

RADIAS

SYNTHESIZER / VOCODER



Owner's Manual

MMT

KORG

Precautions

Location

Using the unit in the following locations can result in a malfunction.

- In direct sunlight
- Locations of extreme temperature or humidity
- Excessively dusty or dirty locations
- Locations of excessive vibration
- Close to magnetic fields

Power supply

Please connect the designated AC/AC power supply to an AC outlet of the correct voltage. Do not connect it to an AC outlet of voltage other than that for which your unit is intended.

Interference with other electrical devices

Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

Handling

To avoid breakage, do not apply excessive force to the switches or controls.

Care

If the exterior becomes dirty, wipe it with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner, or cleaning compounds or flammable polishes.

Keep this manual

After reading this manual, please keep it for later reference.

Keeping foreign matter out of your equipment

Never set any container with liquid in it near this equipment. If liquid gets into the equipment, it could cause a breakdown, fire, or electrical shock.

Be careful not to let metal objects get into the equipment. If something does slip into the equipment, unplug the AC/AC power supply from the wall outlet. Then contact your nearest Korg dealer or the store where the equipment was purchased.

THE FCC REGULATION WARNING (for U.S.A.)

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.

Unauthorized changes or modification to this system can void the user's authority to operate this equipment.

CE mark for European Harmonized Standards

CE mark which is attached to our company's products of AC mains operated apparatus until December 31, 1996 means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC). And, CE mark which is attached after January 1, 1997 means it conforms to EMC Directive (89/336/EEC), CE mark Directive (93/68/EEC) and Low Voltage Directive (73/23/EEC).

Also, CE mark which is attached to our company's products of Battery operated apparatus means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC).

Regarding the LCD screen

The LCD screen of the RADIAS is a precision device created using extremely high technology, and careful attention has been paid to its product quality. Although you may notice some of the issues listed below, please be aware that these are due to the characteristics of LCD screens, and are not malfunctions.

- There may be pixels in the screen that are always dark (unlit) or always bright (lit).
- Depending on the displayed content, the brightness of the screen may appear uneven.
- Depending on the displayed content, horizontal stripes of shading may be visible.
- Depending on the displayed content, flickering or moire patterns may be visible.

Data handling

Malfunctions due to incorrect operation may cause the contents of memory to be lost, so we recommend that you save important data on an external data filer (storage device). Please be aware that Korg will accept no responsibility for any damages which may result from loss of data.

* Company names, product names, and names of formats etc. are the trademarks or registered trademarks of their respective owners.

Thank you for purchasing the **Korg RADIUS synthesizer/vocoder**. To ensure trouble-free enjoyment, please read this manual carefully and use the product correctly.

About this manual

How this manual is organized

The **RADIUS** owner's manual is organized as follows.

Operation

First read the Operation to learn essential points of operation and basic procedures.

"Introduction" explains the features of the **RADIUS**, and how its modes and programs are organized.

"Front and rear panel" explains the knobs and buttons of the front panel, and the input/output jacks and switches of the rear panel.

"Setup" explains how to connect the **RADIUS** to external audio devices, external MIDI devices, computers, pedals, and pedal switches.

"Quick Start" explains basics for playing the **RADIUS** (listening to the demos, selecting sounds, using the arpeggiator, etc.).

"Editing" explains the basic procedures for editing sound parameters and global parameters, and describes how the main parameters are edited.

Parameter

This section explains the operation of all **RADIUS** parameters and discusses points of which you should be aware for various settings. The explanations are organized by page for each mode.

Refer to this section when an unfamiliar parameter appears, or when you would like to learn more about the functions.

Appendices

This section provides explanations of MIDI-related topics such as the MIDI messages that the **RADIUS** can use (control changes etc.), as well as a Voice Name List and other information.

Printing conventions in this manual

Knobs and buttons []

Knobs and buttons on the panel of the **RADIUS** are enclosed in square brackets [].

Parameters shown in the LCD screen " "

Parameters that appear in the LCD screen are enclosed in double quotation marks " ".

Bold type

The names of parts of the **RADIUS** and operating procedures are also printed in bold type.

Procedure steps 1, 2, 3 . . .

Steps in a procedure are printed as 1, 2, 3 . . .

p.■

This indicates a page to which you can refer.

Symbols ,

These symbols respectively indicate points of caution and words of advice.

Display screen

The values of parameters appearing in the display screens printed in this manual are only explanatory examples. They will not necessarily match the values shown in the LCD screen of your instrument.

MIDI-related explanations

CC# is used as an abbreviation for Control Change Number.

In MIDI-related explanations, numbers enclosed in square brackets [] are in hexadecimal notation.

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Operation

Introduction
Front and rear panels
Setup
Quick Start
Editing

Introduction

Overview

The **RADIAS** Synthesizer/Vocoder is based on Korg's powerful Multiple Modeling Technology (MMT). It provides an extensive array of cutting-edge synthesis tools and techniques to satisfy the demanding musician, producer or sound designer. The main sound parameters can be edited directly from the front panel. Equipped with 39 knobs, 47 buttons, 16 multi-function keys, a value knob and an informative backlit LCD screen, **RADIAS** makes it easy to modify the sound as you perform, and to enjoy a versatile range of realtime editing possibilities.

Program Features:

Structure

The **RADIAS** contains 256 user-editable Program locations. Each program consists of up to four timbres, letting you easily create incredibly rich sounds. You can zone each timbre to a specific range of keys, and play them all from the keyboard, or individual Timbres can be played by the arpeggiator or one of the step sequencers. Additionally, each timbre can be assigned to a specific MIDI channel for four-part multitimbral operation.

Vocoder

The **RADIAS** features a sophisticated vocoder that can be used not just to simulate the classic vocoder sounds of the past, but also to take advantage of advanced possibilities such as shifting the filter frequencies of each band or adjusting their level and panning to create new and original vocoder sounds.

Korg's new Formant Motion function uses filter banks to analyze the input signal (the modulator), and records up to seven seconds of formant motion data. By using the play back of this recorded formant motion data, you can create complex moving (or even "talking") vocoder programs that don't require any mic input. The **RADIAS** can hold sixteen sets of formant motion data in internal memory. A front panel [VOCODER] button makes it easy to obtain vocoder sounds.

Audio input/envelope follower

Any audio signal plugged into the INPUT 1 and 2 jacks can be processed in the same way as the internal waveforms, letting you use the **RADIAS** as an effect processor. The envelope of the audio input signal can also be detected and used as a modulation source in the virtual patch, or used to trigger the sound generator of the **RADIAS**.

Arpeggiator

The arpeggiator plays the notes you are holding down one at a time, in an up, down, alternating, random or triggered chord fashion - six different types in all. The resolution, key window, swing, and octave range can be set per program; the note, tie and off status can be set for each of the 16 steps, allowing you to create a broad range of melodic and rhythmic patterns.

Step sequencer

Two step sequencers are built-in, allowing you to record simple patterns or phrases. For example you can record a bass line and a drum pattern, and assign two timbres to play these parts, while you play the remaining timbres from the keyboard. Each step sequencer is 32 steps long; however they can be combined to create a single step sequencer that is 64 steps long.

Timbre Features:

Oscillators

Each **RADIAS** Timbre is built on two oscillators. A total of nine oscillator algorithms are available, including the traditional analog synthesis waves - sine, triangle, pulse (square) and sawtooth - as well as Korg DWGS waves, PCM waves and drum kits, external audio sources and more. Variable Phase Modulation, cross mod, ring mod, sync, waveform shaping and other advanced modulation capabilities allow you to experience more sound-creating flexibility than ever before.

Filters

Two resonating filters are continuously variable from 24dB low pass (four-pole) thru 12dB low pass (two-pole), band pass, high pass, up to a "Thru" bypass. For maximum flexibility, the filters can run in series or side-by-side, or even run in a one oscillator per filter arrangement. Filtering can be applied before or after the Amp stage.

LFOs

Twin Low Frequency Oscillators provide a total of five waveforms including Sample/Hold. The speed can be set manually or set as a note value of the internal/external tempo source, and the wave cycle can be sync'd to each key-on message. As with the audio oscillators, these low frequency oscillators also enjoy the benefits of variable waveform shaping.

Envelopes

In addition to the traditional Attack/Decay/Sustain/Release stages, the three enhanced **RADIAS** envelope generators feature various linear, logarithmic and exponential curve shapes for creating accurate time-variable modulation. Velocity and note based parameters provide even more detailed and dynamic articulation.

Effects

The **RADIAS** provides a two-band equalizer and two insert effects for each timbre, and one master effect for each program. The **RADIAS** includes 128 editable Insert effect programs, and 128 editable Master effect programs, created using thirty different effect algorithms.

Amp

Traditionally, the Amp section of a synthesizer relates to controlling the volume. The **RADIAS** adds Drive, "Punch Level" and Wave Shape parameters to the mix. Drive adds controlled harmonic distortion, much like sending too much oscillator signal into another module on a traditional analog synthesizer. Punch Level adds a square wave to the attack portion of the sound for an increase in perceived dynamics. The Wave Shape adds new tonal character to your sound through the Decimator, Hard Clipping and more.

Modulation sequencer

Just as step sequencers provide new pitch data to an oscillator over time, the Modulation Sequencers provide changes in modulation data over time in a way similar to a classic analog sequencer. Each of the three Modulation Sequencers can be applied to any one of 41 different parameters. Modulation sequences can be recorded in step time, or in real time using the Motion Rec function. Modulation sequences are 16 steps long. The output of the modulation sequencer can be sent as a new discreet value at each sequencer step; or the output can be sent as a continuously changing value based on the values assigned to each step.

Virtual patches

The six Virtual Patches (V.PATCH) allow any of 15 modulation sources to be routed to any of 15 modulateable parameters. They function in a similar way to patch cords on a modular analog synthesizer. Five of the sources are MIDI Control Change numbers, which can be set in the Global Mode. This arrangement offers you a high degree of flexibility in creating and controlling sounds.

Drum kits

A drum kit can be used as one of the four Timbres that make up a Program. The **RADIAS** contains 32 editable drum kits, and each one may contain up to 16 drum instruments. In addition to playing the drum kit from the keyboard, one of the step sequencers or the arpeggiator can be assigned to play the drum kit, allowing you to create grooves and rhythmic figures within a Program. Using the Drum Play Mode, a drum kit may be played from the keyboard, and edited in real time using the front panel knobs and buttons. One handy addition is the ability to play a drum kit directly from the front panel using the multi-function 16 Keys.

Programming Aids:

Template function

Handy timbre, drum sound, and effect templates are provided as a convenience. When you want to create a timbre, drum sound, or effect setting, simply load the template data that is closest to what you have in mind and then edit it as desired. This is much faster than creating your sounds from scratch. You can also register your own sounds or effect settings as template data.

RADIAS Sound Editor software

Your **RADIAS** comes with the Korg **RADIAS** Sound Editor software. By connecting your **RADIAS** to a computer via USB, you can use this Editor Librarian program to edit, save, store and recall Program, Timbre, FX, Global and parameter data quickly and easily.

Modes

Program Play mode (PROGRAM)

To enter the Program Play mode, press the [PROGRAM] button. This is the mode in which you select and play programs (sounds). As you play, you can use the front panel knobs and buttons to modify the sound, and use the arpeggiator, step sequencer, and modulation sequencer to embellish your performance. You can also use the vocoder in the Program Play mode. To turn the vocoder on, press the timbre select [VOCODER] button (the button will light or blink, and the letter "V" will appear at the end of the Program name. When the vocoder is on, the functions printed in white with a dark background on the front panel will be active.

Program Edit mode (PROGRAM EDIT)

To enter the Program Edit mode, press the [EDIT/YES] button while in the Program Play mode (vocoder off). In this mode you can edit the parameters of a program while viewing them in the display. You can make detailed changes to the parameter values, and edit parameters lacking a front panel knob or button.

Vocoder Edit mode (VOCODER EDIT)

To enter the Vocoder Edit mode, press the [EDIT/YES] button while you're in the Program Play mode (vocoder on). In this mode you can edit the vocoder parameters of a program while viewing them in the display. In the Vocoder Edit mode, the functions printed in white with a dark background on the front panel will be active.

Drum Play mode (DRUM)

To enter the Drum Play mode, press the [DRUM] button. In this mode you can select and play drum kits. You can use each of the sixteen keys to play a different drum instrument, and use the front panel buttons and knobs to edit the sound parameters in realtime while you play.

Drum Edit mode (DRUM EDIT)

To enter the Drum Edit mode, press the [EDIT/YES] while you're in the Drum Play mode. In this mode you can assign drum instruments to create a drum kit, and edit the parameters of a drum instrument while viewing them in the display.

Global mode (GLOBAL)

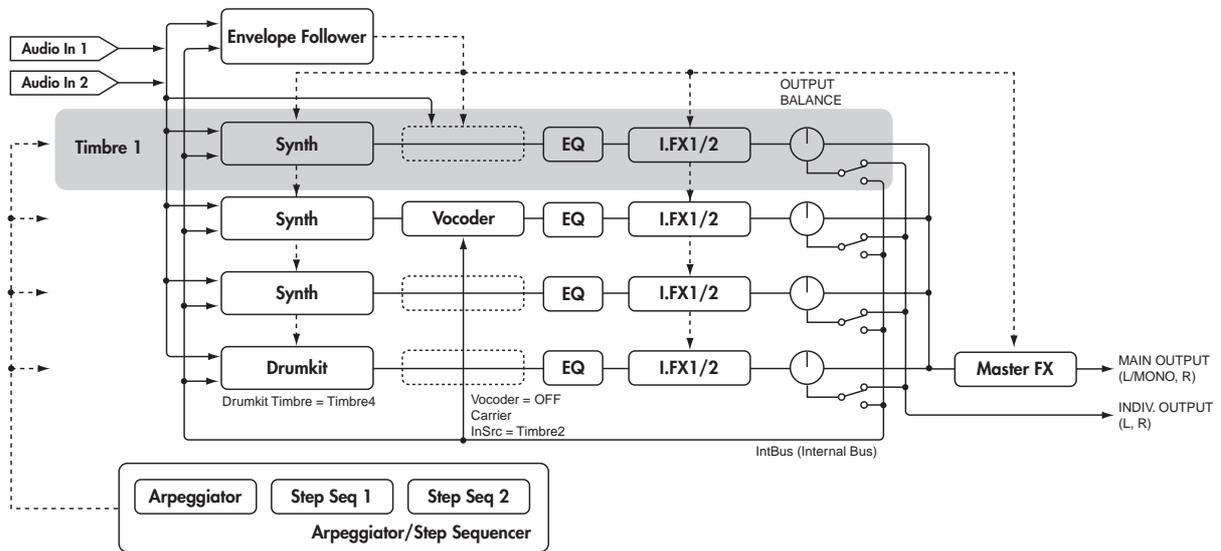
To enter the Global mode, press the [GLOBAL] button. In this mode you can set the parameters that affect the entire **RADIAS**, such as tuning and user scales, selecting the functions for the assignable pedal and assignable switch, transmitting MIDI exclusive data dumps, and other MIDI-related settings.

How a program is structured

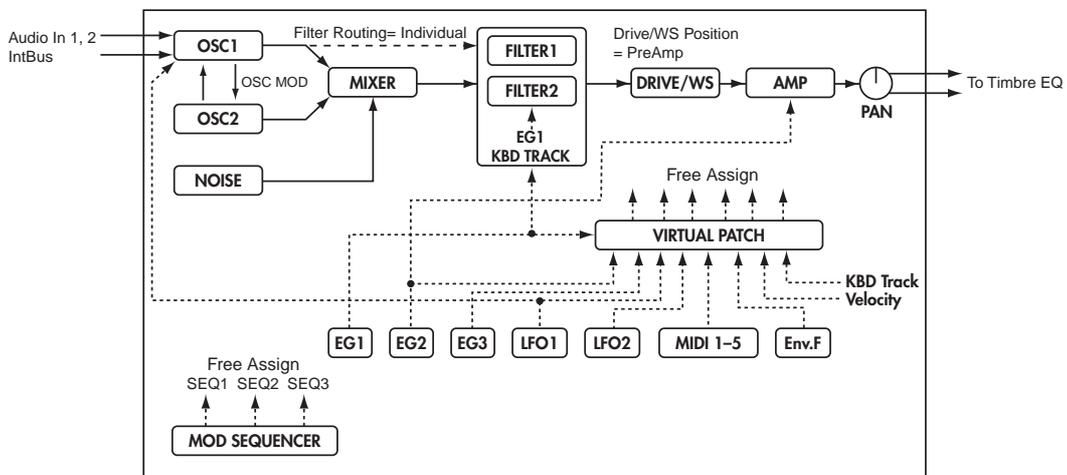
Each of the **RADIAS**' programs consists of four timbres, an arpeggiator, two step sequencers, a vocoder, a master effect, and an envelope follower.

Synthesizer

Program



Synth



Timbre

A timbre consists of the oscillators (OSC1/OSC2/NOISE), mixer (MIXER), filters (FILTER), amp (AMP), envelope generators (EG), LFOs, virtual patches (VIRTUAL PATCH), modulation sequencers (MOD SEQ), equalizer (EQ), and the insert effects (INSERT FX1/FX2). By editing the parameters of these sections you can create an incredibly diverse range of sounds.

Oscillator (OSC1/OSC2/NOISE)

There are three Oscillator sources; Oscillator 1, Oscillator 2, and the noise generator. Oscillator 1 (OSC1) lets you choose from nine different oscillator algorithms. These include conventional analog synthesizer waveforms, digital synthesizer PCM waveforms and drum PCM waveforms, formant, noise, and even an external audio signal. Oscillator 2 (OSC2) lets you choose from four different oscillator waves - sine, triangle, square, and sawtooth. The noise generator (NOISE) generates white noise. You can use this for a variety of sound shaping situations, such as adding breath noise for a wind instrument sound, or as part of a special effect sound.

For die-hard analog fans, the analog tune feature lets control the amount of simulated oscillator drift that will be applied. Five different portamento curves allow detailed control over glissando passages and gliding between notes. Modulation such as cross-modulation, unison, and VPM (Variable Phase Modulation) can be applied to the analog synthesizer waveforms of Oscillator 1. Oscillator 2 can be used as the modulating oscillator for the sync modulation (SYNC) or ring modulation (RING) that are such classic analog synthesizer techniques. The best elements of SYNC and RING modulation can be combined using a third option: RING SYNC.

Mixer (MIXER)

The mixer adjusts the volume levels of oscillator 1 (OSC1), oscillator 2 (OSC2), and the noise generator (NOISE), and sends the combined signal to the filter (FILTER).

Filter (FILTER1/FILTER2)

The filter section consists of two multi-mode, resonant filters. The two filters can be routed in series or parallel, or even side by side in a “one oscillator per filter” arrangement. The filters adjust the tone of the sound coming from the oscillators by boosting or cutting specific frequency regions. Filter settings will have a major impact on the sound.

By default, envelope generator 1 (EG1) is set to vary the cutoff frequency of the filters over time.

Amp (AMP)

Traditionally, the amp section controls the output volume (AMP) and the panning (PAN), or the position in the stereo field. The **RADIUS** provides additional features to add more tonal complexity and “edge” to the sound - including Drive, Wave Shape control (DRIVE/WS), and Punch Level. By default, envelope generator 2 (EG2) is set to vary the volume level over time.

Envelope generators (EG1/EG2/EG3)

Envelope generators (EG) are used to apply time-varying change to the sound parameters.

Each EG consists of four parameters: attack time (ATTACK), decay time (DECAY), sustain level (SUSTAIN), and release time (RELEASE). Keyboard dynamics and note number, as well as five time curves, allow for exacting envelope articulation.

Each timbre contains three of these EGs. EG1 is assigned to control the filter cutoff frequency, and EG2 is assigned to control the volume of the amp. You can also use virtual patching (VIRTUAL PATCH) to assign these EGs as envelope sources for other parameters.

LFO section (LFO1/LFO2)

LFO (Low Frequency Oscillator) is used to apply cyclic change to the sound parameters.

Each timbre contains two LFOs, and for each LFO you can choose one of four waveforms. Shape control, key sync and phase controls extend well beyond traditional LFO offerings.

By default, LFO1 is assigned to oscillator 1's analog algorithms as the knob labelled “Control2”, and LFO2 is assigned to the modulation wheel. You can also make virtual patch settings (VIRTUAL PATCH) to assign the LFOs as modulation sources for other parameters.

Virtual Patch (VIRTUAL PATCH)

The virtual patch section lets you freely assign modulation sources to modulate-able parameters, giving you even more flexibility for creating sounds. You can make six virtual patch assignments in each timbre.

Modulation Sequencer (MOD SEQUENCER)

Using a modulation sequencer, you can apply up to sixteen discrete values (steps) to a modulate-able parameter over time, in a manner similar to vintage analog synthesizers. The modulation sequence can play once, repeat, loop front to back, etc. - providing movement and complexity to the sound. The value can change abruptly at each step, or it can smoothly transition from value to value. The value of each step can be set using the sixteen front panel knobs, or by using the Motion Rec function to record knob movements (changes in parameter values) in realtime. Each timbre provides three sequencers, allowing you to create extremely complex tonal changes.

Equalizer (EQ) and Insert Effects (INSERT FX1/FX2)

Each timbre is equipped with a two-band Equalizer to further control the overall tone. In addition, each timbre also possesses two insert effects. Thirty different effect types are available, and their 128 editable effect program locations to save your favorites. Certain effects can be synced to the tempo of the internal clock that is running the arpeggiator, step sequences, etc. - or to an external MIDI clock. Tempo Sync effects can be conveniently set as note values (Half-note, quarter-note, etc.).

Arpeggiator (ARPEGGIATOR) and Step Sequencer (STEP SEQUENCER)

Each program contains one arpeggiator and two step sequencers. Each timbre in a program can be assigned to be played by the arpeggiator or by one of the step sequences. The arpeggiator lets you choose one of six arpeggio types, and each of the thirty-two steps can be set as a note, tie or rest (off) to create more complex arpeggio patterns. Each step sequencer lets you record a phrase of up to thirty-two steps; both sequencers can be used together to create a single step sequence up to sixty-four steps. The playback of the step sequencer can also be set to transpose based on the notes being played on the keyboard (or via MIDI).

Master effect (MFX)

Each program contains one master effect.

You can use this to apply a reverb or delay effect to the overall combined sound of the program including the processing applied by the insert effects of each timbre, adding the final touch to the complete program. You can choose from thirty different effect types, and 128 editable effect programs.

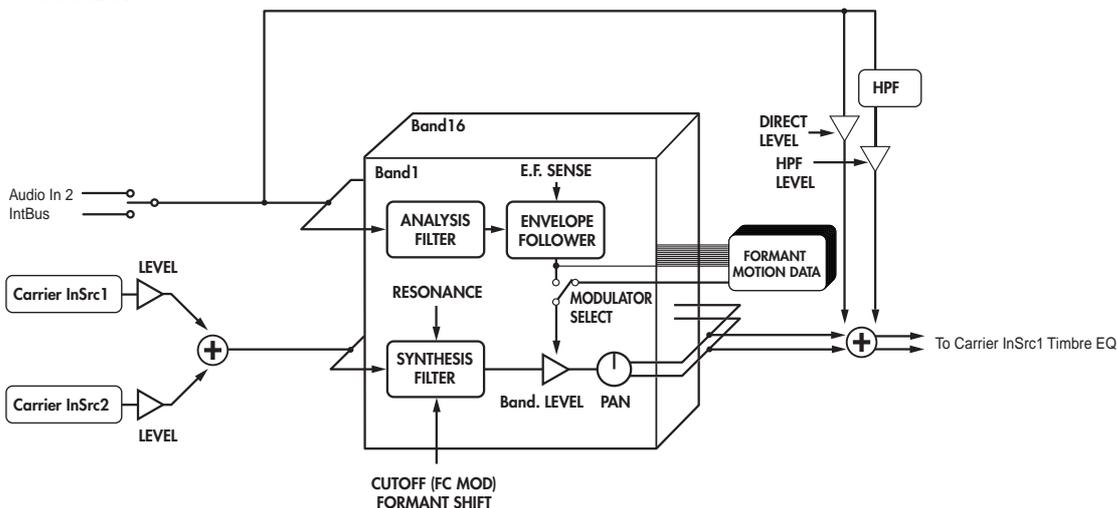
Envelope follower

In electronic music terms, an envelope is the “shape” of a sound’s change in volume level from start to finish. Each program contains an envelope follower, which generates a changing modulation source based on the envelope of an external audio signal or an internally bussed sound. This detected envelope can also be used to generate note-on/off events.

Vocoder (VOCODER)

A vocoder is available in every program. The **RADIAS'** vocoder contains 16 stereo bands. A vocoder applies the spectral character of the "modulator" (e.g., a signal received from the INPUT 2 jack) to the "carrier" (e.g., the sound of a timbre or a signal received from the INPUT 1 jack). The most popular way to use this is to input your voice from a mic connected to the INPUT 2 jack, creating the impression that an instrumental sound is "talking."

Vocoder



Vocoder section (VOCODER)

The vocoder divides the audio spectrum into "bands". In the **RADIAS**, the vocoder uses 16 bands. There are actually two sets of 16 bands; the first is used to analyze the tonal characteristics of one sound (the Modulator), and the second set is used to apply the same characteristics to another sound (the Carrier). Each analysis band contains a bandpass filter and an envelope follower. Each synthesis band contains a band pass filter whose output is controlled by the matching envelope follower in the analysis band.

The modulator's audio signal is sent through the sixteen bandpass filters (the analysis filters), and the envelope follower detects the volume envelope (change over time) for each of these frequency bands.

The carrier's audio signal is sent through the other set of sixteen bandpass filters (the synthesis filters), and the envelope detected from each analysis filter is applied to each synthesis filter to modulate the sound, producing the impression that the carrier sound is "talking" (the typical vocoder effect).

You can use the "FORMANT SHIFT" and "CUTOFF" parameters to shift the frequencies of the carrier bandpass filters. This will raise or lower the frequency response while preserving the character of the modulator, creating major changes in the sound.

Carrier (CARRIER)

A sawtooth wave (SAW) or other waveform rich in overtones is the best choice for the carrier. As the carrier, you can use a combination of two sources (IN SOURCE 1 and IN SOURCE 2). One of the timbres can be selected as IN SOURCE 1, and either an external input (the INPUT 1 jack) or an internally bussed sound (program output) can be selected as IN SOURCE 2.

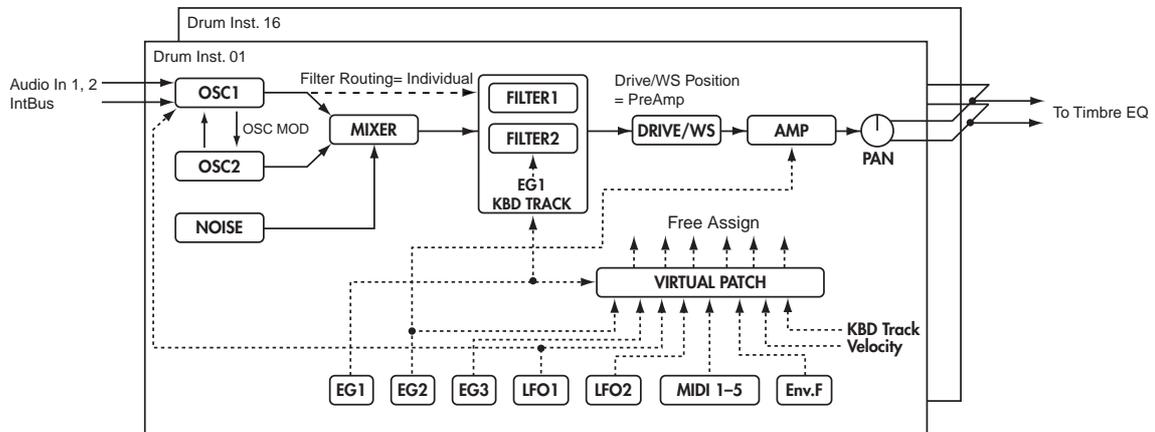
Modulator (MODULATOR)

Most commonly, you will input your voice as the modulator, but interesting results can also be obtained by inputting a rhythm sound as the modulator waveform. You can use either an external input (INPUT 2 jack) or an internal bus (program output) as the modulator.

There is also a Formant Motion function that lets you record Formant Motion Data to capture the moving characteristics of a voice or other sound, and use this data to drive the vocoder.

Drum kits

Drumkit



Each drum kit consists of sixteen drum instruments. The **RADIUS** contains thirty-two drum kits.

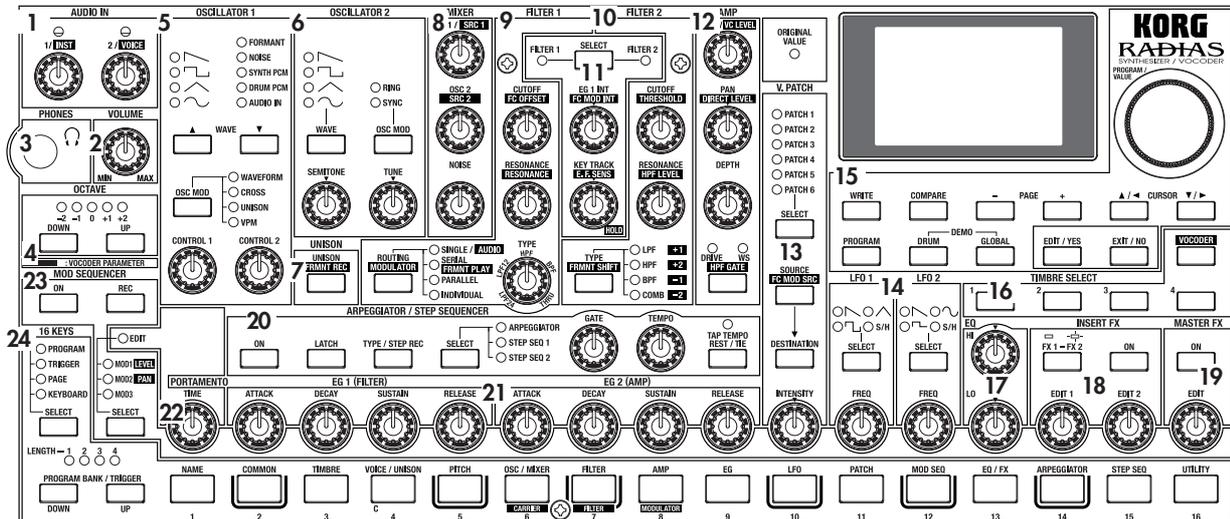
Each drum instrument consists of OSCILLATOR, MIXER, FILTER, AMP, EQ, LFO, and VIRTUAL PATCH settings, just as with a timbre. (☞ p.6 “Timbre”)

One of the timbres in a program may be assigned a drum kit. By assigned that timbre to be played by the arpeggiator or one of the step sequences, you can create a program that provides a rhythmic accompaniment to your performance. (☞ p.64 “Key Zone settings”)

Front and rear panels

Front panel

The parameters printed in white characters on a dark background are vocoder parameters.



1. AUDIO IN

[1/INST] knob

This knob adjusts the input level from the INPUT 1 jack.

[2/VOICE] knob

This knob adjusts the input level from the INPUT 2 jack.

2. VOLUME

[VOLUME] knob

This knob adjusts the overall volume. This knob also adjusts the headphone volume.

3. PHONES

Headphone jack

This jack allows you to listen to the RADIAS through stereo headphones. Connect your headphones to this jack.

4. OCTAVE

[UP], [DOWN] buttons

These shift the pitch of the keyboard and the 16 keys [1]–[16] in one-octave units.

☞ p.22 “Changing the octave”

5. OSCILLATOR 1

WAVE [▲][▼] buttons

These select the waveform for oscillator 1. The LED for the selected waveform will light.

[OSC MOD] buttons

Selects the modulation type. The LED for the selected modulation type will light.

[CONTROL 1] knob

The parameter adjusted by this knob will depend on the selected waveform or modulation type.

[CONTROL 2] knob

The parameter adjusted by this knob will depend on the selected waveform or modulation type.

6. OSCILLATOR 2

[WAVE] button

Selects the waveform for oscillator 2. The LED for the selected waveform will light.

[OSC MOD] button

Selects the modulation type applied by oscillator 1. The LED for the selected modulation type will light.

[SEMITONE] knob

This knob adjusts the pitch of oscillator 2 in semitone steps.

[TUNE] knob

This knob makes fine adjustments to the pitch of oscillator 2.

7. UNISON

[UNISON - FRMNT REC] button

UNISON: Switches the unison function on/off.
FRMNT REC: When editing vocoder settings, this records format motion data for use with the Formant Motion function.

8. MIXER

[OSC1 - SCR1] knob

OSC 1: Adjusts the volume of oscillator 1.
SCR 1: When editing vocoder settings, this adjusts the volume of input 1 (timbre) to the carrier.

[OSC2 - SRC2] knob

OSC 2: Adjusts the volume of oscillator 2.
SCR 1: When editing vocoder settings, this adjusts the volume of input 2 (e.g., external input) to the carrier.

[NOISE] knob

Adjusts the volume of the noise generator.

9. FILTER 1

[CUTOFF - FC OFFSET] knob

CUTOFF: Adjusts the cutoff frequency of filter 1.
FC OFFSET: When editing vocoder settings, this adjusts the cutoff frequency offset value of the synthesis filter.

[RESONANCE] knob

RESONANCE: Adjusts the resonance of filter 1.
RESONANCE: When editing vocoder settings, this adjusts the resonance of the synthesis filters.

[TYPE] knob

Selects the type of filter used by filter 1.
A position between markings will produce a character mid-way between the two filter types, allowing you to adjust the proportion of the two types.

[ROUTING - MODULATOR] button

ROUTING: This specifies the routing (combination) of filters 1 and 2.
MODULATOR: When editing vocoder settings, this selects the modulator.

10. FILTER 2

[CUTOFF - THRESHOLD] knob

CUTOFF: Adjusts the cutoff frequency of filter 2.
THRESHOLD: When editing vocoder settings, this adjusts the threshold level of the modulator input signal.

[RESONANCE - HPF LEVEL] knob

RESONANCE: Adjusts the resonance of filter 2.
HPF LEVEL: When editing vocoder settings, this adjusts the output level of the HPF (High Pass Filter) applied to the modulator input signal (e.g., the INPUT 2 jack).

[TYPE - FRMNT SHIFT] button

TYPE: Selects the type of filter used by filter 2.

FRMNT SHIFT: When editing vocoder settings, this adjusts the amount of formant shift.

11. FILTER COMMON

[SELECT] button

Selects which filter will be affected by adjusting the EG1 INT knob and KEY TRACK knob.
The LED corresponding to the filter you select will light.

[EG1 INT - FC MOD INT] knob

EG 1 INT: Adjusts the amount of EG1 (depth) that will be applied to the filter cutoff frequency.
FC MOD INT: When editing vocoder settings, this adjusts the depth of modulation applied to the cutoff frequency of the synthesis filter. The modulation source is selected by the [SOURCE - FC MOD SRC] button of the Virtual Patch section.

[KEY TRACK - E.F.SENS] knob

KEY TRACK: Adjusts the amount of keyboard tracking that will be applied to the filter. This allows notes played higher on the keyboard to have a different filter cutoff than notes played lower on the keyboard.

E.F. SENS: When editing vocoder settings, this adjusts the sensitivity of the envelope follower in the vocoder section.

12. AMP

[LEVEL - VC LEVEL] knob

LEVEL: Adjusts the volume of the selected timbre.
VC LEVEL: When editing vocoder settings, this adjusts the output level of the vocoder.

[PAN - DIRECT LEVEL] knob

PAN: Adjusts the pan position of the selected timbre.
DIRECT LEVEL: When editing vocoder settings, this adjusts the direct output level of the modulator (e.g., INPUT 2 jack).

[DEPTH] knob

Adjusts the depth of the DRIVE/WS (Wave Shape) effect.

[DRIVE/WS - HPF GATE] button

DRIVE/WS: Selects which function will be applied to the timbre. The LED for the selected function will light.
HPF GATE: When editing vocoder settings, this specifies whether the High Pass Frequency gate is enabled or disabled (on or off).

13. V.PATCH (VIRTUAL PATCH)

[SELECT] button

Selects the patch that you will be editing. The LED of the selected patch will light.

[SOURCE - FC MOD SRC] button

SOURCE: Selects the modulation source.
FC MOD SRC (Filter Cutoff Modulation Source): When you're editing vocoder settings, this selects the modula-

tion source that will be applied to the cutoff frequency of the synthesis filter.

[DESTINATION] button

Selects the modulate-able parameter that the selected virtual patch will be applied to.

[INTENSITY] knob

Adjusts the amount of modulation that will be applied by the currently selected virtual patch.

14. LFO1/LFO2

[SELECT] button

Selects the LFO waveform. The LED of the selected waveform will light.

[FREQ] knob

Specifies the LFO rate. The [SELECT] button will blink in time with the specified rate.

15. DISPLAY & BUTTON

ORIGINAL VALUE LED

When you turn a knob or press a button, this LED will light when the setting matches the value stored in the program.

Display

In the Program Play mode, this display shows the program names and program numbers.

In the Drum Play mode, this display shows the drum kit numbers and drum kit names.

In other modes, this display will show the parameters being edited.

[PROGRAM/VALUE] dial

In the Program Play mode, turning this dial selects programs. In the Drum Play mode, this selects drum kits. In other modes turning this dial modifies the value of the parameter selected by the cursor.

[WRITE] button

Use this button to save any edited settings. When you press this button, you will be given the option of saving or not saving; and you will be able to select where the data will be saved.

[COMPARE] button

Returns the values modified by the knobs and buttons to the values stored in the program. Use this when you want to compare the edited sound with the sound that is stored in the program.

PAGE [+/-] buttons

Use these to switch pages or tab pages.

CURSOR [▲/◀] [▼/▶]

Use these to select the parameter you want to edit.

note In this manual, the term “cursor” is used when referring to both the [▲/◀] and [▼/▶] buttons. If either the [▲/◀] or [▼/▶] button is meant, we will refer to the “cursor [▲/◀] button” or “cursor [▼/▶] button.”

[PROGRAM] button

Press this button to enter the Program Play mode.

[DRUM] button

Press this button to enter the Drum Play mode.

[GLOBAL] button

Press this button to enter the Global mode.

[EDIT/YES] button

When you're in one of the Play modes, press this button to enter the corresponding Edit mode. This button is also used to finish executing functions such as Copy or Write.

In each Edit mode, you can specify a note number or velocity value (e.g., Program Edit mode P03–3: TIMBRE – ZONE tab page “Bottom” or “Top”) by holding down this button and pressing a note on the keyboard.

[EXIT/NO] button

Press this button to return from an Edit mode to the corresponding Play mode. This button is also used to cancel a function such as Copy or Write.

note You can switch each timbre on or off by holding down this button and pressing a TIMBRE SELECT [1]–[4] button.

16. TIMBRE SELECT

[1], [2], [3], [4] buttons

In the Program Play mode, these buttons select the timbre that can be edited from the front panel. By holding down the [EXIT/NO] button while pressing one of the timbre select buttons, you can turn the individual timbre off and on again.

In the Program Edit mode, these buttons select the timbre to be edited.

note You can't select a timbre that is turned off (i.e., whose button is dark). If you want to turn the timbre on, you can either make settings in Program Edit mode, or hold down the [EXIT/NO] button and press a [1]–[4] button to switch the corresponding timbre on or off.

[VOCODER] button

Switches the vocoder on/off. In the Edit mode, press this when you want to edit the vocoder settings.

17. EQ (EQUALIZER)

[HI] knob

Adjusts the level of the high frequency range. Turning this toward the right will boost the level of the high frequency range, and turning it toward the left will decrease the level of the high frequency range.

You can specify the center frequency of the high frequency range in the Program Edit mode P13–1: EQ/FX – EQ tab page.

[LO] knob

Adjusts the level of the low frequency range. Turning this toward the right will boost the level of the low frequency range, and turning it toward the left will decrease the level of the low frequency range. You can specify the center frequency of the low frequency range in the Program Edit mode P13-1: EQ/FX – EQ tab page.

18. INSERT FX**[FX1-FX2] button**

Selects which insert effect is available for editing. FX1 parameters is selected when this button is dark, and FX2 is selected when this button is lit.

[ON] button

Turns the insert effect selected by [FX1-FX2] on/off. When this button is lit, the effect is on and will be applied.

[EDIT1], [EDIT2] knobs

These knobs adjust various effect parameters. They will adjust the effect selected by the [FX1-FX2] button. The parameter being adjusted will depend on the type of effect selected.

19. MASTER FX**[ON] button**

Switches the master effect on/off. When this button is lit, the effect is on.

[EDIT] knob

Adjusts various master effect parameters. The parameter being adjusted will depend on the effect type you're using.

20. ARPEGGIATOR/STEP SEQUENCER**[ON] button**

This turns the arpeggiator and step sequencers on/off. The arpeggiator and step sequencers are all turned on together

[LATCH] button

This button turns on and off the Latch function that affects the arpeggiator and the step sequencers. When this function is on (lit), the arpeggiator and/or step sequencers will continue playing even after you take your hand off the keyboard.

The latch setting can be set independently for the arpeggiator and each step sequencer.

[TYPE/STEP REC] button

The function of this button depends on the setting of the [SELECT] button, which can be set to ARPEGGIATOR, STEP SEQ 1, or STEP SEQ 2. If ARPEGGIATOR is selected, pressing this button will scroll through the different arpeggiator types.

If STEP SEQ 1 or 2 is selected, then this button will act as the recording button for that step sequencer. Press this

button to enter record-ready mode; recording will begin when you play the keyboard etc.

[SELECT] button

Selects the arpeggiator or the step sequencer that will be assigned to play the timbre.

[GATE] knob

Adjusts the gate time (duration) specified for each step of the arpeggiator or step sequencer.

[TEMPO] knob

Adjusts the playback tempo of the arpeggiator or step sequencer. This setting will also affect other parameters that are tied to the internal tempo, such as playback speed of a modulation sequencer, an LFO rate, or an effect delay rate.

[TAP TEMPO REST/TIE] button

During playback, you can enter a tempo manually by lightly tapping this button a few times at the desired tempo (Tap Tempo). When you're recording using the step sequencer, this button allows you to enter ties and rests.

TEMPO LED

This will blink at quarter note intervals of the current tempo.

21. EG1 (FILTER)/EG2 (AMP)**[ATTACK] knob**

Adjusts the attack time (rise time from the key on).

[DECAY] knob

Adjusts the decay time (the time from the end of the attack time until the sustain level is reached).

[SUSTAIN] knob

Adjusts the sustain level (the level at which the sound is held).

[RELEASE] knob

Adjusts the release time (the time it takes the sound to completely stop after you release the key).

22. PORTAMENTO**[TIME] knob**

Adjusts the way in which portamento is applied.

23. MOD SEQUENCER**[ON] button**

Switches the modulation sequencer on/off. When the button will be lit, the modulation sequencer will be on, and will be active during playback.

[REC] button

Records your knob movements in realtime into the modulation sequencer.

[SELECT] button

In addition to selecting the function of the 16 knobs above the 16 panel keys, this button also selects which Mod Sequencer is available for editing. If EDIT is selected, the sixteen knobs can be used to edit the program parameters labelled above each knob. (portamento, EG1, EG2, etc.). If MOD1, MOD2, or MOD3 is selected, the sixteen knobs will edit the data at the corresponding step of the modulation sequencer. When you're editing vocoder settings, the sixteen knobs adjust the level or pan of each synthesis filter (output band).

24. 16 KEYS

[SELECT] button

This button selects the function of the 16 panel keys [1]–[16]. The functions that can be selected will depend on the mode. The LED of the selected function will light. If you select PROGRAM, the sixteen keys can be used to select the programs in the current bank. In the Drum Play mode, the sixteen keys can be used to play drum instruments from the front panel. If you select TRIGGER, the sixteen keys will toggle individual arpeggiator notes on/off, or indicate the steps of the step sequencer.

If you select PAGE, the sixteen keys will select editing pages or global mode pages. If you select KEYBOARD, keys [1]–[16] will function as a simple polyphonic MIDI keyboard, and will play the sound of the current program.

 The simple MIDI keyboard function of keys [1]–[16] is available only if the dedicated keyboard is not connected.

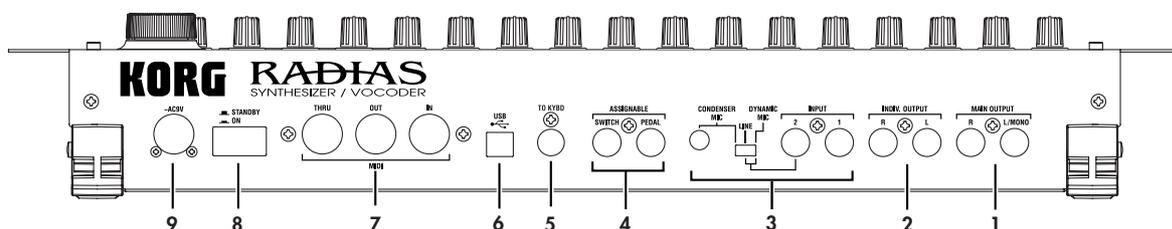
PROGRAM BANK/TRIGGER [UP], [DOWN] buttons

The function of these buttons will depend on the state of the [SELECT] button. If the [SELECT] button is set to PROGRAM, these buttons will select the program bank or drum kit (Drum Play mode). If the [SELECT] button is set to TRIGGER, these buttons will select which step of the arpeggiator or step sequencer will be edited. If the [SELECT] button is set to PAGE or KEYBOARD, these buttons have no function.

LENGTH LED 1...4

These indicate the length of the arpeggiator or step sequencer that is currently being played or edited. One length indicates sixteen steps.

Rear panel



1. MAIN OUTPUT

L/MONO, R jacks

These are the main stereo audio output jacks. Use these jacks to connect the RADIAS to your powered monitor speakers, stereo amp, mixer, or multitrack recorder, etc. If you're using a monaural connection, use the L/MONO jack.

2. INDIV. OUTPUT

L, R jacks

These are sub stereo audio output jacks.

note The output destination of each timbre can be set to either MAIN OUTPUT or INDIV. OUTPUT. The output destination of each timbre is specified in the Program Edit mode P03-2: TIMBRE – OUT tab page. (p.78 “P03-2: OUT (Timbre Output)”)

3. INPUT

INPUT 1 jack

You can connect a synthesizer or audio device to this jack. The input signal can be used as the waveform for oscillator 1. When using the RADIAS as a vocoder, this jack will be the input for the external carrier.

INPUT 2 jack

You can also connect a synthesizer or audio device to this jack. In conjunction with the INPUT 1 jack, the input signal can be used as the waveform for oscillator 1. When using the RADIAS as a vocoder, this jack will be the input for the external modulator.

[SOURCE SELECT] switch

Set this appropriately for the source that's connected to the INPUT 2 jack.

Use the DYNAMIC MIC setting if you're connecting a mic to the INPUT 2 jack.

Use the LINE setting if you're connecting a line-level device such as a synthesizer or audio device to the INPUT 2 jack.

Use the CONDENSER MIC setting if you're connecting the headset mic that came with the **RADIAS** to the CONDENSER MIC jack.

CONDENSER MIC jack

Connect the mic that came with the **RADIAS** to this jack.



Do not connect anything other than the included mic to the CONDENSER MIC jack.

4. ASSIGNABLE

PEDAL jack

Connect a foot pedal (expression pedal) to this jack.

SWITCH jack

Connect a foot switch to this jack.

5. TO KYBD (TO KEYBOARD) connector

Connect the **RADIAS'** dedicated keyboard to this connector.

6. USB connector

Use a USB cable to connect the **RADIAS** to your computer via this jack. This connection is used to transmit/receive MIDI data, and to exchange data with the included **RADIAS** Sound Editor software.

7. MIDI

MIDI IN connector

This connector receives MIDI messages. Connect it to the MIDI OUT connector or MIDI THRU connector of an external MIDI device.

MIDI OUT connector

This connector transmits MIDI messages. Connect it to the MIDI IN connector of an external MIDI device.

MIDI THRU connector

Received MIDI messages are passed on without change from this connector. Use this when you want to send the same stream of MIDI messages to more than one device.

8. ON/STANDBY

[ON/STANDBY] switch

Turns the power on/off.

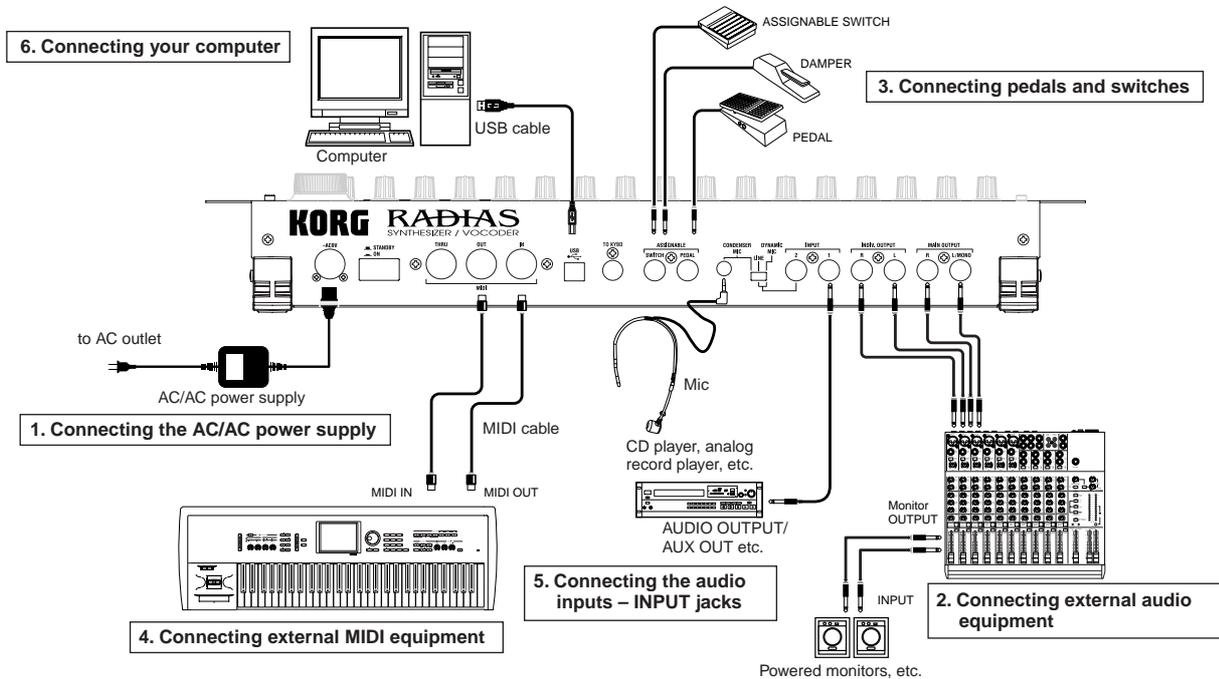
9. AC9V

AC9V connector

Connect the included AC/AC power supply here.

Setup

⚠ Make all your connections with the power off (on all units!). If you don't, you may damage your speaker system or damage your **RADIUS** and/or other equipment. Please use caution.



1. Connecting the AC/AC power supply

Connect the included AC/AC power supply to the **RADIUS**.
After you've connected the AC/AC power supply to the **RADIUS**, plug it into an AC outlet.

2. Connecting external audio equipment

Connect the **OUTPUT** jacks of the **RADIUS** (**MAIN OUTPUT**, **INDIV. OUTPUT**) to your audio equipment (e.g., mixer or powered monitors). If you're using a monaural connection, connect the **L/MONO** jack. To take full advantage of the **RADIUS**' superb sound, we recommend that you output in stereo.

3. Connecting pedals and switches

Jacks are provided so that you can connect both a foot switch and a foot pedal (both sold separately) to the **RADIUS** for additional control.

ASSIGNABLE PEDAL jack

By connecting a pedal such as the Korg EXP-2 or XVP-10 to this jack, you can send control messages such as breath control, volume, pan, expression, etc. while keeping your hands free for performing.

The function controlled by the pedal can be specified in the Global mode P08: PEDAL & SW page "A.Pedal." The factory default setting for the assignable pedal is Expression (Exp Pedal).

☞ p.119 "A.Pedal (Assignable Pedal)"

ASSIGNABLE SWITCH jack

This jack is used for a switch type of pedal such as the Korg PS-1 pedal switch or Korg DS-1H damper pedal. The foot switch can be used for various functions including switching programs, changing octaves, or turning portamento or the arpeggiator on/off. The pedal can be set to act as a momentary pedal, or as a toggle type of switch pedal. The function controlled by the switch can be specified in the Global mode P08: PEDAL & SW page "A.SwFunc." The factory default setting for the assignable switch is Damper.

Specify the pedal polarity in the Global mode P08: PEDAL & SW page.

☞ p.119 “P08-1: PEDAL/SW”

☞ p.119 “A.SwFunc (Assignable Switch Function)”

4. Connecting external MIDI equipment

The RADIUS can be used as a multitimbral MIDI sound module, or as a controller for other MIDI equipment.

Using the RADIUS as a sound module

If you are using the RADIUS as a sound module, use a MIDI cable to connect the RADIUS' MIDI IN connector to the MIDI OUT connector of your external MIDI device.

Using the RADIUS as a master keyboard

If you want to play an external MIDI device from the RADIUS' keyboard, use a MIDI cable to connect the RADIUS' MIDI OUT connector to the MIDI IN connector of your external MIDI device.

MIDI channel settings – Getting ready to play

If you're using the RADIUS as a sound module or as a master keyboard, you'll need to set the RADIUS' global MIDI channel to match the MIDI channel of the external MIDI device that you've connected. To set the RADIUS' global MIDI channel, use the Global mode P04: MIDI page “MIDI Ch” setting.

Here's the procedure for setting the MIDI channel.

1 Make sure that the RADIUS is correctly connected to your external MIDI device.

2 Press the [GLOBAL] button.

You will enter the Global mode. The display will show the Global mode P01: GLOBAL page.

3 Use the 16KEYS [SELECT] button to select PAGE (the PAGE LED will light), and then press the 16KEYS [4] button.

The display will show the P04: MIDI page.

4 Use the cursor buttons to select “MIDI Ch,” and use the [PROGRAM/VALUE] dial to specify the MIDI channel.

With the factory settings, the global MIDI channel is set to 1. Set this to match the MIDI channel of the external MIDI device you've connected.



5 Make sure that the “Routing” setting is set to USB+MIDI or MIDI.

“Routing” specifies whether MIDI data will be transmitted/received via the USB connector or the MIDI connectors. If this is set to USB, use the cursor buttons to select “Routing” and then use the [PROGRAM/VALUE] dial to choose USB+MIDI or MIDI.

With this setting, MIDI data will be transmitted/received via the MIDI connectors.

6 Press the [PROGRAM] button to return to the Program Play mode.

7 Set the MIDI channel of the connected external MIDI device to match the RADIUS' MIDI channel setting.

For details on how to do this, refer to the owner's manual of the external device.

⚠ Any Global parameters that you edit will revert to their prior state if you turn off the power without writing the changes into memory. If you want to keep your changes, be sure to perform the Write operation. For details on Write, refer to p.68 “5. Saving global parameters (Write).”

⚠ A RADIUS program consists of up to four timbres, and you can specify the MIDI channel individually for each timbre. If you're playing the RADIUS from an external MIDI device, only the timbre(s) set to the same channel as the global channel will produce sound.

5. Connecting the audio inputs – INPUT jacks

You can connect any audio source (synthesizer, CD player, etc.) to the INPUT jacks. Via this connection, the audio coming from this external source can be processed in the same way as the **RADIAS'** internal sound generator, or used as the carrier or modulator for the vocoder. You can also use the **RADIAS** as an effect processor for an external audio source.

For details on these settings, refer to p.26 “Processing an external audio source.”

6. Connecting your computer

The **RADIAS** provides both MIDI connectors and a USB connector.

Both can transmit and receive MIDI data in the same way. Use the type of connection that's appropriate for your setup. You'll need to set the Global mode P04: MIDI page “Routing” appropriately for the connection you use. (☞ p.116 “Routing”)

note Data transfer is faster via the USB connection, so we recommend that you use the USB connector.

 If you use MIDI cables to connect the **RADIAS** to your computer, you'll need to purchase a separate MIDI interface of the appropriate type for your computer. For details on connecting the MIDI interface to your computer and how to set the MIDI ports, refer to the owner's manual for your MIDI interface.

 If you use an external MIDI sequencer or a sequencer program on the computer you've connected, playing the **RADIAS'** keyboard will cause notes to be sounded in duplicate if your sequencer's Echo Back setting is turned on. Go to the **RADIAS'** Global mode P04: MIDI page and turn “Local Ctrl” off (☞ p.116 “Local Control”) so that the internal connection is disconnected. However, be aware that if Local Control is off, there will be no sound if you play the **RADIAS'** keyboard when using the **RADIAS** by itself.

Connections via the MIDI connectors

Use MIDI cables and a MIDI interface to connect the **RADIAS** to your computer.

Connections via the USB connector

Use a USB cable to connect the **RADIAS** to your computer.

For details on the appropriate settings to make on the **RADIAS** so that you can use the **RADIAS** Sound Editor software, refer to p.71 “Using the included **RADIAS** Sound Editor software.” For details on installing the software, connecting and adjust the **RADIAS'** settings, and using the software, refer to “USB-MIDI driver installation and settings” and the **RADIAS** Sound Editor software owner's manual on the CD-ROM included with your **RADIAS**.

Connecting the **RADIAS'** dedicated keyboard RD-KB

For details on how to connect the keyboard, refer to the owner's manual included with the keyboard RD-KB.

Quick Start

The **RADIAS** contains demo songs, numerous programs, and a wide range of advanced features and functions. For a quick introduction to all this fun, follow along with this Quick Start guide.

Turning on the power and adjusting the volume

By now, you've used the preceding pages to hook up your **RADIAS** correctly, and you're ready to begin exploring.

Turning the power on/off

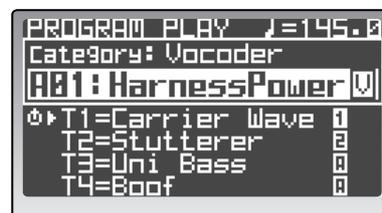
⚡ Be sure all the other equipment connected to the **RADIAS** is off before turning the **RADIAS** on.

1 Press the rear panel [ON/STANDBY] switch to turn on the power.

The start-up screen will appear in the display, and then the display will show the Program Play mode screen. Each time you turn the power on, the **RADIAS** will be in the Program Play mode.

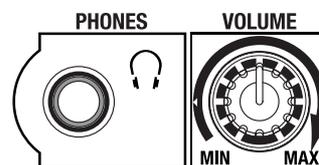
2 Turn on the other equipment that's connected to the **RADIAS**.

⚡ When you're ready to turn the power off, first turn off the power of the connected equipment, and then press the [ON/STANDBY] switch on the **RADIAS'** rear panel to turn off the power.



Adjusting the volume

Begin with the [VOLUME] knob all the way down. Play a few notes on the keyboard and gradually raise the volume to an appropriate level using the [VOLUME] knob. This knob also adjusts the headphone volume.



Demo playback

The **RADIAS** contains demo songs that take advantage of its rich sounds and expressive potential.

Playing the demo songs

1 While holding down the [DRUM] button, press the [GLOBAL] button for approximately one second. The demo songs will play consecutively, starting with the first song. During playback, the display will show the song name.

2 You can press the cursor buttons to switch demo songs during playback.

3 Press the [EXIT] button to stop demo playback and return to the Program Play mode.



All Demo Songs: © 2005 KORG Inc. — all rights reserved.

Playing programs – Program Play mode

The RADIUS contains a total of 256 programs, organized into sixteen banks (A–P) with sixteen programs in each bank. Here’s how to select and play different programs.

Entering the Program Play mode

note The RADIUS defaults to the Program Play mode each time the power is turned on.

1 Press the [PROGRAM] button.

When the RADIUS is in the Program Play mode, the [PROGRAM] button will be lit, and the top line of the display will read PROGRAM PLAY.

The rest of the display will show various information such as the tempo, program category, bank, number, program name, and the names of the timbres used by the program.



Below the program name is a list of the timbre names that are active (turned on) in the current program. Timbres that are off are shown as “-----”.

A symbol at the left of a timbre name indicates the timbre that can be edited by the front panel knobs and buttons. To specify the timbre that you want to edit from the front panel, use the Program Edit mode P02–1: COMMON – PROG tab page “PanelEdit” setting (see p.75 “PanelEdit”).

If the arpeggiator is assigned to a timbre, an “” symbol is shown at the right of the timbre name. If a step sequencer is assigned to a timbre, a “” symbol (step sequencer 1) or “” symbol (step sequencer 2) is shown at the right of the timbre name.

If a drum kit is assigned to a timbre, a “” symbol is shown at the right of the timbre name. In the illustration at the above right, step sequencer 1 is assigned to timbre 1 and timbre 2, the arpeggiator is assigned to timbre 3, and a drum kit and step sequencer 2 are assigned to timbre 4.

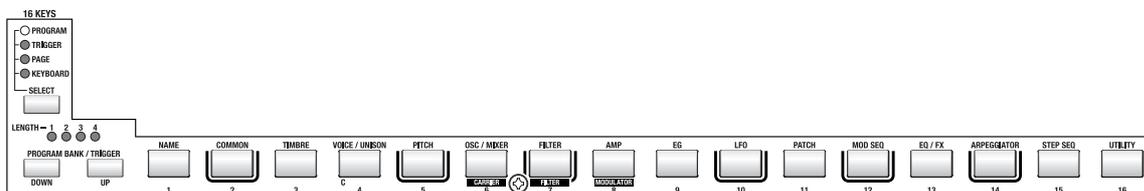
Selecting and playing a program

You can select a program in a variety of ways.

Go ahead and get familiar with selecting and listening to the wide variety of programs provided by the RADIUS.

Using the 16KEYS PROGRAM BANK/TRIGGER [UP]/[DOWN] buttons and [1]–[16] keys

This method lets you quickly select a specific program.



1 Use the 16KEYS [SELECT] button to choose PROGRAM (the PROGRAM LED will light).

2 Use the PROGRAM BANK/TRIGGER [UP] or [DOWN] button to select a bank.

There are 16 banks, A–P. Use these buttons to choose a bank.

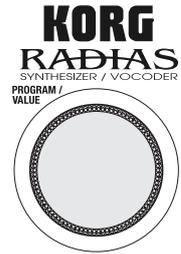
3 Use the 16KEYS [1]–[16] to select a program number.

Program numbers 1–16 in each bank correspond to 16KEYS [1]–[16]. This way, you can directly select the desired program from within the bank.

Using the [PROGRAM/VALUE] dial

You can use the [PROGRAM/VALUE] dial to select programs.

Turn the dial toward the right to step through the programs in ascending order, or toward the left in descending order.



Selecting programs by category

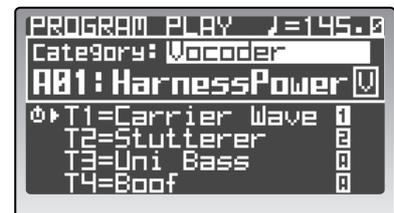
Each program can be assigned to a category. You can select programs by from within a category. This is convenient when you want to find a program with the same type of sound.

1 Use the cursor [▲/◀] button to move the cursor to the category indication in the display.

2 Use the [PROGRAM/VALUE] dial to select the desired category.

The factory-set categories are listed below.

