

# 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)

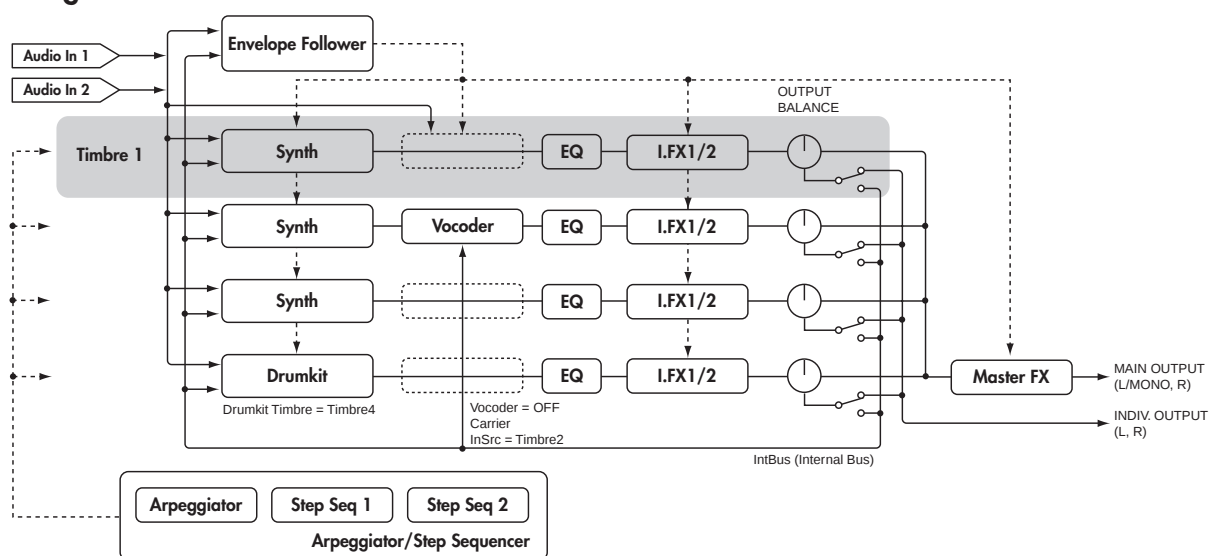
To enter the Global mode, press the [GLOBAL] button. In this mode you can set the parameters that affect the entire **RADIAS**, such as tuning and user scales, selecting the functions for the assignable pedal and assignable switch, transmitting MIDI exclusive data dumps, and other MIDI-related settings.

## How a program is structured

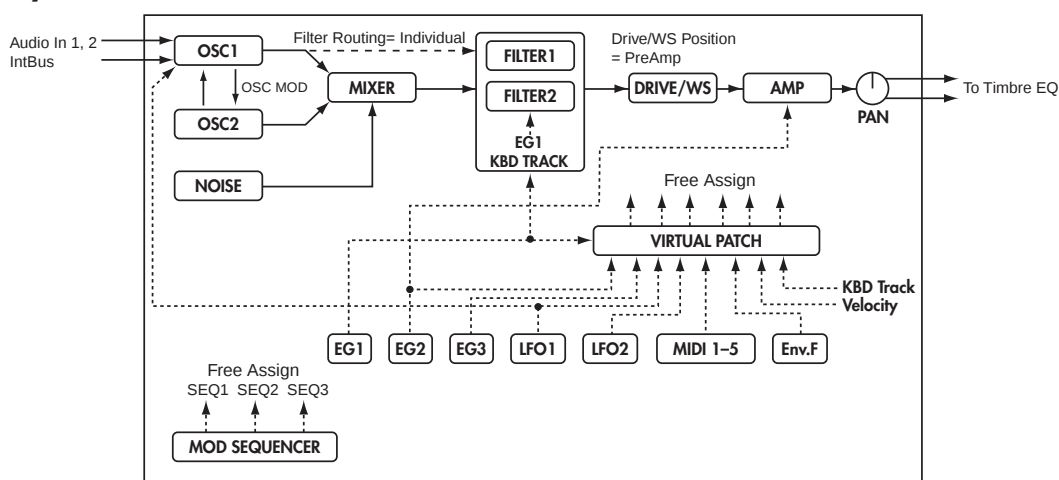
Each of the **RADIUS'** programs consists of four timbres, an arpeggiator, two step sequencers, a vocoder, a master effect, and a envelope follower. A drum kit can also be assigned to one of the timbres.

## 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 **RADIAS** 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.

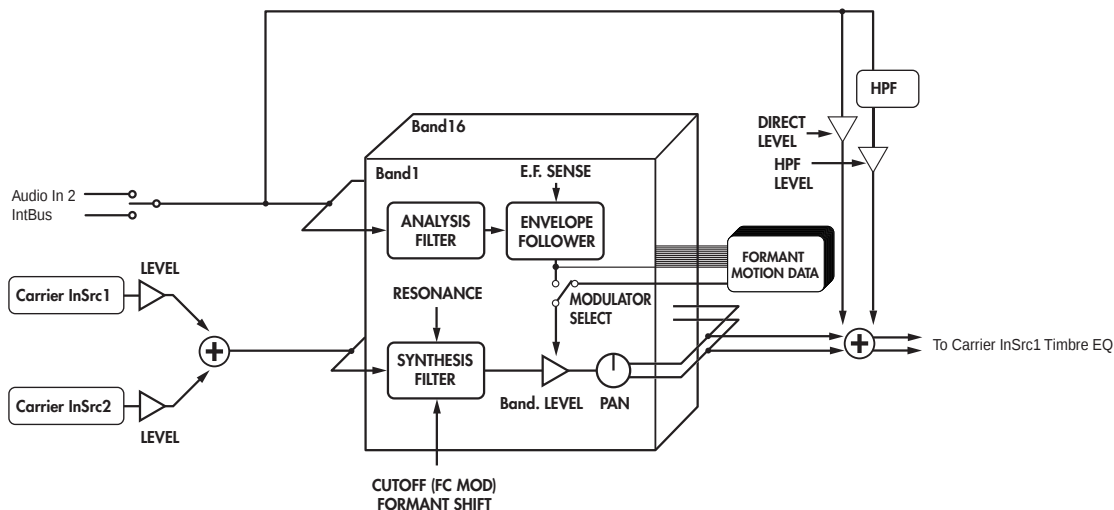
## Vocoder (VOCODER)

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.

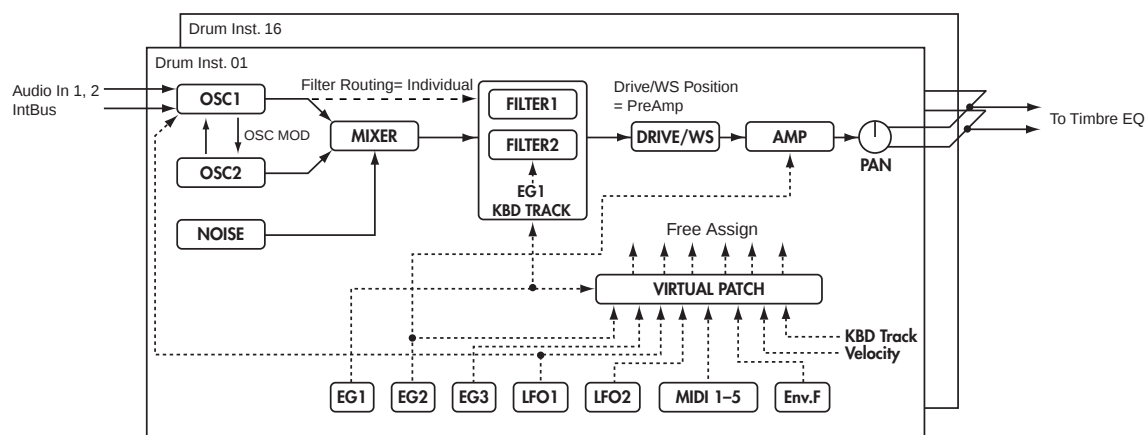
### Modulator (MODULATOR)

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 **RADIAS** contains thirty-two drum kits.

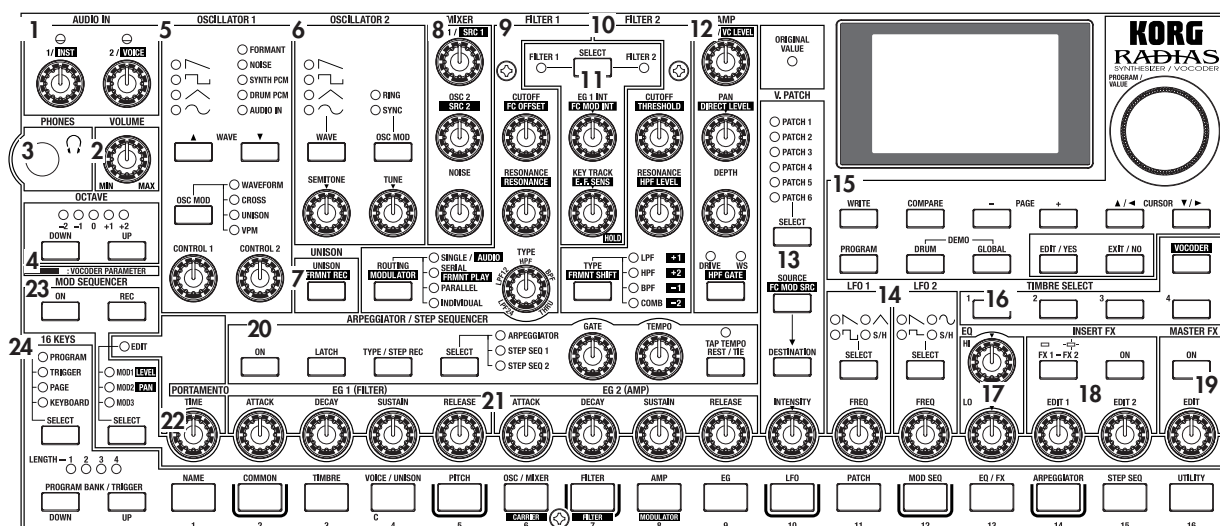
Each drum instrument consists of OSCILLATOR, MIXER, FILTER, AMP, EQ, LFO, and VIRTUAL PATCH settings, just as with a timbre. (p.6 "Timbre")

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.



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.



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.



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).

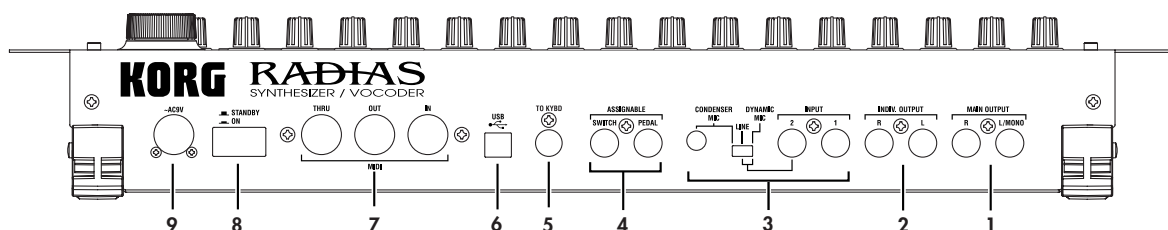
If the [SELECT] button is set to TRIGGER, these buttons will select which step of the arpeggiator or step sequencer will be edited.

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.



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.

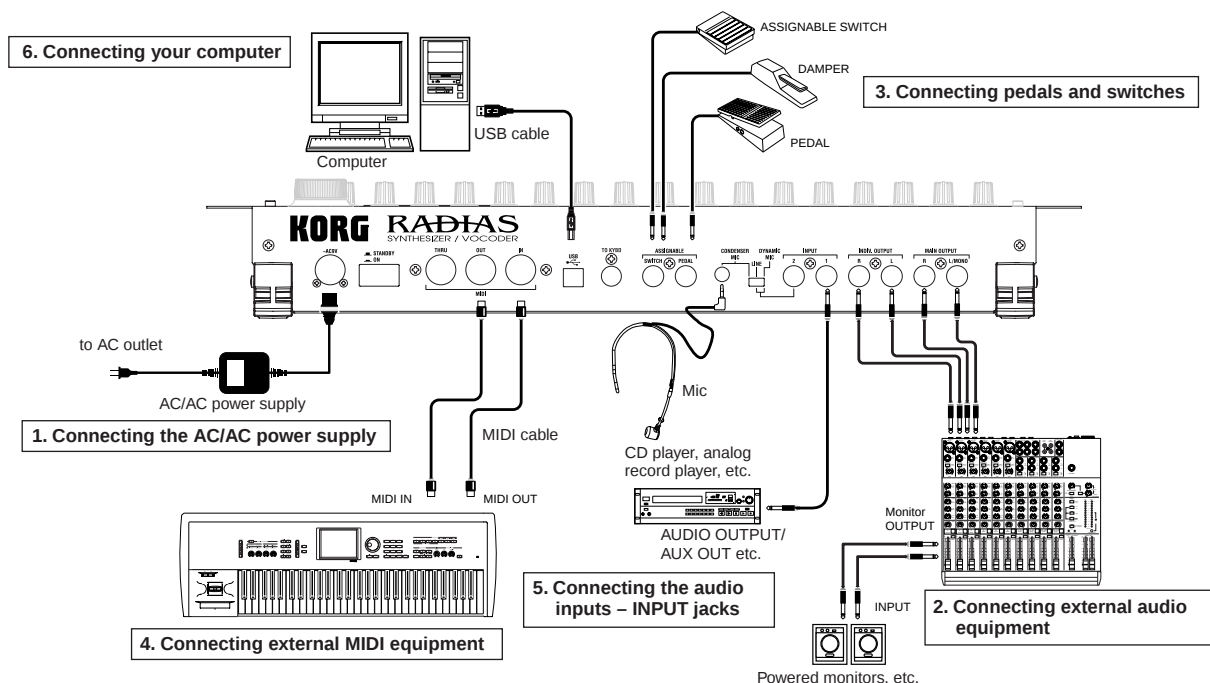
## 9. AC9V

### 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 **RADIAS** and/or other equipment. Please use caution.



## 1. Connecting the AC/AC power supply

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

## 2. Connecting external audio equipment

Connect the **OUTPUT** jacks of the **RADIAS** (**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 **RADIAS**' 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 **RADIAS** 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 **RADIAS** can be used as a multitimbral MIDI sound module, or as a controller for other MIDI equipment.

### Using the RADIAS as a sound module

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

### Using the RADIAS as a master keyboard

If you want to play an external MIDI device from the **RADIAS**' keyboard, use a MIDI cable to connect the **RADIAS**' 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 **RADIAS** as a sound module or as a master keyboard, you'll need to set the **RADIAS**' global MIDI channel to match the MIDI channel of the external MIDI device that you've connected. To set the **RADIAS**' 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 **RADIAS** 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 **RADIAS**' 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 **RADIAS** program consists of up to four timbres, and you can specify the MIDI channel individually for each timbre. If you're playing the **RADIAS** 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")

 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

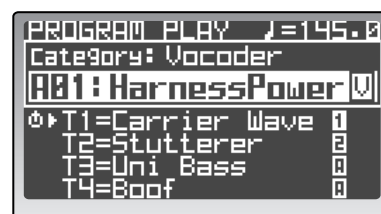
⚡ Be sure all the other equipment connected to the **RADIAS** is off before turning the **RADIAS** on.

- 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.

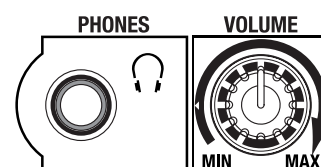
- 2 Turn on the other equipment that's connected to the **RADIAS**.

⚡ 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 **RADIAS** 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 **RADIAS** defaults to the Program Play mode each time the power is turned on.

#### 1 Press the [PROGRAM] button.

When the **RADIAS** 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 “1” symbol (step sequencer 1) or “2” 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.

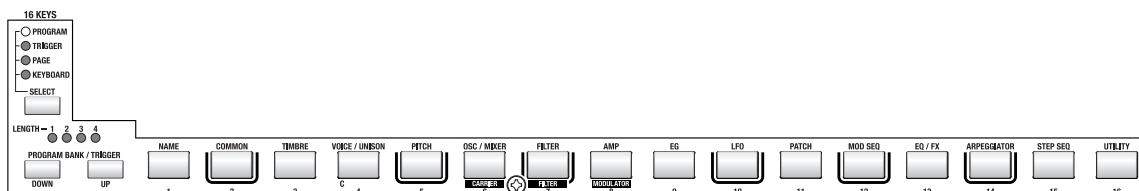
### Selecting and playing a program

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 **RADIAS**.

#### 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.

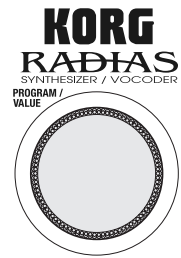
#### 3 Use the 16KEYS [1]–[16] to select a program number.

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

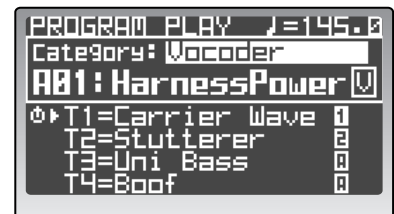
Each program can be assigned to a category. You can select programs by from within a category. This is convenient when you want to find a program with the same type of sound.

- 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.

