Roland

FANTOM

Parameter Guide

Contents

Scene Parameters (Scene)

SCENE

1. Press the [MENU] button.

The MENU screen appears.

2. Touch <SCENE EDIT>.

The SCENE EDIT screen appears.

3. Touch the tab of the section that you want to edit.

4. Move the cursor to the desired parameter, and edit its value.

NOTE

The parameter edits that you make are temporary. They are lost when you turn off the power. If you want to keep the edits that you make, save the scene.

GENERAL

Parameter	Value	Explanation
Scene Level	0–127	Adjusts the overall volume of the scene.
Tempo	5.00–300.00	Specifies the tempo of the scene (and also of the arpeggios, rhythm patterns, and sequencer).
Pad Mode	Sample Pad	Plays a sample.
	Note Pad	Use the pads to play tones.
	Partial Sw/Sel	Select partials or turn them on/off.
	DAW Control	Control DAW software.
	Zone Mute	Turn zone muting on/off.
	Zone Solo	Turn zone solo on/off.
	Kbd Sw Group	Turns the keyboard switch combination.
	Rhythm Pattern	Play rhythm patterns.
	System	Use the system's PAD MODE settings.
Drum Kit Comp Zone	1–16	Selects the zone that uses the six compressors that are provided for the drum kit.

CONTROL

Parameter	Value	Explanation
Control Source Select	SYS	System Control Source1–4 are used for tone control.
	SCENE	Tone Control Source1–4 of the scene are used for tone control.
Tone Control Source1–4	OFF, CC01–31, 33–95, BEND, AFT	Specify the MIDI messages that will be used as tone controls. Tone control settings specify MIDI messages that are used in common by the entire FANTOM to control the volume and the sound. You can specify up to four MIDI messages that are used for control. If you want to make assignments for realtime control of the sound and effects for each tone independently, use "MATRIX CTRL" or "MFX CTRL."

PEDAL

Parameter	Value	Explanation
Pedal1–3 Assign	Specify the functions that are controlled by pedals connected to the PEDAL CTRL 1, 2/L, and 3/C jacks.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	BEND DOWN	The same effect as moving the pitch bend lever to the left.
	BEND UP	The same effect as moving the pitch bend lever to the right.
	AFT	Aftertouch
	START/STOP	Starts/stops the sequencer.
	TAP TEMPO	Sets the tap tempo function.
	SCENE DOWN	Switch the scene to the previous number. When using a scene chain, switch to the previous number in the chain set.
	SCENE UP	Switch the scene to the next number. When using a scene chain, switch to the next number in the chain set.
	OCT DOWN	Applies the same effect as when the panel's OCTAVE [DOWN] button is pressed.
	OCT UP	Applies the same effect as when the panel's OCTAVE [UP] button is pressed.
	ARPEGGIO SW	Applies the same effect as when the panel's [ARPEGGIO] button is pressed.
	CHORD MEM SW	Applies the same effect as when the panel's [CHORD MEMORY] button is pressed.
	DEC	Applies the same effect as when the panel's [DEC] button is pressed.
	INC	Applies the same effect as when the panel's [INC] button is pressed.
Pedal1–3 Range Min	0–127	Specifies the lower limit of the range of the assigned function.
Pedal1–3 Range Max	0–127	Specifies the upper limit of the range of the assigned function.

KNOB

Parameter	Value	Explanation
Knob1–8 Assign	Specifies the function that is controlled by the control knob.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	BEND	Applies the same effect as when the pitch bend lever is moved.
	AFT	Aftertouch
Knob1–8 Range Min	0–127	Specifies the lower limit of the range of the assigned function.
Knob1–8 Range Max	0–127	Specifies the upper limit of the range of the assigned function.

SLIDER

Parameter	Value	Explanation
Slider1–8 Assign	Specifies the function that is controlled by the sliders.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	BEND	Applies the same effect as when the pitch bend lever is moved.
	AFT	Aftertouch
Slider1–8 Range Min	0–127	Specifies the lower limit of the range of the assigned function.
Slider1–8 Range Max	0–127	Specifies the upper limit of the range of the assigned function.

S1/S2/S3

Parameter	Value	Explanation
S1–3 Switch Assign	Specifies the function that is controlled by the [S1] [S2] [S3] buttons.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	BEND DOWN	The same effect as moving the pitch bend lever to the left.
	BEND UP	The same effect as moving the pitch bend lever to the right.
	AFT	Aftertouch
	MONO/POLY	Mono/poly switch is assigned.
	MFX SW	MFX on/off is assigned.
	EQ SW	EQ on/off is assigned.
	IFX1 SW	IFX 1 on/off is assigned.
	IFX2 SW	IFX 2 on/off is assigned.
	CHORUS SW	CHORUS on/off is assigned.
	REVERB SW	REVERB on/off is assigned.
	MASTER COMP SW	MASTER COMP on/off is assigned.
	MASTER EQ SW	MASTER EQ on/off is assigned.
S1–3 Switch Mode	Specifies the operation of the button.	
	MOMENTARY	The assigned function is effective only while you hold down the button.
	LATCH	The assigned function is switched each time you press the button.

WHEEL1/2

Parameter	Value	Explanation
Wheel1–2 Assign	Specifies the function that is controlled by the wheel.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	BEND	Applies the same effect as when the pitch bend lever is moved.
	AFT	Aftertouch
Wheel1–2 Range Min	0–127	Specifies the lower limit of the range of the assigned function.
Wheel1–2 Range Max	0–127	Specifies the upper limit of the range of the assigned function.

CV/GATE

Parameter	Value	Explanation
CV/Gate 1–2 Control Zone	1–16, OFF	Specify the zone whose notes are output from the CV OUT 1/2 and GATE OUT 1/2 jacks.
CV 1–3 Assign	NOTE, CC01–31, 33–95, BEND, AFT, VELO	Specify the MIDI messages that will be used for control CV OUT.

Scene Effect Parameters (SCENE EFFECT)

1. Press the [MENU] button.

The MENU screen appears.

2. Touch <EFFECTS EDIT>.

The EFFECTS EDIT screen appears.

3. Touch <EDIT> for the section that you want to edit.

4. Move the cursor to the desired parameter, and edit its value.

NOTE

The effect settings that you edit are temporary. They will disappear if you turn off the power. If you want to keep your changes, you must save the system settings.

Chorus

Parameter	Value	Explanation
Chorus Type	Selects the types of chorus.	
Chorus Switch	OFF, ON	Switches chorus on/off.
Chorus Level	0–127	Specifies the output level of the sound with chorus applied.
Reverb Send Level	0–127	Specifies the send level to reverb.
Chorus Output Assign	Selects the output destination of chorus.	
	MAIN	Send to Master Output.
	SUB1, SUB2	Send to the SUB OUT 1 jacks or SUB OUT 2 jacks.
Chorus Parameters	Edit the parameters of the selected chorus. The available parameters differ depending on the type of chorus you selected in Chorus Type.	

Chorus Parameters

Chorus

This is a stereo chorus.

Parameter	Value	Explanation
Rate	0–127	Frequency of modulation
Depth	0–127	Depth of modulation
Feedback	0–127	Level at which chorus sound is returned to the input

CE-1

This models the classic BOSS CE-1 chorus effect unit. It provides a chorus sound with a distinctively analog warmth.

Parameter	Value	Explanation
Intensity	0–127	Chorus depth

SDD-320

This models Roland's DIMENSION D (SDD-320). It provides a clear chorus sound.

Parameter	Value	Explanation
Mode	1–4, 1+4, 2+4, 3+4	Switches the mode.

Delay

This is a stereo delay.

Parameter	Value	Explanation
Delay (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay (msec) Delay (note)	1–1300 [msec]	Adjusts the delay time from the direct sound until the delay sound is heard.
	Note ➡ "Note" (p. 76)	
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200–8000 [Hz], BYPASS	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (BYPASS: no cut).

T-Ctrl Delay

A stereo delay in which the delay time can be varied smoothly.

Parameter	Value	Explanation
Delay (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay (msec) Delay (note)	1–1300 [msec]	Adjusts the delay time from the direct sound until the delay sound is heard.
	Note ➡ "Note" (p. 76)	
Acceleration	0–15	When you change the delay time, this specifies the time over which the current delay time changes to the specified delay time. This affects the speed of pitch change as well as the delay time.
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200–8000 [Hz], BYPASS	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (BYPASS: no cut).

Delay → Tremolo

Tremolo is applied to the delay sound.

Parameter	Value	Explanation
Input Mode	MONAURAL	The input is mono-mixed.
	STEREO	The sound is input in stereo.
Delay (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay (msec) Delay (note)	1–1300 [msec]	Adjusts the delay time from the direct sound until the delay sound is heard.
	Note ➡ "Note" (p. 76)	
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200–8000 [Hz], BYPASS	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (BYPASS: no cut).
Tremolo Switch	OFF, ON	Switches the tremolo effect on/off
Tremolo Mod Wave	Modulation Wave	
	TRI	Triangle wave
	SQR	Square wave
	SIN	Sine wave
	SAW1	Sawtooth wave
	SAW2	
	TRP	Trapezoidal wave
Tremolo Rate (sync sw)	OFF, ON	If this is ON, the tremolo synchronizes with the tempo.

Parameter	Value	Explanation
Tremolo Rate (Hz) Tremolo Rate (note)	0.05–10.00 [Hz] Note ➡ "Note" (p. 76)	Tremolo rate
Tremolo Depth	0–127	Tremolo depth

2Tap Pan Delay

Delayed sound is heard from the two locations you specify.

Parameter	Value	Explanation
Delay (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay (msec) Delay (note)	1–1300 [msec] Note ➡ "Note" (p. 76)	Adjusts the delay time from the direct sound until the second delay sound is heard.
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200–8000 [Hz], BYPASS	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay 1 Pan	L64–63R	Stereo location of Delay 1
Delay 2 Pan	L64–63R	Stereo location of Delay 2
Delay 1 Level	0–127	Volume of delay 1
Delay 2 Level	0–127	Volume of delay 2

3Tap Pan Delay

Delayed sound is heard from the three locations you specify.

Parameter	Value	Explanation
Delay (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay (msec) Delay (note)	1–2600 [msec] Note ➡ "Note" (p. 76)	Adjusts the delay time from the direct sound until the third delay sound is heard.
Delay1 Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200–8000 [Hz], BYPASS	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay 1 Pan	L64–63R	Stereo location of Delay 1
Delay 2 Pan	L64–63R	Stereo location of Delay 2
Delay 3 Pan	L64–63R	Stereo location of Delay 3
Delay 1 Level	0–127	Volume of delay 1
Delay 2 Level	0–127	Volume of delay 2
Delay 3 Level	0–127	Volume of delay 3

JUNO-106 Chorus

This models the chorus effects of the Roland JUNO-106.

Parameter	Value	Explanation
Mode	I, II, I+II, JX I, JX II	Type of Chorus I+II: The state when two buttons are pressed simultaneously.
Noise Level	0–127	Amount of noise produced by the chorus

Reverb

Parameter	Value	Explanation
Reverb Type	Type of reverb	
Reverb Switch	OFF, ON	Switches the reverb on/off.
Reverb Level	0–127	Specifies the output level of the sound with reverb applied.
Reverb Output Assign	Selects the output destination of reverb.	
	MAIN	Send to Master Output.
	SUB1, SUB2	Send to the SUB OUT 1 jacks or SUB OUT 2 jacks.
Reverb Parameters	Edit the parameters of the selected reverb type. The available parameters differ depending on the type of reverb you selected in Reverb Type.	

Reverb Parameters

INTEGRA-7 Reverb

Parameter	Value	Explanation
Type	**01:** ROOM1 **02:** ROOM2 **03:** HALL1 **04:** HALL2 **05:** PLATE	Type of reverb **OFF:** Reverb will not be used **Room 1/2:** Room **Hall 1/2:** Hall **Plate:** Plate
Pre Delay	0–100 [msec]	Adjusts the delay time from the direct sound until the reverb sound is heard.
Time	0.1–10.0 [sec]	Adjusts the decay length of the reverb sound.
Density	0–127	Adjusts the density of the reverb sound.
Diffusion	0–127	Adjusts the change in the density of the reverb over time. The higher the value, the more the density increases with time. (The effect of this setting is most pronounced with long reverb times.)
LF Damp	0–100	Adjusts the low-frequency portion of the reverb.
HF Damp	0–100	Adjusts the high-frequency portion of the reverb.
Spread	0–127	Reverb spread
Tone	0–127	Tonal character of the reverb

Warm Hall

Parameter	Value	Explanation
Pre Delay	0–100 [msec]	Adjusts the delay time from the direct sound until the reverb sound is heard.
Time	0.3–30 [sec]	Adjusts the decay length of the reverb sound.
Pre LPF	16–15000 [Hz], Bypass	Frequency above which to cut the high-frequency portion of the sound entering the reverb
Pre HPF	16–15000 [Hz], Bypass	Frequency below which to cut the low-frequency portion of the sound entering the reverb
PreLoop LPF	16–15000 [Hz], Bypass	Frequency above which to cut the high-frequency portion of the extended reverberation
Diffusion	0–127	Adjusts the change in the density of the reverb over time.
HF Damp Freq	1000–8000 [Hz]	Adjusts the frequency above which to cut the high-frequency portion of the reverb.
HF Damp Ratio	0.1–1.0	Adjusts the amount by which to attenuate the high-frequency portion of the reverb.