- | | |
|-----------------|-------------------|
| 1: Bass | 9: Bell/Decay |
| 2: Lead | 10: Acoustic |
| 3: Synth Hard | 11: S.E./Hit/Drum |
| 4: Synth Soft | 12: Arp/Seq |
| 5: Motion | 13: Split |
| 6: Strings/Pad | 14: Audio In |
| 7: Keyboard | 15: Vocoder |
| 8: Guitar/Pluck | 16: User |

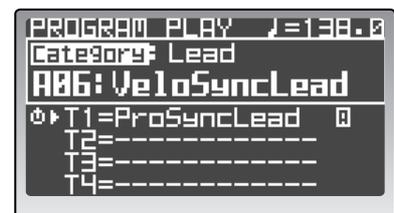


3 Use the cursor [▲/◀] button to move the cursor to the word "Category."

4 Use the [PROGRAM/VALUE] dial to select a program.

You'll be able to select only programs that are assigned to that category. With the factory settings, sound programs of same variety are assigned to each category.

For details on how to assign a category to a program, refer to p.36 "Assigning a category."

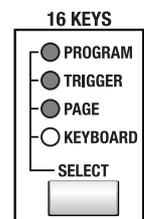


Playing the RADIAS from the 16KEYS [1]–[16] keys

You can use the 16KEYS [1]–[16] as a keyboard, to play the RADIAS from the front panel.

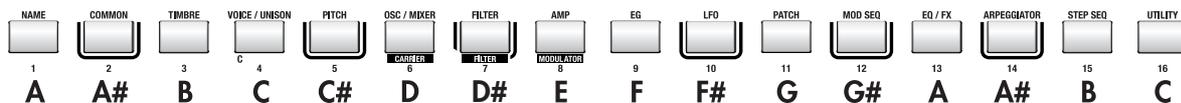
⚡ If the dedicated keyboard is connected, you can't use the 16KEYS [1]–[16] keys to play the sounds.

1 Use the 16KEYS [SELECT] button to choose KEYBOARD (the KEYBOARD LED will light).



2 Play the RADIAS using the 16KEYS [1]–[16] keys.

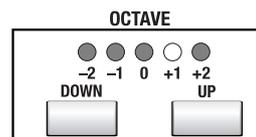
The current program will play. The 16KEYS [1]–[16] keys are assigned to the following pitches.



Changing the octave

You can change the range of the 16KEYS [1]–[16] keys by octaves, with a maximum range of a maximum of two octaves up or two octaves down. The LED indicator will show the currently selected octave.

Use the OCTAVE [UP] button or [DOWN] button to shift the pitch in one-octave steps.



Arpeggiator

The arpeggiator detects the notes being played on the keyboard, and automatically plays these notes one at a time in a variety of arpeggiated styles (i.e., arpeggiates the notes of the chord).

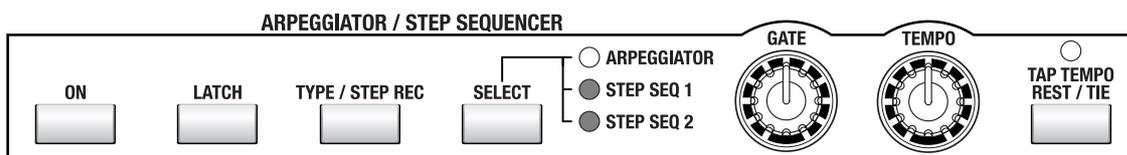


Hold down a chord on the keyboard, and it will sound as shown at right (Arpeggio type: Up)

On the RADIAS, you can select one of six arpeggio types, and also specify the duration and spacing of each note in the arpeggio.

Assigning the arpeggiator to a sound

Here's how to assign the arpeggiator to a specific timbre in a program.



- 1 Select a program where the arpeggiator isn't already assigned to a timbre. Try using a simple bell-type sound with a short sustain.
- 2 Use the TIMBRE SELECT [1]–[4] buttons to choose which timbre(s) will be played by the arpeggiator. The button of the selected timbre will blink.
- 3 Use the ARPEGGIATOR/STEP SEQUENCER [SELECT] button to select ARPEGGIATOR. When the arpeggiator is assigned to a timbre, the "A" indication will appear at the right of the timbre name.
- 4 Use the ARPEGGIATOR/STEP SEQUENCER [ON] button to turn the arpeggiator on. The button will light when the arpeggiator is on.



note If a step sequencer is assigned to another timbre, the step sequencer will also be turned on at this time.

5 Hold down a chord on the keyboard.

You will hear the arpeggio pattern.

6 Turn the Latch function on.

Press the [LATCH] button. When Latch is on, the latch button will light.

With the Latch on, the arpeggio will continue playing even after you remove your hand from the keyboard. With the Latch off, the arpeggio will stop playing when you remove your hand from the keyboard. Pressing the [LATCH] button will turn the Latch feature on and off.

7 Use the [TYPE/STEP REC] button to select the arpeggio type.

The display will show the arpeggio type.

The arpeggio type will change each time you press the button.

Press the PAGE [+][-] button or [EXIT/NO] button to return to the previous screen.

**8 Use the [TEMPO] knob or the [TAP TEMPO/REST-TIE] button to adjust the tempo.**

Turn the [TEMPO] knob toward the right to speed up the tempo, or toward the left to slow down the tempo.

You can set the tempo manually simply by tapping the [TAP TEMPO/REST-TIE] button several times at regular intervals.

The tempo you specify is shown in the upper right of the display. The TEMPO LED will blink at quarter-note intervals of the specified tempo.

9 Turn the [GATE] knob to adjust the duration of the notes.

Turning the knob toward the right will lengthen the duration of the notes, and turning it toward the left will shorten the duration.

Other settings for the arpeggiator

The arpeggiator also allows you to set the Octave, Key Sync, Scan Zone, Resolution, Swing, and whether or not each step will be heard. For details on these parameters, refer to p.47 "Editing the arpeggiator," and p.96 "4. ARPEGGIATOR."

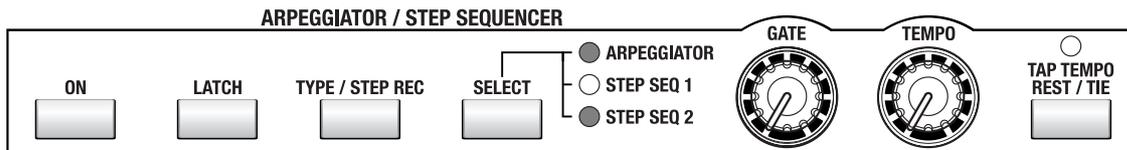
Step Sequencer

You can use the two step sequencers to record and play back a phrase or pattern.

This section explains how to play a step sequence and make some simple edits. For details on recording and editing, refer to p.50 “Step sequencer recording and editing.”

Playing a program using the step sequencer

Some of the factory programs already contain sequence data. For this example, we can select and play one of these programs.



- 1 Select a program from the “Arp/Seq” category that has a step sequence assigned to one of the timbres. If a step sequencer is assigned, a “1” or “2” will be displayed at the right of the timbre name.

➤ p.21 “Selecting programs by category”



- 2 If the ARPEGGIATOR/STEP SEQUENCER [ON] button is not lit, press the [ON] button to make it light. The button will light when turned on.

note If the arpeggiator is assigned to another timbre, the arpeggiator will also be switched on/off at this time.

- 3 Press the TIMBRE SELECT [1]–[4] button of the timbre being played by the step sequencer. Select a timbre which has “1” or “2” displayed to the right of the timbre name. The selected timbre button will blink.

- 4 Hold down a key on the keyboard. The step sequencer will begin playing.

! If the step sequencer does not begin playing, try playing other notes of the keyboard. Some programs may limit the range of notes that triggers the step sequencer.

note If you are playing the RADIUS on its own without connecting its dedicated keyboard, you can set the 16KEYS [SELECT] button to KEYBOARD, and use the 16KEYS [1]–[16] to make the step sequencer play.

Other settings for the step sequencers

In addition to the settings mentioned above, you can link step sequencers 1 and 2, adjust the length of the steps, specify the “Run Mode,” transposition, scan zone, resolution, swing, the gate time for each step, velocity and the note numbers that will be played. For details on these parameters, refer to p.50 “Step sequencer recording and editing,” and p.99 “5. Step Sequencer.”

Modulation Sequencer

The modulation sequencer applies time-varying change to sound parameters in a way similar to an analog sequencer. When the sound is played, it will change over time according to the values stored for each of the sixteen steps. Since three modulation sequencers are provided for each timbre, this can be used to create very complex sounds.

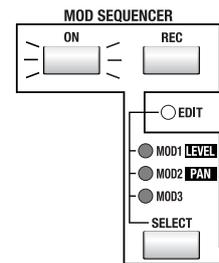
Playing a program that uses the modulation sequencer

All factory programs already contain modulation sequencer data. we can select and play one of these programs.

1 Select a program from the “Motion” category that uses modulation sequencing.

If modulation sequencing is being used, the MOD SEQUENCER [ON] button will be lit. Keep in mind, this button will only reflect the Mod Sequencer status if the selected timbre; you may find it necessary to use the TIMBRE SELECT [1]-[4] buttons to locate the timbre using Mod Sequencing.

☞ p.21 “Selecting programs by category”



⚡ In some programs, the modulation sequencer, the arpeggiator, and both step sequencers may be turned on. Therefore, you may wish to mute the other timbres by holding down the [EXIT/NO] button and pressing their respective TIMBRE SELECT [1]-[4] button.

2 Play the keyboard.

The sound of the program will change over time as the modulation sequence runs.



3 Use the [TEMPO] knob or [TAP TEMPO REST/TIE] button to adjust the speed at which the sound changes.

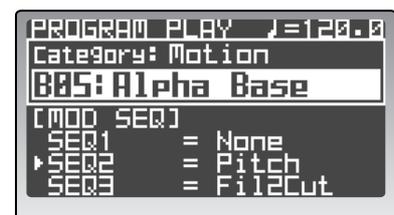
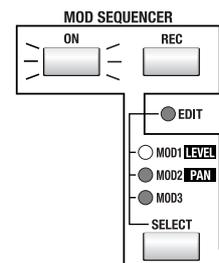
The speed of the changes produced by the modulation sequencer can be adjusted in the same way as the arpeggiator or step sequencers.

☞ p.22 “Assigning the arpeggiator to a sound”

4 Use the MOD SEQUENCER [SELECT] button to select a modulation sequencer (MOD1–MOD3).

The LED of the selected sequence will light, and the assigned parameter will appear in the display.

note You can't change the parameter that's assigned to the modulation sequencer in the Program Play mode. To assign the parameter, use the Program Edit mode P12: MOD SEQ – SEQ1–SEQ3 tab pages (☞ p.92 “P12 MOD SEQ (Modulation Sequencer)”).



Audio In

You can use the **RADIUS'** filters, amp, and effects to process an external audio source in the same way as an internal oscillator waveform. The following section describes how to connect a CD player or an MD player and modify the incoming audio.

Processing an external audio source

Turn off the power of both devices before you connect any external device. You should also turn the **RADIUS'** AUDIO IN [1/INST] and [2/VOICE] knobs to the 0 position.

1 Connect the output jacks of your external audio device to the **RADIUS'** INPUT jacks.

If you're connecting in stereo, connect to both the INPUT 1 and INPUT 2 jacks.

☞ p.18 "5. Connecting the audio inputs – INPUT jacks"

⚠ The INPUT jacks are monaural phone plugs. If necessary, use the appropriate conversion adaptor for the cables you're using.

2 Turn on the power of both devices.

3 Select a program in the Program Play mode.

We recommend that you select an initialized program (program name is "Init Program") from the P bank.

4 Use the **OSCILLATOR 1 [WAVE]** button to select **AUDIO IN**.

5 Input an audio source from your external audio device, and use the **AUDIO IN [1/INST]** or **[2/VOICE]** knobs to adjust the input level.

Adjust the input level so that the **AUDIO IN** LEDs do not light red.

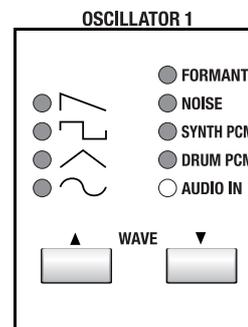
6 Play the keyboard.

The audio source will be processed using the current settings, and will be sent to the outputs as you continue playing.

7 Use the knobs and buttons of the front panel to process the audio source that is being input.

For details on how to set the various parameters, refer to p.37 "Program parameter editing."

⚠ Pitch-related parameters have no effect on an audio source from the INPUT jacks.



Vocoder

Here's how to select one of the **RADIAS'** vocoder programs and try out some of the vocoder function.

- 🔊 On the front panel, functions labeled in white characters on a dark background are vocoder parameters.

Playing a vocoder program

Before you connect a mic, set the AUDIO IN [2/VOICE] knob to the 0 position.

- 1 **Connect the mic that came with your RADIAS to the CONDENSER MIC jack.**

☞ p.18 "5. Connecting the audio inputs – INPUT jacks"

- 2 **Set the rear panel [SOURCE SELECT] switch to CONDENSER MIC.**

☞ p.14 "Rear panel"

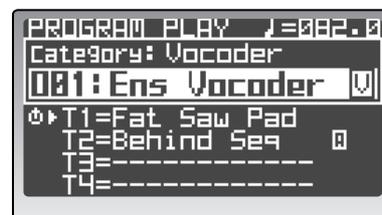
- 3 **Turn on the power of the RADIAS.**

- 4 **Select a program from the vocoder category.**

The TIMBRE SELECT [VOCODER] button will be lit for programs that use the vocoder. In addition, there will be a "V" symbol at the right of the program name shown in the display.

Some of the factory programs do not use an external input as the modulator source for the vocoder. In this example we're trying to use the vocoder with the connected mic, so select a program that uses the external input. How can you tell? Choose a vocoder program that does not produce sound when you play the keyboard (without talking into the microphone).

☞ p.21 "Selecting programs by category"



- 5 **Press the [VOCODER] button so that the front panel knobs and buttons will control the vocoder.**

- 6 **Speak or sing into the mic, and use the AUDIO IN 2 knob to adjust the input level.**

Adjust the level so that the LED above the AUDIO IN 2 knob does not light red.

You can turn up the AMP [DIRECT LEVEL] knob to hear the direct sound from the microphone. This lets you make adjustments while listening to the incoming signal.

- 7 **While you speak or sing into the mic, play the keyboard.**

The sound processed by the vocoder effect will be output.

If you have difficulty hearing the result, try adjusting the MIXER [SRC1] knob.

note If you are playing the **RADIAS** on its own without connecting its dedicated keyboard, you can set the 16KEYS [SELECT] button to KEYBOARD, and use the 16KEYS [1]–[16] to play the sound.

Playing a Drum Kit – Drum Play mode

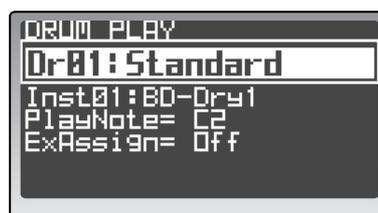
The **RADIAS** provides thirty-two drum kits, each consisting of sixteen drum instruments. You can assign these instruments to note numbers and play them from the keyboard, and one timbre in each program can be assigned a drum kit.

In the Drum Play mode you can play drum kits directly from the keyboard. Here's how to select and play a drum kit.

1 Press the [DRUM] button.

The display will indicate that you're in the Drum Play mode.

From top to bottom, the display shows the number and name of the drum kit, and the name, note number, and group of the selected drum instrument.



2 Use the [PROGRAM/VALUE] dial to select a drum kit.

Turn the dial to select one of the thirty-two drum kits.

3 Play the keyboard.

The drum instrument assigned to each note will sound. In the factory-set drum kits, drum instruments are assigned to the C2–D#3 keys.

The display will indicate the name, note number, and group of the drum instrument you played. You can also play the drum kit using 16KEYS [1]–[16].

note In the Drum Play/Edit modes, each drum instrument will sound on the global MIDI channel.

note In the Drum Play/Edit modes, the operation of the effects, arpeggiator, and step sequencer will be according to the timbre that was assigned to a drum kit in the program that was selected when you hit the [DRUM] button to enter the Drum Play mode. If no drum kit was assigned to the program, the settings of initial program will be used. In this case, you will only be able to change the on/off switch settings for the assigned effect or the arpeggiator.

Editing

A program consists of a large number of parameters; the names and synth parameters of all four timbres, the program common settings such as program name, vocoder settings etc. If you want to create a program “from scratch,” you’ll need to understand what each of these parameters does. An easier way to get started is to start by choosing one of the factory programs or timbre templates and editing the parameters to understand what they do.

Basic editing procedure

This section explains the basic operations for editing and setting parameters.

You can edit the sound of a program in either the Program Play mode or in the Program Edit mode.

If a drum kit is assigned to a program, you can edit those drum sounds in the Drum Play mode or in the Drum Edit mode.

Editing in the Program Play mode

In the Program Play mode you can select and play programs, and you can also use the front panel knobs and buttons to edit the sound of the program as you play, for example by raising the filter cutoff frequency or by making the attack slightly slower.

Selecting the timbre to edit

If the program consists of more than one timbre, here’s how to select the timbre to be edited.

- 1 Use the TIMBRE SELECT [1]–[4] buttons to select the timbre you want to edit.

The button for the selected timbre will blink. A **▶** symbol is shown in front of the timbre name in the display. The front panel knobs and buttons and the timbre parameters shown in the display will apply to the timbre that is selected.



- When you switch programs (or perform a Program Dump), the lowest-numbered active timbre is selected.

- 2 Operate the button or knob for the parameter you want to edit.

Each time you press the button, the function assigned to that button will switch between on and off; or pressing the button will advance through a list of available values for that parameter. The button or LEDs will light to indicate the current status.

The parameter for a knob can be adjusted just like an analog control, as shown by the markings around the knob.

In the case of both knobs and buttons, the ORIGINAL VALUE LED will light when the current setting matches the value stored in the program.

Editing in the Program Edit mode

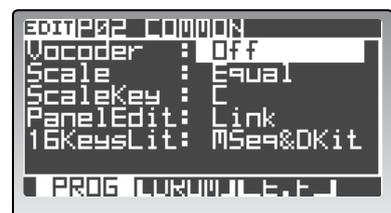
If you want to edit a parameter that is not assigned to a knob or button, or if you want to view the parameter values in the display while you edit them, you’ll need to enter the Program Edit mode.

Entering the Program Edit mode

- 1 From the Program Play mode, press the [EDIT/YES] button.

This will open up the Program Edit mode.

From the top down, the display shows the page number and page name, and the parameter names and values.

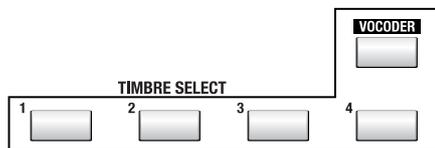


Selecting the timbre to edit

If the program consists of more than one timbre, here's how to select the timbre you want to edit.

- 2 Use the **TIMBRE SELECT [1]–[4]** buttons to select the timbre you want to edit.

The button for the selected timbre will blink. The front panel knobs and buttons and the timbre parameters shown in the display will apply to the timbre that is selected.



note If you want to edit the vocoder, press the [VOCODER] button.

! You can't select a timbre that's currently off (a timbre whose button is unlit). To turn on a timbre that's currently turned off, hold down the [EXIT/NO] button while selecting the timbre using the TIMBRE SELECT [1]–[4] buttons. This can also be used to turn any timbre off.

! Depending on the Program Edit mode P02–1: COMMON – PROG tab page “PanelEdt” (panel edit) setting, the timbre you select here may not necessarily match the front panel knobs and buttons (see p.75 “PanelEdit”).

Selecting pages and tab pages

The Program Edit mode consists of multiple pages. To select a page you can use the PAGE [+][–] buttons or the 16KEYS [1]–[16].

Press the PAGE [+] or [–] button.

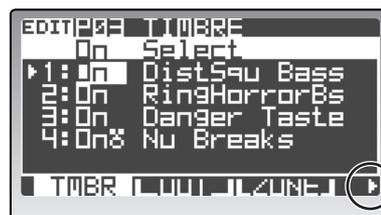
You will step through the pages or tab pages one at a time.

If a page contains more than one tab page, a **!** symbol is shown in the lower right of the page. Press the PAGE [+] button to step through the tab pages.

Use the 16KEYS [SELECT] button to choose PAGE, and press a 16KEYS [1]–[16] key.

This method lets you move directly to the page containing the parameter you want to edit.

The following table shows how the 16KEYS [1]–[16] keys correspond to the various pages. If a page contains more than one tab page, you can step through the tab pages by repeatedly pressing the corresponding [1]–[16] key.



[1]–[16] key	Page	Tab pages					
[1]	P01: NAME	PROG	TIMBRE				
[2]	P02: COMMON	PROG	DRUM	E.F			
[3]	P03: TIMBRE	TMBR	OUT	ZONE	MIDI	CC-A	CC-B
[4]	P04: VOICE	VOICE	UNISON				
[5]	P05: PITCH						
[6]	P06: OSC/MIXER	OSC1	OSC2	MIXER			
[7]	P07: FILTER	FILTER1	FILTER2				
[8]	P08: AMP						
[9]	P09: EG	EG1	EG2	EG3			
[10]	P10: LFO	LFO1	LFO2				
[11]	P11: PATCH	P1	P2	P3	P4	P5	P6
[12]	P12: MOD SEQ	COMN	SEQ1	SEQ2	SEQ3		
[13]	P13: EQ/FX	EQ	IFX1	IFX2	MTX		
[14]	P14: ARPEGGIATOR	COMN	TRIG	STEP			
[15]	P15: STEP SEQ1/2	COMN	TRIG	STEP	COMN	TRIG	STEP
[16]	P16: UTILITY	PROG	TMBR	MOD	FX	ARP	

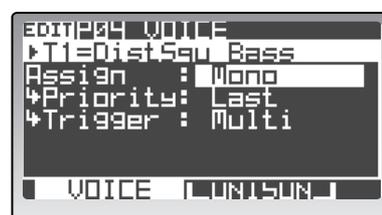
Selecting and editing a parameter

- 1 Use the cursor buttons to select the parameter you want to edit.

When you press one of the cursor button, the cursor will move to the next parameter, and it will be highlighted in the display.

If there are numerous parameters, a ▼ symbol is shown at the right edge of the page, indicating that you can access additional parameters below those shown in the screen by scrolling. As you press the cursor [▼/▶] button to move the cursor downward, the additional parameters will appear. When the cursor no longer moves when you press the cursor [▼/▶] button, you have reached the last parameter of that page.

In some cases, the setting of one parameter may affect the number or content of other parameters in the page. A ↗ symbol is shown in front of parameters that are affected by another parameter in this way. For example in the P04-1: VOICE – VOICE tab page if you change “Assign” from Poly to Mono, the additional parameters “Priority” and “Trigger” will appear.



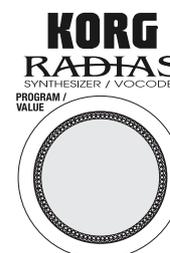
Changing a value

- 1 Use the front panel knobs, buttons, or the [PROGRAM/VALUE] dial to change a value.

In generally, you will use the front panel knobs and buttons. You can use the [PROGRAM/VALUE] dial if there is no knob or button for that parameter, or if you want to make fine adjustments to the value. Turning the dial will increment or decrement the value in steps of one.

You will also use the [PROGRAM/VALUE] dial to specify a program when writing a program, and when entering a name for a program.

- note** If the Global mode P02: MEMORY page “PageJump” setting is On, operating a knob or button in the Program Edit mode will automatically cause the display for that parameter to appear. With the factory settings this is turned On (see p.115 “PageJump”).



Returning to the Program Play mode

Press the [EXIT/NO] button or the [PROGRAM] button.
You will return to the Program Play mode.

Compare function

While editing a program, you can compare the edits you have made to the original program or timbre.

1 Press the [COMPARE] button.

The display will indicate “Compare.”
Play the keyboard to hear the sound as it was before you began editing it.

-  You can't operate the knobs or buttons in the “compare” state.

2 Press the [EXIT/NO] button.

The display will return to its previous state. When you play the keyboard you will once again hear the edits you have already made, and you can continue editing.



Saving an edited program

When editing a sound, you need to save the changes you have made if you want to keep them. If you don't save your edits, they will be lost the next time you select another program, load a template, or turn the **RA-DIAS** off. If you want to keep your changes, you must use the Write operation.

-  In order to write data, the Global mode P02: MEMORY page “Protect” setting must be Off. From the factory, this setting is On (p.115 “Protect”).

Programs can be written while in the Program Play mode or the Program Edit mode, drum kits or drum instruments can be written in the Drum Play mode or the Drum Edit mode, and global parameters can be written in the Global mode.

1 In the Program Play mode or the Program Edit mode, press the [WRITE] button.

The “Write dialogue” dialog box will appear.

2 Specify the write-destination program number in the “To” field.

3 Press the [WRITE] button or the [EDIT/YES] button to execute the Write operation.

The data will be written, and you will return to the mode in which you were.

If you decide to cancel the Write operation, press the [EXIT/NO] button.

-  Never turn off the power while data is being written. The data may be damaged if you do so.

-  You can use the cursor [**▲**/**◀**] button to select “Write,” and then choose one of the following three types of content to write.

Program: Save the program.

Formant: Save the formant motion data.

Prg&Frmnt: Save both the program and the formant motion data.

If there is no newly recorded formant option data (p.58 “Recording formant motion data”), the “Write” field will show Program. If there is newly recorded formant motion data, “Write” will show Prg&Frmnt.



Loading other timbre sounds/The Template function

The Template function can be a real convenience when you're creating a program sound or an effect. You can load a program template that is close to the type of sound you have in mind, and then edit it to create a program much more easily than working from scratch. You can also store sounds and effect settings you created as template data for later use.

You can load templates while you're in the following pages.

Mode	Page	Tab page	Type of template
Program Edit mode	P03: TIMBRE	TMBR	Timbre setting template
	P13: EQ/FX	IFX1, IFX2, MFX	Effect setting template
Drum Edit mode	P02: COMMON	DRUM MAP	Drum instrument setting template

note The **RADIAS** makes no distinction between timbre templates and drum instrument templates, and they are held in the same memory area, you can exchange data between them.

! When you load a template, edited data that has not been written will be lost. If you want to keep the data you're editing, you must first write the data before you load the template.

Loading other timbre settings or templates

Here's how to load other timbre settings or insert effect templates.

Loading other timbre sounds

- 1 Go to the Program Edit mode P03-1: TIMBRE – TMBR tab page.
- 2 Use the cursor [**▲**/**◀**] button to select the timbre slot or location where the timbre will be loaded.
- 3 Use the [**PROGRAM/VALUE**] dial to select a timbre.



! You can't select a template for a timbre that is turned off.

In addition to loading one of the timbre, you can also load any of the active timbres from any of the programs stored in the **RADIAS**. As you turn the [**PROGRAM/VALUE**] dial to the right, you will first see the active timbres starting with the currently selected program, and then the templates ("Tmp001:Init P", etc.). When you stop turning the dial, the timbre or template shown in the display will be loaded to that location.

note In the Drum Edit mode (Drum Edit mode P02-1: COMMON, DRUM MAP page), use the 16KEYS [1]–[16] keys to select the instrument into which you want to load a template, and then use the cursor buttons to move the cursor to "Load:" in the top line. (See p.61 "Loading and editing an another drum instrument or drum instrument template")

note In the Drum Edit mode, first the drum kit instruments and then the templates are displayed.

Loading an insert effect template

- 1 Go to the Program Edit mode P13-2: EQ/FX – IFX1 tab page.
 - 2 Use the cursor [**▲**/**◀**] button to move the cursor to "Load:".
 - 3 Use the [**PROGRAM/VALUE**] dial to select a template.
- The template you select will be loaded, and the parameters of the insert effect will be rewritten by the settings of the template.

Making a template

Here's how to make a timbre template. Templates you make can be loaded in the same way as the factory templates. You will use the P16: UTILITY page to make templates. (☞ p.107 "P16 UTILITY," p.113 "P16 UTILITY")

- 1 Select a program that uses a timbre you want to store as a template, and enter the Program Edit mode.
- 2 Use the TIMBRE SELECT [1]–[4] buttons to select the timbre that you want to store as a template.
- 3 Go to the P16-2: UTILITY – TMBR tab page.
- 4 In "Edit," choose "MakeTemplate."
- 5 In "Dest," specify the destination number in which you want to store the template.
- 6 In "Name," specify a name for your new template.
To enter a name for the template, use the cursor buttons to move the cursor and use the [PROGRAM/VALUE] dial to specify each character.
☞ p.35 "How to assign a name"
- 7 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
The "Sure?" field will indicate Complete. The template has been stored.



Assigning a name

The RADIUS lets you assign names to the following types of data.

-  If you fail to execute the Write operation after you've entered a name, the name will revert to its prior state. For details on writing, refer to p.32 "Saving an edited program."
- Programs**
 The program name is displayed in the Program Play mode.
 To enter a program name, use the Program Edit mode's P01: NAME page (☞ p.74 "P01-1: PROG (Program Name)").
- Timbres**
 Timbre names are displayed along with the program name in the Program Play mode.
 To enter a timbre name, use the Program Edit mode's P01: NAME page (☞ p.74 "P01-2: TIMBRE (Timbre Name)").
-  Because the same drum kit may be used in many programs, you can't edit the timbre name if you've assigned a drum kit. Drum kit names are created in the Drum Edit mode (as described below).
- Categories**
 Category names are displayed along with program names in the Program Play mode.
 To enter a category name, use the Global mode's P10: CATEGORY NAME page (☞ p.120 "P10-1: CATEGORY NAME").
- Drum kits**
 Drum kit names are displayed in the Drum Play mode.
 In the Drum Play mode you must first select the drum kit whose name you want to enter.
 To enter a drum kit name, use the Drum Edit mode's P01: NAME page (☞ p.111 "P01-1: KIT (Drumkit Name)").
- Drum instruments**
 In the Drum Play mode you must first select the drum instrument whose name you want to enter.

To enter a drum instrument name, use the Drum Edit mode's P01: NAME page (see p.111 "P01-2: INST (Drum Instrument Name)").

- **Templates**

Template names are displayed when you are loading templates.

You can enter a template name when creating a template in the P16: UTILITY page of the mode in which you're creating the template (see p.107 "P16 UTILITY," p.113 "P16 UTILITY").

How to assign a name

Here we will use the example of assigning a name to a program. You can use the same procedure to assign names other than program names. Before you proceed, use the Program Play mode to select the program whose name you want to edit.

Using the cursor buttons and the [PROGRAM/VALUE] dial

- 1 Go to the Program Edit mode P01-1: NAME – PROG tab page.
- 2 Use the cursor buttons to move the cursor to the character you want to change.
- 3 Use the [PROGRAM/VALUE] dial to choose the desired character.
- 4 Repeat steps 2–3 to edit the name of the program.
You can specify a program name of up to twelve characters.



Using the [EDIT/YES] button and the sixteen knobs

With the P01-1: NAME – PROG tab page displayed, you can use the front panel [EDIT/YES] button and the sixteen knobs to edit the program name as follows.

Hold down the [EDIT/YES] button and turn knobs 1–12 (PORTAMENTO [TIME] – LFO2 [FREQ]) to change the first through twelfth character of the name.

Hold down the [EDIT/YES] button and turn knob 13 (EQ [LO]) to choose uppercase alphabetical characters for the selected character.

Hold down the [EDIT/YES] button and turn knob 14 (INSERT FX [EDIT1]) to choose lowercase alphabetical characters for the selected character.

Hold down the [EDIT/YES] button and turn knob 15 (INSERT FX [EDIT2]) to select numerals for the selected character.

Hold down the [EDIT/YES] button and turn knob 16 (MASTER FX [EDIT]) to select symbols (including a space) for the selected character.

Deleting a character

- 1 Use the cursor buttons to move to the character you want to delete.
- 2 Hold down the [EDIT/YES] button and press the cursor [▲/◀] button.
The selected character will be deleted.

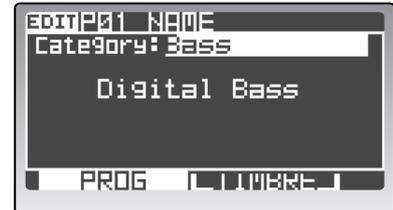
Inserting a character

- 1 Use the cursor buttons to move to the location at which you want to inset a character.
- 2 Hold down the [EDIT/YES] button and press the cursor [▼/▶] button.
A character will be inserted at the selected location. The inserted character will be the character that was most recently deleted. The first time you insert, this will be a space.

Assigning a category

When you specify a program name, you can also assign that program to a category. If you assign an appropriate category to each program, you'll be able to find programs more efficiently (see p.21 "Selecting programs by category").

- 1** Go to the Program Edit mode P01-1: NAME – PROG tab page.
- 2** Use the cursor buttons to move the cursor to "Category."
- 3** Use the [PROGRAM/VALUE] dial to select the category you want to assign.



Program parameter editing

Synth parameter editing

This section explains how to edit the synthesis parameters that make up an individual timbre. The following section assumes that you have started by pressing the front panel TIMBRE SELECT [1] button to select timbre 1 as the object of editing, and that you are in the Program Edit mode.

- ⚡ You must press the [WRITE] button to write the program if you want to save the results of your editing. If you don't Write your changes, they will be lost.

Changing the voice assign mode

Here you can set the timbre to play in a monophonic or polyphonic style. Selecting mono will cause other "mono-related" parameters to appear.

- 1 Go to the P04-1: VOICE – VOICE tab page.
- 2 In "Assign," specify how the timbre will be sounded. Choose Poly if you want to be able to play chords, or Mono if you want to play only single notes.
- 3 If "Assign" is set to "Mono," you can also specify "Priority" and "Trigger."



"Priority" specifies the key that will be given priority when you hold down more than one key at a time. "Trigger" specifies how subsequent notes will be triggered when you play the next note before releasing the previously played key.

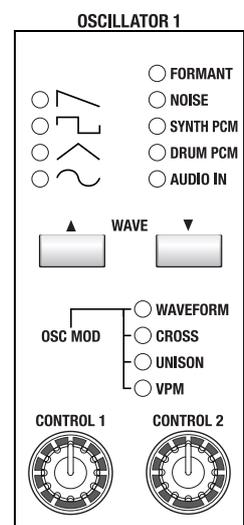
- note** If you want to get a richer sound, use the front panel [UNISON] button to turn on the Unison function. This function stacks multiple notes together. In the P04-2: VOICE – UNISON tab page you can specify the number of notes that will be stacked. (see p.80 "P04-2: UNISON")

Oscillator settings

Here's how to set the oscillator parameters that are the basis of the timbre.

Oscillator 1 settings

- 1 Use the OSCILLATOR 1 WAVE buttons to select the waveform for oscillator 1. Use these buttons to step through the waveforms. The LED of the selected waveform will light. You can choose one of nine different waveforms, including an external audio input (AUDIO IN).
- 2 Use the OSCILLATOR 1 [OSC MOD] button to select the type of modulation being applied to oscillator 1. The type will switch each time you press the button, and the LED for the selected modulation type will light. You can choose one of four modulation types.
 - ⚡ If you've selected FORMANT, NOISE, SYNTH PCM, DRUM PCM, or AUDIO IN as the waveform, the only available modulation type will be WAVEFORM.
- 3 Use the [CONTROL 1] and [CONTROL 2] knobs to specify the waveform parameters.

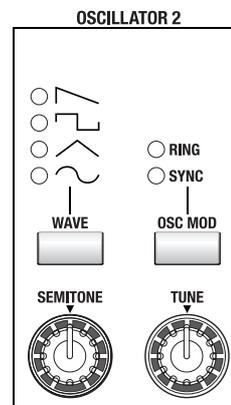


The parameters that are controlled by the [CONTROL 1] knob and [CONTROL 2] will depend on the waveform and the modulation type you've selected.

For details on the oscillator parameters, refer to p.81 "P06-1: OSC 1."

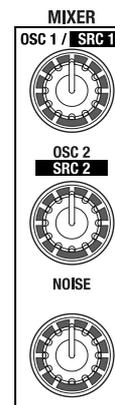
Oscillator 2 settings

- 1 Use the **OSCILLATOR 2 [WAVE]** button to select the waveform of oscillator 2.
The waveform will change each time you press the button, and the LED of the selected waveform will light. You can choose one of four different waveforms. The most common way to use this is to select the same waveform as oscillator 1, and change its pitch slightly to create a rich sound.
- 2 Use the **OSCILLATOR 2 [OSC MOD]** button to select the modulation type for oscillator 2.
The type will switch each time you press the button, and the LED for the selected modulation type will light. You can choose one of three modulation types.
- 3 Use the **[SEMITONE]** knob to adjust the pitch of oscillator 2 in semitone steps.
Some of the more common ways to set this parameter is to lower the pitch by one octave (-12) or two octaves (-24) relative to the pitch of oscillator 1. Vintage analog synthesizer players would sometimes set the oscillators a fourth (+5) or fifth (+7) apart in pitch.
- 4 Use the **[TUNE]** knob to adjust the pitch of oscillator 2.
You can produce a richer sound by slightly changing the pitch to create a detuned effect.



Adjusting the volume of each oscillator

- 1 Use the **MIXER [OSC 1]** knob to adjust the volume of oscillator 1.
- 2 Use the **MIXER [OSC 2]** knob to adjust the volume of oscillator 2.
- 3 Use the **MIXER [NOISE]** knob to adjust the volume of the noise generator.



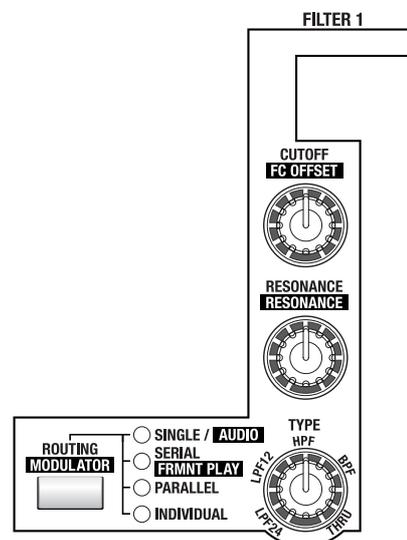
Filter settings

Selecting the routing

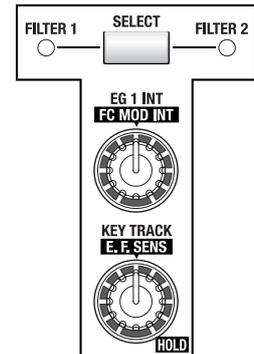
- 1 Use the **[ROUTING]** button to select the filter routing.
Each time you press the button, the routing of filters 1 and 2 will change. The LED of the selected routing will light. You can choose one of four different routings. If you choose **SINGLE**, only filter 1 will be used.

Filter 1 settings

- 1 Use the **FILTER 1 [TYPE]** knob to select the type of filter being used by filter 1.
You can adjust the knob to obtain intermediate characters between these filter types. The filter type will have a major effect on the character of the sound.

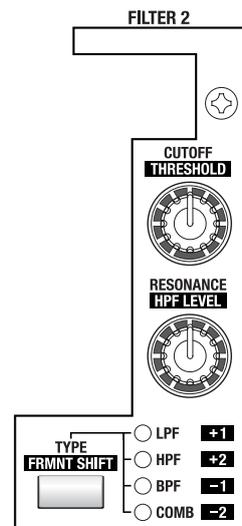


- 2 Use the **FILTER 1 [CUTOFF]** knob to adjust the cutoff frequency of filter 1.
Turning the knob toward the right (increasing the value) will make the sound brighter.
 - 3 Use the **FILTER 1 [RESONANCE]** knob to adjust the resonance of filter 1.
Turning the knob toward the right (increasing the value) will boost the region near the cutoff frequency.
The effect of resonance is also greatly affected by the filter type and cutoff frequency setting.
- ⚠ Depending on the cutoff frequency and the input sound, raising the resonance value may cause distortion.
- 4 Use the **FILTER [SELECT]** button to select **FILTER 1**, and use the **[EG 1 INT]** knob to adjust the depth of the effect that EG1 will have on the cutoff frequency of filter 1.
If you turn the knob toward the right of the center position (“+” values), the EG will move the filter in the positive direction (i.e., if the filter type is LPF, the sound will become brighter).
If you turn the knob toward the left of the center position (“-” values), the EG will move the filter in the negative direction (i.e., if the filter type is LPF, the sound will become darker).



Filter 2 settings

- 1 Use the **FILTER 2 [TYPE]** button to select the type of filter being used by filter 2.
The filter type will change each time you press the button, and the LED of the selected filter type will light. The filter type will have a major effect on the character of the sound.
- ⚠ If the **FILTER 1 [ROUTING]** button has been set to **SINGLE**, filter 2 is not used and cannot be edited.
- 2 Use the **FILTER 2 [CUTOFF]** knob to adjust the cutoff frequency of filter 2.
Turning the knob toward the right (increasing the value) will make the sound brighter.
 - 3 Use the **FILTER 2 [RESONANCE]** knob to adjust the resonance of filter 2.
Turning the knob toward the right (increasing the value) will boost the region near the cutoff frequency.
The effect of resonance is also greatly affected by the filter type and cutoff frequency setting.
- ⚠ Depending on the cutoff frequency and the input sound, raising the resonance value may cause distortion.
- 4 Use the **FILTER [SELECT]** button to select **FILTER 2**, and use the **[EG 1 INT]** knob to adjust the depth of the effect that EG1 will have on filter 2's cutoff frequency.
If you turn the knob toward the right of the center position (“+” values), the EG will move the filter in the positive direction (i.e., if the filter type is LPF, the sound will become brighter).
If you turn the knob toward the left of the center position (“-” values), the EG will move the filter in the negative direction (i.e., if the filter type is LPF, the sound will become darker).

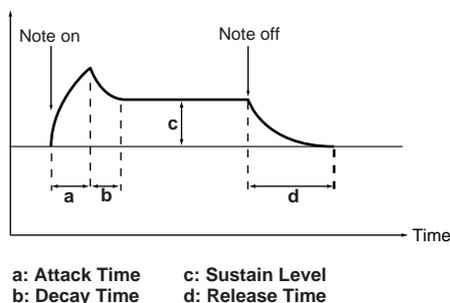


Creating time-varying change in the tone (EG1)

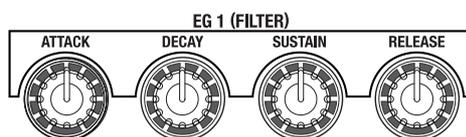
EG1 applies time-varying change to the cutoff frequency (the “Cutoff” of FILTER 1 or FILTER 2).

note EG1 applies the same effect to filter 1 and filter 2.

note You can edit the virtual patching so that EG1 will apply modulation to other parameters as well.



Envelope settings for tonal change

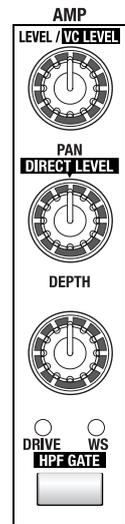


- 1 Use the EG 1 [ATTACK] knob to adjust the attack time (the time over which the tone changes during the beginning of the note).
Turn the knob toward the right to make the tone change more slowly, or turn it toward the left to make the tone change more quickly.
- 2 If turning this knob does not produce results, try adjusting the FILTER [EG 1 INT] knob or make sure that the MOD SEQUENCER [SELECT] button is set to make EDIT lit. If an LED other than EDIT is lit, you can't edit the EG or LFO. (These knobs are used to edit the modulation sequencer data.)
- 2 Use the EG 1 [DECAY] knob to adjust the decay time (the time over which the tone falls from its peak).
Turning the knob toward the right (i.e., increasing the value) will make the tone change more slowly until it reaches a stable tone (if sustained).
- 3 Use the EG 1 [SUSTAIN] knob to adjust the sustain level (the brightness during the sustain).
The brightness produced by the [SUSTAIN] knob will depend on the FILTER [EG 1] knob setting.
- 4 Use the EG 1 [RELEASE] knob to adjust the release time (the time over which the tone falls after you release the key).
Turning the knob toward the right will produce a slower change in tone, and turning it toward the left will make the tone change quickly.

Timbre output settings

Timbre output settings

- 1 Use the AMP [LEVEL] knob to adjust the volume of the timbre.
- 2 Use the AMP [PAN] knob to adjust the panning (position in the stereo field) of the timbre.
If this knob is in the center position (CNT), the sound will be sent equally from the left and right outputs (center).



Applying Drive or Wave Shaping

- 1 Use the [DRIVE/WS] button to select Drive or Wave Shaping.
If you select Drive, the DRIVE LED will light. If you select Wave Shaping, the WS LED will light.
- 2 Turn the [DEPTH] knob.
Turning the knob toward the right (increasing the value) will increase the effect.

Using note number (key position) to affect the volume

- 1 Go to the P08: AMP page.
- 2 Use "Key Track" to specify how the note number, or the key's position on the keyboard will affect the volume.
With positive (+) settings, the volume will increase as you play above the C4 note and decrease as you play below it.
With positive (-) settings, the volume will decrease as you play above the C4 note and increase as you play below it.

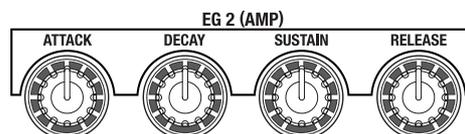


Creating time-varying change in the volume (EG 2)

EG2 applies time-varying change to the AMP "Level."

- note** You can edit the virtual patching so that EG2 will apply modulation to other parameters as well.
- ⚡** If you want to use the front panel knobs to adjust the EG2 parameters, use the MOD SEQUENCER [SELECT] button to make the EDIT indicator light.

Envelope settings for volume change



- 1 Use the EG 2 [ATTACK] knob to adjust the time required to arrive at full volume after the key is pressed.
Turn the knob toward the right (increase the value) to make the volume change more slowly, or turn it toward the left (decrease the value) to make the volume change more quickly.
- 2 Use the EG 2 [DECAY] knob to adjust the time over which the volume falls from its peak level to the sustained level.
Turn the knob toward the right (increase the value) to make the volume change more slowly until it reaches a steady volume (if sustained).

- 3 Use the EG 2 [SUSTAIN] knob to set the sustained volume level.
Turn the knob toward the right (increase the value) to make the sustain volume louder.
- 4 Use the EG 2 [RELEASE] knob to adjust the time required for the volume to fade away after you release the key.
Turn the knob toward the right (increase the value) to make the release slower, or turn it toward the left (decrease the value) to make the release faster.

note For bell-type sounds, use a higher setting to create a long release.

Using keyboard dynamics to affect the volume

- 1 Go to the Program Edit mode P09-2: EG – EG2 tab page.
- 2 Use “LvlVelInt” to specify how much the dynamics of your playing on the keyboard will affect the volume level change produced by EG2.
With positive (+) settings, the EG2 will produce greater change in volume as you play more strongly.
With negative (–) settings, the EG2 will produce less change in volume as you play more strongly.



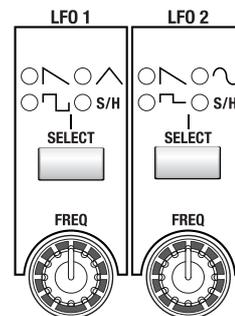
LFO settings

An LFO (Low Frequency Oscillator) applies a cyclic change to a parameter. This will produce vibrato if applied to oscillator pitch, a wah effect if applied to filter cutoff, and tremolo if applied to amp level.

note LFO2 is internally routed to the pitch of oscillator 1 (P05-1: PITCH page “Vibrato Int”). By making virtual patch settings you can use the LFO to apply modulation to other parameters as well. (see p.81 “VibratInt (Vibrato Intensity)”)

Selecting the LFO waveform

- 1 Press the [SELECT] button.
The waveform will switch each time you press the button, and the LED of the selected waveform will light.
The shape of the cyclic change will depend on the LFO waveform you select.



Specifying the LFO frequency

- 2 Turn the [FREQ] knob.
Turning the knob toward the right (increasing the value) will speed up the cyclic change. The speed is indicated by the interval at which the [SELECT] button blinks.

note In the P10-1: LFO – LFO1 tab page or LFO2 tab page, you can turn on the “TempoSync” parameter so that the LFO frequency will synchronize to the tempo specified by the [TEMPO] knob. (see p.91 “TempoSync”)

tip If you want to use the front panel knobs to adjust the LFO “Freq,” use the MOD SEQUENCER [SELECT] button to make the EDIT indicator light.

Applying modulation to various parameters – Virtual Patch (V.PATCH)

Virtual Patch lets you assign fifteen different modulation sources to modulate various sound parameters.

- ⚠ If you want to use the front panel knobs to adjust the virtual patch parameters, use the MOD SEQUENCER [SELECT] button to make the EDIT indicator light.

Virtual Patch settings

- 1 Use the V.PATCH [SELECT] button to select a patch.

Each time you press this button you will cycle through PATCH 1–6, and the LED of the selected patch will light. When you press a button of the V.PATCH section while in the Program Play mode, the virtual patch settings will appear in the display.



Press the PAGE [+][–] button or [EXIT/NO] button to return to the previous screen.

- 2 Use the V.PATCH [SOURCE] button to select the modulation source (the signal that creates the modulation).

Each press of the button will step through the available modulation sources.

For details on this parameter, refer to p.91 “P11 PATCH (Virtual Patch).”

- 3 Use the V.PATCH [DESTINATION] button to select the modulation destination.

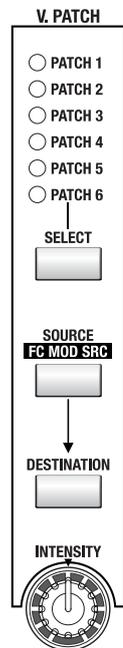
Each press of the button will step through the available destination parameters.

- 4 Use the V.PATCH [INTENSITY] knob to adjust the amount of modulation being applied.

Turn the knob toward the right of center (“+” values) to apply modulation in the positive (+) direction.

Turn the knob toward the left of center (“–” values) to apply modulation in the negative (–) direction.

For details on this parameter, refer to p.91 “P11 PATCH (Virtual Patch).”



Modulation Sequencers – Applying time-varying change to the sound

The Modulation Sequencers let you apply time-varying change to sound parameters in a way similar to analog sequencers of the past. A modulation sequencer stores a discreet value for each of sixteen individual steps, and consecutively applies these values to vary the sound over time. Since three modulation sequencers are provided for each timbre, you can create sounds that change in very complex ways.

In the following example, we will select a program in which the modulation sequences are turned off, assign modulation sequencer 1 to a timbre, and use the sixteen knobs to specify the level of modulation being applied at each step of the sequence.

Assigning a modulation sequencer to a timbre

- 1 In the Program Play mode, select a program in which the modulation sequencers are turned off (the MOD SEQUENCER [ON] button will be unlit).

Choose a program in which tonal change will be easy to notice.

- 2 Use the MOD SEQUENCER [SELECT] button to select MOD1 (the MOD1 LED will light).

- note** If you want to assign a parameter to SEQ2 or SEQ3, use the MOD SEQUENCER [SELECT] button to select SEQ2 or SEQ3.

SEQ COMMON parameter settings

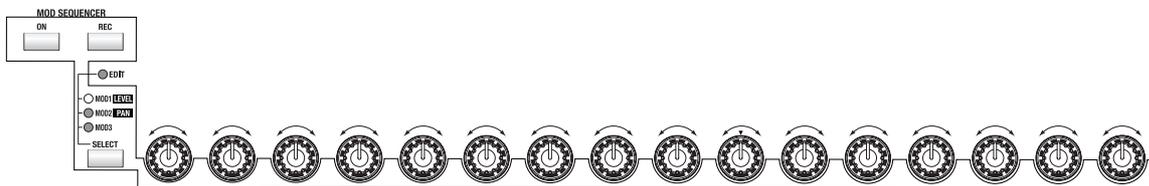
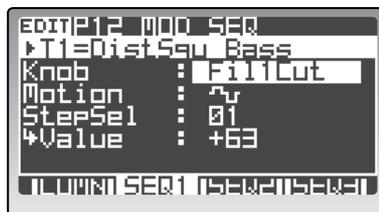
Before you create the sequence data, use the SEQ COMMON parameters to specify the number of steps in the sequence, and how the data will play back.

- 1 Go to the Program Edit mode P12-1: MOD SEQ – COMN tab page.
- 2 Use “LastStep” to specify the length of the sequence (the number of steps).
You can specify any length from 1–16 steps.
- 3 Use “SeqType” to specify the direction in which the steps will play back.
In this example, choose Forward.
- 4 Use “RunMode” to specify how the sequence will loop.
For this example choose Loop.
- 5 Use “KeySync” to specify how the sequence will be reset by a note-on.
For this example choose Timbre.
- 6 Use “Resolutn” to specify the note length of each step, based on the tempo of the internal clock.
In this example, set the resolution to 1/16 (sixteenth note resolution). Each step of the sequence will have the duration of a sixteenth note.
For details on this parameter, refer to p.92 “P12 MOD SEQ (Modulation Sequencer).”



Specifying the sequence data for each step

- 1 Go to the P12-2: MOD SEQ – SEQ1 tab page.
- 2 Use “Knob” to select Fil1Cut.
This assigns SEQ1 to the Filter 1 cutoff.
- 3 Press the MOD SEQUENCER [ON] button.
The [ON] button LED will light, and the modulation sequencer will be turned on.
- 4 Use the MOD SEQUENCER [SELECT] button to select MOD1.
- 5 Hold down a key so you can hear the sound, and use the sixteen knobs to specify the sequence data for each step.
The value of each step specifies the amount of change applied to the assigned parameter. If you want to make finer adjustments to the value, use the [PROGRAM/VALUE] dial.



If the MOD SEQUENCER [SELECT] button is set to EDIT, the sixteen knobs are used to edit the sound of the program (for example, the EG or LFO parameters). If the [SELECT] button is set to MOD1 or another modulation sequencer, the sixteen knobs are used to specify the sequence data. The number printed below each knob corresponds to the step number within the sequence. Turn the knob for the step you want to edit. In the P12-2: MOD SEQ – SEQ1 tab page, “Value” indicates the value of each step.

Knobs beyond the “LastStep” value in the P12-1: MOD SEQ – COMN tab page have no effect. (see p.92 “LastStep”)

note You can use the above procedure to edit existing sequence data or to edit sequence data you recorded in realtime.

Recording modulation sequence data in realtime – the Motion Rec function

The Motion Rec function lets you tweak a knob in realtime, record the movements of that knob, and apply those changes to the steps in a modulation sequencer.

In this example we'll record movements of the FILTER 1 [CUTOFF] knob in a program that does not yet contain sequence data.

1 In the Program Play mode, select a program in which modulation sequence is turned off (MOD SEQUENCER [ON] button is unlit).

Choose a program in which tonal change will be easy to notice.

2 Press the MOD SEQUENCER [ON] button to turn the modulation sequencer on.

3 Use the MOD SEQUENCER [SELECT] button to select a modulation sequence (MOD1–3).

For this example choose MOD1.

4 Go to the Program Edit mode P12–1: MOD SEQ – COMN tab page, and set the parameters.

☞ p.44 “SEQ COMMON parameter settings”

5 Press the MOD SEQUENCER [REC] button.

You will be in the record-ready mode. The [REC] button will blink, and the 16KEYS [1]–[16] keys will light sequentially.

⚠ You can't enter the record-ready mode unless you choose a sequence.

6 Hold down a key, and turn the FILTER 1 [CUTOFF] knob.

Recording will begin from the step at which you turn the knob. When recording begins, the [REC] button will change from blinking to lit. When you reach the step specified by “LastStep,” the [REC] button will go dark, and recording will end automatically.

⚠ You can't record movements of the ARPEGGIATOR/STEP SEQUENCER or effect knobs.

note If you turn two or more knobs, the knob you turned first will be recorded.

note While you're using the Motion Rec function, the sixteen knobs will operate as sound parameter knobs.

7 Press a key to hear the sound change.

If you are not satisfied with your recording, press the [REC] button once again to re-record, or use the sixteen knobs to edit the value of each step.

⚠ If you want to keep the recorded settings, you must write the data. The recorded data will be lost unless you write. (☞ p.32 “Saving an edited program”)

Editing the effect parameters

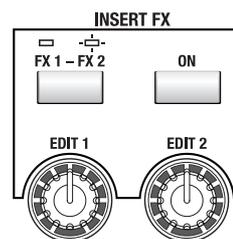
The RADIUS provides a two-band equalizer and two insert effects for each timbre, and one master effect for each program. Here's how to edit the insert effect and master effect settings.

- 🔧 If you want to use the front panel knobs to edit the sequencer, insert effect, and master effect parameters, make sure that the MOD SEQUENCER [SELECT] button is set to EDIT.
- 🔧 If you want to keep the changes you make, you must write the data. Your changes will be lost unless you write. (☞ p.32 "Saving an edited program")

Insert Effect settings

Here's how to edit the settings of insert effect 1 (FX1).

- 1 **Select insert effect 1 (FX1) using the INSERT FX [FX1-FX2] button.**
When the INSERT FX [FX1-FX2] is lit, insert effect 2 is selected; when this button is dark, insert effect 1 is selected.
When you press the INSERT FX [FX1-FX2] button in the Program Play mode, the lower part of the display will show the effect program currently assigned to each of the insert effects and the master effect.



Press the PAGE [+] [-] button or [EXIT/NO] button to return to the previous screen.

- 2 **Press the INSERT FX [ON] button.**
If the [ON] button is lit, insert effect 1 is applied.
- 3 **Go to the Program Edit mode P13-2: EQ/FX - IFX1 tab page.**
- 4 **Move the cursor to the effect name, and select effect type.**
- 5 **Use the cursor buttons to highlight either "Edit1" or "Edit2" to select the effect parameters that will be adjusted by the [EDIT1] and [EDIT2] knobs.**

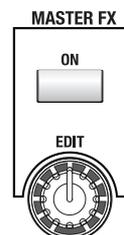


Use the [EDIT1] and [EDIT2] knobs to adjust the selected parameters. The available parameters will depend on the effect type.

- 6 **There are other effect parameters in the display that can also be adjusted.**
Use the cursor buttons to scroll through the list of available parameters, and use the [PROGRAM/VALUE] dial to adjust the settings. The effect parameters will depend on the effect type.
☞ p.121 "Effect guide"

Master Effect settings

- 1 **Press the MASTER FX [ON] button.**
If the [ON] button is lit, the master effect is applied.
In the Program Play mode, the lower part of the display will show the effect type just as for the insert effects.



- 2 Go to the Program Edit mode P13-4: EQ/FX – MFX tab page.
- 3 Move the cursor to the effect name, and select effect type.
- 4 Use “Edit” to select the effect parameter that will be adjusted by the MASTER FX [EDIT] knob.
The available parameters will depend on the effect type.
- 5 Make settings for the other effect parameters.
The effect parameters will depend on the effect type.
☞ p.121 “Effect guide”



Editing the arpeggiator

Here’s how to edit the arpeggiator parameters in the Program Edit mode. For details on using the buttons and knobs to make settings, refer to p.22 “Assigning the arpeggiator to a sound.”

Assigning the arpeggiator to a timbre, and editing the parameters

In this example, we’ll assign the arpeggiator to timbre 1 and edit the arpeggiator parameters.

Assigning the arpeggiator to a timbre

- 1 Press the TIMBRE SELECT [1] button.
- 2 Use the ARPEGGIATOR/STEP SEQUENCER [SELECT] button to select ARPEGGIATOR.
- ☛ In order to view the Program Edit mode ARPEGGIATOR page, the arpeggiator must already be assigned to the selected timbre.

Editing the parameters

- 3 Go to the Program Edit mode P14-1: ARPEGGIATOR – COMN tab page.
- 4 Use “Type” to select an arpeggio pattern.
For this example select Alt1.
- 5 Use “Range” to specify the range of the arpeggio pattern.
For this example select 1 octave.
- 6 Use “KeySync” to specify synchronization with the keyboard.
For this example turn this On. If this is On, the arpeggio pattern will start from the beginning at each note-on.
- 7 Use “Resolutn” to specify the resolution (the note duration of each step, based on the tempo).
This specifies the duration of each arpeggiated note - quarter note, eighth note, etc.
- 8 Use “LastStep” to specify the number of steps in the arpeggio pattern.
The number of steps you specify here will be equal to one cycle of the arpeggio pattern.
- 9 Use “Swing” to specify the amount of swing applied to the timing of the arpeggio pattern.
“Swing” adjusts the timing of even-numbered steps in the arpeggiator, giving the rhythm a sense of swing.

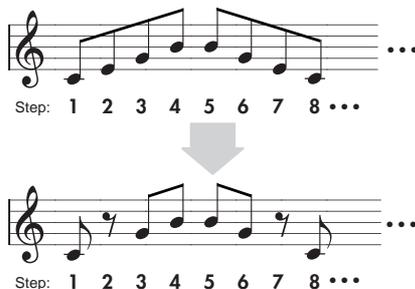


10 Use “ScanBottom” and “ScanTop” to specify a “key window” - the region of notes on the keyboard that will trigger the arpeggiator.

The arpeggiator will operate when you play keys in the region between “ScanBottom” and “ScanTop.”

Editing each step played by the arpeggio pattern (ARPEGGIATOR – TRIGGER)

You can specify the note played by each step of the arpeggio pattern. On the **RADIAS**, each of up to 32 steps can be turned on or off, allowing you to create a broad range of possibilities, including unique rhythms.

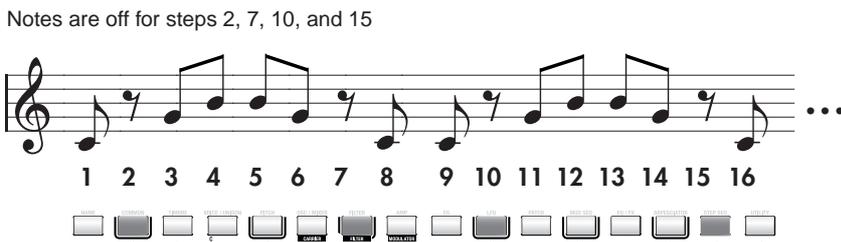
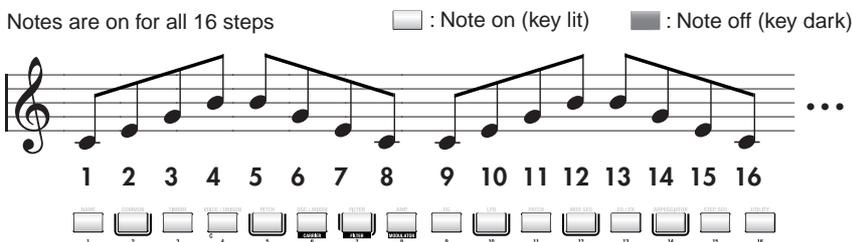


Using the 16 keys to edit the note status

1 Use the 16KEYS [SELECT] button to select TRIGGER.

2 Use the [1]–[16] keys to turn each step on or off.

The sixteen keys correspond to sixteen steps. A step for which the key is lit will sound, and a step for which the key is dark will not sound. Each time you press a key, that step will alternate between sounding and silent.



If you want to edit the notes for the 17th or subsequent step, use the 16KEYS PROGRAM BANK/ TRIGGER [UP] button to make LENGTH LED 2 light so that you can edit steps 17–32, or use the [DOWN] button to make LENGTH LED 1 light so that you can edit steps 1–16.

note The note on/off settings for each step are saved with the program when you Write the program into memory.

Using the cursor buttons and the [PROGRAM/VALUE] dial to edit the note status

- 1 Go to the P14-2: ARPEGGIATOR – TRIG tab page.
- 2 Use the cursor buttons to move to the step you want to edit.
You can hold down a cursor button to move rapidly.
- 3 Use the [PROGRAM/VALUE] dial to turn each note on/off.