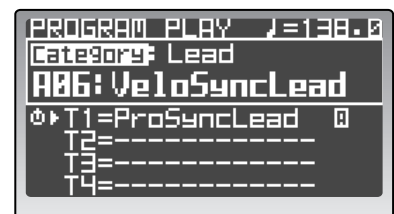
- |                 |                   |
|-----------------|-------------------|
| 1: Bass         | 9: Bell/Decay     |
| 2: Lead         | 10: Acoustic      |
| 3: Synth Hard   | 11: S.E./Hit/Drum |
| 4: Synth Soft   | 12: Arp/Seq       |
| 5: Motion       | 13: Split         |
| 6: Strings/Pad  | 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."

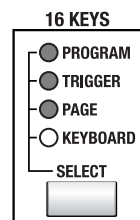


## Playing the RADIAS from the 16KEYS [1]–[16] keys

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

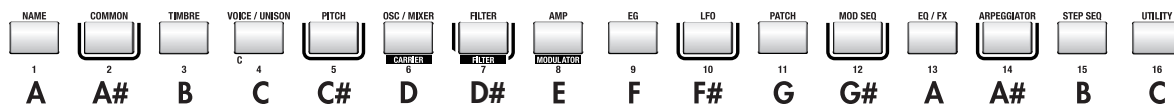
- 1 If the dedicated keyboard is connected, you can't use the 16KEYS [1]–[16] keys to play the sounds.

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



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

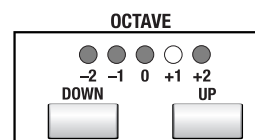
The current program will play. The 16KEYS [1]–[16] keys are assigned to the following pitches.



### 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).

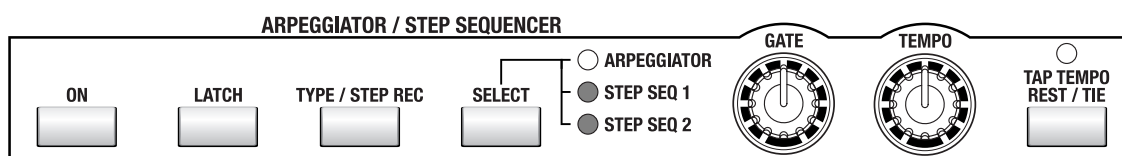


Hold down a chord on the keyboard, and it will sound as shown at right (Arpeggio type: Up)

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.



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."

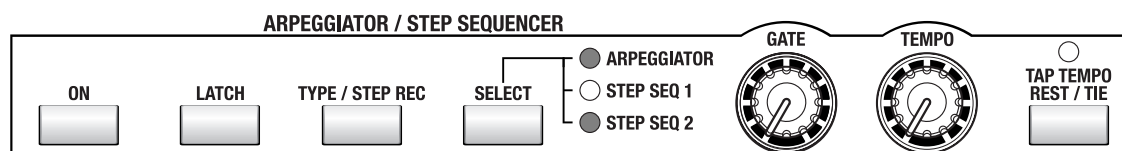
# Step Sequencer

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 **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 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.

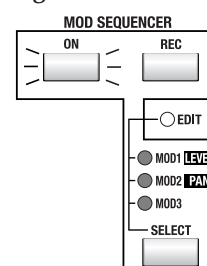
## Playing a program that uses the modulation sequencer

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.

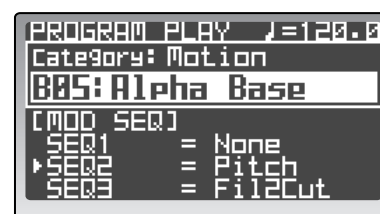
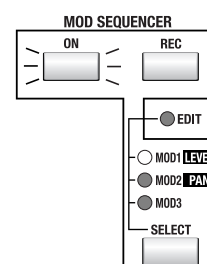
The speed of the changes produced by the modulation sequencer can be adjusted in the same way as the arpeggiator or step sequencers.

ⓘ 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 **RADIAS'** 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 **RADIAS'** AUDIO IN [1/INST] and [2/VOICE] knobs to the 0 position.

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

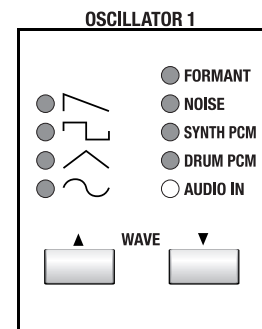
**6 Play the keyboard.**

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"

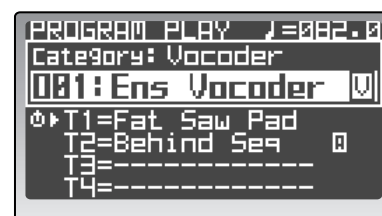
- 3 **Turn on the power of the RADIAS.**

- 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

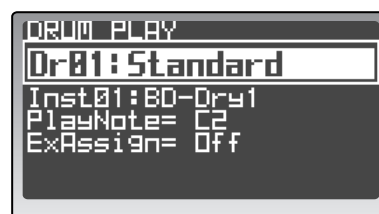
The **RADIAS** provides thirty-two drum kits, each consisting of sixteen drum instruments. You can assign these instruments to note numbers and play them from the keyboard, and one timbre in each program can be assigned a drum kit.

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.



- 2 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

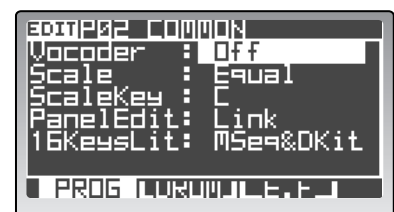
If you want to edit a parameter that is not assigned to a knob or button, or if you want to view the parameter values in the display while you edit them, you’ll need to enter the Program Edit mode.

### 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.

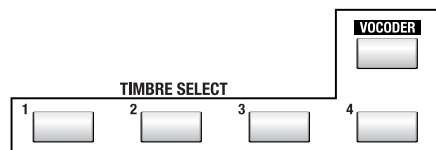


## Selecting the timbre to edit

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 “PanelEdit” (panel edit) setting, the timbre you select here may not necessarily match the front panel knobs and buttons (see p.75 “PanelEdit”).

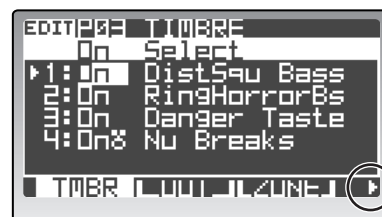
## Selecting pages and tab pages

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  |      |

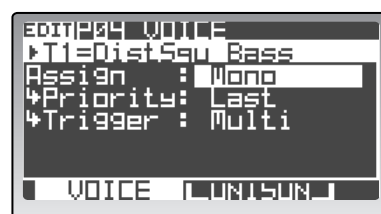
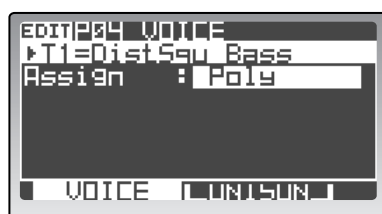
## Selecting and editing a parameter

- 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.



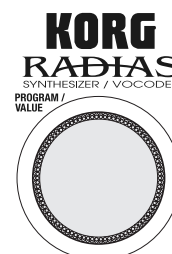
## Changing a value

- 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 (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.

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

- 3 Use the [PROGRAM/VALUE] dial to select a timbre.

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 **RADIAS** 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.

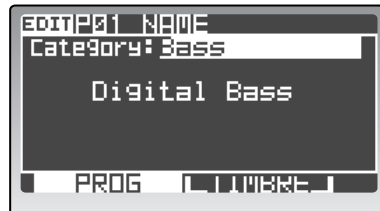
### Inserting a character

- 1 Use the cursor buttons to move to the location at which you want to insert 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

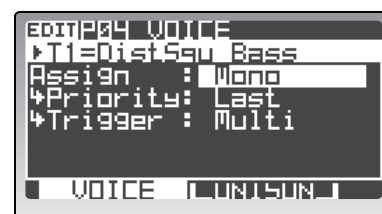
This section explains how to edit the synthesis parameters that make up an individual timbre. The following section assumes that you have started by pressing the front panel TIMBRE SELECT [1] button to select timbre 1 as the object of editing, and that you are in the Program Edit mode.

-  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.

-  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

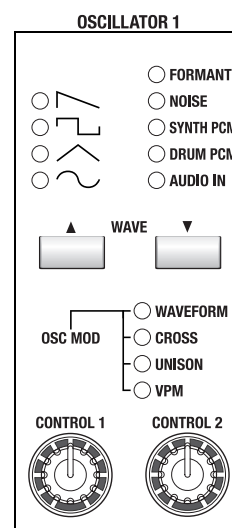
Here's how to set the oscillator parameters that are the basis of the timbre.

### 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.

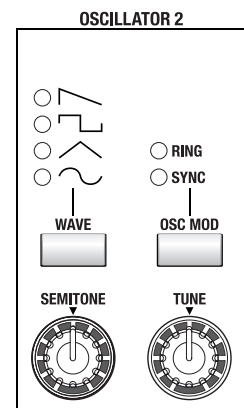
The type will switch each time you press the button, and the LED for the selected modulation type will light. You can choose one of three modulation types.

- 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.

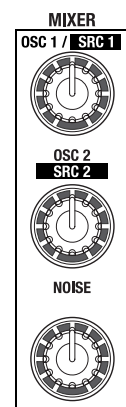
- 4 Use the **[TUNE]** knob to adjust the pitch of oscillator 2.

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

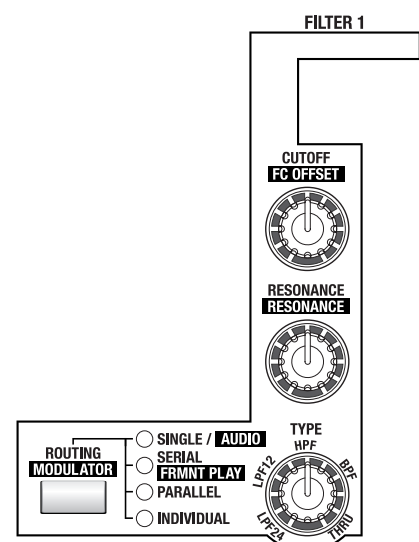
- 1 Use the **[ROUTING]** button to select the filter routing.

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.

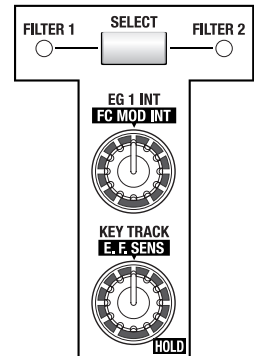
### Filter 1 settings

- 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.

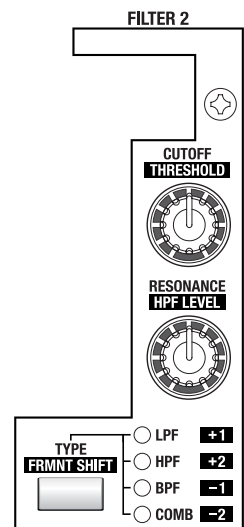


- 2 Use the **FILTER 1 [CUTOFF]** knob to adjust the cutoff frequency of filter 1.  
Turning the knob toward the right (increasing the value) will make the sound brighter.
- 3 Use the **FILTER 1 [RESONANCE]** knob to adjust the resonance of filter 1.  
Turning the knob toward the right (increasing the 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).

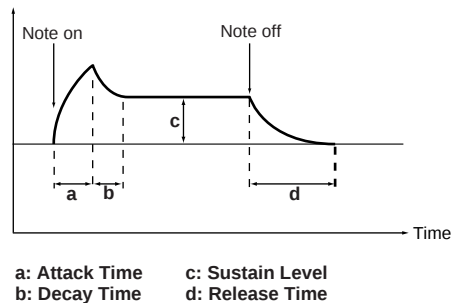


## Creating time-varying change in the tone (EG1)

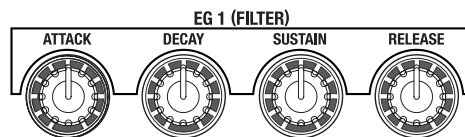
EG1 applies time-varying change to the cutoff frequency (the “Cutoff” of FILTER 1 or FILTER 2).

**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

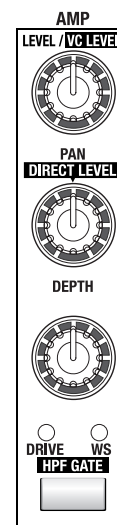


- 1 Use the EG 1 [ATTACK] knob to adjust the attack time (the time over which the tone changes during the beginning of the note).  
Turn the knob toward the right to make the tone change more slowly, or turn it toward the left to make the tone change more quickly.
- 2 If turning this knob does not produce 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.

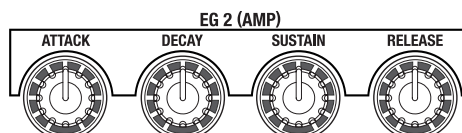


## Creating time-varying change in the volume (EG 2)

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



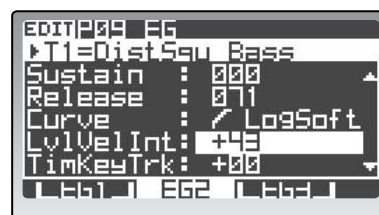
- 1 Use the EG 2 [ATTACK] knob to adjust the time required to arrive at full volume after the key is pressed.  
Turn the knob toward the right (increase the value) to make the volume change more slowly, or turn it toward the left (decrease the value) to make the volume change more quickly.
- 2 Use the 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.



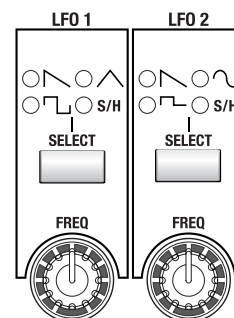
## LFO settings

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”)

**note** 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)

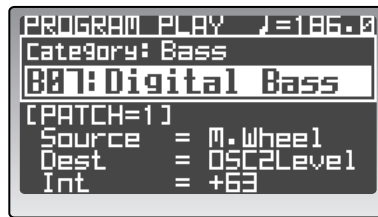
Virtual Patch lets you assign fifteen different modulation sources to modulate various sound parameters.

- 🔊 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.

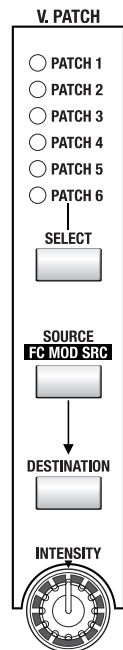
Each press of the button will step through the available destination parameters.

#### 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 discrete 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

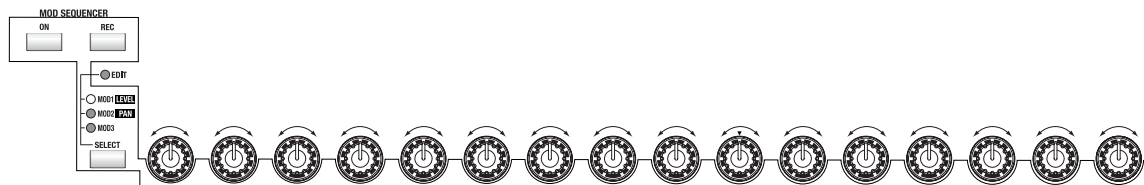
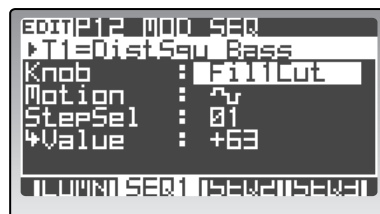
Before you create the sequence data, use the SEQ COMMON parameters to specify the number of steps in the sequence, and how the data will play back.

- 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.  
(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

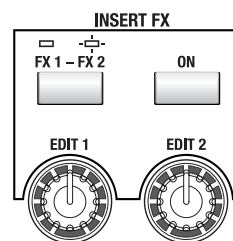
The RADIUS provides a two-band equalizer and two insert effects for each timbre, and one master effect for each program. Here's how to edit the insert effect and master effect settings.

-  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. (See 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.**

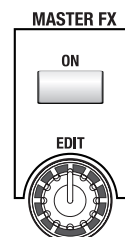


Use the [EDIT1] and [EDIT2] knobs to adjust the selected parameters. The available parameters will depend on the effect type.

- 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.  
See 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.
- 3 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.

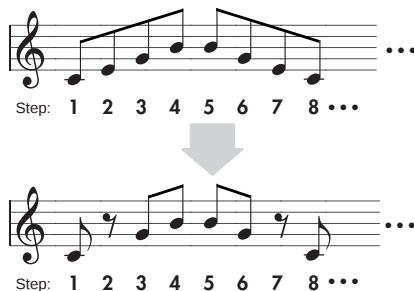


- 10** Use “ScanBottom” and “ScanTop” to specify a “key window” - the region of notes on the keyboard that will trigger the arpeggiator.

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.



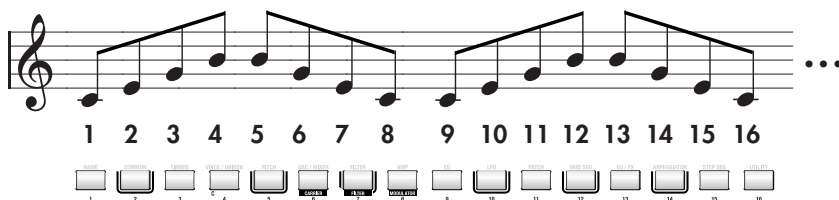
## Using the 16 keys to edit the note status

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

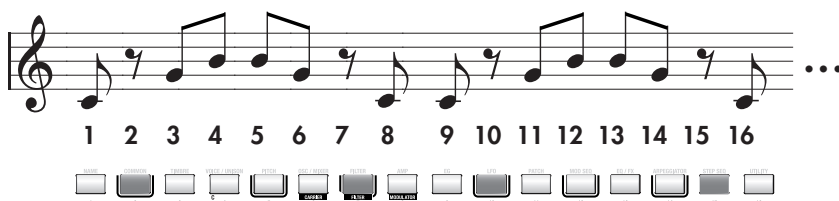
- 2** Use the [1]–[16] keys to turn each step on or off.

