
LFO	RATE	Modify the LFO rate (frequency, p. 37).
	FADE-TIME	Modify the time over which the LFO amplitude reaches the maximum (p. 37).
	PITCH-DEPTH	Modify the vibrato (pitch modulation) depth (p. 37).
	FILTER-DEPTH	Modify the wah (cutoff frequency modulation) depth (p. 37).
	AMP-DEPTH	Modify the tremolo (volume modulation) depth (p. 37).
OSC	PITCH	Modify the tone's pitch (p. 31).
	DETUNE	Modify the pitch more finely (p. 31).
	PWM	If the asymmetrical pulse wave is selected for WAVE, modify the overtone structure (p. 31).
	PW	If the asymmetrical pulse wave is selected for WAVE, modify the width of the pulse waveform's upper portion (p. 32).
	PITCH-ENV-A	Modify the attack time of the pitch envelope (p. 32).
	PITCH-ENV-D	Modify the decay time of the pitch envelope (p. 32).
	PITCH-ENV-DEPTH	Modify the amount of pitch change produced by the pitch envelope (p. 32).

Parameter	Range	Explanation
FILTER	CUTOFF	Modify the cutoff frequency of the filter. (p. 33)
	RESONANCE	Modify the amount of emphasis for the overtones in the region of the cutoff frequency (p. 34).
	KEY FOLLOW	Modify the extent to which the cutoff frequency is affected by the keyboard position (p. 34).
	ENV-A	Modify the attack time of the filter envelope (p. 35).
	ENV-D	Modify the decay time of the filter envelope (p. 35).
	ENV-S	Modify the sustain level of the filter envelope (p. 35).
	ENV-R	Modify the release time of the filter envelope (p. 35).
AMP	ENV-DEPTH	Modify the amount by which the cutoff frequency is controlled by the filter envelope (p. 35).
	LEVEL	Modify the volume (p. 35).
	ENV-A	Modify the attack time of the amp envelope (p. 35).
	ENV-D	Modify the decay time of the amp envelope (p. 36).
	ENV-S	Modify the sustain level of the amp envelope (p. 36).
EFFECTS	ENV-R	Modify the release time of the amp envelope (p. 36).
	CONTROL 1	Perform the same operation as the panel [CONTROL 1] knob (p. 38).
OTHERS	LEVEL	Perform the same operation as the panel EFFECTS [LEVEL] knob (p. 38).
	PORTAMENTO-TIME	Modify the portamento time (p. 20).
	BENDER	Apply the pitch bend effect. (p. 19).
	MODULATION	Apply modulation (p. 19).
	POLARITY	Determine the polarity of the D BEAM (p. 22). When setting the D BEAM ASSIGN parameter, move the knob or slider to specify the direction in which value changes are to take place.

Effect Parameters

Parameter	Range	Explanation	Explanation	Panel operation
[DIST]	Drive	0–127	Adjusts the depth of distortion.	Turn the [CONTROL 1] knob.
	Type	1–6	Selects the type of distortion.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	Presence	0–127	Adjusts the tone for the ultra high frequency range.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
[FUZZ]	Level	0–127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Drive	0–127	Adjusts the depth of distortion.	Turn the [CONTROL 1] knob.
	Type	1–6	Selects the type of distortion.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
[BIT CRASH]	Presence	0–127	Adjusts the tone for the ultra high frequency range.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
	Level	0–127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Sample Rate	0–127	Adjusts the sample rate.	Turn the [CONTROL 1] knob.
[FLANGER]	Bit Down	0–127	Adjusts the bit depth.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	Filter	0–127	Adjusts the filter depth.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
	Level	0–127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
[PHASER]	Feedback	0–127	Adjusts the proportion of effect sound that is returned to the input.	Turn the [CONTROL 1] knob.
	Depth	0–127	Adjusts the depth of modulation.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	Rate	0–127	Adjusts the speed of modulation.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
[PHASER]	Level	0–127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Resonance	0–127	Determines the amount of resonance.	Turn the [CONTROL 1] knob.
	Depth	0–127	Adjusts the depth of modulation.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
[PHASER]	Rate	0–127	Adjusts the speed of modulation.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
	Level	0–127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.