The ○ indication means that the arpeggio pattern will sound at that step.
The – indication means that the arpeggio pattern will not sound at that step.

Detailed editing of individual steps in an arpeggio pattern (ARPEGGIATOR – STEP)

- 1 Go to the P14-3: ARPEGGIATOR – STEP tab page.
- 2 Use "Step" to specify the step that you want to edit.
The gate time (duration), velocity, and note number of the specified step are shown below "Step."



- 3 Use "GateTime" to specify the gate time.
Higher values will lengthen the duration of the note at this step.
- 4 Use "Velocity" to specify the velocity of the note that will sound.
If you set this to KEY, the notes will sound at the velocity value of the key you played when starting the arpeggiator.

note You can also specify the velocity value by moving the cursor to the "Velocity" value and holding down the [EDIT/YES] button while you strike a key.

- 5 Use "Trigger" to specify whether a note will be sounded at this step.
The ○ indication means that note at this step will be sounded.
The – indication means that the note at this step will not be sounded.

Step sequencer recording and editing

You can use the step sequencers to record and play back phrase patterns or drum patterns. This section explains how to record using the step sequencer, and how to edit the patterns you record.

note For details on playback, refer to p.24 “Playing a program using the step sequencer.”

Recording into the step sequencer (STEP REC)

You can use the keyboard to enter the pitch and timing for each step of the sequence data. In the following example, we’ll assign step sequencer 1 to timbre 1, and enter a simple phrase.

note If you are playing the **RADIUS** on its own without connecting its dedicated keyboard, you can set the 16KEYS [SELECT] button to KEYBOARD, and use the 16KEYS [1]–[16] to enter data.

note Step sequencer data is always overwritten when you record.

note If you want to erase data that’s been recorded in the step sequencer, execute the Program Edit mode P16-5: UTILITY – ARP tab page “InitStepSeq” command. (p.110 “InitStepSeq”)

Preparations for recording

1 In the Program Play mode, select a program to which the step sequencer is not assigned. We recommend that you select an initialized program from the P bank (the program whose name is “Init Program”).

If you select a program that uses two or more timbres, use the TIMBRE SELECT [1]–[4] buttons to select timbre 1.

p.20 “Entering the Program Play mode”

2 Use the ARPEGGIATOR/STEP SEQUENCER [SELECT] buttons to select STEP SEQ1.

3 Go to the Program Edit mode, and select the P15-1: STEP SEQ – COMN tab page.

4 In order to access the Program Edit mode STEP SEQ page, a step sequencer must already be assigned to the currently selected timbre.

4 Use “LastStep” to specify the length of the pattern as a number of steps.

Each of the two step sequencers can hold up to 32 steps. For this example, we’ll use 16 steps. Each step can store a single note or a chord.

note You can also connect the two step sequencers and create a pattern of up to 64 steps.

5 Use “RunMode” to specify the playback method for the step sequencer.

For this example, choose Loop. If this is set to Loop, the recorded sequence data will play as a loop while you continue holding down the key.

6 Use “Resolutn” to specify the resolution of the steps.

Each step will occupy the specified note value relative to the tempo. For example if you set the resolution to $\text{♩} 1/8$, each step will occupy an eighth note relative to the tempo.



7 Use "Transpose" to specify whether the pitch you play on the keyboard will control the pitch of the notes generated by the step sequencer.

For this example, turn this On. When this is on, the pitch of the phrase or pattern generated by the step sequencer will change according to the "BaseNote" value (don't get confused - this is not the same as the "Bass Note". The Base Note is the "Base" from which the sequence is transposed by the keyboard). If this is off, the same pitches will play regardless of where you play on the keyboard. This is suitable for drum patterns.

8 Use "BaseNote" to specify the note number that will be the basis for the pitches generated by the step sequencer.

For this example, set this to C4. If "BaseNote" is set to C4, the phrase will play at the recorded pitches when you press the C4 note. When you press the B3 note, the phrase will play one semi-tone below the recorded pitches.

note After you record on the step sequencer, the lowest note of the data will automatically be assigned as the "BaseNote" for that sequence.

9 Use "ScanTop" and "ScanBotom" to specify the range of keys that will be controled the step sequencer.

The step sequencer will start when you play a key within the range specified by "ScanTop" and "ScanBotom."

note For more about settings for starting the sequencer and layered or split keyboard settings, refer to p.64 "Key Zone settings."

10 Use "S.SeqLink" to specify whether the two step sequencers will be linked.

For this example we will turn this Off, and use only step sequencer 1.

If this is On, the two step sequencers will be linked, and will play in the order of STEP SEQ1 → STEP SEQ2, effectively creating a single step sequencer with up to 64 steps.

note If the step sequencers are linked, you won't be able to change the playback order of the sequencers. If you want to exchange the order, use P16-5: UTILITY - ARP tab page "SwapStepSeq" to exchange the sequence data. (see p.110 "SwapStepSeq")

note If the sequencers are linked, the settings of STEP SEQ1 will take priority for all parameters that cannot be set individually.

11 Press the [PROGRAM] button to return to the Program Play mode.

This completes preparations for recording.

Start recording

1 If the ARPEGGIATOR/STEP SEQUENCER [ON] button is on, turn it off.

2 Press the ARPEGGIATOR/STEP SEQUENCER [TYPE/STEP REC] button.

The [TYPE/STEP REC] button will blink, and the display will ask "Sure?"



3 Press the [TYPE/STEP REC] button or the [EDIT/YES] button.

You will enter the record-ready mode.

"REC Step" will indicate the step to be recorded. Step recording always begins from step 1.

"Gate Time" indicates the length of the note played at that step.

"Velocity" indicates the velocity of the note played at that step.



If you use the 16KEYS [SELECT] button to select TRIGGER, the 16KEYS [1]–[16] keys will blink to indicate the step you are currently entering. You can press one of the [1]–[16] keys to select the step you want to enter. To select step 17 or later, use the 16KEYS PROGRAM BANK/TRIGGER [UP] button to make the LENGTH LED light for the steps you want to select.

 If you're using the **RADIUS** on its own without the dedicated keyboard connected, and you begin recording with the [1]–[16] keys set to KEYBOARD, the function of the [1]–[16] keys will not switch automatically.

 If you enter the STEP REC mode while a note is sounding, the currently-sounding note will turn off, and latch will be defeated.

 The other step sequencer and the arpeggiator will not operate during recording.

4 Use "GateTime" to specify the length of the note you will record.

"GateTime" specifies the length of the note you are about to enter. You can also use the ARPEGGIATOR/STEP SEQUENCER [GATE] knob to specify this.

5 Use "Velocity" to specify the velocity of the note you will record.

"Velocity" specifies the velocity value of the note you are about to enter. If you set this to KEY, the step sequencer playback will use the velocity value with which you played the note to enter it.

 You can also move the cursor to "Velocity" and play a note while holding down the [EDIT/YES] button to enter the velocity value.

 Gate Time and Velocity are common to all notes within a single step. You can't specify independent values for each note in a step. Nor can individual notes within a step be turned on/off.

6 Play a chord C4, E4, and G4 on the keyboard.

When you play the keyboard, the corresponding note data will be entered. You can record a chord of up to eight notes for each step. If you enter a chord, the notes will be recorded in the step in the order you played them. When you release the keyboard, you will be in record-ready condition for step 2.



 During recording, you can also specify "REC Step," "GateTime," and "Velocity" to modify each note. You can use "REC Step" to move between steps, as far as the "Last Step" you specified before you began recording, and the 16KEYS [1]–[16] keys will light to indicate the step position. "GateTime," "Velocity," and "Note" indicate the previously-recorded values.

7 Press the [TAP TEMPO/REST-TIE] button without playing any key.

That step will be a rest, and you will proceed to step 3.

If you want to advance to the next step without recording anything at this step (i.e., to enter a rest), press the [TAP TEMPO/REST-TIE] button without playing any key. If there had been any data at the step where you entered a rest, all data of that step will be erased, and you will proceed to the next step.



8 While holding down a chord of D4, F4, and A4 on the keyboard, press the [TAP TEMPO/REST-TIE] button.

The notes you entered in step 3 will be connected to step 4. When you release the keyboard, you will proceed to step 5.

If you want to enter a long note that extends beyond one step, hold down the notes and press the [TAP TEMPO/REST-TIE] button. The "Gate Time" will be set to TIE, and you will proceed to the next step. If you



press this key repeatedly, the note data for the notes you are holding down will be entered for the corresponding steps.

9 Press the [TYPE/STEP REC] button or the [EXIT/NO] button to stop recording.

In this example we've stopped recording at step 5, so the "Last Step" of step sequencer 1 will automatically be set to 4.

note When you execute step recording, the following parameters will be automatically updated in certain cases.

"Last Step" (the valid length of the step sequence): The Last Step number will be updated if recording increases the number of steps.

"Seq Base Note" (the note number that will be the pitch reference for step sequence playback): This will be updated to the lowest note number between step 1 and the last step.

Checking the recorded data

1 Turn on the ARPEGGIATOR/STEP SEQUENCER [ON] button, and press the C4 key.

The phrase will play at the recorded pitch.

2 Press the D4 key.

The phrase will begin from D4.

In this way, the recorded phrase will change depending on the key you press.

note If the phrase does not transpose, turn the P15-1: STEP SEQ – COMN tab page "Transpose" setting On.

Editing each step (STEP SEQ – TRIGGER)

You can view the locations at which the step sequencer will sound, and edit the trigger status of each step. You can also use the 16 KEYS [1]–[16] keys to edit.

This specifies whether the note data recorded at each step will sound.

1 Go to the P15-2: STEP SEQ2 – TRIG tab page.

2 Use "NoteSel" to specify the note number you want to edit.

TRIGGER: The display indicates the "Trigger" on/off status of each step.

C-1–G9: This specifies the note number. If the specified note number is recorded in the step, a ○ symbol is shown at that step in the display. However if "Trigger" is off for that step, a – symbol is shown.

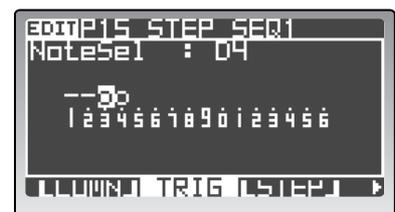
Drum 01–Drum 16: If a drum kit is assigned to the timbre, you can specify the drum instrument. If the specified drum instrument will play for that step, a ○ symbol is shown at that step in the display. If a drum kit is not assigned, you can't select this.



3 Use the cursor buttons to move to the step you want to edit. You can move rapidly by holding down a cursor button.

4 Use the [PROGRAM/VALUE] dial to edit the trigger status.

○ means that this step will sound.
– means that this step will not sound.



Using the 16KEYS [1]–[16] keys to edit the notes (Drum Pattern editing)

Using the 16KEYS [1]–[16] keys to edit is the appropriate method when you’ve assigned a drum kit and you want to edit the rhythm pattern for each drum instrument. In this case, the note (pitch) shown by the 16KEYS [1]–[16] keys for each step will be the note specified by the Program Edit mode P15-2: STEP SEQ – TRIG tab page “NoteSel” parameter (see p.100 “NoteSel (Note Select)”).

1 Use “NoteSel” to specify a drum instrument number.

If the specified drum instrument will play at a step, a \circ symbol is shown in the display for that step.

2 Use the 16KEYS [SELECT] button to select “TRIGGER.”

The 16KEYS [1]–[16] keys corresponding to steps at which the specified drum instrument will sound will be lit.

If you want the 16KEYS [1]–[16] keys to indicate step 17 and following, use the 16KEYS PROGRAM BANK/TRIGGER [UP] button to make LENGTH LED 2 light. When you want to return to editing steps 1–16, use the [DOWN] button to make LENGTH LED 1 light.



3 Press the 16KEYS [1]–[16] keys to turn the trigger status on/off for each step.

note If you turn on a step that was previously off, one of three things can happen. If the step had originally been on, then turned off, it will retain its original value if it is turned on again. If the step had never been on and has no previous assignment, then if the timbre being played is assigned to a drum kit, Drum Kit Inst 01 will be assigned. If the timbre is not assigned to a drum kit, C4 will be used as the note value.

note You can specify up to eight note numbers for each step.

Editing the data of each step (STEP SEQ – STEP)

You can edit the duration, velocity, and note number for each step.

1 Go to the P15-3: STEP SEQ1 – STEP tab page.

2 Use “Step” to specify the step that you want to edit.

The gate time, velocity, and note number of the specified step will appear.

note You can also use the 16KEYS [SELECT] button to select “TRIGGER” and use the 16KEYS [1]–[16] keys to specify a step number. If there are 17 or more steps, use the 16KEYS PROGRAM BANK/TRIGGER [UP] or [DOWN] buttons to switch between ranges of steps.



3 Edit the “GateTime” and “Velocity” values.

note If you want to edit another step, use “Step” to select the desired step.

! Gate Time and Velocity values are common within each step. You can’t specify these values independently for each pitch within a step.

note You can also move the cursor to “Velocity” and play a note while holding down the [EDIT/YES] button to enter the velocity value.

4 Use "Trigger" to select whether the notes at that step will play.

- specifies that the notes at that step will play.
- specifies that the notes at that step will not play.

If you change a – step to ○, the note numbers previously assigned to that step will be assigned. In the case of a step to which no notes had previously been assigned, note numbers will be assigned according to the following rules.

- If the timbre to which the step sequencer is assigned is using a drum kit, the DrumKit Inst=01 note number will be assigned.
- If the timbre to which the step sequencer is assigned is not using a drum kit, the C4 note number will be assigned.



5 Use the cursor to select the note you want to edit, and use the [PROGRAM/VALUE] dial to edit it.

If you select "--", the note data will be deleted. If you play a key while holding down the [EDIT/YES] button, the corresponding note number will be input. However, you cannot input multiple notes simultaneously using this method.

note

Up to eight notes can be recorded in each step. Move the cursor to "--", and enter the desired note number. These notes are sounded with priority given to the notes in the order they are selected, starting from the upper left. Make sure that the notes of greatest musical importance are specified starting from the upper left.



6 Repeat steps 2–5 to edit other steps.

Vocoder editing

When the TIMBRE SELECT [VOCODER] button is dark, the vocoder is off. Pressing this button will turn the vocoder on, and the button will be lit. You can use one timbre as the carrier, and apply a vocoder effect to it.

To edit the vocoder settings, press the TIMBRE SELECT [VOCODER] button and then press the [EDIT] button. You will enter the Vocoder Edit mode. If the Vocoder Edit mode P02-1: COMMON – PROG tab page “PanelEdt” parameter is set to Link, pressing the TIMBRE SELECT [VOCODER] button will let you use the front panel knobs and buttons to edit the vocoder settings.

- 🔊 If you want to keep the changes you make, you must Write them. If you don’t perform the Write operation, your changes will be lost. (see p.32 “Saving an edited program”)

In the explanation that follows, we will be explaining only the parameters that are unique to vocoder programs. For parameters that are also found in synth programs, refer to p.37 “Synth parameter editing.”

Before you continue, refer to p.27 “Playing a vocoder program” and connect the included mic.

Vocoder settings

Assigning the vocoder

- 1 In the Program Play mode, select a program.
We recommend that you select an initialized program from the P bank (the program whose name is “Init Program”).

- 2 Press the TIMBRE SELECT [VOCODER] button.
The vocoder will be turned on, and the [VOCODER] button will blink.

note Even if the vocoder is turned off for a program, pressing this button will turn the vocoder on. At this time, the timbre that will sound is the timbre that is selected as the carrier in the Vocoder Edit mode P06-1: CARRIER – LEVEL tab page “InSrc1” parameter.

- 3 Go to the Vocoder Edit mode P06-1: CARRIER – LEVEL tab page.

- 4 Use “InSrc1” to select the timbre (Timbre 1–4) to which you want to assign the vocoder.

For this example select Timbre 1.

- 5 Use “InSrc1Lvl” to adjust the volume of input source 1.

In this example, set this to 127.

You can also use the front panel MIXER [SRC1] to set this.

- 6 Use “VcdLvl” to specify the volume when the vocoder is on.

In this example, set this to 64.

For details on each parameter, refer to p.104 “6. Vocoder Parameters.”



Adjusting the mic input signal

- 1 Go to the Vocoder Edit mode P08: MODULATOR page.

- 2 Use the FILTER 1 [MODULATOR] button to select AUDIO.

- 3 Use “AudioSrc” to select the input source.

For this example select ExtIn2.



- 4 Use "Threshold" to prevent noise during periods when there is no singing or speaking being captured by the mic.
Higher settings will make it easier for the audio to be cut. Adjust this so that the noise is not obtrusive when you're not speaking into the mic. You can also use the FILTER2 [THRESHOLD] knob to adjust this setting.
- 5 Use "GateSens" to adjust the gate sensitivity.
Adjust this so that the sound of the vocoder output is not cut off unnaturally.

Filter settings

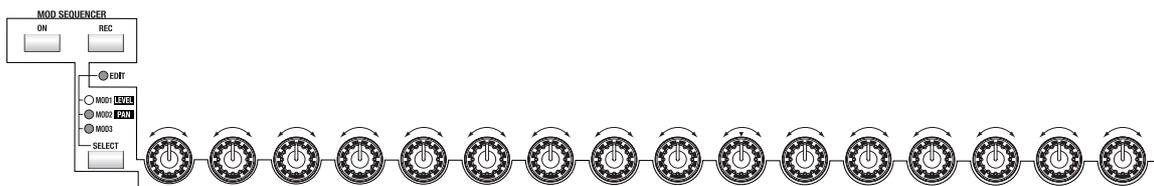
- 1 Go to the Vocoder Edit mode P07: FILTER page.
- 2 Use the FILTER [E.F.SENS] knob to adjust the sensitivity of the envelope follower.
Raising this value will give the vocoder output a smoother attack and a longer release.



- 3 Use the FILTER2 [FRMNT SHIFT] button to switch the amount of shift for the synthesis filters.
The LED will light to indicate the selected amount of shift. You can dramatically vary the character of the vocoder output by shifting the filters.
- 4 Use the FILTER1 [FC OFFSET] knob to adjust the offset of the synthesis filter cutoff frequency.
You can adjust the shift amount for the carrier filters over a range of ± 2 steps. In conjunction with the [FRMNT SHIFT] button, you can shift the cutoff frequency over a range of ± 4 steps.
- 5 Use the FILTER2 [HPF LEVEL] knob to adjust the consonants of the vocoder sound.
Higher settings of this value will emphasize the consonants (e.g., sibilants).

Adjusting the output level for each band of the synthesis filters

- 1 Press the MOD SEQUENCER [SELECT] button to make the "LEVEL" LED light.
- 2 Use the sixteen knobs to adjust the output level of each filter.
The output level is zero when a knob is turned to the far left, or 127 when turned to the far right.



Adjusting the pan (stereo position) for each band of the synthesis filters

- 1 Press the MOD SEQUENCER [SELECT] button to make the "PAN" LED light.
- 2 Use the sixteen knobs to adjust the pan of each filter.
The sound is output from the center (CNT) when a knob is in the middle position, from the L-channel only when turned to the far left, or from the R-channel only when turned to the far right.

Formant Motion function

The Formant Motion function plays the vocoder using vocal or other sound data that you recorded ahead of time and saved in the **RADIAS**. This lets you play the vocoder without having to speak into the mic.

Assigning a formant motion to the modulator

Here's how to play the vocoder using factory preloaded formant motion data.

- 1 In the Program Play mode, select a program from the "Vocoder" category.
☞ p.21 "Selecting programs by category"
- 2 Press the **TIMBRE SELECT [VOCODER]** button.
- 3 Go to the Vocoder Edit mode **P08: MODULATOR** page.
- 4 Use the **FILTER1 [MODULATOR]** button to select **FrmntPly**.
 Alternatively, you can use the P08: MODULATOR page "Modulator" parameter to select this.
- 5 Use "Formant" to select formant motion data.
 For this example, select Motion01. You can choose from sixteen types of formant motion data.
- 6 Use "Mode" to select how the formant motion data will play back.
 If you set this to TrigReset, the formant motion data will be reset to its beginning each time you play a note.
- 7 Play a note.
 The vocoder will sound with the formant motion data.



Recording formant motion data

- 1 Press the **FILTER1 [MODULATOR]** button to select **AUDIO**.
note You can also record if **FrmntPly** is selected.
- 2 Speak into the mic to play the vocoder program.
☞ p.56 "Adjusting the mic input signal"
- 3 Press the **UNISON [FRMNT REC]** button.
 The **UNISON [FRMNT REC]** button will light, and you will be in the record-ready mode.
- 4 Press the **UNISON [FRMNT REC]** button to begin recording.
 The **UNISON [FRMNT REC]** button will light, and recording will begin.
- 5 Speak into the mic to record the vocal formants.
- 6 Press the **UNISON [FRMNT REC]** button to stop recording.
 The **UNISON [FRMNT REC]** button will go dark.
note Recording will end automatically if recording memory becomes full (approximately 7.5 sec).
note When you record formant motion data, the selected formant motion data will be in the editing mode, and an "*" will be shown following the formant motion data number.
- 7 Use the **FILTER1 [MODULATOR]** button to select **FrmntPly**.
- 8 Play a note.
 The vocoder will sound with the formant motion data you recorded.

- ⚠ If you want to keep the formant motion data you recorded, execute the Write operation.
- ⚠ The formant motion data you're editing will be lost if you select other formant motion data, change programs, or turn the **RADIAS'** power off (STANDBY) without writing, or if you receive a MIDI data dump for this data from a connected external device.

Writing formant motion data

- ⚠ Formant motion data is handled as global data. Sixteen sets of formant motion data can be saved, and this data is used by all programs.

- 1 **In the Program Play mode, the Program Edit mode, or the Vocoder Edit mode, press the [WRITE] button.**
The Write dialog box will appear.



- 2 **In the "To" specify the writing-destination formant motion data number.**

- ⚠ If you specify the writing-destination as something other than the number you're editing, the formant motion data you're editing will be overwritten onto the specified number when you execute the Write operation, and the data of the number you had been editing will revert to the unedited state.

- ⚠ If you specify the writing-destination as something other than the number you're editing, the vocoder parameter "Formant" (see p.105 "P08-1: MODULATOR") will change to the number you specified.

- 3 **Press the [WRITE] button or the [EDIT/YES] button.**
The data will be written, and you will return to the state prior to writing.

- ⚠ Never turn off the power while data is being written. Doing so may destroy the data.

- ⚠ The factory-set formant motion data will be overwritten when you write formant motion data.

- note** You can use the cursor [▲ / ◀] button to select "Write," and choose one of the following three types of data to write.

Program: The program will be saved.
 Formant: The formant motion data will be saved.
 Prg&Frmnt: Both program and motion data will be saved.

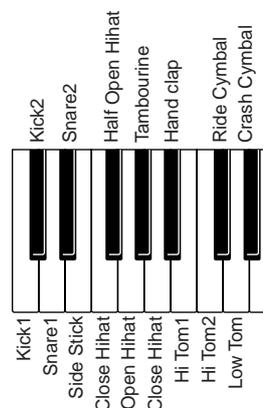
If there is no newly recorded formant motion data (see p.58 "Formant Motion function"), "Write" will indicate Program. If new formant motion data was recorded, the "Write" field will indicate Prg&Frmnt.

Drum parameter editing

What is a drum kit?

A **drum kit** is a set of sixteen individual sounds such as bass drum or cymbal, each assigned to a different note of the keyboard.

The **RADIUS** contains thirty-two of these drum kits.



What is a drum instrument?

Each of the sounds (e.g., bass drum or cymbal) making up a drum kit is called a “**drum instrument.**” A drum kit contains sixteen drum instruments. A drum instrument has essentially the same structure as the timbre of a program (with the exception of insert effects and modulation sequencers). As with a program, you can make detailed changes to the sound by editing parameters from oscillators to virtual patch settings.

Basic editing procedure

This section explains how to create a drum kit in the Drum Edit mode, and how a drum kit you created can be used in the Program Play mode.

1. Selecting Drum instrument

In the Drum Play mode, use the 16KES [1]–[16] keys to select drum instrument.

2. Selecting pages

As in the Program Edit mode, use the PAGE [+][–] buttons and the 16KEYS [1]–[16] keys to select pages. The following table shows how the 16KEYS [1]–[16] keys correspond to pages.

[1]–[16] key	Page	Tab pages					
[1]	P01: NAME	KIT	INST				
[2]	P02: COMMON	DRUM MAP					
[5]	P05: PITCH						
[6]	P06: OSC/MIXER	OSC1	OSC2	MIXER			
[7]	P07: FILTER	FILTER1	FILTER2				
[8]	P08: AMP						
[9]	P09: EG	EG1	EG2	EG3			
[10]	P10: LFO	LFO1	LFO2				
[11]	P11: PATCH	P1	P2	P3	P4	P5	P6
[16]	P16: UTILITY						

3. Selecting parameters

As in the Program Edit mode, use the cursor buttons to move the cursor to a parameter.

4. Entering values

Use the [PROGRAM/VALUE] dial to enter a value.

 If you want to keep the changes you made, you must execute the Write operation. If you don't execute Write, your changes will be lost. (p.32 “Saving an edited program”)

5. Saving a drum kit and drum instruments – WRITE

If you turn off the power or switch to a different drum kit without Writing an edited drum kit or drum instrument, your changes will be lost. If you want to save the edited drum kit or drum instrument, you must execute the Write operation.

Before you can do so, you must turn the Global mode P02: MEMORY page “Protect” setting Off. With the factory settings, this is turned On. (☞p.115 “PageMem (Page Memory)”)

To write drum kits and drum instruments, press the [WRITE] button in the Drum Play mode or the Drum Edit mode. The procedure is the same as for programs. (☞p.32 “Saving an edited program”)

⚠ Never turn off the power while data is being written. Doing so may destroy the data.

Drum instrument editing

To create a drum kit, you will first create the sixteen drum instruments that will make up that drum kit. You can create a drum instrument in one of the following three ways.

Editing the currently selected drum instrument

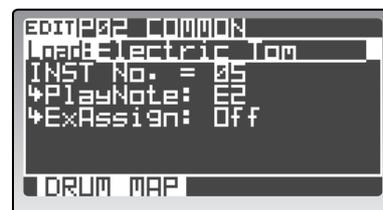
If the currently selected drum instrument is similar to the drum sound you want to create, you can simply edit that drum instrument. The parameters that make up a drum instrument are the same as for a synth program. Refer to p.37 “Program parameter editing.”

Loading and editing an another drum instrument or drum instrument template

If you want to load and edit a drum instrument or template, proceed as follows.

- 1 In the Drum Play mode, select a drum instrument.
- 2 Press the [EDIT/YES] button to enter the Drum Edit mode.
The [DRUM] button and [EDIT/YES] button will light.
- 3 Go to the P02: COMMON, DRUM MAP page.
- 4 Use the cursor [▲/◀] button to move the cursor to “Load:”.
- 5 Use the [PROGRAM/VALUE] dial to select a different drum instrument or template.

Load a drum instrument or template that’s similar to the drum sound you want to create.
The data will be loaded as soon as you select it, and the parameters will have the settings of that sound.



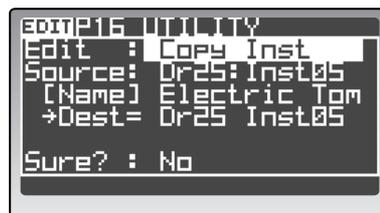
⚠ The templates you can select are the same sound data that can also be selected for program timbres.

- 6 Edit the loaded drum instrument or template in the various editing pages.
The parameters that make up a drum instrument are the same as for a synth program. Refer to p.37 “Program parameter editing.”

Copying a drum instrument from another drum kit

If you want to create a drum sound that's similar to a drum instrument in another existing drum kit, you can copy that drum instrument.

- 1 In the Drum Play mode, select the copy-source drum kit and drum instrument.
- 2 Press the [EDIT/YES] button to enter the Drum Edit mode.
The [DRUM] button and [EDIT/YES] button will light.
- 3 Select the P16: UTILITY page.
- 4 Use "Edit" to select Copy Inst.
- 5 Use "Source" to select the copy-source drum kit and instrument number.



note If you want to change the copy-destination drum instrument, use the 16KEYS [SELECT] button to choose PROGRAM, and use the [1]-[16] keys to select a drum instrument.

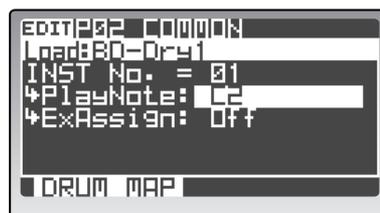
- 6 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
"Sure?" will indicate Complete; the copy has been completed.

! If you want to keep these settings, you must write them. If you don't execute the Write operation, your changes will be lost. (☞p.32 "Saving an edited program")

Assigning a note number to a drum instrument

Here's how to assign note numbers to the sixteen drum instruments of a drum kit.

- 1 In the Drum Play mode, select a drum kit.
- 2 Press the [EDIT/YES] button to enter the Drum Edit mode.
- 3 Select the P02: COMMON, DRUM MAP page.
- 4 Use the 16KEYS [SELECT] button to select PROGRAM, and use the 16KEYS [1]-[16] keys to specify a drum instrument.
- 5 Use "PlayNote" to specify the note number (C-1-G9) assigned to the drum instrument.
- 6 Repeat steps 4-5 to assign a note number to each drum instrument.



If you assign the same note number to two or more drum instruments, each of the assigned drum instruments will sound when you play that note of the keyboard.

! If you want to keep these settings, you must write them. If you don't execute the Write operation, your changes will be lost. (☞p.32 "Saving an edited program")

Assigning a drum kit to a timbre of a program

Here's how to assign a drum kit you created to one of the timbres in a program. This allows you to play the drum kit in the Program Play mode, or use a step sequencer to play a rhythm pattern while you play other sounds manually. (☞ p.64 "Layers and splits")

1 In the Program Play mode, select a program.

We recommend that you select an initialized program (the program named "Init Program").

2 Press the [EDIT/YES] button to enter the Program Edit mode.

3 Go to the P02-2: COMMON – DRUM tab page.

4 Use "DrumTmbr" to select the timbre to which you want to assign a drum kit.

If you selected an initialized program, select timbre 1.



5 Use "KitNo." to select the drum kit you want to assign.

The name of the selected drum kit is shown below "KitNo."

6 Press the [EXIT/NO] button to return to the Program Play mode.

⚠ If you want to keep these settings, you must write them. If you don't execute the Write operation, your changes will be lost. (☞ p.32 "Saving an edited program")

7 Play the notes to which drum instruments are assigned.

You will hear the drum kit.

⚠ If you don't hear the drum instruments, check that the keyboard "OCTAVE" setting is appropriate.

⚠ You won't hear the drum kit if the timbre key zone settings do not coincide with the location where the drum instruments are assigned.

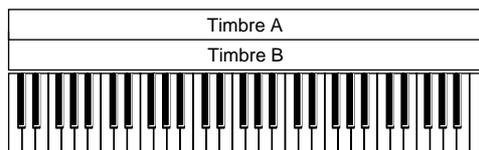
note In the factory-set drum kits, drum instruments are assigned to the C2–D#3 keys.

note If other timbres are assigned to the same MIDI channel, those timbres will also sound if their layer settings coincide. If you want to play different timbres in different zones of the keyboard, use the Program Edit mode P03-3: TIMBRE – ZONE tab page "Bottom" and "Top" settings to specify the desired key zone. (☞ p.64 "Key Zone settings")

Key Zone settings

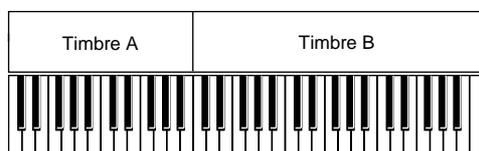
Layers and splits

The region of keys in which a timbre will sound is called the “key zone.” By specifying the key zone for each timbre you can create a program in which different sounds are heard from different zones of the keyboard. By making key zone settings for each timbre, you can create layered or split sounds. A setup in which two or more timbres sound together when you play the keyboard is called a “**layer**.”



Layer:
Two or more timbres are played together.

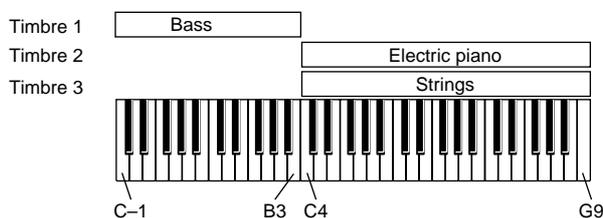
A setup in which different timbres are played from different areas of the keyboard is called a “**split**.”



Split:
Different timbres are played from different areas of the keyboard.

The upper and lower limit for the key zone for each timbre is specified by the P03-3: TIMBRE – ZONE tab page “Top” and “Bottom.”

For example the following illustration shows a program in which timbres 1–3 are layered (multiple programs sounded by a key) and split (different programs sounded by different keyboard areas). Timbre 2 and timbre 3 are layered, and timbre 1 and timbres 2 and 3 are split between B3 and C4.



The following example shows how to create a program of this type.

Selecting the sounds for timbres 1–3

In this example, we’ll select an initialized (blank) program, and use the template function to specify a bass program for timbre 1, an electric piano program for timbre 2, and a strings program for timbre 3.

- 1 In the Program Play mode, select an initialized program.
The program named “Init Program” in bank P is an initialized program.
- 2 Enter the Program Edit mode, and in the P03-1: TIMBRE – TMBR tab page, turn the “ON” setting On for timbres 1–3.



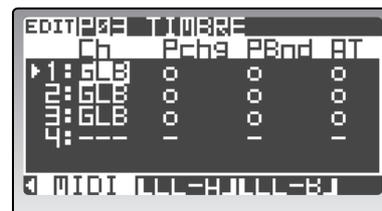
- 3 In the P03-1: TIMBRE – TMBR tab page, use the “Select” field of timbre 1 to select a bass-type sound.
- 4 Use the “Select” field of timbre 2 to select an electric-piano sound.
- 5 Use the “Select” field of timbre 3 to select a strings-type sound.



Setting the MIDI channel for timbres 1-3

- 6 In the Program Edit mode, go to the P03-4: TIMBRE – MIDI tab page and use “Ch” to set the MIDI channel for each timbre.

Set each timbre to the same MIDI channel. For this example, set all of them to GLB.



Setting the key zone for each timbre

- 7 In the Program Edit mode, go to the P03-3: TIMBRE – ZONE tab page and use “Bottom” and “Top” to set the key zone for each timbre.

For this example, make the following settings.

Timbre 1: “Bottom”=C-1, “Top”=B3

Timbre 2: “Bottom”=C4, “Top”=G9

Timbre 3: “Bottom”=C4, “Top”=G9



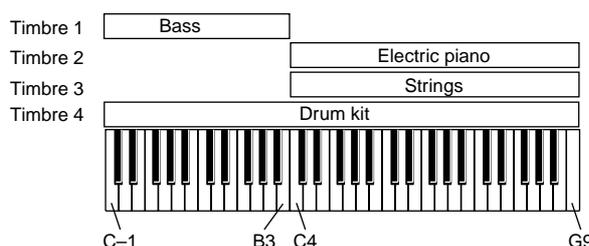
note In addition to using the [PROGRAM/VALUE] dial for setting bottom and top notes, you can also hold down the [EDIT/YES] button and play the note directly on the keyboard.

- 8 Return to the Program Play mode, and play the keyboard.

Notes from C-1 to B3 will play only the bass sound, and notes from C4 to G9 will play electric piano and strings sounds.

Step sequencer Start settings

As a continuation of the above program settings, let’s assign a drum kit to timbre 4, and make settings so that a step sequencer assigned to a pattern will start when you play a note in a specific region.



Selecting a drum kit for timbre 4

- 1 Go to the Program Edit mode P03-1: TIMBRE – TMBE tab page, and use the “ON” setting to turn timbre 4 On.
- 2 Press the front panel TIMBRE SELECT [4] button to select timbre 4.
- 3 Go to the P02-2: COMMON – DRUM tab page.
- 4 Use “DrumTmbr” to select Tmbr4.
- 5 Use “KitNo.” to select the drum kit you want to assign to timbre 4.



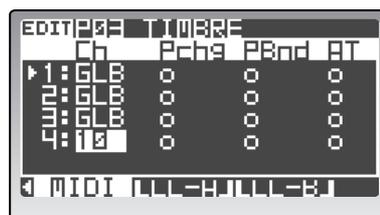
Assigning a step sequence to timbre 4

For this example, we’ll assign step sequencer 1 to timbre 4.

- 6 Use the ARPEGGIATOR/STEP SEQUENCER [SELECT] button to select STEP SEQ 1.
- 7 Enter data for step sequencer 1.
You can enter data for the step sequencer as described in p.50 “Step sequencer recording and editing,” or you can use the Copy Step Sequence (CopyStepSeq) function of the P16-5: UTILITY – ARP tab page to copy drum pattern sequence data used by another program.

Setting the MIDI channel for timbre 4

- 8 In the P03-4: TIMBRE – MIDI tab page, use “Ch” to set the MIDI channel for timbre 4.
In the Program Play mode you will be playing the MIDI channel of the timbre selected by Timbre Select, so we will specify a MIDI channel that is different than the channel used by timbres 1-3.



Setting the key zone for timbre 4

- 9 In the P03-3: TIMBRE – ZONE tab page, use “Bottom” and “Top” to set the key zone for timbre 4.
For this example, set “Bottom”= C-1 and “Top”= G9.
The key zone you specify here is not determining the region that you play from the keyboard, but rather the region of sequence data that will be played. This is why we have specified the full range of notes.

Specifying the region of notes that will start the sequencer (Scan Zone)

- 10 Go to the P15-1: STEP SEQ – COMN tab page, and use “ScanBotom” and “ScanTop” to specify the range of notes that will start the sequencer.
For this example, make the following settings.
“ScanBotom” = C3, “ScanTop” = G3
With these settings, the sequencer will start when you press a key in the region of C3-G3.



note When playing with the above settings, use the TIMBRE SELECT [1]-[4] buttons in the Program Play mode to select either timbre 1, 2, or 3.

Envelope Follower settings

By using the envelope follower you can use the varying level of an external audio signal to modulate a variety of parameters such as the filter cutoff.

In the following example, we'll explain how you can set up the envelope follower to modulate the Filter1 Cutoff of timbre 1 using the audio signal from a rhythm pattern (or other source) connected to the INPUT jack.

The envelope follower becomes a modulation source, and can be used by one of the six virtual patches to modulate another parameter.

1 Connect a drum machine or CD player to the INPUT 1 jack.

2 Use the TIMBRE SELECT [1] button to select timbre 1, and go to the Program Edit mode P02-3: COMMON – E.F tab page.

3 Set "Source" to ExtIn1.

4 Input a rhythm pattern (or other audio signal) from your external device to ExtIn1 (Audio In 1), and use the front panel AUDIO IN [1/INST] knob to adjust the input level.

Adjust the level so that the LED does not light red.

5 Adjust "Sens" and "Response" appropriately for the input signal you're using.

For details on these parameters refer to p.76 "P02-3: E.F (Envelope Follower Common)."

6 Set the Filter1 "Cutoff" to a low value such as 30.

7 In the P11-1: PATCH – P1 tab page, select Patch 1.

Make the following settings.

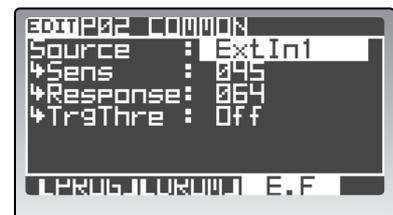
"Source": EnvF

"Dest": Filt1Cut

"Intensity": +32

8 Play the keyboard so that you hear timbre 1.

The filter 1 cutoff frequency will be modulated according to the rhythm pattern or other audio source you're using.



Global parameter editing

In the Global mode you can make settings that apply to the entire **RADIAS** and edit user scales.

Basic editing procedure

1. To enter the Global mode

Press the [GLOBAL] button.

You will enter the Global mode. The top line of the display will indicate the page number and page name, and the middle area of the display will show parameter names and values.



2. Selecting a page

As in the Program Edit mode or the Drum Edit mode, you can use the PAGE [+] [-] buttons and 16KEYS [1]–[16] keys to select pages. The following table shows how the 16KEYS [1]–[16] keys correspond to pages.

Key	Page	Function
[1]	P01: GLOBAL	Overall settings such as master tune
[2]	P02: MEMORY	Memory-related settings
[3]	P03: PRELOAD	Restoring the factory settings
[4]	P04: MIDI	MIDI-related settings such as MIDI CH and MIDI Clock
[5]	P05: MIDI DUMP	Dumping data to other MIDI devices
[6]	P06: MIDI FILTER	MIDI filter settings
[7]	P07: MIDI MAP[CC#]	MIDI Map settings for control changes
[8]	P08: PEDAL/SW	Pedal and foot switch function assignments
[9]	P09: USER SCALE	User scale settings
[10]	P10: CATEGORY NAME	Editing the category names
[11]	P11: CALIB[A.SW]	Calibrating the assignable switch
[12]	P12: CALIB[A.PEDAL]	Calibrating the assignable pedal

3. Selecting a parameter

As in other edit modes, use the cursor buttons to move the cursor to the desired parameter.

4. Entering a value

Use the [PROGRAM/VALUE] dial to enter a value.

5. Saving global parameters (Write)

- ⚠ Changes you make to the Global parameters will revert to their former state if you turn off the power without saving them. If you want to save your changes, you must execute the Write operation.

1 In the Global mode, press the [WRITE] button.

The write confirmation screen will appear.

2 If you want to write the changes, press the [WRITE] button once again. If you decide to cancel without writing, press the [EXIT/NO] button.

- ⚠ Never turn off the power while data is being written. Doing so may destroy the data.

note When you execute the Write operation in the Global mode, the Global data will be saved regardless of the memory protect setting (Global mode P02: MEMORY page "Protect"). (p.115 "Protect")



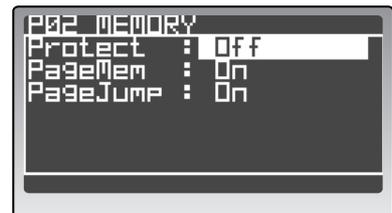
note Global data includes the formant data (see p.58 “Formant Motion function”), but this data cannot be saved in the Global mode. You must save it in the Program Play mode, the Program Edit mode, or the Vocoder Edit mode. (see p.59 “Writing formant motion data”)

Editing parameters

Disabling memory protect

The RADIUS provides a memory protect setting that prevents data from being rewritten inadvertently. If you want to write the changes you’ve made, you must first turn memory protect off so that writing is possible (i.e., memory protect is disabled).

- 1 Press the [GLOBAL] button.
You will enter the Global mode.
- 2 Go to the P02: MEMORY page.
- 3 Turn “Protect” Off.
Now you will be able to execute Write operations.



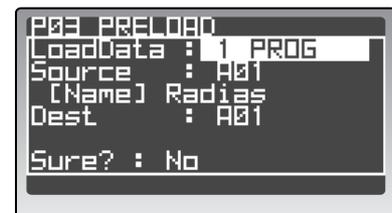
Restoring the factory settings

When the RADIUS is shipped from the factory, it contains “preloaded data.” Here’s how you can restore the RADIUS’ programs or global settings to the preloaded condition.

- ⚠ When you perform this operation, all of the data in the RADIUS will be overwritten by the factory settings. Before you proceed, make sure that it is OK to do this, and back-up any data you wish to keep.
- ⚠ You won’t be able to restore the preloaded data if Memory Protect is on. Before you proceed, turn off the memory protect off (see p.69 “Disabling memory protect”).

As an example, here’s how to load a single program.

- 1 Press the [GLOBAL] button to enter the Global mode.
- 2 Select the P03: PRELOAD page.
- 3 Use the [PROGRAM/VALUE] dial to select 1 PROG.
The 1 PROG setting lets you load a single program.
- 4 Use “Source” to specify the bank and number of the program you want to load, and use “Dest” to specify the bank and number of the program location into which you want to load the preloaded data.
For details on other types of data you can load, refer to p.116 “P03-1: PRELOAD.”
- 5 Change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button.
The “Sure?” indication will indicate Complete; the data has been loaded.
- 6 Press the [EXIT/NO] button.
You will return to the screen of step 2.



Setting the MIDI channel to match an external device

If you're using the **RADIAS** as a MIDI sound module or as a master keyboard, you must set the **RADIAS'** global MIDI channel to match the MIDI channel of your external MIDI device.

For details on this setting, refer to p.17 "MIDI channel settings – Getting ready to play."

Synchronizing with an external MIDI device

You can sync a sequencer, rhythm machine, or other external MIDI device to the tempo of the **RADIAS'** arpeggiator, or synchronize the **RADIAS'** arpeggiator to MIDI clock data from an external MIDI device.

Settings for synchronization with a connected external MIDI device are made using the Global mode P04: MIDI page "Clock" parameter.

- 1 Use a MIDI cable to connect the **RADIAS** to your external MIDI sound module.
- 2 Turn on the power of the **RADIAS** and your external MIDI sound module.
- 3 Press the [GLOBAL] button to enter the Global mode.
- 4 Go to the P04: MIDI page.

- 5 Use "Clock" to specify how the **RADIAS** will synchronize with the external MIDI device.

With the Internal setting, the **RADIAS** will transmit MIDI Clock messages at the tempo specified by the arpeggiator's [TEMPO] knob.

With the Ext-USB or Ext-MIDI setting, the step sequencer or arpeggiator will operate in synchronization with the tempo of the external MIDI device.

(see p.117 "Clock")



- 6 Make MIDI clock settings on your external MIDI device.

If you set the **RADIAS'** "Clock" to Internal, set your external MIDI device to receive MIDI Clock messages (i.e., to operate as a slave).

If you set the **RADIAS'** "Clock" to Ext-USB or Ext-MIDI, set your external MIDI device to transmit MIDI Clock messages (i.e., to operate as the master).

- ⚠ For details on synchronization settings for your external MIDI device, refer to the owner's manual of your device.

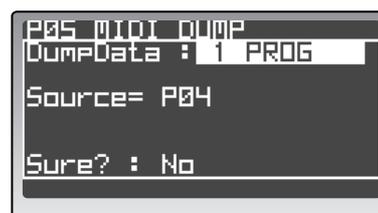
Saving data on an external device (Data Dump)

You can transmit the **RADIAS'** settings as MIDI exclusive data, and save them on a connected MIDI data filer or other MIDI device. Before you proceed, connect a device that is able to receive MIDI data dumps (e.g., a data filter, computer, or another **RADIAS** unit) and set the global MIDI channel to match.

As an example, here's how to transmit data for a single program.

- 1 Press the [GLOBAL] button to enter the Global mode.
- 2 Go to the P05: MIDI DUMP page.
- 3 Use the [PROGRAM/VALUE] dial to select 1 PROG.
With the 1 PROG setting, only the currently selected program will be transmitted.
- 4 Prepare your external MIDI device to receive a MIDI data dump.
- 5 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. The data will be transmitted.

When transmission is finished, the "Completed" indication will appear.



- 6 Press the [EXIT/NO] button.
You will return to the screen of step 1.
- ⚠ Do not operate the RADIUS' knobs, buttons, keyboard, or wheels etc. while data is being transmitted.
- ⚠ In order to receive a data dump into the RADIUS, you must first turn the Global mode P02: MEMORY page "Protect" Off, and set the P06: MIDI FILTER page "SystemEx" to 0. Data dumps cannot be received if these parameters are set otherwise. (☞p.115 "Protect," p.118 "SystemEx (System Exclusive)")

Using the included RADIUS Sound Editor software

You can use the included RADIUS Sound Editor software to edit the RADIUS from your computer. To use the RADIUS Sound Editor software, make the following settings on the RADIUS.

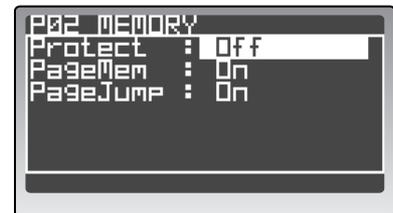
note When using the RADIUS Sound Editor software, large amounts of data must be transferred between the RADIUS and your computer, so we recommend that you use a USB connection, which will provide faster data transmission.

1 Connect the RADIUS to your computer.

☞p.18 "6. Connecting your computer"

2 Go to the Global mode P02: MEMORY page.

3 Turn "Protect" Off.



4 Go to the Global mode P04: MIDI page.

5 Set "Routing" to USB or USB+MIDI.



6 Go to the Global mode P06: MIDI FILTER page.

7 Set "SystemEx" to 0.

8 Press the [PROGRAM] button to return to the Program mode.

For details on installing the software, making settings after connection, and operation, refer to the owner's manual for the RADIUS Sound Editor software on the included CD-ROM.



note If you want to save these settings, you'll need to write Global data. (☞p.68 "5. Saving global parameters (Write)")

Parameter

Program parameters

Drum parameters

Global parameters

Effect guide

Program parameters

Program parameters are the individual parameters that together determine the sound of a program.

- ⚡ If you want to keep the edits you've made to a program, you must execute the Write operation. Refer to p.32 "Saving an edited program."

1. Name

P01 NAME

These parameters specify the name and category of the program, and the names of the timbres used in the program.

P01-1: PROG (Program Name)

Here you can name or rename the selected program, and assign it to a specific category.



0: Category [Bass...User]

The program will be assigned to the category you select here.

It is often convenient to select programs by category. For details on selecting programs by category, refer to p.21 "Selecting programs by category."

1: Program Name [space, !...↵]

Specifies the name of the program.

To specify the name, use the cursor buttons and the [PROGRAM/VALUE] dial, or use the [EDIT/YES] button and the sixteen knobs.

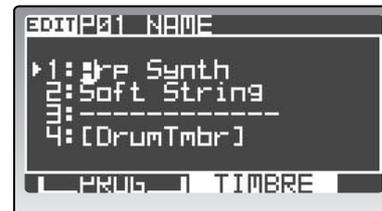
The following characters are available:

```
_! " # $ % & ' ( ) * + , - . / 0 1 2 3  
4 5 6 7 8 9 : ; < = > ? @ A B C D E F G  
H I J K L M N O P Q R S T U V W X Y Z  
[ \ ] ^ _ ` a b c d e f g h i j k l m  
n o p q r s t u v w x y z { | } ~
```

For details on entering a name, refer to p.35 "How to assign a name."

P01-2: TIMBRE (Timbre Name)

Here you can specify the name of the timbre selected by the front panel TIMBRE SELECT [1]-[4] buttons.



1: Timbre Name [space, !...↵]

Specifies the name of the timbre.

The available characters and the entry method are the same as for the program name.

For details on entering a name, refer to p.35 "How to assign a name."

2. Program Common

These parameters are common to the entire currently selected program.

- note** Parameters displayed in uppercase and enclosed in angle brackets (<>) are parameters that can be edited using the front panel knobs or buttons.

P02 COMMON (Program Common Parameters)

P02-1: PROG (Program Common)

Here you can turn the vocoder on/off, specify the scale type used by the program, specify the object that the front panel knobs and buttons will edit, and choose the illumination pattern for the 16KEYS [1]-[16] keys.



1: Vocoder <VOCODER> [Off, On]

Specifies whether this program will use the vocoder.

- ⚡ This setting will change the available number of voices.

Off

The vocoder is off, and will not be used in the current program.

On

The vocoder is on, and will be used by the current program.

Audio that is input to the INPUT 2 jack will be used to produce the vocoder effect.

For details on vocoder editing and on the vocoder parameters, refer to p.56 "Vocoder settings" and p.104 "6. Vocoder Parameters."

2: Scale [Equal...User]

Selects the type of scale that the current program will use. You can choose one of ten different scale types.

Equal

Equal temperament, which is the most commonly used scale. Every semitone is spaced an equal pitch distance from the next.

Major

Pure major scale. Major chords in the key specified by "Scale Key" will be completely harmonious.

Minor

Pure minor scale. Minor chords in the key specified by "Scale Key" will be completely harmonious.

Arabic

Arabic scale. It includes the quarter-tone scale characteristic of Arabian music.

Pytha

Pythagorean scale, a scale based on ancient Greek musical theory. It is particularly effective when playing melodies.

Werck

Werckmeister scale, an equal tempered scale used in the late Baroque period.

Kirn

Kimberger scale, created in the 18th century, and used mainly for tuning harpsichords.

Slendro

Slendro scale, an Indonesian gamelan scale that divides the octave into five notes. If the "Scale Key" is C, use the C, D, F, G, and A keys.

Pelog

Pelog scale, an Indonesian gamelan scale that divides the octave into seven notes. If the "Scale Key" is C, use the C, D, E, F, G, A, and B keys.

User

The scale you created in the Global mode P11: USER SCALE page. (☞ p.120 "P09-1: USER SCALE")

3: ScaleKey [C...B]

Specifies the tonic ("key" or "root note") for the scale you selected in "Scale."

4: PanelEdit [Link, Timbre1...Timbre4, Vocoder]

Specifies what will be edited by the front panel buttons and knobs.

Link

The front panel controls will edit the timbre selected by the [TIMBRE SELECT] button. Normally you will choose this setting.

Timbre1...Timbre4

The front panel controls will always edit the timbre specified here, regardless of the timbre selected by the [TIMBRE SELECT] buttons.

Vocoder

The front panel controls will always edit the vocoder, regardless of the timbre selected by the [TIMBRE SELECT] buttons.

5: 16KeysLit (16 Keys Light)
[Off, Mod.Seq, MSeq&DKit, Arp/S.Seq]

Selects the illumination pattern for the 16KEYS [1]-[16] keys.

Off

When selecting a program, the LED corresponding to the program number will light.

Mod.Seq

If the timbre selected by the [TIMBRE SELECT] buttons uses a modulation sequencer, the 16KEYS [1]-[16] keys will light according to the step that is playing.

MSeq&DKit

If the timbre selected by the [TIMBRE SELECT] buttons uses a modulation sequencer, the 16KEYS [1]-[16] keys will light according to the step that is playing.

If the timbre selected by the [TIMBRE SELECT] button has a drum kit assigned to it, the 16KEYS [1]-[16] keys will light according to the drum instrument that is playing.

Arp/S.Seq

If the timbre selected by the [TIMBRE SELECT] button uses the arpeggiator or a step sequencer, the 16KEYS [1]-[16] keys will light according to the step that is playing.

P02-2: DRUM (Drum Common)

These are the parameters used with a drum kit. These parameters will be available only if you have assigned a drum kit to one of the timbres in the current program. Here you can select the drum kit to be assigned to the timbre, and adjust the overall volume and panning of the entire drum kit.



1: DrumTmbr (Drum Timbre) [Off, Timbre1...Timbre4]

Selects which timbre will be assigned a drum kit.

Note You can't edit voice-related parameters for a timbre that is assigned a drum kit.

2: KitNo. [01...32]

Selects which of the internal kits is assigned to the timbre. The [Name] field below indicates the drum kit name.

p.28 "Playing a Drum Kit – Drum Play mode"

3: Level [000...127]

Specifies the overall volume of the entire drum kit. Higher values produce a louder volume.

note If a drum kit is assigned to a timbre, you can use the front panel [LEVEL] knob to adjust this parameter.

4: Pan [L63...CNT...R63]

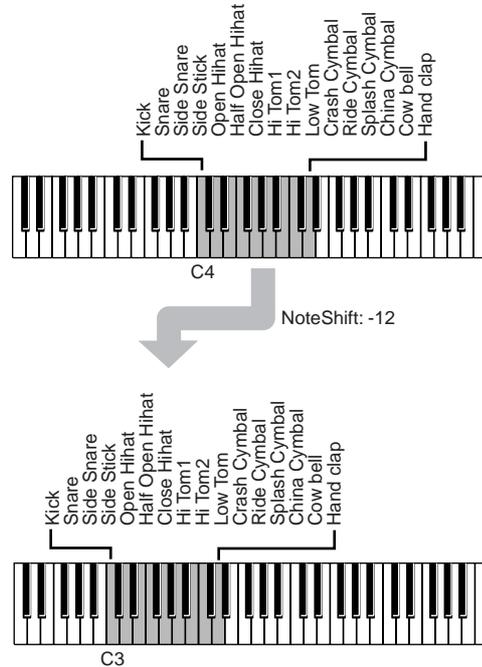
Specifies the overall panning (stereo position) of the entire drum kit. R63 is right channel only, CNT is center, and L63 is left channel only.

note If a drum kit is assigned to a timbre, you can use the front panel [PAN] knob to adjust this parameter.

5: NoteSft (Note Shift) [-48...+48]

Shifts the keyboard assignments of the entire drum kit. This is an easy way for you to shift the assignment of each drum instrument to the keyboard (as specified in the Drum Edit mode) to a position that's appropriate for the timbre's key zone setting (**p.78** "P03-3: ZONE (Timbre Zone)"). If this is set to 0, the keyboard assignments made in the Drum Edit mode will be used without change. A setting of -12 shifts the assignments one octave downward, and a setting of +12 shifts them one octave upward.

For example, suppose that you have a drum kit that assigns the sixteen drum instruments Kick–Hand Clap to the notes C4 through D#5, as shown in the illustration. Setting "NoteShift" to -12 would shift the assignments of the sixteen drum instruments to the C3–D#4 position.



P02-3: E.F (Envelope Follower Common)

These are the envelope follower (EF) parameters. The envelope follower detects the "shape" of the change in volume level coming from an external audio source, or from the signal coming from an internal bus.

Based on the settings you make here, both envelope data and gate data can be obtained from the detected envelope.

You can use envelope data as a modulation source for a virtual patch. For example, you can use an audio input signal to modulate the filter cutoff of an internal sound generator.

You can use gate data as a trigger to play an internal sound generator. For example, the detected envelope could control the note-on/off of a program played by the sound generator.

note Unlike the envelope follower of the vocoder, the envelope follower settings you make here detect the envelope from the overall audio signal that is being input. The envelope follower of the vocoder divide the input signal into sixteen bands, and then detect the envelope of each band.



1: Source [Off, ExtIn1, ExtIn2, ExtIn1+2, IntBus]

Selects the input source for the envelope follower.

Off

This turns the envelope detecting function off. We recommend that you turn this off if you're not using the envelope follower as a modulation source, or if you're using the keyboard as the trigger to play the internal sound generator.

ExtIn1

The INPUT 1 jack will be the input source. Connect the output of your external synthesizer or audio device to the INPUT 1 jack.

ExtIn2

The INPUT 2 jack will be the input source. Connect an external mic or vocal source to the INPUT 2 jack.

ExtIn1+2

Both the INPUT 1 and INPUT 2 jacks will be the input source.

IntBus

The internal bus will be the input source. The output of the timbre will be input via the internal bus.

note To use the internal bus as the input source, you must use the P03-2: TIMBRE – OUT tab page to assign the output of a timbre to the internal bus. (see p.78 “P03-2: OUT (Timbre Output)”)

2: Sens (Sensitivity) [000...127]

Adjusts the amplitude of the input signal. If the amplitude of the input signal is too low, you can increase this value to increase the amplitude of the envelope being detected. You can also increase this value if you want the detected envelope to be like a square wave for use as a gate signal.

3: Response [000...127]

Specifies the time over which the audio is converted to envelope data.

With lower values of this parameter, the rise and fall of the input signal will be detected quickly.

With higher values of this parameter, a slowly changing envelope without a sense of attack will be detected.

4: TrgThre (Trigger Threshold) [000...127, Off]

This specifies the trigger level at which the detected envelope will play the internal sound generator. A note-on will be sent when the envelope exceeds the specified level, and a note-off will be sent when the envelope falls below the specified level.

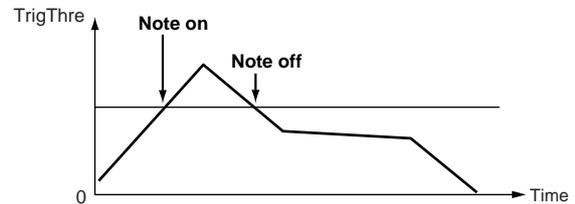
When a note-on is sent, the note number specified by “Trigger Note No.” will be sent on the MIDI channel of the timbre selected by the TIMBRE SELECT [1]–[4] buttons to the internal sound generator. If the arpeggiator or step sequencer is assigned to the selected timbre, the arpeggiator or step sequencer can be driven by the note message that is sent.

000...127

A note-on will be sent when the level of the detected envelope exceeds the value you specify here.

If this is set to 0, a note-on will be sent regardless of the input from the internal input jack or the internal bus.

Once the note-on is sent, this state will be maintained until you switch programs or turn off the power.

**Off**

Note-on messages will not be transmitted, regardless of the input.

5: Trigger Note 1...8 [C-1...G9, Off]

Specifies the note number(s) of the note-on/off messages that are transmitted according to the “TrgThre” setting. You can specify up to eight notes.

C-1...G9

The specified note number will be transmitted.

Off

No note-on/off message will be transmitted.

P03 TIMBRE (Timbre Common Parameters)

These are the parameters for each timbre of the program.

You can set the displayed parameters individually for each of the four timbres.

P03-1: TMBR (Timbre)

Here you can turn each timbre on and off, and assign the arpeggiator or a step sequencer to each timbre.

**1: On (Timbre On)** [Off, On]

Switches each timbre on/off.

note If a drum kit is assigned to a timbre, a  symbol is shown at the right.

Off

The timbre will be off.

Timbres that are off will not sound.

On

The timbre will be on, and can be played by the keyboard or by note-on messages from the MIDI IN connector.

note You can switch a timbre on/off by holding down the [EXIT/NO] button and pressing the corresponding TIMBRE SELECT [1]–[4] button.

2: Select [A01T1...P16T4, Tmp001...Tmp128]

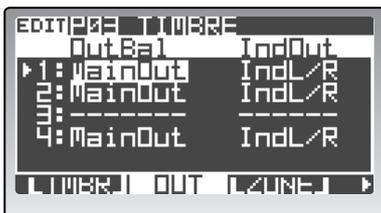
Loads settings from another timbre or a template. Move the cursor to the timbre, and use the [PROGRAM/VALUE] dial to select a timbre or template.

note In the “Select” field, you can only select timbres that are turned on in the current program or any other program. When you select a timbre, the sound parameters, modulation sequences, and insert effect settings will be loaded. When you select a sound template, the modulation sequences and insert effect settings will be set to off.

note If a drum kit is assigned to the timbre, you can select and load the timbres in other programs that are also assigned to a drum kit, or load one of the 32 drum kits. When you select a drum kit timbre from another program, the insert effect settings will also be loaded. When you select one of the 32 drum kits, the insert effect settings will be turned off.

P03-2: OUT (Timbre Output)

These are the output-related parameters for each timbre.



1: OutBal (Output Balance)

[MainOut, M63101...M63163...M01163, IndOut]

The output of each timbre can be sent to the main outputs, or to the individual outputs, or to both - and you can adjust the mix between them.

MainOut

The sound will be processed through the master effect and sent from the MAIN L/MONO and R jacks.

M63101...M63163...M01163

Sets the balance between the main output and the individual outputs. The sound will be processed through the master effect before being sent from the MAIN L/MONO and R jacks.

IndOut

Sends the output of the timbre to the INDIV.L and R bus.

2: IndOut (Individual Output) [IndL/R, IntBus]

Specifies the destination of the INDIV. L and R bus. Use “OutBal” if you’ve sent the signal to the INDIV.L and R bus.

IndL/R

Sends the signal to the INDIV. L and R jacks.

IntBus

Routes the signal to the internal bus. This lets you use the signal as an input source for the vocoder or envelope follower.