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.

Notes are on for all 16 steps  : Note on (key lit)  : Note off (key dark)



Notes are off for steps 2, 7, 10, and 15



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 **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 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 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. (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 **RADIAS** 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.



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.



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”)

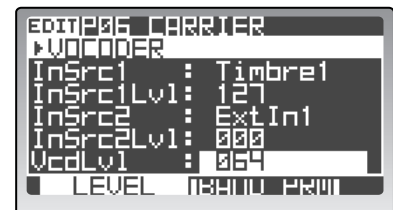
In the explanation that follows, we will be explaining only the parameters that are unique to vocoder programs. For parameters that are also found in synth programs, refer to p.37 “Synth parameter editing.”

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.
-  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 “InSrc1Lv1” 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 “VcdLv1” 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

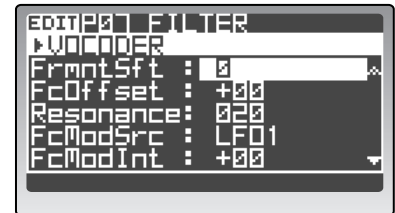
- 1 **Go to the Vocoder Edit mode P08: MODULATOR page.**
- 2 **Use the FILTER 1 [MODULATOR] button to select AUDIO.**
- 3 **Use “AudioSrc” to select the input source.**  
For this example select ExtIn2.



- 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.

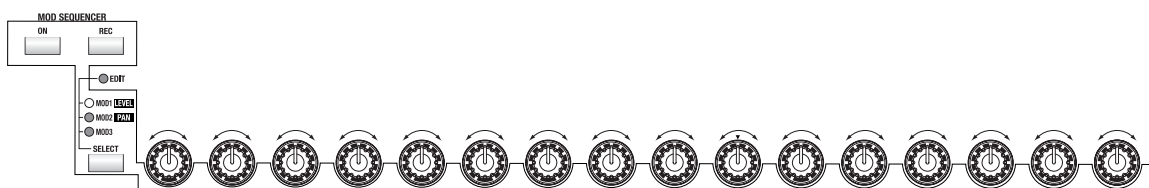
### Filter settings

- 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  $\pm 2$  steps. In conjunction with the [FRMNT SHIFT] button, you can shift the cutoff frequency over a range of  $\pm 4$  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" (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 (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

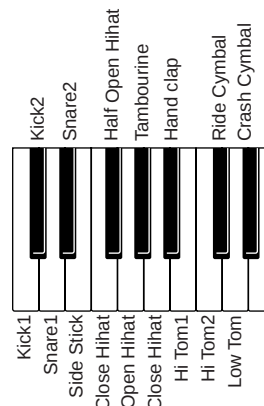
## What is a drum kit?

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 **RADIAS** 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

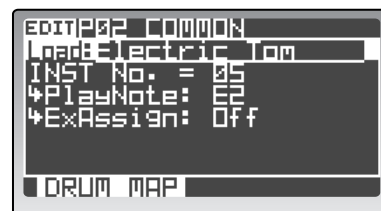
If the currently selected drum instrument is similar to the drum sound you want to create, you can simply edit that drum instrument. The parameters that make up a drum instrument are the same as for a synth program. Refer to p.37 “Program parameter editing.”

### 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.

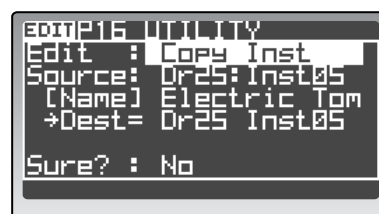
The parameters that make up a drum instrument are the same as for a synth program. Refer to p.37 “Program parameter editing.”

## 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")

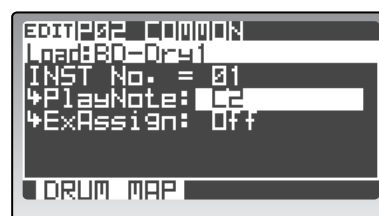
## Assigning a note number to a drum instrument

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.

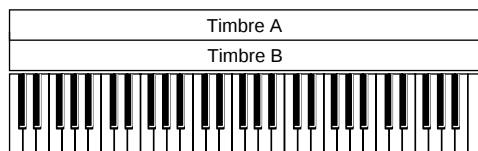
**note** In the factory-set drum kits, drum instruments are assigned to the C2–D#3 keys.

**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

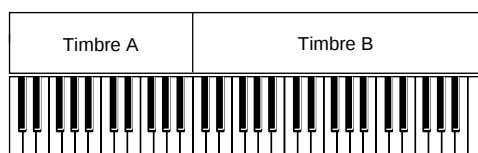
## Layers and splits

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.

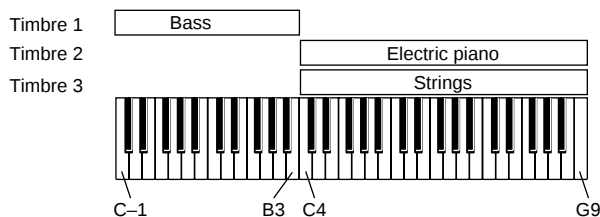
A setup in which different timbres are played from different areas of the keyboard is called a “**split**.”



**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.

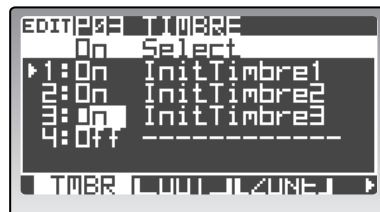


The following example shows how to create a program of this type.

## 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.



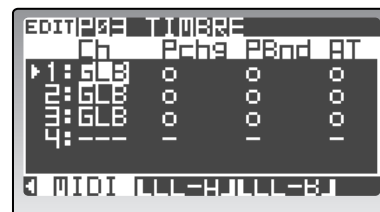
- 3 In the P03-1: TIMBRE – TMBR tab page, use the “Select” field of timbre 1 to select a bass-type sound.
- 4 Use the “Select” field of timbre 2 to select an electric-piano sound.
- 5 Use the “Select” field of timbre 3 to select a strings-type sound.



### 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



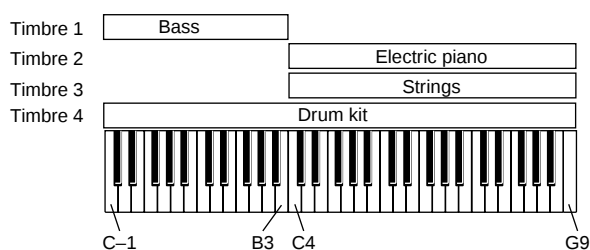
**note** In addition to using the [PROGRAM/VALUE] dial for setting bottom and top notes, you can also hold down the [EDIT/YES] button and play the note directly on the keyboard.

- 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.



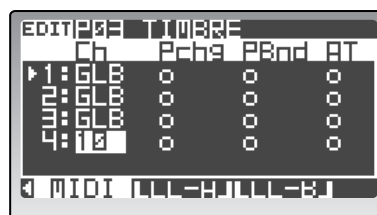
## Assigning a step sequence to timbre 4

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”)



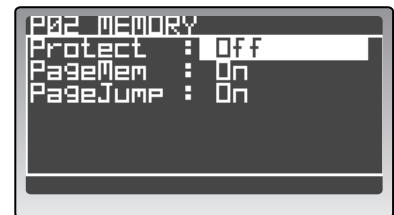
**note** Global data includes the formant data (see p.58 “Formant Motion function”), but this data cannot be saved in the Global mode. You must save it in the Program Play mode, the Program Edit mode, or the Vocoder Edit mode. (see p.59 “Writing formant motion data”)

## Editing parameters

### Disabling memory protect

The **RADIAS** 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.



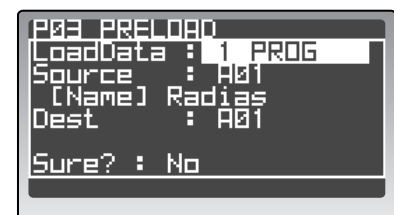
### Restoring the factory settings

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

- ⚠ When you perform this operation, all of the data in the **RADIAS** 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.

([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.

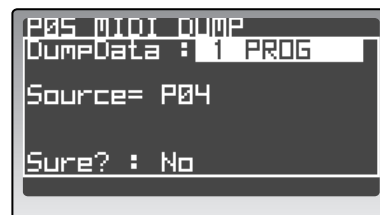
## Saving data on an external device (Data Dump)

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 **RADIAS**' knobs, buttons, keyboard, or wheels etc. while data is being transmitted.

⚠ In order to receive a data dump into the **RADIAS**, 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 RADIAS Sound Editor software

You can use the included RADIAS Sound Editor software to edit the **RADIAS** from your computer. To use the RADIAS Sound Editor software, make the following settings on the **RADIAS**.

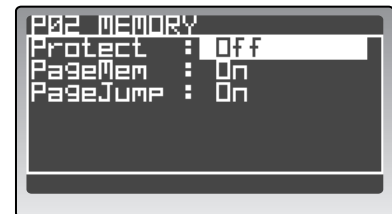
**note** When using the RADIAS Sound Editor software, large amounts of data must be transferred between the **RADIAS** and your computer, so we recommend that you use a USB connection, which will provide faster data transmission.

### 1 Connect the RADIAS to your computer.

ⓘ p.18 "6. Connecting your computer"

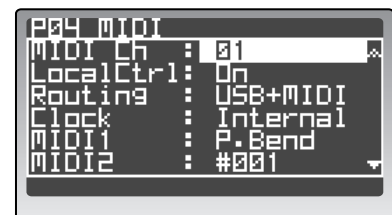
### 2 Go to the Global mode P02: MEMORY page.