Parameter	Range	Explanation	Explanation	Panel operation
[PITCH SHIFTER]	Pitch	-12--+12	Adjusts the amount of pitch shift in semitone steps.	Turn the [CONTROL 1] knob.
	Detune	0-50 [cent]	Make fine adjustments to the pitch shift.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	Pitch	-12, -7, -5, -2, -1, 0, +1, +2, +5, +7, +12	Selects the amount of pitch shift.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
[DELAY]	Level	0-127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Time	0-127	This determines the delay time.	Turn the [CONTROL 1] knob.
	Feedback	0-127	Adjusts the amount of feedback.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
[PANNING DELAY]	High Damp	-36-0 [dB]	Adjusts the amount of high-frequency damping.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
	Level	0-127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Time	0-127	This determines the delay time.	Turn the [CONTROL 1] knob.
[REVERB]	Feedback	0-127	Adjusts the amount of feedback.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	High Damp	-36-0 [dB]	Adjusts the amount of high-frequency damping.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
	Level	0-127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
[REVERB]	Time	0-127	Adjusts the reverberation time.	Turn the [CONTROL 1] knob.
	Type	ROOM, PLATE, HALL	This selects the reverb type.	Hold down the [CANCEL/SHIFT] button and turn the [CONTROL 1] knob.
	High Damp	1-100 [%]	Adjusts the amount of high-frequency damping.	Hold down the [CANCEL/SHIFT] button and turn the EFFECTS [LEVEL] knob.
[REVERB]	Level	0-127	Adjusts the volume.	Turn the EFFECTS [LEVEL] knob.
	Shared in Common	Patch Level	0-127	Adjusts the volume of the patch. Hold down the [EFFECTS ON/OFF] button and turn the EFFECTS [LEVEL] knob.

System Parameters

Parameter	Range	Explanation	Panel operation
SYSTEM TEMPO	5–300	Specifies the system tempo. This effect can be obtained only when CLOCK SOURCE (p. 52) is set to "SYSTEM."	<ol style="list-style-type: none"> 1. Press the [TAP TEMPO] button four or more times at quarter-note intervals of the desired tempo.
OCTAVE SHIFT	-3→+3	Shifts the keyboard pitch range in steps of one octave.	<ol style="list-style-type: none"> 1. Press the OCTAVE [UP/+] button. The range will rise one octave each time you press the button. 2. Press the OCTAVE [DOWN/-] button. The range will fall one octave each time you press the button.
TRANPOSE SWITCH	OFF, ON	Turns Transpose on/off.	<p>Press the [TRANPOSE] button.</p> <p>Button lit: ON Button unlit: OFF</p>
TRANPOSE VALUE	-5→+6	Specifies the range (in semitones) by which the Transpose function will shift the keyboard.	<ol style="list-style-type: none"> 1. Hold down the [TRANPOSE] button and press the OCTAVE [UP/+] button. The pitch will rise by a semitone each time you press the button. 2. Hold down the [TRANPOSE] button and press the OCTAVE [DOWN/-] button. The pitch will fall by a semitone each time you press the button. <p>• If you hold down the [TRANPOSE] button and press the OCTAVE [UP/+] button and OCTAVE [DOWN/-] button simultaneously, the pitch will return to the normal range.</p>
KEYBOARD VELOCITY	REAL, FIX	Specifies the velocity value that is transmitted when you play a key. If this is set to FIX, the velocity value will be fixed.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [KEY HOLD] button. <p>Button lit: FIX Button unlit: REAL</p>
PEDAL POLARITY	STANDARD, REVERSE	Switches the polarity of the pedal.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PORTAMENTO] button and press the [PRESET PATCH] button or the [USER PATCH] button. <p>PRESET PATCH lit: REVERSE USER PATCH lit: STANDARD</p> <ol style="list-style-type: none"> 3. Press the [CANCEL/SHIFT] button.
D BEAM SENS	1–8	Adjusts the sensitivity of the D BEAM controller. Higher values will make the D BEAM respond more easily.	<ol style="list-style-type: none"> 1. Hold down the D BEAM [EFFECTS/ASSIGN] button and press one of the NUMBER [1]–[8] buttons.
LOCAL SW	OFF, ON	Switches ON/OFF the connection between the internal sound generator and the controller section (keyboard, pitch bend/modulation lever, and pedal). Normally, this should be left at "ON," but if you wish to use the SH-01 to control only external sound modules, set it to "OFF."	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [CENTER CANCEL] button. <p>Button lit: ON Button unlit: OFF</p>
MASTER LEVEL	0–127	Specifies the volume of the entire GAIA SH-01.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Turn the AMP [LEVEL] knob. 3. Press the [CANCEL/SHIFT] button.
MASTER TUNE	415.30–466.20 (Hz)	Specifies the reference pitch of the entire GAIA SH-01. The setting indicates the frequency of the A4 key.	<p>Hold down the [CANCEL/SHIFT] button and turn the [PITCH] knob.</p>
PATCH REMAIN	OFF, ON	If this is on, currently sounding notes of the patch will continue when you select another patch.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [KEY HOLD] button and press the [EFFECTS ON/OFF] button. <p>Button lit: ON Button unlit: OFF</p> <ol style="list-style-type: none"> 3. Press the [CANCEL/SHIFT] button.