P03-3: ZONE (Timbre Zone)

Each timbre can be set to play a particular range of notes on the keyboard. This allows you to create “split” programs where adjoining regions are assigned to different timbres, or “layered” programs, where the same region is assigned to different timbres. These parameters specify the key zone (keyboard region) in which each timbre will sound.

For more about split and layer settings, refer to p.64 “Key Zone settings.”



1: Bottom

[C-1...G9]

Specifies the lowest note of the key zone where this timbre will play.

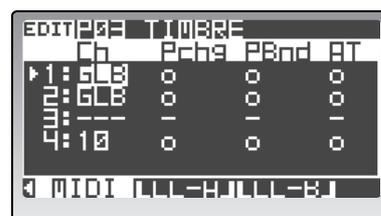
2: Top

[C-1...G9]

Specifies the highest note of the key zone where this timbre will play.

P03-4: MIDI (Timbre MIDI Parameters)

A variety of MIDI functions can be set independently for each timbre. You can specify the MIDI transmit/receive channel for each timbre, and whether each timbre will receive program change messages, pitch bend messages, and aftertouch messages. The corresponding MIDI message will be received if this parameter is set to O (Enable), or ignored if this is set to X (Disable).



1: Ch (MIDI Channel) [01...16, GLB]

Specifies the MIDI transmit/receive channel.

By setting two or more timbres to the same MIDI channel and using the P03-3: TIMBRE - ZONE tab page to specify their key zone appropriately, you can create split setups in which timbres are played from separate key zones, or layered settings in which timbres are played together.

By setting each timbre to a different MIDI channel, you can use the **RADIAS** as a multi-timbral sound module, and control it from an external sequencer or other device.

note If you set this appropriately in conjunction with the program change ("Pchg") setting, you'll be able to call up a new timbre using a program change message.

01...16

The specified value will be the MIDI transmit/receive channel.

If the specified MIDI channel matches the global MIDI channel (specified in the Global mode), a "G" indication is shown beside the numerical value.

note If you connect an external MIDI sequencer, you must set the MIDI transmit/receive channel of each timbre to match the MIDI channel of the corresponding tracks on your sequencer.

GLB (Global)

The MIDI transmit/receive channel of the timbre will always match the global MIDI channel.

To set the global MIDI channel, use the Global mode 3: MIDI page "MIDI Ch." (p.116 "MIDI Ch")

2: Pchg (Program Change) [x, o]

Specifies whether MIDI program change messages will be received.

In the Program Play mode, incoming MIDI bank select messages and MIDI program select messages on a MIDI channel that matches the "Ch" setting will switch the timbre to a different timbre saved in the **RADIAS** - including timbres used in other programs.

note For more about program changes and bank select messages, refer to p.146 "Program change/Bank select."

3: PBnd (Pitch Bend) [x, o]

Specifies whether MIDI pitch bend messages will be received by the timbre.

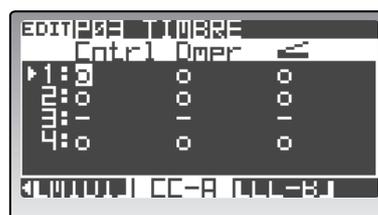
4: AT (After Touch) [x, o]

Specifies whether MIDI aftertouch messages will be received by the timbre.

P03-5: CC-A (Controller's CC)

These settings specify whether MIDI control change messages such as Modulation Wheel and Damper Pedal assigned to the **RADIAS'** controllers will be received by each timbre. The corresponding MIDI message will be received if this parameter is set to O (Enable), or ignored if this is set to X (Disable).

note The effect control source ("Ctrl Src" parameter) can use MIDI control changes or aftertouch regardless of this setting. For example if you set "Dmpr" to X (not received), and select Damper as the effect control source, you can use damper messages to control only the effect.

**1: Cntrl (Controller's CC)** [x, o]

Specifies whether MIDI control change message CC#01 (modulation wheel) and CC#02/CC#16/CC#80/CC#81 will be received by the timbre.

2: Dmpr (Damper Pedal) [x, o]

Specifies whether MIDI control change message CC#64 Hold (damper pedal) will be received by the timbre.

3:  (Foot Pedal/Sw) [x, o]

Specifies whether foot pedal and foot switch messages will be received by the timbre.

P03-6: CC-B (Other Control Change)

These settings specify whether portamento on/off and other MIDI control change messages will be received.

**1: Prtmnto (Portamento)** [x, o]

Specifies whether MIDI control change message CC#65 Portamento on/off will be received by the timbre.

2: OtherCC (Other Control Change) [x, o]

Specifies whether other MIDI control change messages not covered by the preceding items will be received by the timbre.

3. Synth Parameters

These are the synthesis parameters that are used to create a timbre.

Each of the four timbres has the same pages. Use the TIMBRE SELECT [1]–[4] buttons to select the timbre you want to edit.

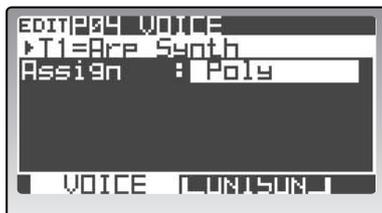
 If a drum kit is assigned to a timbre, the parameters of the P04: VOICE–P12: MOD SEQ pages are not available for that timbre.

P04 VOICE

These parameters determine performance characteristics of the timbre.

P04–1: VOICE

Here you can specify how the timbre will be played.



1: Assign (Voice Assign) [Mono, Poly]

Selects monophonic or polyphonic operation.

Mono

The timbre will play monophonically (one note at a time).

Poly

The timbre will play polyphonically.

2: Priority [Last, Low, High]

When playing monophonically, and more than one note is held down, this setting specifies the note that will take priority.

This parameter is shown if “Assign” is set to Mono.

Last

The last key to be pressed down will sound.

Low

The lowest note being pressed will sound.

High

The highest note being pressed will sound.

3: Trigger [Single, Multi]

This specifies whether the EGs will retrigger when you play a second note before releasing a previously played note.

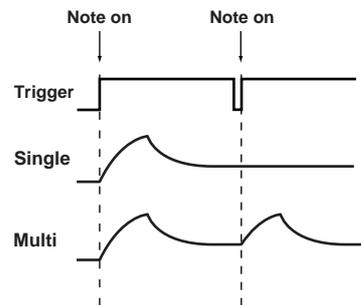
This parameter is shown if “Assign” is set to Mono.

Single

The second and subsequent notes will not retrigger the EG. Use this setting if you want to play legato.

Multi

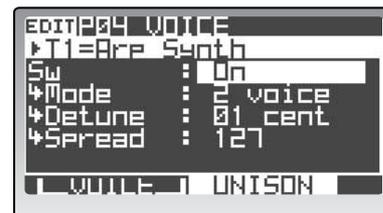
The EG will be retriggered each time a new key is pressed.



P04–2: UNISON

These are the unison-related parameters.

Unison is a function that produces a richer tone by playing multiple voices at the same pitch to “fatten” the sound. This effect can be enhanced by slightly detuning each stacked voice. The **RADIAS** lets you stack as many as six voices in this way.



1: Sw (Unison On/Off) <UNISON> [Off, On]

Switches unison on/off.

Off

Unison is off.

On

Unison is on.

If this is on, use the “Mode,” “Detune,” and “Spread” parameters to specify the number of voices, detuning, and panning.

2: Mode [2...6 voice]

Specifies the number of voices that are stacked when using the Unison function. When you play a note, the specified number of voices will be heard, producing a richer tone.

This parameter is shown and can be edited if “Sw” is On.

 Depending on other voice-related settings, the number of voices you specify here may not actually sound.

3: Detune [00...99 cent]

Specifies the amount of detuning (pitch spread) that will be applied between each stacked voice when using the Unison function.

This parameter is available if the unison "Sw" function is On.

 The "Detune" setting has no effect for OSC1 (oscillator 1) if the P06-1: OSC1 "Wave (OSC1 Wave)" is set to DrumPCM.

4: Spread [000...127]

Specifies how far the panning of the voices is spread apart when using the Unison function. The panning of each stacked voice will be spread by the amount you specify here.

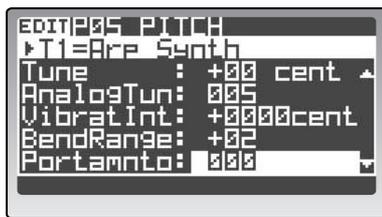
This parameter is available if the unison "Sw" function is On.

P05 PITCH

These are the pitch-related parameters.

 These parameter setting has no effect for OSC1 (oscillator 1) if the P06-1: OSC1 "Wave (OSC1 Wave)" is set to DrumPCM.

P05-1: PITCH



1: Transpose [-48...+48]

Shifts the pitch produced by the oscillators in steps of a semitone (100 cents).

You can adjust this in a range of four octaves upward or downward.

note The front panel [OCTAVE] buttons shift the pitch range assigned to the keyboard and the 16KEYS [1]-[16] keys in steps of one octave; they do not change the pitch of the sound you hear, nor is the setting saved when you Write. Use this Transpose setting when you want to change the pitch of the oscillators themselves.

2: Tune [-50...+50 cent]

Adjusts the pitch produced by the oscillators in steps of one cent.

You can adjust this in a range of -50 - +50 cents.

3: AnalogTun (Analog Tune) [000...127]

By adding a slight randomness to the pitch of each note as it is played, this lets you simulate the pitch instability and oscillator "drift" that was characteristic of analog synthesizers. Higher settings will produce greater variations in pitch.

4: VibratInt (Vibrato Intensity) [-2400...+2400cent]

Specifies the depth of the vibrato that will occur when the modulation wheel is moved to its maximum position.

LFO2 will apply vibrato to the pitch of the oscillators.

5: BendRange [-12...+12]

Specifies the amount of pitch change (in semitone units) that can be produced by the pitch bender. This value specifies the amount of pitch change that will occur when the pitch bender is moved all the way in the positive (+) direction.

6: Portamnto (Portamento Time) < TIME > [000...127]

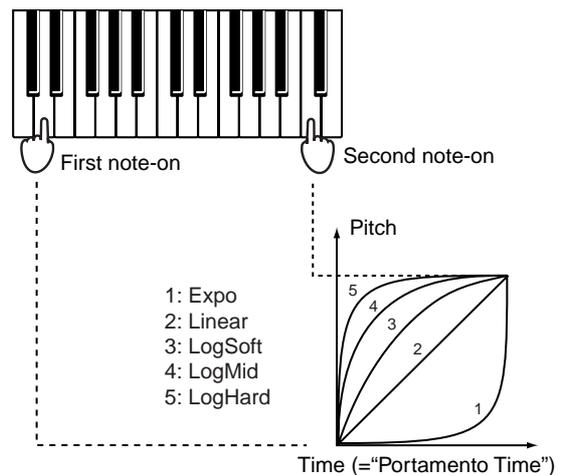
Specifies the portamento time.

Portamento is a function that creates a smooth transition in pitch between one note and the next.

With a setting of 000 there will be no portamento. With higher settings, it will take longer to reach the pitch of the next note played.

7: PrtmCurve (Portamento Curve) [LogHard...Expo]

Specifies the curve used by the portamento effect.



P06 OSC/MIXER

These are the parameters that specify the algorithm, waveform and output of each oscillator. The RADIAS provides two oscillators for each timbre. You can use these two oscillators to create a variety of complex waveforms.

P06-1: OSC 1



1: Wave (OSC1 Wave) < WAVE [▲], [▼] >
[Saw...Audioln]

Selects the waveform of oscillator 1 (OSC 1). The parameters controlled by the “Control1” knob and “Control2” knob will be different based on the waveform you select here and on the “OSC Mod” setting.

Saw

This sawtooth wave is appropriate for creating a wide range of sounds typical of analog synthesizers, including basses and pads.

🔊 With some settings, this will produce noise.

When “OSC Mod” = Waveform

Control1: Waveform (Waveform Modulation) [000...127]

Adjusting the value will modify the waveform. A setting of 0 produces a simple sawtooth wave, and a setting of 127 produces a sawtooth wave one octave higher.



Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]

LFO1 will vary the “Control1” effect (Waveform Modulation). Control2 adjusts the depth of this change. By setting the LFO1 “Wave” (P12-1: LFO – LFO1 tab page “Wave”) to Tri and applying this effect, you can produce a result similar to detuning the waveform, producing a richer sound.

When “OSC Mod” = Cross

When you’re using cross modulation, the waveform selected by “Wave” will be the carrier.

Control1: ModDepth (Cross Modulation Depth) [000...127]

Adjusts the depth of cross modulation.

Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]

LFO1 will vary the depth of cross modulation. Control2 adjusts the depth of this change. Pitch Modulation varies the pitch from the basic pitch for an equal distance up/down in terms of musical notes. In contrast, Cross Modulation varies the pitch from the basic pitch for an equal distance up/down in terms of frequency.

When “OSC Mod” = Unison

Unison detunes the pitch of five oscillators within oscillator 1 and outputs them together to create a richer sound.

Control1: Detune (Unison Detune) [000...127]

Adjusts the pitch distance between the unison oscillators. Higher settings produce a greater spread between oscillators, giving a richer sound.

Control2: Phase (Unison Phase) [000...127]

Specifies the phase of each oscillator at note-on. This will affect the tone of the attack.

When “OSC Mod” = VPM

Control1: ModDepth (VPM Depth) [000...127]

Adjusts the depth of the VPM effect.

Control2: Harmonics (VPM Harmonics) [01...32]

Specifies the frequency of the VPM modulator as a multiple (harmonic) of the oscillator 1 fundamental.

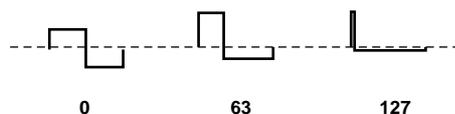
Square

This is a pulse wave suitable for electronic sounds and wind instruments. By adjusting the pulse width you can produce sounds reminiscent of clavi or sax.

When “OSC Mod” = Waveform

Control1: Waveform (Waveform Modulation) [000...127]

Adjusts the pulse width. A setting of 0 produces a simple square wave. At a setting of 127, the pulse width will disappear completely, and there will be no sound.



Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]

LFO1 will vary the “Control1” effect (Pulse Width). Control2 adjusts the depth of this change. By setting the LFO1 “Wave” (P12-1: LFO – LFO1 tab page “Wave”) to Tri and applying this effect, you can create a pulse width modulation effect, giving the sound more depth.

When “OSC Mod” = Cross

This is the same as when “Wave” = Saw.

When “OSC Mod” = Unison

This is the same as when “Wave” = Saw.

When “OSC Mod” = VPM

This is the same as when “Wave” = Saw.

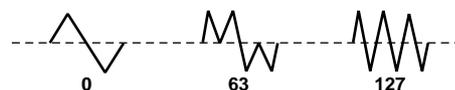
Tri

Triangle wave has fewer overtones than sawtooth wave or square wave, and is suitable for mild tone such as bass or pads.

When “OSC Mod” = Waveform

Control1: Waveform (Waveform Modulation) [000...127]

Adjusting the value will modify the waveform. A setting of 0 produces a simple triangle wave, and a setting of 127 produces a triangle wave that is one octave and a fifth higher (i.e., the third harmonic).



Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]

LFO1 will vary the “Control1” effect (Waveform Modulation). Control2 adjusts the depth of this change.

When “OSC Mod” = Cross

This is the same as when “Wave” = Saw.

When “OSC Mod” = Unison

This is the same as when “Wave” = Saw.

When “OSC Mod” = VPM

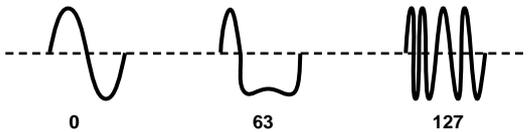
This is the same as when “Wave” = Saw.

Sin

Sine wave is a mild tone that contains only the fundamental frequency with no overtones.

When "OSC Mod" = Waveform**Control1: Waveform (Waveform Modulation) [000...127]**

A setting of 0 produces a simple sine wave. Increasing this value will modify the waveform as follows, changing the overtone structure.

**Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]**

Adjusts the depth to which LFO1 will affect the "Control1" effect.

When "OSC Mod" = Cross

This is the same as when "Wave" = Saw.

When "OSC Mod" = Unison

This is the same as when "Wave" = Saw.

When "OSC Mod" = VPM

This is the same as when "Wave" = Saw.

Formant

The formant waveform has a tonal character reminiscent of a human voice.

Control1: Formant (Formant Width) [000...127]

Adjusts the frequency components that are characteristic of vocal formants. This is equivalent to changing the shape of your mouth (i.e., changing the vowel sound).

Control2: Offset (Formant Offset) [-63...+63]

Moves the entire formant frequency spectrum upward or downward. This is equivalent to changing the size of your mouth. A setting of 0 produces the standard formant locations.

Noise

Generates noise. "Control1" boosts the pitched component within the noise, and "Control2" adjusts the brightness.

Control1: Resonance [000...127]

Adjusts the amount of resonance for the filter provided within the noise oscillator. Higher values will emphasize the frequency points for the pitched component within the noise.

Control2: LPF/HPF [LPF63...CNT...HPF63]

Adjusts the mix balance between the low-pass and high-pass filters; this will vary the brightness of the sound.

SynthPCM

This provides various PCM waveforms taken from acoustic instruments and digital synthesizers. You can choose one of 64 different PCM waveforms.

For details on the PCM waveforms provided, refer to p.156 "Voice Name List."

Control1: --- has no effect

Control2: Wave Sel (Wave Select) [01...64]

Selects the PCM waveform.

DrumPCM

This provides various PCM waveforms such as drum and percussion sounds.

Control1: Pitch (Drum Pitch) [-63...+63]

Adjusts the pitch.

Control2: Wave Sel (Wave Select) [01...128]

Selects the drum PCM waveform. The pitch of the drum PCM waveform will be the same regardless of the note number. You can choose one of 128 different drum PCM waveforms.

For details on the drum PCM waveforms provided, refer to p.156 "Voice Name List."

AudioIn

This lets you use the input source specified by "Source" as the oscillator output.

Control1: Gain [-63...+63]

Adjusts the volume of the audio input.

Control2: Balance [L63...CNT...R63]

Adjusts the balance between the L channel (INPUT 1 jack) and R channel (INPUT 2 jack) of the input signal.

note

If the P04-2: VOICE – UNISON tab page "Sw" is On, the audio input can be used as stereo, and certain parameters will be set automatically. In this case, please note the following points.

- Regardless of the "Balance" (Control2) setting, the signal of the Int.Bus L or Ext.In 1 signal will be fixed at "Balance" = L63, and the signal of the Int.Bus R or Ext.In 2 signal will be fixed at "Balance" = R63.
- The oscillator will be fixed at "2 voice" regardless of the "Unison Mode" setting.
- If "Unison Spread" is set to 0, the L channel and R channel of the timbre output will both be set to a "PAN" of CNT (Center). If "Spread" is set to 127, the L channel and R channel of the timbre output will be set to a "PAN" of L63 and R63 respectively.

2: Source [ExtIn, IntBus]

Selects the audio input source.

This is valid only if "Wave" is set to AudioIn.

Use Control1 "Gain" to adjust the input volume, and Control2 "Balance" to adjust the balance.

ExtIn

The waveform received from the INPUT 1 and 2 jacks will be used. The input from the INPUT 1 jack is sent to the L channel of the oscillator, and the input from the INPUT 2 jack is sent to the R channel. If the P4-2: VOICE – UNISON tab page "SW" setting is Off, the sound will be mixed to monoaural.

IntBus

The internal bus will be used. The input from the L channel of the bus is sent to the L channel of the oscillator, and the input from the R channel is sent to the R channel.

note In order to use the internal bus, you must make settings in the P03-2: TIMBRE – OUT tab page to assign the timbre output to the internal bus.

3: OSC Mod <OSC MOD> [Waveform, Cross, Unison, VPM]

Selects the modulation type for oscillator 1.

⚠ You can't apply modulation if "Wave" is set to Formant, Noise, Synth PCM, Drum PCM, or Audio In. This field will be shown as Waveform.

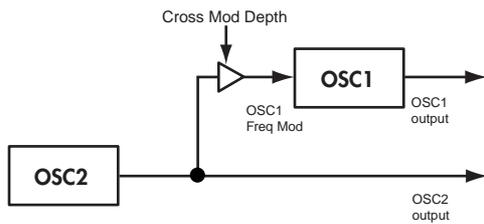
⚠ The maximum number of voices will change depending on the combination of "Wave" and "OSC Mod" settings.

Waveform (Waveform Modulation)

Use "Control1" to modify the waveform. For details on how the waveform will change, refer to p.82 "Wave (OSC1 Wave) Ü WAVE [π], [+], [á]."

Cross (Cross Modulation)

Cross Modulation uses the output waveform of oscillator 2 (the modulator) to modulate the frequency of oscillator 1 (the carrier) at high speed to produce a modulated sound. The waveform selected by "Wave" will be the carrier.



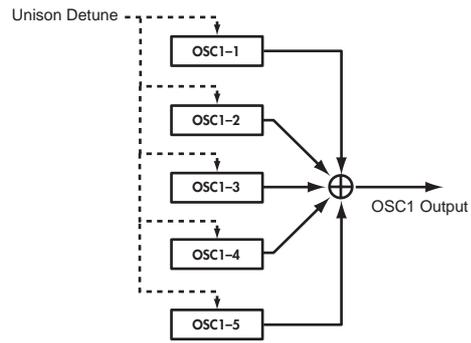
If "Wave" is Saw, Squ, Tri, or Sin, you can adjust the following parameters for the selected waveform.

Control1: ModDepth (Cross Modulation Depth) [000...127]
Adjusts the depth of cross modulation.

Control2: LFO1Mod (LFO1 Modulation Intensity) [000...127]
Adjusts the depth to which LFO1 will vary the amount of cross modulation. Pitch Modulation varies the pitch from the basic pitch for an equal distance up/down in terms of musical notes. In contrast, Cross Modulation varies the pitch from the basic pitch for an equal distance up/down in terms of frequency.

Unison

Unison skews the pitch of five oscillators within a single oscillator and outputs them together to create a richer sound. This is not to be confused with the unison parameter under voice (P04:VOICE-UNISON) which requires using additional voices of polyphony.



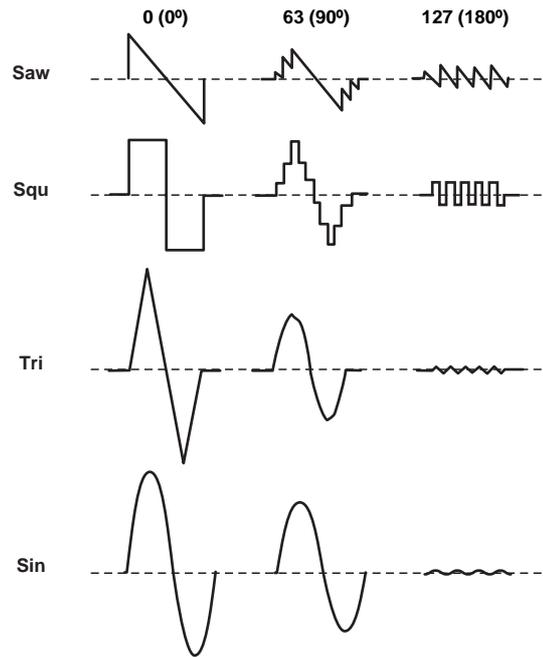
If "Wave" is Saw, Squ, Tri, or Sin, you can adjust the following parameters for the selected waveform.

Control1: Detune (Unison Detune) [000...127]

Adjusts the difference in pitch between the unison oscillators. Higher values will broaden the pitch difference between the oscillators, producing a richer sound.

Control2: Phase (Oscillator Phase) [000...127]

Specifies the phase of each oscillator at note-on. This will affect the tone of the attack. A setting of 127 will change the pitch and volume.



VPM

VPM (Variable Phase Modulation) uses a sine wave at a harmonic (integer) multiple of the oscillator 1 fundamental to modulate the phase of oscillator 1, producing metallic-sounding overtones. In contrast to Cross Modulation which produces sounds that have a modulating character in the waveform, VPM uses a sine wave at a harmonic multiple of oscillator 1 to modulate the phase of oscillator 1, meaning that the waveform will remain static while overtones are added. The sine wave used for modulation is built into oscillator 1, so the waveform of oscillator 2 will not affect the sound of oscillator 1.

If "Wave" is Saw, Squ, Tri, or Sin, you can adjust the following parameters for the selected waveform.

When "OSC Mod" = VPM

Control1: Mod Depth (VPM Depth) [000...127]
Adjusts the depth of VPM.

Control2: Harmonics (Mod Harmonics) [01...32]
Specifies the frequency of the VPM modulator as a harmonic multiple of oscillator 1.

4: Control1 < CONTROL1 >**5: Control2 < CONTROL2 >**

"Control1" and "Control2" adjust parameters of the selected waveform. The parameters and the available values will depend on the waveform that is selected. (See p.82 "Wave (OSC1 Wave) Ü WAVE [π], [\dagger] á")

P06-2: OSC 2

These are the parameters for the oscillator 2 waveform.

**1: Wave < WAVE >** [Saw, Squire, Tri, Sin]

Selects the waveform for oscillator 2.



This setting will affect the maximum number of voices.

Saw

Sawtooth wave is suitable for creating a broad range of typical analog synthesizer sounds such as synth bass and synth brass.

Squire

Square wave is suitable for electronic sounds or woodwind sounds such as clarinet.

Tri

Triangle wave has fewer overtones and a stronger fundamental than sawtooth wave or square wave. It is suitable for mild bass sounds.

Sin

This is a sine wave.

2: OSC Mod (Oscillator Modulation Type) < OSC MOD >
[Off, Ring, Sync, RingSync]

Selects the oscillator modulation type.



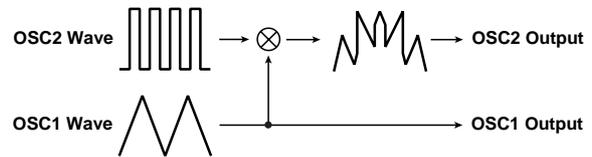
Some settings may produce noise.

Off

The sound will be output without any modulation being applied. You can adjust "Semitone" and "Tune" to produce a spacious-sounding detune effect. For fuller synth bass sounds, set the pitch of oscillator 1 and 2 one octave apart.

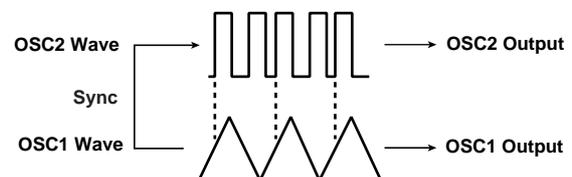
Ring

This type of modulation generates frequencies at the sum and difference of oscillators 1 and 2. You can adjust "Semitone" and "Tune" to create metallic sounds with little sense of pitch. This is useful for sound effects.

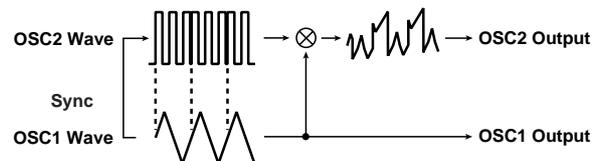
**Sync**

This type of modulation synchronizes oscillator 2 to the phase of oscillator 1, forcibly resetting the phase of oscillator 2.

This is effective on lead synth sounds. Use "Semitone" and "Tune" to adjust the overtones.

**RingSync**

This applies Ring and Sync modulation simultaneously.

**3: Semitone < SEMITONE >** [-24...+24]

Specifies the amount of detuning relative to oscillator 1 in semitone steps. Values of ± 12 produce a pitch difference of one octave, and values of ± 24 produce a pitch difference of two octaves. At a value of 0, the pitch will be the same as OSC1.

4: Tune < TUNE > [-63...+63]

Specifies the amount of detuning relative to oscillator 1. Values of ± 63 produce a pitch difference of ± 2 octaves, and values of ± 48 produce a pitch difference of ± 1 octave. Values near 0 produce fine adjustments in the pitch.



If "OSC Mod" is set to Sync, adjusting the "Semitone" or "Tune" parameters will change the pitch of the overtones. The pitch of the fundamental will not change.

P06-3: MIXER

These parameters specify the output level of each oscillator. The settings you make here will determine the input level to the filter.



1: OSC1 Lvl (OSC1 Level) < OSC1 > [000...127]

Specifies the output level of oscillator 1.

2: OSC2 Lvl (OSC2 Level) < OSC2 > [000...127]

Specifies the output level of oscillator 2.

3: Noise Lvl (Noise Level) < NOISE > [000...127]

Specifies the output level of the noise generator.

P07 FILTER

These are the individual parameters for filter 1 and filter 2, as well as parameters that affect the entire filter section. Both filters are self resonating.

P07-1: FILTER 1



1: Routing < ROUTING >

[Single, Serial, Para, Indiv]

Specifies the routing (connection) between filter 1 and filter 2.



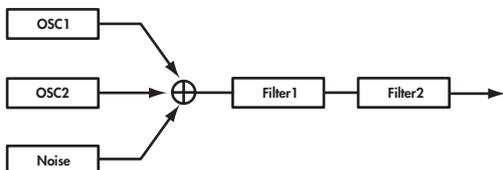
This setting will affect the maximum number of voices that can be played at one time.

Single

Only filter 1 is used.

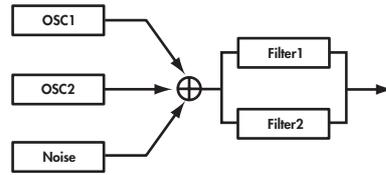
Serial

Filter 1 and filter 2 are connected in series.



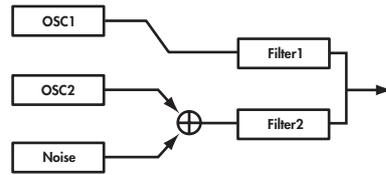
Para

Filter 1 and filter 2 are connected in parallel.



Indiv

Filter 1 is applied to oscillator 1, and filter 2 is applied to oscillator 2 and noise.

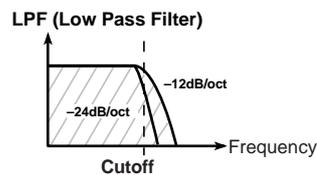


2: FiltBal (Filter1 Balance) < FILTER TYPE > [LPF24...LPF12...HPF...BPF...THRU]

Selects the filter type. Intermediate settings will produce a response that is between the two filter types.

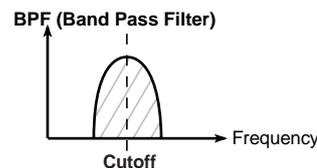
LPF12 (-12dB/oct), LPF24 (-24dB/oct)

LPF (Low Pass Filter) is the most common type of filter; it passes the frequencies below the cutoff frequency and cuts the region above. Raising the cutoff frequency ("Cutoff" value) will produce a brighter tone. The 24dB/octave filter (also known as 4-pole; versus the 12dB/octave also known as a 2-pole filter) cuts the sound below the cutoff frequency at steeper curve and is useful for bass sounds with more "punch."



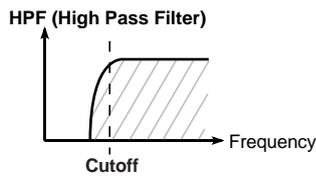
BPF (-12dB/oct)

BPF (Band Pass Filter) passes the frequencies in the region of the cutoff frequency, and cuts all other frequency regions. Use this when you want to emphasize just a specific portion of the sound.



HPF (-12dB/oct)

HPF (High Pass Filter) passes the frequencies above the cutoff frequency and cuts the region below. Use this when you want to make the tone thinner. However, raising the cutoff frequency too far will drastically reduce the volume.



THRU

The sound will output directly, without passing through the filter.

3: Cutoff (Cutoff Frequency) < CUTOFF > [000...127]

Specifies the cutoff frequency. Higher settings will raise the cutoff frequency.

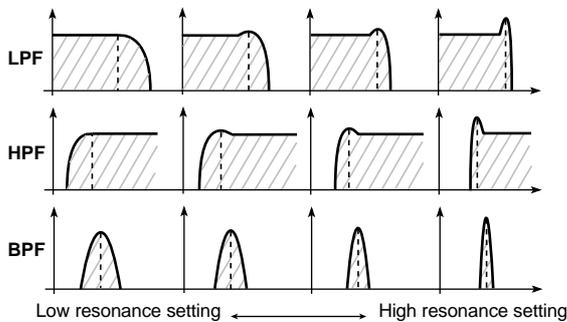
note "Cutoff" can be modified by the time-varying changes produced by EG1, position of the notes on the keyboard (keyboard tracking), or keyboard dynamics (velocity). The "EG 1 Int," "Key Track," and "Velo Sens" parameters specify the degree to which these will affect "Cutoff."

⚠ With some "Cutoff" settings, the volume may be extremely low or there may be no sound at all.

4: Resonance < RESONANCE > [000...127]

Specifies the resonance. This boosts the region near the "Cutoff" frequency, giving a distinctive character to the sound. Increasing this value will produce a greater effect.

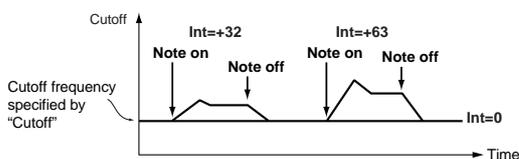
The effect of resonance



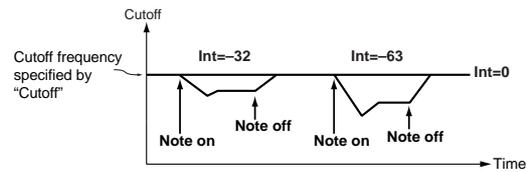
⚠ High settings of "Resonance" may cause distortion for some cutoff frequencies or input sounds.

5: EG1 Int (EG1 Intensity) < EG 1 INT > [-63...+63]

Specifies the degree to which EG 1 will modulate the cutoff frequency. This will cause the cutoff frequency to change over time. Increasingly positive (+) values will produce a greater effect.



Increasingly negative (-) values will produce a greater effect in the opposite direction.



6: KeyTrack (Keyboard Track) < KEY TRACK > [-2.00...+2.00]

Specifies how keyboard tracking (location on the keyboard) will modulate the cutoff frequency. With a setting of 0, keyboard tracking will have no effect. Positive (+) settings will cause the cutoff frequency to rise as you play above the C4 key, or fall as you play below the C4 key. With a setting of +1.0, the change in cutoff frequency will be proportional to the change in pitch. Negative (-) settings will cause the cutoff frequency to fall as you play above the C4 key, or rise as you play below the C4 key.

note Keyboard tracking is based on the pitch as controlled by pitch bend, transpose, and modulation sequencer. It does not reflect pitch changes produced by vibrato or virtual patching.

7: VeloSens (Velocity Sens) [-63...+63]

Specifies how velocity (keyboard playing dynamics) will affect the cutoff frequency. Positive (+) values will cause the cutoff frequency to rise as you play more strongly. Negative (-) values will cause the cutoff frequency to fall as you play more strongly.

P07-2: FILTER2

These are the parameters for filter 2. These parameters are available if FILTER1 "Routing" is Serial, Para, or Indiv.



1: LinkSw [Off, On]

Causes filter 2 to operate using the settings of filter 1 parameters.

Off

Filter 1 and filter 2 parameters can be set independently.

On

Filter 2 will operate using the settings of the filter 1 parameters. Parameters following "Cutoff" will use the filter 1 settings.

2: FiltType (Filter2 Type) < TYPE > [LPF, HPF, BPF, COMB]

Selects the filter type.

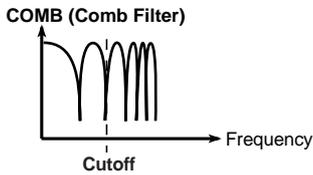
 This setting will affect the maximum number of voices.

LPF, HPF, BPF

These are the same -12 dB/oct type filters as for filter 1. Refer to p.86 "FiltBal (Filter1 Balance) Ü FILTER TYPE á."

COMB

In a comb filter (so named for its resemblance to the teeth of a comb), alternating bands pass and cut the signal, giving a unique character to the sound. Increasing the cutoff frequency ("Cutoff" value) will space the teeth of the comb farther apart, so that more regions are cut.



- 3: Cutoff (Cutoff Frequency) < CUTOFF > [000...127]
- 4: Resonance < RESONANCE > [000...127]
- 5: EG1 Int (EG1 Intensity) < EG1 INT > [-63...+63]
- 6: KeyTrack (Keyboard Track) < KEY TRACK > [-2.0...+2.0]
- 7: VeloSens (Velocity Sens) [-63...+63]

These are the same as for FILTER 1. Refer to p.86 "P07-1: FILTER1."

P08 AMP (Amplifier)

These are the parameters related to the volume of the timbre.

P08-1: AMP



1: Level (Amp Level) < LEVEL > [000...127]

Specifies the volume of the timbre.

 If a drum kit is assigned to the timbre, the parameter adjusted by the front panel [LEVEL] knob will be the P02-2: COMMON - DRUM tab page "Level" parameter.

2: Pan < PAN > [L63...CNT...R63]

Adjusts the panning (stereo position) of the timbre.

 If a drum kit is assigned to the timbre, the parameter adjusted by the front panel [PAN] knob will be the P02-2: COMMON - DRUM tab page "Pan" parameter.

3: Drive/WS (Drive/Wave Shape) < DRIVE/WS > [Off, Drive, WavShape]

Activates the drive or wave shape functions.

 This setting will affect the maximum number of voices.

Off

Drive and wave shape functions will be off.

Drive

Drive will be applied. The amount of distortion is adjusted by the output level of each oscillator in the P06-3: OSC/MIXER - MIXER tab page (or the MIXER [OSC1] knob, etc.).

WavShape

Wave shape will be applied according to the wave shape type selected by "WS Type".

4: Position [PreFilt1, PreAmp]

Specifies the position at which the drive or wave shape functions will be applied.

PreFilt1

Drive or wave shape will be applied before filter 1.

PreAmp

Drive or wave shape will be applied after the filter and before the amp.

5: Depth [000...127]

Specifies the depth at which the drive or wave shape functions will be applied.

6: WS Type (Wave Shape Type) [Decimator...Lvl Boost]

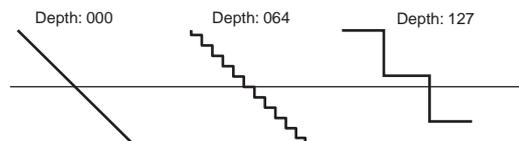
Selects the type of wave shape. This is shown and can be edited if "Drive/WS" is set to WS.

 This setting will affect the maximum number of voices.

 Some settings may produce noise.

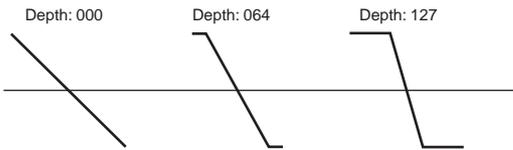
Decimator

Lowers the sampling frequency.



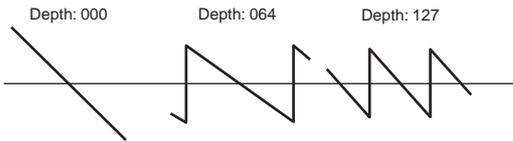
Hard Clip

Flattens any portion of the waveform above the limit.



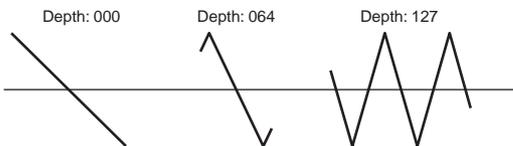
OctSaw

Cuts the portion of the waveform above the threshold level and moves it within the limits to the inverse position upward or downward.



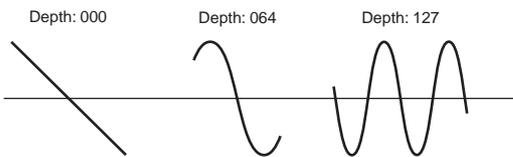
MultiTri

Sending a sawtooth wave through this will produce a triangle wave.



MultiSin

Sending a sawtooth wave through this will produce a sine wave.

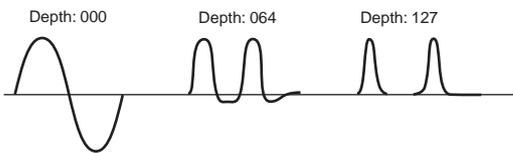


SubOSCSaw, SubOSCSqu, SubOSCTri, SubOSCSin

The selected waveform will sound one octave below oscillator 1. "Depth" adjusts the mix amount relative to oscillator 1.

Pickup

This simulates an electromagnetic pickup. "Depth" adjusts the depth.

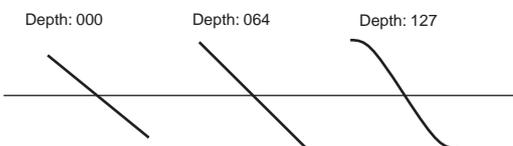


note

The above illustration for Pickup shows differences in the output waveform when a sine wave at C4 is input. The transformation will vary depending on the input pitch.

Lvl Boost

Boosts the output level. "Depth" adjusts the amount of boost.



This may produce high output volumes than other wave shape types.

7: PunchLvl (Punch Level)

[000...127]

Creates a more "snappy" attack by adjusting the amount of pulse waveform that is added to the oscillator output only during the attack. Increasing this value will emphasize the attack.



If the attack is slowed down by the EG etc., this will have no effect.

8: KeyTrack (Keyboard Track)

[-63...+63]

Specifies how keyboard tracking will affect the volume. With positive (+) settings, the volume will increase as you play upward from the C4 key, and decrease as you play downward.

With negative (-) settings, the volume will decrease as you play upward from the C4 key, and increase as you play downward.

If this value is 0, keyboard tracking will not affect the volume.

note

Keyboard tracking works according to the pitch as controlled by pitch bend, transpose, and modulation sequencer. It does not reflect pitch changes produced by vibrato or virtual patching.

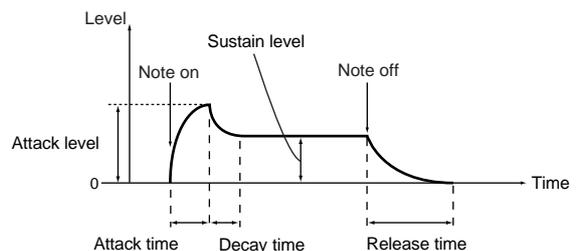
P09 EG (Envelope Generator)

These are the parameters for the EGs (Envelope Generators), which applies time-varying change to the filter or amp. EG1 is internally connected as the envelope source that controls the cutoff frequency of filter 1 and filter 2. EG2 is internally connected as the envelope source that controls the volume of the amp.

note

EG3 is an internal parameter only; there are no knobs for it on the front panel.

P09-1...3: EG 1...3



1: Attack < ATTACK > [000...127]

Specifies the time from note-on until the attack level (the maximum value of the envelope) is reached.

2: Decay < DECAY > [000...127]

Specifies the time from when the attack level is reached until the sustain level is reached.

3: Sustain < SUSTAIN > [000...127]

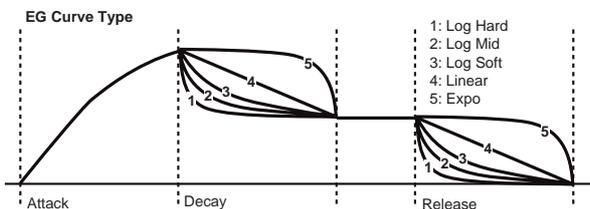
Specifies the sustain level.

4: Release < RELEASE > [000...127]

Specifies the time from note-off until the level reaches 0.

5: Curve [LogHard...Expo]

Selects the curve for the decay and release segments of the envelope.



6: LvlVelInt (Level Velocity Intensity) [-63...+63]

This allows the amplitude of the EG to be controlled by the velocity of the note-on. Greater values allow velocity to have more of an effect on the amplitude.

Positive (+) values

When you play softly, the EG amplitude will decrease; when you play strongly, the EG amplitude will increase.

Negative (-) values

When you play strongly, the EG amplitude will decrease; when you play softly, the EG amplitude will increase.

7: TimKeyTrk (Decay/ReleaseTime Keyboard Track) [-63...+63]

This allows keyboard tracking (the position on the keyboard) to affect the EG's decay time and release time. As you increase this value, keyboard position will make a greater difference in the EG times.

The keyboard position is relative to the C4 key.

Positive (+) values

EG time parameters will become shorter as you play above C4, and longer as you play below C4.

Negative (-) values

EG time parameters will become shorter as you play below C4, and longer as you play above C4.

8: TimVelInt (Decay/ReleaseTime Velocity Intensity) [-63...+63]

This allows velocity to affect the EG's decay time and release time. As you increase this value, velocity will make a greater difference in the EG times.

Positive (+) values

EG times will become longer when you play softly, and will become shorter when you play strongly.

Negative (-) values

EG times will become longer when you play strongly, and will become shorter when you play softly.

P10 LFO

These are the parameters for the LFOs (Low Frequency Oscillators). An LFO can apply cyclic change to the sound.

LFO1 is internally connected as the modulation source for oscillator 1 "Control1."

LFO2 is internally connected as the modulation source for the oscillator pitch modulation controlled by the modulation wheel (or the modulation wheel of a connected external MIDI device).

! If you have difficulty hearing the effect of the LFO, increase the depth or intensity of the modulation destination.

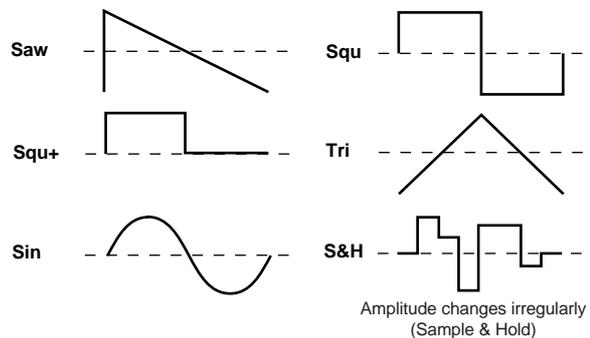
P10-1, 2: LFO 1, 2



1: Wave < SELECT > [Saw, Squ, Squ+, Tri, S&H]

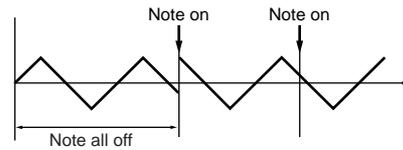
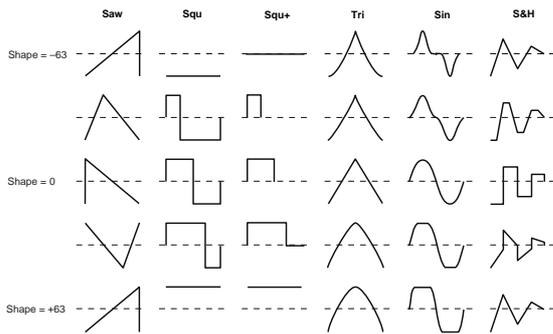
Selects the LFO waveform.

For LFO1 you can choose from Saw, Squ, Tri, and S/H. For LFO2 you can choose from Saw, Squ+, Sin, and S/H.



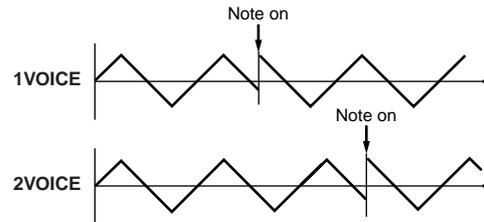
2: Shape [-63...+63]

Modifies the shape of the waveform selected by "Wave."



Voice

The phase of the LFO will be reset for each individual note-on, and each voice will be modulated at an independent phase.



3: TempoSync [On, Off]

If this is On, the LFO frequency will synchronize to the tempo or MIDI clock.

If the Global mode P04: MIDI page "Clock" (MIDI clock setting) is Internal, the LFO will synchronize to the tempo specified by the [TEMPO] knob. If the clock setting is External, the LFO will synchronize to the MIDI clock data received from an external MIDI device.

 If the "TempoSync" settings of LFO1 or LFO2 are respectively turned On, the "Dest" setting of the P11-1-6: PATCH - P1-P6 tab pages will be ignored if set to LFO1Freq or LFO2Freq.

4: Freq (Frequency) < FREQ > [0.01...100.0Hz]

Specifies the frequency of the LFO. This is shown and can be edited if "TempoSync" is Off. Higher values will make the LFO faster.

5: SyncNote [8/1...1/64]

Specifies the LFO frequency as a note value based on the tempo specified by the [TEMPO] knob. This is shown and can be edited if "TempoSync" is On.

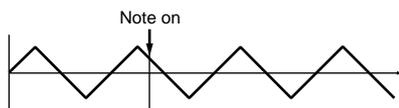
Relative to the tempo, the length of the note value specified here will be one cycle of the LFO. For example if this is set to 1/4, each cycle of the LFO will occupy one quarter note.

6: KeySync [Off, Timbre, Voice]

Specifies whether the LFO will reset at each new note-on message.

Off

The phase of the LFO will not be reset when a note-on occurs.



Timbre

The phase of the LFO will be reset at the first note-on that occurs when no other keys are being pressed, and will continue to affect all the notes played by that timbre in the same way, until once again no keys are being held down.

7: IniPhase (Initial Phase) [000...180°]

Specifies the starting position of the LFO waveform. This parameter is valid if "KeySync" is set to Timbre or Voice.

With a setting of 0, modulation will start from the "zero point" and begin ascending the positive portion of the LFO wave. A setting of 90 will begin at the highest point of the LFO wave, and a setting of 180 will start from the "zero point" and begin descending the negative portion of the LFO wave. In the phase illustrations above, the phase is set to 90.

P11 PATCH (Virtual Patch)

These are the parameters for the Virtual Patch function. Virtual Patch is a function that lets you assign modulation sources such as EG or LFO to a variety of parameters. For each timbre you can create up to six of these combinations.

P11-1...6: P1...P6 (PATCH1...PATCH6)



1: Source < SOURCE > [EG1...MIDI5]

Selects the modulation source.

EG1, EG2, EG3

EG1, EG2, or EG3 will be the modulation source.

LFO1, LFO2

LFO1 or LFO2 will be the modulation source.

Velocity

Keyboard velocity (playing dynamics) will be the modulation source.

P.Bend

Pitch bend will be the modulation source.

M.Wheel

Modulation wheel will be the modulation source.

KeyTrack

Keyboard tracking (position) will be the modulation source.

note Keyboard tracking works according to the pitch as controlled by pitch bend, transpose, and modulation sequencer. It does not reflect pitch changes produced by vibrato or virtual patching.

EnvF

The envelope data obtained from the envelope follower will be the modulation source.

MIDI1, MIDI2, MIDI3, MIDI4, MIDI5

The function specified for the Global mode P04: MIDI page parameters "MIDI1," "MIDI2," "MIDI3," "MIDI4," or "MIDI5" will be the modulation source.

2: Dest (Destination) < DESTINATION >
[Pitch...LFO2Freq]

Selects the parameter that will be the modulation destination.

Pitch

The pitch of the entire timbre will be modulated.

OSC2Pitch

The P06-2: OSC/MIXER – OSC2 tab page "Tune" parameter will be modulated.

OSC1Ctrl

The P06-1: OSC/MIXER – OSC1 tab page "Control1" parameter will be modulated.

OSC1Level, OSC2Level, NoiseLvl

The P06-3: OSC/MIXER – MIXER tab page "OSC1 Lvl," "OSC2 Lvl," or "NoiseLvl" parameter will be modulated.

Filt1Type

The P07-1: FILTER – FILTER1 tab page "Type" parameter will be modulated.

Filt1Cut

The P07-1: FILTER – FILTER1 tab page "Cutoff" parameter will be modulated.

Filt1Reso

The P07-1: FILTER – FILTER1 tab page "Resonance" parameter will be modulated.

Filt2Cut

The P07-2: FILTER – FILTER2 tab page "Cutoff" parameter will be modulated.

Drv/WsDpt

The P08-1: AMP page "Depth" parameter will be modulated.

AmplLevel

The P08-1: AMP page "Level" parameter will be modulated.

Pan

The P08-1: AMP page "Pan" parameter will be modulated.

LFO1Freq

The P10-1: LFO – LFO1 tab page "Freq" parameter will be modulated.

LFO2Freq

The P10-2: LFO – LFO2 tab page "Freq" parameter will be modulated.

note If "TempoSync" is turned On for LFO1 or LFO2, selecting LFO1Freq or LFO2Freq respectively will have no effect.

3: Intensity < INTENSITY > [-63...+63]

Specifies the depth of the modulation produced by the modulation source.

If this is set to 0, no modulation will occur.

P12 MOD SEQ (Modulation Sequencer)

These are the parameters for the Modulation Sequencers. Modulation sequencers apply time-varying change to the sound parameters in a way similar to the analog sequencers of the past. Three modulation sequencers are provided for each timbre.

P12-1: COMN (SEQ Common)



1: LastStep [01...16]

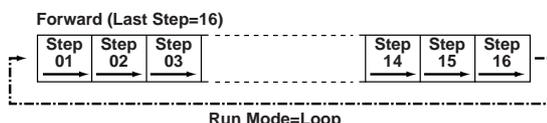
Specifies the length of the sequence in steps (i.e., the maximum number of steps).

2: SeqType (Sequence Type) [Forward...Alt2]

Specifies the sequence type (the direction in which the sequence will play).

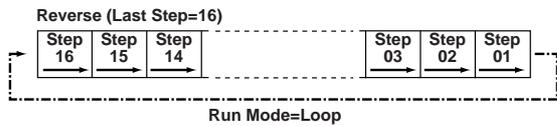
Forward

Play from the first step (Step01).



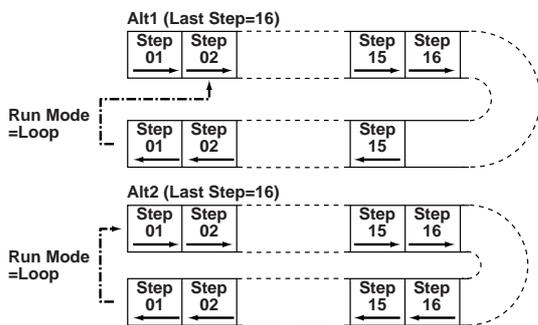
Reverse

Play from the last step (the step number specified by "Last Step") in reverse.



Alt1/Alt2

Alternately play in Forward and Reverse directions. Alt 1 immediately changes direction at the end points, so the first step and last steps are played only once per loop. Alt 2 plays the first step and the last step on both the way up and on the way down, so these steps will be played twice per loop.



note Playback is always in the Forward direction for Motion Rec.

3: RunMode [OneShot, Loop]

Specifies the loop setting for playback.

OneShot

The sequence will play for only one cycle, and will maintain the value of the last step.

Loop

The sequence will play as a loop, using the sequence type specified by "Seq Type."

note When you're using the Motion Rec function, or "KeySync" is off, playback is always in the Loop mode.

4: KeySync [Off, Timbre, Voice]

Specifies how the sequence will be reset when note-on occurs (i.e., when a key is played).

Off

The sequence will not be reset when note-on occurs.

Timbre

The sequence will be reset when the first note-on occurs for a timbre from a condition of all keys being released. In the case of a program for which different regions of the keyboard play different timbres (i.e., a split program), the reset will occur for the timbre that was played by the note-on.

Voice

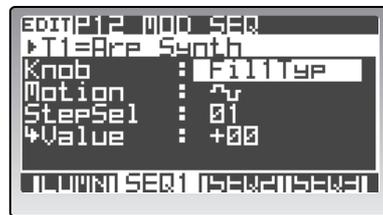
The sequence will be individually reset by each new note-on that occurs.

note If both the modulation sequencer and the arpeggiator are on, you should set this parameter to Off or Timbre. If this is set to Voice, the sequence will be reset each time the arpeggiator generates a note. If you set this to Timbre, the sequence will be reset each time a chord change occurs.

5: Resolutn (Resolution) [$\text{♩}_3 1/48 \dots 1/1$]

Specifies the playback speed of the sequence relative to the tempo (MIDI clock) specified by the [TEMPO] knob. The sequence will advance by one step for each note value you specify here, relative to the tempo. For example if you set this to $\text{♩} 1/4$, the sequence will advance one step for each quarter note.

P12-2...4: SEQ1...SEQ3



1: Knob [None, Pitch...Pch6Int]

Selects the parameter that will be recorded in the modulation sequencer.

None

The modulation sequence will do nothing.

Pitch

The modulation sequence will modify the overall pitch of the sounding oscillators over a range of ± 24 semi-tones.

Other

The modulation sequence will modify the parameter assigned to a specific panel knob over a range of ± 63 (± 24 for OSC2 Sem).

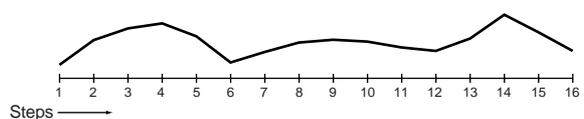
note If the same parameter is assigned to more than one sequence, an "*" is shown at the right. In this case, assignments will take priority in the order of SEQ3, SEQ2, and SEQ1.

2: Motion [~ , ~]

Specifies how the recorded values will change when the sequence is played.

~ (Smooth)

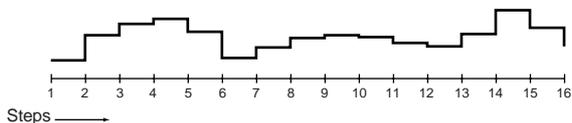
The change will be continuous, with the values recorded at each step connected by straight lines.



note If you set “Knob” to OSC1c2 (OSC1 Control 2) when OSC1 “Wave” is set to Synth PCM or Drum PCM, the operation will be the same as Step even if this parameter is set to Smooth.

Step

The value recorded at each step will be held until the next step plays.



3: StepSel (Step Select) [01...Last Step]

Selects the step to edit.

4: Value (Step Value) [-24...+24, -63...+63]

Edits the value recorded in the step specified by “StepSel” of the modulation sequence.

The value specified here will be an offset applied to the current value of the parameter that is assigned to the modulation sequence. For example if the current value is +10, and the sequence data contains +10, +10, +20... starting at step 1, the resulting value of the parameter will change as +20, +20, +30... when playback begins.

Use the cursor buttons to move the cursor to the step you want to edit, and use the [PROGRAM/VALUE] dial to edit the value. Alternatively, you can use the MOD SEQUENCER [SELECT] button to select the modulation sequence you want to edit, and use the sixteen knobs to edit the values.

P13 EQ/FX (Equalizer/Effect)

Here you can edit the parameters for the equalizer and effects.

P13-1: EQ

These are the equalizer settings.

The equalizer is used to adjust the tonal balance of each timbre, for example by bringing out certain frequencies that tend to be buried, or reducing other frequencies that are too obtrusive. The equalizer is connected immediately after the timbre output.



1: HiFreq (High Frequency) [1.00...20.0kHz]

Specifies the cutoff frequency of the high equalizer (shelving type).

2: HiGain (High Gain) < HI > [-15.0...+15.0dB]

Specifies the gain of the high equalizer. Positive (+) settings will boost the sound in the region of the cutoff frequency, and negative (-) settings will cut the sound in the region of the cutoff frequency.

3: LoFreq (Low Frequency) [0020...1000Hz]

Specifies the cutoff frequency of the low equalizer (shelving type).

4: LoGain (Low Gain) < LO > [-15.0...+15.0dB]

Specifies the gain of the low equalizer. Positive (+) settings will boost the sound in the region of the cutoff frequency, and negative (-) settings will cut the sound in the region of the cutoff frequency.

Raising the gain excessively may cause the output to distort.

P13-2, 3: IFX1, 2 (Insert Effect 1, 2)

These are the settings for insert effects 1 and 2.

Two insert effects (insert effect 1 and insert effect 2) are provided for each timbre. After the output of a timbre has passed through the EQ, it is connected in series through effect 1 and then effect 2.



0: Load (Load Template) [001...128]

Here you can load an insert effect template. Use the cursor [\blacktriangle / \blacktriangleleft] button to move the cursor, and turn the [PROGRAM/VALUE] dial to load the template.

 Be aware that when a template is loaded, any effect parameters that you had been editing will be overwritten.

note In addition to the templates built into the RADIUS, settings you yourself create can also be saved as templates. For more about templates refer to p.33 “Loading other timbre sounds/The Template function.”

1: IFX ON/OFF < ON > [OFF, ON]

Switches the insert effect selected by the [FX1-FX2] button on/off. The button will light if the effect is on.

2: Type (Effect Type) [No Effect, St.Compressor...TalkingMod(W)]

Selects the effect type used by the insert effect. For details on the available types, refer to p.121 “Effect guide.”

3: Edit1 < EDIT 1 >

4: Edit2 < EDIT 2 >

Here you can assign effect parameters to the front panel INSERT FX [EDIT1] knob and [EDIT2] knob.

The effect parameters that can be assigned will depend on the effect type. Refer to p.121 “Effect guide.”

5: Effect Parameter

Here you can edit the parameters of the effect selected by “Type.”

The number, type, and function of the parameters will depend on the effect type. For details on the parameters, refer to p.121 “Effect guide.”

P13-4: MFX (Master Effect)

These are the master effect parameters.

The master effect applies to the mixed sound of all timbres, and is typically used to apply a spatial-type effect such as reverb to add final touches to the overall sound.

The output of each timbre is sent through EQ and the insert effects, and then combined and input to the master effect. The output of the master effect is sent from the MAIN OUT jacks.

note The settings in this page are common to all timbres, regardless of the timbre that is selected by the front panel TIMBRE SELECT [1]-[4] buttons.

 The master effect is not applied to the Ind Out outputs.



0: Load (Load Template) [001...128]

Here you can load a master effect template. Use the cursor [\blacktriangle / \blacktriangleleft] button to move the cursor, and turn the [PROGRAM/VALUE] dial to load the template.

 Be aware that when a template is loaded, any effect parameters that you had been editing will be overwritten.

note In addition to the templates built into the RADIUS, settings you yourself create can also be saved as templates. For more about templates refer to p.33 “Loading other timbre sounds/The Template function.”

1: MFX ON/OFF < ON > [OFF, ON]

Switches the master effect on/off. The button will light if the effect is on.

2: Type (Effect Type) [No Effect, St.Compressor...Talking Mod]

Selects the effect type used by the master effect. For details on the available types, refer to p.121 “Effect guide.”

3: Edit < EDIT >

Assigns a master effect parameter to the front panel MASTER FX [EDIT] knob.

The parameters that can be assigned will depend on the effect type. Refer to p.121 “Effect guide.”

4: Effect Parameter

Here you can edit the parameters of the effect selected by “Type.”

The number, type, and function of the parameters will depend on the effect type. For details on the parameters, refer to p.121 “Effect guide.”

4. ARPEGGIATOR

These are the arpeggiator-related parameters.

note The **RADIUS** has one arpeggiator for each program. Arpeggiator assignments can be made from more than one timbre, but all will have the same operation.

Front Panel Parameter

These are the parameters you can set from the front panel **ARPEGGIATOR/STEP SEQUENCER** section.

To edit parameters marked by "*" you must first use the **ARPEGGIATOR/STEP SEQUENCER [SELECT]** button to select **ARPEGGIATOR**.

ON (Step Sequencer/Arpeggiator On) < ON >
[Off, On]

Switches the arpeggiator on/off. The button will light if this is on.

This parameter can be set only from the front panel [ON] button.

note If this is on, the two step sequencers will also be turned on.

LATCH* [Off, On]

Specifies latch operation for the arpeggiator.

On (button lit)

The arpeggiator will continue playing after you take your hand off the keyboard.