Hall

Parameter	Value	Explanation
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the reverb sound is heard.
Time	0–127	Adjusts the decay length of the reverb sound.
Size	1–8	Size of room/hall
High Cut	160–12500 [Hz], BYPASS	Adjusts the frequency above which the high-frequency portion of the final output sound is cut (**BYPASS:** no cut)
Density	0–127	Adjusts the density of the reverb sound.
Diffusion	0–127	Adjusts how reverb density increases over time. (This effect is especially noticeable with long reverb times.)
LF Damp Freq	50–4000 [Hz]	Adjusts the frequency below which the low-frequency portion of the reverb sound is cut.
LF Damp Gain	-36–0 [dB]	LF damp attenuation amount (0: no effect)
HF Damp Freq	4000–12500 [Hz]	Adjusts the frequency above which the high-frequency portion of the reverb sound is cut.
HF Damp Gain	-36–0 [dB]	HF damp attenuation amount (0: no effect)

GS Reverb

Parameter	Value	Explanation
Character	ROOM1–3, HALL1–2, PLATE, DELAY, PAN-DELAY	Selects the type of reverb.
Pre-LPF	0–7	Adjusts the amount of high-frequency attenuation for the sound being input to the reverb.
Time	0–127	Adjusts the decay length of the reverb sound.
Delay Feedback	0–127	Adjusts the level at which the reverb sound is returned to the input.

SRV-2000

Parameter	Value	Explanation
Selection	Selects the type of reverb offered by the Roland SRV-2000 digital reverb.	
	R37–R0.3	Room reverb. Higher values increase the size of the room.
	H37–H15	Hall reverb. Higher values increase the size of the concert hall.
	P-B	Plate reverb. A more flamboyant reverb sound than P-A.
	P-A	Plate reverb.
Pre Delay	0–160	Adjusts the delay time from the direct sound until the reverb sound is heard.
Time	1–990 [msec]	Adjusts the decay length of the reverb sound.
HF Damp	0.05–1.00	Adjusts the high-frequency portion of the reverb.
Density	0–9	Adjusts the density of the late reverberation.
Attack Gain	0–9	Adjusts the gain of the early reflections.
Attack Time	0–9	Adjusts the time of the early reflections.
ER Density	0–9	Adjusts the density of the early reflections.
ER Level	0–99	Adjusts the volume of the early reflections.
EQ Low Freq	0.04–1.00 [kHz]	Frequency of the low range.
EQ Low Gain	-24–+12 [dB]	Gain of the low range.
EQ Mid Freq	0.25–9.99 [kHz]	Frequency of the middle range.
EQ Mid Gain	-24–+12 [dB]	Gain of the middle range.
EQ Mid Q	0.2–9.0	Width of the middle range. Set a higher value to narrow the range to be affected.
EQ Hi Freq	0.80–9.99 [kHz]	Frequency of the high range.
EQ Hi Gain	-24–+12 [dB]	Gain of the high range
EQ Hi Q	0.2–9.0	Specifies the width of the high-frequency range. Set a higher value to narrow the range to be affected.

SRV-2000 NON-LINEAR

Parameter	Value	Explanation
Pre Delay	0–160	Adjusts the delay time from the direct sound until the reverb sound is heard.
Reverb Time	1–990 [msec]	Adjusts the decay length of the reverb sound.
Gate Time	10–450 [msec]	Adjusts the time from when the reverb starts being heard until the reverb sound is cut off.
HF Damp	0.05–1.00	Adjusts the high-frequency portion of the reverb.
EQ Low Freq	0.04–1.00 [kHz]	Frequency of the low range.
EQ Low Gain	-24–+12 [dB]	Gain of the low range.
EQ Mid Freq	0.25–9.99 [kHz]	Frequency of the middle range.
EQ Mid Gain	-24–+12 [dB]	Gain of the middle range.
EQ Mid Q	0.2–9.0	Width of the middle range. Set a higher value to narrow the range to be affected.
EQ Hi Freq	0.80–9.99 [kHz]	Frequency of the high range.
EQ Hi Gain	-24–+12 [dB]	Gain of the high range
EQ Hi Q	0.2–9.0	Specifies the width of the high-frequency range. Set a higher value to narrow the range to be affected.

GM2 Reverb

Parameter	Value	Explanation
Character	0–5	Selects the type of reverb.
Time	0–127	Adjusts the decay length of the reverb sound.

IFX1, IFX2

Parameter	Value	Explanation
IFX1 Type IFX2 Type	Selects the IFX type.	
IFX1 Switch IFX2 Switch	OFF, ON	Turns IFX on/off.
IFX1 Chorus Send Level IFX2 Chorus Send Level	0–127	Adjusts the amount of chorus. If you don't want to add the chorus effect, set it to 0.
IFX1 Reverb Send Level IFX2 Reverb Send Level	0–127	Adjusts the amount of reverb. If you don't want to add the reverb effect, set it to 0.
IFX Structure	PARALLEL, SERIAL	Specifies how the two IFX are combined. PARALLEL: IFX1 and IFX2 are used in parallel. SERIAL: The output of IFX 1 is connected to IFX 2.
IFX1 Output Assign IFX2 Output Assign	Selects the output destination of IFX. * If IFX Structure is set to "SERIAL," the IFX 1 Output Assign value is ignored.	
	MAIN	Send to Master Output.
	SUB1, SUB2	Send to the SUB OUT 1 jacks or SUB OUT 2 jacks.
	AFX	Send to the Analog Filter.
IFX Parameters	Edit the parameters for the selected IFX. The available parameters differ depending on the type of the effects you selected in IFX Type. ➡ **"MFX/IFX Parameters"** (p. 40)	

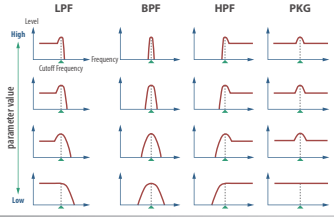
ANALOG FILTER

Parameter	Value	Explanation
Level	0–127	Adjusts the input volume to the Analog Filter.
Return To Main Switch	OFF, ON	Specifies whether the output of the Analog Filter is returned to the MAIN OUT jacks. ON: The output is returned to the MAIN OUT jacks. OFF: Not output to the MAIN OUT jacks. * Regardless of this setting, the output of the ANALOG FILTER is always output from the ANALOG FILTER OUT 1/2 jacks.
Pan	L64–63R	Specifies the panning of the sound that is output from the Analog Filter.
Chorus Send	0–127	Adjusts the amount of chorus. If you don't want to add the chorus effect, set it to 0.
Reverb Send	0–127	Adjusts the amount of reverb. If you don't want to add the reverb effect, set it to 0.

OVERDRIVE

Parameter	Value	Explanation
Drive Switch	OFF, ON	Turns OVERDRIVE on/off.
Gain	0–127	Adjusts the degree of distortion.
Level	0–127	Adjusts the output volume.

FILTER

Parameter	Value	Explanation
Filter Type	Specifies the type of filter.	
	LPF1	A four-stage filter using a circuit structure that has often been used by Roland, with relatively standard operation.
	LPF2	The ladder-type filter using transistors, with a fairly strong character.
	LPF3	A multi-mode filter that simultaneously comprises LPF, HPF, and BPF, which uses a relatively standard circuit but is designed so that the resonance changes dramatically.
	HPF	
	BPF	
	OFF	Bypasses the filter.
Cutoff	0–1023	Selects the frequency at which the filter begins to have an effect on the waveform's frequency components.
Resonance	0–1023	Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. 

Zone Parameters (Zone)

1. Press the [MENU] button.

The MENU screen appears.

2. Touch <ZONE EDIT>.

The ZONE EDIT screen appears.

3. Touch the tab of the section that you want to edit.

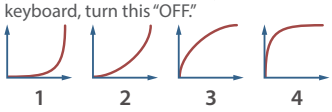
4. Move the cursor to the desired parameter, and edit the value.

NOTE

Edited parameters are temporary. They disappear when you turn off the power. If you want to keep the settings, save the scene.

INT (INTERNAL)

TONE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
TYPE	VPno, Z-Core, Drum	Selects the tone type.
BANK	Selects the tone bank.	
	PRESET, USER	VPno Tone
	PR-A–PR-E, CMN, USER	Z-Core Tone
	PR-A, CMN, USER	Drum Tone
TONE	(Tone number/ Tone name)	Selects the tone.
Velocity Curve Type	OFF, 1–4	For each zone, select one of the following four velocity curves as appropriate for the touch response of your MIDI keyboard. If you want to use the velocity curve of the keyboard, turn this "OFF."  1 2 3 4
Zone Output Assign	Selects the output destination of zone.	
	MAIN	Send to Master Output.
	IFX1, IFX2	Send to IFX 1 or IFX 2.
	SUB1, SUB2	Send to the SUB OUT 1 jacks or SUB OUT 2 jacks.
	AFX	Send to the Analog Filter.

LEVEL/PAN

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
LEVEL	0–127	Adjusts the volume of each zone.
PAN	L64–0–63R	Specifies the panning of each zone's sound when using stereo output.
Zone Chorus Send Level	0–127	Specifies the send level to chorus.
Zone Reverb Send Level	0–127	Specifies the send level to reverb.
Zone Switch	OFF, ON	Turns reception on/off for each zone.
Receive Channel	1–16	Specifies the MIDI channel assigned to each zone.

KEY RANGE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Keyboard Control Range Lower	C-1–G9	Set the keyboard range in which each Zone will sound. Make these settings when you want different key ranges to play different tones. Specify the lower limit (Lower) and upper limit (Upper) of the key range.
Keyboard Control Range Upper	C-1–G9	

VEL RANGE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Velocity Sens Offset	-63–+63	Adjusts the velocity sensitivity. Larger settings raise the sensitivity.
Velocity Max	1–127	Maximum velocity value for the corresponding key. Lowering this value will produce softer notes even if you play the keyboard strongly. * This setting is disregarded with certain tones.
Zone Velocity Range Lower	1–127	Specify the lower limit (Lower) and upper limit (Upper) of the velocities that will sound the tone. Make these settings when you want to play different tones depending on your keyboard dynamics.
Zone Velocity Range Upper	1–127	
Zone Velocity Fade Width Lower	0–127	Specifies the degree to which the tone is sounded by notes played more softly than Zone Velocity Range Lower. If you don't want the tone to sound at all, set this parameter to "0."
Zone Velocity Fade Width Upper	0–127	Specifies the degree to which the tone is sounded by notes played more strongly than Zone Velocity Range Upper. If you don't want the tone to sound at all, set this parameter to "0."

EQ (Zone EQ)

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Switch	OFF, ON	Specifies whether the zone EQ (an equalizer applied to each zone) is used (ON) or not used (OFF).
EQ Input Gain	-24–+24 [dB]	Adjusts the amount of boost/cut for the input to the EQ.
Low Gain	-24–+24 [dB]	Gain of the low range.
Low Freq	20–16000 [Hz]	Frequency of the low range.
Mid1 Gain	-24–+24 [dB]	Gain of the middle frequency range 1.
Mid1 Freq	20–16000 [Hz]	Frequency of the middle range 1.

Parameter	Value	Explanation
Mid1 Q	0.5–16.0	Width of the middle frequency range 1. Set a higher value to narrow the range to be affected.
Mid2 Gain	-24–+24 [dB]	Gain of the middle frequency range 2.
Mid 2Freq	20–16000 [Hz]	Frequency of the middle range 2.
Mid2 Q	0.5–16.0	Width of the middle frequency range 2. Set a higher value to narrow the range to be affected.
Mid3 Gain	-24–+24 [dB]	Gain of the middle frequency range 3.
Mid3 Freq	20–16000 [Hz]	Frequency of the middle range 3.
Mid3 Q	0.5–16.0	Width of the middle frequency range 3. Set a higher value to narrow the range to be affected.
High Gain	-24–+24 [dB]	Gain of the high range
High Freq	20–16000 [Hz]	Frequency of the high range.

PITCH

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Coarse Tune	-48–+48	Shifts the pitch in units of a semitone.
Zone Fine Tune	-50–+50	Finely adjusts the pitch in units of one cent.
Zone Bend Range	0–24, TONE	Specifies the amount of pitch change in semitone units (maximum two octaves) that occurs when you move a controller such as the ribbon controller when pitch bend is assigned to that controller. Choose TONE if you want to use the setting specified by the tone.
Zone Portamento Switch	OFF, ON, TONE	Specifies whether portamento is applied. Select ON to apply portamento, or OFF if you don't want to apply portamento. Choose TONE if you want to use the setting specified by the tone.
Zone Portamento Time	0–127, TONE	When portamento is used, this specifies the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time. Choose TONE if you want to use the setting specified by the tone.
Octave Shift	-3–+3	Shifts the pitch of the keyboard in units of one octave.

SCALE TUNE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Scale Tune Type	CUSTOM	**Custom:** This lets you create a custom scale.
	EQUAL	**Equal Temperament:** This tuning divides an octave into 12 equal parts. Every interval produces about the same amount of slight dissonance.
	JUST-MAJ	**Just (Major):** This scale eliminates dissonance in fifths and thirds. It is unsuited to playing melodies and cannot be transposed, but is capable of beautiful sonorities.
	JUST-MIN	**Just (Minor):** The scales of the major and minor just intonations are different. You can get the same effect with the minor scale as with the major scale.
	PYTHAGORE	**Pythagorean:** This scale, devised by the philosopher Pythagoras, eliminates dissonance in fourths and fifths. Dissonance is produced in thirds, but melodies are euphonious.
	KIRNBERGE	**Kirnberger:** This scale is a modification of the meantone and just intonations that permits greater freedom in transposition to other keys. Performances are possible in all keys (III).
	MEANTONE	**Meantone:** This scale makes some compromises in just intonation, enabling transposition to other keys.
	WERCKMEIS	**Werckmeister:** This is a combination of the meantone and Pythagorean scales. Performances are possible in all keys (first technique, III).
	ARABIC	**Arabic Scale:** This scale is suitable for Arabic music.
Zone Scale Tune Key	C–B	Sets the keynote.
C–B	-64–+63	Finely adjusts the pitch.