Parameter	Range	Explanation	Panel operation
PEDAL ASSIGN		This selects the function that will be controlled by a pedal connected to the PEDAL jack. HOLD: The pedal will operate as a damper pedal. MODULATION: CC01: The pedal will have the same operation as when using the pitch bend/modulation lever to apply MODULATION. VOLUME: CC07: The pedal will adjust the overall volume. EXPRESSION: CC11: The pedal will apply expression to your performance. BEND MODE: The pedal will switch the BEND MODE (STANDARD, LAST + CATCH) STANDARD: The pitch bend/modulation lever will operate in the conventional way. LAST+CATCH: The pitch bend/modulation lever will apply only to the last-played note (LAST). If a note-on occurs when the pitch bend/modulation lever is already moved to the side, that note will sound at its normal pitch (as though the lever were at the center). The pitch of the note will begin changing only after the lever has moved through its center position (CATCH). D BEAM SYNC: The pedal will have the same operation as when using D BEAM. (When the D BEAM setting is set to off, there will be no effect if you use the pedal.) TAP TEMPO: The pedal will have the same operation as the panel [TAP TEMPO] button.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PORTAMENTO] button and press one of the NUMBER [1]–[7] buttons. 1: HOLD 2: MODULATION 3: VOLUME 4: EXPRESSION 5: BEND MODE 6: D BEAM SYNC 7: TAP TEMPO 3. Press the [CANCEL/SHIFT] button.
		This specifies what the tempo of the arpeggiator and phrase recorder will be synchronized to. PATCH: They will synchronize to the tempo saved in each patch. SYSTEM: They will synchronize to the common tempo (System Tempo) of the entire SH-01. MIDI: They will synchronize to MIDI clock data received at the MIDI IN connector. USB: They will synchronize to MIDI clock data received at the USB connector.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the LFO [TEMPO SYNC] button and press one of the effect buttons. [DIST] button: PATCH [FLANGER] button: SYSTEM [DELAY] button: MIDI [REVERB] button: USB 3. Press the [CANCEL/SHIFT] button.

MIDI parameters

Parameter	Range	Explanation	Panel operation
RX/TX CHANNEL	1–16	Specifies the MIDI channel on which the SH-01 will transmit and receive MIDI messages.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [V-LINK] button and press one of the NUMBER [1]–[8] buttons. 1–8 ([BANK] button unlit): 1–8 1–8 ([BANK] button lit): 9–16 Hold down the [V-LINK] button and press the [BANK] button to make it light or go out. 3. Press the [CANCEL/SHIFT] button.
MIDI-USB THRU	OFF, ON	If this is on, MIDI messages received at the MIDI IN connector/USB connector will be re-transmitted from the USB connector/MIDI OUT connector without change.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the OSC [VARIATION] button and press the [EFFECTS ON/OFF] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.

Parameter	Range	Explanation	Panel operation
SOFT THRU	OFF, ON	If this is on, MIDI messages received at the MIDI IN connector will be re-transmitted from the MIDI OUT connector without change.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the FILTER [SLOPE] button and press the [EFFECTS ON/OFF] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
MIDI RX			
RX PROGRAM CHANGE	OFF, ON	If this is on, the patch number will change when a program change message is received.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [REC] button and press the [PRESET PATCH] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
RX BANK SELECT	OFF, ON	If this is on, the patch group (preset/user) will change when a MIDI bank select message is received.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [REC] button and press the [USER PATCH] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
REMOTE KEYBOARD	OFF, ON	This specifies whether note messages received via MIDI or USB MIDI will be handled in the same way as notes played on the GAIA SH-01's own keyboard. If this is on, note messages from an external device can trigger arpeggios.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [REC] button and press the [ARPEGGIO] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
MIDI TX			
TX PROGRAM CHANGE	OFF, ON	If this is on, a program change message will be transmitted when you press one of the NUMBER [1]–[8] buttons or the [BANK] button.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PLAY/STOP] button and press the [PRESET PATCH] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
TX BANK SELECT	OFF, ON	If this is on, a MIDI bank select message will be transmitted when you press the [PRESET PATCH] button or the [USER PATCH] button.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PLAY/STOP] button and press the [USER PATCH] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
TX EDIT DATA	OFF, ON	If this is on, patch edits you make will be transmitted as system exclusive messages.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PLAY/STOP] button and press the [EFFECTS ON/OFF] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.