Off (button dark)

The arpeggiator will stop playing when you take your hand off the keyboard.

This parameter can be set only from the front panel [LATCH] button.

TYPE* (/STEP REC)

If an arpeggiator is assigned to a timbre, this will operate as the arpeggio type select button; the arpeggio type will change each time you press this button.

For details on the arpeggio types, refer to p.97 "Type (Arpeggio Type) Ü TYPE (/STEP REC) á."

SELECT

[Off, ARPEGGIATOR, STEP SEQ1, STEP SEQ2]

Assigns the arpeggiator or step sequencer to each timbre.

Off

The arpeggiator and step sequencer will not be assigned to the timbre.

ARPEGGIATOR

The arpeggiator will be applied to the timbre. When you trigger the arpeggiator from the keyboard etc. to make it begin operating, the timbre will be played by the specified arpeggio pattern.

STEP SEQ1

Step sequencer 1 will be assigned to the timbre. When you start the step sequencer by triggering it from the keyboard etc., the timbre will be played by the specified sequence pattern.

STEP SEQ2

Step sequencer 2 will be assigned to the timbre. (☞ "STEP SEQ1")

note If the step sequencer Link function (☞ p.100 "S.SeqLink (Sequencer Link)") is on, the sequence patterns of both step sequencers 1 and 2 will play consecutively, regardless of whether you select StpSeq1 or StpSeq2 here.

note The arpeggiator can be triggered either via the global MIDI channel or the MIDI channel of the timbre to which the arpeggiator is assigned (☞ p.103 "MIDI channels that drive the arpeggiator and step sequencers").

GATE*

Refer to p.97 "Gate Time (Gate Time Offset) Ü GATE á."

TEMPO

Specifies the playback tempo of the arpeggiator. Refer to p.96 "Tempo Ü TEMPO á."

TAP TEMPO*(REST/TIE)

Specifies the playback tempo of the arpeggiator. Lightly press the button several times at the desired timing to set the temp.

P14 ARPEGGIATOR

P14-1: COMN (Arpeggiator Common)

These parameters apply to the entire arpeggiator.

! Parameters other than "Tempo" and "KeySync" in this page cannot be set unless the arpeggiator is assigned to the currently selected timbre.



1: Tempo < TEMPO > [20.0...300.0]

Specifies the playback tempo of the arpeggiator. Higher values make the tempo faster.

! The "Tempo" setting has no effect if the Global mode P03: MIDI page "Clock" (☞ p.117) is set to External.

note The “Tempo” setting will also be the playback tempo for the modulation sequencer and step sequencer.

2: KeySync [Off, On]

Specifies whether the arpeggiator and step sequencer will be synchronized with the keyboard. If this is On, the data stored in the arpeggiator or step sequencer will always play from the beginning. When performing together with other instruments, you can use this function to keep the beginning of each measure aligned.

3: Type (Arpeggio Type) < TYPE (/STEP REC) > [Up...Trigger]

Selects the arpeggio type.

Up

Notes will be sounded from low to high pitch.



Down

Notes will be sounded from high to low pitch.



Alt1

Up and Down will be repeated. (The top and bottom note will be sounded once.)



Alt2

Up and Down will be repeated. (The top and bottom note will be sounded twice.)



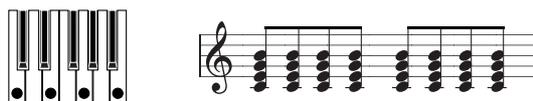
Random

Notes will be sounded randomly.



Trigger

The notes you being held down will sound as a chord. The trigger timing is specified by the “Tempo” setting. The “Range” setting is ignored.



note If you hold down more than the number of keys than the maximum number of notes specified for that timbre in P04-1: VOICE page “Assign (Voice Assign),” only the maximum number of notes will be sounded, starting from the note of the lowest pitch.

4: Range (Octave Range) [1...4 octave]

Specifies the range of the arpeggio in units of one octave.

5: Resolutn (Resolution) [1/32... 1/1]

Specifies the resolution (spacing) relative to the tempo specified by “Tempo.” Each step of the arpeggio will sound at timing intervals of this note value relative to the tempo. For example if you specify $\downarrow 1/4$, each step will sound at quarter-note intervals of the tempo.

6: LastStep [01...32]

Specifies the number of steps of the arpeggiator. This setting determines the length of an on/off playback cycle.

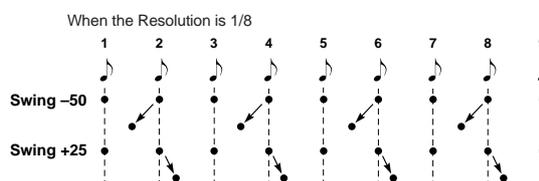
7: Gate Time (Gate Time Offset) < GATE > [-100...+100]

Specifies an offset to the gate time (the duration of each note). This adjusts the gate time for each step that is specified in the P14-3: ARPEGGIATOR – GATE tab page, giving you an additional way to vary the performance.

Positive (+) settings make the gate time longer, and negative (-) settings make the gate time shorter. You can use the front panel [GATE] knob to control this in realtime.

8: Swing [-100...+100%]

Adjusts the timing of the even-numbered notes of the arpeggio.



9: ScanBotom [C-1...G9]

10: ScanTop [C-1...G9]

These specify the region of notes that will be arpeggiated. “ScanBotom” specifies the bottom note of the region, and “ScanTop” specifies the top note. An arpeggio will play when you press notes within this region.

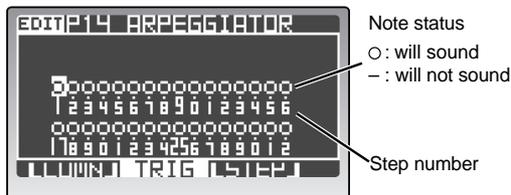
P14-2: TRIG (Arpeggiator Step On/Off)

Here you can turn individual steps of the arpeggio pattern on/off. This is a way to add rhythmic variety to an arpeggio pattern.

note You can use the P16-5: UTILITY – ARP tab page “CopyArpStep” function to copy the step on/off settings from the arpeggiator of a different program. (☞ p.110 “CopyArpStep”)



The P14-2: ARPEGGIATOR – TRIG tab page shows the on/off status of each step.



1: Trigger (Step On/Off) [-, o]

Turns each step 1–16 on or off. This will be valid to the step specified by “LastStep” in the P14-1: ARPEGGIATOR – COMN tab page.

– (Off)

The note(s) at this step will be muted.

o (On)

The note(s) at this step will play.

P14-3: STEP (Arpeggiator Step Parameters)

Here you can specify the gate time (duration) and velocity of each note sounded by the arpeggiator. You can use these settings to add rhythmic interest and a groove feeling to an arpeggiator performance.

note You can use the P16-5: UTILITY – ARP/STEP SEQ UTILITY tab page “CopyArpStep” function to copy the arpeggiator settings from another program. (☞ p.110 “CopyArpStep”)

note The valid length (the cycle at which steps are repeated) for these settings is determined by the P14-1: ARPEGGIATOR – COMN tab page “LastStep” parameter, in the same way as the valid length for the on/off settings.

note If you want the arpeggio pattern to be silent for a specific step, make settings in the P14-2: ARPEGGIATOR – TRIG tab page.



1: Step [01...32]

Selects the step to edit.

The maximum step number you can select here is determined by the P14-1: ARPEGGIATOR – COMN tab page “LastStep” parameter.

2: GateTime [001...099, TIE]

Specifies the gate time for the step selected by “Step.” Higher values produce a longer duration. If you set this to TIE, the note will sound until the next note.

3: Velocity [001...127, KEY]

Specifies the velocity for the step selected by “Step.” With a setting of 1–127, the step will always sound with the specified velocity value. With a setting of Key, the step will sound with the same velocity as the note you played to start the arpeggiator.

4: Trigger [-, o]

Turns the note selected by “Step” on/off. This is the same setting as the P14-2: ARPEGGIATOR – TRIG tab page “Trigger” parameter.

5. Step Sequencer

These are the parameters for the step sequencers.

The **RADIUS** provides two step sequencers. You may assign more than one timbre to each step sequencer, but all of the timbres assigned to a step sequencer will operate in the same way.

Front Panel Parameter

These are the parameters you can set from the front panel **ARPEGGIATOR/STEP SEQUENCER** section.

To edit parameters marked by "*" you must first use the [SELECT] button to select **STEP SEQ 1** or **STEP SEQ 2**.

ON (Step Sequencer/Arpeggiator On) < ON > [Off, On]

Switches both step sequencers on/off. The button will light if this is on.

This parameter can be set only from the front panel [ON] button.

note If this is on, the arpeggiator will also be turned on.

LATCH* [Off, On]

Specifies latch operation for the step sequencer.

On (button lit)

The sequence will continue playing after you take your hand off the keyboard.

Off (button dark)

The sequence will stop playing when you take your hand off the keyboard.

This parameter can be set only from the front panel [LATCH] button.

(TYPE/)STEP REC*

If step sequencer 1 or 2 is assigned to a timbre, this will operate as the record start button.

SELECT (Arpeggiator/Step Sequencer Select) **< SELECT > [Off, ARPEGGIATOR, STEP SEQ1, STEP SEQ2]**

Assigns the arpeggiator or step sequencer to each timbre.

For details, refer to p.96 "SELECT."

note The step sequencer can be triggered either by the global MIDI channel or by the MIDI channel of the timbre to which the step sequencer is assigned.

GATE*

Refer to p.101 "GateTime."

TEMPO

Specifies the playback tempo of the step sequencer. Higher settings will make the tempo faster. You can set this using the **P14-1: ARPEGGIATOR – COMN** tab page "Tempo" parameter.

note The "Tempo" setting has no effect if the Global mode **P03: MIDI** page "Clock" parameter (p.117) is set to External.

note The "Tempo" setting is also the playback speed of the arpeggiator and modulation sequencer.

(TAP TEMPO) REST/TIE*

Specifies the playback tempo of the step sequencer. You can set the tempo by lightly pressing this several times at the beat of your song. While recording a step sequence, this button will enter a rest or tie. To enter a rest, press this button instead of a note. To enter a tie, hold down the note while you press this button.

P15 STEP SEQ

P15-1: COMN (STEP SEQ1 Common)

⚠ If step sequencer 1 or step sequencer 2 are not assigned to the currently selected timbre, the display will indicate "No Selected," and you won't be able to set the parameters of this page.



1: LastStep [01...64]

Specifies the number of steps for step sequencer 1. The specified number of steps will be the length of sequencer 1.

If "S.SeqLink" is Off, you can set this in a range of 1–32 steps.

If "S.SeqLink" is On, you can set this in a range of 1–64 steps.

note This setting is automatically reset to the number of steps you recorded.

2: RunMode [OneShot, Loop, Step]

Specifies the playback mode for step sequencer 1.

OneShot

The recorded sequence data will play once when you press a note.

Loop

The recorded sequence data will play as a loop as long as you hold down a note.

Step

Each time you press a note, only one step of the recorded sequence data will play and then advance to the next step. Playback will stop when you release all notes being held.

note Since the playback for Step is gated by the keyboard, the front panel [LATCH] button and [GATE] knob settings and the settings of the "Gate Time" and "Swing" parameters will be ignored.

3: Resolutn (Resolution) [1/32... 1/1]

Specifies the resolution (spacing) relative to the tempo specified by "Tempo." Each step of the sequence will sound at timing intervals of this note value relative to the tempo. For example if you specify 1/4, each step will sound at quarter-note intervals of the tempo.

4: Transpose [Off, On]

Specifies whether the playback pitch of step sequencer 1 will change according to the key you press.

If this is On, the pitch of the notes will change in correspondence to the distance from the "Base Note" at which you press a key. For example if you press a key a semitone below the "Base Note," the sequence will play back one semitone below its recorded pitch. This setting is suitable for a pitched sequence pattern such as a bass pattern or chords.

If this is Off, the sequence will always play back at the same pitches. This setting is suitable for drum pattern sequences.

note Use "ScanBotom" and "ScanTop" to specify the range of notes that will trigger the step sequencer.

5: BaseNote [C-1...G9]

Specifies the base note number used when playing step sequencer 1. For example if this is set to C4, the sequence will play at its recorded pitch when you press the C4 note.

note When you finish recording into the step sequencer, the "BaseNote" value is automatically set to the lowest note played in the recorded data.

6: GateTime (Gate Time Offset) < GATE > [-100...+100]

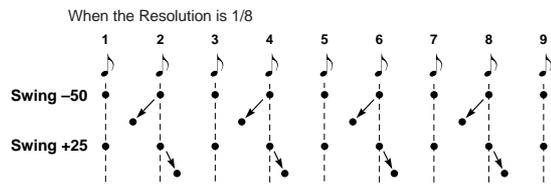
Specifies an offset to the gate time (the duration of each note). This adjusts the gate time for each step that is specified in the P15-3: STEP SEQ1 - STEP tab page (p.102), giving you an additional way to vary the performance.

Positive (+) settings make the gate time longer, and negative (-) settings make the gate time shorter.

note When the step sequencer is playing, you can use the front panel [GATE] knob to control the gate time in realtime.

7: Swing [-100...+100 %]

Adjusts the timing of the even-numbered notes in the step sequencer playback.



8: ScanBotom (Scan Bottom) [C-1...G9]

9: ScanTop (Scan Top) [C-1...G9]

These specify the region of notes that will trigger playback for step sequencer 1. "ScanBottom" specifies the bottom note of the region, and "ScanTop" specifies the top note. The step sequencer will play when you press a note within this region.

10: S.SeqLink (Sequencer Link) [Off, On]

Specifies whether step sequencer 1 and step sequencer 2 will be linked.

Off

Step sequencer 1 and step sequencer 2 will function independently.

On

Step sequencer 1 and step sequencer 2 will be linked. This will create a sequencer of up to 64 steps. You will be able to record up to 64 steps.

The sequence data always plays in the order of sequencer 1 and then sequencer 2. If you want playback to start from sequencer 2, use the P16-5: UTILITY - ARP tab page "SwapStepSeq" operation to exchange the sequence data. (p.110 "SwapStepSeq")

note With the exception of "BaseNote," the settings of sequencer 1 will take priority when the two sequencers are linked.

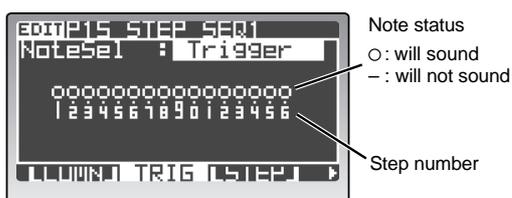
P15-2: TRIG (STEP SEQ1 Trigger)

In the P15-2: STEP SEQ1 - TRIG tab page you can turn each step on or off.



1: NoteSel (Note Select) [Trigger, Drum01...Drum16, C-1...G9]

Specify the type of notes you want to edit. The step on/off indication shown below will change depending on the type of note you specify.



Trigger

Indicates the "Trigger" setting (see p.102 "Trigger"). O is shown for steps whose "Trigger" is on, and - for steps whose "Trigger" is off.

Drum01...Drum16

Specifies a drum instrument. This is valid if the timbre is using a drum kit. The O indication is shown for steps that sound the specified drum instrument.

- ▲ If the "Trigger" setting (see p.102 "Trigger") is -, the - indication is shown even for steps that sound the specified drum instrument.

C-1...G9

Specifies a note number. The O indication is shown for steps that sound the specified drum instrument.

- ▲ If the "Trigger" setting (see p.102 "Trigger") is -, the - indication is shown even for steps that sound the specified note number.

2: Step On/Off

[-, o]

Turns each step on/off.

Use the cursor buttons to move to the on/off indication, and use the [PROGRAM/VALUE] dial to turn it on or off.

P15-3: STEP (STEP SEQ1 Step)

Here you can edit each step of the data recorded in the step sequencer. This is a convenient way to edit recorded data.



1: Step

[01...64]

Selects the step number to edit.

The maximum step number you can select here is determined by the "LastStep" parameter.

2: GateTime

[001...099, TIE]

Specifies the duration (gate time) of the note sounded by each step.

Higher values produce a longer duration. If you set this to TIE, the note will sound until the next step.

note Notes within the same step will all have the same gate time regardless of their note number.

3: Velocity

[001...127, KEY]

Specifies the velocity for the note(s) sounded by each step.

With a setting of 1-127, the notes will always sound with the specified velocity value. With a setting of Key, the notes will sound with the velocity of the note you played to start the step sequencer.

note Notes within the same step will all have the same velocity regardless of their note number.

4: Trigger

[-, o]

Turns each step on/off.

Steps set to O will sound.

Steps set to - will not sound.

If you change a - step to O, the note numbers previously assigned to that step will be assigned.

In the case of a step to which no notes had previously been assigned, note numbers will be assigned according to the following rules.

- If the timbre to which the step sequencer is assigned is using a drum kit, the DrumKit Inst=01 note number will be assigned.
- If the timbre to which the step sequencer is assigned is not using a drum kit, the C4 note number will be assigned.

5: Trigger Note 1...8

[C-1...G9, ---]

Specifies the note number that will be sounded by each step. You can specify up to eight notes.

C-1-G9

The specified note number will be sounded.

No note will be sounded.

P15-4: COMN (STEP SEQ2 Common)

Here you can make settings for step sequencer 2. The contents of the parameters are the same as for step sequencer 1.

- ▲ If the P15-1: STEP SEQ1 - COMN tab page "S.SeqLink" setting is turned On to link the two step sequencers, you will use the P15: STEP SEQ1 page to set the parameters for each step of step sequencer 2. The P15-4: COMN tab page and following will indicate "No Selected," and you will be unable to set the parameters of step sequencer 2.

1: LastStep	[01...32]
2: RunMode	[OneShot...Step]
3: Transpose	[Off, On]
4: BaseNote	[C-1...G9]
5: GateTime (Gate Time Offset) <GATE>	[-100...+100]
6: Resolutn (Resolution)	[ 1/32... 1/1]
7: Swing	[-100...+100 %]
8: ScanBotom (Scan Bottom)	[C-1...G9]
9: ScanTop (Scan Top)	[C-1...G9]

These are the same as the parameters of step sequencer 1.

 p.99 "P15-1: COMN (STEP SEQ1 Common)"

P15-5: TRIG (STEP SEQ2 Trigger)

1: NoteSel (Note Select)
[Trigger, Drum01...Drum16, C-1...G9]

2: Trigger (Step On/Off) [-, o]

These are the same as the parameters of step sequencer 1.

 p.100 "P15-2: TRIG (STEP SEQ1 Trigger)"

P15-6: STEP (STEP SEQ2 Step)

1: Step [01...32]

2: GateTime [001...099, TIE]

3: Velocity [001...127, KEY]

4: Trigger [-, o]

These are the same as the parameters of step sequencer 1.

 p.101 "P15-3: STEP (STEP SEQ1 Step)"

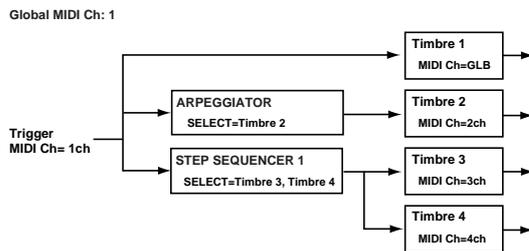
MIDI channels that drive the arpeggiator and step sequencers

The arpeggiator and step sequencers are driven by both the global MIDI channel and by the MIDI channel of the timbre that the arpeggiator and/or step sequencers are assigned to.

Setting 1

The timbres sounded by the arpeggiator and step sequencers can be switched on/off by the ARPEGGIATOR/STEP SEQUENCER [ON] button. While performing, you can make them play along with the timbres you play from the keyboard, or mute them.

When the arpeggiator and step sequencer are on



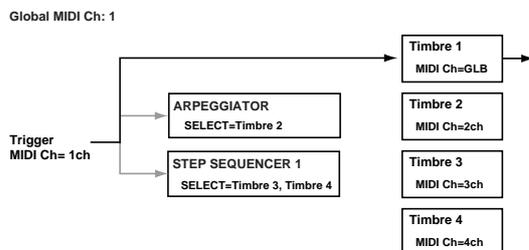
Timbre 1: Sounded by note-on data from Trigger MIDI Ch=1.

Timbre 2: Sounded by note-on data sent from the arpeggiator.

Timbre 3: Sounded by note-on data sent from step sequencer 1.

Timbre 4: Sounded by note-on data sent from step sequencer 1.

When the arpeggiator and step sequencer are off



Timbre 1: Sounded by note-on data from Trigger MIDI Ch=1.

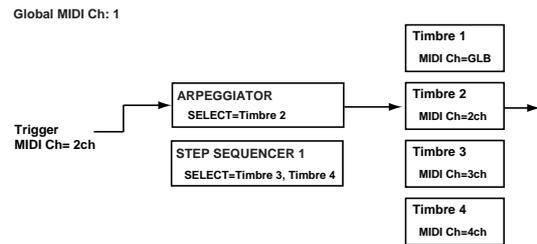
Timbre 2: Not sounded, because the arpeggiator is not running.

Timbre 3: Not sounded, because step sequencer 1 is not running.

Timbre 4: Not sounded, because step sequencer 1 is not running.

Setting 2

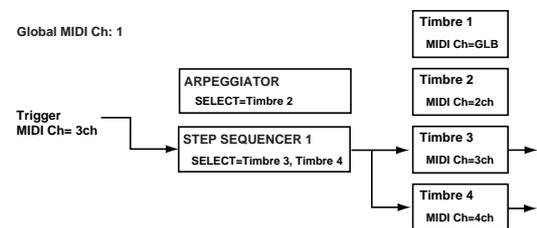
You can use the [TIMBRE SELECT] buttons to select a timbre that is not assigned to the global MIDI channel and play it from the keyboard, or use a MIDI channel other than the global MIDI channel to enter note-on data that will trigger the arpeggiator or step sequencer on separate MIDI channels.



Timbre 2: Sounded by note-on data sent from the arpeggiator.

Setting 3

If step sequencer 1 is assigned to two or more timbres that are set to different MIDI channels, note data of the specified MIDI channels will drive the step sequencer 1.



Timbre 3: Sounded by note-on data sent from step sequencer 1.

Timbre 4: Sounded by note-on data sent from step sequencer 1.

6. Vocoder Parameters

These are the vocoder-related parameters.

To edit the vocoder parameters used in a program, press the TIMBRE SELECT [VOCODER] button and then the [EDIT] button to enter the Vocoder Edit mode (see p.56 “Vocoder settings”)

The parameters of the P1: NAME and P2: COMMON pages are the same as in the Program Edit mode. For details on these parameters, refer to p.74 “P01 NAME” and p.74 “P02 COMMON (Program Common Parameters).”

P06 CARRIER

These are the parameters that relate to the vocoder carrier signal.

P06-1: LEVEL

Here you can select the carrier, and set the input level and output level of the carrier.

In the **RADIUS**’ vocoder, two input sources “input source 1” and “input source 2” are mixed and used as the carrier. The level of each source can be set independently.



1: InSrc1 (In Source 1) [Timbre1...4]

Selects from timbres 1–4 to be used as input source 1. The mono-mixed signal from the amp section output of the timbre (the signal before entering the insert effects) will be the input source.

2: InSrc1Lvl (In Source 1 Level) < SRC1 > [000...127]

Sets the volume of input source 1.

3: InSrc2 (In Source 2) [ExtIn1...IntBusR]

Selects input source 2.

ExtIn1

The INPUT 1 jack will be input source 2.

IntBusL+R

The L+R channels (mono-mixed) of the internal bus (program output) will be input source 2.

note For details on internal bus routing, refer to the diagram of p.5 “How a program is structured.”

IntBusL

The L channel of the internal bus will be input source 2.

IntBusR

The R channel of the internal bus will be input source 2.

note If you’re using the internal bus as an input source, you must first use the Program Edit mode P03-2: TIMBRE – OUT tab page to assign the timbre output to the internal bus. (see p.78 “P03-2: OUT (Timbre Output)”)

4: InSrc2Lvl (In Source 2 Level) < SRC2 > [000...127]

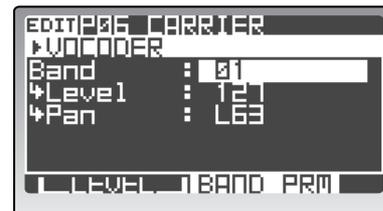
Sets the volume of input source 2.

5: VcdLvl (VOCODER LEVEL) < VC LEVEL > [000...127]

Sets the output level of the vocoder.

P06-2: BAND PRM (Band Parameters)

Here you can specify the output level and panning (stereo position) for each of the sixteen filters of the carrier. To edit the output level and panpot settings, you can use the cursor buttons and the [PROGRAM/VALUE] dial, or you can use the MOD SEQUENCER [SELECT] button to select LEVEL (MOD1) or PAN (MOD2) and use the sixteen knobs to edit the settings. (see p.57 “Filter settings”)



1: Band [01...16]

Selects the filter whose output level or panning you will edit.

note When using the sixteen knobs to edit, they will correspond to bands 1, 2, 3 ... etc. from the left.

2: Level < LEVEL > [000...127]

Sets the output level of the filter.

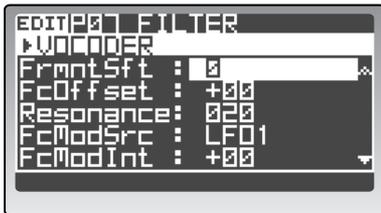
3: Pan < PAN > [L63...CNT...R63]

Sets the panning of the filter.

P07 FILTER

Here you can edit the parameters for all the band pass filters of the carrier, and the envelope follower of the modulator. These are the parameters that you will use most frequently when creating the desired character of vocoder effect.

P07-1: FILTER



1: FrmntSft (Formant Shift) < FRMNT SHIFT > [-2...+2]

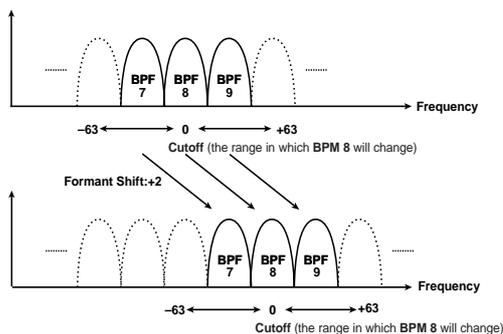
Shifts the cutoff frequencies of each of the carrier's band pass filters. This will significantly change the character of the vocoder output.

2: FcOffset (Frequency Offset) < FC OFFSET > [-63...+63]

Adjusts the cutoff frequency of each of the carrier's band pass filters.

How "FrmntSft" and "FcOffset" are related

When "Formant Shift"=0 and "FcOffset"=0, the response of the carrier filters will match the cutoff frequency of the modulator filters. The filter response is shifted upward or downward in two discrete steps by the "Formant Shift." This can be adjusted upward or downward another two steps by using "FcOffset," giving you a total of four steps of adjustment upward or downward.



3: Resonance < RESONANCE > [000...127]

Sets the amount of resonance for each band pass filter. Higher values will boost the region near the cutoff frequency.

4: FcModSrc (Fc Modulation Source) < FC MOD SRC > [EG1...MIDI5]

Selects the modulation source that will be applied to "FcOffset." The available modulation sources are the same as the modulation sources for program parameter virtual patches ("Source").

For details, refer to p.91 "Source Ü SOURCE á."

5: FcModInt (Fc Modulation Intensity) < FC MOD INT > [-63...+63]

Sets the depth of modulation that is applied to "FcOffset."

6: E.F.Sens (Envelope Follower Sens) < E.F. SENS > [000...127]

Sets the envelope follower sensitivity for the modulator. Lower values will allow the rise and fall of the input signal specified by P08-1: MODULATOR to be detected more quickly.

Higher values will produce slower change, creating a sound with a slow attack and a long release. With a setting of 127, the tonal response of the first signal that is input will be held, and the sound will continue with this character regardless of whether there is an input signal.

⚠ If you set this to a value of 127 when there is no input, there will be no output even if you subsequently input an audio signal.

📝 **note** The tonal response captured when you set this parameter to the held state (127) can be maintained by the RADIUS as program data, but in order to record this tonal response data as program data in the RADIUS Sound Editor, you will have to perform a program dump operation.

P08 MODULATOR

These are the parameters for the modulator.

The most popular way to use a vocoder is to use a voice as the modulator, creating the impression that an instrument is speaking.

P08-1: MODULATOR



1: Modulator (Modulator Select) < MODULATOR > [Audio, FrmntPly]

⚠ This setting will affect the maximum number of voices.

Audio

The input source selected by “AudioSrc” will be the modulator.

FrmntPly [Formant Play]

Formant motion data recorded by the **RADIAS**’ formant motion function will be the modulator. For details on recording formant motion data, refer to p.58 “Formant Motion function.”

2: Formant (Formant Motion Select) [Motion01...Motion16]

Selects the formant motion data. This is available for editing only if “Modulator” is set to FrmntPly.

-  When you first record new formant motion data, this data will be in the edited state, and an “*” will be shown after the formant motion data number.
-  If you select other formant motion data without writing, any formant motion data you had been editing will be lost. (☞ p.59 “Writing formant motion data”)
-  If you use the “To” field of the dialog box to change the data number when writing formant data, the “Formant” will also change to the number you specified in the dialog box. (☞ p.59 “Writing formant motion data”)

3: Mode (Formant Motion Play Mode) [FreeRun, TrigReset]

Specifies how the formant motion data will be played back. This is shown and can be edited if “Modulator” is set to FrmntPlay.

FreeRun

The formant motion data will play as a loop from the beginning to the end.

TrigReset

The formant motion data will play from the beginning to the end each time you press a note.

-  The formant motion data can be triggered by the MIDI channel that is specified for the timbre selected by “InSrc1.”

4: AudioSrc (Audio Source) [ExtIn2...IntBusR]

Selects the input source for the modulator.

ExtIn2

The signal from the INPUT 2 jack will be the modulator. Choose this if you want to input your voice via a connected mic.

IntBusL+R

The internal bus (program output) L+R channels will be the modulator.

IntBusL

The internal bus L channel will be the modulator.

IntBusR

The internal bus R channel will be the modulator.

-  If you want to use the internal bus as the input source, you must first use the Program Edit mode P03-2: TIMBRE – OUT tab page to assign the timbre output to the internal bus. (☞ p.78 “P03-2: OUT (Timbre Output)”)

5: GateSens [000...127]

Specifies how fast the gate will respond to the input source. Decreasing this setting will make the gate respond more quickly, and the vocoder sound will decay faster. Increasing this setting will make the gate operate more slowly, and the vocoder sound will have a longer decay.

-  Gate operation is affected by the “Threshold” setting. The effect will be more apparent if the “Threshold” value is high, and there will be no effect if the value is zero.

6: Threshold < THRESHOLD > [000...127]

Sets the level at which the input source will be cut. By setting this to an appropriate level you can cut the noise that might be present during times of no input. Higher settings will make it more likely that the input source will be cut.

-  With excessively high settings, there will be more chance that the audio input signal itself will be cut, making it difficult for you to apply the vocoder effect as intended.

7: HPF Level < HPF LEVEL > [000...127]

Sets the level at which the high-frequency components of the input source will be mixed into the output of the vocoder. Higher settings will emphasize the consonants in your voice.

8: HPF Gate [Disable, Enable]

When the high-frequency components of the input source are being mixed into the vocoder output, this setting specifies whether the sound will be mixed into the output only while the internal sound generator is producing sound, or whenever there is input to the “Source.”

Disable

The high-frequency components of the input source will always be output whenever a signal is being received from the input source. This setting is effective if you’ve connected a guitar (e.g., via an effect pedal) to the INPUT 1 jack.

Enable

The high-frequency components of the input source will be output only if the internal sound generator is producing sound. Choose this setting if you’re applying the vocoder effect only to the internal sound generator, or if you’re using the **RADIAS** as the sound generator and have connected another synthesizer to the INPUT 1 jack.

9: DirectLvl (Direct Level) < DIRECT LEVEL > [000...127]

Sets the volume level at which the modulator input source will be output directly (unaffected).

7. Utility

Here you can use various functions provided for efficient editing, such as copy, initialize, and swap (exchange).

P16 UTILITY

P16-1: PROG (Program Utility)

These are the program-related utility functions.

note If you copy a program, you'll still need to write it in its new location.

1: Edit [InitPROG...CopyVOCODER]

Select the utility function that you want to use.

InitPROG

Initializes the timbre, effect, step sequencer, arpeggiator, and modulation sequencer settings of the currently selected program.



- 1 Use "Edit" to select InitPROG.
- 2 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
"Sure?" will indicate Completed; the program has been initialized.
- 3 Press the [EXIT/NO] button.
You will return to the previous screen.

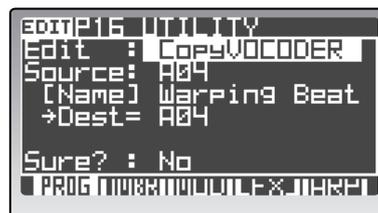
InitVOCODER

Initializes the vocoder settings of the selected program.

Use "Edit" to select InitVOCODER, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (↵ "InitPROG")

CopyVOCODER

Copies the vocoder settings from another program to the vocoder settings of the selected program.



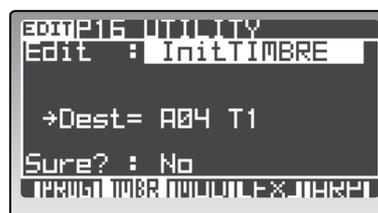
- 1 Use "Edit" to select CopyVOCODER.
- 2 Use "Source" to select the copy-source program. "Dest" indicates the copy-destination program.
- 3 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
"Sure?" will indicate Completed; the vocoder settings have been copied.
- 4 Press the [EXIT/NO] button.
You will return to the previous screen.

P16-2: TMBR (Timbre Utility)

These are the timbre-related utility functions.

1: Edit [InitTIMBRE...NameTemplate]

Select the utility function you want to use.



InitTIMBRE

Initializes the settings of the timbre selected by "TIMBRE SELECT."

Use "Edit" to select InitTIMBRE, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (↵ "InitPROG")

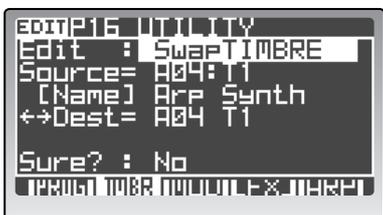
CopyTIMBRE

Copies the settings of another timbre to the timbre selected by "TIMBRE SELECT."

Use "Edit" to select CopyTIMBRE, use "Source" to select the copy-source timbre, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (↵ "CopyVOCODER")

SwapTIMBRE

Exchanges the settings of the timbre selected by "TIMBRE SELECT" with the settings of a different timbre used in the same program.



- 1 Use "Edit" to select SwapTIMBRE.
- 2 Use "Source" to select the swap-destination timbre. "Dest" indicates the swap-source timbre.
- 3 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. "Sure?" will indicate Completed; the timbre settings have been swapped.
- 4 Press the [EXIT/NO] button. You will return to the previous screen.

MakeTemplate

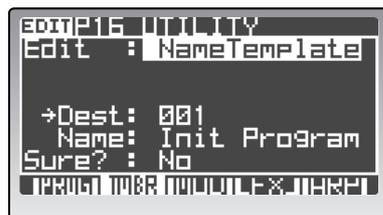
Creates a template using the settings of the timbre selected by "TIMBRE SELECT."



- 1 Use "Edit" to select MakeTemplate. "Source" indicates the timbre that will be saved as a template.
- 2 Use "Dest" to select the template number (001-128) in which the template will be saved.
- 3 Use "Name" to enter a name for the template that will be saved. You can enter a name of up to twelve characters. Use the cursor buttons to select the character you want to edit, and use the [PROGRAM/VALUE] dial to specify a character.
- 4 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. "Sure?" will indicate Completed; the template has been saved.
- 5 Press the [EXIT/NO] button. You will return to the previous screen.

NameTemplate

Edits the name of a template.



- 1 Use "Edit" to select NameTemplate.
- 2 Use "Dest" to select the template number (001-128) whose name you want to edit.
- 3 Use "Name" to enter a name for the template. You can enter a name of up to twelve characters. Use the cursor buttons to select the character you want to edit, and use the [PROGRAM/VALUE] dial to specify a character.
- 4 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. "Sure?" will indicate Completed; the edited template name has been applied.
- 5 Press the [EXIT/NO] button. You will return to the previous screen.

P16-3: MOD (Mod Seq Utility)

These are the utility functions for the modulation sequencer.

1: Edit [InitModSeq...SwapModSeq]

Select the utility function you want to use.

InitModSeq

Initializes modulation sequencer settings of the currently selected timbre.

- 1 Use "Edit" to select InitModSeq.
- 2 Use "Dest" to select the modulation sequencer(s) you want to initialize. If you select MOD1, MOD2, or MOD3 and then execute the Initialize function, only the selected modulation sequencer will be initialized.

Tab page	Parameter	Value
MOD1: P12: MOD SEQ - SEQ1	"Knob"	None
MOD2: P12: MOD SEQ - SEQ2	"Motion"	Smooth
MOD3: P12: MOD SEQ - SEQ3	"Value"	0

If you select ALL and then execute the Initialize function, the P12-1: MOD SEQ – COMN tab page parameters and the three modulation sequencers will be initialized.

Tab page	Parameter	Value
P12: MOD SEQ – COMN	"Last Step"	16
	"SeqType"	Forward
	"RunMode"	Loop
	"KeySync"	Timbre
	"Resolutn"	♩ 1/16
P12: MOD SEQ – SEQ1	"Knob"	Pitch
	"Motion"	Smooth
	"Value"	0
P12: MOD SEQ – SEQ2	"Knob"	None
	"Motion"	Smooth
	"Value"	0
P12: MOD SEQ – SEQ3	"Knob"	None
	"Motion"	Smooth
	"Value"	0

- 3 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.

"Sure?" will indicate Completed; the modulation sequencer settings have been initialized.

- 4 Press the [EXIT/NO] button.
You will return to the previous screen.

CopyModSeq

Copies the modulation sequence of another program or timbre to a modulation sequence of the currently selected program or timbre.

- 1 Use "Edit" to select CopyModSeq.
- 2 Use "Source" to select the copy-source program, timbre, and modulation sequencer.
- 3 Use "Dest" to select the copy-destination modulation sequencer.
- 4 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
"Sure?" will indicate Completed; the modulation sequencer settings have been copied.
- 5 Press the [EXIT/NO] button.
You will return to the previous screen.

SwapModSeq

Exchanges a modulation sequence of the currently selected program or timbre with a modulation sequence of the same program.

- 1 Use "Edit" to select SwapModeSeq.
- 2 Use "Source" to select the swap-source timbre and modulation sequencer.
- 3 Use "Dest" to select the swap-destination modulation sequencer.
- 4 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.
"Sure?" will indicate Completed; the modulation sequencer settings have been swapped.
- 5 Press the [EXIT/NO] button.
You will return to the previous screen.

P16-4: FX (Effect Utility)

These are the effect-related utility functions.

1: Edit [CopyInsFx...NameMfxTemp]

Select the utility function you want to use.

CopyInsFx

Copies an insert effect from another program or timbre to an insert effect of the currently selected program or timbre.

Use "Edit" to select CopyInsFX, use "Source" to select the copy-source program timbre, and insert effect, use "Dest" to select the copy-destination insert effect, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.109 "CopyModSeq")

CopyMstFx

Copies the master effect from another program to the master effect of the currently selected program.

Use "Edit" to select CopyMstFX, use "Source" to select the copy-source program, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.107 "CopyVOCODER")

MakeIFxTemp

Creates a template using insert effect settings of the currently selected timbre.

Use "Edit" to select MakeIFxTemp, use "Source" to select the insert effect, use "Dest" to select the save-destination, use "Name" to specify the name, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.108 "MakeTemplate")

NameIFxTemp

Edits the name of an insert effect template.

Use "Edit" to select NameIFxTemp, use "Dest" to select the template number, use "Name" to specify the name, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.108 "NameTemplate")

MakeMfxTemp

Creates a template using master effect settings of the currently selected program.

Use “Edit” to select MakeMfxTemp, use “Source” to select the master effect, use “Dest” to select the save-destination, use “Name” to specify the name, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.108 “MakeTemplate”)

NameMfxTemp

Edits the name of a master effect template.

Use “Edit” to select NameMfxTemp, use “Dest” to select the template number, use “Name” to specify the name, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.108 “NameTemplate”)

SwapStepSeq

Exchanges the step sequence 1 and step sequence 2 of the currently selected program.

- 1 Use “Edit” to select SwapStepSeq.**
“Source” and “Dest” will indicate the exchange-source and exchange-destination step sequencers.
- 2 Change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button.**
“Sure?” will indicate Completed; the step sequencer data has been exchanged.
- 3 Press the [EXIT/NO] button.**
You will return to the previous screen.

P16–5: ARP (Arpeggiator/Step Seq Utility)

1: Edit [InitArpStep...SwapStepSeq]

Select the utility function you want to use.

InitArpStep

Initializes the arpeggio settings of the currently selected program.

Use “Edit” to select InitArpStep, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.107 “InitPROG”)

CopyArpStep

Copies the arpeggio settings of another program to the arpeggio settings of the currently selected program.

Use “Edit” to select CopyArpStep, use “Source” to select the copy-source program, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.107 “CopyVOCODER”)

InitStepSeq

Initializes the step sequencer settings of the currently selected program.

Use “Edit” to select InitStepSeq, use “Dest” to select the step sequencer you want to initialize, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.108 “InitModSeq”)

CopyStepSeq

Copies step sequencer settings from another program to the step sequencer settings of the currently selected program.

Use “Edit” to select CopyStepSeq, use “Source” to select the copy-source program and step sequencer, use “Dest” to select the copy-destination step sequencer, change “Sure?” to “Press [YES],” and then press the [EDIT/YES] button. (☞ p.109 “CopyModSeq”)

Drum parameters

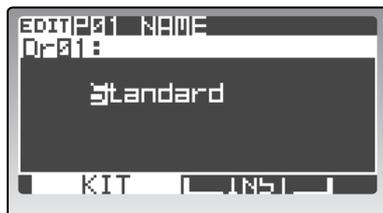
These are the parameters for drum kits and drum instruments.

To edit these parameters, press the [DRUM] button and then press the [EDIT] button.

1. Name

P01 NAME

P01-1: KIT (Drumkit Name)



1: Name [space, !...←]
Specifies the name of the drum kit. The available characters and the procedure are the same as for a program. For details, refer to p.35 "How to assign a name."

P01-2: INST (Drum Instrument Name)

To select the drum instrument whose name you want to edit, set 16KEYS [SELECT] to PROGRAM, and use the [1]–[16] keys to select a drum instrument.



1: Name [space, !...←]
Specifies the name of the drum instrument. The available characters and the procedure are the same as for a program. For details, refer to p.35 "How to assign a name."

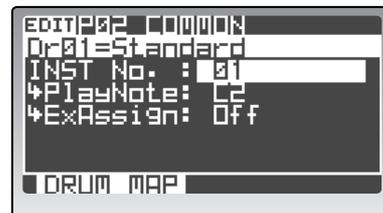
2. Drum Common

P02 COMMON

P02-1: DRUM MAP

Here you can create a drum kit by assigning drum instruments to separate notes of the keyboard.

For details on making these assignments, refer to p.62 "Assigning a note number to a drum instrument."



0: Load [01-01...32-16, Tmp001...Tmp128]

Loads parameter settings from drum instruments of a drum kit or from a sound template. Use the cursor [▲ / ◀] button to move the cursor, and use the [PROGRAM/VALUE] dial to select a drum instrument or template.

1: PlayNote [C-1...G9]

Selects the keyboard note to which the instrument selected by "INST No." will be assigned.

note If you assign two or more drum instruments to one note, these drum instruments will all sound simultaneously when you play that note.

2: ExAssign [Off, Group1, Group2]

Groups the drum instruments assigned to the keyboard. If instruments are grouped, only one instrument in that group can sound at any one time, with priority given to the last-pressed note. This is effective for sounds such as hi-hat open and hi-hat closed, which normally cannot sound simultaneously.

3. Drum Inst

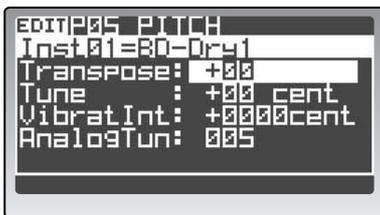
Here you can set drum instrument parameters. The contents of the parameters are the same as for the timbre parameters. For details, refer to p.74 “Program parameters.”

To select the drum instrument you want to edit, set 16KEYS [SELECT] to PROGRAM, and use the [1]-[16] keys to select a drum instrument.

- ⚠ If you want to keep the changes you made, you must press the [WRITE] button to write the data. If you don't write the data you edited, it will be lost. (see p.61 “5. Saving a drum kit and drum instruments – WRITE”)

P05 PITCH

P05-1: PITCH

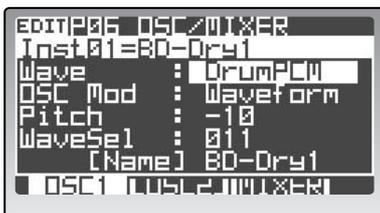


Refer to p.81 “P05 PITCH.”

- ⚠ Some of these are invalid for drum parameters.

P06 OSC/MIXER

P06-1...3: OSC1, 2, MIXER



Refer to p.81 “P06 OSC/MIXER.”

P07 FILTER

P07-1, 2: FILTER1, 2



Refer to p.105 “P07 FILTER.”

P08 AMP (Amplifier)

P08-1: AMP



Refer to p.88 “P08 AMP (Amplifier).”

P09 EG (Envelope Generator)

P09-1...3: EG1...3



Refer to p.89 “P09 EG (Envelope Generator).”

P10 LFO

P10-1, 2: LFO1, 2



Refer to p.90 "P10 LFO."

P11 PATCH (Virtual Patch)

P11-1...6: P1...6



Refer to p.91 "P11 PATCH (Virtual Patch)."

4. Utility

Here you can use various functions such as Copy, Initialize, and Swap to edit drum kits and drum instruments conveniently.

P16 UTILITY

P16-1: DRUM UTILITY

These are the drum-related utility functions.



1: Edit [Init Kit...NameTemplate]

Select the utility function you want to use.

Init Kit

Initializes the currently selected drum kit.

Use "Edit" to select Init Kit, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.107 "InitPROG")

Init Inst

Initializes the currently selected drum instrument.

Use "Edit" to select Init Inst, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.107 "InitPROG")

Copy Inst

Copies a drum instrument.

Use "Edit" to select Copy Inst, use "Source" to select the copy-source drum kit and drum instrument, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.107 "CopyVOCODER")

Swap Inst

Exchanges drum instrument settings within the currently selected drum kit.

Use "Edit" to select Swap Inst, use "Source" to select the swap-source drum instrument and "Dest" to select the swap-destination drum instrument, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.109 "SwapModSeq")

MakeTemplate

Creates a template using the settings of the currently selected drum instrument.

Use "Edit" to select Make Template, use "Source" to select the drum instrument you want to save, use "Dest" to select the save-destination, use "Name" to enter a name, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.108 "MakeTemplate")

🔍 Drum instrument templates are kept in the same area as the timbre templates, and data can be transferred between them. However, please be careful not to overwrite data by accident.

NameTemplate

Edits the name of a template.

Use "Edit" to select NameTemplate, use "Dest" to select the template whose name you want to edit, use "Name" to enter a name, change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button. (☞ p.108 "NameTemplate")

Global parameters

These are the parameters that affect the entire **RADIUS**. To access the Global parameters, press the [GLOBAL] button.

If you want to keep the changes you made, you must execute the Write operation. If you don't do this, your settings will be lost. (see p.68 "5. Saving global parameters (Write)")

P01 GLOBAL

P01-1: COMMON



1: Mst Tune (Master Tune) [430.0Hz...450.0Hz]

Adjusts the overall pitch of the entire **RADIUS** in 0.1 Hz steps, relative to the pitch of the note A4.

Use this to adjust the **RADIUS**' pitch to match other instruments.

2: Transpose [-12...+12]

Shifts the overall pitch of the entire **RADIUS** in steps of a semitone (100 cents). Use this when you want to transpose the key of song you're playing.

This setting has a range of one octave upward or downward.

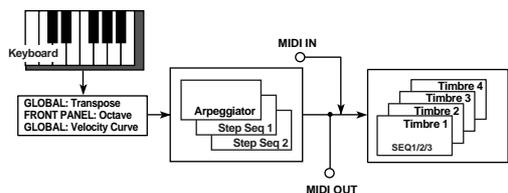
3: Position [PostKBD, PreTG]

Specifies how MIDI IN and MIDI OUT will be routed within the **RADIUS**. This setting will affect the way in which MIDI data is received and transmitted, and how arpeggiator data is handled.

PostKBD

Data received from the MIDI IN connector is sent to the timbres without being affected by the **RADIUS**' internal settings or the arpeggiator.

Data produced by the keyboard and the SELECT [1]–[16] keys is converted by the **RADIUS**' internal settings, routed through the arpeggiator and step sequencers, and sent to the timbres and the MIDI OUT connector.

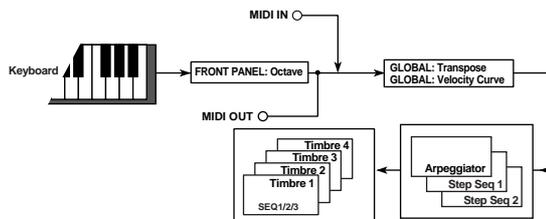


With the PostKBD setting, when both the arpeggiator and the sequencer are turned on, and MIDI data played on the keyboard (or the SELECT [1]–[16] keys) is recorded on an external sequencer and then played back from the external sequencer, the way in which the sequence is reset will be different. For this type of application, use the PreTG setting.

PreTG

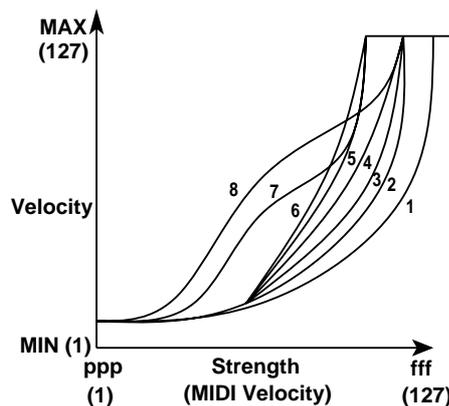
Data received from the MIDI IN connector is converted by the **RADIUS**' internal settings, routed through the arpeggiator and step sequencers, and sent to the timbres.

Data produced by the keyboard and the SELECT [1]–[16] keys will be sent to the MIDI OUT connector without being affected by the arpeggiator or by any internal setting other than "Octave." This data is also converted by the internal settings, routed through the arpeggiator, and sent to the timbres.



4: VeloCurve (Velocity Curve) [1...8, CONST]

Selects how volume and tone will change in response to velocity (keyboard playing dynamics). This setting is affected by the "Position" setting.



- 1: This curve requires you to play strongly in order to produce an effect.
- 2, 3: |
- 4: This is the typical curve.
- 5: |
- 6: This curve produces an effect without requiring you to play very strongly.
- 7: This curve produces a fairly steady effect with little change for medium-strength playing.

- 8: This curve produces a fairly steady effect with little change for medium-strength playing (a flatter curve than 7).

note Curves 7 and 8 produce little change for medium-strength playing, so they are suitable when you don't need velocity or when you want the sound to be consistent. However, these curves will also produce a great deal of change for softly played notes, making them more difficult to control. Choose the curve that is most appropriate for your playing dynamics or the effect you want to obtain.

CONST

All notes will sound using the velocity value specified by "Value."

5: Value (Velocity Value) [001...127]

This parameter is available if "Vel.Curve" is set to CONST.

All notes will sound using the velocity value you specify here.

Keyboard playing dynamics will produce no differences in volume or tone.

6: AudInThru (Audio In Thru) [Off, Ext In 1+2, Ext In 1, Ext In 2]

Specifies whether the signal from the INPUT 1 and INPUT 2 jacks will be output without change. This provides a way to check that signals are being correctly received at these jacks.

Off

The direct signals received from the INPUT 1 jack and INPUT 2 jack will not be output.

Ext In 1+2

The signal received from the INPUT 1 jack and INPUT 2 will be sent from the MAIN L/MONO and R jacks without change.

Ext In 1

The signal received from the INPUT 1 jack will be sent from the MAIN L/MONO and R jacks without change.

Ext In 2

The signal received from the INPUT 2 jack will be sent from the MAIN L/MONO and R jacks without change.



This setting is not memorized by the Write operation. When you turn on the power, it will always be Off.

7: KnobMode [Jump, Catch]

Specifies the behavior of the front panel knobs when editing.

Jump

When you turn the knob, the parameter value will jump to the value indicated by the knob, regardless of the stored value. Since this makes it easy to hear the results while editing, we recommend that you use this setting when editing.

Catch

When you turn the knob, the parameter value will not change until the knob position matches the stored value. We recommend that you use this setting when you don't want the sound to change abruptly, such as during a live performance.

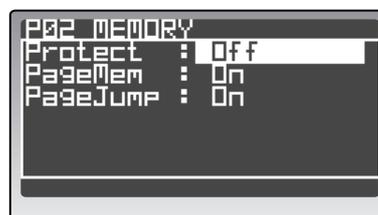
8: LCD Cont (LCD Contrast) [000...015]

Adjusts the contrast of the LCD display.

P02 MEMORY

P02-1: MEMORY

These are the parameters for the RADIUS' internal memory.



1: Protect [Off, On]

Specifies whether the internal memory will be protected.

Off

The internal memory will not be protected, and you will be able to write to the RADIUS' internal memory.

On

The internal memory will be protected, and the following Write operations will be prohibited.

- Writing program or drum settings
- Loading factory-set data
- Received a data dump

2: PageMem (Page Memory) [Off, On]

Specifies whether the Page Memory function will be enabled.

Off

When you first enter an edit mode or the Global mode, the display will always show the first page of that mode. In the various edit modes, this will be the P01: NAME page of the respective mode. In Global mode, the P01: GLOBAL page will appear.

On

When you first enter an edit mode or the Global mode, the display will show the page that you were last viewing when you exited that mode.

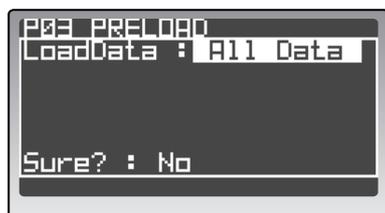
3: PageJump [Off, On]

When PageJump is on, the display will automatically open to the edit page that contains the parameter controlled by the front panel knob that you are operating.

P03 PRELOAD

P03-1: PRELOAD

Here you can load the factory-set data. For details on the loading procedure, refer to p.69 "Restoring the factory settings."



1: Load data [All Data...GLOBAL]

All Data

Load all data.

1 PROG

Load only one program.

All PROG

Load all program data (256 programs).

1 D-KIT

Load one drum kit.

All D-KIT

Load all drum kits.

All TEMPL

Load all template.

GLOBAL

Load global data.

2: Source/Sourcekit

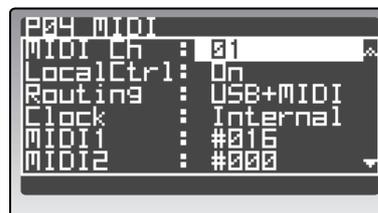
Select the data you want to load. This will appear when loading a single item of data.

3: Dest (Destination)

Specify the loading-destination for the data selected in "Source." This will appear when loading a single item of data.

P04 MIDI

P04-1: MIDI



1: MIDI Ch [01...16]

Sets the global MIDI channel.

The global MIDI channel is used for the following operations.

- In the Program Play/Edit mode to control a timbre or insert effect that is set to GLB.
- To control the master effect.
- To transmit/receive performance data in the Drum Play/Edit mode.
- To transmit/receive system exclusive messages.

note In order to receive performance data on the global MIDI channel, you must set the MIDI channel of each timbre to match the global MIDI channel. In the Program Edit mode P03-4: TIMBRE – MIDI tab page, set "Ch" to GLB.

2: LocalCtrl (Local Control) [Off, On]

Turns local control on/off.

Off

The keyboard, 16KEYS [1]–[16] keys, and controllers such as modulation will be disconnected from the tone generator section. This prevents notes from being sounded in duplicate by an external sequencer's echo-back function (a function by which the performance data produced when you play the RADIUS' is re-transmitted back to the RADIUS).

On

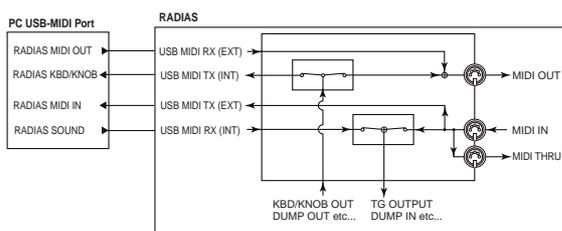
Use this setting if the RADIUS is not connected to an external MIDI device.

3: Routing [USB+MIDI, USB, MIDI]

Selects the connector(s) that will be used to transmit and receive MIDI messages.

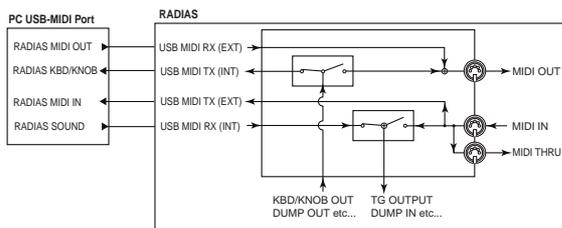
USB+MIDI

The MIDI connectors and USB connector will be used to transmit and receive MIDI messages. When receiving MIDI messages, the messages from both types of connector will be mixed, and MIDI messages received later will be given priority. For transmission, the same MIDI messages will be transmitted from both connectors.



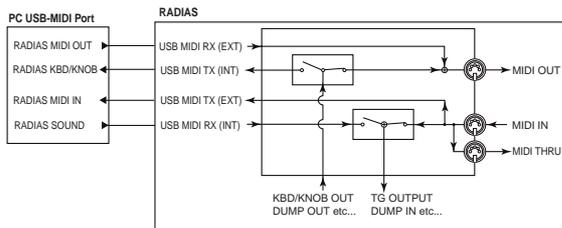
USB

Only the USB connector will be used to transmit and receive MIDI messages. Thru operation via the MIDI IN and MIDI THRU connectors is enabled.



MIDI

Only the MIDI connectors will be used to transmit and receive MIDI messages.



4: Clock [Auto, Internal, Ext-USB, Ext-MIDI]

Specifies how synchronization with a connected external MIDI device will occur.

Auto

If MIDI clock messages are being received from a connected external MIDI device, the **RADIAS** will automatically operate with the Ext-MIDI or Ext-USB setting. If MIDI clock messages are not being received, it will operate using the Internal setting.

Internal

The **RADIAS** will be the master device (the controlling device). A connected external MIDI device (such as a sequencer) will synchronize to the **RADIAS**' step sequencer or arpeggiator. If the LFO1 and LFO2 "TempoSync" is On, the LFO cycle will synchronize to the tempo specified by the [TEMPO] knob.

Ext-USB

The **RADIAS** will operate as a slave (the controlled device) to MIDI clock messages received from the USB connector. The **RADIAS**' step sequencer and arpeggiator will synchronize to the MIDI clock messages received from a connected external USB-MIDI device. If the LFO1 and LFO2 "TempoSync" is On, the LFO cycle will synchronize to the MIDI clock of the external USB-MIDI device.

Ext-MIDI

The **RADIAS** will operate as a slave (the controlled device) to MIDI clock messages received from the MIDI IN connector. The **RADIAS**' step sequencer and arpeggiator will synchronize to the MIDI clock messages received from a connected external MIDI device. If the LFO1 and LFO2 "TempoSync" is On, the LFO cycle will synchronize to the MIDI clock of the external MIDI device.



For details on synchronization-related settings for your external MIDI device, refer to the owner's manual for the device you're using.

- 5: MIDI1 [P.Bend...#119(CC#119)]**
- 6: MIDI2 [P.Bend...#119(CC#119)]**
- 7: MIDI3 [P.Bend...#119(CC#119)]**
- 8: MIDI4 [P.Bend...#119(CC#119)]**
- 9: MIDI5 [P.Bend...#119(CC#119)]**

These select the functions that are assigned to modulation sources MIDI 1, 2, 3, 4, and 5 of the Virtual Patch function.

With the factory settings, "MIDI1" is assigned to #016 (CC#16), "MIDI2" to #002 (CC#02), "MIDI3" to #080 (CC#80), "MIDI4" to #081 (CC#81), and "MIDI5" to A.Touch.



If the selected function is assigned to a different parameter, an "*" is shown at the right of the value.

P05 MIDI DUMP

P05-1 : MIDI DUMP



1: MIDI Dump [All Data...GLOBAL]

This selects the data that will be dumped. The **RADIAS**' program, drum, and global settings will be transmitted to a MIDI data filer connected to the MIDI OUT connector, or to a computer connected to the USB connector. Alternatively, you can send this data to another **RADIAS** synthesizer. For details on the dump procedure, refer to p.70 "Saving data on an external device (Data Dump)."

To receive a data dump, set the MIDI FILTER page "SystemEx" to (Enable) so that data dumps can be received at any time. Data dumps are transmitted and received on the global MIDI channel.



Do not touch the **RADIAS**' knobs or switches while data is being transmitted or received.

Also, you must never turn off the power of the **RADIAS'** during this time.

⚠ MIDI dumps and MIDI dump requests from a connected external MIDI device will not be received while recording formant motion data (p.58).

All Data

All program, drum, global, and template data will be transmitted.

All PROG

All program data will be transmitted.

1 PROG

Data of only the selected program will be transmitted.

All D-KIT

All drum kit data will be transmitted.

1 D-KIT

Data of only the selected drum kit will be transmitted.

All TPLT

All template data will be transmitted.

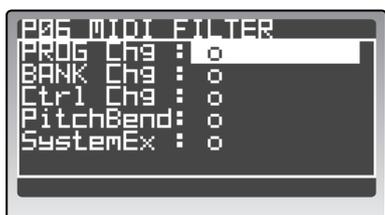
GLOBAL

Global data will be transmitted.

Dumped data	Data size (bytes)	Time required (seconds)
All Data	681842 (Max)	approximately 10 minutes
All PROG	525824	approximately 7 minutes
1 PROG	2054	approximately 1 second
All D-KIT	63040	approximately 1 minutes
1 D-KIT	1970	approximately 1 second
All TPLT	70240	approximately 20 seconds
GLOBAL	220356 (Max)	approximately 2 minute 30 seconds

P06 MIDI FILTER

P06-1: MIDI FILTER



1: PROG Chg (Program Change) [x, o]

Specifies whether program change messages will be transmitted and received.

x (Disable)

Program change messages will not be transmitted or received.

o (Enable)

Program change messages will be transmitted and received.

2: BANK Chg (Bank Change) [x, o]

Specifies whether bank change messages will be transmitted and received.

x (Disable)

Bank change messages will not be transmitted or received.

o (Enable)

Bank change messages will be transmitted and received.

3: Ctrl Chg (Control Change) [x, o]

Specifies whether control change messages will be transmitted and received.

x (Disable)

Control change messages will not be transmitted or received.

o (Enable)

Control change messages will be transmitted and received.

4: PitchBend [x, o]

Specifies whether pitch bend messages will be transmitted and received.

x (Disable)

Pitch bend messages will not be transmitted or received.

o (Enable)

Pitch bend messages will be transmitted and received.