### 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 RADIAS 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."

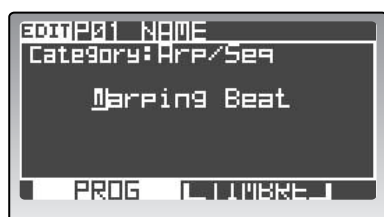
## 1. Name

### 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.

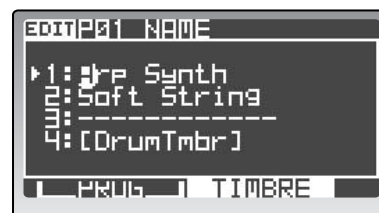
The following characters are available:

```
_! " # $ % & ' ( ) * + , - . / 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**

Kirnberger 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.



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.



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.



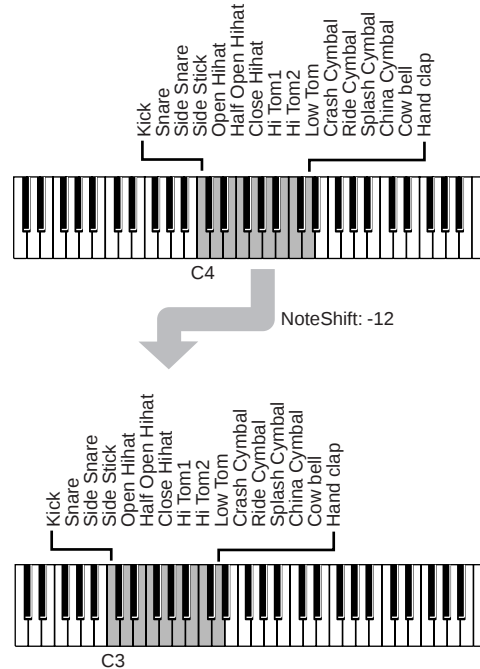
If a drum kit is assigned to a timbre, you can use the front panel [PAN] knob to adjust this parameter.

### 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.



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.

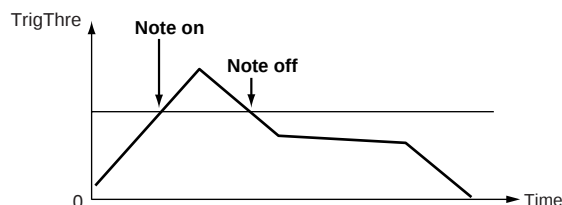
When a note-on is sent, the note number specified by “Trigger Note No.” will be sent on the MIDI channel of the timbre selected by the TIMBRE SELECT [1]–[4] buttons to the internal sound generator. If the arpeggiator or step sequencer is assigned to the selected timbre, the arpeggiator or step sequencer 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

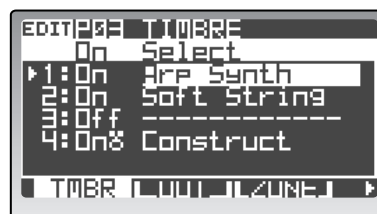
### (Timbre Common Parameters)

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]

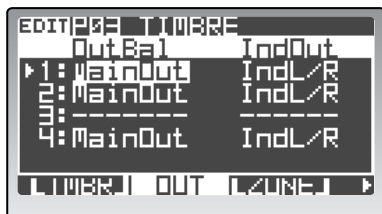
Loads settings from another timbre or a template. Move the cursor to the timbre, and use the [PROGRAM/VALUE] dial to select a timbre or template.

**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, M63I01...M63I63...M01I63, 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.

#### M63I01...M63I63...M01I63

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.

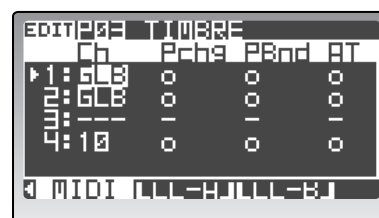
### 2: Top

[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.

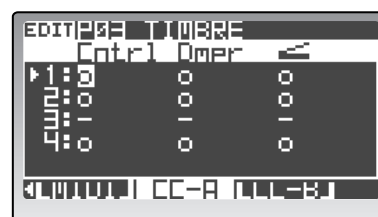
**4: AT (After Touch)** [x, o]

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 ○ (Enable), or ignored if this is set to × (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 × (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]

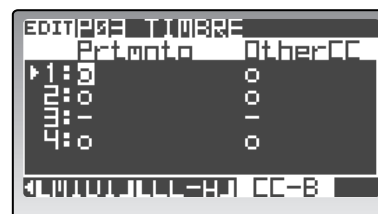
Specifies whether MIDI control change message CC#64 Hold (damper pedal) will be received by the timbre.

**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: Prmnto (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.



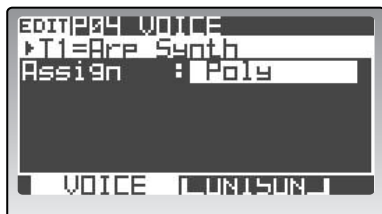
If a drum kit is assigned to a timbre, the parameters of the P04: VOICE–P12: MOD SEQ pages are not available for that timbre.

### 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.

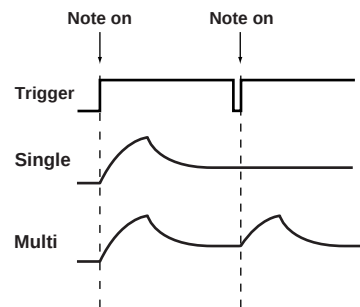
This parameter is shown if “Assign” is set to Mono.

##### Single

The second and subsequent notes will not retrigger the EG. Use this setting if you want to play legato.

##### Multi

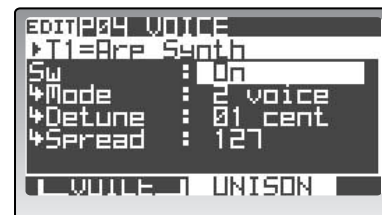
The EG will be retriggered each time a new key is pressed.



#### 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.

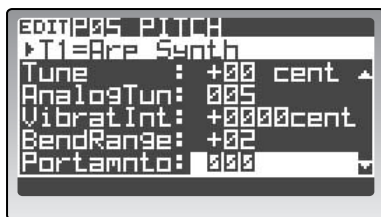
This parameter is available if the unison “Sw” function is On.

## 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]

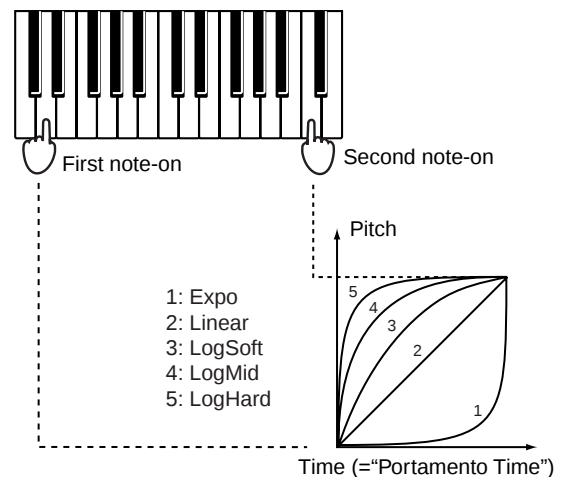
Specifies the portamento time.

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...AudioIn]

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

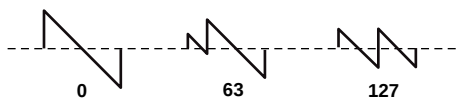
This sawtooth wave is appropriate for creating a wide range of sounds typical of analog synthesizers, including basses and pads.

🔊 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.

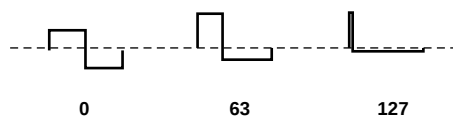
### Square

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.

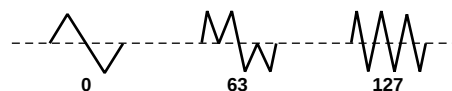
### Tri

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

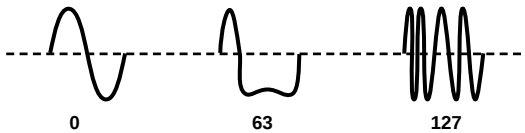
This is the same as when “Wave” = Saw.

**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 monaural.

**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.

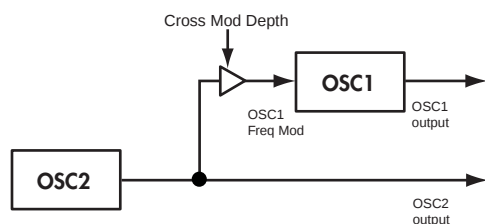
#### Waveform (Waveform Modulation)

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]**

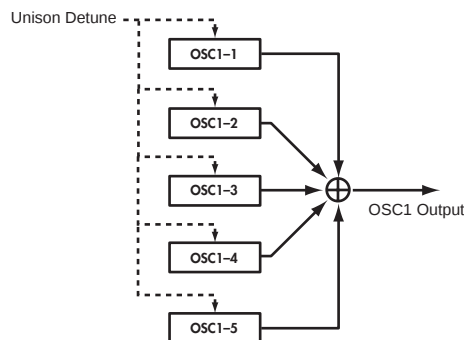
Adjusts the depth of cross modulation.

**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.



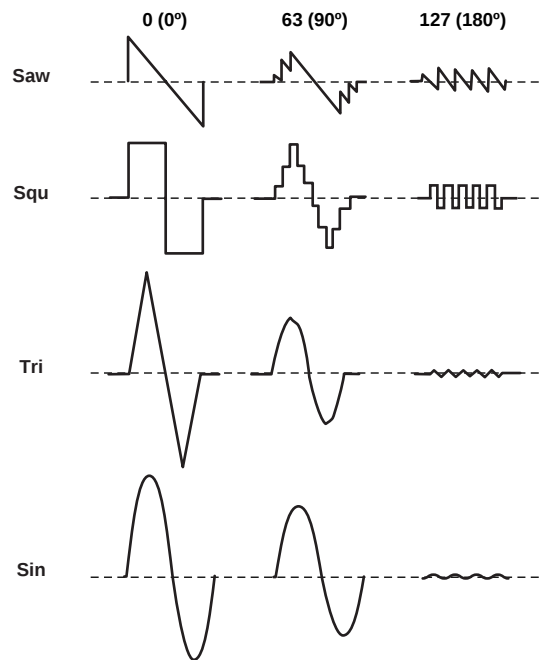
If "Wave" is Saw, Squ, Tri, or Sin, you can adjust the following parameters for the selected waveform.

**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.

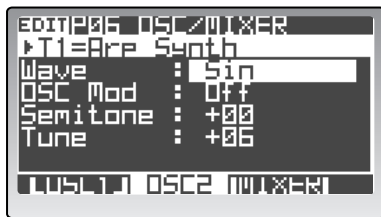
**4: Control1 < CONTROL1 >****5: Control2 < CONTROL2 >**

“Control1” and “Control2” adjust parameters of the selected waveform. The parameters and the available values will depend on the waveform that is selected.

(p.82 “Wave (OSC1 Wave) Ü WAVE [π], [†] á”)

**P06–2: OSC 2**

These are the parameters for the oscillator 2 waveform.

**1: Wave < WAVE >** [Saw, Squre, 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.

**Squre**

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.



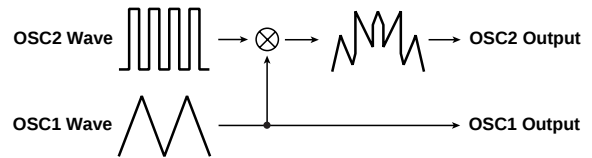
Some settings may produce noise.

**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.

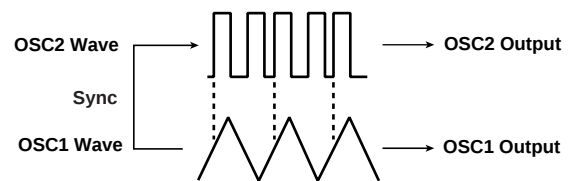
**Ring**

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.

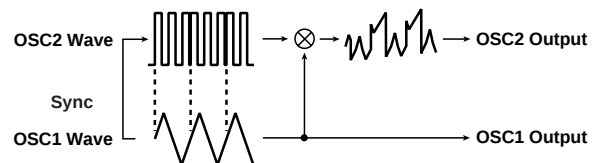
**Sync**

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  $\pm 12$  produce a pitch difference of one octave, and values of  $\pm 24$  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  $\pm 63$  produce a pitch difference of  $\pm 2$  octaves, and values of  $\pm 48$  produce a pitch difference of  $\pm 1$  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.

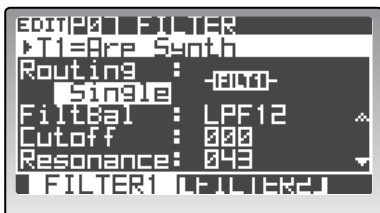
**3: Noise Lvl (Noise Level) < NOISE > [000...127]**

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.



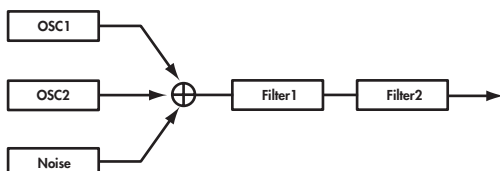
This setting will affect the maximum number of voices that can be played at one time.

#### Single

Only filter 1 is used.

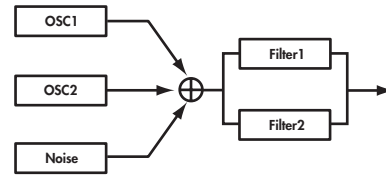
#### Serial

Filter 1 and filter 2 are connected in series.



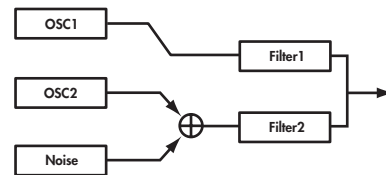
#### Para

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.

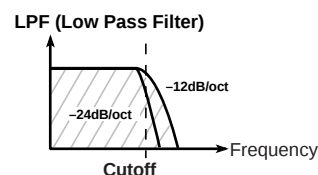


**2: FiltBal (Filter1 Balance) < FILTER TYPE > [LPF24...LPF12...HPF...BPF...THRU]**

Selects the filter type. Intermediate settings will produce a response that is between the two filter types.

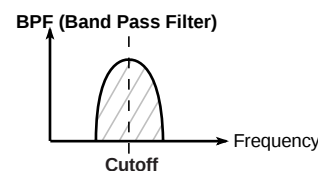
#### LPF12 (-12dB/oct), LPF24 (-24dB/oct)

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."



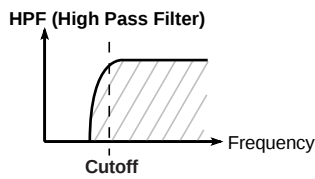
#### BPF (-12dB/oct)

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.

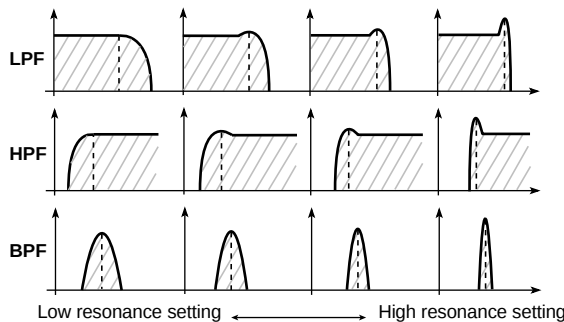
**note** "Cutoff" can be modified by the time-varying changes produced by EG1, position of the notes on the keyboard (keyboard tracking), or keyboard dynamics (velocity). The "EG 1 Int," "Key Track," and "Velo Sens" parameters specify the degree to which these will affect "Cutoff."

**⚠** 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.

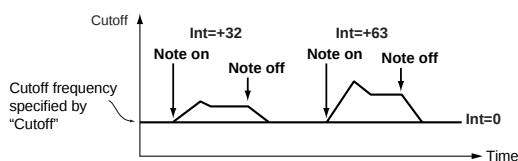
The effect of resonance



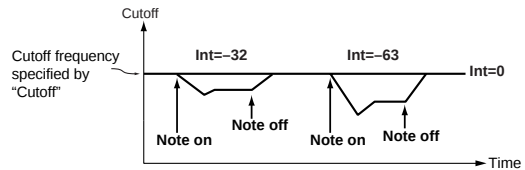
**⚠** High settings of "Resonance" may cause distortion for some cutoff frequencies or input sounds.

### 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.

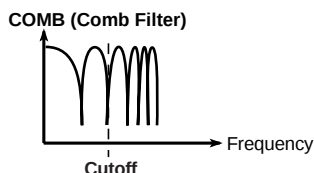
 This setting will affect the maximum number of voices.

### 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]

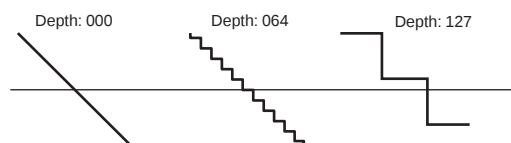
Selects the type of wave shape. This is shown and can be edited if "Drive/WS" is set to WS.

 This setting will affect the maximum number of voices.

 Some settings may produce noise.

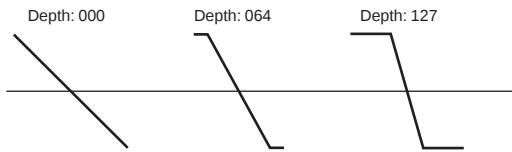
##### Decimator

Lowers the sampling frequency.



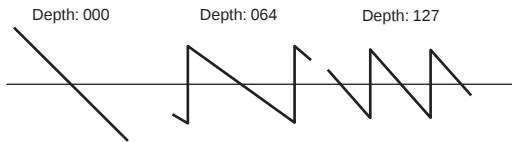
##### Hard Clip

Flattens any portion of the waveform above the limit.



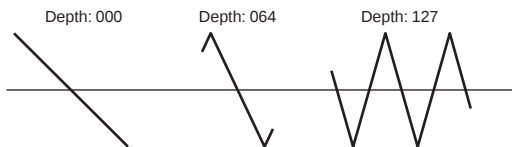
### OctSaw

Cuts the portion of the waveform above the threshold level and moves it within the limits to the inverse position upward or downward.



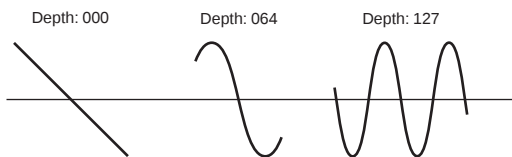
### MultiTri

Sending a sawtooth wave through this will produce a triangle wave.



### MultiSin

Sending a sawtooth wave through this will produce a sine wave.

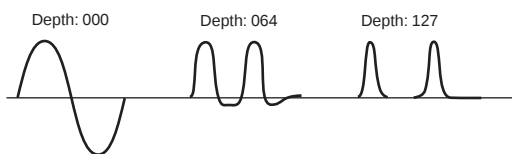


### SubOSCSaw, SubOSCSqu, SubOSCTri, SubOSCSin

The selected waveform will sound one octave below oscillator 1. "Depth" adjusts the mix amount relative to oscillator 1.

### Pickup

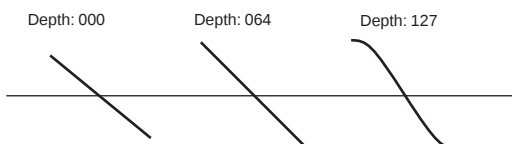
This simulates an electromagnetic pickup. "Depth" adjusts the depth.



**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.



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.

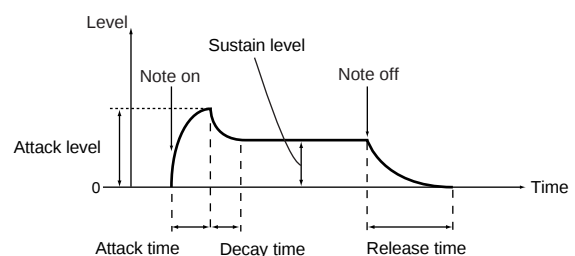
## P09 EG (Envelope Generator)

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.



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]

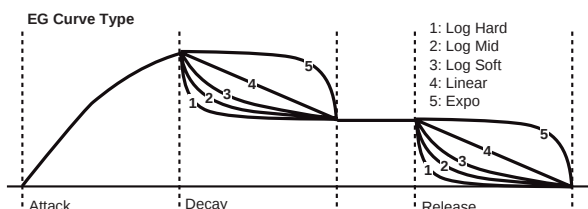
Specifies the sustain level.

### 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

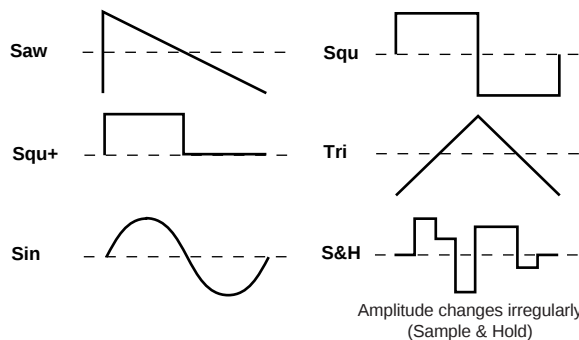


### 1: Wave < SELECT > [Saw, Squ, Squ+, Tri, S&H]

Selects the LFO waveform.

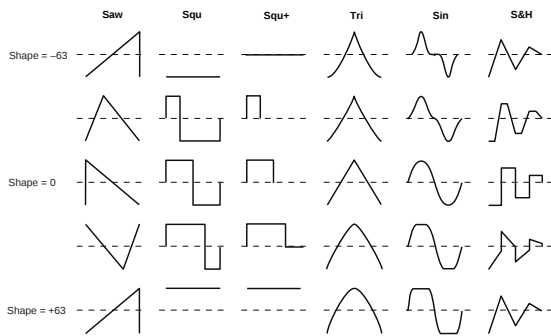
For LFO1 you can choose from Saw, Squ, Tri, and S/H.

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."



### 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  $\downarrow 1/4$ , each cycle of the LFO will occupy one quarter note.

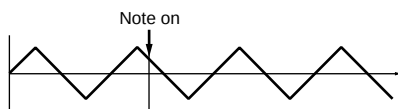
### 6: KeySync

[Off, Timbre, Voice]

Specifies whether the LFO will reset at each new note-on message.

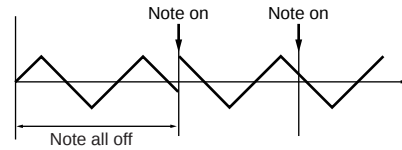
#### Off

The phase of the LFO will not be reset when a note-on occurs.



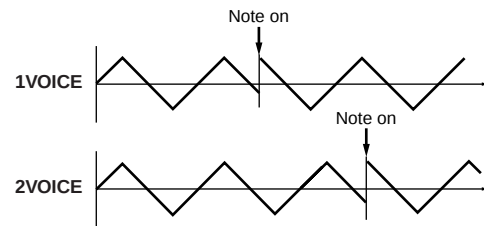
#### Timbre

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.



#### Voice

The phase of the LFO will be reset for each individual note-on, and each voice will be modulated at an independent phase.



### 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]

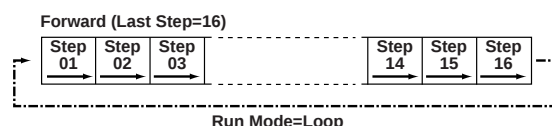
Specifies the length of the sequence in steps (i.e., the maximum number of steps).

## 2: SeqType (Sequence Type) [Forward...Alt2]

Specifies the sequence type (the direction in which the sequence will play).

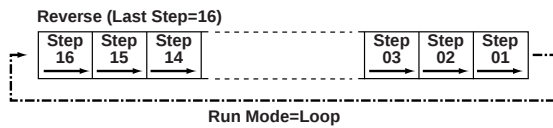
### Forward

Play from the first step (Step01).

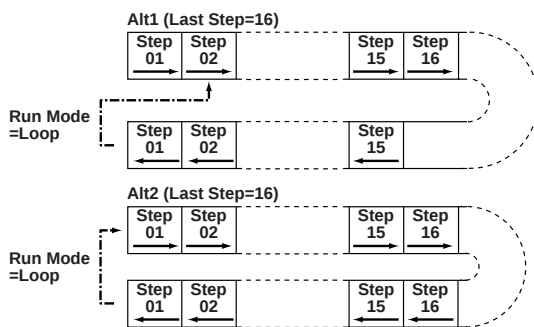


**Reverse**

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.