Other Parameters

Parameter	Range	Explanation	Panel operation
RECORDER SYNC OUTPUT	OFF, ON	If this is on, MIDI clock messages (F8) will be transmitted to an external MIDI device. This effect can be obtained only when CLOCK SOURCE (p. 52) is set to "PATCH" or "SYSTEM."	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [PLAY/STOP] button and press the EFFECTS [TEMPO SYNC] button. Button lit: ON Button unlit: OFF 3. Press the [CANCEL/SHIFT] button.
RECORDER METRONOME MODE		Specifies how the metronome will sound. OFF: Metronome will not sound. REC-ONLY: Metronome will sound only during recording. REC&PLAY: Metronome will sound during recording and playback. ALWAYS: Metronome will sound constantly.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [REC] button and press one of the following effect buttons. [DIST] button: OFF [FLANGER] button: REC-ONLY [DELAY] button: REC&PLAY [REVERB] button: ALWAYS 3. Press the [CANCEL/SHIFT] button.
RECORDER METRONOME LEVEL	0-7	Specifies the volume of the metronome.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the [REC] button and press one of the NUMBER [1]-[8] buttons. 1-8: 0 (minimum) - 7 (maximum) 3. Press the [CANCEL/SHIFT] button.
Time setting for POWER SAVE MODE	OFF, 1 min, 3 min, 5 min, 10 min, 20 min, 30 min, 60 min	If no operation is performed during the duration of time you specify here, the SH-01 will enter power-conservation mode.	<ol style="list-style-type: none"> 1. Hold down the [CANCEL/SHIFT] button and press the [V-LINK] button. 2. Hold down the EXT IN [MUTE] button and press one of the NUMBER [1]-[8] buttons. 1: OFF 2: 1 min 3: 3 min 4: 5 min 5: 10 min 6: 20 min 7: 30 min 8: 60 min 3. Press the [CANCEL/SHIFT] button.

MANUAL (p. 30)

Hold down the [PRESET PATCH] button and press the [USER PATCH] button.

TONE COPY (p. 30)

1. Press the [TONE COPY] button.
2. Press the [SELECT] button of the copy-source tone.
3. Press the [SELECT] button of the copy-destination tone.

How to Initialize a Patch

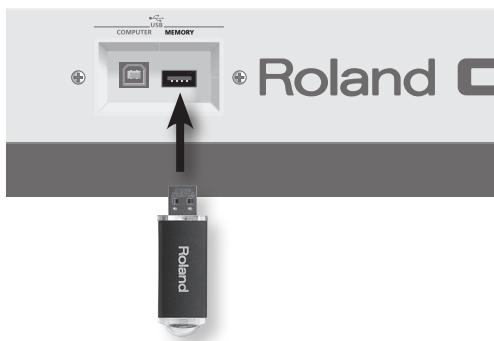
Hold down the [CANCEL/SHIFT] button and press the [WRITE] button.

USB Memory

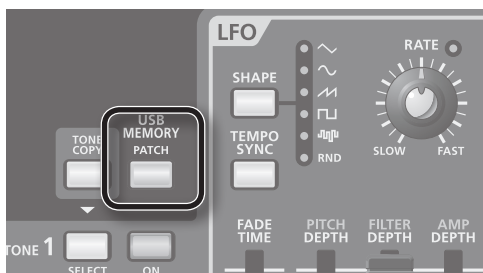
The GAIA SH-01 is equipped with a USB memory connector that allows you to use USB memory as storage media.

Using USB Memory

Make sure that the USB memory is oriented correctly, and insert it into the GAIA SH-01's USB connector.



- * Use USB memory made by Roland.
- * Connect USB memory after you've powered up the GAIA SH-01. Never disconnect USB memory while the power is turned on.
- * When inserting USB memory, make sure that the connector is oriented correctly, and insert the connector all the way in. Do not use excessive force.



[PATCH] button

This button selects patches from USB memory.
→ "Selecting Sounds" (p. 18)

This button is also used to save patches you've created on the GAIA SH-01.
→ "Saving a Sound You've Created (WRITE)" (p. 39)

Initializing USB Memory

Here's how to initialize the USB memory.

NOTE

All data saved on the USB memory will be lost when you execute this procedure.

1. Switch off the instrument's power, then insert the USB memory that you want to initialize into the USB MEMORY connector.
2. While holding down both the [TONE COPY] button and the USB MEMORY [PATCH] button, switch on the instrument's power.