5: SystemEx (System Exclusive) [x, o]

Specifies whether MIDI system exclusive messages will be transmitted and received.

x (Disable)

MIDI system exclusive messages will not be transmitted or received.

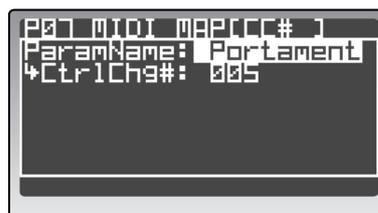
o (Enable)

MIDI system exclusive messages will be transmitted and received.

P07 MIDI MAP

P07-1 : MIDI MAP [CC#] (Control Change)

Here you can assign MIDI control change numbers (CC#) to each of the front panel knobs and buttons. When you operate a knob or button, the assigned control change will be transmitted.



1: ParamName (Parameter Name) [Portament...VcdEFSens]

Select the knob or button.

2: CtrlChg# (Control Change No.) [Off, 000...095, 102...119]

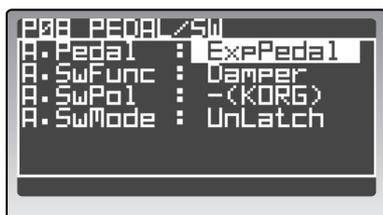
Assign a MIDI control change number (CC#) for the knob or button selected in "ParamName."

note If the selected value is already assigned to another parameter, an "*" is shown at the right of the value.

note The MIDI channel for vocoder parameters will be the same MIDI channel as the timbre that is selected as the vocoder carrier (Vocoder Edit mode P06: CARRIER page "InSrc1").

P08 PEDAL/SW

P08-1: PEDAL/SW



1: A.Pedal (Assignable Pedal) [Volume...FootPedal]

Selects the function of the pedal connected to the ASSIGNABLE PEDAL jack. With the factory settings this is set to ExpPedal.

Volume

The pedal will control the volume of the timbres used in the program.

ExpPedal

The pedal will control the volume of the timbres used in the program. The expression value is multiplied by the volume value to specify the actual loudness.

Pan

The pedal will control the panning of the timbres used in the program.

AftTouch

The pedal will control the aftertouch for timbres used in the program.

ModWheel

The pedal will control the effect of the modulation wheel.

BrthCtrl

The pedal will control the MIDI control change Breath Control (CC#02).

FootPedal

The pedal will control the MIDI control change Foot Control (CC#04).

2: A.SwFunc (Assignable Switch Function) [Damper...FootSw]

Selects the function of the pedal switch connected to the ASSIGNABLE SWITCH jack. With the factory settings this is set to Damper.

Damper

The pedal switch will function as a damper pedal.

ProgUp, ProgDown

The pedal switch will increment or decrement the program.

OctUp, OctDown

The pedal switch will change the octave. Turning the switch on will shift the pitch by +1/-1 octave.

PortSw

The pedal switch will function as a portamento on/off switch.

ArpStop

The pedal switch will start and reset the arpeggiator and step sequencers.

FootSw

The pedal switch will control the parameter assigned to FootSw as the control source for an effect, etc.

3: A.SwPol (Assignable Switch Polarity) [- (KORG), +]

Specifies the polarity of the pedal switch connected to the ASSIGNABLE SWITCH jack. With the factory settings this is set to - (KORG).

note Choose the - setting if you're using a Korg PS-1 pedal switch, or if you're not using any pedal switch.

4: A.SwMode (Assignable Switch Mode) [UnLatch, Latch]

Specifies the mode of on/off operation for the pedal switch connected to the ASSIGNABLE SW jack. With the factory settings this is set to UnLatch.

UnLatch

The assigned function will be on only while the pedal switch is held down.

Latch

The assigned function will alternate between on and off each time the switch is pressed.

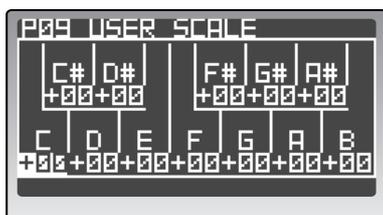
P09 USER SCALE

P09-1: USER SCALE

Here you can create a user scale. You can adjust the pitch of each note in the octave (C...B) in a range of -99+99 cents.

Use the cursor buttons to move the cursor to a note name (C...B), and use the [PROGRAM/VALUE] dial to adjust the pitch of that note.

If you set the Program Edit mode P02-1: COMMON – PROG tab page “Scale” parameter to User Scale, the entire range of the keyboard will use the scale you specify here.



1: C...B [-99...+99]

Specifies an offset for each pitch C...B in units of cents relative to standard equal tempered pitch as 0.

With a setting of +99, the pitch will be approximately one semitone higher than standard pitch.

With a setting of -99, the pitch will be approximately one semitone lower than standard pitch.

P10 CATEGORY NAME

P10-1: CATEGORY NAME

Here you can create and specify the names of each category. Every program is assigned to one of sixteen categories. When selecting programs, it is convenient to choose the desired category and then select programs from that category. For details on how to select programs by category, refer to p.21 “Selecting programs by category.”



Note You must execute the Write operation after editing a category name. If you fail to do this, the name will revert to its unedited state.

note To assign a program to a category, use the Program Edit mode P01-1: NAME – PROG tab page. (☞ p.36 “Assigning a category”)

1: Category [01...16]

Select the number of the category whose name you want to edit.

2: Name [!...←]

Enter a name for the category.

The available characters and the procedure are the same as for a program name. For details on entering a name, refer to ☞ p.36 “Assigning a category”

P11 CALIB [A.SW]

P11-1: CALIB [A.SW] (Assignable Sw)

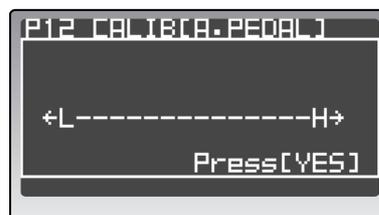
This operation calibrates a pedal switch connected to the RADIUS. Turn the connected pedal switch on and off, and then press the [EDIT/YES] button.



P12 CALIB [A.PEDAL]

P12-1: CALIB [A.PEDAL] (Assignable Pedal)

This operation calibrates the valid range of a pedal connected to the RADIUS. Move the connected pedal through its entire range of movement, and then press the [EDIT/YES] button.



Note If the calibration was not successful, the display will indicate “Invalid Data” when you press the [EDIT/YES] button. If this occurs, execute the operation again.

Note You must execute the Write operation for the 11: CALIB [A.SW] and 12: CALIB [A.PEDAL] calibration settings in the same way as for the other Global parameters. If you don’t execute the Write operation, the settings will revert to their previous state (☞ p.68 “5. Saving global parameters (Write)”).

Effect guide

Overview

The effect section of the **RADIUS** consists of a two-band EQ and two insert effects per timbre, and one master effect for the entire program. You can use the EQ and insert effects to create the sound of each timbre, and use the master effect to add overall spatial processing.

For each of the insert effects and master effect, you can choose one of thirty types of full-digital effect. The types of effects are grouped in the following categories.

01–10	Filter and dynamics effects such as EQ and compressor
11–19	Reverb, early reflection, and delay
20–30	Pitch and phase modulation effects such as chorus and phaser, rotary speaker, and pitch shifter

About the effect inputs and outputs

The insert effects and master effects are stereo-in/stereo-out. The Dry signal (the direct, unprocessed sound) of the “Dry/Wet” balance will simply pass through the stereo input as a stereo output. The way in which the Wet signal (the sound processed by the effect) is output will depend on the type of effect, and the possible configurations are shown below.



In the block diagram given for each effect in the pages that follow, the input/output configuration is listed in the upper left of the diagram.

In order to obtain the best audio quality, use “AmpLevel,” “OSC1 Level,” “OSC2 Level,” and “Noise Level” to adjust the input level to the insert effect and master effect, and set the “Trim” of each effect to the maximum level that does not cause clipping. Then use the “Dry/Wet” and “Output Level” of each effect to adjust the output level of the effect.

- Some effect types do not have a “Trim” or “Output Level” parameter.
- There is no input level meter that indicates the input level to the effect. If the input level is insufficient, the S/N ratio will be degraded. If the input level is excessive, clipping may occur.

About the delay time

TimeRatio

For delay effects, the actual delay time is determined by multiplying the delay time with the “TimeRatio.” Here are some examples.

- “TempoSync”: Off, “L Delay”: 0800 ms, “R Delay”: 0400 ms, “TimeRatio”: 50% settings will produce an actual delay of 400 ms for the L-channel and 200 ms for the R-channel.
- “TempoSync”: On, “L Delay”: ♩ 1/4, “R Delay”: ♩ 1/8, “TimeRatio”: 50% settings will produce an actual delay of an 8th note for the L-channel and a 16th note for the R-channel.

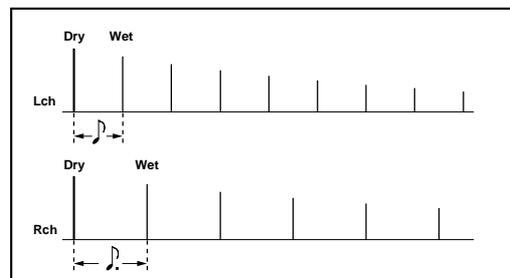
Delay time when Tempo Sync is on

When “TempoSync” is on, the delay time will synchronize to the tempo specified by the [TEMPO] knob (or external MIDI clock). This is useful in a live performance, since the delay time will be synchronized with the arpeggiator and step sequencer playback.

If “TempoSync” is on, you will specify the delay time in terms of a note value.

Here is an example.

- “TempoSync”: On, “TimeRatio”: 100%, “L Delay”: ♩ 1/8, “R Delay Base Note”: ♩ 3/16 settings will set the L-channel delay time to an 8th note and the R-channel delay time to a dotted 8th note.



- If the time calculated by Delay Time × “TimeRatio” exceeds the range of the assigned delay time setting, an indication of Over will appear at the right of the “TimeRatio” value, and the delay time will be half of the specified value. If the delay time is still over the range when halved, it will be cut to a 1/4, 1/8, 1/16 ... and so on as necessary.

Delay time for the insert effects

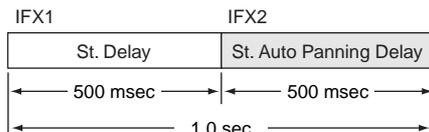
Broadly speaking, there are two types of effect for which you can specify a delay time.

- Delay effects
- Modulation effects such as chorus that internally use a fixed delay time

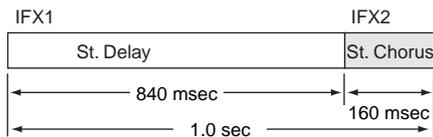
If you use such an effect in the two insert effects, the delay time of the effects can be set for a maximum of 1.0 seconds for each timbre.

Here are some examples.

- Insert effect 1 uses St.Delay, and insert effect 2 uses St.Auto Panning Delay. 500 ms of delay time is assigned to each effect.



- Insert effect 1 uses St.Chorus, and insert effect 2 uses St.Delay. 160 ms of delay time is assigned to St.Chorus, and 840 ms of delay time is assigned to St.Delay.



Controlling the effect parameters

You can use the front panel INSERT FX [EDIT 1] and [EDIT 2] knobs to control insert effect parameters in realtime, and the front panel MASTER FX [EDIT] knob to control a master effect parameter in realtime. Parameters assigned to these knobs can also be controlled from an external MIDI device.

You can make assignments for these knobs in the Program Edit mode P13-2, 3: EQ/FX – IFX1, IFX2 tab page “Edit1” and “Edit2,” and in MFX tab page “Edit.” The parameters you can assign will depend on the effect type you’re using.

For details on the parameters you can assign to these knobs, refer to p.123 “Effect parameters.”

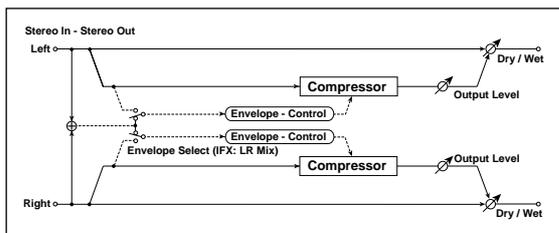
- ⚠ Noise may occur if a parameter not assigned to a knob is operated while sound is being produced.

Effect parameters

- **[parameter name]** **only MFX**: This parameter will be displayed and can be set only when the effect is used by a master effect.
- **[parameter name]** **only IFX**: This parameter will be displayed and can be set only when the effect is used by an insert effect.
- **[effect name]** **double size**: This effect can be selected only for insert effect 1. If you select this type of effect, you can't use insert effect 2.
- **[parameter name]** **🔧**: This parameter can be assigned to one of the front panel knobs.

1. St.Compressor (Stereo Compressor)

This effect compresses the input signal to regulate the level and give a “punchy” effect. This is useful when applied to sounds that have a strong attack. If using this for the master effect, you can link the left and right channels or make them operate independently.

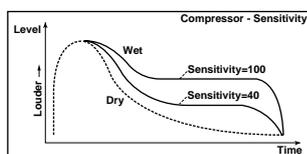


Dry/Wet **🔧** [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

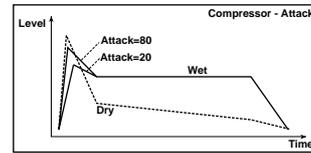
Env Sel (Envelope Select) **only MFX** [LR Mix, LR Indv.]
When L/R Mix is selected for this parameter, the left and right channels are linked to control the Limiter using the mixed signal. With L/R individually, the left and right channels control the Limiter individually.

🔊 You can switch between LR Mix and LR Indiv. settings only when using this effect type for the master effect. When using this effect type for an insert effect, this parameter is fixed at LR Mix.

Sens (Sensitivity) **🔧** [001...127]
The “Sensitivity” parameter sets the sensitivity of the compressor. If this parameter is set to a higher value, lower level sounds will be boosted. With a higher Sensitivity, the overall volume level is higher. To adjust the final volume level, use the “Output Level” parameter.



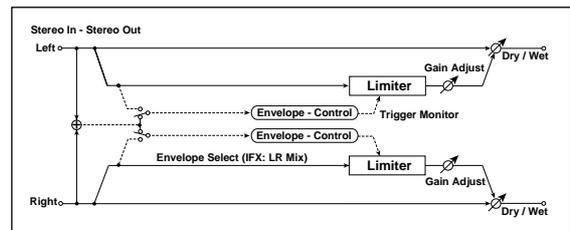
Attack **🔧** [0000.1...0500.0ms]
Sets the attack level.



OutLevel (Output Level) [000...127]
This parameter controls the output level.

2. St.Limiter (Stereo Limiter)

The Limiter regulates the input signal level. It is similar to the Compressor, except that the Limiter compresses only signals that exceed the specified level to lower unnecessary peak signals. If using this for the master effect, you can link the left and right channels or make them operate independently.

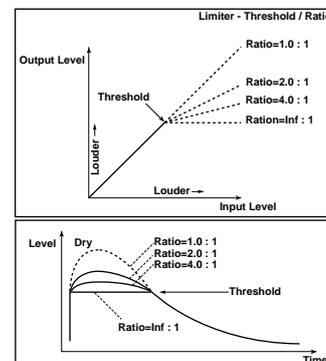


Dry/Wet **🔧** [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

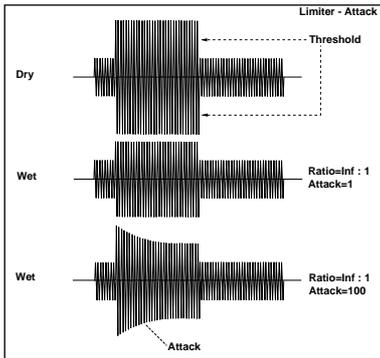
Env Sel (Envelope Select) **only MFX** [LR Mix, LR Indv.]
p.123 “1. St.Compressor (Stereo Compressor)”

Ratio **🔧** [1.0:1...50.0:1...Inf:1]
Sets the signal compression ratio.

Threshold **🔧** [-40...+00dB]
Sets the level above which the compressor is applied. Compression is applied only when the signal level exceeds the “Threshold” value.



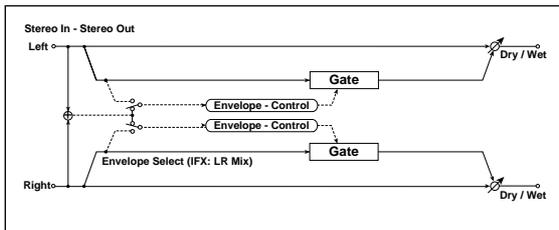
Attack  [0000.1...0500.0ms]
Sets the attack time. A higher attack time will cause the compression to be applied more slowly.



GainAdjst (Gain Adjust)  [-Inf, -40...+24dB]
Sets the output gain. Adjust the output level using the "Gain Adjust" parameter, since compression causes the entire level to be reduced.

3. St.Gate (Stereo Gate)

This effect mutes the input signal if its level is lower than the specified level.



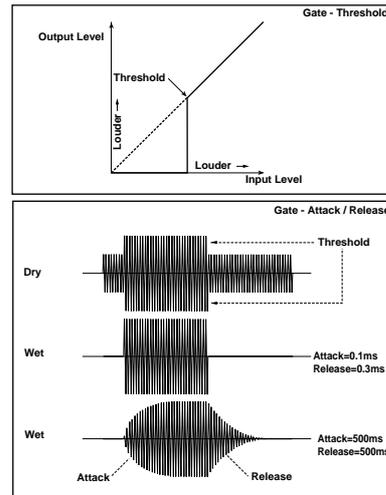
Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Env Sel (Envelope Select) *only MFX* [LR Mix, LR Indv.]
p.123 "1. St.Compressor (Stereo Compressor)"

Threshold  [000...127]
Sets the level to which the Gate is applied.

Attack  [0000.1...0500.0ms]
Sets the Gate attack time.

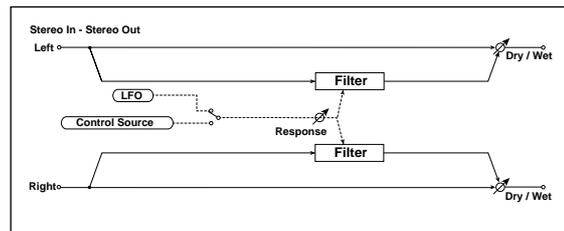
Release  [0000.3...1500.0ms]
Sets the Gate release time.



GainAdjst (Gain Adjust)  [-Inf, -40...+24dB]
Sets the output gain.

4. St.Filter (Stereo Filter)

This is a stereo filter.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Filter (Filter Type) [LPF24 (-24dB/oct), LPF18 (-18dB/oct), LPF12 (-12dB/oct), HPF12 (-12dB/oct), BPF12 (-12dB/oct)]
Selects the filter type.

p.86 "FiltBal (Filter1 Balance) Ü FILTER TYPE á"

Cutoff  [000...127]
Sets the filter cutoff frequency.

p.87 "Cutoff (Cutoff Frequency) Ü CUTOFF á"

Resonance  [000...127]
Sets the filter resonance amount.

p.87 "Resonance Ü RESONANCE á"

Trim  [000...127]
Sets the input level.

Mod Src (Mod Source) [LFO, Ctrl]

Selects the modulation source that will control the cutoff frequency.

If you set this to LFO, the LFO will modulate the cutoff frequency.

If you set this to Ctrl, the control source selected by "Ctrl Src" will control the cutoff frequency.

Mod Int (Modulation Intensity) [-63...+63]

Adjusts the depth of modulation applied by the modulation source.

Response (Mod Response) [000...127]

Adjusts the response of the modulation effect. A setting of 0 produces slow response.

TempoSync (LFO Tempo Sync) [Off, On]

Specifies whether the LFO cycle will synchronize to the tempo set by the [TEMPO] knob or by MIDI clock.

This parameter will be displayed and can be set if "Mod Int" is LFO.

If this is Off, the LFO will operate at the cycle specified by "LFO Freq."

If this is On, the LFO will synchronize to the tempo or MIDI clock.

note In the Global mode P04: MIDI page "Clock" setting is Internal, the LFO will synchronize to the tempo specified by the [TEMPO] knob. If the setting is External, the LFO will synchronize to the MIDI clock received from an external MIDI device.

LFO Freq (LFO Frequency) [0.01...100.0Hz]

Sets the LFO speed. This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is Off.

Increasing this value will result in a faster frequency.

🔧 If this parameter is assigned to "Edit1," "Edit2," or "Edit," the assignment will change to Sync Note if you turn "TempoSync" on.

Sync Note (LFO Sync Note) [8/1...1/64]

Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob.

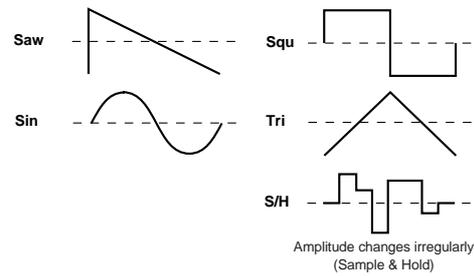
The length of the specified value (note value) relative to the tempo will be one cycle of the LFO. For example if this is $\downarrow 1/4$, one cycle will occupy one quarter note.

This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is On.

🔧 If this parameter is assigned to "Edit1," "Edit2," or "Edit," the assignment will change to LFO Freq if you turn "TempoSync" off.

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]

Selects the LFO waveform. This parameter will be displayed and can be set if "Mod Src" is LFO.



LFO Shape [-63...+63]

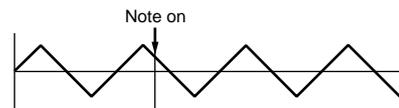
Adjusts the shape of the LFO waveform. This parameter will be displayed and can be set if "Mod Src" is LFO.

🔧 p.90 "Shape"

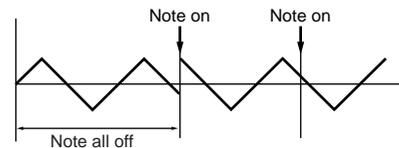
Key Sync (LFO KeySync) [Off, Timbre]

Specifies how the LFO will be reset at note-on. This parameter will be displayed and can be set if "Mod Src" is LFO.

With Off, the LFO phase will not be reset when note-on occurs.



With Timbre, the first note-on from a condition of no keys being pressed will reset the LFO to the phase specified by "Init Phase," and modulation will be applied at that phase even if subsequent note-ons occur.



InitPhase (LFO Init Phase) [000...180°]

Specifies the starting position of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

With a setting of 0°, the waveform will start from its beginning at note-on.

With a setting of 180°, the waveform will start from the mid-point of its cycle at note-on.

Ctrl Src (Control Source) [Off, Velocity...MIDI5]

Selects the control source. This parameter will be displayed and can be set if "Mod Src" is Ctrl.

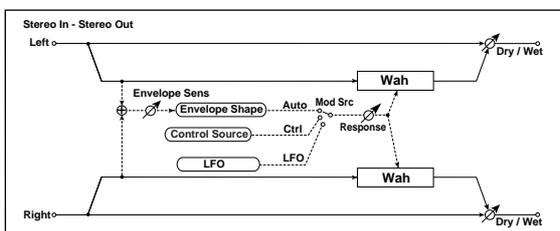
The filter will be controlled by the selected source.

Source	Explanation
Off	Not used
Velocity	Velocity
P.Bend	Pitch bend
M.Wheel	Modulation wheel

Source	Explanation
F.Pedal	Foot pedal
F.SW	Foot switch
Damper	Damper pedal
E.F	Envelope follower
MIDI1	Source specified by "MIDI1" in Global mode P04-1: MIDI
MIDI2	Source specified by "MIDI2" in Global mode P04-1: MIDI
MIDI3	Source specified by "MIDI3" in Global mode P04-1: MIDI
MIDI4	Source specified by "MIDI4" in Global mode P04-1: MIDI
MIDI5	Source specified by "MIDI5" in Global mode P04-1: MIDI

5. St.Wah (Stereo Wah)

This stereo wah effect allows you to create sounds from vintage wah pedal simulation to auto-wah simulation, and much broader range settings.



Dry/Wet [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Wah Type [Y-CRY, RM-A, RM-B, J-CRY, VOX, M-VOX]
Selects the wah type.
If "ModSource" is Auto/Ctrl (other than PitchBend), settings of "Freq"=0, "Resonance"=0, and "Mod-Int"=+63 will produce the response of a modeled wah. If "ModSource" is LFO/Ctrl (PitchBend), settings of "Freq"=32, "Resonance"=0, and "ModInt"=45 will produce the response of a modeled wah.

Wah Freq (Frequency) [-63...+63]
Sets the wah center frequency.

Resonance [-63...+63]
Sets the resonance amount.

Mod Src (Modulation Source) [Auto, LFO, Ctrl]
Selects the source that will control the center frequency of the wah.

When "Mod Src" is set to Auto will select an auto-wah that sweeps according to envelope changes in the input signal level. Auto-wah is frequently used for funk guitar parts and clav sounds.

When "Mod Src" is set to LFO, the effect uses LFO to sweep in cycle.

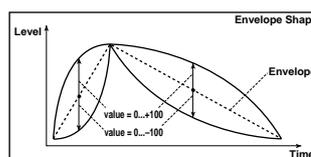
When "Mod Src" is set to Ctrl, you can control the filter directly via the modulation source in the same way as a wah pedal.

Mod Int (Moduration Intensity) [-63...+63]
Adjusts the depth of the modulation produced by the modulation source.

Response (Modulation Response) [000...127]
Adjusts the response of the modulation effect. A setting of 0 produces the slowest response.

Env Sens (Envelope Sensitivity) [000...127]
When "Mod Src" is set to Auto, sets the sensitivity of auto-wah. Increase the value if the input signal is too low to sweep. Reduce the value if the input signal is so high that the filter is stopped temporarily.

Env Shape (Envelope Shape) [-63...+63]
When "Mod Src" is set to Auto, this parameter determines the sweep curve for auto-wah.



TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will synchronize to the tempo set by the [TEMPO] knob or MIDI clock. This parameter will be displayed and can be set if "Mod Src" is LFO.

p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency) [0.01...100.0Hz]
Sets the LFO speed. This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is Off.

p.125 "LFO Freq (LFO Frequency)"

Sync Note (LFO Sync Note) [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is On.

p.125 "Sync Note (LFO Sync Note)"

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform when "Mod Src" is LFO.

p.125 "LFO Wave (LFO Waveform)"

LFO Shape [-63...+63]
Adjusts the shape of the LFO waveform if "Mod Src" is LFO.

p.125 "LFO Shape"

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset at note-on. This parameter will be displayed and can be set if "Mod Src" is LFO.

p.125 "Key Sync (LFO KeySync)"

InitPhase (LFO Init Phase) [000...180°]
Specifies the starting position of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

p.125 "InitPhase (LFO Init Phase)"

Ctrl Src (Control Source) [Off, Velocity...MIDI5]

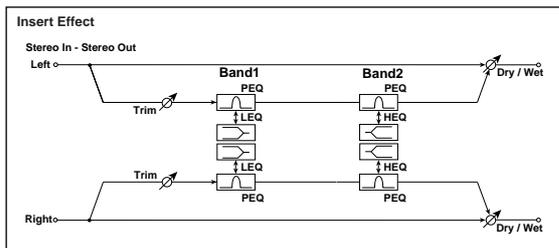
Selects the control source used when "Mod Src" is set to Ctrl. The selected source will control the center frequency of the wah. This parameter will be displayed and can be set if "Mod Src" is Ctrl.

ⓘ p.125 "Ctrl Src (Control Source)"

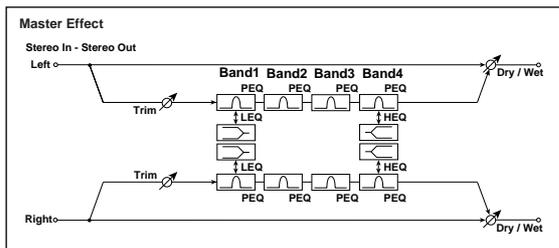
6. St.2BandEQ (IFX)/ St.4BandEQ (MFX)

This is a stereo EQ for which the type can be selected independently.

When used in an insert effect, this will be a two-band stereo EQ.



When used in the master effect, this will be a four-band stereo EQ. In this case, the equalizer type of two of the bands (B2 and B3) is fixed as peaking-type EQ.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Trim [000...127]

Sets the input level of EQ.

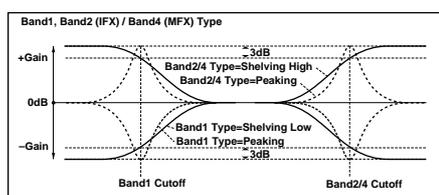
B1 Type [Peaking, Shelv Lo]

Selects the EQ type of Band 1.

B2 Type/B4 Type [Peaking, Shelv Hi]

When used in an insert effect, selects the equalizer type of band 2.

When used in the master effect, selects the equalizer type of band 4. In this case, band 2 is fixed as a peaking-type EQ.



B1 Freq (B1 Frequency) [20Hz...20.0kHz]

Sets the center frequency of Band 1.

B1 Q [00.5...10.0]

Sets the bandwidth of Band 1.

B1 Gain [−18.0...+18.0dB]

Sets the gain of Band 1.

B2 Freq (B2 Frequency) [20Hz...20kHz]

Sets the center frequency of Band 2.

B2 Q [00.5...10.0]

Sets the bandwidth of Band 2.

B2 Gain [−18.0...+18.0dB]

Sets the gain of Band 2.

B3 Freq (B3 Frequency) only MFX [20Hz...20kHz]

Sets the center frequency of Band 3.

B3 Q only MFX [00.5...10.0]

Sets the bandwidth of Band 3.

B3 Gain only MFX [−18.0...+18.0dB]

Sets the gain of Band 3.

B4 Freq (B4 Frequency) only MFX [20Hz...20kHz]

Sets the center frequency of Band 4.

B4 Q only MFX [00.5...10.0]

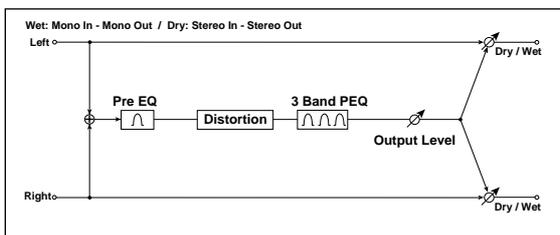
Sets the bandwidth of Band 4.

B4 Gain only MFX [−18.0...+18.0dB]

Sets the gain of Band 4.

7. Distortion

This is a distortion effect with a three band EQ, giving you a broad range of variations.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Gain [000...127]

Sets the degree of distortion.

Pre Freq (Pre EQ Frequency) [20Hz...20.0kHz]

Sets the center frequency of Pre EQ.

Pre Q (Pre EQ Q) [00.5...10.0]

Sets the bandwidth of Pre EQ.

Pre Gain (Pre EQ Gain) [-18.0...+18.0dB]

Sets the gain of Band PreEQ.

B1 Freq (B1 Frequency) [20Hz...20kHz]

Sets the center frequency of Band 1.

B1 Q [00.5...10.0]

Sets the bandwidth of Band 1.

B1 Gain [-18.0...+18.0dB]

Sets the gain of Band 1.

B2 Freq (B2 Frequency) [20Hz...20kHz]

Sets the center frequency of Band 2.

B2 Q [00.5...10.0]

Sets the bandwidth of Band 2.

B2 Gain [-18.0...+18.0dB]

Sets the gain of Band 2.

B3 Freq (B3 Frequency) [20Hz...20kHz]

Sets the center frequency of Band 3.

B3 Q [00.5...10.0]

Sets the bandwidth of Band 3.

B3 Gain [-18.0...+18.0dB]

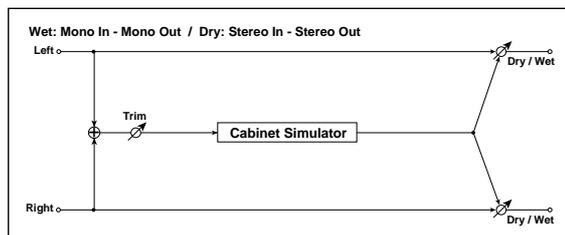
Sets the gain of Band 3.

Out Level (Output Level) [000...127]

Sets the output level.

8. CabinetSimltr (Cabinet Simulator)

This simulates the acoustical character of a guitar amp's speaker cabinet.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

CabiType (Cabinet Type) [TWD 1x8...US V30]

Selects the type of the cabinet.

TWD 1x8
Open-back cabinet with one 8" speaker

TWD 1x12
Open-back cabinet with one 12" speaker, typically used for blues.

TWD 4x10
Open-back cabinet with four 10" speakers.

BLK 2x10
Open-back cabinet with two 10" speakers.

BLK 2x12
American open-back cabinet with two 12" speakers.

AC15
Vox open-back cabinet with one 12" "Blue" speaker.

AC30
Vox open-back cabinet with two 12" "Blue" speakers.

AD412
VOX AD412 closed-back cabinet with four 12" speakers.

UK H30
Closed-back classic cabinet with four 30W 12" speakers

UK T75
Closed-back cabinet with four 75W 12" speakers.

US V30
Closed-back cabinet with four 30W 12" speakers.

Air [000...127]

Sets the mic position.

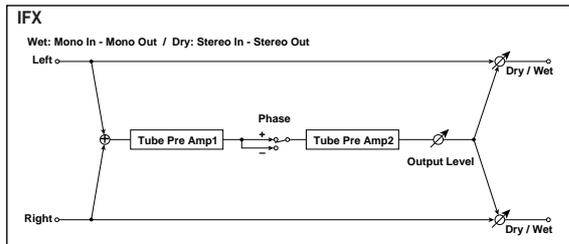
Trim [000...127]

Sets the input level.

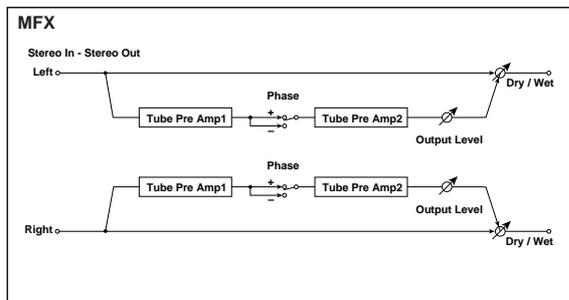
9. TubePreAmpSim (IFX)/ St.TubePreAmp (MFX)

This effect simulates a two-stage vacuum tube preamp. You can make individual settings for two vacuum tubes connected in series. This lets you create the warm sound typical of vacuum tubes.

When used in an insert effect, this will be a mono-in/mono-out effect.



When used in the master effect, this will be a stereo-in/stereo-out effect.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Tu1 LoCut (Tube1 Low Cut) [000...127]

Sets the cutoff frequency for the low cut filter of stage 1.

Tu1 HiCut (Tube1 High Cut) [000...127]

Sets the cutoff frequency for the high cut filter of stage 1.

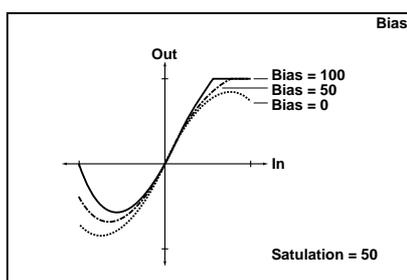
Tu1 Gain (Tube1 Gain) [-Inf, -40...+24dB]

Sets the input gain for stage 1.

Tu1 Bias (Tube1 Bias) [000...100%]

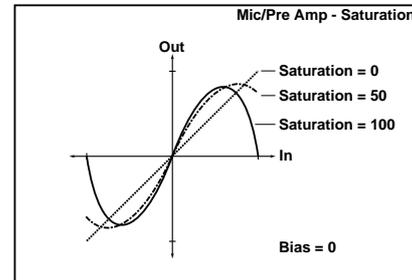
Sets the bias voltage for stage 1.

This expresses the effect that changes in vacuum tube bias have on the distortion of the waveform. Higher settings of this value will produce distortion even at low gain levels. Since this will also change the overtone structure, you can use it to control the tonal character.



Tu1 Satu (Tube1 Saturation) [000...100%]

Sets the input/output response for stage 1. With higher settings of this value, the waveform will change at high gain levels, tending to cause distortion. Lower settings of this value will produce linear response.



Phase [Normal, Inverted]

Turns phase reversal on/off.

With the Invert setting, the phase of the signal will be inverted between stage 1 and stage 2. Since "Bias" is applied to the inverted signal in stage 2, this will change the tonal character.

With the Normal setting, the phase will not be reversed.

Tu2 LoCut (Tube2 Low Cut) [000...127]

Sets the cutoff frequency for the low cut filter of stage 2.

Tu2 HiCut (Tube2 High Cut) [000...127]

Sets the cutoff frequency for the high cut filter of stage 2.

Tu2 Gain (Tube2 Gain) [-Inf, -40...+24dB]

Sets the input gain for stage 2.

Tu2 Bias (Tube2 Bias) [000...100%]

Sets the bias voltage for stage 2.

p.129 "Tu1 Bias (Tube1 Bias)"

Tu2 Satu (Tube2 Saturation) [000...100%]

Sets the input/output response for stage 2.

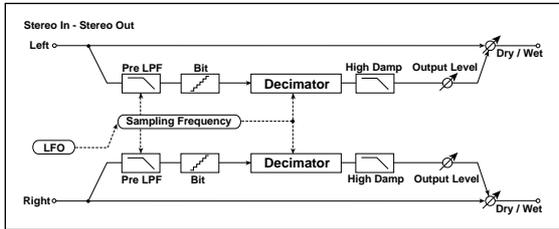
p.129 "Tu1 Satu (Tube1 Saturation)"

Out Level (Output Level) [000...127]

Sets the output level.

10. St.Decimator (Stereo Decimator)

This effect creates a rough sound like a cheap sampler by lowering the sampling frequency and data bit length. You can also simulate noise unique to a sampler (aliasing).



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

PreLPF [Off, On]

Selects whether the harmonic noise caused by a decrease in sampling frequency is generated or not.

If a sampler with a very low sampling frequency receives very high-pitched sound that could not be heard during playback, it could generate pitch noise that is unrelated to the original sound. Set "Pre LPF" to On to prevent this noise from being generated.

If you set the "Fs" to about 3kHz and set "PreLPF" to Off, you can create a sound like a ring modulator.

HighDamp [000...100%]

Sets the ratio of cut of the high range.

Fs [01.0k...48.0kHz]

Sets the sampling frequency.

Bit [04...24bit]

Sets the data bit length.

If you set a smaller value for the "Bit" parameter, the sound may be distorted. The volume level may also be changed. Use "Output Level" to adjust the level.

Out Level (Output Level) [000...127]

Sets the output level.

FsModInt (Fs Modulation Intensity) [-63...+63]

Sets the depth of sampling frequency LFO modulation.

TempoSync (LFO Tempo Sync) [Off, On]

Specifies whether the LFO cycle will synchronize to the tempo specified by the [TEMPO] knob or MIDI clock.

p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency) [0.01...100.0Hz]

Sets the LFO speed. This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is Off.

p.125 "LFO Freq (LFO Frequency)"

Sync Note (LFO Sync Note) [8/1...1/64]

Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "TempoSync" is On.

p.125 "Sync Note (LFO Sync Note)"

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]

Selects the LFO waveform.

p.125 "LFO Wave (LFO Waveform)"

LFO Shape [-63...+63]

Adjusts the shape of the LFO waveform.

p.125 "LFO Shape"

Key Sync (LFO KeySync) [Off, Timbre]

Specifies whether the LFO will be reset at note-on.

p.125 "Key Sync (LFO KeySync)"

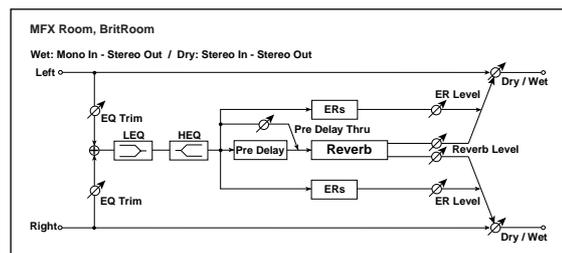
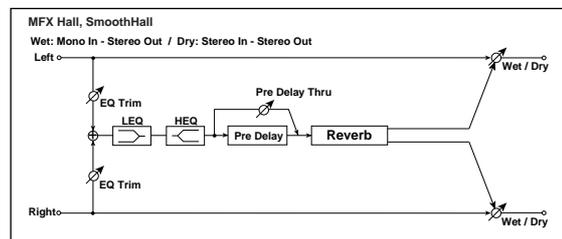
InitPhase (LFO Init Phase) [000...180°]

Specifies the starting position of the waveform. This parameter will be displayed and can be set if "KeySync" is Timbre.

p.125 "InitPhase (LFO Init Phase)"

11. Reverb

This effect simulates acoustical ambience such as the reverberation of a hall.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Type [Hall...BritRoom]

Selects the reverb type.

The reverb types that you can select will differ depending on whether this effect is used in an insert effect or in the master effect.

Hall

Hall-type reverb, producing the reverberation of a mid-to large-size concert or ensemble hall.

SmthHall only MFX

Hall-type reverb, producing the reverberation of a larger hall or stadium. The reverberation features a smooth release.

Selectable only for the master effect.

Plate only IFX

Plate reverb.

Selectable only for an insert effect.

WetPlate only MFX

Plate reverb that produces warm, dense reverberation.

Selectable only for the master effect.

DryPlate only MFX

Plate reverb with a dry, light feel.

Selectable only for the master effect.

Room

Room-type reverb with a tight feeling, and emphasis on the early reflections. By changing the balance between the early reflections and the reverberation, you can simulate different types of wall material.

BritRoom only MFX

Room-type reverb with a bright feeling, and emphasis on the early reflections. (Reverb Room)

Selectable only for the master effect.

Rev Time (Reverb Time)  [00.1...10.0sec]

Sets the reverberation time.

The selectable range of reverb time will depend on the "Type" setting.

Hall-DryPlate: 0.1-10sec

Room, BritRoom: 0.1-3.0sec

High Damp [000...100%]

Sets the damping amount in the high range.

Pre Delay only MFX [000...200msec]

Sets the delay time from the dry sound.

PrDlyThru (Pre Delay Thru) only MFX [000...127]

Sets the mix ratio of non-delay sound.

Trim (Pre EQ Trim) only MFX [000...127]

Sets the EQ input level.

LoEQGain (Low EQ Gain) only MFX [-15.0...+15.0dB]

Sets the gain of Low EQ.

HiEQGain (High EQ Gain) only MFX [-15.0...+15.0dB]

Sets the gain of High EQ.

ER Level only MFX [000...127]

Sets the time taken from the original sound to the first early reflection.

When used for the master effect, this is displayed and can be set only if Room or BritRoom is selected.

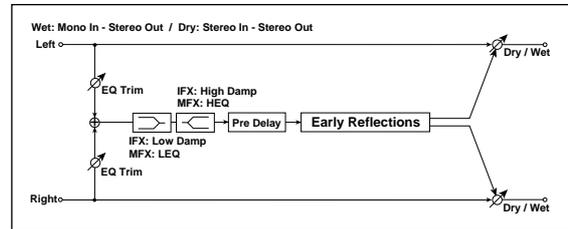
Rev Level (Reverb Level) only MFX [000...127]

Sets the reverberation level.

This is displayed and can be set only if Room or BritRoom is selected for the master effect.

12. Early Reflect (Early Reflections)

This effect is only the early reflection part of a reverberation sound, and adds presence to the sound. You can select one of the four decay curves.

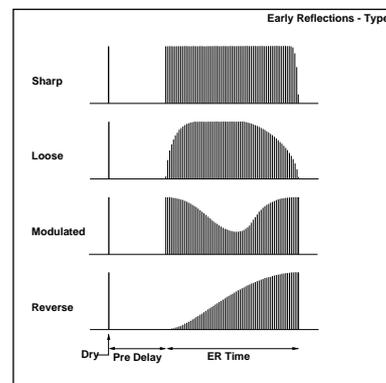


Dry/Wet  [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Type [Sharp, Loose, Modulation, Reverse]

Selects the decay curve for the early reflection.



ER Time  [IFX: 010...400msec/MFX: 010...800msec]

Sets the time length of early reflection.

The range is 10-400 msec when used for an insert effect, or 10-800 msec when used for the master effect.

Pre Delay [IFX: 000...100msec/MFX: 000...200msec]

Sets the time taken from the original sound to the first early reflection.

The range is 0-100 msec when used for an insert effect, or 0-200 msec when used for the master effect.

Trim (Pre EQ Trim) [000...127]

Sets the input level of EQ applied to the effect sound.

LoEQGain (Low EQ Gain) only MFX [-15.0...+15.0dB]

Sets the gain of Low EQ.

HiEQGain (High EQ Gain) only MFX [-15.0...+15.0dB]

Sets the gain of High EQ.

High Damp only IFX [000...100%]

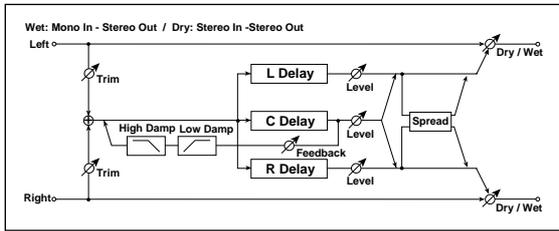
Sets the damping amount in the high range.

Low Damp only IFX [000...100%]

Sets the damping amount in the low range.

13. L/C/R Delay

This multitap delay outputs three Tap signals to the left, center, and right respectively. You can also adjust the left and right spread of the delay sound.



Dry/Wet [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]
Specifies whether the delay time will be synchronized. If this is On, the delay time will synchronize to the tempo or MIDI clock.

Time Ratio [TempoSync Off: 000.5...400.0% (OVER) /TempoSync On: 012.5...400.0% (OVER)]

Sets each delay time as a proportion relative to the “L Delay,” “C Delay,” and “R Delay” values. The available range will depend on whether “TempoSync” is On or Off.

For example if “Time Ratio” is 50%, “L Delay” is 500 msec, “C Delay” is 1000 msec, and “R Delay” is 1200 msec, the delay times will be 250 msec, 500 msec, and 600 msec respectively.

If you use this effect and a delay or chorus effect as the two insert effects, the delay times will be limited.

If the delay times in conjunction with the “Time Ratio” setting exceed the limit, “Time Ratio” will indicate OVER.

L Delay, C Delay, R Delay (L, C, R Delay Time)
[IFX: 0000...1000msec, MFX: 0000...1400msec, 1/64... 1/1]

These set the L, C, and R delay times.

The delay time is determined by these settings and the “Time Ratio” value.

If “TempoSync” is Off, these delay times are set in msec units. The range is 0–1000 msec for an insert effect, or 0–1400 for a master effect.

If “TempoSync” is On, these delay times are set as a timing resolution relative to the tempo specified by the [TEMPO] knob or MIDI clock.

L Level, C Level, R Level (L, C, R Delay Level) [000...127]
These adjust the output level of the L, C, and R delays.

C Fback (C Feedback) [000...127]
Sets the feedback amount of TapC.

High Damp [000...100%]
Sets the damping amount in the high range.

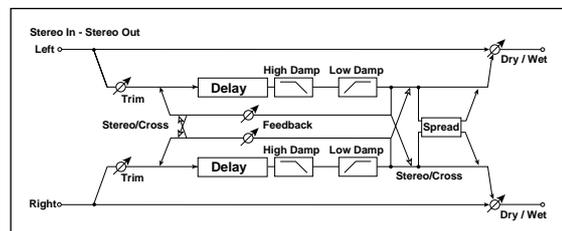
Low Damp [000...100%]
Sets the damping amount in the low range.

Trim [000...127]
Sets the input level.

Spread [000...127]
Sets the width of the stereo image of the effect sound. The stereo image is widest with a value of 127, and the effect sound of both channels is output from the center with a value of 0.

14. St.Delay (Stereo Delay)

This is a stereo delay, and can be used as a cross-feedback delay effect in which the delay sounds cross over between the left and right by changing the feedback routing.



Dry/Wet [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Type [Stereo, Cross]
Selects the delay type.

With the Stereo setting, this will be a conventional stereo delay.

With the Cross setting, this will be a cross-feedback delay in which the delay sound bounces between left and right.

TempoSync (DelayTime Tempo Sync) [Off, On]
Specifies whether the delay tempo will be synchronized.
 p.132 LCR Delay “TempoSync (DelayTime Tempo Sync)”

Time Ratio [TempoSync Off: 000.5...400.0% (OVER) /TempoSync On: 012.5...400.0% (OVER)]

p.132 LCR Delay “Time Ratio”

L Delay, R Delay (L, R Delay Time)
[IFX: 000...500msec, MFX: 000...700msec, 1/64... 1/1]
These set the left and right channel delay times.

If “TempoSync” is Off, these delay times are set in msec units. The range is 0–500 msec for an insert effect, or 0–700 for a master effect.

If “TempoSync” is On, these delay times are set as a timing resolution relative to the tempo specified by the [TEMPO] knob or MIDI clock.

Feedback [000...127]
Sets the amount of feedback for the left and right channels.

The amount of feedback for the right channel is linked with the proportion of the left and right delay times so that the decay times of the left and right channels will stay the same.

High Damp [000...100%]

Sets the damping amount in the high range.

Low Damp [000...100%]

Sets the damping amount in the low range.

Trim [000...127]

Sets the input level.

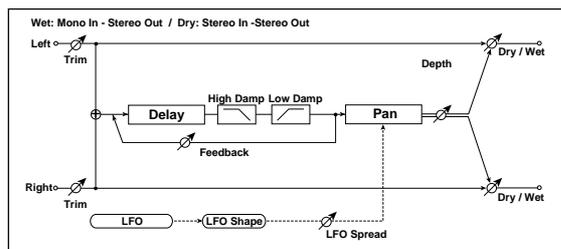
Spread [000...127]

Sets the width of the stereo image of the effect sound.

☞ p.132 LCR Delay “Spread”

15. AutoPanDelay (Auto Panning Delay)

This stereo delay effect pans the delay sound left and right using the LFO.



Dry/Wet ☞ [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]

☞ p.132 LCR Delay “TempoSync (DelayTime Tempo Sync)”

Time Ratio ☞ [TempoSync Off: 000.5...400.0% (OVER)
/TempoSync On: 012.5...400.0% (OVER)]

☞ p.132 LCR Delay “Time Ratio”

L Delay, R Delay (L, R Delay Time)
[IFX: 0000...1000msec, MFX: 0000...1400msec,
1/64... 1/1]

These set the left and right channel delay times.

If “TempoSync” is Off, these delay times are set in msec units. The range is 0–1000 msec for an insert effect, or 0–1400 for a master effect.

If “TempoSync” is On, these delay times are set as a timing resolution relative to the tempo specified by the [TEMPO] knob or MIDI clock.

Feedback ☞ [000...127]

Sets the feedback amount for the left channel.

Mod Depth ☞ [000...127]

Sets the depth of modulation.

TempoSync (LFO Tempo Sync) [Off, On]

Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

☞ p.125 “TempoSync (LFO Tempo Sync)”

LFO Freq (LFO Frequency) ☞ [0.01...100.0Hz]

Sets the LFO speed.

☞ p.125 “LFO Freq (LFO Frequency)”

Sync Note (LFO Sync Note) ☞ [8/1...1/64]

Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if “TempoSync” is On.

☞ p.125 “Sync Note (LFO Sync Note)”

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]

Selects the LFO waveform.

☞ p.125 “LFO Wave (LFO Waveform)”

LFO Shape [-63...+63]

☞ p.125 “LFO Shape”

Key Sync (LFO KeySync) [Off, Timbre]

Specifies whether the LFO will be reset by note-on.

☞ p.125 “Key Sync (LFO KeySync)”

InitPhase (LFO Init Phase) [000...180°]

Sets the starting location of the waveform. This parameter will be displayed and can be set if “Key Sync” is Timbre.

☞ p.125 “InitPhase (LFO Init Phase)”

High Damp [000...100%]

Sets the damping amount in the high range.

Low Damp [000...100%]

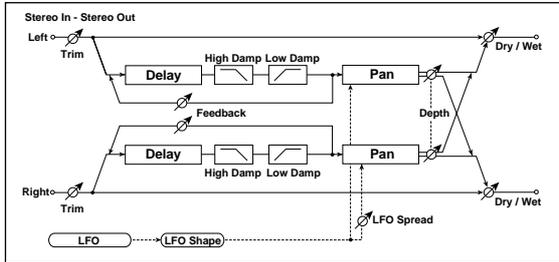
Sets the damping amount in the low range.

Trim [000...127]

Sets the input level.

16. St.AutoPanDly (Stereo Auto Panning Delay)

This is a stereo delay that uses an LFO to pan the delay sound between left and right.



Dry/Wet [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]
 p.132 LCR Delay “TempoSync (DelayTime Tempo Sync)”

Time Ratio [TempoSync Off: 000.5...400.0% (OVER)/
TempoSync On: 012.5...400.0% (OVER)]
 p.132 LCR Delay “Time Ratio”

L Delay, R Delay (L, R Delay Time)
[IFX: 000...500msec, MFX: 000...700msec, 1/64... 1/1]
 p.132 StDelay “L Delay, R Delay (L, R Delay Time)”

Feedback [000...127]
 p.132 StDelay “Feedback”

Mod Depth [000...127]
Sets the depth of modulation.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

p.125 “TempoSync (LFO Tempo Sync)”

LFO Freq (LFO Frequency) [0.01...100.0Hz]
Sets the LFO speed.

p.125 “LFO Freq (LFO Frequency)”

Sync Note (LFO Sync Note) [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if “TempoSync” is On.

p.125 “Sync Note (LFO Sync Note)”

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform.

p.125 “LFO Wave (LFO Waveform)”

LFO Shape [−63...+63]

p.125 “LFO Shape”

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.

p.125 “Key Sync (LFO KeySync)”

InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if “KeySync” is Timbre.

p.125 “InitPhase (LFO Init Phase)”

LFO Spread [−180...+180°]
Sets the phase difference between the left and right channels.

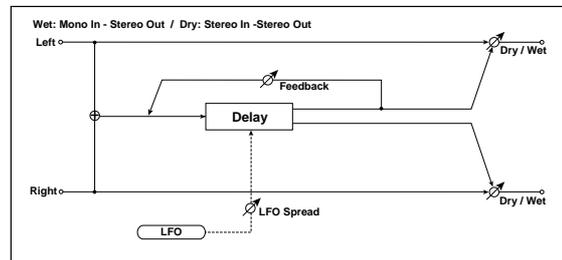
High Damp [000...100%]
Sets the damping amount in the high range.

Low Damp [000...100%]
Sets the damping amount in the low range.

Trim [000...127]
Sets the input level.

17. Mod Delay (Modulation Delay)

This stereo delay uses an LFO to sweep the delay time. The pitch also varies. You will obtain a delay sound with swell and shimmering. You can also control the delay time using a modulation source.



Dry/Wet [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]
 p.132 LCR Delay “TempoSync (DelayTime Tempo Sync)”

Time Ratio [TempoSync Off: 000.5...400.0% (OVER)/
TempoSync On: 012.5...400.0% (OVER)]
 p.132 LCR Delay “Time Ratio”

L Delay, R Delay (L, R Delay Time)
[IFX: 000...980msec, MFX: 0000...1380msec, 1/64... 1/1]
 p.132 StDelay “L Delay, R Delay (L, R Delay Time)”

Feedback [000...127]
Sets the feedback amount for the left channel.

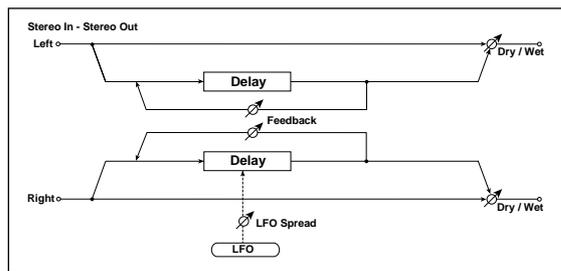
Mod Depth [000...127]
Sets the depth of LFO modulation.

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed. Increasing this value will result in a faster frequency.

LFOspread [-180...180°]
Sets the phase difference between the left and right channels.

18. St.Mod Delay (Stereo Modulation Delay)

This is a stereo modulation delay.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]
p.132 LCR Delay "TempoSync (DelayTime Tempo Sync)"

Time Ratio  [TempoSync Off: 000.5...400.0% (OVER) /TempoSync On: 012.5...400.0% (OVER)]
p.132 LCR Delay "Time Ratio"

L Delay, R Delay (L, R Delay Time)
[IFX: 000...480msec, MFX: 000...680msec, 1/64... 1/1]
p.132 StDelay "L Delay, R Delay (L, R Delay Time)"

Feedback  [000...127]
p.132 StDelay "Feedback"

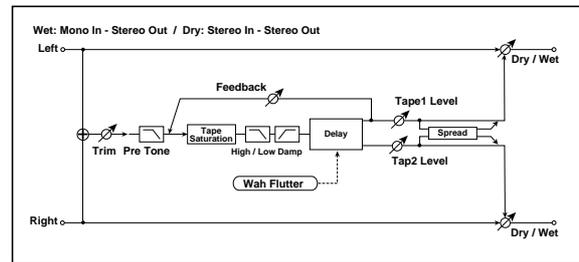
Mod Depth  [000...127]
Sets the depth of LFO modulation.

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed. Increasing this value will result in a faster frequency.

LFOspread [-180...180°]
Sets the phase difference between the left and right channels.

19. Tape Echo

This effect simulates a tape echo unit. The distortion and tonal change typical of magnetic tape are also reproduced.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

TempoSync (DelayTime Tempo Sync) [Off, On]
p.132 LCR Delay "TempoSync (DelayTime Tempo Sync)"

Time Ratio  [TempoSync Off: 000.5...400.0% (OVER) /TempoSync On: 012.5...400.0% (OVER)]
p.132 LCR Delay "Time Ratio"

Tap1Delay, Tap2 Delay(Tap1, Tap2 Delay Time)
[IFX: 000...980msec, MFX: 0000...1380msec, 1/64... 1/1]

Sets the delay times for Tap1 and Tap2.
p.132 LCR Delay "L Delay, C Delay, R Delay (L, C, R Delay Time)"

Tap1Level, Tap2 Level  [000...127]
Sets the Tap1 output level and Tap2 output level.

Feedback  [000...127]
Sets the Tap1 feedback amount.

High Damp [000...100%]
Sets the damping amount in the high range.

Low Damp [000...100%]
Sets the damping amount in the low range.

Trim [000...127]
Sets the input level.

Saturatn (Saturation)  [000...127]
Sets the distortion amount.

Wah Freq (Wah Flutter Frequency) [0.01...100.0Hz]
Sets the frequency at which pitch variation will occur in Hz stepsl.

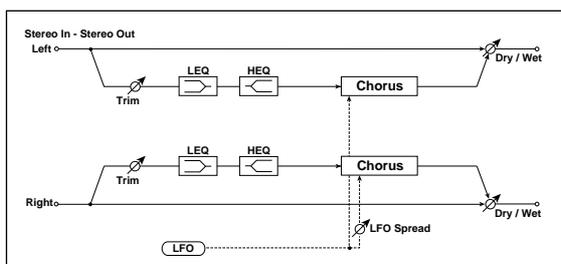
Wah Depth (Wah Flutter Depth) [000...127]
Sets the depth of pitch variation.

Pre Tone [000...127]
Sets the tone of the input.

Spread [000...127]
 Sets the width of the stereo image of the effect sound.
 p.132 LCR Delay "Spread"

20. St.Chorus (Stereo Chorus)

This effect adds thickness and warmth to the sound by modulating the delay time of the input signal. You can add spread to the sound by offsetting the phase of the left and right LFOs from each other.



Dry/Wet [Dry, 99:1...1:99, Wet]
 Sets the balance between the effect and dry sounds.

Mod Depth (Modulation Depth) [000...127]
 Sets the depth of LFO modulation.

LFO Freq (LFO Frequency) [0.01...100.0Hz]
 Sets the LFO speed. Increasing this value will result in a faster frequency.

LFO Spread (LFO Spread) [-180...180°]
 Sets the LFO phase difference between the left and right.

PreDelayL, PreDelayR [00.0...50.0msec]
 Sets the delay times for the left and right channels.

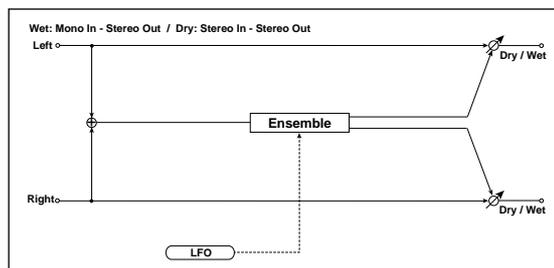
Trim [000...127]
 Sets the input level.

LoEQGain (Low EQ Gain) [-15.0...+15.0dB]
 Sets the gain of Low EQ.

HiEQGain (High EQ Gain) [-15.0...+15.0dB]
 Sets the gain of High EQ.

21. Ensemble

This effect produces a deep and spacious ensemble sound.



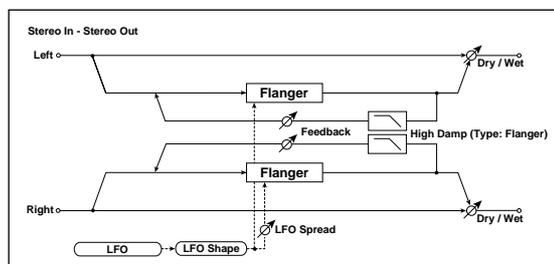
Dry/Wet [Dry, 99:1...1:99, Wet]
 Sets the balance between the effect and dry sounds.

Mod Depth (Modulation Depth) [000...127]
 Sets the depth of LFO modulation.

Speed [001...127]
 Sets the LFO speed.

22. St.Flanger (Stereo Flanger/Comb Filter)

This effect gives a significant swell and movement of pitch to the sound. It is more effective when applied to a sound with a lot of harmonics. This is a stereo flanger. You can add spread to the sound by offsetting the phase of the left and right LFOs from each other. This effect can also be used as a comb filter.



Dry/Wet [Dry, 99:1...1:99, Wet]
 Sets the balance between the effect and dry sounds.

Type [Flanger, Comb]
 Switches the effect between flanger and comb filter.

Delay [00.0...30.0msec]
 Sets the delay time in millisecond steps when "Type" is set to Flanger.

If this parameter is assigned to "Edit1," "Edit2," or "Edit," setting "Type" to Comb will switch the assignment to Cutoff.

Cutoff (Cutoff Frequency) [000...127]
 When "Type" is set to Comb, this sets the cutoff frequency of the comb filter.

Mod Depth (Modulation Depth)  [000...127]
Sets the depth of LFO modulation.

Feedback  [000...127]
Sets the amount of feedback for the left and right channels.

Phase [+ , -]
When “Type” is set to Flanger, this switches the phase of the output and feedback.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

 p.125 “TempoSync (LFO Tempo Sync)”

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed.

 p.125 “LFO Freq (LFO Frequency)”

Sync Note (LFO Sync Note)  [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if “Tempo Sync” is On.”

 p.125 “Sync Note (LFO Sync Note)”

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects LFO Waveform.

 p.125 “LFO Wave (LFO Waveform)”

LFO Shape [-63...+63]
 p.125 “LFO Shape”

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.

 p.125 “Key Sync (LFO KeySync)”

InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if “Key Sync” is Timbre.