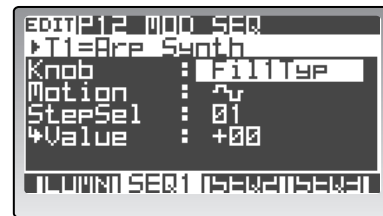
**Voice**

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... 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  $\text{♩}_4$ , 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  $\pm 24$  semi-tones.

**Other**

The modulation sequence will modify the parameter assigned to a specific panel knob over a range of  $\pm 63$  ( $\pm 24$  for OSC2 Sem).

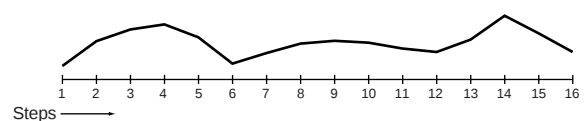
**note** If the same parameter is assigned to more than one sequence, an "\*" is shown at the right. In this case, assignments will take priority in the order of SEQ3, SEQ2, and SEQ1.

**2: Motion**[ $\text{~}$ ,  $\text{~}$ ,  $\text{~}$ ]

Specifies how the recorded values will change when the sequence is played.

 **$\text{~}$  (Smooth)**

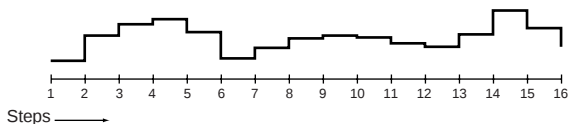
The change will be continuous, with the values recorded at each step connected by straight lines.



**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 (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.

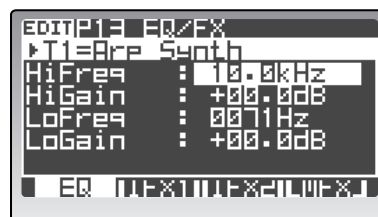
## P13 EQ/FX (Equalizer/Effect)

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 [▲/◀] 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 RADIAS, 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)

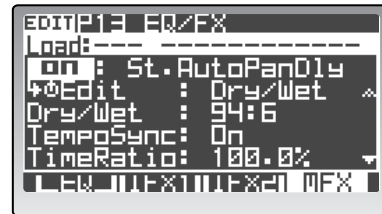
These are the master effect parameters.

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 [▲/◀] 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 RADIAS, 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 **RADIAS** 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 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.

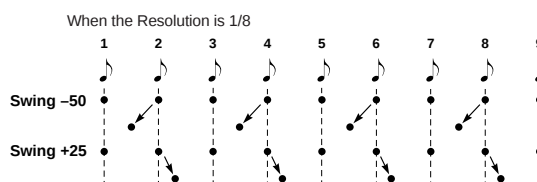
## 7: Gate Time (Gate Time Offset) < GATE > [-100...+100]

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.

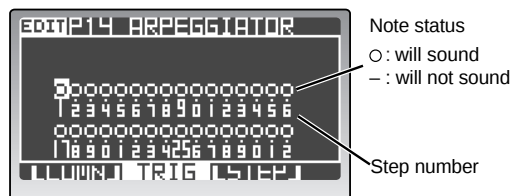
## P14-2: TRIG (Arpeggiator Step On/Off)

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.



### 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.

## 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.

## 5. Step Sequencer

These are the parameters for the step sequencers.

The **RADIAS** 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]

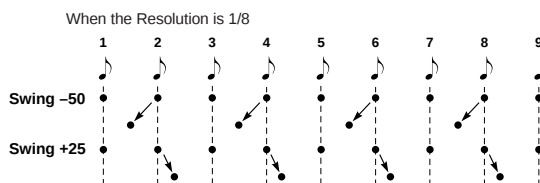
Specifies an offset to the gate time (the duration of each note). This adjusts the gate time for each step that is specified in the P15-3: STEP SEQ1 – STEP tab page (p.102), giving you an additional way to vary the performance.

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.

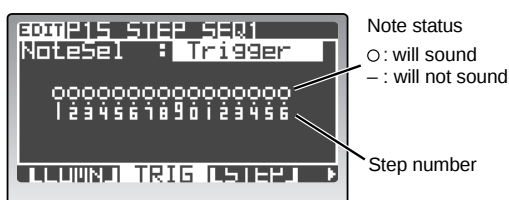
## P15-2: TRIG (STEP SEQ1 Trigger)

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 (p.102 “Trigger”).  
 ○ 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 ○ indication is shown for steps that sound the specified drum instrument.

- ▲ If the “Trigger” setting (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 ○ indication is shown for steps that sound the specified drum instrument.

- ▲ If the “Trigger” setting (p.102 “Trigger”) is –, the – indication is shown even for steps that sound the specified note number.

**2: Step On/Off**

[–, ○]

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**

[–, ○]

Turns each step on/off.

Steps set to ○ will sound.

Steps set to – will not sound.

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: 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)"

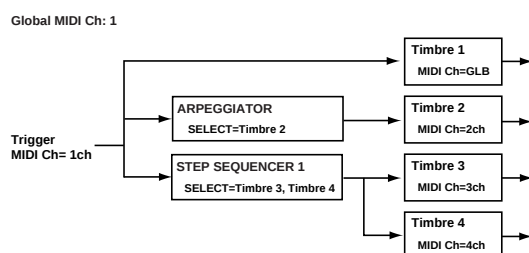
## MIDI channels that drive the arpeggiator and step sequencers

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



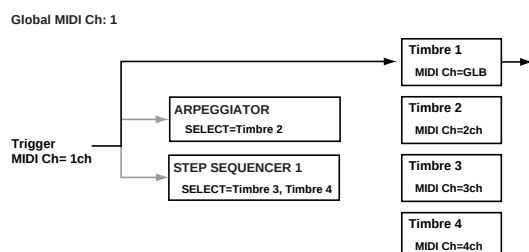
Timbre 1: Sounded by note-on data from Trigger MIDI Ch=1.

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.

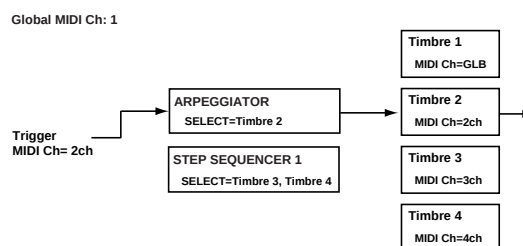
Timbre 2: Not sounded, because the arpeggiator is not running.

Timbre 3: Not sounded, because step sequencer 1 is not running.

Timbre 4: Not sounded, because step sequencer 1 is not running.

### Setting 2

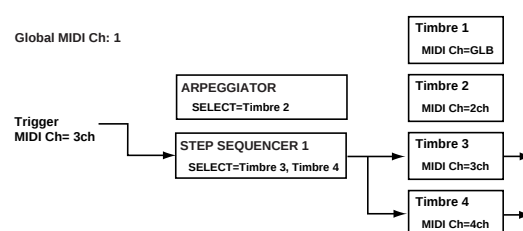
You can use the [TIMBRE SELECT] buttons to select a timbre that is not assigned to the global MIDI channel and play it from the keyboard, or use a MIDI channel other than the global MIDI channel to enter note-on data that will trigger the arpeggiator or step sequencer on separate MIDI channels.



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).”

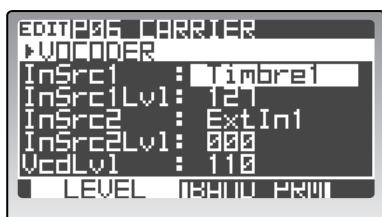
### P06 CARRIER

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 **RADIAS**’ 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: InSrc1Lv1 (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: InSrc2Lv1 (In Source 2 Level) < SRC2 > [000...127]

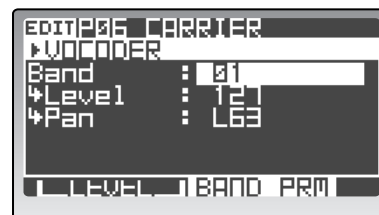
Sets the volume of input source 2.

#### 5: VcdLv1 (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.

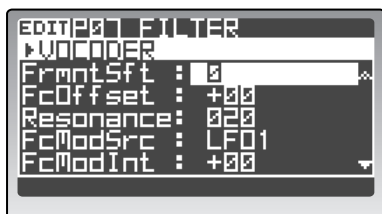
#### 3: Pan < PAN > [L63...CNT...R63]

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]

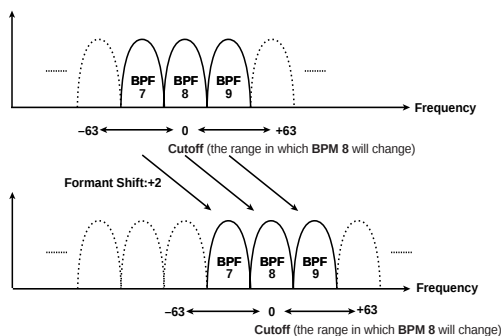
Shifts the cutoff frequencies of each of the carrier's band pass filters. This will significantly change the character of the vocoder output.

#### 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.



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 FrmntPly.

### 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.

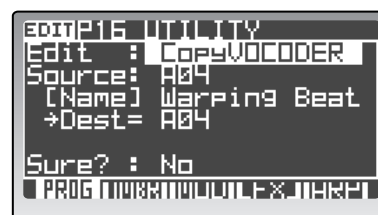
##### InitVOCODER

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.



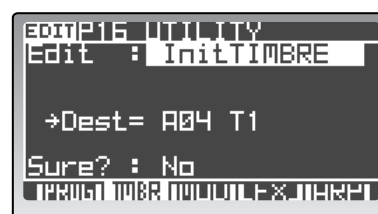
- 1 Use "Edit" to select CopyVOCODER.
- 2 Use "Source" to select the copy-source program. "Dest" indicates the copy-destination program.
- 3 Change "Sure?" to "Press [YES]," and then press the [EDIT/YES] button.  
"Sure?" will indicate Completed; the vocoder settings have been copied.
- 4 Press the [EXIT/NO] 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")

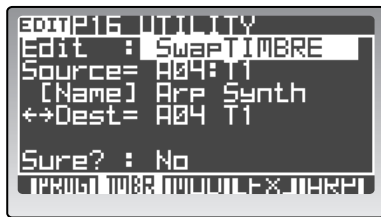
##### CopyTIMBRE

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

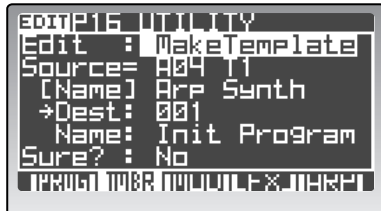
Exchanges the settings of the timbre selected by "TIMBRE SELECT" with the settings of a different timbre used in the same program.



- 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. (p.61 “5. Saving a drum kit and drum instruments – WRITE”)

### P05 PITCH

#### P05-1: PITCH

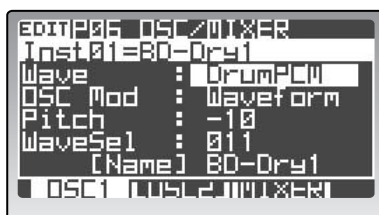


Refer to p.81 “P05 PITCH.”

- ⚠ 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

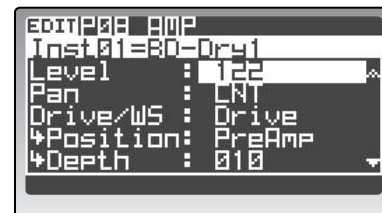
#### P07-1, 2: FILTER1, 2



Refer to p.105 “P07 FILTER.”

### P08 AMP (Amplifier)

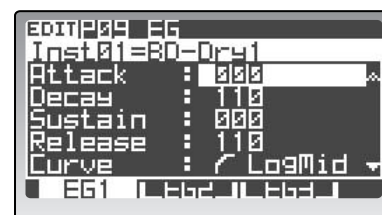
#### P08-1: AMP



Refer to p.88 “P08 AMP (Amplifier).”

### P09 EG (Envelope Generator)

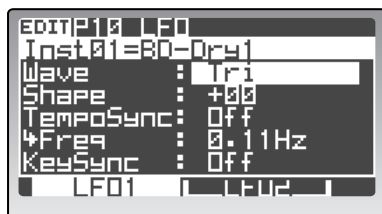
#### P09-1...3: EG1...3



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).”

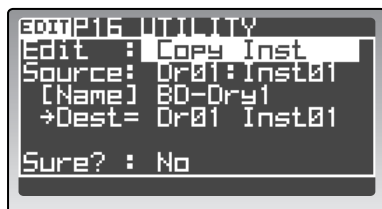
## 4. Utility

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 **RADIAS**. 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 **RADIAS** in 0.1 Hz steps, relative to the pitch of the note A4.

Use this to adjust the **RADIAS**' pitch to match other instruments.

#### 2: Transpose [-12...+12]

Shifts the overall pitch of the entire **RADIAS** 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.

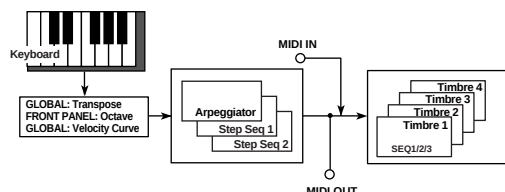
#### 3: Position [PostKBD, PreTG]

Specifies how MIDI IN and MIDI OUT will be routed within the **RADIAS**. 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 **RADIAS**' internal settings or the arpeggiator.

Data produced by the keyboard and the SELECT [1]–[16] keys is converted by the **RADIAS**' internal settings, routed through the arpeggiator and step sequencers, and sent to the timbres and the MIDI OUT connector.

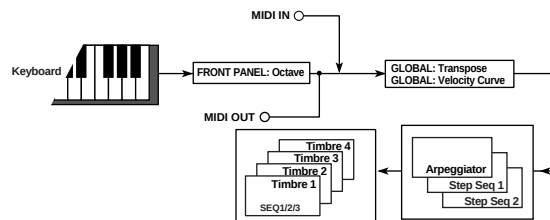


With the PostKBD setting, when both the arpeggiator and the sequencer are turned on, and MIDI data played on the keyboard (or the SELECT [1]–[16] keys) is recorded on an external sequencer and then played back from the external sequencer, the way in which the sequence is reset will be different. For this type of application, use the PreTG setting.

##### PreTG

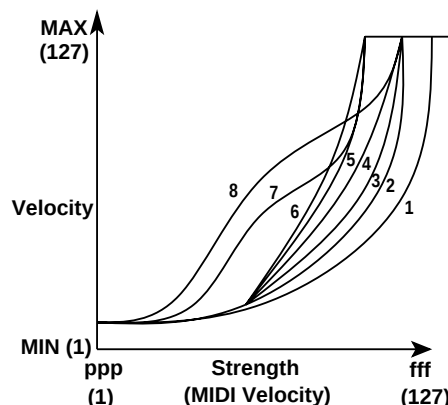
Data received from the MIDI IN connector is converted by the **RADIAS**' internal settings, routed through the arpeggiator and step sequencers, and sent to the timbres.

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.

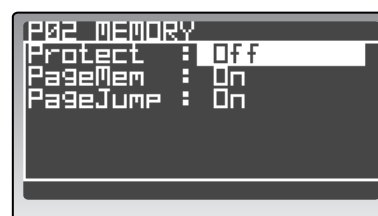
### 8: LCD Cont (LCD Contrast) [000...015]

Adjusts the contrast of the LCD display.

## P02 MEMORY

### P02-1: MEMORY

These are the parameters for the **RADIAS'** 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 **RADIAS'** 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.

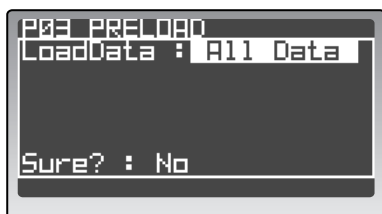
### 3: PageJump [Off, On]

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

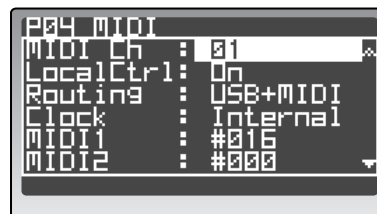
Select the data you want to load. This will appear when loading a single item of data.

#### 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 **RADIAS** is re-transmitted back to the **RADIAS**).

##### On

Use this setting if the **RADIAS** is not connected to an external MIDI device.

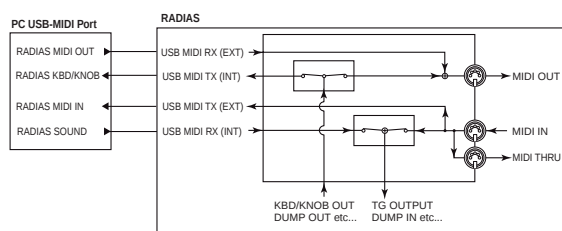
#### 3: Routing

[USB+MIDI, USB, MIDI]

Selects the connector(s) that will be used to transmit and receive MIDI messages.

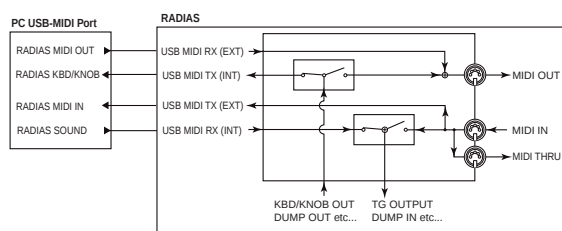
##### USB+MIDI

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.



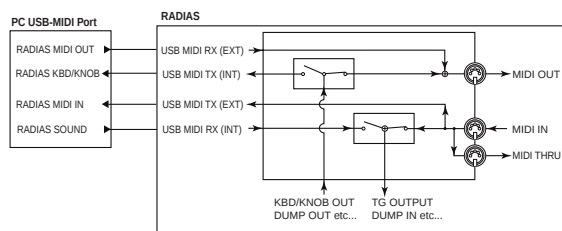
## USB

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 TMPLT

All template data will be transmitted.

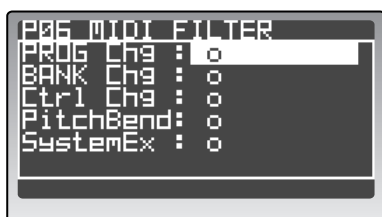
### GLOBAL

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 TMPLT   | 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.

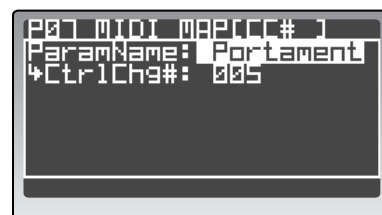
##### o (Enable)

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.

#### BrethCtrl

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.

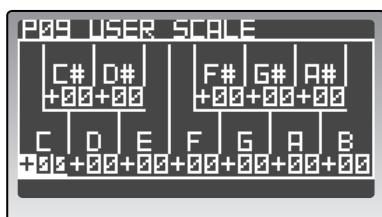
## P09 USER SCALE

### 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.”



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.



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.



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.



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 **RADIAS** 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.

|     |                        |  |
|-----|------------------------|--|
| Wet | Mono In - Mono Out     |  |
|     | Mono In - Stereo Out   |  |
|     | Stereo In - Stereo Out |  |

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.