The [TONE COPY] button and the USB MEMORY [PATCH] button will light, and the [CANCEL/SHIFT] button and the [WRITE] button will start blinking.

If you wish to cancel the procedure, press the [CANCEL/SHIFT] button.

3. Press the [WRITE] button.

Initialization of the USB memory will begin.

The NUMBER buttons light in sequence, beginning with [1]. The procedure will finish after NUMBER [8] has lighted.

Once initialization of the USB memory has been completed, you are returned to the normal mode.

Saving User Patches to USB Memory

Here's how to save all (64) patches from the GAIA SH-01's user memory to USB memory.

1. **Hold down the [CANCEL/SHIFT] button and press the USB MEMORY [PATCH] button.**

The [CANCEL/SHIFT] button and the USB MEMORY [PATCH] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the USB MEMORY [PATCH] button.**

Restoring Data from USB Memory to the GAIA SH-01

Here's how all patches backed up in USB memory can be restored to the GAIA SH-01's user memory.

1. **Hold down the USB MEMORY [PATCH] button and press the [WRITE] button.**

The USB MEMORY [PATCH] button will light, and the [WRITE] button and [CANCEL/SHIFT] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the [WRITE] button.**

NOTE

This operation will rewrite all user patches. If the GAIA SH-01 contains important data that you want to keep, you must save it to other USB memory before you execute the restore operation.

Saving Your Recorded Phrases to USB Memory

Here's how all (8) phrases in the GAIA SH-01's user memory can be saved to USB memory.

1. **Hold down the [CANCEL/SHIFT] button and press the USB MEMORY [PATCH] button.**

The [CANCEL/SHIFT] button and the USB MEMORY [PATCH] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the [REC] button.**

The [REC] button will blink.

3. **Press the USB MEMORY [PATCH] button.**

Restoring Phrases from USB Memory to the GAIA SH-01

Here's how all phrases backed up in USB memory can be restored to the GAIA SH-01.

1. **Hold down the USB MEMORY [PATCH] button and press the [WRITE] button.**

The USB MEMORY [PATCH] button will light, and the [WRITE] button and [CANCEL/SHIFT] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the [REC] button.**

The [REC] button will blink.

3. **Press the [WRITE] button.**

NOTE

This operation will rewrite all phrases. If the GAIA SH-01 contains important data that you want to keep, you must save it to other USB memory before you execute the restore operation.

Saving All User Data to USB Memory

When you execute this operation, all (64) patches from the GAIA SH-01's user memory, all (8) phrases, as well as the system data, will be saved to USB memory. This operation is called "backing up."

1. **While holding down the [CANCEL/SHIFT] button, press the [TONE COPY] button and the USB MEMORY [PATCH] button simultaneously.**

The [CANCEL/SHIFT] button, [TONE COPY] button, and USB MEMORY [PATCH] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the [TONE COPY] button and USB MEMORY [PATCH] button simultaneously.**

Data for the 64 patches, 8 phrases, and the system data will all be backed up as a single file.

Restoring All Data from USB Memory to the GAIA SH-01

When you execute this operation, all (64) patches, all (8) phrases, and the system data that was backed up on USB memory will be restored to the GAIA SH-01's user memory. This operation is called "restoring."

1. **While holding down the [TONE COPY] button and the USB MEMORY [PATCH] button, press the [WRITE] button.**

The [WRITE] button and the [CANCEL/SHIFT] button will blink.

If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

2. **Press the [WRITE] button.**

NOTE

All user data will be rewritten when you execute this restore operation. If the GAIA SH-01 contains important data that you want to keep, you must save it to other USB memory before you execute the restore operation.

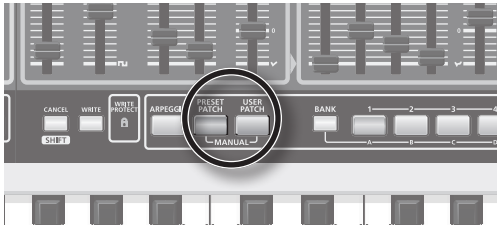
Restoring the Factory Settings

Here's how to restore all of the GAIA SH-01's settings to their factory-set condition. This operation is called "factory reset."

NOTE

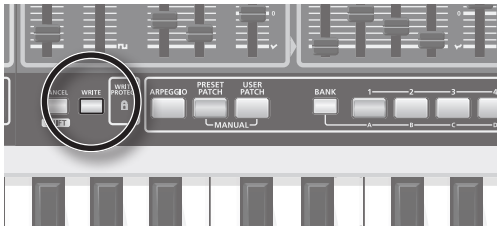
All data that you've created and saved in the GAIA SH-01's internal memory will be lost when you execute the factory reset operation. If you want to keep your data, you must save it to USB memory .
→"Saving All User Data to USB Memory" (p. 57).