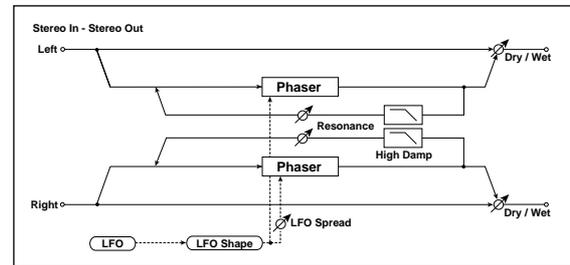
 p.125 “InitPhase (LFO Init Phase)”

LFO Spread (LFO Spread) [-180...+180°]
Sets the LFO phase difference between the left and right channels.

High Damp [000...100%]
Sets the feedback damping amount in the high range when the “Type” is Flanger.

23. St.Phaser (Stereo Phaser)

This effect creates a swell by shifting the phase. It is very effective on electric piano sounds. You can add spread to the sound by offsetting the phase of the left and right LFOs from each other.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Type [Blue, U_VB]
Selects the phaser type.

Manual  [000...127]
Sets the frequency to which the effect is applied.

Mod Depth (Modulation Depth)  [000...127]
Sets the depth of LFO modulation.

Resonance  [000...127]
Sets the resonance amount.

Phase [+ , -]
Switches the phase of the output and feedback.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.
 p.125 “TempoSync (LFO Tempo Sync)”

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed.
 p.125 “LFO Freq (LFO Frequency)”

Sync Note (LFO Sync Note)  [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if “TempoSync” is On.
 p.125 “Sync Note (LFO Sync Note)”

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform.
 p.125 “LFO Wave (LFO Waveform)”

LFO Shape [-63...+63]
 p.125 “LFO Shape”

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.
 p.125 “Key Sync (LFO KeySync)”

InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

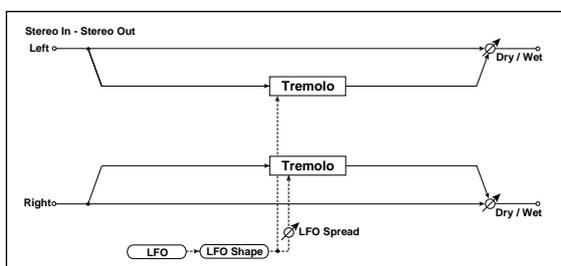
☞ p.125 "InitPhase (LFO Init Phase)"

LFOspread (LFO Spread) [-180...+180°]
Sets the LFO phase difference between the left and right channels.

High Damp [000...100%]
Sets the feedback damping amount in the high range.

24. St.Tremolo (Stereo Tremolo)

This effect modulates the volume level of the input signal. The effect is stereo, and offsetting the LFO of the left and right phases from each other produces a tremolo effect between left and right.



Dry/Wet ☞ [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Mod Depth (Modulation Depth) ☞ [000...127]
Sets the depth of LFO modulation.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

☞ p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency) ☞ [0.01...100.0Hz]
Sets the LFO speed.

☞ p.125 "LFO Freq (LFO Frequency)"

Sync Note (LFO Sync Note) ☞ [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "TempoSync" is On.

☞ p.125 "Sync Note (LFO Sync Note)"

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform.

☞ p.125 "LFO Wave (LFO Waveform)"

LFO Shape [-63...+63]

☞ p.125 "LFO Shape"

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.

☞ p.125 "Key Sync (LFO KeySync)"

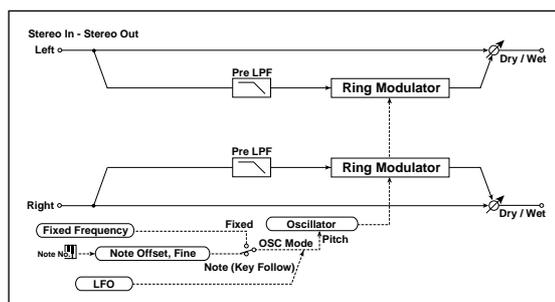
InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is On.

☞ p.125 "InitPhase (LFO Init Phase)"

LFOspread (LFO Spread) [-180...+180°]
Sets the LFO phase difference between the left and right channels.

25. St.Ring Mod (Stereo Ring Modulator)

This effect creates a metallic sound by applying the oscillators to the input signal. Use the LFO or Dynamic Modulation to modulate the oscillator to create a radical modulation. Matching the oscillator frequency with a note number will produce a ring modulation effect in specific key ranges.



Dry/Wet ☞ [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

OSC Mode [Fixed, Note]
Switching between specifying the oscillator frequency and using a note number.

If this is set to Note, the oscillator frequency will track the note of the input signal.

FixedFreq (Frequency) ☞ [0Hz...12.0kHz]
This parameter sets the oscillator frequency when "OSC Mode" is set to Fixed.

⚠ If this parameter is assigned to "Edit1," "Edit2," or "Edit," setting "OSC Mode" to Note will switch the assignment to NoteOfst.

NoteOfst (Note Offset) ☞ [-48...+48]
Sets the pitch difference from the original note in semi-tone steps when "OSC Mode" is set to Note.

NoteFine [-100...+100]
Sets the pitch difference from the original note in cent steps when "OSC Mode" is set to Note.

 By setting “NoteOfst” and “NoteFine” so that the oscillator frequency will track the note that is input, you can produce a ring modulator effect with a correct scale.

OSC Wave (OSC Waveform) [Saw, Tri, Sin]
Selects the oscillator waveform.

LFO Int (LFO Intensity)  [-63...+63]
Sets the depth of LFO modulation.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

 p.125 “TempoSync (LFO Tempo Sync)”

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed.

 p.125 “LFO Freq (LFO Frequency)”

Sync Note (LFO Sync Note)  [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if “TempoSync” is On.

 p.125 “Sync Note (LFO Sync Note)”

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform.

 p.125 “LFO Wave (LFO Waveform)”

LFO Shape [-63...+63]
 p.125 “LFO Shape”

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.

 p.125 “Key Sync (LFO KeySync)”

InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if “Key Sync” is Timbre.

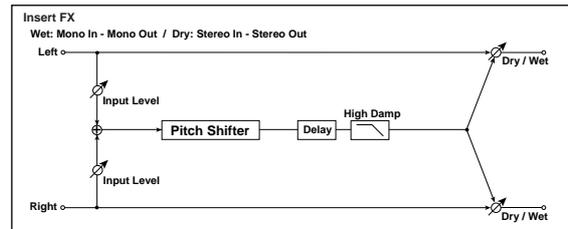
 p.125 “InitPhase (LFO Init Phase)”

Pre LPF [000...127]
This parameter enables you to set the damping amount of the high range sound input to the ring modulator. If the input sound contains lots of harmonics, the effect may sound dirty. In this case, cut a certain amount of high range.

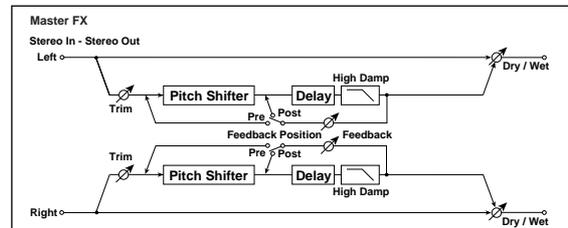
26. Pitch Shifter (IFX) /St.PitchShift (MFX)

This effect changes the pitch of the input signal. You can select from three types: Fast (quick response), Medium, and Slow (preserves tonal quality). You can also create an effect in which the pitch is gradually raised (or dropped) using the delay with feedback.

If used for an insert effect, this will be mono-in/mono-out.



If used for the master effect, this will be stereo-in/stereo-out.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

Pitch (Pitch Shift)  [-24...+24]
Sets the pitch shift amount by steps of a semitone.

Fine [-100...+100]
Sets the pitch shift amount by steps of a cent.

TempoSync (DelayTime Tempo Sync) only MFX [Off, On]
Specifies whether the delay time will be synchronized.
 p.132 LCR Delay “TempoSync (DelayTime Tempo Sync)”

Time Ratio  only MFX [TempoSync Off: 000.5...400% (OVER)/TempoSync On: 012.5...400% (OVER)]
 p.132 LCR Delay “Time Ratio”

Delay (Delay Time) only MFX [000...500msec, 1/64... 1/1]
If “TempoSync” is Off, this delay time is set in msec units. The range is 0–500 msec.

If “TempoSync” is On, this delay time is set as a timing resolution relative to the tempo specified by the [TEMPO] knob or MIDI clock.

FB Pos (FB Position) only MFX [Pre, Post]
Switches the feedback connection.

Feedback  only MFX [000...127]
Sets the feedback amount.

Mode [Slow, Medium, Fast]

This parameter selects the pitch shifter operating mode. With Slow, tonal quality will not be changed too much. With Fast, the effect becomes a Pitch Shifter that has a quick response, but may change the tone. Medium is in between these two. If you do not need to set too much pitch shift amount, set this parameter to Slow. If you wish to change the pitch significantly, use Fast.

High Damp [000...100%]

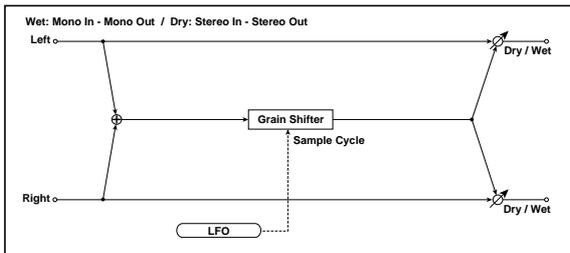
Sets the damping amount in the high range.

Trim [000...127]

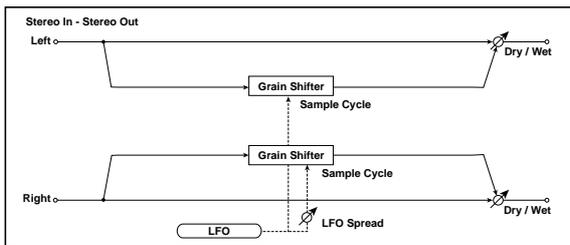
Sets the input level.

27. Grain Shifter (IFX) /St.GrainShift (MFX)

This effect samples extremely brief fragments of the sound at a specified interval, and plays them as a loop. This is effective when used on external input sounds that are constantly changing. If used for an insert effect, this will be mono-in/mono-out.



If used for the master effect, this will be stereo-in/stereo-out.



Dry/Wet [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Tempo Sync (Duration Tempo Sync) [Off, On]

Specifies whether playback of the looped waveform will be synchronized. If this is On, the looped waveform will play in synchronization with the tempo or MIDI clock.

Time Ratio [TempoSync Off: 000.5...400% (OVER)/TempoSync On: 012.5...400% (OVER)]

This specifies the length of the looped waveform relative to the "Duration" value.

Duration

[IFX: 000...500msec, MFX: 000...350msec, 1/64... 1/1]

Sets the duration of the grain.

The length of the waveform is determined by this setting and the "TimeRatio" setting.

If "TempoSync" is Off, this is set in msec units. The range is 0–500 msec for an insert effect, or 0–350 for a master effect.

If "TempoSync" is On, this is set as a timing resolution relative to the tempo specified by the [TEMPO] knob or MIDI clock.

⚠ If you use this in an insert effect and the other insert effect uses a delay or chorus effect, the waveform length will be limited.

⚠ If the "Duration" and "TimeRatio" settings exceed the limit, an indication of OVER will appear for the "TimeRatio."

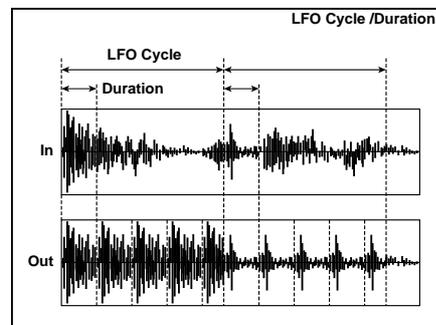
TempoSync (LFO Tempo Sync) [Off, On]

Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

☞ p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency) [0.01...100.0Hz]

If "TempoSync" is Off, this specifies the cycle at which the waveform is switched in Hz units. The waveform length specified by "Duration" will play as a loop, and the waveform will switch at each cycle of the LFO.



⚠ If this parameter is assigned to "Edit1," "Edit2," or "Edit," turning "TempoSync" On will switch the assignment to Sync Note.

Sync Note (LFO Sync Note) [8/1...1/64]

Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "TempoSync" is On.

☞ p.125 "Sync Note (LFO Sync Note)"

Key Sync (LFO KeySync) [Off, Timbre]

Specifies whether the LFO will be reset by note-on.

☞ p.125 "Key Sync (LFO KeySync)"

InitPhase (LFO Init Phase) [000...180°]

Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

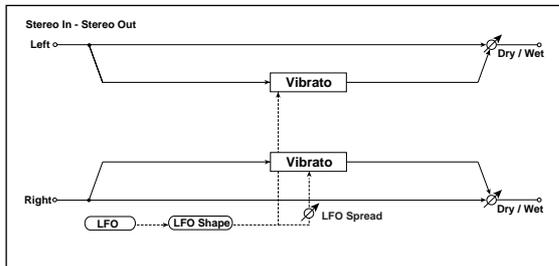
☞ p.125 "InitPhase (LFO Init Phase)"

LFOspread (LFO Spread) only MFX [-180...+180°]

Sets the phase difference between the left and right channels.

28. St.Vibrato (Stereo Vibrato)

This effect causes the pitch of the input signal to shimmer. Using the AutoFade allows you to increase or decrease the shimmering speed.



Dry/Wet ☞ [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Mod Depth (Modulation Depth) ☞ [000...127]

Sets the depth of LFO modulation.

TempoSync (LFO Tempo Sync) [Off, On]

Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

☞ p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency) ☞ [0.01...100.0Hz]

Sets the LFO speed.

☞ p.125 "LFO Freq (LFO Frequency)"

Sync Note (LFO Sync Note) ☞ [8/1...1/64]

Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "TempoSync" is On.

☞ p.125 "Sync Note (LFO Sync Note)"

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]

Selects the LFO waveform.

☞ p.125 "LFO Wave (LFO Waveform)"

LFO Shape [-63...+63]

☞ p.125 "LFO Shape"

Key Sync (LFO KeySync) [Off, Timbre]

Specifies whether the LFO will be reset by note-on.

☞ p.125 "Key Sync (LFO KeySync)"

InitPhase (LFO Init Phase) [000...180°]

Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

☞ p.125 "InitPhase (LFO Init Phase)"

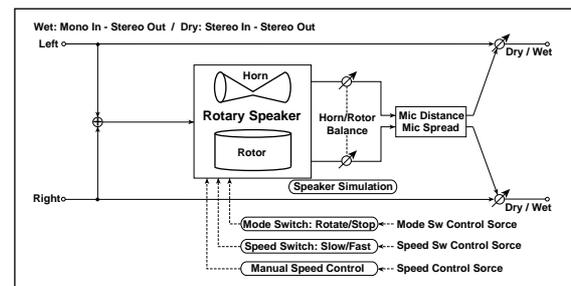
LFOspread (LFO Spread) [-180...+180°]

Sets the LFO phase difference between the left and right channels.

29. RotarySpkr (IFX W-size) Double Size RotarySpeaker (MFX)

This effect simulates a rotary speaker, and obtains a more realistic sound by simulating the rotor in the low range and the horn in the high range separately. The effect also simulates the stereo microphone settings.

☛ If you want to use this effect as an insert effect, you must select it for insert effect 1. In this case, you won't be able to use insert effect 2.



Dry/Wet ☞ [Dry, 99:1...1:99, Wet]

Sets the balance between the effect and dry sounds.

Mode Sw (Mode Switch) ☞ [Rotate, Stop]

Switches between speaker rotation and stop.

Ctrl Src (Mode Sw. Ctrl. Source) [Off, Velocity...MIDI5]

Selects the modulation source that will control "Mode Sw."

☞ p.125 "Ctrl Src (Control Source)"

Ctrl Mode (Mode Sw. Ctrl. Mode) [Toggle, Moment]

Specifies how the modulation source selected by "CtrlSrc" will be switched.

When "Sw" = Toggle, the speaker rotates or stops alternately each time you press the pedal.

note Each time the value for the modulation source exceeds 64, the speaker rotates or stops alternately.

When "Sw" = Moment, the speaker is rotating. It stops only when you press the pedal.

note Rotation will occur when the value of the modulation source is less than 64, and will stop when the value is 64 or greater.

Sp Ctrl (Speaker Ctrl. Type) [Switch, Manual]

Selects whether the rotational speed will be controlled by a switch or manually.

Speed Sw (Speed Switch) [Slow, Fast]

Switches the speed of rotation if "Sp Ctrl" is set to Switch.

Note If this parameter is assigned to "Edit1," "Edit2," or "Edit," setting "Sp Ctrl" to Manual will change the assignment to Speed.

Ctrl Src (Sw. Ctrl. Source) [Off, Velocity...MIDI5]

If "Sp Ctrl" is set to Switch, this selects the modulation source that will switch the speaker rotation speed between slow and fast.

☞ p.125 "Ctrl Src (Control Source)"

Ctrl Mode (Sw. Ctrl. Mode) [Toggle, Moment]

If "Sp Ctrl" is set to Switch, this selects the switching mode of the modulation source that will switch the speaker rotation speed between slow and fast.

When "CtrlMode" = Toggle, the speed is switched between slow and fast each time you press the pedal.

note Slow/fast will alternate each time the value of the modulation source exceeds 64.

When "CtrlMode" = Moment, the speed is usually slow. It becomes fast only when you press the pedal.

note When a value for the modulation source is less than 64, "slow" speed is selected, and when the value is 64 or higher, "fast" is selected.

Speed [001...127]

If "Sp Ctrl" is set to Manual, this specifies the speaker rotation speed.

Note If this parameter is assigned to "Edit1," "Edit2," or "Edit," setting "Sp Ctrl" to Switch will change the assignment to Speed Sw.

Ctrl Src (Speed Ctrl.Source) [Off, Velocity...MIDI5]

If "Sp Ctrl" is set to Manual, this selects the modulation source that will control the speaker rotation speed.

☞ p.125 "Ctrl Src (Control Source)"

Ctrl Int (Speed Ctrl.Int) [-63...+63]

If "Sp Ctrl" is set to Manual, this specifies the depth to which the modulation source will control the speaker rotation speed.

H/R Bal (Horn/Rotor Balance) [Rotor, 1:99...99:1, Horn]

Sets the level balance between the high-range horn and low-range rotor.

HornAccel (Horn Acceleration) [000...127]

How quickly the horn rotation speed in the high range is switched. On a real rotary speaker, the rotation speed is accelerated or decelerated gradually after you switch the speed. The "Horn Acceleration" parameter sets the speed at which the rotation is accelerated or decelerated.

HornRatio [Stop, 0.50...2.00]

Adjusts the (high-range side) horn rotation speed. Standard value is 1.00. Selecting "Stop" will stop the rotation.

RotrAccel (Rotor Acceleration) [000...127]

Determines how quickly the rotor rotation speed in the low range is switched. On a real rotary speaker, the rotation speed is accelerated or decelerated gradually after you switch the speed. The "Horn Acceleration" parameter sets the speed at which the rotation is accelerated or decelerated.

RotrRatio (Rotor Ratio) [Stop, 0.5...2.0]

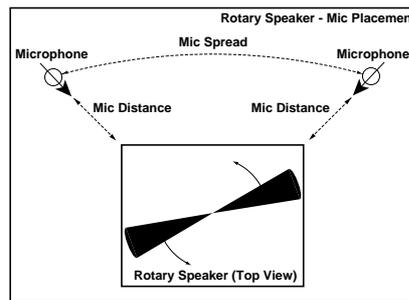
Adjusts the (low-range side) rotor rotation speed. Standard value is 1.00. Selecting "Stop" will stop the rotation.

MicDistnc (Mic Distance) [000...127]

Sets the distance between the microphone and rotary speaker.

Spread [000...127]

Sets the angle of left and right microphones.



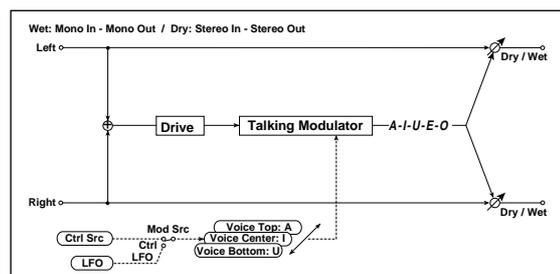
Trim [000...127]

Sets the input level.

30. TalkingMod (IFX W-size) Double Size Talking Mod (MFx)

This effect adds an unusual character, like a human voice, to the input signal.

Note If you want to use this effect as an insert effect, you must select it for insert effect 1. In this case, you won't be able to use insert effect 2.



Dry/Wet  [Dry, 99:1...1:99, Wet]
Sets the balance between the effect and dry sounds.

VoiceCtrl (Voice Control)  [Bottom, -62...-01, Center, +01...+62, Top]
Voice pattern control.

Vo Top (Voice Top)  [A, I, U, E, O]
Selects a vowel sound at the top end of control.

Vo Center (Voice Center)  [A, I, U, E, O]
Selects a vowel sound in the center of control.

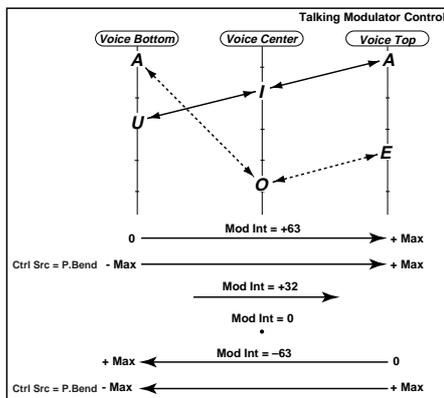
Vo Bottom (Voice Bottom)  [A, I, U, E, O]
Selects a vowel sound at the bottom end of control.

Example: If you set "Vo Top" to A, "Vo Center" to I, and "Vo Bottom" to U.

When "Mod Int" = +63, the vowel sound will change through "Aaa" (Voice Top) → "Eee" (Voice Center) → "Uuu" (Voice Bottom) according to the value of the modulation source.

When "Mod Int" = -63, the vowel sound will change through "Uuu" (Voice Bottom) → "Eee" (Voice Center) → "Aaa" (Voice Top) according to the value of the modulation source.

When "Mod Int" = 0, the vowel sound is fixed at "Eee" (Voice Center).



Resonance  [000...127]
Sets the intensity of resonance for the voice pattern. A larger value will add more character to the sound.

Drive  [000...127]
Sets the degree of distortion.

Mod Src (Modulation Source) [Auto, LFO, Ctrl]
Selects the modulation source.

Mod Int (Modulation Intensity)  [-63...+63]
Sets the depth of modulation produced by the modulation source.

Response (Mod Response) [000...127]
Adjusts the response to the modulation effect. A setting of 0 produces a slow response.

Env Sens (Envelope Sensitivity) [000...127]
When "Mod Src" is Auto, adjusts the sensitivity of auto operation.

Env Shape (Envelope Shape) [-63...+63]
When "Mod Src" is Auto, specifies the sweep curve.

TempoSync (LFO Tempo Sync) [Off, On]
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

 p.125 "TempoSync (LFO Tempo Sync)"

LFO Freq (LFO Frequency)  [0.01...100.0Hz]
Sets the LFO speed.

 p.125 "LFO Freq (LFO Frequency)"

Sync Note (LFO Sync Note)  [8/1...1/64]
Sets the LFO frequency as a proportion of the tempo set by the [TEMPO] knob. This parameter will be displayed and can be set if "TempoSync" is On.

 p.125 "Sync Note (LFO Sync Note)"

LFO Wave (LFO Waveform) [Saw, Squ, Tri, Sin, S&H]
Selects the LFO waveform.

 p.125 "LFO Wave (LFO Waveform)"

LFO Shape [-63...+63]
 p.125 "LFO Shape"

Key Sync (LFO KeySync) [Off, Timbre]
Specifies whether the LFO will be reset by note-on.
 p.125 "Key Sync (LFO KeySync)"

InitPhase (LFO Init Phase) [000...180°]
Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is Timbre.

 p.125 "InitPhase (LFO Init Phase)"

Ctrl Src (Control Source) [Off, Velocity...MIDI5]
Selects the control source. The selected source will control the filter. This parameter will be displayed and can be set if "Mod Src" is Ctrl.

 p.125 "Ctrl Src (Control Source)"

Appendices

About MIDI

By using MIDI cables to connect MIDI devices, you can transfer performance data between different models of devices made by different manufacturers. For example, you can use the **RADIAS** to control an external MIDI device, or use an external MIDI device to control and play the **RADIAS** and its sound generator.

MIDI messages that the **RADIAS** transmits and receives

MIDI channels

MIDI uses sixteen channels (1–16). When the transmitting device and the receiving device are set to the same channel, then MIDI messages can be exchanged between the devices.

- A program uses four timbres, and allows you to set the MIDI channel independently for each timbre. The MIDI channel of each timbre is set by the Program Edit mode P03–4: TIMBRE – MIDI tab page “Ch” parameter.

note If you want to individually play timbres from an external MIDI sequencer or other device connected to the **RADIAS**, set the MIDI channel of each timbre to the same channel as the tracks of your external MIDI sequencer.

- The following types of control are transmitted and received on the MIDI channel of the timbre.
 - Control changes assigned to front panel knobs that control synth parameters.
 - Control changes assigned to the insert effect [EDIT1] and [EDIT2] knobs and the [HI EQ] and [LO EQ] knobs.
 - The control source selected for an insert effect’s “Mod.Source”.
- The control change assigned to the [EDIT] knob of the master effect is transmitted and received on the global MIDI channel. The global MIDI channel is set by the Global mode P04: MIDI page “MIDI Ch” parameter (p.116).
- The control changes assigned to front panel knobs corresponding to vocoder parameters are transmitted and received on the MIDI channel of the timbre specified by the Vocoder Edit mode P06: CARRIER page “InSrc1” parameter (p.104).
- The MIDI channel used when you operate a front panel synth parameter or an insert effect [EDIT1] [EDIT2], or [HI EQ] [LOW EQ] knob is determined by the Program Edit mode P02–1: COMMON – PROG tab page “Panel Edit” setting and by the timbre that is selected by the front panel TIMBRE SELECT [1]–[4] buttons.

If “Panel Edit” is set to Link, the MIDI channel of the timbre selected by the front panel TIMBRE SELECT [1]–[4] buttons will be used.

If “Panel Edit” is set to Timbre1–Timbre4, the MIDI channel of the timbre specified by “Panel Edit” will be used.

- In the Drum Play mode and the Drum Edit mode, the drum instruments are played on the global MIDI channel.

Note-on/off

Note-on [9n, kk, vv]

Note-off [8n, kk, vv]

(n: channel, kk: note number, vv: velocity)

When you play the **RADIAS**’ keyboard, note-on or note-off messages are transmitted. If you’re playing the **RADIAS** by itself without connecting the keyboard, you can set the 16KEYS [SELECT] button to KEYBOARD in Program Play mode, and use the 16KEYS [1]–[16] keys to transmit note-on/off messages.

The note-off velocity is fixed at 64 for transmission, but will not be received.

! In drum mode if you set the 16KEYS [SELECT] button to PROGRAM and press the 16KEYS [1]–[16] keys, the drum instruments will sound, but note messages will not be transmitted.

note You can also use the envelope follower function (included in the program parameters) to send note-on/off data to the internal sound generator according to an audio signal being input to the **RADIAS**. In this case, the note data will be sent on the MIDI channel of the timbre selected by the TIMBRE SELECT [1]–[4] buttons.

If the Global mode P01: GLOBAL page “Position” is set to PostKBD, note-on/off data generated by the arpeggiator or step sequencer will be transmitted if the arpeggiator or step sequencer is running.

Program change/Bank select

Changing the program/bank

Program change [Cn, pp]

(n: channel, pp: program number selecting one of 128 sounds)

RADIAS programs A01–H16 and I01–P16 correspond to program changes [Cn, 00]–[Cn, 7F].

When you switch programs in the Program Play mode, a program change and bank select messages are transmitted.

When the **RADIAS** receives a program change, it will switch programs.

In order to receive program changes, the Global mode P06: MIDI FILTER page “PROG Chg” setting and the Program Edit mode P03-4: TIMBRE – MIDI tab page “Pcg” must both be set to ○ (enabled). If either of these are set to × (disabled), program changes will not be received.

 Program changes are not received in the Program Edit mode, Drum Edit mode, or Global mode.

Bank select MSB (CC#0) [Bn, 00, mm]

Bank select LSB (CC#32) [Bn, 20, bb]

(n: channel, mm: upper byte of bank number, bb: lower byte of bank number)

Bank(CC#0) MSB	Bank(CC#32) LSB	ProgChange Value	Bank&Prog Number
0	0	0-127	A01-H16
0	1	0-127	I01-P16

Receiving a bank select message will not cause the program or bank to switch immediately. The program and bank will switch only when the next program change is received.

In order to receive bank select messages, the Global mode P06: MIDI FILTER page “BANK Chg” must be set to ○ (enabled). Bank select messages will not be received if this is set to ×.

 Program change and bank change are transmitted and received on the global MIDI channel.

Switching timbres

You can use bank select and program change messages to switch the settings of an individual timbre used by a program to the settings of another timbre, one used by a different program.

If a drum kit is not assigned to a timbre, you can switch the timbre’s synth parameters, modulation sequencer, and insert effect settings.

If a drum kit is assigned to a timbre, you can switch the timbre to a different drum kit.

When a Program Change message is received, the instrument will switch to the sound that was specified by Bank Select.

Bank (CC#0) MSB	Bank (CC#32) LSB	ProgChange Value ^{*1}	Prog&Timbre Number ^{*1}
32	32	0-127	A01-H16 (Timbre1)
32	33	0-127	I01-P16 (Timbre1)
32	34	0-127	A01-H16 (Timbre2)
32	35	0-127	I01-P16 (Timbre2)
32	36	0-127	A01-H16 (Timbre3)
32	37	0-127	I01-P16 (Timbre3)
32	38	0-127	A01-H16 (Timbre4)
32	39	0-127	I01-P16 (Timbre4)
32	64	0-31	Drum Kit 0-31 ^{*2}

*1:

Prog Bank	ProgChange Value
A, I Bank	0-15
B, J Bank	16-31
C, K Bank	32-47
D, L Bank	48-63
E, M Bank	64-79
F, N Bank	80-95
G, O Bank	96-111
H, P Bank	112-127

*2: Valid only when using a drum kit.

 For the content of the MIDI messages transmitted and received, refer to the MIDI implementation on the included CD-ROM.

 Timbre changes are transmitted and received on the timbre MIDI channel.

 If a drum kit is assigned to a timbre, you cannot switch the timbre to something other than a drum kit. If a drum kit is not assigned to a timbre, you cannot switch the timbre to a drum kit.

 To switch a timbre that is set to the same channel as the global MIDI channel, you must use a bank select that is different than that used for a program change. This means that if you want to execute a program change subsequently, you will need to transmit both the bank select and the program change messages needed for the desired program change.

Switching drum kits in the Drum Play mode

In the Drum Play mode you can use bank select and program change messages to switch drum kits.

 Drum kit changes are transmitted and received on the global MIDI channel.

Aftertouch

Channel aftertouch [Dn, vv]

(n: channel, vv: value)

If either of the Global mode P04: MIDI page “MIDI1,” “MIDI2,” “MIDI3,” “MIDI4,” or “MIDI5” parameters are set to A.Touch, you can use aftertouch messages as a modulation source for a virtual patch in a synth program or as the vocoder FC MOD modulation source. These messages are received on the MIDI channel specified for the timbre.

If the Global mode P08: PEDAL/SW page “A.Pedal” parameter is set to AftTouch, pedal operations will transmit channel aftertouch messages on the MIDI channel of the selected timbre.

In order for channel aftertouch messages to be transmitted and received, the Global mode P06: MIDI FILTER page “CtrlChg” and the Program Edit mode P03–4: TIMBRE – MIDI tab page “AT” must both be set to ○ (enabled). If either of these parameters are set to × (disabled), channel aftertouch will not be transmitted or received.

Pitch bend

Pitch bend change [En, bb, mm]

(n: channel, bb: lower byte of value, mm: upper byte of value)

When pitch bend change messages are received, pitch bending will be applied according to the Program Edit mode P05: PITCH page “BendRange” setting. You can also select pitch bend as the modulation source for a virtual patch or for vocoder FC MOD. In this case, pitch bend messages will operate as a modulation source that controls the target parameter over a range of –127 – +127, with mm=64 and bb=00 as the zero (center) value. (These messages are received on the MIDI channel of the timbre.)

When you operate the **RADIUS**’ pitch bend wheel, pitch bend change messages are transmitted on the MIDI channel of the selected timbre.

In order for pitch bend change messages to be transmitted, the Global mode P06: MIDI FILTER page “PitchBend” and the Program Edit mode P03–4: TIMBRE – MIDI tab page “PBnd” parameters must both be set to ○ (enabled). If either of these parameters are set to × (disabled), pitch bend changes will not be received.

These messages are transmitted according to the Global mode P06: MIDI FILTER page “PitchBend” setting.

Control change

Control change [Bn, cc, vv]

(n: channel, cc: control change number, vv: value)

These messages are transmitted and received with a variety of different control change numbers, such as for the modulation wheel or a modulation source (MIDI1, MIDI2, MIDI3, MIDI4, MIDI5).

The Global mode P06: MIDI Filter page “Ctrl Chg” setting enables or disables overall transmission and reception of all MIDI control change messages. Within a program, the Program Edit mode P03–5, 6: TIMBRE – CC-A, CC-B tab pages let you enable/disable reception of various types of control change for each timbre.

Modulation depth (CC#01) [Bn, 01, vv]

When modulation depth messages are received, the intensity of vibrato produced by LFO2 will change according to the Program Edit mode P05: PITCH page “VibraInt” setting. If the maximum value (127) is received, vibrato will apply at the pitch range specified by “VibraInt.” If the minimum value (0) is received, no vibrato will apply.

When you operate the **RADIUS**’ modulation wheel, modulation depth messages are transmitted on the MIDI channel of the selected timbre.

Volume (CC#07) [Bn, 07, vv]

If the Global mode P08: PEDAL/SW page “A.Pedal” is set to Volume, volume messages will be transmitted on the MIDI channel of the selected timbre when you operate the pedal. If the Global mode P07: MIDI MAP [CC#] page “AmpLevel” is assigned to volume (CC#07), incoming volume messages will control the volume.

Panpot (CC#10) [Bn, 0A, vv]

If the Global mode P08: PEDAL/SW page “A.Pedal” is set to Pan, pan messages will be transmitted on the MIDI channel of the selected timbre when you operate the pedal. If the Global mode P07: MIDI MAP [CC#] page “Pan” is assigned to pan (CC#10), incoming pan messages will control the stereo panning of the output.

Expression (CC#11) [Bn, 0B, vv]

When expression messages are received, the volume of a timbre will be controlled. The volume will be at maximum if the maximum value (127) is received, and at zero if the minimum value (0) is received.

If the Global mode P08: PEDAL/SW page “A.Pedal” is set to ExpPedal, expression messages will be transmitted on the MIDI channel of the selected timbre when you operate the pedal.

Damper pedal (CC#64) [Bn, 40, vv]

When damper pedal messages are received, the damper effect (hold) of a timbre will be switched on/off.

If the Global mode P08: PEDAL/SW page “A.SwFunc” is set to Damper, damper messages (0: off, 7F: on) will be transmitted on the MIDI channel of the selected timbre when you operate the pedal switch.

Portamento (CC#65) [Bn, 41, vv]

When portamento messages are received, the portamento effect of a timbre will be switched on/off. If the portamento time is set to 0, there will be no portamento effect.

If the Global mode P08: PEDAL/SW page “A.SwFunc” is set to PortSw, portamento messages (0: off, 7F: on) will be transmitted on the MIDI channel of the selected timbre when you operate the pedal switch.

Using control changes as modulation sources for virtual patches

By setting the Global mode P04: MIDI page “MIDI1,” “MIDI2,” “MIDI3,” “MIDI4,” and “MIDI5” to CC#cc (cc=00–95/102–119) you can use control change messages as modulation sources for virtual patches or as the vocoder FC MOD modulation source. The value (0–127) of the message is used without change as the modulation source. No distinction is made between upper byte (MSB)/lower byte (LSB) or between continuous-type and switch-type messages.

Assigning control changes to parameter controllers (knobs and buttons)

You can assign control changes CC#00–CC#95 and CC#102–CC#119 to the main parameter controllers (knobs and buttons) of the front panel. These settings are made in the Global mode P07: MIDI MAP [CC#] page.

If a control change is assigned to a knob or button, operating that knob or button will transmit the assigned control change.

If an assigned control change is received, the result will be the same as if that controller had been operated according to the corresponding value.

Controllers for sound parameters and insert effect parameters are transmitted and received on the timbre's MIDI channel. Controllers for master effect parameters are transmitted and received on the global MIDI channel. Controllers for vocoder parameters are transmitted and received on the MIDI channel of the timbre assigned by the Vocoder Edit mode P06: CARRIER page "InSrc1".

Parameters transmitted and received as NRPN

NRPN (Non-Registered Parameter Number) messages are assigned to the **RADIAS'** front panel knobs and buttons that are not included in the control messages described above. NRPN messages can be used freely by any manufacturer and model of device.

Use the following procedure to edit via NRPN messages.

- 1 Use NRPN MSB (CC#99) [Bn, 63, mm] and NRPN LSB (CC#98) [Bn, 62, rr] (n: channel, mm, rr: upper and lower bytes of the parameter number) to select the parameter you want to edit.
- 2 Use data entry MSB (CC#6) [Bn, 06, mm] (n: channel, mm: parameter value) to set the value of the parameter.

 The RADIAS uses only the data entry MSB.

Controlling the arpeggiator and step sequencer

When you use the front panel buttons or knobs to modify the arpeggiator or step sequencer settings, NRPN messages for the corresponding parameter will be transmitted. When NRPN messages are received, the settings of the arpeggiator or step sequencer will be set to the corresponding values. These messages are transmitted and received on the global MIDI channel.

For the correspondence between parameters and NRPN messages, refer to the "MIDI implementation" on the included CD-ROM.

Other control

In addition to the arpeggiator and step sequencer parameters, NRPN messages for the VIRTUAL PATCH 1–6 SOURCE DESTINATION, the vocoder FC MOD.SOURCE and CH PARAM (channel parameters) can also be transmitted and received. Messages to control the VIRTUAL PATCH 1–6 SOURCE/DESTINATION are transmitted and received on the timbre's MIDI channel. Messages to control the vocoder's FC MOD SOURCE and CH PARAM are transmitted and received on the MIDI channel of the timbre selected in the Vocoder Edit mode P06: CARRIER page "InSrc1". For the correspondence between parameters and NRPN messages, refer to the "MIDI implementation" on the included CD-ROM.

Controlling the effects

Depending on the type of effect you're using, the front panel controllers (modulation wheel, pedal, switch) and the "MIDI1," "MIDI2," "MIDI3," "MIDI4," and "MIDI5" assigned in the Global mode P04: MIDI page can be used to modulate effect parameters.

You can also assign control change messages to the front panel [EDIT] knobs of the insert effects and master effect, and use these messages to control the parameters. These assignments are made in the Global mode P07: MIDI MAP [CC#] page.

 The control changes used as control sources for the insert effects are transmitted and received regardless of the timbre's MIDI filter settings (Program Edit mode P03–5, 6: TIMBRE – CC-A, CC-B tab pages).

 The control changes used as control sources for the master effect or for controlling the [EDIT] knob are transmitted and received on the global MIDI channel.

Muting the sound of all channels

All note off (CC#123) [Bn, 7B, 00]
(value is 00)

When an All Note Off message is received, all notes being played on that channel will be turned off. The decay due to envelope settings will remain.

All sound off (CC#120) [Bn, 78, 00]
(value is 00)

When an All Sound Off message is received, all sound being produced on that channel will be silenced. In contrast to the All Note Off message which allows the decay to occur, the All Sound Off message immediately silences the sound. However, this message is provided for emergency use, and should not be used during a performance.

Resetting all controllers of a channel

Reset all controllers (CC#121) [Bn, 79, 00]
(value is 00)

When a Reset All Controllers message is received, the value of all operating controllers on that channel will be reset.

Synchronizing the arpeggiator, step sequencer, modulation sequencer, and LFO

If the **RADIAS'** arpeggiator is synchronized to a connected external MIDI device, you can use Start/Stop system realtime messages to control the arpeggiator and step sequencers.

Start [FA]

When a Start message [FA] is received, the arpeggiator will start from the first note that is played. The step sequencers will start from step 1.

If the "Key Sync" of the modulation sequencer or LFO is turned off, the phase will be reset.

Stop [FC]

When a Stop message [FC] is received, the arpeggiator and step sequencers will stop. Since this is not an "off" message, the arpeggiator will start again when it is triggered.

System exclusive messages

RADIAS format

F0: Exclusive status
42: Korg ID
3n: [n=0-F] global MIDI channel
72: RADIAS model ID
ff: function ID (type of message)
| |
F7: End of exclusive

Universal system exclusive

Certain types of system exclusive messages are defined for public use, and these are called Universal System Exclusive messages.

Of these universal system exclusive messages, the **RADIAS** responds to master volume and master fine tuning.

Master volume [F0, 7F, nn, 04, 01, vv, mm, F7]

(vv: lower byte of value, mm: upper byte of value. Volume at maximum when mm,vv=7F, 7F. Volume at zero when mm, vv=00,00)

The overall volume of the entire **RADIAS** is adjusted when this master volume message is received.

 Master volume does not affect the INDIV.OUT signal.

Master fine tuning [F0, 7F, nn, 04, 03, vv, mm, F7]

(A value of 8192 [mm, vv=40,00] sets the tuning to center position (0 cents, A4=440.0 Hz), a value of 4096 [mm, vv=20,00] sets the tuning to -50 cents, and a value of 12288 [mm, vv=60,00] sets the tuning to +50 cents.)

When this master fine tuning message is received, the Global mode P01: GLOBAL page "Mst Tune" setting is ignored, and the received value will determine the overall pitch.

Sending sound data and other settings (Data Dump)

Program data and global data can be transmitted as MIDI exclusive data.

The operation of transmitting this type of MIDI exclusive data to an external MIDI device is called a "data dump." By performing a data dump, you can store various types of data on an external MIDI device, or load the same settings into another **RADIAS** synthesizer.

The **RADIAS** can transmit the following data dumps.

- In the Global mode P05: MIDI DUMP page, you can specify and dump various types of data. (All Data, All Prog, 1 Prog, All D.Kit, 1 D.Kit, All Tempo, Global)
If a data dump for 1 Prog/1 D.Kit is received, the settings of the currently selected program (or drum kit) will be overwritten by the data that is received.
If a data dump for All, All Prog, All D.Kit, All Temp, or Global is received, it will be written directly into the **RADIAS'** internal memory. You do not need to perform the Write operation.
- When a dump request is received from an external device, the **RADIAS** will transmit the requested type of data dump.

 In order to receive data dumps, the Global mode P06: MIDI FILTER page "SystemEx" setting must be O. If this is set to X, data dumps will not be received.

Control change assignments for the RADIAS' knobs and buttons

The RADIAS lets you assign control changes to each front panel knob and button so that changes you make to the sound by using the knobs and buttons can be handled as performance data.

For details on how the RADIAS' parameters correspond to the control change values, refer to the "MIDI implementation – *4 : Panel Knob & Switch Control (assignable)" on the included CD-ROM.

Section	Parameter	Initial
UNISON	Unison SW	CC#03
PITCH	Portamento	CC#05
OSC1	OSC1 Wave	CC#08
	OSC1 Mod.	CC#09
	OSC1 Ctrl1	CC#15
	OSC1 Ctrl2	CC#17
OSC2	OSC2 Wave	CC#18
	OSC2 Mod.	CC#19
	OSC2 Semitone	CC#20
	OSC2 Tune	CC#21
MIXER	OSC1 Level	CC#23
	OSC2 Level	CC#24
	Noise Level	CC#25
FILTER	Filter Routing	CC#26
FILTER1	Filter1 Type Balance	CC#27
	Filter1 Cutoff	CC#74
	Filter1 Resonance	CC#71
	Filter1 EG1 Int	CC#79
	Filter1 KeyTrack	CC#28
FILTER2	Filter2 Type	CC#29
	Filter2 Cutoff	CC#30
	Filter2 Resonance	CC#68
	Filter2 EG1 Int	CC#69
	Filter2 KeyTrack	CC#82
AMP	Amp Level	CC#07
	Panpot	CC#10
	Drive/WS Depth	CC#83
	Drive/WS SW	CC#84
EG1	EG1 Attack	CC#85
	EG1 Decay	CC#86
	EG1 Sustain	CC#87
	EG1 Release	CC#88
EG2	EG2 Attack	CC#73
	EG2 Decay	CC#75
	EG2 Sustain	CC#70
	EG2 Release	CC#72
LFO1	LFO1 Wave	CC#89
	LFO1 Frequency	CC#90
LFO2	LFO2 Wave	CC#102
	LFO2 Frequency	CC#76
PATCH1	Patch1 Int.	CC#103
PATCH2	Patch2 Int.	CC#104

Section	Parameter	Initial
PATCH3	Patch3 Int.	CC#105
PATCH4	Patch4 Int.	CC#106
PATCH5	Patch5 Int.	CC#107
PATCH6	Patch6 Int.	CC#108
EQ	EQ Hi.Gain	CC#109
	EQ Low.Gain	CC#110
MOD.SEQ.	Mod.Seq. SW	CC#111
I.FX1	FX1 SW	CC#115
	FX1 Edit1	CC#12
	FX1 Edit2	CC#112
I.FX2	FX2 SW	CC#116
	FX2 Edit1	CC#13
	FX2 Edit2	CC#113
M.FX	MFX SW	CC#94
	MasterFX Edit	CC#114
VOCODER	Vocoder Threshold	Off
	Vocoder HPF Level	Off
	Vocoder HPF Gate	Off
	Vocoder Modulator Select	Off
	Vocoder Direct Level	Off
	Vocoder In Source 1 Level	Off
	Vocoder In Source 2 Level	Off
	Vocoder Level	Off
	Vocoder Formant Shift	Off
	Vocoder FC Offset	Off
	Vocoder Resonance	Off
	Vocoder Fc Mod.Int	Off
Vocoder E.F. Sens	Off	

note Parameters other than for the vocoder and master effect are transmitted and received on the timbre's MIDI channel.

note Master effect parameters are transmitted and received on the global MIDI channel, regardless of the timbre's MIDI channel.

note Vocoder parameters are transmitted and received on the MIDI channel of the timbre specified by the Vocoder Edit mode P06: CARRIER page "InSrc1" setting.

MIDI driver installation and settings

Windows XP users

Installing the KORG USB-MIDI Driver for Windows XP

- 1 In order to install or uninstall drivers in Windows XP, you must have Administrator privileges. For details, contact your system administrator.
- 2 Make settings so that driver installation does not require a digital signature. (See p.153 "Bypassing digital signature authentication during driver installation")
- 3 This driver is only for Windows XP. It cannot be used with Windows 95/98/Me.
- 4 The driver must be installed for each USB port. If you connect the RADIUS to a USB port other than the one you used when installing KORG USB-MIDI Driver for Windows, you will need to re-install the KORG USB-MIDI Driver for Windows using the same procedure.

1 You must install KORG USB-MIDI Driver Tools before you connect the RADIUS to your computer. Make sure that the RADIUS is disconnected, and insert the included CD-ROM into your CD-ROM drive. Normally the "RADIUS Application Installer" will start up automatically. If settings have been made on your computer so that this does not start up automatically, double-click "KorgSetup.exe" in the CD-ROM.

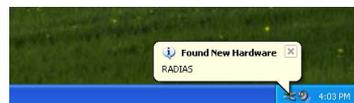
2 In the list, select "KORG USB-MIDI Drive Tools" and click [Install] to start up the KORG USB-MIDI Driver Tools installer.

3 The KORG USB-MIDI Drive Tools Installer screen will appear. Click [Next>].

4 The "License agreement" will appear. Carefully read the contents, and if you consent to the terms, select "I accept the license agreement" and click [Next>].



- 5 Enter your user information and click [Next>].
- 6 Specify the location where the software will be installed. The screen will show the installation location. If you want to change this, click [Change] and select the desired installation location. Click [Next>] to begin the installation.
- 7 When the installation is completed, click [Finish] to exit the installer.
- 8 Use a USB cable to connect the RADIUS to your computer, and turn on the power of the RADIUS. Windows will detect that the RADIUS is connected.



The standard driver will then be installed automatically.



- 9 From the taskbar, choose [Start]→[All Programs]→[KORG]→[KORG USB-MIDI Driver Tools]→[Install KORG USB-MIDI Device] to start up the setup utility. In the upper part of the window, a list will show the KORG USB-MIDI devices currently connected to your computer. The lower part of the window shows information about the version of the KORG USB-MIDI Driver you are about to install. In the list, select the KORG USB-MIDI device that is currently connected to your computer, and click [Install]. Driver installation will begin.



- 10 During the installation, a warning dialog box regarding digital signature authentication may appear. If so, click [Continue Anyway] to proceed.



- 1 Driver installation will be completed. Click [Finish] to exit the installer. If you are asked to restart Windows, select [Yes] to restart your computer.



Bypassing digital signature authentication during driver installation

If your computer is set so that drivers with a digital signature cannot be installed, you must change this setting so that the KORG USB-MIDI driver can be installed.

- 1 From the taskbar, click [Start]→[Control Panel] to open the control panel. From the control panel, start up “System” and click the [Hardware] tab. Click [Driver Signing].



- 2 If “What action do you want Windows to take?” is set to “Block,” it will not be possible to install the driver. Choose either [Ignore] or [Warn], and then click [OK]. If necessary, you can set this back to the original setting after installing the driver.

Uninstalling the KORG USB-MIDI Driver for Windows XP

- 1 From the taskbar, select [Start]→[All Programs]→[KORG]→[KORG USB-MIDI Driver Tools]→[Uninstall KORG USB-MIDI Device] to start up the setup utility. Click [Next>].
 - 2 A list of currently-installed KORG MIDI devices will appear. Add a check mark only to the MIDI device(s) you want to remove. Click [Next>].
- ⚠ Be aware that all MIDI devices with a check mark will be removed.



- 3 A confirmation dialog box will appear. Click [Yes].
- 4 Click [Finish] to end the procedure. Restart Windows to ensure that the changes have been applied.

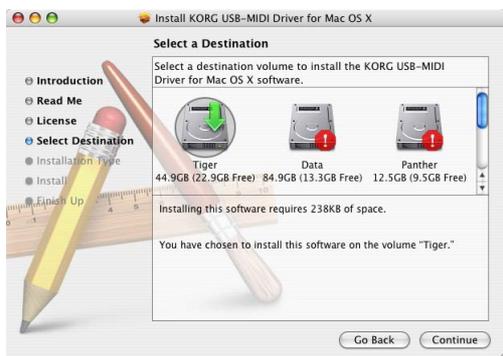
Mac OS X users

Installing the KORG USB-MIDI Driver for Mac OS X

- ⚠ This driver is only for Mac OS X 10.2 or later.
- 1 Use a USB cable to connect the RADIAS to your computer, and turn on the power of the RADIAS.
 - 2 In the CD-ROM, navigate to the “KORG USB-MIDI Driver” folder and double-click “KORG USB-MIDI Driver.pkg” to start up the installer.
 - 3 Depending on the version of your operating system, an authentication dialog box may appear. If so, enter the password and click [OK]. When the installer starts up, the following screen will appear. Click [Continue].



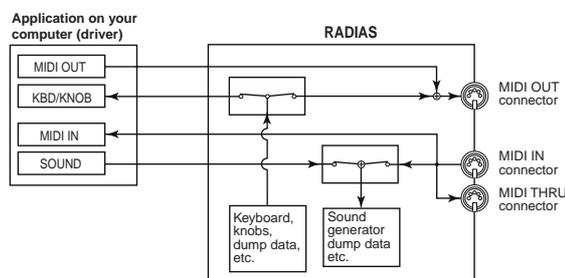
- 4 “Important information” will be displayed. Carefully read the contents, and click [Continue].
- 5 The “License agreement” will be displayed. Carefully read the contents, and click [Continue]. A dialog box asking whether you accept the terms of the license agreement will appear. If you accept the terms, click [I Accept].
- 6 The “Select installation location” dialog box will appear. Select the installation location, and click [Continue].



- 7 The “Easy installation” dialog box will appear. Click [Install].
- 8 Depending on the version of your operating system, an authentication dialog box may appear. If so, enter the password and click [OK].
- 9 When the installation has been completed successfully, click [Close] to exit the installer.

About the RADIUS and the driver ports

As seen from the driver (computer), the RADIUS’ USB-MIDI functionality appears as two IN and two OUT ports.



MIDI IN devices

MIDI IN

This port receives MIDI messages that are input to the RADIUS’ MIDI IN connector. For example, this allows MIDI messages from an external sequencer to be sent to an application on your computer, or the RADIUS to be used as a USB-MIDI interface. To do so, choose this port in the MIDI input settings of your application.

KBD/KNOB

This port receives MIDI messages from the RADIUS’ keyboard and knobs. This port is also used to receive data dumps.

- 🔧 If you want to use this port, set the Global mode P04: MIDI page “Routing” to USB or USB+MIDI.

MIDI OUT devices

MIDI OUT

MIDI messages sent from your software via this port are transmitted without change from the RADIUS’ MIDI OUT connector. If you want to use the RADIUS as a USB-MIDI interface, for example to transmit MIDI messages from your computer application to an external device, choose this port in the MIDI output settings of your application.

SOUND

Use this port to play the RADIUS’ sound generator from your software, or to transmit data dumps.

- 🔧 If you want to use this port, set the Global mode P04: MIDI page “Routing” to USB or USB+MIDI.

Troubleshooting

Before you suspect a malfunction, please check the following points.

Power does not turn on

- Is the AC/AC adaptor connected to an AC outlet?
☞ p.16 “1. Connecting the AC/AC power supply”
- Is the [ON/STANDBY] switch turned on?
☞ p.19 “Turning the power on/off”

No sound

- Are the connected equipment or headphones connected to the correct jacks?
☞ p.16 “2. Connecting external audio equipment”
- Is your connected equipment powered-on?
- Is the [VOLUME] knob set to a position where sound will be produced?
☞ p.19 “Adjusting the volume”
- Is the Global mode P04: MIDI page “LocalCtrl” setting turned ON?
☞ p.116 “LocalCtrl (Local Control)”
- Are there any volume-related parameters that are set to a volume of 0?
☞ p.86 “OSC1 Lvl (OSC1 Level) ◀ OSC1 ▶”
☞ p.88 “Level (Amp Level) ◀ LEVEL ▶”
- Is the FILTER “Cutoff” set to 0?
☞ p.112 “P07 FILTER”
- Is there a pedal connected to the **RADIAS** that could be affecting the output?