VIBRATO

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Vibrato Rate	-64–+63	Adjusts the vibrato speed (the rate at which the pitch is modulated). The pitch will be modulated more rapidly for higher settings, and more slowly with lower settings.
Zone Vibrato Depth	-64–+63	Adjusts the depth of the vibrato effect (the depth at which the pitch is modulated). The pitch will be modulated more greatly for higher settings, and less with lower settings.
Zone Vibrato Delay	-64–+63	Adjusts the time until vibrato (pitch modulation) starts to apply. Higher settings will produce a longer delay time before vibrato begins, while lower settings produce a shorter time.

OFFSET

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).

Parameter	Value	Explanation
Zone Cutoff Offset	-64–+63	Adjusts how far the filter is open. Increasing this value makes the sound brighter, and decreasing it makes the sound darker.
Zone Resonance Offset	-64–+63	Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. Increasing this value strengthens the character, and decreasing it weakens the character.
Zone Attack Time Offset	-64–+63	Adjusts the time over which the sound reaches its maximum volume after you press the key. Larger settings of this value make the attack gentler, and smaller settings make the attack sharper.
Zone Decay Time Offset	-64–+63	Adjusts the time over which the volume decreases from its maximum value. Larger settings of this value make the decay longer, and smaller settings make the decay shorter.
Zone Release Time Offset	-64–+63	Adjusts the time over which the sound decays to silence after you release the key. Larger settings of this value make the sound linger, and smaller settings make the sound end more sharply.

MONO/POLY

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Mono/Poly	MONO, POLY, TONE	Choose MONO if you want the tone assigned to the zone to play monophonically; choose POLY if you want to play it polyphonically. Choose TONE if you want to use the setting specified by the tone.
Hold Type	STACK	Hold all notes for which a key-off occurs while the Hold pedal is pressed (while CC#64 had a value of 64 or higher).
	LEGATO	Hold notes for which a key-off occurs while the Hold pedal is pressed (while CC#64 is 64 or higher) until a new key-on (single note or chord) is input.
Bend Hold Notes Sw	OFF, ON	Turn this OFF if you don't want pitch bend to affect notes that are being held by the Hold pedal etc.
Bend Mode	Specifies what occurs when you operate a controller such as the pitch bend lever when pitch bend is assigned to it.	
	NORMAL	The conventional pitch bend effect occurs.
	C+L (CATCH + LAST)	The pitch bend effect applies only to the last-played note. If a note-on occurs while pitch bend is already applied, the new note sounds at the center pitch. The pitch starts changing only after the controller passes through the center position.
	TONE	The tone's settings are used.

PEDAL CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Hold Pedal (DAMPER)	OFF, ON	Specifies whether hold pedal operations are received (ON) or not received (OFF).
Control Pedal 1–3 (FC1–3)	OFF, ON	Specifies whether control pedal operations 1–3 are received (ON) or not received (OFF).

BEND CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Bender (PITCH BEND)	OFF, ON	Specifies whether pitch bend lever pedal operations are received (ON) or not received (OFF).
Control Modulation (MODULATION)	OFF, ON	Specifies whether modulation lever operations are received (ON) or not received (OFF).
Control Aftertouch (AFTERTOUCH)	OFF, ON	Specifies whether aftertouch is received (ON) or not received (OFF).
Control Wheel 1 (WHEEL1)	OFF, ON	Specifies whether WHEEL1 is received (ON) or not received (OFF).
Control Wheel 2 (WHEEL2)	OFF, ON	Specifies whether WHEEL2 is received (ON) or not received (OFF).

S1S2S3 CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control S1–S3 (S1–3)	OFF, ON	Specifies whether [S1]–[S3] button operations are received (ON) or not received (OFF).

ASSIGN KNOB

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Knob 1–8 (KNOB1–8)	OFF, ON	Specifies whether control knob [1]–[8] operations are received (ON) or not received (OFF).

ASSIGN SLIDER

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Slider 1–8 (SL1–8)	OFF, ON	Specifies whether slider [1]–[8] operations are received (ON) or not received (OFF).

VOICE RESERVE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Voice Assign Mode	Specifies voice assignment when the same key is played repeatedly.	
	SINGLE	The previous note is silenced each time the same key is played repeatedly.
	LIMITED	When the same key is played repeatedly a certain number of times, the lowest-level of the notes sounding at the same pitch is silenced.
	FULL	Even when the same key is played repeatedly, it is sounded within the limits of available polyphony.
Voice Reserve	1–63, FULL	Specifies the number of voices that are reserved for each zone if you attempt to play more notes than the maximum polyphony.

MIDI Rx FILTER

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Receive Program Change (PC)	OFF, ON	Specifies whether program change is received (ON) or not received (OFF).
Receive Bank Select (BS)	OFF, ON	Specifies whether bank select is received (ON) or not received (OFF).
Receive Pitch Bend (PB)	OFF, ON	Specifies whether pitch bend is received (ON) or not received (OFF).
Receive Poly Key Pressure (PA)	OFF, ON	Specifies whether polyphonic aftertouch is received (ON) or not received (OFF).
Receive Channel Pressure (CA)	OFF, ON	Specifies whether channel aftertouch is received (ON) or not received (OFF).
Receive Modulation (MD)	OFF, ON	Specifies whether modulation is received (ON) or not received (OFF).
Receive Volume (VO)	OFF, ON	Specifies whether volume is received (ON) or not received (OFF).
Receive Pan (PN)	OFF, ON	Specifies whether pan is received (ON) or not received (OFF).
Receive Expression (EX)	OFF, ON	Specifies whether expression is received (ON) or not received (OFF).
Receive Hold-1 (HD)	OFF, ON	Specifies whether hold 1 is received (ON) or not received (OFF).

EXT (EXTERNAL)

NAME

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Ext Name	Assigns a name to each EXT zone.	

OUT/PC

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
MIDI Tx Port	ALL, OUT1, OUT2, USB	Specifies the connector from which MIDI messages sent by each EXT zone are transmitted.
Tx Channel	1–16	Specifies the transmit channel on which MIDI messages output by each EXT zone are transmitted.
External Bank MSB (CC#0)	---, 0–127	Enter the program number and the bank MSB/LSB as numerical values to switch sounds on an external MIDI device. The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.
External Bank LSB (CC#32)	---, 0–127	
External Program Change (PC)	---, 1–128	

LEVEL/PAN

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
MIDI Tx Port	ALL, OUT1, OUT2, USB	Specifies the connector from which MIDI messages transmitted by each EXT zone are output.
External Volume (CC#7)	---, 0–127	MIDI messages such as volume and pan are transmitted to an external device. The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.
External Pan (CC#10)	---, L64–63R	
External Reverb Send (CC#91)	---, 0–127	
External Chorus Send (CC#93)	---, 0–127	

KEY RANGE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Keyboard Control Range Lower	C-1–G9	Specifies the key range of the note messages that are transmitted by each EXT zone. Specify the lower limit (Lower) and upper limit (Upper) of the key range.
Keyboard Control Range Upper	C-1–G9	

VEL RANGE

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Zone Velocity Range Lower	1–127	Specifies the Lower limit and Upper limit of the velocity values in the note messages sent by each EXT zone.
Zone Velocity Range Upper	1–127	

PITCH

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
External Coarse Tune (RPN#2)	---, -48–+48	The MIDI message (Coarse Tune) is transmitted to an external device. Adjusts the pitch in semitone steps. (RPN: 00H/02H) (±4 octaves) The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.
External Fine Tune (RPN#1)	---, -50–+50	The MIDI message (Fine Tune) is transmitted to an external device. Adjusts the pitch in one-cent steps. (RPN: 00H/01H) (±50 cents) The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.
External Bend Range (RPN#0)	---, -0–48	The MIDI message (Bend Range) is transmitted to an external device. Sets the amount of pitch change to occur when you move the Pitch Bend lever (4 octaves). (RPN: 00H/00H) The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.
External Modulation Depth (RPN#5)	---, 0–127	The MIDI message (Modulation Depth) is transmitted to an external device. Specifies how the effect is applied when the modulation lever is moved away from yourself. (RPN: 00H/05H) The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.

OFFSET

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
External Cutoff Offset (CC#74)	---, 0–127	Adjusts how far the filter is open. Increasing this value makes the sound brighter, and decreasing it makes the sound darker.
External Resonance Offset (CC#71)		Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. Increasing this value strengthens the character, and decreasing it weakens the character.
External Attack Time Offset (CC#73)		Adjusts the time over which the sound reaches its maximum volume after you press the key. Higher values produce a milder attack; lower values produce a sharper attack.
External Decay Time Offset (CC#75)		Adjusts the time over which the volume decreases from its maximum value. Larger settings of this value make the decay longer, and smaller settings make the decay shorter.
External Release Time Offset (CC#72)		The time it takes after the key is released for a sound to become inaudible. Larger settings of this value make the sound linger, and smaller settings make the sound end more sharply.
	MIDI messages that modify the sound are transmitted to an external device. The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.	

MONO/POLY

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
External MONO/POLY (CC#126/127)	---, MONO, POLY	The MIDI message (MONO/POLY) is transmitted to an external device. Specifies whether the tone will play polyphonically (POLY) or monophonically (MONO). The specified value is transmitted when you switch scenes. If "---" is selected, no message is transmitted.

PEDAL CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Hold Pedal (DAMPER)	OFF, ON	Pedal switch connected to the HOLD/R jack
Control Pedal 1–3 (FC1–3)		Pedal connected to the CTRL 1, CTRL 2/L, CTRL 3/C jacks.
	Specifies whether a pedal or other controller connected to each PEDAL jack does control (ON) or does not control (OFF) an external MIDI device.	

BEND CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Bender (PITCH BEND)	OFF, ON	Pitch Bend Lever
Control Modulation (MODULATION)		Modulation Lever
Control Aftertouch (AFTERTOUCH)		Aftertouch
Control Wheel 1 (WHEEL1)		WHEEL1
Control Wheel 2 (WHEEL2)		WHEEL2
	Specifies whether each controller will (ON) or will not (OFF) control an external MIDI device.	

S1S2S3 CTRL

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control S1–S3 (S1–3)	OFF, ON	[S1]–[S3] switches
	Specifies whether [S1]–[S3] switches will (ON) or will not (OFF) control an external MIDI device.	

ASSIGN KNOB

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Knob 1–8 (KNOB1–8)	OFF, ON	Control Knobs [1]–[8]
	Specifies whether control knobs [1]–[8] will (ON) or will not (OFF) control an external MIDI device.	

ASSIGN SLIDER

Parameter	Value	Explanation
ZONE	INT	The zone is used as an INT ZONE (lit red).
	EXT	The zone is used as an EXT ZONE (lit green).
	COMMON	The zone us used as COMMON (unlit).
Control Slider 1–8 (SL1–8)	OFF, ON	Sliders [1]–[8]
	Specifies whether sliders [1]–[8] will (ON) or will not (OFF) control an external MIDI device.	

ZEN-Core Tone Parameters (Z-Core)

1. Select the zone to which the tone is assigned.

2. Press the [MENU] button.

The MENU screen appears.

3. Touch <TONE EDIT>.

The TONE EDIT screen appears.

4. Touch the tab of the section that you want to edit.

5. Move the cursor to the desired parameter, and edit the value.

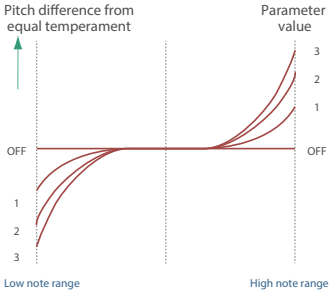
NOTE

Parameters that you edit are temporary. They disappear when you turn off the power. If you want to keep your changes, you must save the tone.

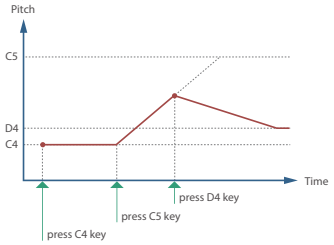
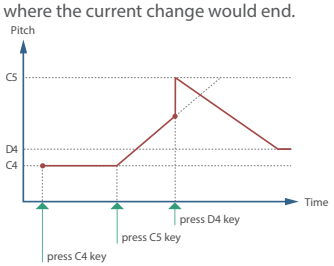
MEMO

Parameters followed by the indication (ZOOM) can also be edited in the TONE EDIT ZOOM screen.

COMMON

Parameter	Value	Explanation
(Name)	Tone name	
Category	0–49	Selects the tone's category.
Tone Level	0–127	Adjusts the overall volume of the tone.
Tone Pan	L64–0–63R	Specifies the pan of the tone. "L64" is far left, "0" is center, and "63R" is far right.
Priority	This determines how notes will be managed when the maximum polyphony is exceeded.	
	LAST	The last-played voices will be given priority, and currently sounding notes will be turned off in order, beginning with the first-played note.
	LOUDEST	The voices with the loudest volume will be given priority, and currently sounding notes will be turned off, beginning with the lowest-volume voice.
Coarse Tune	-48–+48 [semitone]	Adjusts the pitch of the sound up or down in semitone steps (+/-4 octaves).
Fine Tune	-50–+50 [cent]	Adjusts the pitch of the sound up or down in 1-cent steps (+/-50 cents).
Octave Shift	-3–+3	Adjusts the pitch of the tone's sound up or down in units of an octave (+/-3 octaves).
Stretch Tune Depth	OFF, 1–3	This setting allows you to apply "stretched tuning" to the tone. (Stretched tuning is a system by which acoustic pianos are normally tuned, causing the lower range to be lower and the higher range to be higher than the mathematical tuning ratios would otherwise dictate.) With a setting of "OFF," the tone's tuning will be equal temperament. A setting of "3" will produce the greatest difference in the pitch of the low and high ranges. The diagram shows the pitch change relative to equal temperament that will occur in the low and high ranges. This setting will have a subtle effect on the way in which chords resonate. 