1. Turn off the GAIA SH-01's power.
2. While holding down the [PRESET PATCH] button and the [USER PATCH] button, turn on the GAIA SH-01's power.



Continue holding down the [PRESET PATCH] button and [USER PATCH] button until the [TAP TEMPO] button goes out. If you decide to cancel the operation, press the [CANCEL/SHIFT] button.

3. Press the blinking [WRITE] button.



The NUMBER buttons will light sequentially starting with [1]; when the NUMBER [8] button lights, the operation has been completed.

When the factory reset is finished, the GAIA SH-01 will return to normal operation.

Items that are initialized by the factory reset

- All user patches
- Phrase data of the recorder
- System settings

Troubleshooting

If the GAIA SH-01 does not operate as you expect, please check the following points first.

Overall

Symptom	Cause	Page
Power does not turn on	Make sure that the GAIA SH-01's AC adaptor is correctly connected to the outlet and to the instrument itself, and that the power cord is correctly connected to the AC adaptor.	p. 13

Problems with the sound

Symptom	Cause	Page
No sound	Is the connected amp or speaker powered up?	–
	Could the volume be lowered? Have you checked to make sure the [VOLUME] knob is not set too low?	p. 18
	Could the MASTER LEVEL be lowered? Check the MASTER LEVEL setting.	p. 51
	Are the connections correct?	p. 14
	Can you hear sound through headphones? If you can hear sound through headphones, it may be that the connected cable is broken, or that your amp or mixer has malfunctioned. Check the connection cable and your equipment.	p. 14
	If there's no sound when you play the keyboard, could the Local switch be turned off? Access the LOCAL SW parameter and turn the Local switch on.	p. 51
	Could the tones of the patch be turned off? Turn TONE 1–3 on.	p. 29
	Are the effect settings correct? Check settings such as effect on/off, effect balance, and level.	p. 38 p. 49
	Could the volume have been lowered by pedal operations or by MIDI messages (volume or expression messages) received from an external MIDI device?	p. 26
	Volume of device connected to EXT IN jack is too low.	Could you be using a connection cable that contains a resistor? Use a connection cable that does not contain a resistor.
Could you have applied an effect that distorts the sound? If a specific patch or tone is distorted, lower the volume of that patch or tone.		p. 35 p. 38
Sound is distorted	If the overall sound is distorted, use the [VOLUME] knob to lower the volume.	p. 18
	Could the tuning of the GAIA SH-01 be adjusted incorrectly? Check the Master Tune setting.	p. 51
Pitch is incorrect	Could the pitch have been changed by a pedal operation or by a pitch bend message received from an external MIDI device?	p. 19
	Could you have edited the Coarse Tune or Fine Tune of a specific part? Check the Pitch and Detune settings.	p. 31
Notes continue sounding when you play the keyboard ("stuck notes")	Could the polarity of the Hold Pedal (pedal polarity) be reversed? Check the Pedal Polarity setting.	p. 51
	Could the [KEY HOLD] button be pressed? Check the [KEY HOLD] button.	p. 22

Problems with effects

Symptom	Cause	Page
Effects not applied	Could the effects be turned off?	p. 38
	Check the on/off status of each effect in the top panel.	
	Are the settings of each effect correct?	p. 38 p. 49

Problems with USB memory

Symptom	Cause	Page
USB memory is not recognized	Check the format of the USB memory.	p. 55
	The GAIA SH-01 can use USB memory that is formatted as FAT. If the USB memory is formatted in a format other than FAT, please format it using FAT.	
Can't back up to USB memory	Could the USB memory be write protected?	-
	Does the USB memory have sufficient free space?	-

MIDI Implementation Chart

SYNTHESIZER
Model GAIA SH-01

Date : March 1, 2010
Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1-16 1-16	1-16 1-16	
Mode	Default Messages Altered	Mode 3 X *****	Mode 3 Mode 3, 4 (M = 1)	*2
Note Number :	True Voice	0-114 *****	0-127 0-127	
Velocity	Note On Note Off	O O	O O	
After Touch	Key's Channel's	X X	X X	
Pitch Bend		O	O *1	
Control Change	0	O *1	O *1	
	1	O	O	
	5	O	O	
	7	O *1	O	
	10	X	O	
	11	O *1	O	
	16-30	O	O	
	32	O *1	O *1	
	64	O	O	
	70-81	O	O	
85-87	O	O		
90-95	O	O		
Program Change	: True Number	O *****	O *1 0-63	Program No. 1-64
System Exclusive		O	O *1	
System Common	: Song Position : Song Select : Tune Request	X X X	X X X	
System Real Time	: Clock : Commands	X *1 X	X *1 X	
Aux Messages	: All Sound Off : Reset All Controllers : Local On/Off : All Notes Off : Active Sensing : System Reset	X X X X O X *1	O (120, 126, 127) O X O (123-127) O X	
Notes	* 1 O X is selectable. * 2 Recognized as M=1 even if M1.			