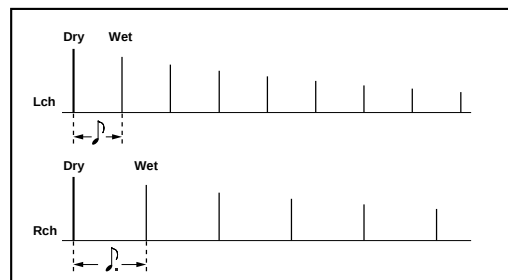
### Delay time when Tempo Sync is on

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

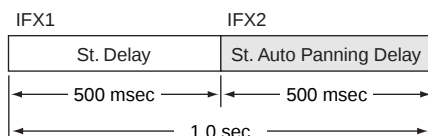
Broadly speaking, there are two types of effect for which you can specify a delay time.

- Delay effects
- Modulation effects such as chorus that internally use a fixed delay time

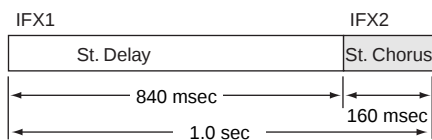
If you use such an effect in the two insert effects, the delay time of the effects can be set for a maximum of 1.0 seconds for each timbre.

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.

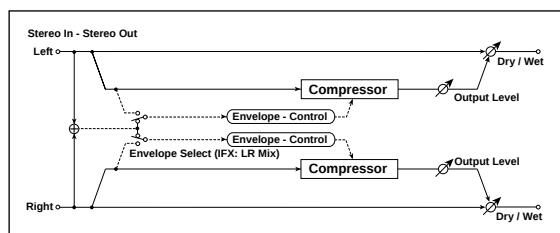
# Effect parameters

- **[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.]

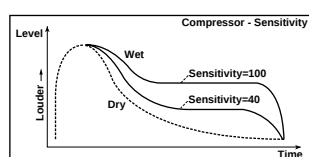
When L/R Mix is selected for this parameter, the left and right channels are linked to control the Limiter using the mixed signal.

With L/R individually, the left and right channels control the Limiter individually.

**🔊** You can switch between LR Mix and LR Indv. 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.

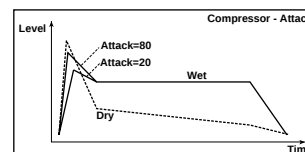
**Sens (Sensitivity)** **🔧** [001...127]

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.

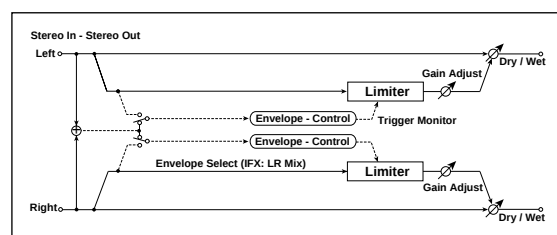


**OutLevel (Output Level)** [000...127]

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.



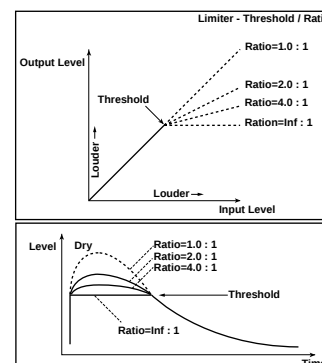
**Dry/Wet** **🔧** [Dry, 99:1...1:99, Wet]  
Sets the balance between the effect and dry sounds.

**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.

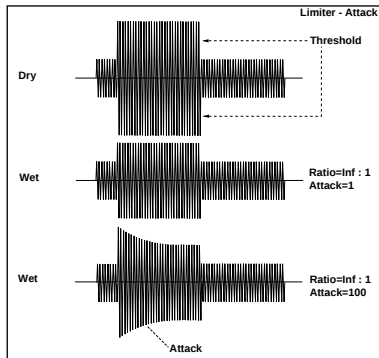
**Threshold** **🔧** [-40...+00dB]

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.

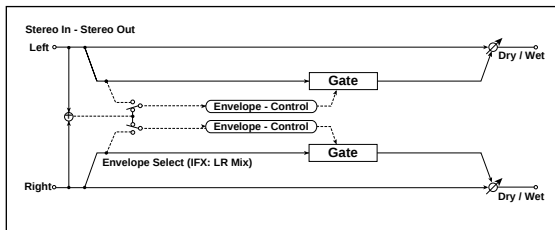


## GainAdjst (Gain Adjust) [-Inf, -40...+24dB]

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]

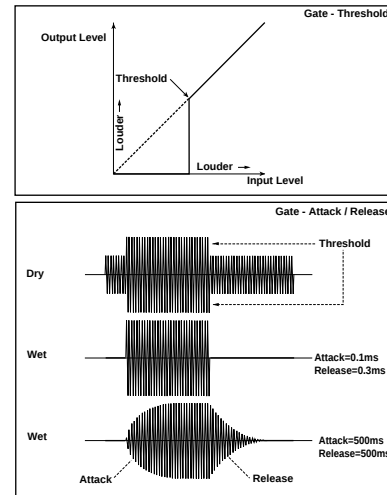
Sets the level to which the Gate is applied.

## Attack [0000.1...0500.0ms]

Sets the Gate attack time.

## Release [0000.3...1500.0ms]

Sets the Gate release time.

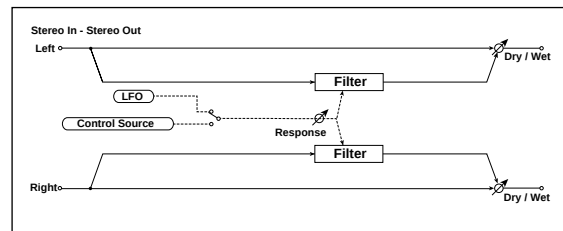


## GainAdjst (Gain Adjust) [-Inf, -40...+24dB]

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 Src" 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.



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  $\frac{1}{4}$ , one cycle will occupy one quarter note.

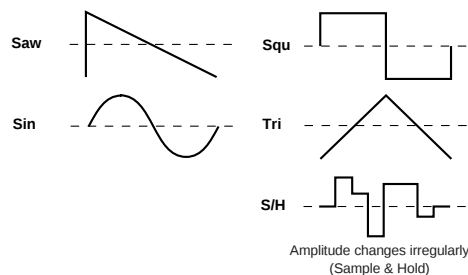
This parameter will be displayed and can be set if "Mod Src" is LFO and "TempoSync" is On.



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]**

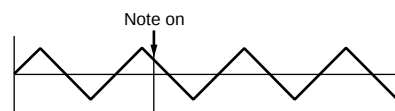
Adjusts the shape of the LFO waveform. This parameter will be displayed and can be set if "Mod Src" is LFO.

See p.90 "Shape"

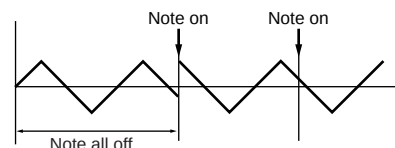
**Key Sync (LFO KeySync)****[Off, Timbre]**

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.

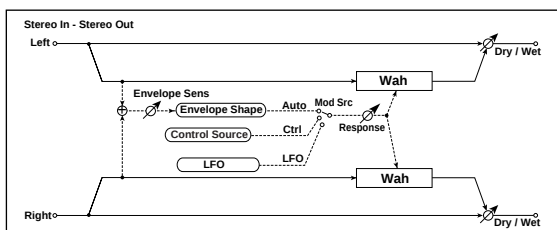
The filter will be controlled by the selected source.

| 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.

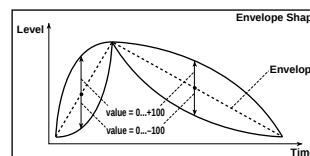
When "Mod Src" is set to Ctrl, you can control the filter directly via the modulation source in the same way as a wah pedal.

**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]

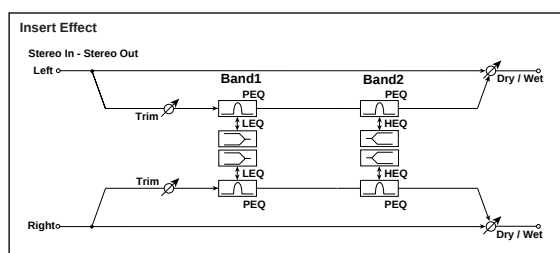
Selects the control source used when “Mod Src” is set to Ctrl. The selected source will control the center frequency of the wah. This parameter will be displayed and can be set if “Mod Src” is Ctrl.

ⓘ p.125 “Ctrl Src (Control Source)”

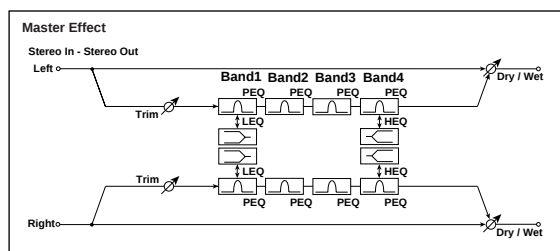
## 6. St.2BandEQ (IFX)/ St.4BandEQ (MFX)

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.

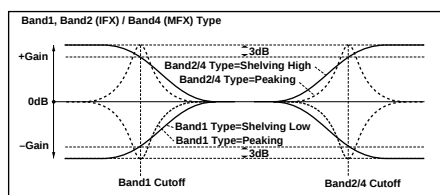
**B1 Type** [Peaking, Shelv Lo]

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]

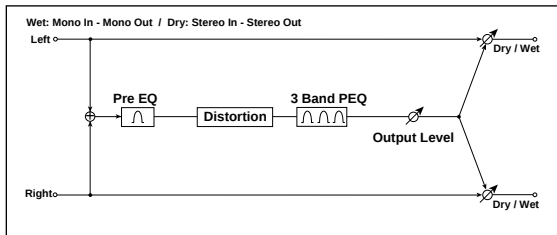
Sets the bandwidth of Band 4.

**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.

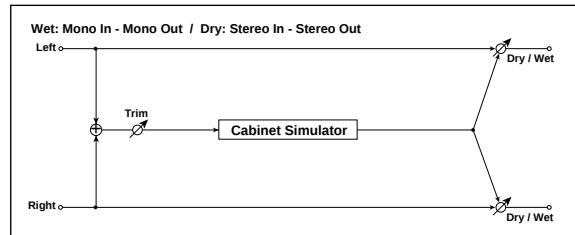
**B3 Q** [00.5...10.0]  
Sets the bandwidth of Band 3.

**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.

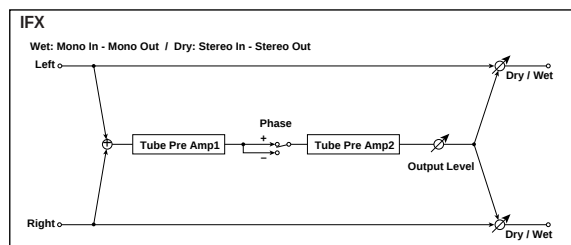
**Air** [000...127]  
Sets the mic position.

**Trim** [000...127]  
Sets the input level.

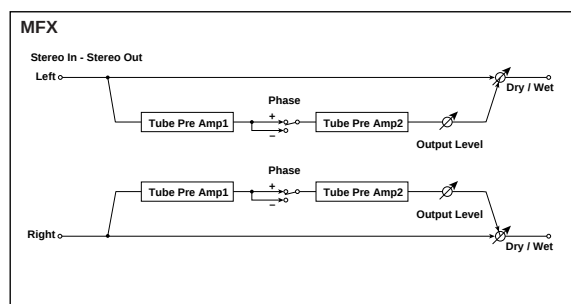
## 9. TubePreAmpSim (IFX)/ St.TubePreAmp (MFX)

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.



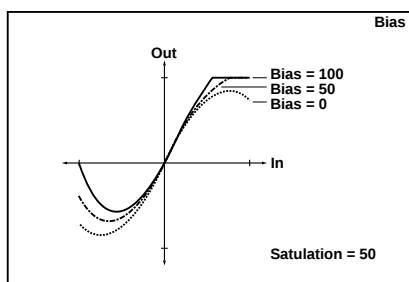
**Dry/Wet** [Dry, 99:1...1:99, Wet]  
Sets the balance between the effect and dry sounds.

**Tu1 LoCut (Tube1 Low Cut)** [000...127]  
Sets the cutoff frequency for the low cut filter of stage 1.

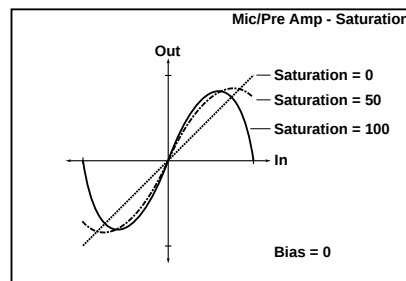
**Tu1 HiCut (Tube1 High Cut)** [000...127]  
Sets the cutoff frequency for the high cut filter of stage 1.

**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.

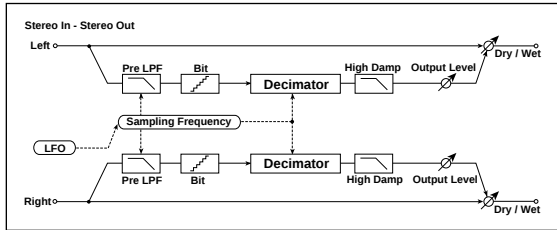
**Tu2 Bias (Tube2 Bias)** [000...100%]  
Sets the bias voltage for stage 2.  
 p.129 "Tu1 Bias (Tube1 Bias)"

**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.

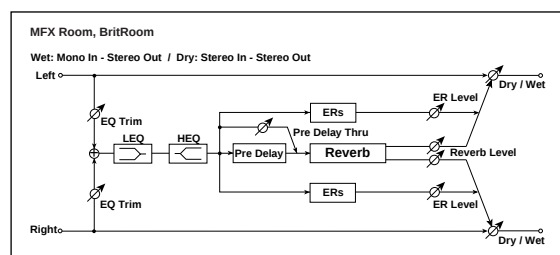
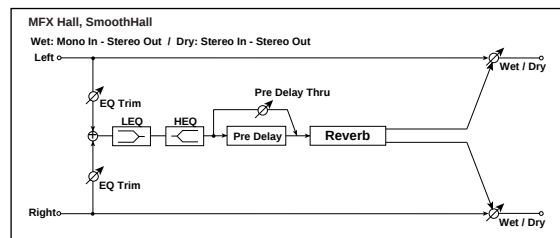
p.125 "Key Sync (LFO KeySync)"

**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.

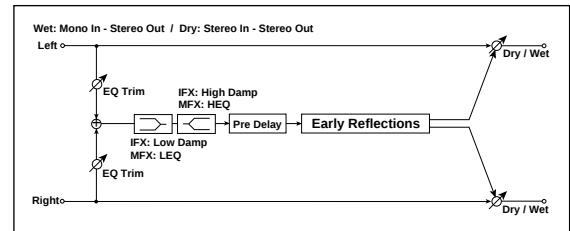
### Rev Level (Reverb Level) only MFX [000...127]

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

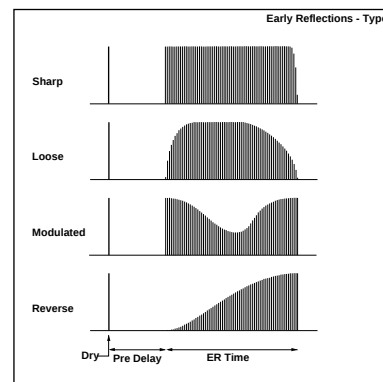
[Dry, 99:1...1:99, Wet]

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%]

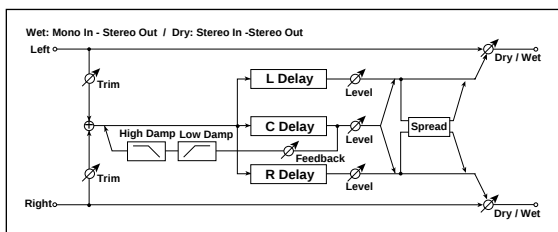
Sets the damping amount in the high range.

### 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.

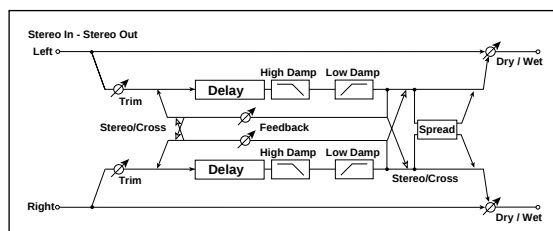
**Low Damp** [000...100%]  
Sets the damping amount in the low range.

**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.

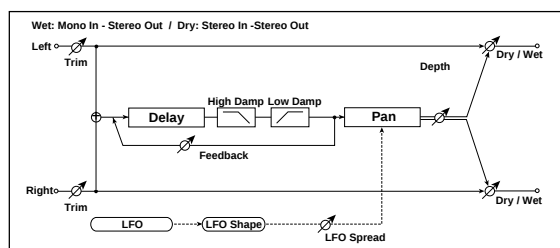
**Spread** [000...127]

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%]

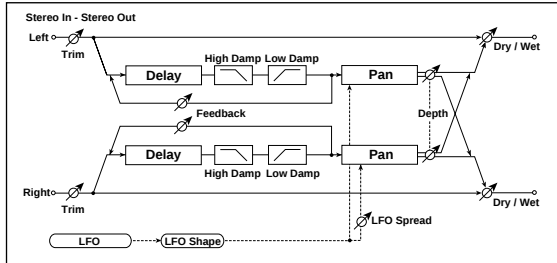
Sets the damping amount in the low range.

**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.

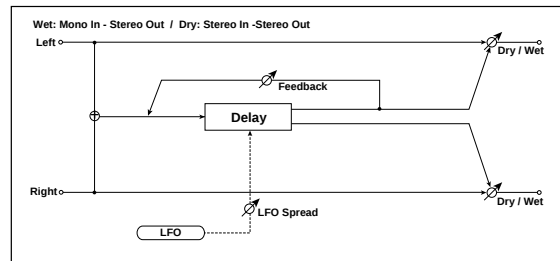
**High Damp** [000...100%]  
Sets the damping amount in the high range.

**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]

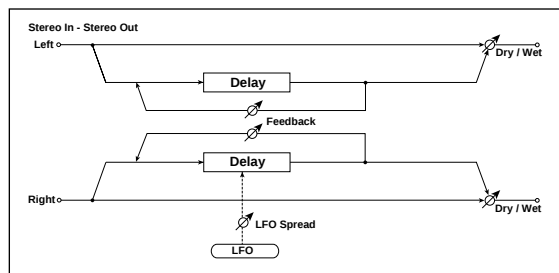
Sets the LFO speed. Increasing this value will result in a faster frequency.

**LFO Spread** [-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]

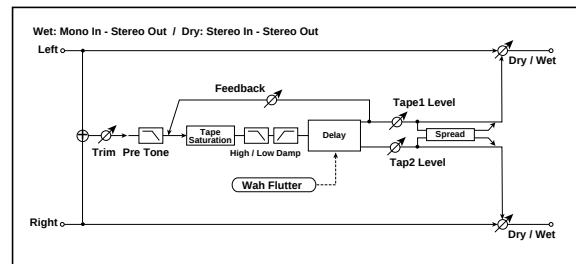
Sets the LFO speed. Increasing this value will result in a faster frequency.

**LFO Spread** [-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"

**Tap1 Delay, 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)"

**Tap1 Level, 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 steps.

**Wah Depth (Wah Flutter Depth)** [000...127]

Sets the depth of pitch variation.

**Pre Tone** [000...127]

Sets the tone of the input.

## Spread

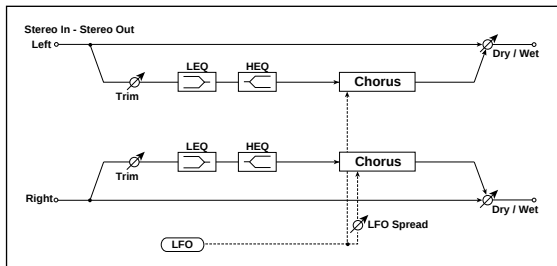
[000...127]

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.

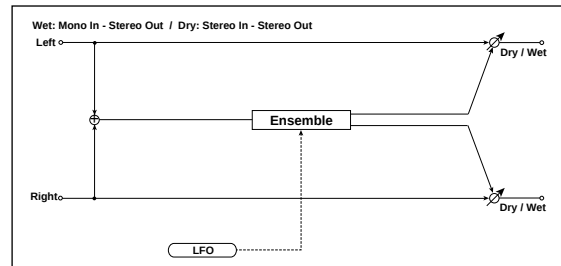
### HiEQGain (High EQ Gain)

[-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.

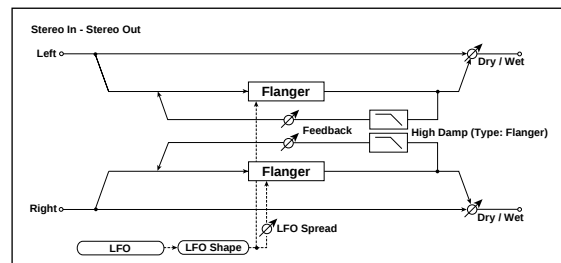
### Speed

[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)”

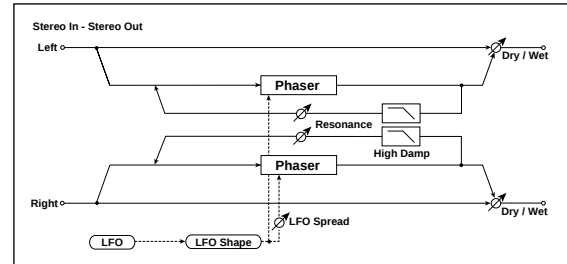
**InitPhase (LFO Init Phase)** [000...180°]  
Sets the starting location of the waveform. This parameter will be displayed and can be set if “Key Sync” is Timbre.  
 p.125 “InitPhase (LFO Init Phase)”

**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.

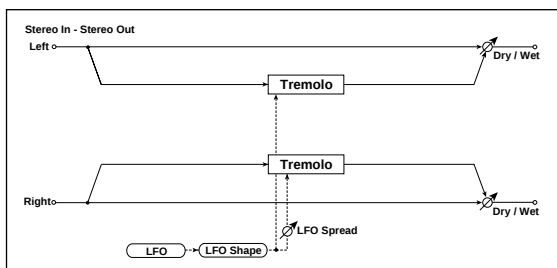
p.125 "InitPhase (LFO Init Phase)"

**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)"

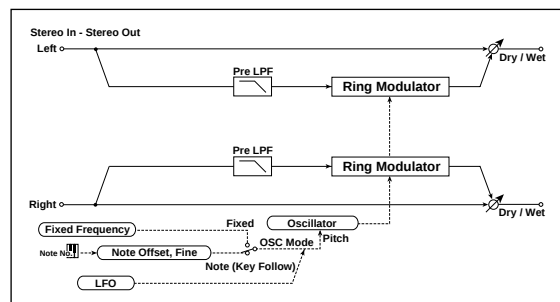
**InitPhase (LFO Init Phase)** [000...180°]  
Sets the starting location of the waveform. This parameter will be displayed and can be set if "Key Sync" is On.

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)”

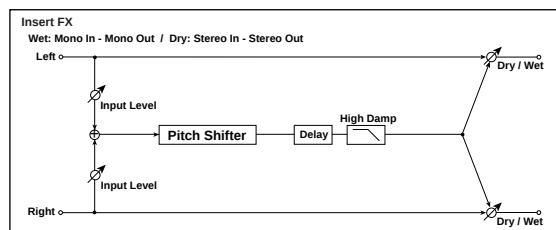
**Pre LPF** [000...127]

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.

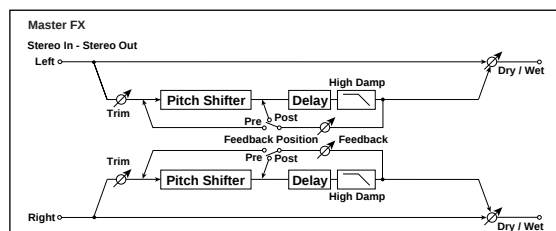
## 26. Pitch Shifter (IFX) /St.PitchShift (MFX)

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%]

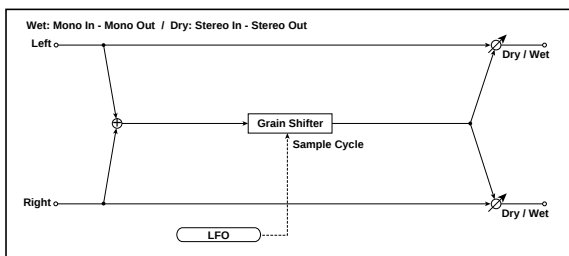
Sets the damping amount in the high range.

**Trim** [000...127]

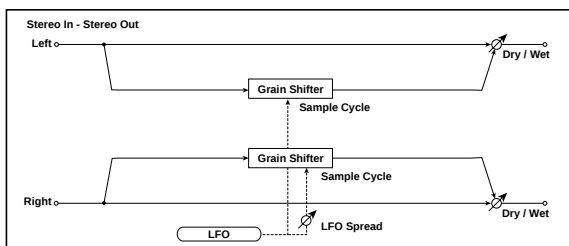
Sets the input level.

## 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]

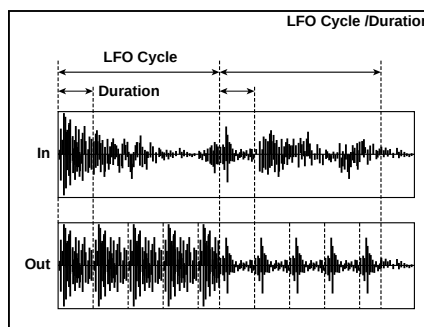
Specifies whether the LFO cycle will be synchronized with the tempo specified by the [TEMPO] knob or MIDI clock.

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.

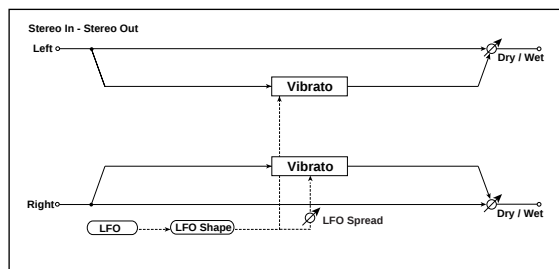
☞ p.125 “InitPhase (LFO Init Phase)”

**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)”

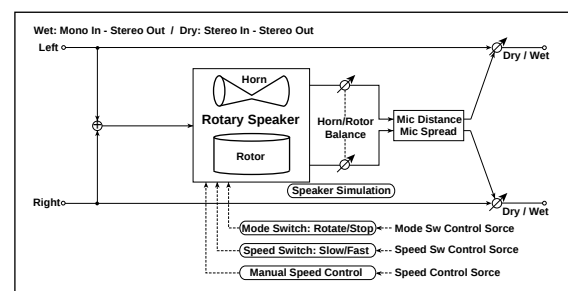
**LFOspread (LFO Spread)** [-180...+180°]

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.

 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.

 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.

 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.

 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]

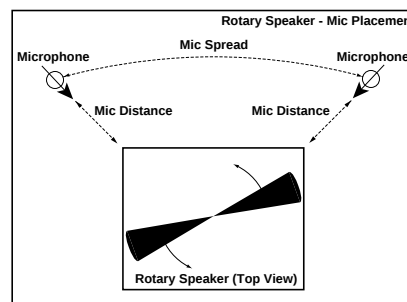
Adjusts the (low-range side) rotor rotation speed. Standard value is 1.00. Selecting "Stop" will stop the rotation.

**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.



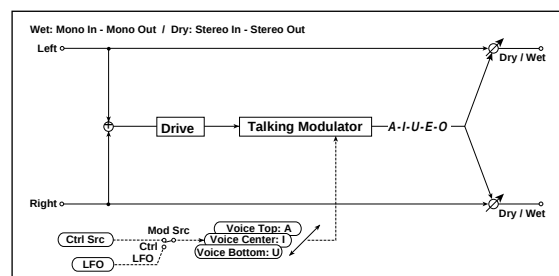
**Trim** [000...127]

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.

 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.

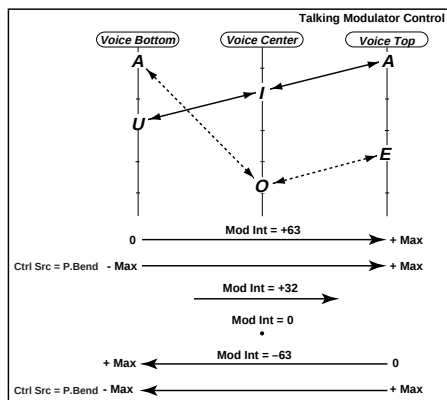
**Vo Bottom (Voice Bottom)**  [A, I, U, E, O]  
Selects a vowel sound at the bottom end of control.

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.



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 **RADIAS**’ 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 “Pitch-Bend” 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 **RADIAS**’ 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 over-all 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

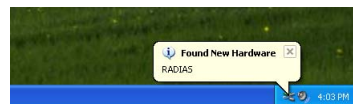
## Windows XP users

### 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. (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 **RADIAS** 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.
- 5 You must install KORG USB-MIDI Driver Tools before you connect the **RADIAS** to your computer. Make sure that the **RADIAS** is disconnected, and insert the included CD-ROM into your CD-ROM drive. Normally the "RADIAS 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.
- 6 In the list, select "KORG USB-MIDI Drive Tools" and click [Install] to start up the KORG USB-MIDI Driver Tools installer.