Parameter	Value	Explanation
Analog Feel (ZOOM)	0–127	Applies time-varying change to the pitch and volume of the tone that is producing sound, adding a sense of variability. As you increase this value toward the maximum, the variability becomes greater, producing instability.
Mono/Poly (ZOOM)	Specifies whether the tone will play polyphonically (POLY) or monophonically (MONO).	
	MONO	Sound only the last-played key one at a time.
	POLY	Two or more notes can be played simultaneously.
Unison Switch (ZOOM)	OFF, ON	This layers a single sound. If the Unison Switch is on, the number of notes layered on one key will change according to the number of keys you play. • If the OSC Type is PCM, this is limited to mono playing. • If the Legato Switch is on, the Delay Time is ignored while playing legato. • Even if Legato Retrigger Interval is specified, it operates as OFF.
Unison Size	2–8	If unison is on, this specifies the number of notes that are assigned to each key that is pressed. Increasing the Unison Size increases the polyphony, making it more likely that notes will be cut off.
Unison Detune	0–100	Detunes each of the notes that are allocated by the Unison Size number, producing a detuned effect. As you increase this value, each note is detuned more greatly, producing a thicker sound.
Legato Switch (ZOOM)	OFF, ON	This is effective when MONO/POLY is set to MONO and Legato Switch is turned ON. When you press the next key while still holding down the previous key (legato performance), the pitch changes smoothly. The way in which the change occurs depends on the Legato Retrigger Interval.
Legato Retrigger Interval	0–12, OFF	When Legato Switch is enabled and you play legato, this specifies whether retriggering occurs (0–12) or does not occur (OFF). If this is off, only the pitch of the currently-sounding tones changes according to the pitch of the key. If this is set to 1–12, retriggering occurs smoothly when the pitch difference during legato performance exceeds the specified value. For example, if this is set to 4, and using C4 as the reference pitch, playing notes Db4–E4 legato will change only the pitch without retriggering, but playing the F4 note (which is five semitones away from C4) legato will retrigger F4. When F4 is retriggered at this time, F4 now becomes the reference pitch. If this is set to 0, each note is retriggered every time regardless of the pitch difference. For acoustic-type sounds in particular, an unnatural impression can occur if only the pitch is changed, so you'll need to adjust the Legato Retrigger Interval.
Portamento Switch	OFF, ON	Specifies whether the portamento effect will be applied (ON) or not applied (OFF). * **Portamento is an effect which smoothly changes the pitch from the first-played key to the next-played key. By applying portamento when the MONO/POLY parameter is "MONO," you can simulate slide performance techniques on a violin or similar instrument.**
Portamento Mode	Specifies the performance conditions for which portamento will be applied.	
	NORMAL	Portamento will always be applied.
	LEGATO	Applies portamento only when you play legato (i.e., when you press the next key before releasing the previous key).

Parameter	Value	Explanation
Portamento Type	Specifies the type of portamento effect.	
	RATE	The time it takes will depend on the distance between the two pitches.
	TIME	The time it takes will be constant.
Portamento Start	When another key is pressed during a pitch change produced by portamento, a new pitch change will begin. This setting specifies the pitch at which the change will begin.	
	Pitch	Starts a new portamento when another key is pressed while the pitch is changing. 
	NOTE	Portamento will begin from the pitch where the current change would end. 
Portamento Time	0–1023	When portamento is used, this specifies the time over which the pitch will change. Higher settings will cause the pitch change to the next note to take more time.
Bend Range Up	0–48 [semitone]	Specifies the degree of pitch change in semitones when the Pitch Bend lever is all the way right. For example, if this parameter is set to "48," the pitch will rise four octave when the pitch bend lever is moved to the right-most position.
Bend Range Down	0–48 [semitone]	Specifies the degree of pitch change in semitones when the Pitch Bend lever is all the way left. For example if this is set to "48" and you move the pitch bend lever all the way to the left, the pitch will fall 4 octaves.
Bend Range Fine Up	0–100 [cent]	Finely adjusts the degree of pitch change in one-cent units when the Pitch Bend lever is moved to the right.
Bend Range Fine Down	0–100 [cent]	Finely adjusts the degree of pitch change in one-cent units when the Pitch Bend lever is moved to the left.
Bend Mode	NORMAL	The pitch bend lever works in the conventional way.
	CATCH+LAST	The pitch bend effect applies only to the last-played note. If a note-on occurs while pitch bend is already applied, the new note sounds at the center pitch. The pitch starts changing only after the controller passes through the center position.
Soft Level Sens	0–100	Specifies the amount of volume change that occurs when you operate the soft pedal (CC#67). This is effective when specified for piano sounds.
ADSR Envelope Switch (ZOOM)	OFF, ON	This imitates the operation of the ADSR envelope that is provided on an analog synthesizer. If ADSR Env Switch is ON, the "Time 2" parameters of Pitch/Filter/Amp Env Time respectively are ignored, and only the "Level 3" parameters of Pitch/Filter/Amp Env Level are valid.

Parameter	Value	Explanation
Partial Switch	OFF, ON	Use these switch to turn the partials on/off.

STRUCTURE

Structure lets you sound two partials as a set.

You can create a wide range of sounds by using partial 2 or 4 (the modulator) to modulate partial 1 or 3 (the carrier).

Since the Structure uses two partials as a pair, it provides parameters that are used in common by the carrier and modulator.

For the following parameters, only the partial settings of the carrier are valid (the settings of the modulator are ignored).

KEYBOARD

- Keyboard Range Lower
- Keyboard Range Upper
- Keyboard Fade Width Lower
- Keyboard Fade Width Upper
- Velocity Range Lower
- Velocity Range Upper
- Velocity Fade Width Lower
- Velocity Fade Width Upper

SWITCH

- Partial Switch

OSC

- Delay Mode (note)
- Delay Mode
- Delay Time Sync
- Delay Time (note)
- Delay Time

CONTROL

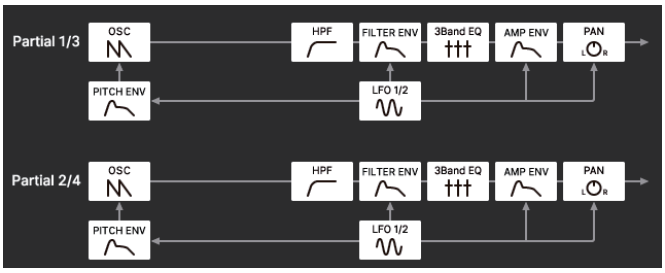
- Envelope Mode
- Receive Hold-1
- Redamper Switch
- Damper Free Note

MATRIX CONTROL

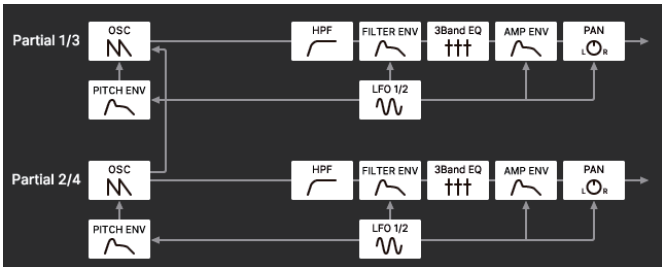
- Destination: PMT
- Destination: CROSS-MOD

Parameter	Value	Explanation
Structure1-2 (ZOOM)	The sound of partial 1 is modulated by partial 2.	
	OFF	OFF
	SYNC	Implements the oscillator sync function that is provided by an analog synthesizer. The partial 1 oscillator is reset at intervals of partial 2's pitch cycle. This is effective only if OSC Type is VA or PCM-Sync.
	RING	Implements the ring modulator function that is provided by an analog synthesizer. The output sound of partial 2 is multiplied with partial 1.
	XMOD, XMOD2	Implements the cross modulation function that is provided by an analog synthesizer. The output sound of partial 2 is applied as the pitch of partial 1. XMOD2 is available only when Partial 1 and 3 are OSC Type "VA."
Structure3-4 (ZOOM)	The sound of partial 3 is modulated by partial 4.	
	OFF	OFF
	SYNC	Implements the oscillator sync function that is provided by an analog synthesizer. The partial 3 oscillator is reset at intervals of partial 4's pitch cycle. This is effective only if OSC Type is VA or PCM-Sync.
	RING	Implements the ring modulator function that is provided by an analog synthesizer. The output sound of partial 4 is multiplied with partial 3.
	XMOD, XMOD2	Implements the cross modulation function that is provided by an analog synthesizer. The output sound of partial 4 is applied as the pitch of partial 3. XMOD2 is available only when Partial 1 and 3 are OSC Type "VA."
RING1-2 Level (ZOOM)	0–127	RING level when Structure1-2 is RING.
RING3-4 Level (ZOOM)	0–127	RING level when Structure3-4 is RING.
RING OSC1 Level (ZOOM)	0–127	Effective when Structure1-2 is RING. Sets the partial 1 OSC level.
RING OSC2 Level (ZOOM)	0–127	Effective when Structure1-2 is RING. Sets the partial 2 OSC level.
RING OSC3 Level (ZOOM)	0–127	Effective when Structure3-4 is RING. Sets the partial 3 OSC level.
RING OSC4 Level (ZOOM)	0–127	Effective when Structure3-4 is RING. Sets the partial 4 OSC level.
XMOD 1-2 Depth (ZOOM)	0–9600 [cent]	Cross Modulation Depth when Structure1-2 is XMOD.
XMOD 3-4 Depth (ZOOM)	0–9600 [cent]	Cross Modulation Depth when Structure3-4 is XMOD.
XMOD2 1-2 Depth (ZOOM)	0–127	Cross Modulation Depth when Structure1-2 is XMOD2.
XMOD2 3-4 Depth (ZOOM)	0–127	Cross Modulation Depth when Structure3-4 is XMOD2.
CrossMod OSC1 Level (ZOOM)	0–127	Effective when Structure1-2 is XMOD/XMOD2. Sets the partial 1 OSC level.
CrossMod OSC2 Level (ZOOM)	0–127	Effective when Structure1-2 is XMOD/XMOD2. Sets the partial 2 OSC level.
CrossMod OSC3 Level (ZOOM)	0–127	Effective when Structure3-4 is XMOD/XMOD2. Sets the partial 3 OSC level.
CrossMod OSC4 Level (ZOOM)	0–127	Effective when Structure3-4 is XMOD/XMOD2. Sets the partial 4 OSC level.
Partial Phase Lock	OFF, ON	This is available if OSC Type is "VA"; it locks the waveform phase between partials. It is effective to use this with XMOD2.

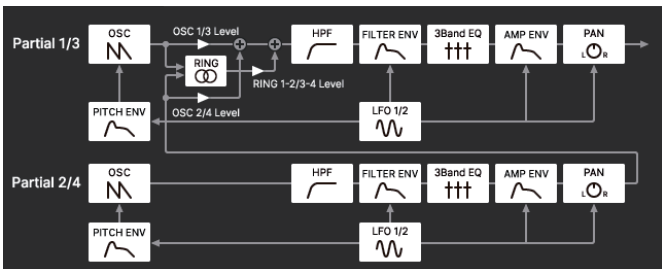
OFF



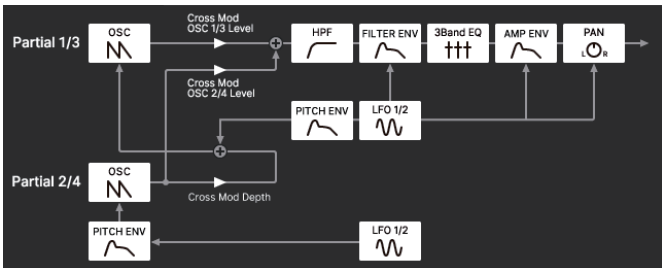
SYNC



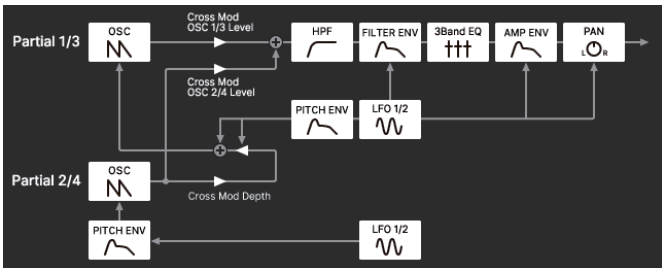
RING



XMOD

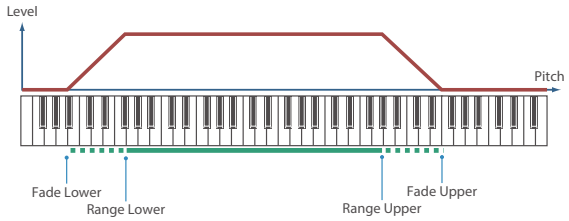


XMOD2

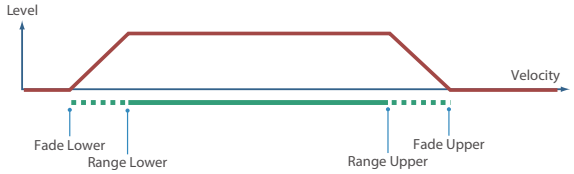


KEYBOARD

Parameter	Value	Explanation
Velocity Control	OFF, ON, RANDOM, CYCLE	Specifies how partials are played according to your keyboard playing dynamics (velocity). If this is "ON," different partials are sounded according to the playing velocity and the Velocity Range Lower/Upper and Velocity Fade Lower/Upper settings. • If this is "RANDOM" or "CYCLE," each partial is sounded randomly or cyclically. • In the case of "RANDOM" or "CYCLE" when Structure 1-2 (3-4) has a setting other than OFF, partials 1 and 2 (3 and 4) are sounded as a pair, either randomly or in alternation. • In the case of "RANDOM" or "CYCLE," velocity has no effect, but you'll need to make settings for each partial so that the Velocity Range does not conflict.
PMT Level Curve	EXP	When using Velocity Control to switch between partials, the crossfade level changes in a non-linear curve.
	LINEAR	When using Velocity Control to switch between partials, the crossfade level changes in a linear curve.