Sound does not stop

- Is the Global mode P08: PEDAL/SW page “A.SWFunc” setting appropriate for the pedal switch that is connected?
☞ p.119 “A.SwFunc (Assignable Switch Function)”

Can't write program or global settings

- Is the Global mode P02: MEMORY page “Protect” setting OFF?
☞ p.69 “Disabling memory protect”
☞ p.115 “Protect”

Transpose or velocity curve settings are not transmitted/received correctly

- Is the Global mode P01: GLOBAL page “Position” set appropriately?
☞ p.114 “Position”

Arpeggiator or step sequencer do not start

- Is the arpeggiator or step sequencer turned on (ARPEGGIATOR/STEP SEQUENCER [ON/OFF] button LED lit)?
☞ p.13 “[ON] button”
- Is the arpeggiator or step sequencer assigned to the timbre you're using?
☞ p.47 “Assigning the arpeggiator to a timbre”
☞ p.50 “Preparations for recording”
- Is the Global mode P04: MIDI page “Clock” set to Internal?
☞ p.117 “Clock”

Does not respond to MIDI data received from an external device

- Is the MIDI cable connected correctly?
☞ p.17 “MIDI channel settings – Getting ready to play”
- Does the MIDI channel of the data transmitted by the external MIDI device match the **RADIAS'** global MIDI channel?
☞ p.16 “Setup”
- Are the various parameters in the Global mode P06: MIDI FILTER page set to 0?
☞ p.118 “P06-1: MIDI FILTER”

Unable to receive sound

- Is the audio source correctly connected to the rear panel input jacks?
☞ p.16 “Setup”
- Is the front panel AUDIO IN [1/INST] or [2/VOICE] knob adjusted to the appropriate input level?
☞ p.26 “Processing an external audio source”

Voice Name List

Program

No.	Program Name	Category	Timbre 1 Name	Timbre 2 Name	Timbre 3 Name	Timbre 4 Name	Drum Kit	Arp Sw	Programmer
A01	HarnessPower *1	Vocoder	Carrier Wave	Stutterer	Uni Bass	Boof	OFF	ON	Phill Macdonald
A02	Warping Beat	Arp/Seq	Arp Synth	Soft String	-----	Construct	Timbre 4	ON	Richard Devine
A03	Tronik Sign	Arp/Seq	Tronika Sine	-----	-----	Glitch/Click	Timbre 4	ON	KORG Inc.
A04	Radias	Motion	ModSeq Voice	Radiation	BPF Seq Pad	-----	OFF	OFF	KORG Inc.
A05	BPF Plus	Motion	FreewheelBPF	BounceBPF	-----	-----	OFF	ON	Phill Macdonald
A06	VeloSyncLead	Lead	ProSyncLead	-----	-----	-----	Timbre 4	OFF	KORG Inc.
A07	Hyper Hoover	Bass	Hyper Hoover	Dist Signal	-----	Drum'n'Bass	Timbre 4	OFF	KORG Inc.
A08	Mogalog Bass	Bass	Moge Bass	-----	-----	Standard	Timbre 4	OFF	David Polich
A09	WideOpenPad	Synth Hard	Wide Pad	-----	-----	Micro	Timbre 4	OFF	Oliver Munyak
A10	Glide 5thPad	Synth Soft	Sweep OB Pad	Ghost Pad	Sync Arp	-----	OFF	OFF	KORG Inc.
A11	Triangulate	Strings/Pad	Triangulate	Tee Bass 1	Tee Bass 2	Decay Bass	OFF	OFF	Phill Macdonald
A12	Wave Pluckin	Guitar/Pluck	Mod PCM Comb	-----	-----	-----	OFF	OFF	KORG Inc.
A13	Smooth EP	Keyboard	Smooth EP	FlyingWahGtr	-----	-----	OFF	ON	Jerry Kovarsky
A14	On the 5th	Split	Take5 Lead	Dirty-B-Bass	-----	HipHop	Timbre 4	OFF	Oliver Munyak
A15	White Flame	Hit/Drum	BPFSweepStab	-----	-----	-----	OFF	ON	KORG Inc.
A16	Transmission	S.E	Trans Talk	Trans Vox	Trans Wire	Trans Pan	OFF	OFF	Richard Devine
B01	Yo EveryBody *1	Vocoder	Carrier Wave	-----	-----	-----	OFF	ON	Phill Macdonald
B02	Minimal	Arp/Seq	Minimal Arp	2016 Synth	-----	Analog 88	Timbre 4	ON	Oliver Munyak
B03	Trance Build	Arp/Seq	Screamer	Sweep Nag	Trance Bass	Trance	Timbre 4	ON	Phill Macdonald
B04	Future Rezzo	Motion	ResonateComb	Slash Signal	-----	-----	Timbre 4	OFF	KORG Inc.
B05	Alpha Base	Motion	Alpha	-----	-----	-----	OFF	OFF	Martin Richardson
B06	Soft Lead	Lead	SoftLead	SequenceBass	Noise	Bleep	OFF	OFF	Phill Macdonald
B07	Digital Bass	Bass	DistSqu Bass	RingHorrorBs	Danger Taste	Nu Breaks	Timbre 4	OFF	KORG Inc.
B08	Smack Sonic	Bass	Smack Bass	-----	-----	Garage/R&B	Timbre 4	OFF	Oliver Munyak
B09	Cyber Hydra	Synth Hard	Cyber Hydra	-----	-----	-----	OFF	OFF	KORG Inc.
B10	Space Piano	Synth Soft	Piano Stage	Wind FX	-----	-----	OFF	OFF	Richard Devine
B11	Warm Pad	Strings/Pad	Soft Pad	Glide Sine	-----	-----	OFF	OFF	KORG Inc.
B12	Hills Lead	Bell/Decay	Hills Lead	-----	-----	-----	OFF	OFF	Richard Devine
B13	HouseProOrgn	Keyboard	HouseOrgn1	HouseOrgn2	-----	House 99	Timbre 4	OFF	David Polich
B14	Sync City	Split	Sync Lead	LFO Synca	SQBurpleBass	Standard	Timbre 4	OFF	Phill Macdonald
B15	Orch Hit	Hit/Drum	AcousticHarp	FastString	DigiPluckker	Down Tempo	Timbre 4	ON	Phill Macdonald
B16	Windy!	S.E	Windy!	-----	-----	-----	OFF	OFF	David Polich
C01	Special-A *1	Vocoder	Carrier Wave	Rev Pad	Tree 03	Glitch/Click	Timbre 4	OFF	Phill Macdonald
C02	RadiaSweep	Arp/Seq	VPM Sweep	Bell L	Bell R	Seq Bass	OFF	ON	Phill Macdonald
C03	Codex Rhythm	Arp/Seq	CodexCarrier	For Arp=Off	-----	Synth Drum	Timbre 4	ON	Oliver Munyak
C04	4-Way Morph	Motion	First Up	2nd Up	3rd Up	Last	OFF	OFF	Jerry Kovarsky
C05	Hyper Ventil	Motion	Analog Seq	Digital Seq	-----	House 99	Timbre 4	OFF	Oliver Munyak
C06	EuphonicLead	Lead	EuphonicLead	-----	-----	-----	Timbre 4	OFF	KORG Inc.
C07	Rasp Bass	Bass	Rasp Bass 1	Rasp Bass 2	-----	-----	OFF	OFF	Richard Devine
C08	VPM DynoBass	Bass	VPM DynoBass	UTurn Code	Dist Shot	Nu Breaks	Timbre 4	OFF	KORG Inc.
C09	Jumper	Synth Hard	Fat Ana Saws	-----	-----	Standard	Timbre 4	OFF	David Polich
C10	Xtal Shimmer	Synth Soft	Xtal Shimmer	Bell Tree	-----	-----	OFF	OFF	Phill Macdonald
C11	1st Movement	Strings/Pad	1stMovement1	1stMovement2	1stMovement3	-----	OFF	OFF	Martin Richardson
C12	HipHopWahGtr	Guitar/Pluck	Wah Guitar	HipHop Bass	-----	HipHop	Timbre 4	OFF	David Polich
C13	ProfeticClav	Keyboard	ProfeticClav	-----	-----	Down Tempo	Timbre 4	OFF	KORG Inc.
C14	Fusion Split	Split	Fusion Lead	Piano Pad	Mr.Bassman	Standard	Timbre 4	OFF	Oliver Munyak
C15	3 Hits	Hit/Drum	StringsShot	Organ Gliss	EP Gliss	Hoover Auto	OFF	ON	Phill Macdonald
C16	Aqua Release	S.E	Aqua Release	-----	-----	Modulus	Timbre 4	OFF	Martin Richardson
D01	Formant Beat *1	Vocoder	Carrier Wave	St.Sweep Pad	Drone Bass	Down Tempo	Timbre 4	OFF	Jerry Kovarsky
D02	Drum WaveSeq	Arp/Seq	CombDrumSeq	Digitalkin'	Elektro Bass	Analog 88	Timbre 4	OFF	KORG Inc.
D03	Heli Base	Arp/Seq	Heli Base	-----	-----	Drum'n'Bass	Timbre 4	ON	Martin Richardson

Voice Name List

No.	Program Name	Category	Timbre 1 Name	Timbre 2 Name	Timbre 3 Name	Timbre 4 Name	Drum Kit	Arp Sw	Programmer
D04	Irradiation	Motion	Specktrum	VPM SpaceOrg	Phones	Arp Bell	OFF	OFF	Phill Macdonald
D05	Sweep EF Pad	Motion	Sweep EF Pad	Morph Detune	Trig For EF	-----	OFF	ON	KORG Inc.
D06	RngBass/Lead	Lead	RngBass/Lead	-----	-----	-----	OFF	OFF	KORG Inc.
D07	NuSkoolSynth	Bass	NuSkoolSynth	-----	-----	Drum'n'Bass	Timbre 4	OFF	Oliver Muniyak
D08	Pulse Bass	Bass	VeloPWMBass	CrossModArp	Infected Arp	Synth Drum	Timbre 4	OFF	KORG Inc.
D09	ClassicBrass	Synth Hard	ClassicBrass	-----	-----	-----	OFF	OFF	KORG Inc.
D10	SweepDownPad	Synth Soft	LPFSweepDown	Tri-Sqr Bass	-----	-----	Timbre 4	OFF	David Polich
D11	PWM Strings	Strings/Pad	PWM Strings	Silky Arp	-----	-----	OFF	OFF	KORG Inc.
D12	SpektrumBell	Bell/Decay	VPM Bell	Spektra	FallingBell	-----	OFF	OFF	Phill Macdonald
D13	Funky Wurly	Keyboard	EP Wurly	FunkyWahClav	FunkyWahBass	Future Jazz	Timbre 4	OFF	KORG Inc.
D14	Hooz Next	Split	VC Arp Hi	VC Arp Lo	-----	-----	OFF	OFF	David Polich
D15	1NoteBreakDo	Hit/Drum	5th Seq	5th Stutter	Seq Bass	Boof	OFF	ON	Phill Macdonald
D16	Thunder!	S.E	Thunder	-----	-----	-----	OFF	OFF	David Polich
E01	Radias Power *1	Vocoder	Carrier Wave	Trance Line	React Bass	Trance	Timbre 4	ON	Phill Macdonald
E02	Deep Jazz	Arp/Seq	PortamentoEP	Strings	-----	Analog 88	Timbre 4	ON	Richard Devine
E03	CrossedWires	Arp/Seq	Cross Wire	Cross Pad	PulseCrossBs	PulseCrossBa	OFF	ON	Phill Macdonald
E04	Ryukyu Pad	Motion	Reverse Pad	Drop Impulse	-----	-----	OFF	OFF	KORG Inc.
E05	Flea Comb	Motion	The Flea	Mod Pad	-----	-----	OFF	ON	Phill Macdonald
E06	DeepHouseLD	Lead	DeepHS Lead	House EP	-----	Deep House	Timbre 4	OFF	Oliver Muniyak
E07	Krash Bass	Bass	Krash Bass	Rapid Talk	Screw Up	80s OldSkool	Timbre 4	OFF	KORG Inc.
E08	Mr.Bassman	Bass	Mr.Bassman	Guitar Chord	-----	Future Jazz	Timbre 4	OFF	Oliver Muniyak
E09	Analog Motha	Synth Hard	PWM Pad L	PWM Pad R	Tinker Reso	-----	OFF	OFF	Phill Macdonald
E10	Fondest Time	Synth Soft	Sine Element	-----	-----	-----	OFF	OFF	KORG Inc.
E11	BreathMonsta	Strings/Pad	BreathMonsta	TumbinAir	-----	-----	OFF	OFF	Phill Macdonald
E12	Syn Guitar	Guitar/Pluck	Guitar Synth	-----	-----	-----	OFF	OFF	David Polich
E13	AmpDrive EP	Keyboard	AmpDrive EP	MG Squ Bass	-----	Future Jazz	Timbre 4	OFF	KORG Inc.
E14	EP Padulus	Keyboard	EP Padulus	Breath	Tinklet	-----	OFF	OFF	Phill Macdonald
E15	SpinningCode	Hit/Drum	SpinningCode	-----	-----	-----	OFF	ON	KORG Inc.
E16	Clockworks	S.E	High Bell	Low Bell	Ticky	Tocky	OFF	ON	Phill Macdonald
F01	Tech Morph *1	Vocoder	Carrier Wave	Filter Bass	5th Stabber	House 99	Timbre 4	OFF	Oliver Muniyak
F02	Dark Moon	Arp/Seq	Moon Bass	Copter	MoonSquiggle	Hat	OFF	ON	David Polich
F03	Amalgam	Arp/Seq	Noise Pad	Res Sweep	Drum Filter	Modulus	Timbre 4	ON	Martin Richardson
F04	Mod Sweep	Motion	Mod Sweep 1	Mod Sweep 2	-----	Metalic	Timbre 4	OFF	Martin Richardson
F05	Glider	Motion	Down 5th	Up 5th	Gated Pad	Ana Burble	OFF	OFF	Phill Macdonald
F06	DubleScreama	Lead	HighScreamer	LowScreamer	Trance Bass	Trance	Timbre 4	OFF	Phill Macdonald
F07	Sub Bass	Bass	Sub Bass	CutWahGuitar	Simple Shot	Dancehall	Timbre 4	OFF	KORG Inc.
F08	Velo SquBass	Bass	Acid SquBass	EP AmpDrive	-----	Future Jazz	Timbre 4	OFF	KORG Inc.
F09	Trancematic	Synth Hard	Trancer Pad	Off Bass	-----	Trance	Timbre 4	OFF	Oliver Muniyak
F10	CombZilla	Synth Soft	CombPad	-----	-----	-----	Timbre 4	OFF	Oliver Muniyak
F11	AnaStringEns	Strings/Pad	AnaStrings	Arpeggio-EP	-----	-----	OFF	OFF	Phill Macdonald
F12	El Pizzo	Bell/Decay	SynPizzo 1	SynPizzo 2	Synth Bass	Trance	Timbre 4	OFF	Phill Macdonald
F13	DeepFunk Org	Keyboard	DeepFunk Org	Guitar Chord	DeepFunkBass	Standard	Timbre 4	OFF	KORG Inc.
F14	Vibrations	Split	Phase EP	PicknickBass	Saw The Lead	Drum'n'Bass	Timbre 4	OFF	Oliver Muniyak
F15	Metalic Kit	Hit/Drum	Metalic	Gated Synth	-----	-----	Timbre 1	ON	KORG Inc.
F16	InfiniteRise	S.E	ShepardTone1	ShepardTone2	-----	-----	OFF	OFF	KORG Inc.
G01	Aliens *1	Vocoder	Carrier Wave	Hyper Drive	Retros	-----	OFF	ON	Phill Macdonald
G02	Epic Scene	Arp/Seq	Trance Line	React Bass	Snare Roll	Trance	Timbre 4	ON	KORG Inc.
G03	IDM Beat	Arp/Seq	Synth Tone	Breathy Pad	-----	IDM	Timbre 4	ON	Richard Devine
G04	Glacial Air	Motion	Glacial Air	Morse Arp	-----	-----	OFF	ON	KORG Inc.
G05	Wavessequenza	Motion	Wave Motion	Ens Strings	-----	House 99	Timbre 4	OFF	Oliver Muniyak
G06	Wired Lead	Lead	Wired Lead	Sweep Gate	BoostSynBass	Nu Breaks	Timbre 4	OFF	KORG Inc.
G07	RadiatorBass	Bass	Radiate Bass	AmpMod Sine	-----	-----	OFF	OFF	KORG Inc.
G08	Whacker Bass	Bass	Whacker Bass	-----	-----	Down Tempo	Timbre 4	OFF	KORG Inc.
G09	SQ Blubber	Synth Hard	SQ Blubber	SQ Arp	SQ Bass	-----	OFF	OFF	Phill Macdonald
G10	Sweep Up Pad	Synth Soft	LPFSweepUp	SimpleSqrSaw	-----	-----	OFF	OFF	David Polich
G11	Soft Fantasy	Strings/Pad	Uni Triangle	-----	-----	-----	OFF	OFF	KORG Inc.
G12	A. Guitar	Guitar/Pluck	AcousticGtr1	AcousticGtr2	-----	Analog 88	Timbre 4	OFF	Phill Macdonald

Appendices

No.	Program Name	Category	Timbre 1 Name	Timbre 2 Name	Timbre 3 Name	Timbre 4 Name	Drum Kit	Arp Sw	Programmer
G13	DampWahClav	Keyboard	DamperPdClv	FunkySynBass	-----	Future Jazz	Timbre 4	OFF	KORG Inc.
G14	Club Jazz	Split	Stage EP	Pick Bass	-----	Future Jazz	Timbre 4	OFF	Oliver Munyaik
G15	House Hit	Hit/Drum	7th Hit	Sus Glide	Simple Bass	House 99	Timbre 4	ON	Phill Macdonald
G16	Old Radio	S.E	Old Radio	-----	-----	-----	OFF	OFF	David Polich
H01	GimmeA Break *1	Vocoder	Carrier Wave	Blatty	Hit Bass	Trance	Timbre 4	ON	Phill Macdonald
H02	Deep Phaser	Arp/Seq	Deep Mod	Riots VPM	-----	Deep House	Timbre 4	OFF	KORG Inc.
H03	Ambi Groove	Arp/Seq	Ambi Groove1	Ambi Groove2	Ambi Groove3	Modulus	Timbre 4	ON	Martin Richardson
H04	Warp Factor	Motion	MetalCombPad	-----	-----	-----	OFF	OFF	David Polich
H05	5thAmmendmen	Motion	5th Pad	Da Da Daa	Panning Arp	-----	OFF	OFF	Phill Macdonald
H06	Dukey Lead	Lead	Dukey Lead	Loop Timbre1	-----	-----	OFF	OFF	Jerry Kovarsky
H07	VintgSyncBs	Bass	Sync Bass	-----	-----	Standard	Timbre 4	OFF	David Polich
H08	Organ Bass	Bass	Organ Bass	Sync Nag	-----	Trance	Timbre 4	OFF	Phill Macdonald
H09	Visualizer	Synth Hard	Multi Sweep	SweepSquBass	-----	-----	Timbre 4	OFF	KORG Inc.
H10	Amber	Synth Soft	Movie Pad1	Movie Pad2	Light Pad	-----	OFF	OFF	Richard Devine
H11	RetroStrings	Strings/Pad	RetroStrings	70s NorthArp	-----	-----	OFF	OFF	KORG Inc.
H12	Glockenspiel	Bell/Decay	Kling Bells	-----	-----	-----	Timbre 4	OFF	Oliver Munyaik
H13	VPM Piano	Keyboard	VPM Piano	VeloSynPiano	-----	Analog 88	Timbre 4	OFF	KORG Inc.
H14	Combo 68	Split	68ComboOrgn	EP Bass	-----	Standard	Timbre 4	OFF	David Polich
H15	PolysixChord	Hit/Drum	Polysix 1	Polysix 2	Polysix 3	Future Jazz	Timbre 4	OFF	David Polich
H16	Entity	S.E	Entity1	Entity2	Entity3	Entity4	OFF	ON	Martin Richardson
I01	FormantMorph *1	Vocoder	5th Pad Wave	Breath Sweep	Arp Walkin'	-----	OFF	OFF	Jerry Kovarsky
I02	Aerial Beat	Arp/Seq	Arp Synth	Soft Synth	Slow Pad	House 99	Timbre 4	ON	Richard Devine
I03	Wah Guitars	Arp/Seq	Dirty Guitar	CleanWahGr	> Wah Pedal	-----	OFF	ON	Phill Macdonald
I04	FallingFilta	Motion	FilterSweep	Scatterbrain	Noise Filter	-----	OFF	OFF	Phill Macdonald
I05	InterfusePad	Motion	EnvF.5thPad	Motion Arp	-----	-----	OFF	ON	KORG Inc.
I06	HardTuneLead	Lead	HardTuneLead	HardTechBass	-----	Trance	Timbre 4	OFF	KORG Inc.
I07	Noize Bass	Bass	Noize Bass	Filter FX	-----	Nu Breaks	Timbre 4	OFF	Oliver Munyaik
I08	Slap Bass	Bass	Slap Bass	ChickenSynth	-----	Standard	Timbre 4	OFF	Phill Macdonald
I09	Slap Brass	Synth Hard	Slap Brass 1	Slap Brass 2	Slap Brass 3	Slap Brass 4	OFF	OFF	Phill Macdonald
I10	Drama Pad	Strings/Pad	EP Pad	Choir Pad	-----	80s OldSkool	Timbre 4	OFF	Oliver Munyaik
I11	Phazing Pad	Strings/Pad	Phazing Pad	Arp Shot	-----	-----	Timbre 4	OFF	KORG Inc.
I12	VPM Jazz Gtr	Guitar/Pluck	VPM Guitar 1	VPM Guitar 2	Pick Bass	Future Jazz	Timbre 4	OFF	Phill Macdonald
I13	Moisture EP	Keyboard	Moisture EP	Deep E.Bass	Mod Perc	Deep House	Timbre 4	OFF	KORG Inc.
I14	DampRtryOrg	Keyboard	Full Organ	Organ Arp	-----	Drum'n'Bass	Timbre 4	OFF	KORG Inc.
I15	Digi Harp	S.E	Digi Harp	-----	-----	-----	OFF	ON	Phill Macdonald
I16	Cascades	S.E	Phasing Pad	Noisy Arp	-----	-----	OFF	ON	Richard Devine
J01	RobotWarning *1	Vocoder	Ring Voice	Modem1	Modem2	-----	OFF	ON	Phill Macdonald
J02	SpaceElectro	Arp/Seq	Electro Seq	Filter Synth	Acid Bass	Arp Noise	OFF	ON	Richard Devine
J03	NoteRezoDrum	Arp/Seq	Filter Bank	-----	-----	Future Jazz	Timbre 4	ON	KORG Inc.
J04	Cyan	Motion	5thMotionPad	Phasor Pad	-----	-----	OFF	OFF	Richard Devine
J05	Vox Wave Seq	Motion	Vox Wave Seq	MMF SweepPad	-----	-----	Timbre 4	ON	KORG Inc.
J06	FlyingPsyche	Lead	FlyingPsyche	PsyTrancBass	-----	Synth Drum	Timbre 4	OFF	KORG Inc.
J07	Unison Bass	Bass	Unison Bass	-----	BD 9009	Future Jazz	Timbre 4	OFF	Phill Macdonald
J08	Pick Bass	Bass	Pick Bass	Guitar FX	-----	Drum'n'Bass	Timbre 4	OFF	Phill Macdonald
J09	Comb Stabber	Synth Hard	Comb Stabber	TekHouseBass	-----	Deep House	Timbre 4	OFF	KORG Inc.
J10	Operator Pad	Synth Soft	Digi Chimes	Square Land	Arp Thing	-----	OFF	OFF	Phill Macdonald
J11	Strings	Strings/Pad	Strings	-----	-----	-----	OFF	OFF	Oliver Munyaik
J12	Bamboo Lore	Bell/Decay	Lore Roll	E.F.Harmonic	-----	-----	OFF	OFF	KORG Inc.
J13	Big Bee	Keyboard	TonWheelOrgn	-----	-----	Future Jazz	Timbre 4	OFF	David Polich
J14	Bliss Beat	Split	Chorus EP	Noise FX	Pick Bass	Deep House	Timbre 4	ON	Richard Devine
J15	90sHouseChrd	Hit/Drum	90's Stab 1	90's Stab 2	90's Stab 3	90's Stab 4	OFF	OFF	Oliver Munyaik
J16	Red Zone	S.E	My Car	Rival Car	-----	-----	OFF	OFF	KORG Inc.
K01	Bender Lead	Lead	BenderLead1	BenderLead2	BenderLead3	BenderLead4	OFF	OFF	Phill Macdonald
K02	BassMaschine	Arp/Seq	MaschineBass	5th Saw Lead	-----	Analog 88	Timbre 4	ON	Oliver Munyaik
K03	Chordant	Arp/Seq	Chordal	BPF Bass	Simple Bass	Drum'n'Bass	Timbre 4	ON	Phill Macdonald
K04	InGrained	Motion	Granulated	CombSweep	RezoBabble	Arp-o-Reso	OFF	OFF	Phill Macdonald
K05	ChordPressur	Motion	Morph Lead	Delay Synth	Seq Chord	Acid Bass	OFF	ON	Richard Devine

Voice Name List

No.	Program Name	Category	Timbre 1 Name	Timbre 2 Name	Timbre 3 Name	Timbre 4 Name	Drum Kit	Arp Sw	Programmer
K06	Take The 5th	Lead	5th Lead	-----	-----	-----	OFF	OFF	David Polich
K07	HardCombBass	Bass	HardCombBass	Spicy BPF	DriveHPFBass	Nu Breaks	Timbre 4	OFF	KORG Inc.
K08	Flip Bass	Bass	Stepper Bass	FilterGuitar	Poly Comp	Garage/R&B	Timbre 4	OFF	KORG Inc.
K09	Trident	Synth Hard	Trident Saws	-----	-----	Dancehall	Timbre 4	OFF	David Polich
K10	SlowGlassPad	Synth Soft	Glass Pad	GlassPadArp1	GlassPadArp2	GlassPadArp3	OFF	OFF	Phill Macdonald
K11	Sync Pad	Strings/Pad	Sync Pad 1	Sync Pad 2	Arp Saws	-----	OFF	OFF	Phill Macdonald
K12	Glasses	Bell/Decay	Glass Bells	-----	-----	ER-1	Timbre 4	OFF	Oliver Muniyak
K13	Robot Clav	Keyboard	Robot Clav	Moving Bass	-----	Standard	Timbre 4	OFF	KORG Inc.
K14	Operator EP	Keyboard	VPM Piano	Synth Piano	-----	Analog 88	Timbre 4	OFF	KORG Inc.
K15	Voice Kit	Hit/Drum	Synth Voice	Snare Bass	Zap Kick	-----	Timbre 1	OFF	KORG Inc.
K16	Bass Chime	S.E	DidgeriBass	Chime FX 1	Chime FX 2	Internal Bus	OFF	ON	Richard Devine
L01	Trancy Xross	Lead	CrossModLead	Squ Bass	-----	Trance	Timbre 4	OFF	KORG Inc.
L02	She's A GOA	Arp/Seq	Goa Pad	Velo3003	MorphPsyTran	Trance	Timbre 4	ON	Phill Macdonald
L03	Acid Jazz	Arp/Seq	EP Stage	Ac. Bass	-----	Future Jazz	Timbre 4	ON	Oliver Muniyak
L04	Orbit Mood	Motion	Pitch ModSeq	Wind FX	-----	-----	OFF	OFF	Richard Devine
L05	Dimension	Motion	Auto Seq	Auto Pan Pad	-----	-----	OFF	OFF	KORG Inc.
L06	3 OSC Lead	Lead	3 Oct Lead	-----	-----	-----	OFF	OFF	David Polich
L07	Line Bass	Bass	Oct LineBass	-----	-----	-----	OFF	OFF	KORG Inc.
L08	Resonator	Bass	Reso Bass	-----	-----	Analog 88	Timbre 4	OFF	Oliver Muniyak
L09	House Stabz	Synth Hard	House Stabba	-----	-----	Deep House	Timbre 4	OFF	Oliver Muniyak
L10	Wah Pad	Motion	Wah Pad	-----	-----	Future Jazz	Timbre 4	OFF	Martin Richardson
L11	FastAnaStrgs	Strings/Pad	FastAnaStrgs	-----	-----	Nu Breaks	Timbre 4	OFF	David Polich
L12	TubularBells	Bell/Decay	Tubular Bell	PCM Gong	-----	-----	OFF	OFF	David Polich
L13	Waveshape EP	Keyboard	Waveshape EP	VPM BossaGtr	-----	Future Jazz	Timbre 4	OFF	KORG Inc.
L14	Dyno Pad	Keyboard	Dyno Pad	Air Pad	Glass Swish	-----	OFF	OFF	Phill Macdonald
L15	Space Battle	S.E	Space Laser	Hi Q Blip 1	Hi Q Blip 2	Lo Ray Burst	OFF	OFF	David Polich
L16	Aleatorics	S.E	Noise FX	Steam FX	Tone FX	Dark Pad	OFF	ON	Richard Devine
M01	Square Lead	Lead	Square Lead	-----	-----	-----	OFF	OFF	Jerry Kovarsky
M02	Electrowerks	Arp/Seq	Synth Line	Filter Synth	Bass Line	Analog 88	Timbre 4	ON	Richard Devine
M03	Drum Rotator	Arp/Seq	Drum Rotator	-----	-----	-----	OFF	OFF	Martin Richardson
M04	BrightSynth	Motion	Gated Saw 1	Gated Saw 2	Gate Saw 3	Decay SynEP	OFF	OFF	Richard Devine
M05	LPF Sweeper	Motion	LowpassSweep	Analog Arp	-----	-----	OFF	ON	Phill Macdonald
M06	Synth Piper	Lead	Pipe	Puff	Wind	Birds	OFF	OFF	Phill Macdonald
M07	D'n'B Sub	Bass	D'n'B Sub	-----	-----	Drum'n'Bass	Timbre 4	OFF	Oliver Muniyak
M08	Urban Bass	Bass	HipHop Bass	Saw Gating	-----	HipHop	Timbre 4	OFF	KORG Inc.
M09	X-Mod Sweep	Synth Hard	X-Mod Sweep	-----	-----	-----	OFF	OFF	KORG Inc.
M10	Air Vox	Strings/Pad	Air Vox	-----	-----	Micro	Timbre 4	OFF	David Polich
M11	Huge Strings	Strings/Pad	Huge Strings	StAnaStrings	Classic Arp	-----	OFF	OFF	KORG Inc.
M12	Cyborg Arp	Bell/Decay	Cyborg Arp	Random XMod	Zapper	Analog 88	Timbre 4	OFF	KORG Inc.
M13	Dyno Mine EP	Keyboard	EP Cho Dyno	Analog Pad	-----	-----	Timbre 4	OFF	KORG Inc.
M14	Rotary Organ	Keyboard	Rotary Organ	-----	-----	Future Jazz	Timbre 4	OFF	Oliver Muniyak
M15	Digi Droplet	S.E	Drop 1	Drop 2	Thunder	Rain	OFF	OFF	Phill Macdonald
M16	DreamTrigger	S.E	DreamTrig 1	DreamTrig 2	DreamTrig 3	EF Trigger	OFF	ON	Martin Richardson
N01	Simple Sine	Lead	Simple Sine	-----	-----	-----	Timbre 4	OFF	David Polich
N02	3003 Fest	Arp/Seq	Norm Morph	Comb Morph	Velo Bassic	Furry Kick	OFF	ON	Phill Macdonald
N03	Jupt Bass	Arp/Seq	TranceStomp1	TranceStomp2	-----	Metalic	Timbre 4	ON	Martin Richardson
N04	Le Fee	Motion	Lounge Pad	-----	-----	Down Tempo	Timbre 4	OFF	Oliver Muniyak
N05	Underwater	Motion	Deep Pad	Dark Piano	Arp Synth	-----	OFF	ON	Richard Devine
N06	White Panel	Lead	Vintage Lead	-----	-----	-----	OFF	OFF	David Polich
N07	Tek Seq Bass	Bass	Tek Seq Bass	IntBus Delay	Pulsy Arp	-----	OFF	OFF	KORG Inc.
N08	Licker Bass	Bass	Roly WS Bass	IntBus Deci	Filter Zap	-----	Timbre 4	OFF	KORG Inc.
N09	Atmosphere	Motion	5th Bender	Spectrum	Airate	Wispa Noise	OFF	OFF	Phill Macdonald
N10	AudioModPad	Strings/Pad	AudioModPad	AudioModArp	-----	-----	OFF	ON	KORG Inc.
N11	Night Sky	Motion	Formant Pad	SynthMotion1	SynthMotion2	-----	OFF	ON	Richard Devine
N12	Elek:tron	Arp/Seq	RepeatrSynth	-----	-----	-----	OFF	ON	David Polich
N13	Bright Clav	Keyboard	Bright Clav	Rize SFX	UrbanHopBass	Future Jazz	Timbre 4	OFF	KORG Inc.
N14	NuResoPiano	Keyboard	NuResoPiano	Strings Pad	-----	-----	OFF	OFF	KORG Inc.

No.	Program Name	Category	Timbre 1 Name	Timbre 2 Name	Timbre 3 Name	Timbre 4 Name	Drum Kit	Arp Sw	Programmer
N15	Source Code	Arp/Seq	Carrier	For Arp=Off	-----	Analog 88	Timbre 4	ON	Oliver Munyak
N16	FrNkNsTeln	S.E	Vntg Modular	Vntg Lazer	-----	Glitch/Click	Timbre 4	OFF	David Polich
O01	Ens Vocoder ^{*2}	Vocoder	Fat Saw Pad	Behind Seq	-----	-----	OFF	OFF	KORG Inc.
O02	CPU Lover ^{*2}	Vocoder	5th Carrier	-----	-----	-----	OFF	OFF	Oliver Munyak
O03	Dual Formant ^{*2}	Vocoder	Formant OSC	-----	-----	-----	OFF	OFF	KORG Inc.
O04	Airy Vocoder ^{*2}	Vocoder	Unison Pad	Arp Saw	-----	-----	OFF	OFF	KORG Inc.
O05	Munchy Land ^{*2}	Vocoder	Munchy Land	-----	-----	-----	OFF	OFF	Martin Richardson
O06	Mono Vocoder ^{*2}	Vocoder	MonoSynPulse	AudiolntBus	-----	-----	OFF	OFF	KORG Inc.
O07	AutoChordVoc ^{*2}	Vocoder	Unison Pad	-----	-----	-----	OFF	ON	KORG Inc.
O08	RadioAktiv ^{*2}	Vocoder	Saw Carrier	-----	-----	-----	OFF	OFF	Oliver Munyak
O09	Comb-Coder ^{*2}	Vocoder	Comb-Coder	-----	-----	-----	OFF	OFF	KORG Inc.
O10	VocoderPulse ^{*2}	Vocoder	Simple Pulse	Arp Saw	-----	-----	OFF	OFF	KORG Inc.
O11	Spectrum Mod ^{*2}	Vocoder	Formant Mod	-----	-----	-----	OFF	OFF	KORG Inc.
O12	Danger Voice ^{*2}	Vocoder	Dist Voice	-----	-----	-----	OFF	OFF	KORG Inc.
O13	Audioln INIT ^{*2}	Audio In	Audioln Init	-----	-----	-----	OFF	OFF	KORG Inc.
O14	Audio Grain ^{*2}	Audio In	Grain Loop	-----	-----	-----	OFF	OFF	KORG Inc.
O15	StLineFilter ^{*3}	Audio In	St.Audioln	-----	-----	-----	OFF	OFF	KORG Inc.
O16	StLineGating ^{*3}	Audio In	St.Audioln	-----	-----	-----	OFF	ON	KORG Inc.
P01	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P02	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P03	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P04	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P05	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P06	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P07	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P08	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P09	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P10	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P11	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P12	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P13	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P14	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P15	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	
P16	Init Program	User	InitTimbre1	-----	-----	-----	OFF	OFF	

*1: Sounds A01, B01, C01, D01, E01, F01, G01, H01, I01, and J01 are programs that use the formant motion function. For details on formant motion, refer to p.58 "Formant Motion function."

*2: Sounds O01: Ens Vocoder–O14: Audio Grain are programs that use the mic input. In order to make these programs produce sound, you must connect a mic to the **RADIAS**. (see p.27 "Playing a vocoder program")

*3: Sounds O15: StLineFilter and O16: StLineGating are programs that use stereo line input. In order to make these programs produce sound, you must connect an external audio device to the AUDIO IN jacks. (see p.18 "5. Connecting the audio inputs – INPUT jacks")

Demo Songs

1. Inner Cascade/Korg Inc.
2. Stratosphere/Phill Macdonald
3. Nu Sources/Korg Inc.
4. Electrified/Oliver Munyak

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Drumkit

Dr01: Standard

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Dry1	BD-Dry2	SD-Dry1	Clap-Dry	SD-Dry2	SD-Jazz1	HH-Dry2 C	Tom-DryHi
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Tambourine	Conga-Mute	HH-Dry2 O	Conga-Low	Conga-Hi	Crash	Cabasa	Ride-Dry

Dr02: Future Jazz

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Syn4	BD-Jazz	SD-Jazz1	Rim-Dry	SD-Jazz2	SD-Dry2	HH-88 C	Tom-Jazz
Inst 9	Inst 10	Inst 11	Inst 12	Inst 13	Inst 14	Inst 15	Inst 16
HH-Lyn C	Conga-Mute	HH-Lyn O	Conga-Low	Conga-High	Crash-99	Cabasa	Ride-Dry2

Dr03: Trance

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Trance	BD-Zap	SD-99	Clap-88	SD-Syn1	SD-88	HH-99 C	Tom-ElectLow
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-KR55 C	Tom-ElectMid	HH-99 O	Tom-ElectHi	Clap-Dry	Crash-99	ReverseSFX	Ride-Dry2

Dr04: HipHop

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-R&B	BD-Thwunk	SD-R&B	Rim-Lynn	SD-PaperRip	SD-Video	HH-88 C	Tom-SynLow
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-KR55 C	Tom-SynHi	HH-88 O	Lektrosctrch	Tambourine	Crash-BPF	MicTap	Lektride

Dr05: Deep House

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Syn3	BD-Funk	SD-77	Clap-R&B	SD-Dry3	SD-Lynn	HH-Dry2 C	Tom-Gate
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Tambourine	Conga-Mt	HH-99 O	Conga-L	Conga-H	Crash-99	Triangle	Ride-Dry1

Dr06: Garage/R&B

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Garage1	BD-Garage2	SD-Garage1	Clap-Garage	SD-Garage2	SD-Garage3	HH-Garage C	Tom-GarageLo
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Garage P	Tom-GarageMd	HH-Garage O	Tom-GarageHi	Tamb-Garage	Crash-99	Triangle	Ride-Dry2

Dr07: Down Tempo

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Bonzo	BD-Drop	SD-16Maple	Clap-Trash	SD-Can	SD-Lid	HH-Lowered C	Tom-TankFlor
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Lowered P	Tom-TankLoMd	HH-Lowered O	Tom-TankUpMd	Tom-TankHi	Crash-LoFi	Ring Bell	Ride-LoFi

Dr08: House 99

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-99	BD-Syn2	SD-99 2	Clap-99	SD-99 1	SD-99 Filter	HH-99 C	Tom-99 L
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Tambourine	Tom-99 H	HH-99 O	Conga-L	Conga-H	Crash-99	Cabasa	Ride-Dry1

Dr09: Analog 88

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-88Long	BD-88Short	SD-88	Clap-88	SD-88Low	Rim-Syn	HH-88 C	Tom-88Low
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-KR55 C	Tom-88Mid	HH-88 O	Conga-88	Clave-88	Crash-Synth	Maracas-88	Ride-KPR

Dr10: Nu Breaks

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-DDD1	BD-Hip	SD-Gate	Clap-R&B	SD-Brk3	SD-Brk4	HH-99 C	Tom-Dry
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Lyn C	SD-GateShort	HH-Lyn O	BD-Dist	TriangleFilt	Crash	SynPerc2	Ride-Dry1

Dr11: Drum'n'Bass

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Syn4	BD-DnB	SD-77	SD-Syn5	SD-Brk5	SD-Brk2	HH-Dry1 C	Tom-Gate
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Tambourine	Tom-Dry	HH-Dry1 O	AutoBass	Syn-Perc3	Crash-Dry	Ride-Dry2	Ride-Dry1

Dr12: Glitch/Click

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Rubber	BD-Arcade	SD-Scrape	Clap-WS	SD-Needle	SD-Burst	HH-Syn C	Tom-LektraLo
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Syn P	Tom-LektraHi	HH-Syn O	Wavedrum 1	Tom-PInkHi	CrashElectro	Modbel	Ride-Electro

Dr13: Dancehall

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Syn2	BD-R&B	SD-Dry3	Clap-Dry	SD Dry2	Rim-Dry	HH-AN Ring C	Tom-Dry Drv
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Shaker	Conga-Mt Drv	HH-AN Ring O	Conga-L Drv	Conga-H Drv	Crash-HPF	Tabla Drv	Ride-Dry HPF

Dr14: Hard House

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Hard	BD-99 Hard	SD-99	Clap-88	SD-Blaster	SD-Hard	HH-99 C	Tom-99HardLo
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-99 P	Tom-99HardMd	HH-99 O	Tom-99HardHi	SD-Comb1	Crash-99	SD-Comb2	Ride-Dry2

Dr15: 80s OldSkool

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Dry1	BD-Amb	SD-Lynn	Clap-R&B	SD-77	SD-Gate	HH-Lynn C	Tom-Simm L
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Lynn P	Tom-Simm M	HH-Lynn O	Tom-Simm H	Cawbell-88	Crash	Clave-88	Ride-KPR

Dr16: ElectricDrum

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Electro1	BD-Electro2	SD-Electro1	Clap-Electro	SD-Electro2	SD-Electro3	HH-KR55 C	Tom-ElectLow
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-88 O	Tom-ElectMid	HH-KR55 O	Tom-ElectHi	Zapper1	Crash-Elect	Zapper2	Ride-Comb

Dr17: Synth Drum

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-LPF	BD-Sine	SD-Noise	Clap-Noise	SD-NoiseShot	SD-HPF	HH-HPF C	Tom-Noise
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Tambrn-Syn	Wire Shot	HH-HPF O	Zap	Reverse Zap	Crash-Noise	Cross Perc	Ride-Comb

Dr18: ER-1

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Analog1	BD-Analog2	SD-Analog1	Rim-Analog	SD-Analog2	SD-Analog3	HH-Analog1 C	Tom-Analog L
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Analog2 C	Tom-Analog H	HH-Analog O	RetrosHOT	Perc-Comb	Crash-Analog	Perc-Analog	Noise

Dr19: Micro

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Flappo	BD-Rubber	SD-NoizWhap	Clap-Whip	SD-BeatMetal	SD-Clak	HH-Wood C	Tom-PhonoFlr
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-Wood P	Tom-Blip1	HH-88deci O	Tom-Blip2	Tom-PhonoHi	Crash-Swish	MetalTap	Ride-Swish

Dr20: Construct

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Syn1	BD-Syn2	SD-Syn1	Rim-Lynn	SD-R&B2	SD-Brk3	HH-Lyn C	Claves88
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Noise1	"AT-"sss" "	HH-Dry1 C	"AT-"kkk" "	SynPerc2	SynPerc3	Noise4	HH-99 C

Dr21: IDM

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Radar	BD-IDM	SD-IDM	Clap-IDM	SD-CrossMod	SD-Noise	HH-Noise C	Tom-Formant
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-HPF Squ	Waveshape	Noise Deci	Noise Comb	Random Mod	Cross Comb	Impulse Comb	Pitch Mod

Dr22: Modulus

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-Dist	BD-Release	Metal Hit1	Clap-RingMod	Space Drum	Metal Hit2	HH-RingMod	Tabla-Comb
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Woodblock H	Filter Drum	Woodblock L	HH-Glass	Cowbell-Mod	Conga-Rez	Cabasa	Ride-HPF EG

Dr23: Metalic

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
BD-88 Drive	BD-Jazz+Nois	SD-CrossMod1	Clap-Deci	SD-CrossMod2	SD-CrossMod3	HH-AN Ring C	Tom-PMod Drv
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
HH-AT Harpsi	Perc-Formant	HH-Ring O	Conga-L Deci	Conga-H Deci	SE-Space	SE-DirtyPlop	Perc-VPM

Dr24: Synth Voice

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
"Voice"Yu" "	"Voice"Yo" "	"Voice"Ya" "	"Voice" Ai" "	"Voice"Ye" "	"Voice"Wa" "	"Voice"Chi" "	"Voice"Ah" "
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
"Voice"Ha" "	"Voice"eee" "	"Voice"Shi" "	"Voice"Uh" "	"Voice" Eh" "	"Voice"Ki" "	"Voice" Oh" "	"Voice"Fu" "

Dr25-32: Init DrumKit

Inst 1 (C2)	Inst 2 (C#2)	Inst 3 (D2)	Inst 4 (D#2)	Inst 5 (E2)	Inst 6(F2)	Inst 7 (F#2)	Inst 8 (G2)
Init Inst1	Init Inst2	Init Inst3	Init Inst4	Init Inst5	Init Inst6	Init Inst7	Init Inst8
Inst 9 (G#2)	Inst 10 (A2)	Inst 11 (A#2)	Inst 12 (B2)	Inst 13 (C3)	Inst 14 (C#3)	Inst 15 (D3)	Inst 16 (D#3)
Init Inst9	Init Inst10	Init Inst11	Init Inst12	Init Inst13	Init Inst14	Init Inst15	Init Inst16

PCM

Synth PCM

No.	Name
1	EP-Stage *4
2	EP-Dyno *4
3	EP-Wurly *4
4	Clav1
5	Clav2
6	Organ1
7	Organ2
8	Organ3
9	Organ4
10	Organ5
11	OrganM1
12	OrganFul
13	OrganVox
14	A.Guitar
15	E.Guitar
16	GtrChord
17	A.Bass
18	E.Bass
19	PickBass
20	SlapBass
21	Strings
22	ChoirPad
23	AirPad
24	EP Pad1
25	EP Pad2
26	Spectrm1
27	Spectrm2
28	Spectrm3
29	Spectrm4
30	SynSine1
31	SynSine2
32	SynSine3
33	SynSine4
34	SynSine5
35	SynSine6
36	SynSine7
37	SynEP1
38	SynEP2
39	SynClav
40	SynGtr1
41	SynGtr2
42	SynBell1
43	SynBell2
44	SynBell3
45	SynDigi1
46	SynDigi2
47	SynDigi3
48	SynDigi4
49	SynDigi5
50	SynDigi6
51	SynDigi7
52	SynDigi8
53	SynWire1

No.	Name
54	SynWire2
55	SynWire3
56	SynWire4
57	SynOct1
58	SynOct2
59	SynOct3
60	Saw5th
61	Squ5th
62	SynVox1
63	SynVox2
64	Endless *5

*4: For these three types of electric piano PCM sounds, velocity will switch the PCM waveform that is played.

*5: The 64: Endless waveform simulates the "infinite staircase" sound which produces the same perceived pitch in each different octave. The "infinite staircase" produces the sensation that you never get any higher, no matter how long you continue playing the notes C, D, E, F, G, A, B, C, D, E, ... upward.

Drum PCM

No.	Name
1	BD-99
2	BD-88
3	BD-DDD1
4	BD-Syn1
5	BD-Syn2
6	BD-Syn3
7	BD-Syn4
8	BD-Syn5
9	BD-Dist
10	BD-Zap
11	BD-Dry1
12	BD-Dry2
13	BD-Dry3
14	BD-Jazz
15	BD-R&B
16	BD-Hip
17	BD-DnB
18	SD-99 1
19	SD-99 2
20	SD-88
21	SD-77
22	SD-Lynn
23	SD-Syn1
24	SD-Syn2
25	SD-Syn3
26	SD-Syn4

No.	Name
27	SD-Syn5
28	SD-Brk1
29	SD-Brk2
30	SD-Brk3
31	SD-Brk4
32	SD-Brk5
33	SD-Brk6
34	SD-R&B1
35	SD-R&B2
36	SD-Hip
37	SD-DnB
38	SD-Dry1
39	SD-Dry2
40	SD-Dry3
41	SD-Jazz1
42	SD-Jazz2
43	SD-Gate
44	SD-Ambi
45	SD-Rev
46	Rim-Syn
47	Rim-Lynn
48	Rim-Dry
49	Clap-99
50	Clap-88
51	Clap-Dry
52	Clap-R&B
53	HH-99 C
54	HH-99 O
55	HH-88 C
56	HH-88 O
57	HH-KR55C
58	HH-KR55O
59	HH-Lyn C
60	HH-Lyn O
61	HH-Dry1C
62	HH-Dry1O
63	HH-Dry2C
64	HH-Dry2O
65	Rid-KPR
66	Rid-Dry1
67	Rid-Dry2
68	Crash-99
69	Crash
70	Tom-99
71	Tom-Dry
72	Tom-Jazz
73	Tom-Gate
74	Conga-H
75	Conga-L
76	Conga-Mt
77	Bongo
78	Tabla
79	Djembe
80	Cowbell
81	Claves88
82	Tamborin
83	Triangle

No.	Name
84	Cabasa
85	SynPerc1
86	SynPerc2
87	SynPerc3
88	SynPerc4
89	Noise1
90	Noise2
91	Noise3
92	Noise4
93	Impulse1
94	Impulse2
95	AT-Nois1
96	AT-Nois2
97	AT-Org
98	AT-Hrpsi
99	AT-Marmb
100	AT-Xylph
101	AT-Vib
102	AT-Brth1
103	AT-Brth2
104	AT-Bottl
105	AT-PanFl
106	AT-Kalmb
107	AT-LogDr
108	AT-Perc
109	AT-Tabla
110	AT-FGtr
111	AT-EGtr1
112	AT-EGtr2
113	AT-EGtr3
114	AT-EGtr4
115	AT-ABass
116	AT-Bass1
117	AT-Bass2
118	AT-Bass3
119	AT-Syn1
120	AT-Syn2
121	AT-Syn3
122	"AT-""tnn""
123	"AT-""puh""
124	"AT-""hhh""
125	"AT-""ch""
126	"AT-""kkk""
127	"AT-""sss""
128	"AT-""doo""

Templates

Synth Program

No.	Template Name	Category
1	Init Program	Init Template
2	Init Sine	Init Template
3	Init Noise	Init Template
4	Init Mono	Init Template
5	Init FixedPt	Init Template
6	Init PitchEG	Init Template
7	Init 2OSC	Init Template
8	Init 3OSC	Init Template
9	Init PWM	Init Template
10	Init Ring	Init Template
11	Init Sync	Init Template
12	Init Cross	Init Template
13	Init VPM	Init Template
14	Init Unison	Init Template
15	Init SynPCM	Init Template
16	Init DrumPCM	Init Template
17	Init FcKeyTr	Init Template
18	Init CombKTr	Init Template
19	Init HPF+LPF	Init Template
20	Init Sweep	Init Template
21	Init Comb	Init Template
22	Init Drive	Init Template
23	Init WaveShp	Init Template
24	Init AudioIn ^{*6}	Init Template
25	Sub Bass	Bass
26	House Bass	Bass
27	Saw Bass	Bass
28	Drop Bass	Bass
29	Reso Bass	Bass
30	Square Bass	Bass
31	Boost Bass	Bass
32	Klash Bass	Bass
33	Morph33 Bass	Bass
34	Bite Bass	Bass
35	Drive Bass	Bass
36	Detune Bass	Bass
37	Unison Bass	Bass
38	UniPulseBass	Bass
39	MG Bass	Bass
40	Glide Bass	Bass
41	Octave Bass	Bass
42	VPM Bass	Bass
43	BPF Bass	Bass
44	Reverse Bass	Bass
45	DistSqu Bass	Bass
46	Sync Bass	Bass
47	Ring Bass	Bass
48	Pedal Bass	Bass
49	Organ Bass	Bass
50	Finger Bass	Bass
51	Slap Bass	Bass
52	AcousticBass	Bass
53	Sine Lead	Lead

No.	Template Name	Category
54	Square Lead	Lead
55	Dukey Lead	Lead
56	Fusion Lead	Lead
57	Phunky Lead	Lead
58	SoftSaw Lead	Lead
59	Detuned Lead	Lead
60	UniPulseLead	Lead
61	Wired Lead	Lead
62	HPF Uni Lead	Lead
63	CrossModLead	Lead
64	Trance Lead	Lead
65	Hoover Lead	Lead
66	SawSyncLead	Lead
67	VeloDistLead	Lead
68	5th Lead	Lead
69	PWM Stab	Poly Synth
70	Square Comp	Poly Synth
71	Poly Comp	Poly Synth
72	Arp Pizz	Poly Synth
73	Big Pad	Poly Synth
74	Cyber Synth	Poly Synth
75	Comb Stab	Poly Synth
76	Touchy HPF	Poly Synth
77	Detune Sine	Poly Synth
78	Obie Brass	Poly Synth
79	Synth Brass	Poly Synth
80	PWM Strings	Strings
81	Ana Strings	Strings
82	PCM Strings	Strings
83	Pad Rise	Pad
84	Trance Pad	Pad
85	Sweep Pad	Pad
86	HPF Fall	Pad
87	BPF Sweep	Pad
88	Square Pad	Pad
89	Airy Pad	Pad
90	Air Vox	Pad
91	5thRandomPad	Motion
92	Horizon Harp	Motion
93	Radiation	Motion
94	Comb Motion	Motion
95	SecretMotion	Motion
96	YaiYai Pad	Motion
97	Trance Mover	Motion
98	WaabWaab	Motion
99	Repeater	Motion
100	EP Stage	Keyboard
101	EP Cho Dyno	Keyboard
102	EP Wurly	Keyboard
103	WS Vel Piano	Keyboard
104	VPM Piano	Keyboard
105	Clav	Keyboard
106	Synth Clav	Keyboard
107	Rotary Organ	Keyboard
108	Perc Organ	Keyboard
109	A.Guitar	Guitar/Pluck
110	E.Guitar	Guitar/Pluck

No.	Template Name	Category
111	Comb Pluck	Guitar/Pluck
112	Syn Pizzo	Bell/Decay
113	Stereo Arp	Bell/Decay
114	ResonanceArp	Bell/Decay
115	Perc Square	Bell/Decay
116	Sonar	Bell/Decay
117	VPM Bell	Bell/Decay
118	Chord Hit	Hit/Drum
119	Synth BD	Hit/Drum
120	Synth Noise	Hit/Drum
121	Synth HH	Hit/Drum
122	Synth Perc	Hit/Drum
123	Electric Tom	Hit/Drum
124	Windstorm	S.E.
125	Explosion	S.E.
126	Metal Whip	S.E.
127	CrossModFall	S.E.
128	FeedbackBeep	S.E.

*6: The 024: Init AudioIn program uses the audio input functionality. In order to make this program produce sound, you must connect a mic or external audio device to the **RADIUS**. (see p.18 "5. Connecting the audio inputs – INPUT jacks")

Insert Effect

No.	Effect Name	Effect Type
1	Concert Hall	Reverb
2	Large Hall	Reverb
3	Warm Hall	Reverb
4	Smooth Hall	Reverb
5	Light Reverb	Reverb
6	BrightReverb	Reverb
7	Space Reverb	Reverb
8	Wet Plate	Reverb
9	Dry Plate	Reverb
10	Bright Room	Reverb
11	Dead Room	Reverb
12	ShortAmbient	Reverb
13	SpringReverb	Reverb
14	Entrance	Reverb
15	Arena	Reverb
16	Club	Reverb
17	ReversReverb	Early Reflections
18	Gate Reverb	Early Reflections
19	EarlyReflect	Early Reflections
20	Ghost Reverb	Early Reflections
21	Stereo Delay	St.Delay
22	Cross Delay	St.Delay
23	Short Delay	St.Delay
24	PingPong Dly	L/C/R Delay
25	Long Delay	L/C/R Delay
26	MultiTapDly1	L/C/R Delay
27	MultiTapDly2	L/C/R Delay
28	SlowPanDelay	Auto Panning Delay
29	RandomPanDly	Auto Panning Delay
30	St.Pan Delay	St.Auto Panning Delay
31	Mod Delay	Modulation Delay
32	DeepModDelay	Modulation Delay
33	St.Mod Delay	St.Modulation Delay
34	Chorus Delay	St.Modulation Delay
35	AmbientDelay	Tape Echo
36	Tape Echo	Tape Echo
37	Analog Echo	Tape Echo
38	RisingChoDly	Tape Echo
39	Grain Delay1	Grain Shifter
40	Grain Delay2	Grain Shifter
41	Grain Loop	Grain Shifter
42	GrainShifter	Grain Shifter
43	StereoChorus	St.Chorus
44	Light Chorus	St.Chorus
45	Deep Chorus	St.Chorus
46	Harmonic Cho	St.Flanger/CombFilter
47	BrightChorus	St.Chorus
48	Dub Chorus	St.Chorus
49	Light Ensmbl	Ensemble
50	DeepEnsemble	Ensemble
51	St.Flanger	St.Flanger/CombFilter
52	LightFlanger	St.Flanger/CombFilter
53	Deep Flanger	St.Flanger/CombFilter
54	RandomFlangr	St.Flanger/CombFilter
55	StereoPhaser	St.Phaser

No.	Effect Name	Effect Type
56	Light Phaser	St.Phaser
57	Deep Phaser	St.Phaser
58	3D Phase Pan	St.Phaser
59	Fast Phaser	St.Phaser
60	St.Tremolo	St.Tremolo
61	WurlyTremolo	St.Tremolo
62	Auto Pan	St.Tremolo
63	Old EP Pan	St.Tremolo
64	St.Vibrato	St.Vibrato
65	Vibrato Cho	St.Vibrato
66	Rotary-CC#01	Rotary Speaker [W]
67	Rotary-Pedal	Rotary Speaker [W]
68	Ring Mod	St.Ring Modulator
69	SweepRingMod	St.Ring Modulator
70	Note RingMod	St.Ring Modulator
71	Deci 12kHz	St.Decimator
72	Deci 8bit	St.Decimator
73	HardDecimatr	St.Decimator
74	LFO Talk	Talking Modulator [W]
75	Auto Talk	Talking Modulator [W]
76	Talk-CC#01	Talking Modulator [W]
77	Talk-PBend	Talking Modulator [W]
78	LPF Sweep	St.Filter
79	BPF Sweep	St.Filter
80	HPF-CC#01	St.Filter
81	RandomFilter	St.Filter
82	BPM LFO Wah	St.Wah
83	AutoWah Vox	St.Wah
84	Wah-Velocity	St.Wah
85	Wah-Pedal	St.Wah
86	Octaver+1	Pitch Shifter
87	Octaver-1	Pitch Shifter
88	Octaver-1Mix	Pitch Shifter
89	5thPitch Mix	Pitch Shifter
90	Over Drive	Distortion
91	Fat Drive	Distortion
92	Snare Drive	Distortion
93	Bass Drive	Distortion
94	Distortion	Distortion
95	70's Drive	Distortion
96	Fuzz Dist	Distortion
97	Old Radio	Distortion
98	Telephone	Talking Modulator [W]
99	BlackCabinet	Cabinet Simulator
100	TweedCabinet	Cabinet Simulator
101	Vox Cabinet	Cabinet Simulator
102	TubeSaturate	Tube PreAmp Simulator
103	SoftSaturate	Tube PreAmp Simulator
104	HardSaturate	Tube PreAmp Simulator
105	Stereo Comp	St.Compressor
106	Master Comp	St.Compressor
107	Kick Comp	St.Compressor
108	Bass Comp	St.Compressor
109	Hard Comp	St.Compressor
110	Soft Limiter	St.Limiter
111	Hard Limiter	St.Limiter
112	Boost +6dB	St.Limiter

No.	Effect Name	Effect Type
113	Boost +12dB	St.Limiter
114	Noise Gate	St.Gate
115	Hard Gate	St.Gate
116	Smooth Gate	St.Gate
117	Comb Exciter	St.Flanger/CombFilter
118	Enhancer	St.Flanger/CombFilter
119	Flat EQ	St.2 Band EQ
120	Bright EQ	St.2 Band EQ
121	Bass EQ	St.2 Band EQ
122	Total EQ	St.2 Band EQ
123	Low Boost	St.2 Band EQ
124	Sub Woofer	Tube PreAmp Simulator
125	Low Cut	St.2 Band EQ
126	50Hz Hum Cut	St.2 Band EQ
127	60Hz Hum Cut	St.2 Band EQ
128	No Effect	No Effect

Master Effect

No.	Effect Name	Effect Type
1	Concert Hall	Reverb
2	Large Hall	Reverb
3	Warm Hall	Reverb
4	Smooth Hall	Reverb
5	Light Reverb	Reverb
6	BrightReverb	Reverb
7	Space Reverb	Reverb
8	Wet Plate	Reverb
9	Dry Plate	Reverb
10	Bright Room	Reverb
11	Dead Room	Reverb
12	ShortAmbient	Reverb
13	SpringReverb	Reverb
14	Entrance	Reverb
15	Arena	Reverb
16	Club	Reverb
17	ReversReverb	Early Reflections
18	Gate Reverb	Early Reflections
19	EarlyReflect	Early Reflections
20	Ghost Reverb	Early Reflections
21	Stereo Delay	St.Delay
22	Cross Delay	St.Delay
23	Short Delay	St.Delay
24	PingPong Dly	L/C/R Delay
25	Long Delay	L/C/R Delay
26	MultiTapDly1	L/C/R Delay
27	MultiTapDly2	L/C/R Delay
28	SlowPanDelay	Auto Panning Delay
29	RandomPanDly	Auto Panning Delay
30	St.Pan Delay	St.Auto Panning Delay
31	Mod Delay	Modulation Delay
32	DeepModDelay	Modulation Delay
33	St.Mod Delay	St.Modulation Delay
34	Chorus Delay	St.Modulation Delay
35	AmbientDelay	Tape Echo
36	Tape Echo	Tape Echo
37	Analog Echo	Tape Echo
38	RisingChoDly	Tape Echo
39	Grain Delay1	St.Grain Shifter
40	Grain Delay2	St.Grain Shifter
41	Grain Loop	St.Grain Shifter
42	GrainShifter	St.Grain Shifter
43	StereoChorus	St.Chorus
44	Light Chorus	St.Chorus
45	Deep Chorus	St.Chorus
46	Harmonic Cho	St.Flanger/CombFilter
47	BrightChorus	St.Chorus
48	Dub Chorus	St.Chorus
49	Light Ensmbl	Ensemble
50	DeepEnsemble	Ensemble
51	St.Flanger	St.Flanger/CombFilter
52	LightFlanger	St.Flanger/CombFilter
53	Deep Flanger	St.Flanger/CombFilter
54	RandomFlangr	St.Flanger/CombFilter
55	StereoPhaser	St.Phaser

No.	Effect Name	Effect Type
56	Light Phaser	St.Phaser
57	Deep Phaser	St.Phaser
58	3D Phase Pan	St.Phaser
59	Fast Phaser	St.Phaser
60	St.Tremolo	St.Tremolo
61	WurlyTremolo	St.Tremolo
62	Auto Pan	St.Tremolo
63	Old EP Pan	St.Tremolo
64	St.Vibrato	St.Vibrato
65	Vibrato Cho	St.Vibrato
66	Rotary-CC#01	Rotary Speaker [W]
67	Rotary-Pedal	Rotary Speaker [W]
68	Ring Mod	St.Ring Modulator
69	SweepRingMod	St.Ring Modulator
70	Note RingMod	St.Ring Modulator
71	Deci 12kHz	St.Decimator
72	Deci 8bit	St.Decimator
73	HardDecimatr	St.Decimator
74	LFO Talk	Talking Modulator [W]
75	Auto Talk	Talking Modulator [W]
76	Talk-CC#01	Talking Modulator [W]
77	Talk-P.Bend	Talking Modulator [W]
78	LPF Sweep	St.Filter
79	BPF Sweep	St.Filter
80	HPF-CC#01	St.Filter
81	RandomFilter	St.Filter
82	BPM LFO Wah	St.Wah
83	AutoWah Vox	St.Wah
84	Wah-Velocity	St.Wah
85	Wah-Pedal	St.Wah
86	Octaver+1	St.Pitch Shifter
87	FeedbackOct+	St.Pitch Shifter
88	Octaver-1Mix	St.Pitch Shifter
89	5thPitch Mix	St.Pitch Shifter
90	Over Drive	Distortion
91	Fat Drive	Distortion
92	Snare Drive	Distortion
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No.	Effect Name	Effect Type
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114	Noise Gate	St.Gate
115	Hard Gate	St.Gate
116	Smooth Gate	St.Gate
117	Comb Exciter	St.Flanger/CombFilter
118	Enhancer	St.Flanger/CombFilter
119	Flat EQ	St.4 Band EQ
120	Bright EQ	St.4 Band EQ
121	Bass EQ	St.4 Band EQ
122	Total EQ	St.4 Band EQ
123	Low Boost	St.4 Band EQ
124	Sub Woofer	St.Tube PreAmp Simulator
125	Low Cut	St.4 Band EQ
126	50Hz Hum Cut	St.4 Band EQ
127	60Hz Hum Cut	St.4 Band EQ
128	No Effect	No Effect

Specifications and options

Operating sampling frequency		48 kHz
Modes		Program, Drum, Global
Tone generator section	Tone generation system	MMT (Multiple Modeling Technology)
	Polyphony	maximum 24 voices *1
	Structure	<ul style="list-style-type: none"> • Synth 2 oscillators + noise generator, 2 filters (with routing), 1 driver or wave shaper (11 types), 3 EGs, 2 LFOs, 6 virtual patches, 3 modulation sequences, oscillator 1 (9 basic waveforms, 4 types of modulation), oscillator 2 (4 basic waveforms, 2 types of modulation), PCM (available only for oscillator 1; 64 synth PCM sounds, 128 drum PCM sounds), filter 1 (variable multi-mode filter, -24 dB LPF - -12 dB LPF - HPF - BPF - Thru), filter 2 (switchable multi-mode filter, LPF/HPF/BPF/Comb) • Vocoder 16-band vocoder, variable level/pan for each channel, formant motion function (16 formant motion data sets can be recorded to global data), formant shift function, formant hold function • Envelope follower A detected envelope can be used as a virtual patch source or effect control source, or to generate note-on/off (maximum 8-note polyphony)
Effects	Number of effects	30 types
	Structure	(EQ + 2 insert effects) × 4 (one set for each timbre) + 1 master effect
Arpeggiator	Arpeggio type	6 types (Up/Down/Alt1/Alt2/Random/Trigger)
	Structure	Switchable on/off for each of 32 steps (number of steps is variable)
Step sequencer	Recordable simultaneously	Eight notes *2
	Structure	Two 32-step sequencers (the two can be linked for playback), three playback modes (OneShot/Loop/Step), step entry via keyboard or panel buttons
Programs	Number of programs	16 × 16 banks = 256 (including program/user area)
	Structure	Each program = 4 timbres + 1 vocoder + 1 Master Fx + arpeggiator + 2 step sequencers. Each timbre = 1 synth program or 1 drum kit + EQ + 2 Insert FX.
Drums	Number of programs	32 kits
	Structure	One timbre = 1 drum kit. One drum kit = 16 synth programs *3
Keyboard		49 Keys (no aftertouch)
Controllers		modulation wheel, pitch bend wheel
Input/output jacks	Audio input	Audioln1 = phone jack, Audioln2 (Mic/LineSw) = phone jack and mini jack (for headset mic)
	Audio output	MAIN OUTPUT (Lch/MONO) = phone jack
		MAIN OUTPUT (Rch) = phone jack
		INDIV. OUTPUT (Lch) = phone jack
		INDIV. OUTPUT (Rch) = phone jack
		PHONES OUT = stereo phone jack
Control inputs		Assignable Pedal jack, Assignable Sw jack, To keyboard (TO KYBD) jack
MIDI		IN, OUT, THRU connector, USB B connector
Display		128 × 64 pixel full-graphic LCD module with backlight
Power supply		AC 9V
Dimensions (W × D × H)	RADIUS-R + RD-KB	Panel upright: 885 mm × 383 mm × 223 mm (34.84" × 15.08" × 8.80") Panel folded: 885 mm × 383 mm × 99 mm (34.84" × 15.08" × 3.90")
	RADIUS-R	482 mm × 185 mm × 76 mm (18.98" × 7.28" × 2.99")
Weight	RADIUS-R + RD-KB	8.7 kg (19.18 lbs)
	RADIUS-R	2.7 kg (5.95 lbs)
Included items		Headset mic (condenser mic), AC/AC power supply, 4 washers, 4 bushings, 4 screws (RADIUS-R only), CD-ROM (PC editor software, etc.)
Options (separately sold)		Expression pedal, Exp/Vol pedal, pedal switch, damper pedal

*1: Varies depending on the parameters that make up the sound.

*2: Total number of notes per step that can be recorded in the step sequencer.

*3: A drum kit can be assigned to one of the four timbres in a program.

* Appearance and specifications of this product are subject to change without notice. (Sep./05)

RADIAS MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1 – 16	1 – 16	Memorized
	Changed	1 – 16	1 – 16	
Mode	Memorized	×	3	
	Messages	×	×	
	Altered	*****	×	
Note Number:	True Voice	*5 – 108/ 21 – 108	0 – 127	* RADIAS (with keyboard)/RADIAS (no keyboard)
		*****	0 – 127	
Velocity	Note On	○ 1 – 127	○ 1 – 127	
	Note Off	○ 64	×	
Aftertouch	Polyphonic (Key)	×	×	
	Monophonic (Channel)	○	○	
Pitch Bend		* ○ / ×	○	* RADIAS (with keyboard)/RADIAS (no keyboard) *B
Control Change	0, 32	○	○	Bank Select (MSB, LSB) *P
	1	* ○ / ×	○	Modulation wheel *C
	2	○	○	Breath Controller *1, *C
	4	○	○	Foot controller *1, *C
	6	○	○	Data Entry (MSB) *C
	7	○	○	Volume *1, *C
	10	○	○	Panpot *1, *C
	11	○	○	Expression *1, *C
	64	○	○	Damper *1, *C
	65	○	○	Portamento *1, *C
	82	○	○	Foot Switch *1, *C
	98, 99	○	○	RRPN (LSB, MSB) *C
	0 – 95, 102 – 119	○	○	Panel controls *2, *C
Program Change	Variable Range	○ 0 – 127	○ 0 – 127	*P
		*****	0 – 127	
System Exclusive		○	○	*3, *E
System Common	Song Position	×	×	
	Song Select	×	×	
	Tune	×	×	
System Real Time	Clock	○	○	*4
	Command	×	○	
Aux Messages	Local On/Off	×	×	
	All Notes Off	×	○ 123 – 127	
	Active Sense	○	○	
	Reset	×	×	
Remarks *P, *C, *B, *E, *K: Transmitted and received if the respective Global or timbre MIDI Filter (Prog.Chg, CtrlChg, P.Bend, SystemEx, BankChg) setting is ENA. *1: Transmitted according to the Global mode P08: PEDAL&SW "A.PEDAL" and "A. SwFunc" settings. *2: Transmitted and received on the number specified by Global mode P07: MIDI MAP [CC#]. *3: In addition to Korg exclusive messages, also supports inquiry messages, master volume, and master fine tune. *4: Transmitted and not received if Global mode P04: MIDI "Clock" set to Int. Received and not transmitted if set to Ext-MIDI/Ext-USB/Auto.				

Mode 1: OMNI ON, POLY

Mode 2: OMNI ON, MONO

○ : Yes

Mode 3: OMNI OFF, POLY

Mode 4: OMNI OFF, MONO

× : No

For more information on MIDI IMPLEMENTATION, refer to "RADIAS_MIDI_Imple_EFGJ1.pdf" on the included CD-ROM.

IMPORTANT NOTICE TO CONSUMERS

This product has been manufactured according to strict specifications and voltage requirements that are applicable in the country in which it is intended that this product should be used. If you have purchased this product via the internet, through mail order, and/or via a telephone sale, you must verify that this product is intended to be used in the country in which you reside.

WARNING: Use of this product in any country other than that for which it is intended could be dangerous and could invalidate the manufacturer's or distributor's warranty.

Please also retain your receipt as proof of purchase otherwise your product may be disqualified from the manufacturer's or distributor's warranty.

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