- 7 The KORG USB-MIDI Drive Tools Installer screen will appear. Click [Next>].
- 8 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>].



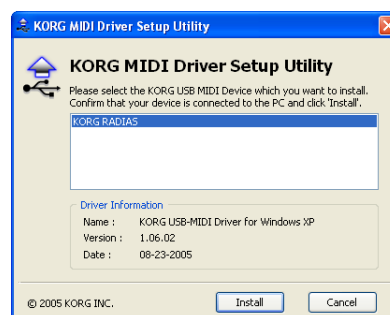
- 5 Enter your user information and click [Next>].
- 6 Specify the location where the software will be installed. The screen will show the installation location. If you want to change this, click [Change] and select the desired installation location. Click [Next>] to begin the installation.
- 7 When the installation is completed, click [Finish] to exit the installer.
- 8 Use a USB cable to connect the **RADIAS** to your computer, and turn on the power of the **RADIAS**. Windows will detect that the **RADIAS** 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.

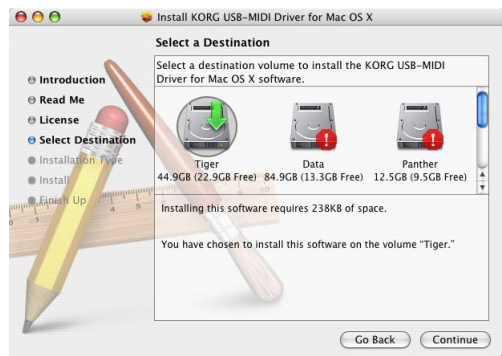
## Mac OS X users

### 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].



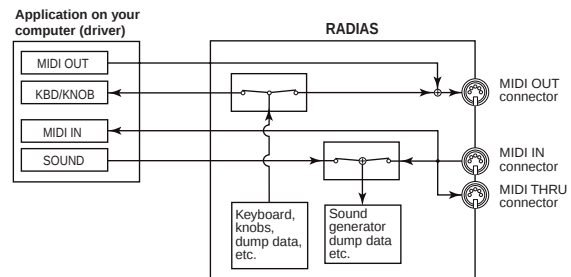
- 4 “Important information” will be displayed. Carefully read the contents, and click [Continue].
- 5 The “License agreement” will be displayed. Carefully read the contents, and click [Continue]. A dialog box asking whether you accept the terms of the license agreement will appear. If you accept the 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 O?  
☞ 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 |

| 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| F10 | CombZilla       | Synth Soft   | CombPad       | -----         | -----         | -----         | Timbre 4 | OFF    | Oliver Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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 | DamprWahClav               | Keyboard     | DamperPdClv   | FunkySynBass  | -----         | Future Jazz   | Timbre 4 | OFF    | KORG Inc.         |
| G14 | Club Jazz                  | Split        | Stage EP      | Pick Bass     | -----         | Future Jazz   | Timbre 4 | OFF    | Oliver Munyak     |
| 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 <sup>*1</sup> | 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 Munyak     |
| 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 <sup>*1</sup> | 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  | CleanWahGtr   | > 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 Munyak     |
| 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 Munyak     |
| 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 | DamprRtryOrg               | 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 <sup>*1</sup> | 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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    |

| 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| L09 | House Stabz  | Synth Hard  | House Stabba  | -----         | -----         | Deep House    | Timbre 4 | OFF    | Oliver Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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 Munyak     |
| 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)      |
| <b>BD-Dry1</b>    | <b>BD-Dry2</b>    | <b>SD-Dry1</b>   | <b>Clap-Dry</b>  | <b>SD-Dry2</b>  | <b>SD-Jazz1</b> | <b>HH-Dry2 C</b> | <b>Tom-DryHi</b> |
| 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)    |
| <b>Tambourine</b> | <b>Conga-Mute</b> | <b>HH-Dry2 O</b> | <b>Conga-Low</b> | <b>Conga-Hi</b> | <b>Crash</b>    | <b>Cabasa</b>    | <b>Ride-Dry</b>  |

## 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)      |
| <b>BD-Syn4</b>  | <b>BD-Jazz</b>    | <b>SD-Jazz1</b> | <b>Rim-Dry</b>   | <b>SD-Jazz2</b>   | <b>SD-Dry2</b>  | <b>HH-88 C</b> | <b>Tom-Jazz</b>  |
| Inst 9          | Inst 10           | Inst 11         | Inst 12          | Inst 13           | Inst 14         | Inst 15        | Inst 16          |
| <b>HH-Lyn C</b> | <b>Conga-Mute</b> | <b>HH-Lyn O</b> | <b>Conga-Low</b> | <b>Conga-High</b> | <b>Crash-99</b> | <b>Cabasa</b>  | <b>Ride-Dry2</b> |

## 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)         |
| <b>BD-Trance</b> | <b>BD-Zap</b>       | <b>SD-99</b>   | <b>Clap-88</b>     | <b>SD-Syn1</b>  | <b>SD-88</b>    | <b>HH-99 C</b>    | <b>Tom-ElectLow</b> |
| 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)       |
| <b>HH-KR55 C</b> | <b>Tom-ElectMid</b> | <b>HH-99 O</b> | <b>Tom-ElectHi</b> | <b>Clap-Dry</b> | <b>Crash-99</b> | <b>ReverseSFX</b> | <b>Ride-Dry2</b>    |

## 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)        |
| <b>BD-R&amp;B</b> | <b>BD-Thwunk</b> | <b>SD-R&amp;B</b> | <b>Rim-Lynn</b>     | <b>SD-PaperRip</b> | <b>SD-Video</b>  | <b>HH-88 C</b> | <b>Tom-SynLow</b>  |
| 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)      |
| <b>HH-KR55 C</b>  | <b>Tom-SynHi</b> | <b>HH-88 O</b>    | <b>Lektrosrctch</b> | <b>Tambourine</b>  | <b>Crash-BPF</b> | <b>MicTap</b>  | <b>Lektroiride</b> |

## 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)      |
| <b>BD-Syn3</b>    | <b>BD-Funk</b>  | <b>SD-77</b>   | <b>Clap-R&amp;B</b> | <b>SD-Dry3</b> | <b>SD-Lynn</b>  | <b>HH-Dry2 C</b> | <b>Tom-Gate</b>  |
| 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)    |
| <b>Tambourine</b> | <b>Conga-Mt</b> | <b>HH-99 O</b> | <b>Conga-L</b>      | <b>Conga-H</b> | <b>Crash-99</b> | <b>Triangle</b>  | <b>Ride-Dry1</b> |

## 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)         |
| <b>BD-Garage1</b>  | <b>BD-Garage2</b>   | <b>SD-Garage1</b>  | <b>Clap-Garage</b>  | <b>SD-Garage2</b>  | <b>SD-Garage3</b> | <b>HH-Garage C</b> | <b>Tom-GarageLo</b> |
| 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)       |
| <b>HH-Garage P</b> | <b>Tom-GarageMd</b> | <b>HH-Garage O</b> | <b>Tom-GarageHi</b> | <b>Tamb-Garage</b> | <b>Crash-99</b>   | <b>Triangle</b>    | <b>Ride-Dry2</b>    |

## 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)         |
| <b>BD-Bonzo</b>     | <b>BD-Drop</b>      | <b>SD-16Maple</b>   | <b>Clap-Trash</b>   | <b>SD-Can</b>     | <b>SD-Lid</b>     | <b>HH-Lowered C</b> | <b>Tom-TankFlor</b> |
| 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)       |
| <b>HH-Lowered P</b> | <b>Tom-TankLoMd</b> | <b>HH-Lowered O</b> | <b>Tom-TankUpMd</b> | <b>Tom-TankHi</b> | <b>Crash-LoFi</b> | <b>Ring Bell</b>    | <b>Ride-LoFi</b>    |

## 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)      |
| <b>BD-99</b>      | <b>BD-Syn2</b>  | <b>SD-99 2</b> | <b>Clap-99</b> | <b>SD-99 1</b> | <b>SD-99 Filter</b> | <b>HH-99 C</b> | <b>Tom-99 L</b>  |
| 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)    |
| <b>Tambourine</b> | <b>Tom-99 H</b> | <b>HH-99 O</b> | <b>Conga-L</b> | <b>Conga-H</b> | <b>Crash-99</b>     | <b>Cabasa</b>  | <b>Ride-Dry1</b> |

## 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)      |
|------------------|-------------------|----------------|-----------------|-----------------|--------------------|-------------------|------------------|
| <b>BD-88Long</b> | <b>BD-88Short</b> | <b>SD-88</b>   | <b>Clap-88</b>  | <b>SD-88Low</b> | <b>Rim-Syn</b>     | <b>HH-88 C</b>    | <b>Tom-88Low</b> |
| 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)    |
| <b>HH-KR55 C</b> | <b>Tom-88Mid</b>  | <b>HH-88 O</b> | <b>Conga-88</b> | <b>Clave-88</b> | <b>Crash-Synth</b> | <b>Maracas-88</b> | <b>Ride-KPR</b>  |

## 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)      |
|-----------------|---------------------|-----------------|---------------------|---------------------|----------------|-----------------|------------------|
| <b>BD-DDD1</b>  | <b>BD-Hip</b>       | <b>SD-Gate</b>  | <b>Clap-R&amp;B</b> | <b>SD-Brk3</b>      | <b>SD-Brk4</b> | <b>HH-99 C</b>  | <b>Tom-Dry</b>   |
| 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)    |
| <b>HH-Lyn C</b> | <b>SD-GateShort</b> | <b>HH-Lyn O</b> | <b>BD-Dist</b>      | <b>TriangleFilt</b> | <b>Crash</b>   | <b>SynPerc2</b> | <b>Ride-Dry1</b> |

## 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)      |
|-------------------|----------------|------------------|-----------------|------------------|------------------|------------------|------------------|
| <b>BD-Syn4</b>    | <b>BD-DnB</b>  | <b>SD-77</b>     | <b>SD-Syn5</b>  | <b>SD-Brk5</b>   | <b>SD-Brk2</b>   | <b>HH-Dry1 C</b> | <b>Tom-Gate</b>  |
| 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)    |
| <b>Tambourine</b> | <b>Tom-Dry</b> | <b>HH-Dry1 O</b> | <b>AutoBass</b> | <b>Syn-Perc3</b> | <b>Crash-Dry</b> | <b>Ride-Dry2</b> | <b>Ride-Dry1</b> |

## 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)         |
|------------------|---------------------|------------------|-------------------|-------------------|---------------------|-----------------|---------------------|
| <b>BD-Rubber</b> | <b>BD-Arcade</b>    | <b>SD-Scrape</b> | <b>Clap-WS</b>    | <b>SD-Needle</b>  | <b>SD-Burst</b>     | <b>HH-Syn C</b> | <b>Tom-LektraLo</b> |
| 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)       |
| <b>HH-Syn P</b>  | <b>Tom-LektraHi</b> | <b>HH-Syn O</b>  | <b>Wavedrum 1</b> | <b>Tom-PlnkHi</b> | <b>CrashElectro</b> | <b>Modbel</b>   | <b>Ride-Electro</b> |

## 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)         |
|----------------|---------------------|---------------------|--------------------|--------------------|------------------|---------------------|---------------------|
| <b>BD-Syn2</b> | <b>BD-R&amp;B</b>   | <b>SD-Dry3</b>      | <b>Clap-Dry</b>    | <b>SD Dry2</b>     | <b>Rim-Dry</b>   | <b>HH-AN Ring C</b> | <b>Tom-Dry Drv</b>  |
| 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)       |
| <b>Shaker</b>  | <b>Conga-Mt Drv</b> | <b>HH-AN Ring O</b> | <b>Conga-L Drv</b> | <b>Conga-H Drv</b> | <b>Crash-HPF</b> | <b>Tabla Drv</b>    | <b>Ride-Dry HPF</b> |

## 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)         |
|----------------|---------------------|----------------|---------------------|-------------------|-----------------|-----------------|---------------------|
| <b>BD-Hard</b> | <b>BD-99 Hard</b>   | <b>SD-99</b>   | <b>Clap-88</b>      | <b>SD-Blaster</b> | <b>SD-Hard</b>  | <b>HH-99 C</b>  | <b>Tom-99HardLo</b> |
| 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)       |
| <b>HH-99 P</b> | <b>Tom-99HardMd</b> | <b>HH-99 O</b> | <b>Tom-99HardHi</b> | <b>SD-Comb1</b>   | <b>Crash-99</b> | <b>SD-Comb2</b> | <b>Ride-Dry2</b>    |

## 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)       |
|------------------|-------------------|------------------|---------------------|-------------------|----------------|------------------|-------------------|
| <b>BD-Dry1</b>   | <b>BD-Amb</b>     | <b>SD-Lynn</b>   | <b>Clap-R&amp;B</b> | <b>SD-77</b>      | <b>SD-Gate</b> | <b>HH-Lynn C</b> | <b>Tom-Simm L</b> |