Parameter	Value	Explanation
Key Range Low	C--G9	Specify the key range for each partial. Make these settings when you want different key ranges to play different tones.
Key Range Up	C--G9	Specify the lower limit (Lower) and upper limit (Upper) of the key range.
Key Range Fade Low	0–127	Specifies the degree to which the partial is sounded by notes played below the Keyboard Range Low. If you don't want the tone to sound at all, set this parameter to "0."
Key Range Fade Up	0–127	Specifies the degree to which the partial is sounded by notes played above the Keyboard Range Up. If you don't want the tone to sound at all, set this parameter to "0."

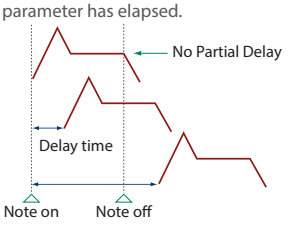
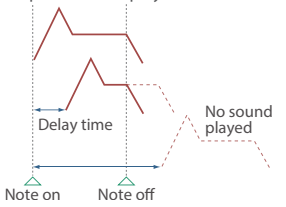
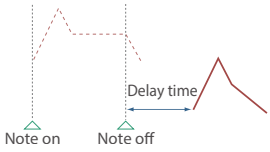
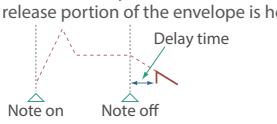


Parameter	Value	Explanation
Velocity Range Low	1–127	Specify the lower limit (Lower) and upper limit (Upper) of the velocities that will sound the partial. Make these settings when you want different partials to sound depending on keyboard playing dynamics.
Velocity Range Up	1–127	
Velocity Fade Low	0–127	Specifies the degree to which the partial is sounded by notes played more softly than Velocity Range Low. If you don't want the tone to sound at all, set this parameter to "0."
Velocity Fade Up	0–127	Specifies the degree to which the partial is sounded by notes played more strongly than Velocity Range Up. If you don't want the tone to sound at all, set this parameter to "0."

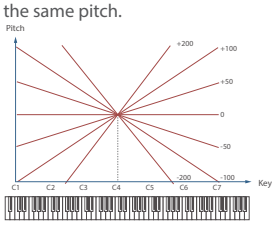
OSC

Parameter	Value	Explanation
OSC Type (ZOOM)	Specifies the oscillator type.	
	PCM	PCM is used. The wave of the number specified by the Wave Group and Wave Number L/R is used.
	VA	A numerically calculated analog-modeled wave is generated. The wave of the number specified by Waveform is used.
	PCM-Sync	The wave of the number specified by PCM-Sync Wave Number is used.
	SuperSAW	SuperSAW is used.
	Noise	White noise is used.
Wave Bank (ZOOM)	A, B, C, D	Specifies the bank of the wave group that is used when OSC Type is PCM.
Wave Number L (ZOOM)		Specifies the wave number within the group specified by Wave Group. If using mono, specify only the left side (L). If using stereo, specify the right side (R) as well. If using mono, specify only Wave Number L and leave Wave Number R at 0: OFF. If you specify only Wave Number R, no sound is heard.
Wave Number R (ZOOM)		
Waveform (ZOOM)	Specifies the wave that is used when OSC Type is VA.	
	SAW	Sawtooth wave
	SQR	Square wave
	TRI	Triangle wave
	SIN	sine wave
	RAMP	Ramp wave
	JUNO	Modulated sawtooth wave
	TRI2	Triangle wave variation
	TRI3	Triangle wave variation
	SIN2	Sine wave variation
Waveform Invert Sw	OFF, ON	If this is ON, the phase of the VA waveform is inverted.
PCM-Sync Wave No. (ZOOM)	Specifies the wave that is used when OSC Type is PCM-Sync. The PCM-Sync oscillator is effective when specified as the Slave (the sync-modulated partial 1 or 3) when Structure is set to SYNC.	
Gain	-18–+12 [dB]	Specifies the gain (amplitude) of the waveform. The value will change in 6 dB (decibel) steps. Each 6 dB increase doubles the gain.
Pulse Width (ZOOM)	0–127	This effect is produced when the waveform is deformed by varying the duty cycle of the pulse width. It is effective when OSC Type is VA, and is also effective with waveforms other than SQR (square wave). * **If the value is 64, the pulse width has a 50%:50% duty cycle.**
PWM Depth (ZOOM)	-63–+63	Specifies the amount (depth) of LFO applied to PW (Pulse Width). PW is modulated according to the LFO2 setting.
SuperSAW Detune (ZOOM)	0–127	Adjusts the Detune depth for SuperSAW. Higher values produce a deeper Detune effect. * **This is effective only when SuperSAW is selected as the OSC Type.**
Click Type	SOFT, HARD, NATURAL, OFF	Changes the sense of attack by varying the position at which the sound starts. This is available if OSC Type is VA. However, HARD is effective only when Waveform is TRI, TRI2, SIN, or SIN2.
Fat (ZOOM)	0–127	Boosts the low-frequency region. This is effective if OSC Type is VA.
OSC Attenuator	0–255	Specifies the OSC level. 255 is the reference value. If you want only the self-oscillation of the filter to be heard, set this to 0.

Parameter	Value	Explanation
FXM Switch	OFF, ON	This sets whether FXM will be used (ON) or not (OFF). * **FXM (Frequency Cross Modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This is useful for creating dramatic sounds or sound effects.**
FXM Color	1–4	Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.
FXM Depth	0–16	Specifies the depth of the modulation produced by FXM.
Delay Mode		**Partial Delay** This produces a time delay between the moment a key is pressed (or released), and the moment the partial actually begins to sound. You can also make settings that shift the timing at which each partial is sounded. This differs from the Delay in the internal effects, in that by changing the sound qualities of the delayed partials and changing the pitch for each partial, you can also perform arpeggio-like passages just by pressing one key. You can also synchronize the partial delay time to the tempo of the external MIDI sequencer. If Legato Retrigger Interval is other than OFF, legato operation occurs only when Delay Mode is NORMAL. Also in this case, Legato Retrigger Interval operates as 0 (retriggers at each Delay Time).

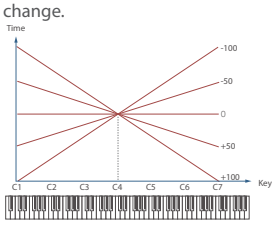
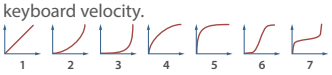
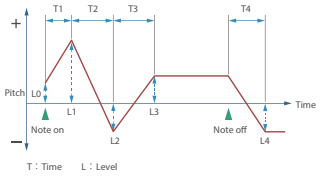
Parameter	Value	Explanation
Delay Mode	NORMAL	The partial begins to play after the time specified in the Partial Delay Time parameter has elapsed. 
	HOLD	Although the partial begins to play after the time specified in the Partial Delay Time parameter has elapsed, if the key is released before the time specified in the Partial Delay Time parameter has elapsed, the partial is not played. 
	KEY-OFF-NORMAL	Rather than being played while the key is pressed, the partial begins to play once the period of time specified in the Partial Delay Time parameter has elapsed after release of the key. This is effective in situations such as when simulating noises from guitars and other instruments. 
	KEY-OFF-DECAY	Rather than being played while the key is pressed, the partial begins to play once the period of time specified in the Partial Delay Time parameter has elapsed after release of the key. Here, however, changes in the TVA Envelope begin while the key is pressed, which in many cases means that only the sound from the release portion of the envelope is heard. 
Delay Time Sync	OFF, ON	Set this ON if you want the partial delay time to synchronize with the tempo.
Delay Time (note)	1/64T–2	This is available when Delay Time Sync is ON. It specifies the delay time in terms of a note value.
Delay Time	0–1023	This is available when Delay Time Sync is OFF. It specifies the delay time without regard to the tempo.

Pitch

Parameter	Value	Explanation
Coarse Tune (ZOOM)	-48–+48 [semitone]	Adjusts the pitch of the sound up or down in semitone steps (+/-4 octaves).
Fine Tune (ZOOM)	-50–+50 [cent]	Adjusts the pitch of the sound up or down in 1-cent steps (+/-50 cents).
Random Depth (ZOOM)	0–1200 [cent]	This specifies the width of random pitch deviation that will occur each time a key is pressed. If you do not want the pitch to change randomly, set this to "0." * **These values are in units of cents (1/100th of a semitone).**
Pitch Keyfollow	-200–+200	This specifies the amount of pitch change that will occur when you play a key one octave higher (i.e., 12 keys upward on the keyboard). If you want the pitch to rise one octave as on a conventional keyboard, set this to "+100." If you want the pitch to rise two octaves, set this to "+200." Conversely, set this to a negative (-) value if you want the pitch to fall. With a setting of "0," all keys will produce the same pitch. 
Vibrato Pitch Sens	-100–+100	Specifies the amount by which the Pitch Depth of LFO1 is changed by the program's Modify Vib Depth.
Stereo Detune	-50–+ 50 [cent]	Specifies the detune between L⇔R when outputting in stereo.

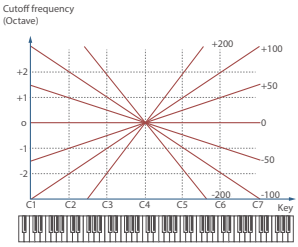
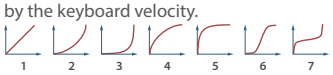
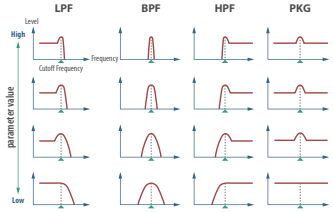
PITCH ENV

Parameter	Value	Explanation
Depth (ZOOM)	-100–+100	Adjusts the effect of the Pitch Envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) value will invert the shape of the envelope. If OSC Type is other than VA, this is limited to ±63.
Velocity Sens	-100–+100	Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.
T1 Velocity Sens	-100–+100	This allows keyboard dynamics to affect the Time 1 of the Pitch envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive "+" value. If you want it to be slowed down, set this to a negative "-" value.
T4 Velocity Sens	-100–+100	Use this parameter when you want key release speed to affect the Time 4 value of the pitch envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Parameter	Value	Explanation
Time Keyfollow	-100–+100	Use this setting if you want the pitch envelope times (Time 2–Time 4) to be affected by the keyboard location. Based on the pitch envelope times for the C4 key, positive (+) value will cause notes higher than C4 to have increasingly shorter times, and negative (-) value will cause them to have increasingly longer times. Higher values will produce greater change. 
Pitch Env Velocity Curve	FIXED, 1–7	Selects one of the following 7 curves that will determine how keyboard playing dynamics will affect the pitch envelope. Set this to "FIXED" if you don't want the pitch envelope be affected by the keyboard velocity. 
PENV LFO Trigger Switch	OFF, ON	If this is ON, the pitch envelope is cyclically retriggered by LFO1. * **This is effective when Envelope Mode is SUSTAIN.**
T1/Attack, T2, T3/Decay, T4/Release (ZOOM)	0–1023	Specify the pitch envelope times (Time 1–Time 4). Higher settings will result in a longer time until the next pitch is reached. (For example, Time 2 is the time over which the pitch changes from Level 1 to Level 2.) * **If ADSR Envelope Switch is ON, the Time 2 has no effect.** 
L0, L1, L2, L3/Sustain, L4 (ZOOM)	-511–+511	Specify the pitch envelope levels (Level 0–Level 4). It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the Pitch screen) at each point. Positive (+) value will cause the pitch to be higher than the standard pitch, and negative (-) value will cause it to be lower. * **If ADSR Envelope Switch is ON, only Level 3 (Sustain) has an effect. Also in this case, settings with a negative value are ignored.**

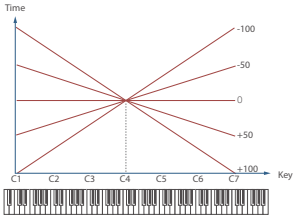
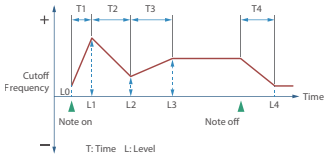
FILTER