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

O : Yes
X : No

Main Specifications

GAIA SH-01: Synthesizer Keyboard

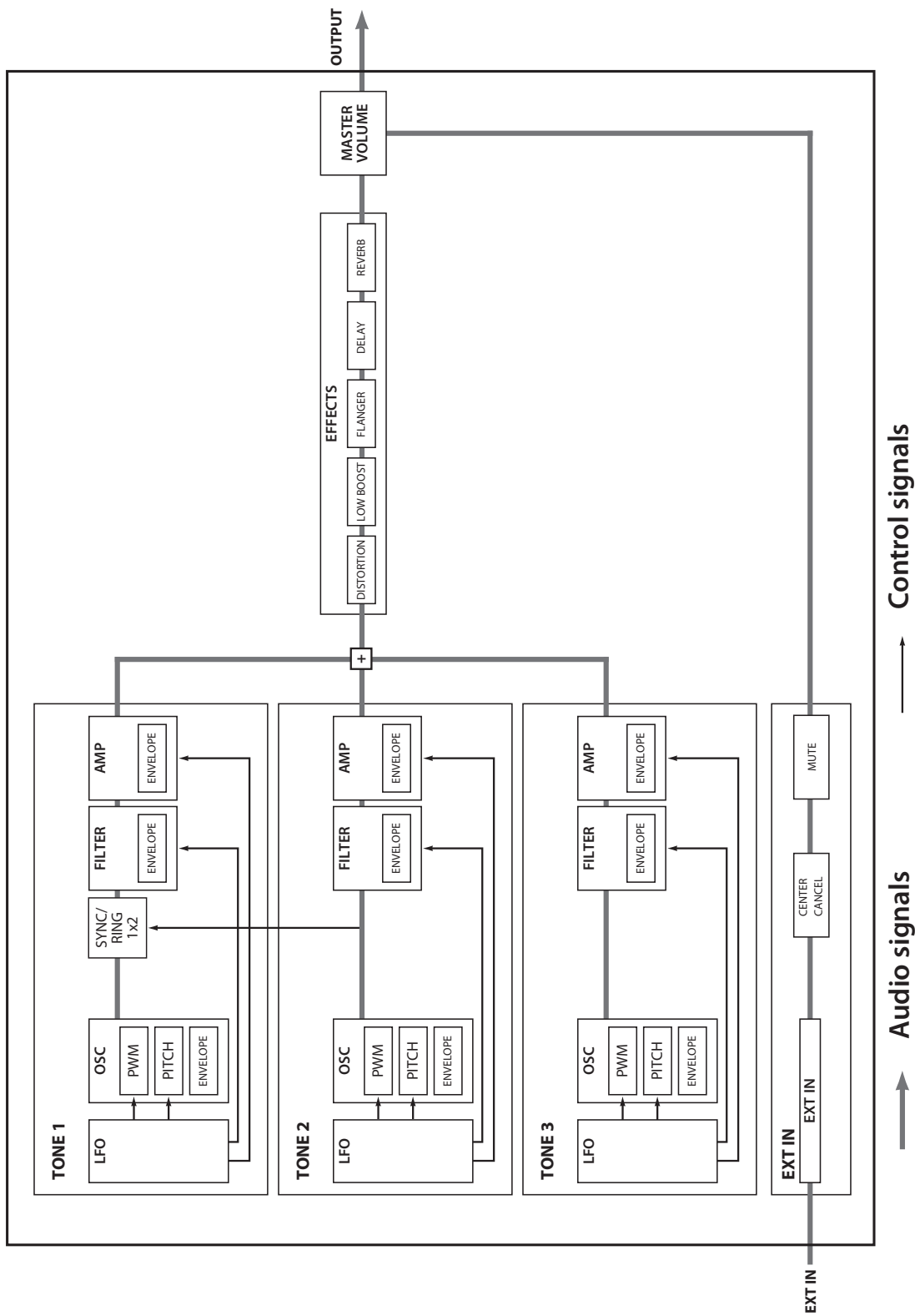
Keyboard	37 keys (velocity sensitive)
Maximum Polyphony	64 voices
Sound Generator Section	Virtual analog synthesizer sound generator (Number of part: 1) (Oscillator + Filter + Amp + Envelopes for each section + LFO) x 3 PCM sound generator (Number of parts: 15)
Patch Memory	Preset: 64 User: 64
OSC Section	
Oscillator waveform	SAW, SQUARE, PULSE/PWM, TRIANGLE, SINE, NOISE, SUPER SAW
Knobs/Sliders	PITCH, DETUNE, Pulse Width, Pulse Width Modulation
Envelope	Attack, Decay, Envelope Depth
Modulation	Oscillator Sync, Ring Modulation (Tone 2's OSC is applied as modulation to Tone 1's OSC.)
FILTER Section	
Filter Type	LPF, HPF, BPF, PKG (-12 dB/-24 dB), BYPASS
Knobs	CUTOFF, RESONANCE, KEY FOLLOW
Envelope	Attack, Decay, Sustain, Release, Envelope Depth
AMP Section	
Knobs	LEVEL
Envelope	Attack, Decay, Sustain, Release
LFO Section	
LFO Shape	TRIANGLE, SINE, SAW, SQUARE, Sample&Hold, Random
Knobs/Sliders	RATE, FADE TIME, PITCH DEPTH, FILTER DEPTH, AMP DEPTH
Tempo Sync	ON/OFF
Effects	
DIST	Distortion, Fuzz, Bit Crash
FLANGER	Flanger, Phaser, Pitch Shifter
DELAY	Delay, Panning Delay (with tempo sync function)
REVERB	Reverb
LOW BOOST	Low Boost
Knobs	CONTROL 1, LEVEL
Controllers	Pitch Bend/Modulation lever D BEAM Controller
Arpeggiator	Preset pattern: 64
Phrase Recorder	User: 8 Number of Track: 1
Jacks/Connectors	OUTPUT jacks (L/MONO, R) (1/4 inch phone type) Headphone jack (Stereo 1/4 inch phone type) PEDAL jack (TRS phone type) MIDI Connectors (IN, OUT) USB COMPUTER (Supports USB Hi-Speed Audio/MIDI) (Use a USB cable and a computer with a USB connector that support USB 2.0 Hi-Speed.) USB MEMORY (Supports USB 2.0 Hi-Speed flash memory) EXT IN jack (Stereo miniature phone type) DC IN jack
Power Supply	DC 9 V (AC Adaptor or rechargeable nickel-metal hydride AA batteries (sold separately) x 8) 600 mA
Current Draw	Battery life for continuous use (differs depending on the conditions of use) Rechargeable nickel metal hydride batteries: Approximately 5 hours (approximately 4 hours if USB memory is connected) Zinc-carbon batteries or alkaline batteries cannot be used
Dimensions	689.3 (W) x 316.9 (D) x 99.5 (H) mm 27-3/16 (W) x 12-1/2 (D) x 3-15/16 (H) inches
Weight	4.2 kg /9 lbs 5 oz (excluding AC Adaptor)
Accessories	Owner's Manual, Guide Book, CD-ROM (USB DRIVER), DVD Video, AC Adaptor, Power Cord