| 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)     |
| <b>HH-Lynn P</b> | <b>Tom-Simm M</b> | <b>HH-Lynn O</b> | <b>Tom-Simm H</b>   | <b>Cawbell-88</b> | <b>Crash</b>   | <b>Clave-88</b>  | <b>Ride-KPR</b>   |

## 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)         |
|--------------------|---------------------|--------------------|---------------------|--------------------|--------------------|------------------|---------------------|
| <b>BD-Electro1</b> | <b>BD-Electro2</b>  | <b>SD-Electro1</b> | <b>Clap-Electro</b> | <b>SD-Electro2</b> | <b>SD-Electro3</b> | <b>HH-KR55 C</b> | <b>Tom-ElectLow</b> |
| 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)       |
| <b>HH-88 O</b>     | <b>Tom-ElectMid</b> | <b>HH-KR55 O</b>   | <b>Tom-ElectHi</b>  | <b>Zapper1</b>     | <b>Crash-Elect</b> | <b>Zapper2</b>   | <b>Ride-Comb</b>    |

## 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)      |
|-------------------|------------------|-----------------|-------------------|---------------------|--------------------|-------------------|------------------|
| <b>BD-LPF</b>     | <b>BD-Sine</b>   | <b>SD-Noise</b> | <b>Clap-Noise</b> | <b>SD-NoiseShot</b> | <b>SD-HPF</b>      | <b>HH-HPF C</b>   | <b>Tom-Noise</b> |
| 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)    |
| <b>Tambrn-Syn</b> | <b>Wire Shot</b> | <b>HH-HPF O</b> | <b>Zap</b>        | <b>Reverse Zap</b>  | <b>Crash-Noise</b> | <b>Cross Perc</b> | <b>Ride-Comb</b> |

**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)         |
|---------------------|---------------------|--------------------|-------------------|-------------------|---------------------|---------------------|---------------------|
| <b>BD-Analog1</b>   | <b>BD-Analog2</b>   | <b>SD-Analog1</b>  | <b>Rim-Analog</b> | <b>SD-Analog2</b> | <b>SD-Analog3</b>   | <b>HH-Analog1 C</b> | <b>Tom-Analog L</b> |
| 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)       |
| <b>HH-Analog2 C</b> | <b>Tom-Analog H</b> | <b>HH-Analog O</b> | <b>Retroshot</b>  | <b>Perc-Comb</b>  | <b>Crash-Analog</b> | <b>Perc-Analog</b>  | <b>Noise</b>        |

**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)         |
|------------------|------------------|--------------------|------------------|---------------------|--------------------|------------------|---------------------|
| <b>BD-Flappo</b> | <b>BD-Rubber</b> | <b>SD-NoizWhap</b> | <b>Clap-Whip</b> | <b>SD-BeatMetal</b> | <b>SD-Clak</b>     | <b>HH-Wood C</b> | <b>Tom-PhonoFlr</b> |
| 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)       |
| <b>HH-Wood P</b> | <b>Tom-Blip1</b> | <b>HH-88deci O</b> | <b>Tom-Blip2</b> | <b>Tom-PhonoHi</b>  | <b>Crash-Swish</b> | <b>MetalTap</b>  | <b>Ride-Swish</b>   |

**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)     |
|----------------|----------------------|------------------|----------------------|--------------------|-----------------|-----------------|-----------------|
| <b>BD-Syn1</b> | <b>BD-Syn2</b>       | <b>SD-Syn1</b>   | <b>Rim-Lynn</b>      | <b>SD-R&amp;B2</b> | <b>SD-Brk3</b>  | <b>HH-Lyn C</b> | <b>Claves88</b> |
| 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)   |
| <b>Noise1</b>  | <b>"AT-""sss"" "</b> | <b>HH-Dry1 C</b> | <b>"AT-""kkk"" "</b> | <b>SynPerc2</b>    | <b>SynPerc3</b> | <b>Noise4</b>   | <b>HH-99 C</b>  |

**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)        |
|-------------------|------------------|-------------------|-------------------|--------------------|-------------------|---------------------|--------------------|
| <b>BD-Radar</b>   | <b>BD-IDM</b>    | <b>SD-IDM</b>     | <b>Clap-IDM</b>   | <b>SD-CrossMod</b> | <b>SD-Noise</b>   | <b>HH-Noise C</b>   | <b>Tom-Formant</b> |
| 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)      |
| <b>HH-HPF Squ</b> | <b>Waveshape</b> | <b>Noise Deci</b> | <b>Noise Comb</b> | <b>Random Mod</b>  | <b>Cross Comb</b> | <b>Impulse Comb</b> | <b>Pitch Mod</b>   |

**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)        |
|--------------------|--------------------|--------------------|---------------------|--------------------|-------------------|-------------------|--------------------|
| <b>BD-Dist</b>     | <b>BD-Release</b>  | <b>Metal Hit1</b>  | <b>Clap-RingMod</b> | <b>Space Drum</b>  | <b>Metal Hit2</b> | <b>HH-RingMod</b> | <b>Tabla-Comb</b>  |
| 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)      |
| <b>Woodblock H</b> | <b>Filter Drum</b> | <b>Woodblock L</b> | <b>HH-Glass</b>     | <b>Cowbell-Mod</b> | <b>Conga-Rez</b>  | <b>Cabasa</b>     | <b>Ride-HPF EG</b> |

**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)         |
|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>BD-88 Drive</b>  | <b>BD-Jazz+Nois</b> | <b>SD-CrossMod1</b> | <b>Clap-Deci</b>    | <b>SD-CrossMod2</b> | <b>SD-CrossMod3</b> | <b>HH-AN Ring C</b> | <b>Tom-PMod Drv</b> |
| 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)       |
| <b>HH-AT Harpsi</b> | <b>Perc-Formant</b> | <b>HH-Ring O</b>    | <b>Conga-L Deci</b> | <b>Conga-H Deci</b> | <b>SE-Space</b>     | <b>SE-DirtyPlop</b> | <b>Perc-VPM</b>     |

**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)           |
|-----------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| <b>"Voice""Yu"" "</b> | <b>"Voice""Yo"" "</b>  | <b>"Voice""Ya"" "</b>  | <b>"Voice""Ai"" "</b> | <b>"Voice""Ye"" "</b> | <b>"Voice""Wa"" "</b> | <b>"Voice""Chi"" "</b> | <b>"Voice""Ah"" "</b> |
| 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)         |
| <b>"Voice""Ha"" "</b> | <b>"Voice""eee"" "</b> | <b>"Voice""Shi"" "</b> | <b>"Voice""Uh"" "</b> | <b>"Voice""Eh"" "</b> | <b>"Voice""Ki"" "</b> | <b>"Voice""Oh"" "</b>  | <b>"Voice""Fu"" "</b> |

**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)        |
|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Init Inst1</b> | <b>Init Inst2</b>  | <b>Init Inst3</b>  | <b>Init Inst4</b>  | <b>Init Inst5</b>  | <b>Init Inst6</b>  | <b>Init Inst7</b>  | <b>Init Inst8</b>  |
| 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)      |
| <b>Init Inst9</b> | <b>Init Inst10</b> | <b>Init Inst11</b> | <b>Init Inst12</b> | <b>Init Inst13</b> | <b>Init Inst14</b> | <b>Init Inst15</b> | <b>Init Inst16</b> |

# 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 **RADIAS**. (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-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    | 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               |
| 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 | St.Tube PreAmp Simulator |
| 103 | SoftSaturate | St.Tube PreAmp Simulator |
| 104 | HardSaturate | St.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.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 * <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                              | Structure                 | <ul style="list-style-type: none"><li>• Synth<br/>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)</li><li>• Vocoder<br/>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</li><li>• Envelope follower<br/>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)</li></ul> |
| 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 * <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                              | 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.<br>One drum kit = 16 synth programs * <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Keyboard                     |                           | 49 Keys (no aftertouch)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Controllers                  |                           | modulation wheel, pitch bend wheel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Input/output jacks           | Audio input               | AudioIn1 = phone jack,<br>AudioIn2 (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")<br>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 Changed                                        | 1 – 16<br>1 – 16            | 1 – 16<br>1 – 16           | Memorized                                        |
| Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Memorized<br>Messages<br>Altered                       | ×<br>×<br>*****             | 3<br>×<br>×                |                                                  |
| Note Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | True Voice                                             | *5 – 108/ 21 – 108<br>***** | 0 – 127<br>0 – 127         | * RADIAS (with keyboard)/RADIAS (no keyboard)    |
| Velocity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Note On<br>Note Off                                    | ○ 1 – 127<br>○ 64           | ○ 1 – 127<br>×             |                                                  |
| Aftertouch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Polyphonic (Key)<br>Monophonic (Channel)               | ×<br>○                      | ×<br>○                     | *1                                               |
| 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<br>*****          | ○ 0 – 127<br>0 – 127       | *P                                               |
| System Exclusive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                        | ○                           | ○                          | *3, *E                                           |
| System Common                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Song Position<br>Song Select<br>Tune                   | ×<br>×<br>×                 | ×<br>×<br>×                |                                                  |
| System Real Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Clock<br>Command                                       | ○<br>×                      | ○<br>○                     | *4                                               |
| Aux Messages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Local On/Off<br>All Notes Off<br>Active Sense<br>Reset | ×<br>×<br>○<br>×            | ×<br>○ 123 – 127<br>○<br>× |                                                  |
| Remarks<br>*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.<br>*1: Transmitted according to the Global mode P08: PEDAL&SW “A.PEDAL” and “A. SwFunc” settings.<br>*2: Transmitted and received on the number specified by Global mode P07: MIDI MAP [CC#].<br>*3: In addition to Korg exclusive messages, also supports inquiry messages, master volume, and master fine tune.<br>*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.

**KORG** KORG INC.

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