Parameter	Value	Explanation
Filter Type	TVF, VCF	Selects the type of filter. * **TVF stands for Time Variant Filter, a filter that lets you specify in detail how the frequency components of the sound change over time. If you select VCF, the polyphony will be lower than if you select TVF.**
TVF Filter Type (ZOOM)	Selects the type of TVF filter. * **If Filter Type is set to VCF, this will be LPF.**	
	OFF	No filter is used.
	LPF	Low Pass Filter. This cuts the frequencies in the region above the cutoff frequency (Cutoff Frequency). Since this cuts the high-frequency region, the sound becomes more mellow. This is the most common filter used in synthesizers.
	BPF	Band Pass Filter. This leaves only the frequencies in the region of the cutoff frequency (Cutoff Frequency), and cuts the rest. This can be useful when creating distinctive sounds.
	HPF	High Pass Filter. This cuts the frequencies in the region below the cutoff frequency (Cutoff Frequency). This is suitable for creating percussive sounds emphasizing their higher tones.
	PKG	Peaking Filter. This emphasizes the frequencies in the region of the cutoff frequency (Cutoff Frequency). You can use this to create wah-wah effects by employing an LFO to change the cutoff frequency cyclically.
	LPF2	Low Pass Filter 2. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano. * **If you set "LPF2," the setting for the Resonance parameter will be ignored (p. 24).**
	LPF3	Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings. * **If you set "LPF3," the setting for the Resonance parameter will be ignored (p. 24).**
VCF Type (ZOOM)	VCF1, JP, MG, P5	This parameter is effective when Filter Type is VCF. Each setting simulates the operation of an analog synthesizer's LPF. In particular, MG, JP, and P5 are types that are suitable for reproducing synthesizer sounds of the past.
Filter Slope (ZOOM)	-12, -18, -24 [dB/Oct]	This button selects the slope (steepness) of the filter. For VCF, you can choose -12, -18, or -24. For TVF, only -12 or -24 can be selected. If Filter Type is TVF, the following limitations apply. • You can specify only -12 dB or -24 dB. If you specify -18 dB, the sound generator operates internally with the -12 dB setting. • If you specify -24 dB, the polyphony will be lower than if you specify -12 dB.
HPF Cutoff	0–1023	Specifies the cutoff frequency of the -6 dB high-pass filter. * **This parameter is effective when Filter Type is VCF.**

Parameter	Value	Explanation
Cutoff (ZOOM)	0–1023	Selects the frequency at which the filter begins to have an effect on the waveform's frequency components. With "LPF/LPF2/LPF3" selected for the TVF Filter Type parameter, lower cutoff frequency settings reduce a tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter. If "BPF" is selected for the Filter Type, harmonic components will change depending on the TVF Cutoff Frequency setting. This can be useful when creating distinctive sounds. With "HPF" selected, higher Cutoff Frequency settings will reduce lower harmonics to emphasize just the brighter components of the sound. With "PKG" selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.
Keyfollow (ZOOM)	-200–+200	Use this parameter if you want the cutoff frequency to change according to the key that is pressed. Relative to the cutoff frequency at the key specified by Cutoff Keyfollow Base Point, positive "+" values cause the cutoff frequency to become higher as you play above the reference key, and negative "-" values cause the cutoff frequency to become lower. Higher values will produce greater change. 
Cutoff Velocity Curve	FIXED, 1–7	Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to "FIXED" if you don't want the Cutoff frequency to be affected by the keyboard velocity. 
Cutoff Velocity Sens	-100–+100	Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. Specify a positive "+" value if you want the cutoff frequency to raise when you play strongly, or a negative "-" value if you want it to lower.
Cutoff Keyfollow Base Point	0–127	Specifies the reference key when using Keyfollow to modify the cutoff frequency. If this is 60, the C4 key (middle C) is the reference key.
Resonance (ZOOM)	0–1023	Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. 
Resonance Velocity Sens	-100–+100	Use this parameter when changing the resonance to be applied as a result of changes in playing velocity. Specify a positive "+" value if you want resonance to increase when you play strongly, or a negative "-" value if you want it to decrease.

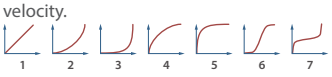
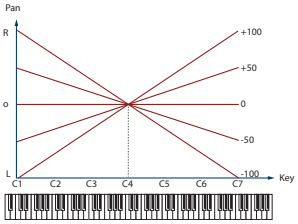
Parameter	Value	Explanation
Vibrato Cutoff Sens	-100–+100	Specifies how the TVF Depth of LFO1 is affected by the program's Modify Vib Depth.

FILTER ENV

Parameter	Value	Explanation
Env Depth (ZOOM)	-63–+63	Specifies the depth of the Filter envelope. Higher settings increase the change produced by the Filter envelope. Negative (-) value will invert the shape of the envelope.
TVF Env Fine Depth	-63–+63	Finely adjusts the depth of the filter envelope.
Velocity Curve	FIXED, 1–7	Selects one of the following seven types of curve by which keyboard playing dynamics affect the depth of the filter envelope. If you don't want keyboard playing dynamics to affect the filter envelope depth, specify "FIXED." 
Velocity Sens	-100–+100	Specify this if you want keyboard playing dynamics to affect the filter envelope depth. Specify a positive "+" value if you want the filter envelope to apply more deeply as you play more strongly, or a negative "-" value if you want it to apply less deeply.
T1 Velocity Sens	-100–+100	Specify this if you want keyboard playing dynamics to affect Time 1 of the filter envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive "+" value. If you want it to be slowed down, set this to a negative "-" value.
T4 Velocity Sens	-100–+100	Specify this if you want key release velocity to affect Time 4 of the filter envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Time Keyfollow	-100–+100	Specify this if you want the filter envelope times (Time 2–Time 4) to vary depending on the keyboard position you play. Relative to the filter envelope times at the C4 key (middle C), positive "+" values shorten the times for notes played in the region above C4, and negative "-" values lengthen the times. Higher values will produce greater change. 
FENV LFO Trigger Switch	OFF, ON	If this is ON, the filter envelope is cyclically retriggered by LFO1. * **This is effective only when Envelope Mode is SUSTAIN.**
T1/Attack, T2, T3/Decay, T4/Release (ZOOM)	0–1023	Specify the filter envelope times (Time 1–Time 4). Higher settings will lengthen the time until the next cutoff frequency level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.) * **If ADSR Envelope Switch is ON, the Time 2 has no effect.** 

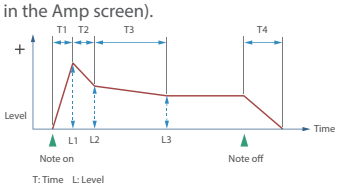
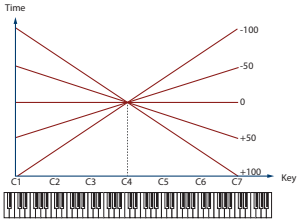
Parameter	Value	Explanation
L0, L1, L2, L3/Sustain, L4 (ZOOM)	0–1023	Specify the filter envelope levels (Level 0–Level 4). Specify the amount of cutoff frequency change at each point relative to the reference cutoff frequency (the cutoff frequency value specified in the Filter screen). * **If ADSR Envelope Switch is ON, only Level 3 (Sustain) has an effect.**

AMP

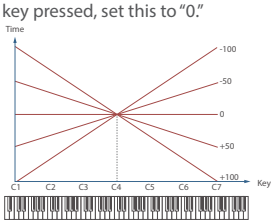
Parameter	Value	Explanation
Level (ZOOM)	0–127	Sets the volume of the partial. This setting is useful primarily for adjusting the volume balance between partials.
Velocity Curve	FIXED, 1–7	Selects one of the following seven curves that determine how keyboard dynamics will affect the volume. Set this to "FIXED" if you don't want the volume of the partial to be affected by the keyboard velocity. 
Velocity Sens (ZOOM)	-100–+100	Set this when you want the volume of the partial to change depending on the force with which you press the keys. Set this to a positive (+) value to have the changes in partial volume increase the more forcefully the keys are played; to make the partial play more softly as you play harder, set this to a negative (-) value.
Bias Level	-100–+100	Adjusts the angle of the volume change that will occur in the selected Bias Direction. Higher values will produce greater change. Negative (-) values will invert the change direction.
Bias Position	0–127	Specifies the key relative to which the volume will be modified. A setting of 64 is the C4 key (middle C).
Bias Direction	Selects the direction in which change will occur starting from the Bias Position.	
	LOWER	The volume will be modified for the keyboard area below the Bias Point.
	UPPER	The volume will be modified for the keyboard area above the Bias Point.
	LOWER&UPPER	The volume will be modified symmetrically toward the left and right of the Bias Point.
	ALL	The volume changes linearly with the bias point at the center.
Pan (ZOOM)	L64–63R	Sets the pan of the partial. "L64" is far left, "0" is center, and "63R" is far right.
Pan Keyfollow (ZOOM)	-100–+100	Use this parameter if you want key position to affect panning. Positive (+) value will cause notes higher than C4 key (center C) to be panned increasingly further toward the right, and negative (-) value will cause notes higher than C4 key (center C) to be panned toward the left. Higher values will produce greater change. 
Random Pan Depth	0–63	Use this parameter when you want the stereo location to change randomly each time you press a key. Higher values will produce a greater amount of change.

Parameter	Value	Explanation
Alternate Pan Depth	L63–63R	This setting causes panning to be alternated between left and right each time a key is pressed. Higher values will produce a greater amount of change. "L" or "R" settings will reverse the order in which the pan will alternate between left and right. For example if two partials are set to "L" and "R" respectively, the panning of the two tones will alternate each time they are played.
Vibrato Level Sens	-100–+100	Specifies how the program's Modify Vib Depth affects the Amp Depth of LFO1.
Stereo Width	0–100	Adjusts the amount of width when outputting in stereo. This has no effect when outputting in mono.

AMP ENV

Parameter	Value	Explanation
T1 Velocity Sens	-100–100	Specify this if you want keyboard dynamics to affect the AMP envelope's Time 1. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
T4 Velocity Sens	-100–100	Specify this if you want key release velocity to affect the AMP envelope's Time 4. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
AENV LFO Trigger Switch	OFF, ON	If this is ON, the amp envelope is cyclically retriggered by LFO1. * **This is effective when Envelope Mode is SUSTAIN.**
T1/Attack, T2, T3/Decay, T4/Release (ZOOM)	0–1023	Specify the AMP envelope times (Time 1–Time 4). Higher settings lengthen the time until the next volume level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.) * **If ADSR Envelope Switch is ON, the Time 2 has no effect.**
L1, L2, L3/Sustain (ZOOM)	0–1023	Specify the AMP envelope levels (Level 1–Level 3). These specify the amount of change at each point relative to the reference volume (the partial level value specified in the Amp screen).  * **If ADSR Envelope Switch is ON, only Level 3 (Sustain) has an effect.**
Time Keyfollow	-100–100	Specify this if you want keyboard position to affect the AMP envelope's times (Time 2–Time 4). Relative to the AMP envelope times at the C4 key (middle C), positive (+) values cause the times to shorten as you play higher on the keyboard, and negative (-) values cause the times to lengthen. Higher values will produce greater change. 

LFO1 / LFO2

Parameter	Value	Explanation
Waveform (LFO1, LFO2) (ZOOM)	Selects the waveform of the LFO.	
	SIN	Sine wave
	TRI	Triangle wave
	SAW-UP	Sawtooth wave
	SAW-DW	Sawtooth wave (negative polarity)
	SQR	Square wave
	RND	Random wave
	TRP	Trapezoidal wave
	S&H	Sample & Hold wave (one time per cycle, LFO value is changed)
	CHS	Chaos wave
	VSIN	Modified sine wave. The amplitude of a sine wave is randomly varied once each cycle.
	STEP	A waveform generated by the data specified by LFO Step 1–16. This produces stepped change with a fixed pattern similar to a step modulator.
Tempo Sync Sw (LFO1, LFO2) (ZOOM)	OFF	Set this ON if you want the LFO rate to synchronize with the tempo.
	ON	
Rate Note (LFO1, LFO2) (ZOOM)	1/64T–4	This is effective if Rate Sync is ON. Specifies the LFO rate in terms of a note value.
Rate (LFO1, LFO2) (ZOOM)	0–1023	This is effective if Rate Sync is OFF. Specifies the LFO rate without regard to the tempo. Higher values produce a faster LFO rate (a shorter cycle).
Offset (LFO1, LFO2)	-100–100	Raises or lowers the LFO waveform relative to the central value (pitch or cutoff frequency). Positive (+) value will move the waveform so that modulation will occur from the central value upward. Negative (-) value will move the waveform so that modulation will occur from the central value downward.
Rate Detune (LFO1, LFO2)	0–127	Subtly changes the LFO cycle speed (Rate parameter) each time you press a key. Higher values produce greater change. This parameter is invalid when Rate is set to "note."
Delay Time (LFO1, LFO2) (ZOOM)	0–1023	Specifies the time elapsed before the LFO effect is applied (the effect continues) after the key is pressed (or released). * **After referring to "How to Apply the LFO" (p. 28), change the setting until the desired effect is achieved.**
Delay Time Keyfollow (LFO1, LFO2)	-100–100	Adjusts the value for the Delay Time parameter depending on the key position, relative to the C4 key (center C). To decrease the time that elapses before the LFO effect is applied (the effect is continuous) with each higher key that is pressed in the upper registers, select a positive (+) value; to increase the elapsed time, select a negative (-) value. Higher values will produce greater change. If you do not want the elapsed time before the LFO effect is applied (the effect is continuous) to change according to the key pressed, set this to "0." 
Fade Mode (LFO1, LFO2)	ON-IN	Specifies how the LFO will be applied. * **After referring to "How to Apply the LFO" (p. 28), change the setting until the desired effect is achieved.**
	ON-OUT	
	OFF-IN	
	OFF-OUT	