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

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Block Diagram



For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

For EU Countries



This product complies with the requirements of EMC Directive 2004/108/EC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For C.A. US (Proposition 65)

WARNING

This product contains chemicals known to cause cancer, birth defects and other reproductive harm, including lead.

For the USA

DECLARATION OF CONFORMITY Compliance Information Statement

Model Name : SH-01
Type of Equipment : Synthesizer Keyboard
Responsible Party : Roland Corporation U.S.
Address : 5100 S. Eastarn Avenue, Los Angeles, CA 90040-2938
Telephone : (323) 890-3700

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 está 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 vyhazovať 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 paženklinoti 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. Produkts ar šo simbolu nedrīkst izmest kopā ar mājsaimniecības atkritumiem.
- SI** Ta simbol označuje, da je treba proizvod v državah EU zbirati ločeno od gospodinjjskih odpadkov, tako kot je določeno v vsaki regiji. Proizvoda s tem znakom ni dovoljeno odlagati skupaj z gospodinjjskimi odpadki.
- GR** Το σύμβολο αυτό υποδηλώνει ότι στις χώρες της Ε.Ε. το συγκεκριμένο προϊόν πρέπει να συλλέγεται χωριστά από τα υπόλοιπα οικιακά απορρίμματα, σύμφωνα με όσα προβλέπονται σε κάθε περιοχή. Τα προϊόντα που φέρουν το συγκεκριμένο 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。

Roland