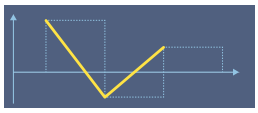
Parameter	Value	Explanation
Fade Time (LFO1, LFO2) (ZOOM)	0–1023	Specifies the time over which the LFO amplitude will reach the maximum (minimum). * **After referring to "How to Apply the LFO" (p. 28), change the setting until the desired effect is achieved.**
Key Trigger Sw (LFO1, LFO2) (ZOOM)	OFF, ON	Specifies whether the LFO cycle will be synchronized to begin when the key is pressed (ON) or not (OFF).
Pitch Depth (LFO1, LFO2) (ZOOM)	-100–100	Specifies how deeply the LFO will affect pitch. * **If OSC Type is other than VA, the range is limited to -63–+63.**
Filter Depth (LFO1, LFO2) (ZOOM)	-100–100	Specifies how deeply the LFO will affect the cutoff frequency.
Amp Depth (LFO1, LFO2) (ZOOM)	-100–100	Specifies how deeply the LFO will affect the volume.
Pan Depth (LFO1, LFO2) (ZOOM)	-63–+63	Specifies how deeply the LFO will affect the pan. **MEMO** Positive (+) and negative (-) value for the Depth parameter result in differing kinds of change in pitch and volume. For example, if you set the Depth parameter to a positive (+) value for one partial, and set another partial to the same numerical value, but make it negative (-), the modulation phase for the two partials will be the reverse of each other. This allows you to shift back and forth between two different partials, or combine it with the Pan setting to cyclically change the location of the sound image.
Phase Position (LFO1, LFO2)	Specifies the LFO's starting phase value when Key Trigger is ON. * **This has no effect if Waveform is RND, S&H, or CHS.**	
	0	1 cycle
	1	1/4 cycle
	2	1/2 cycle
	3	3/4 cycle

STEP LFO1 / STEP LFO2

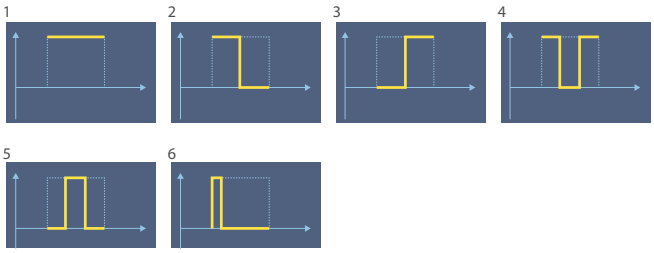
Parameter	Value	Explanation
Step Length (LFO1, LFO2) (ZOOM)	1–16	This is effective if Waveform is STEP. Specifies the step size that is looped.
Step 1–16 (LFO1, LFO2) (ZOOM)	-72–+72	This is effective if Waveform is STEP. Specify the Depth value of each step. If you want to specify this in pitch scale degrees (100 cents), the settings are as follows. 1 Pitch Depth: 51, Step: multiples of 6 … up to one octave of change 2 Pitch Depth: 74, Step: multiples of 3 … up to two octaves of change 3 Pitch Depth: 89, Step: multiples of 2 … up to three octaves of change * **If OSC Type is not VA, the Pitch Depth setting range is limited to -63–+63, so only "1" above is possible.**
Step Curve 1–16 (LFO1, LFO2) (ZOOM)	0–36	Specifies the type of curve at each step. ➡ **"Step curve types"** (p. 27)

Step curve types

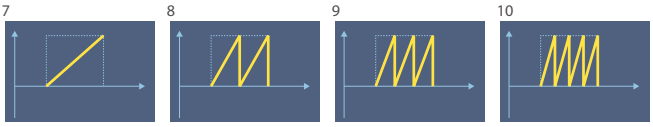
Step Curve 0



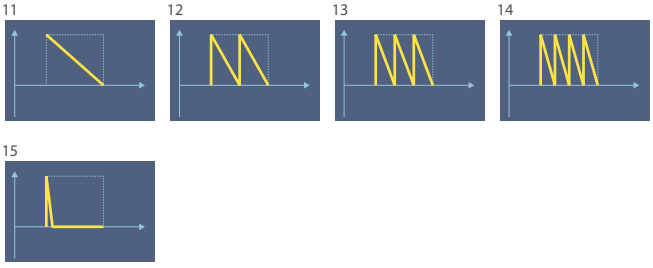
Curve Type 1–6 (variations of square wave)



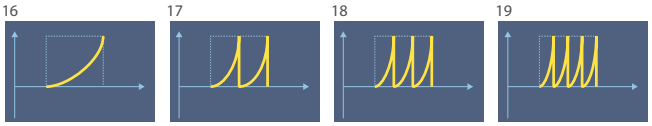
Curve Type 7–10 (variations of ascending saw)



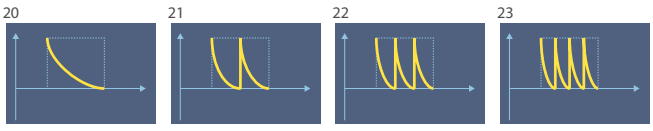
Curve Type 11–15 (variations of descending saw)



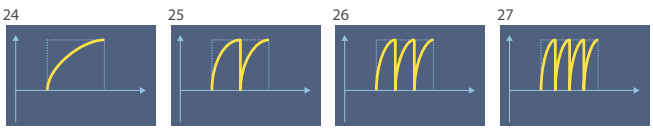
Curve Type 16–19 (variations of ascending exponential)



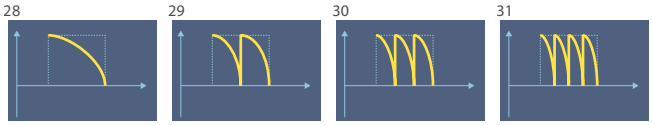
Curve Type 20–23 (variations of descending exponential)



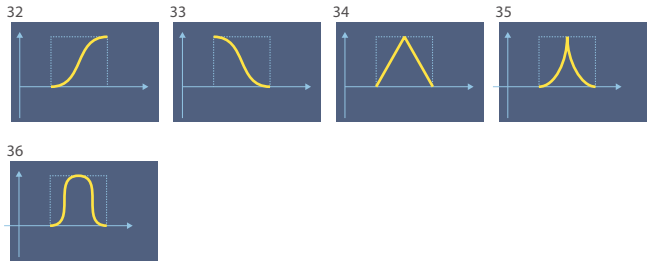
Curve Type 24–27 (variations of ascending charging curve)



Curve Type 28–31 (variations of descending charging curve)



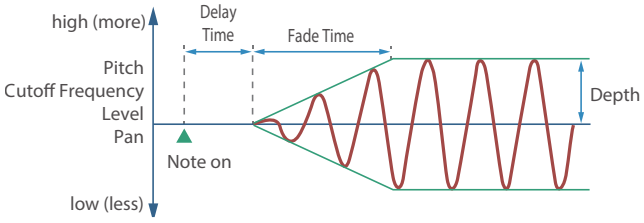
Curve Type 32–36 (other variations)



How to Apply the LFO

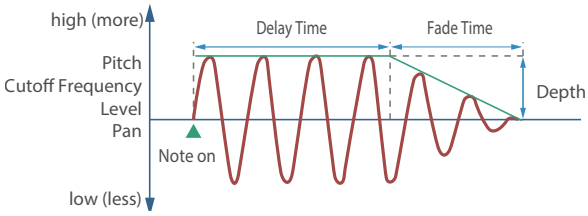
Apply the LFO gradually after the key is pressed

Fade Mode: ON-IN



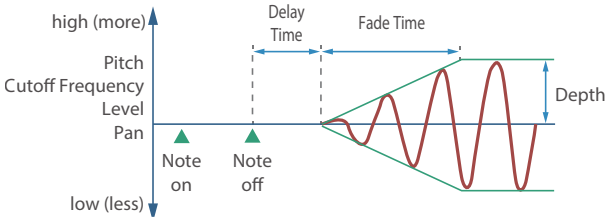
Apply the LFO immediately when the key is pressed, and then gradually begin to decrease the effect

Fade Mode: ON-OUT



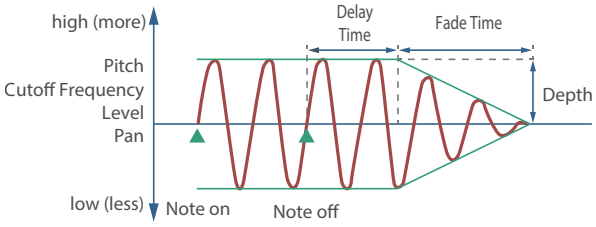
Apply the LFO gradually after the key is released

Fade Mode: OFF-IN



Apply the LFO from when the key is pressed until it is released, and gradually begin to decrease the effect when the key is released

Fade Mode: OFF-OUT



PARTIAL EQ

Parameter	Value	Explanation
Switch (ZOOM)	OFF, ON	Turns the equalizer on/off for each partial.
Low Gain (ZOOM)	-24.0–+24.0 [dB]	Gain of the low range.
Mid Gain (ZOOM)	-24.0–+24.0 [dB]	Gain of the middle range.
High Gain (ZOOM)	-24.0–+24.0 [dB]	Gain of the high range
Low Frequency (ZOOM)	20–16000 [Hz]	Frequency of the low range.
Mid Frequency (ZOOM)	20–16000 [Hz]	Frequency of the middle range.
High Frequency (ZOOM)	20–16000 [Hz]	Frequency of the high range.
Mid Q (ZOOM)	0.5–16.0 (0.1step)	Width of the middle range. Set a higher value to narrow the range to be affected.

OUTPUT

Parameter	Value	Explanation
Output Assign (ZOOM)	DRY, MFX	Specifies how the sound of each partial will be output.
Chorus Level Send	0–127	Specifies the level of the signal sent to the chorus for each partial.
Reverb Level Send	0–127	Specifies the level of the signal sent to the reverb for each partial.

CONTROL

Parameter	Value	Explanation
Envelope Mode	NO-SUS, SUSTAIN	If this is set to SUSTAIN, the Envelope Level 3 is held from when the envelope Time 3 has elapsed until note-off. When note-off occurs, the envelope transitions from the current value to the Time 4 segment (release segment). If this is set to NO-SUS, the envelope transitions to the release segment after passing Time 3 regardless of the note-off timing, operating according to the times specified by the envelope.
Damper Free Note	OFF, 1–127	For notes above the specified note number, the Envelope Mode operates as NO-SUS. Use this to simulate the undamped region of a piano sound.
DF Decay Offset	-100–+100	Specifies a fine adjustment to the time over which the sound decays when the Damper Free Note effect is applied.
Receive Bender	OFF, ON	Specifies for each partial whether MIDI pitch bend messages are received (ON) or not received (OFF).
Receive Expression	OFF, ON	Specifies for each partial whether MIDI expression messages are received (ON) or not received (OFF).
Receive Hold-1	OFF, ON	Specifies for each partial whether MIDI hold 1 messages are received (ON) or not received (OFF).
Redamper Switch	OFF, ON	If Redamper Switch is ON, you can perform the Half Damper operations used for piano sounds. However, the following conditions must be satisfied in order to use this operation. • Envelope Mode is NO-SUS • Amp Envelope's Level 1 and 2 are 1 or greater • Amp Envelope's Times are Time 3 > Time4
Soft EQ Sens	0–100	Increases the proportion by which the EQ's HighGain is lowered by the amount of pedal. With a setting of 0, this has no effect.

MATRIX CONTROL

Ordinarily, if you wanted to change partial parameters using an external MIDI device, you would need to send System Exclusive messages-MIDI messages designed exclusively for the FANTOM. However, System Exclusive messages tend to be complicated, and the amount of data that needs to be transmitted can get quite large.

For that reason, a number of the more typical of the FANTOM's partial parameters have been designed so they accept the use of Control Change (or other) MIDI messages for the purpose of making changes in their values. This provides you with a variety of means of changing the way tones are played.

For example, you can use the Modulation Bar to change the LFO cycle rate, or use the keyboard's touch to open and close a filter.

The function which allows you use MIDI messages to make these changes in realtime to the partial parameters is called the **"Matrix Control."**

Up to four Matrix Controls can be used in a single tone.

To use Matrix Control, you specify which MIDI message (Source) controls which parameter (Destination) and how deeply (Sens: sensitivity).

Parameter	Value	Explanation
Source 1–4 (Matrix Control 1–4) (ZOOM)	Sets the MIDI message used to change the partial parameter with the Matrix Control.	
	OFF	Matrix control will not be used.
	CC01–31, CC33–95	Controller numbers 1–31, 33–95
	BEND	Pitch bend
	AFT	Aftertouch
	SYS-CTRL1–4	MIDI messages assigned by the SYSTEM parameters SYS-CTRL 1–4
	VELOCITY	Velocity (pressure you press a key with)
	KEYFOLLOW	Keyfollow (keyboard position with C4 as 0)
	TEMPO	Tempo specified by the tempo assign source
	LFO1, LFO2	LFO 1 LFO 2
	PIT-ENV	Pitch envelope
	FLT-ENV	Filter envelope
	AMP-ENV	Amp envelope

* **Velocity and Keyfollow correspond to Note messages.**

* **Although there are no MIDI messages for LFO 1 through AMP Envelope, they can be used as Matrix Control. In this case, you can change the partial settings in realtime by playing tones.**

* **If you want to use common controllers for the entire FANTOM, select "SYS-CTRL1"–"SYS-CTRL4." MIDI messages used as System Control 1–4 are set with the System Control Source1–4. For details, refer to "Reference Manual" (PDF).**

NOTE

- There are parameters that determine whether or not Pitch Bend, Controller Number 11 (Expression) and Controller Number 64 (Hold 1) are received (p. 28). When these settings are "ON," and the MIDI messages are received, then when any change is made in the settings of the desired parameter, the Pitch Bend, Expression, and Hold 1 settings also change simultaneously. If you want to change the targeted parameters only, then set these to "OFF."
- There are parameters that let you specify whether specific MIDI messages will be received for each zone in a scene (p. 14). When a tone with Matrix Control settings is assigned to a zone, confirm that any MIDI messages used for the Matrix Control will be received. If the FANTOM is set up such that reception of MIDI messages is disabled, then the Matrix Control will not function.

Parameter	Value	Explanation
Destination 1–4 (MATRIX CONTROL 1–4) (ZOOM)	Selects the partial parameter that is to be controlled when using the Matrix Control. The following parameters can be controlled. When not controlling parameters with the Matrix Control, set this to "OFF." Up to four parameters can be specified for each Matrix Control, and controlled simultaneously.	
	OFF	Matrix control will not be used.
	PCH	Changes the pitch.
	CUT	Changes the cutoff frequency.
	RES	Emphasizes the overtones in the region of the cutoff frequency, adding character to the sound.
	LEV	Changes the volume level.
	PAN	Changes the pan.
	CHO	Changes the amount of chorus.
	REV	Changes the amount of reverb.
	PIT-LFO	Changes the vibrato depth.
	PIT-LFO2	
	FLT-LFO1	Changes the wah depth.
	FLT-LFO2	
	AMP-LFO1	Changes the tremolo depth.
	AMP-LFO2	
	PAN-LFO1	Changes the effect that the LFO will have on pan.
	PAN-LFO2	
	LFO1-RATE	Changes the speed of the LFO cycles. The speed will not change if LFO Rate is set to "note."
	LFO2-RATE	
	PIT-ATK	Changes the Time 1 of the pitch envelope.
	PIT-DCY	Changes the Time 2 and Env Time 3 of the pitch envelope.
	PIT-REL	Changes the Time 4 of the pitch envelope.
	FLT-ATK	Changes the Time 1 of the FLT envelope.
	FLT-DCY	Changes the Time 2 and Env Time 3 of the FLT envelope.
	FLT-REL	Changes the Time 4 of the FLT envelope.
	AMP-ATK	Changes the Time 1 of the AMP envelope.
	AMP-DCY	Changes the Time 2 and Env Time 3 of the AMP envelope.
	AMP-REL	Changes the Time 4 of the AMP envelope.
	PMT	If the Matrix Control is used to split partials, set the PMT Velocity Control (p. 21) to "OFF." • If the Matrix Control is used to split partials, we recommend setting the Sens (p. 30) to "+63." Selecting a lower value may prevent switching of the partials. Furthermore, if you want to reverse the effect, set the value to "–63." • If you want to use matrix control to switch smoothly between partials, use the Velocity Fade Lower and Velocity Fade Upper (p. 21). The higher the values set, the smoother the switch is between the partials.
	FXM	Changing the depth of frequency modulation produced by FXM
	MFX-CTRL1	Applies a change to MFX CONTROL 1–4 Source. If this is specified for more than one partial, the result will be the summed values.
	MFX-CTRL2	
	MFX-CTRL3	
	MFX-CTRL4	
	PW	Applies change to PW.
	PWM	Applies change to PWM.

Parameter	Value	Explanation
Destination 1–4 (MATRIX CONTROL 1–4) (ZOOM)	FAT	Applies change to FAT.
	X-MOD	This setting is valid only for the carrier partial (Partial 1 or 3), and applies change to the CrossMod1-2Depth or CrossMod3-4Depth.
	LFO1-STEP	This is valid if the LFO1/LFO2 Waveform is STEP; it specifies the step position. In this case, the Sens value is ignored.
	LFO2-STEP	
	SSAW-DETN	This is effective if OSC Type is SuperSAW; it applies change to Super-SAW Detune.
	PIT-DEPTH	Changes the depth of the Pitch envelope.
	FLT-DEPTH	Changes the depth of the Filter envelope.
	AMP-DEPTH	Changes the depth of the AMP envelope.
	XMOD2	This is effective when Structure 1-2 (3-4) is XMOD2; it applies change to XMOD2 1-2 (3-4) Depth.
Sens 1–4 (MATRIX CONTROL 1–4) (ZOOM)	-63–+63	Specify the effective depth of the matrix controls. To make an increase in the currently selected value (to get higher values, move to the right, increase rates, and so on), select a positive (+) value; to make a decrease in the currently selected value (to get lower values, move to the left, decrease rates, and so on), select a negative (-) value. For either positive or negative value, greater absolute values will allow greater amounts of change. Set this to "0" if you don't want to apply the effect.

MFX

Parameter	Value	Explanation
MFX Type	Selects the MFX type.	
MFX Sw	OFF, ON	Switches the MFX on/off.
MFX Chorus Send Level	0–127	Adjusts the amount of chorus. If you don't want to add the chorus effect, set it to 0.
MFX Reverb Send Level	0–127	Adjusts the amount of reverb. If you don't want to add the reverb effect, set it to 0.
MFX Parameters	Edit the parameters for the selected MFX. The available parameters differ depending on the type of the effects you selected in MFX Type. ➡ **"MFX/IFX Parameters"** (p. 40)	

MFX CTRL

Parameter	Value	Explanation
Control 1–4 Source	Specifies the MIDI message that will control the corresponding MFX CONTROL parameter.	
	OFF	MFX CONTROL will not be used.
	CC01–31	Controller number 1–31
	CC33–95	Controller number 33–95
	BEND	Pitch bend
	AFT	Aftertouch
	SYS-CTRL1–4	Use the controller that is assigned by the System Control Source 1–4.
Control 1–4 Destination		Specifies the multi-effect parameters that are controlled by MFX CONTROL. The multi-effects parameters available for control will depend on the multi-effects type.
Control 1–4 Sens	-63–+63	Specifies the depth of MFX CONTROL. Specify a positive (+) value if you want to change the value of the assigned destination in a positive direction (larger, toward the right, faster, etc.), or specify a negative (-) value if you want to change the value in a negative direction (smaller, toward the left, slower, etc.). Larger values will allow a greater amount of control.

Controlling a MFX via MIDI (MFX CONTROL)

You can use MIDI messages such as control change messages to control the principal MFX parameters. This capability is called "MFX CONTROL (multi-effects control)."

The editable parameters are pre-determined according to the MFX type. You can specify up to four parameters for multi-effect control.

To use MFX CONTROL, you'll need to specify which MIDI message (Source) will affect which parameter (Destination), and how greatly (Sens).

Drum Kit Tone Parameters (Drum)

1. Select the zone to which the tone is assigned.

2. Press the [MENU] button.

The MENU screen appears.

3. Touch <TONE EDIT>.

The TONE EDIT screen appears.

4. Touch the tab of the section that you want to edit.

5. Move the cursor to the desired parameter, and edit the value.

NOTE

The edited parameters are temporary. They are lost when you turn off the power. If you want to keep your changes, you must save the tone.

COMMON

Parameter	Value	Explanation
(Name)	Tone name	
Level	0–127	Adjusts the overall volume of the tone.

KIT MFX

Parameter	Value	Explanation
Type	Selects the MFX type.	
Switch	OFF, ON	Switches the MFX on/off.
Chorus Send Level	0–127	Adjusts the amount of chorus. If you don't want to add the chorus effect, set it to 0.
Reverb Send Level	0–127	Adjusts the amount of reverb. If you don't want to add the reverb effect, set it to 0.
MFX Parameters	Edit the parameters for the selected MFX. The available parameters differ depending on the type of the effects you selected in MFX Type. ➡ **"MFX/IFX Parameters"** (p. 40)	

KIT MFX CTRL

Parameter	Value	Explanation
Control 1–4 Source	Specifies the MIDI message that will control the corresponding MFX CONTROL parameter.	
	OFF	MFX CONTROL will not be used.
	CC01–31	Controller number 1–31
	CC33–95	Controller number 33–95
	BEND	Pitch bend
	AFT	Aftertouch
	SYS-CTRL1–4	Use the controller that is assigned by the System Control Source 1–4.
Control 1–4 Destination		Specifies the multi-effect parameters that are controlled by MFX Control. The multi-effects parameters available for control will depend on the multi-effects type.
Control 1–4 Sens	-63–+63	Specifies the depth of MFX CONTROL. Specify a positive (+) value if you want to change the value of the assigned destination in a positive direction (larger, toward the right, faster, etc.), or specify a negative (-) value if you want to change the value in a negative direction (smaller, toward the left, slower, etc.). Larger values will allow a greater amount of control.

KIT COMP1–6

* KIT COMP can be used only for the zone specified by Drum Kit Comp Zone.

Parameter	Value	Explanation
Switch	OFF, ON	Compressor on/off
Attack Time	0.1–100ms	Time from when the input exceeds the threshold until compression begins
Release Time	10–1000ms	Time from when the input falls below the threshold until compression is turned off
Threshold	-60–0 [dB]	Level at which compression is applied
Ratio	1:1–inf:1	Compression ratio
Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than Threshold. Higher values produce a smoother transition.
Output Gain	-24–+24 [dB]	Adjusts the output gain.
Output Assign	DRY, MFX, MAIN, SUB1, SUB2, AFX	Specifies the compressor output destination.

KEY PARAM

Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Inst Group ID	A, B	Selects the Inst group ID.
Level	0–127	Adjusts the volume of the key.
Pan	L64–0–63R	Adjusts the stereo location of the key.
Chorus Send Level	0–127	Adjusts the amount of chorus for each key.
Reverb Send Level	0–127	Adjusts the amount of reverb for each key.
Mute Group	OFF, 1–31	On an actual acoustic drum set, an open hi-hat and a closed hi-hat sound can never occur simultaneously. To reproduce the reality of this situation, you can set up a Mute Group. The Mute Group function allows you to designate two or more keys that are not allowed to sound simultaneously. Up to 31 Mute Groups can be used. Keys that are not belong to any such group should be set to "OFF."
Output Assign	DRY, MFX, COMP1–6	Specifies the output destination for each key.
Key Offset	-24–+24	Shifts the pitch in units of a semitone.
Fine Tune Offset	-50–+50 [cent]	Finely adjusts the pitch in units of one cent.
Cutoff Offset	-100–+100	Adjusts how far the filter is open. Increasing this value makes the sound brighter, and decreasing it makes the sound darker.
Resonance Offset	-100–+100	Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. Increasing this value strengthens the character, and decreasing it weakens the character.
Attack Time Offset	-100–+100	Adjusts the time over which the sound reaches its maximum volume after you press the key. Larger settings of this value make the attack gentler, and smaller settings make the attack sharper.
Decay Time Offset	-100–+100	Adjusts the time over which the volume decreases from its maximum value. Larger settings of this value make the decay longer, and smaller settings make the decay shorter.
Release Time Offset	-100–+100	The time it takes after the key is released for a sound to become inaudible. If Envelope Mode is NO-SUS, this is the time until the sounded note becomes inaudible. Larger settings of this value make the sound linger, and smaller settings make the sound end more sharply.

KEY EQ

Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
EQ Switch	OFF, ON	Turns the equalizer on/off for each key.
EQ Low Gain	-24.0–+24.0 [dB]	Gain of the low range.
EQ Mid Gain	-24.0–+24.0 [dB]	Gain of the middle range.
EQ High Gain	-24.0–+24.0 [dB]	Gain of the high range
EQ Low Frequency	20–16000 [Hz]	Frequency of the low range.
EQ Mid Frequency	20–16000 [Hz]	Frequency of the middle range.
EQ High Frequency	20–16000 [Hz]	Frequency of the high range.
Mid Q	0.5–16.0 (0.1step)	Width of the middle range. Set a higher value to narrow the range to be affected.

INST COMMON

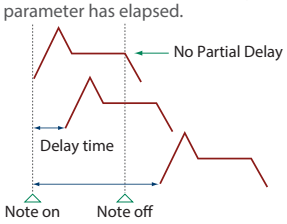
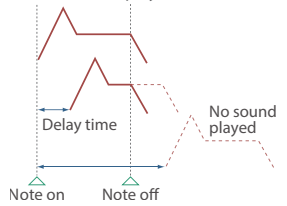
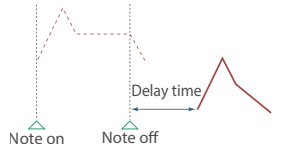
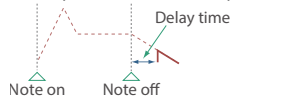
Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Category	0–21	Selects the Inst's category.
Level	0–127	Adjusts the volume of the Inst.
Source Key	0–127	Specifies the pitch in semitone steps relative to 60 (the original pitch of the instrument).
Fine Tune	-50–+50 [cent]	Adjusts the pitch of the sound up or down in 1-cent steps (+/-50 cents).
Random Pitch Depth	0–1200 [cent]	Specifies the width in which the pitch is randomly changed each time the note is sounded. If you do not want the pitch to change randomly, set this to "0."
Assign Type	MULTI, SINGLE	Sets the way sounds are played when the same key is pressed a number of times. **MULTI:** Layer the sound of the same keys. Even with continuous sounds where the sound plays for an extended time, such as with crash cymbals, the sounds are layered, without previously played sounds being eliminated. **SINGLE:** Only one sound can be played at a time when the same key is pressed. With continuous sounds where the sound plays for an extended time, the previous sound is stopped when the following sound is played.
Envelope Mode	NO-SUS, SUSTAIN	When a loop waveform is selected, the sound will normally continue as long as the key is pressed. If you want the sound to decay naturally even if the key remains pressed, set this to "NO-SUS." * **If a one-shot type Wave is selected, it will not sustain even if this parameter is set to "SUSTAIN."**
WMT Velocity Control	OFF, ON, RANDOM	Determines whether a different wave is played (ON) or not (OFF) depending on the force with which the key is played. When set to "RANDOM," the tone's constituent wave will sound randomly, regardless of any velocity messages.

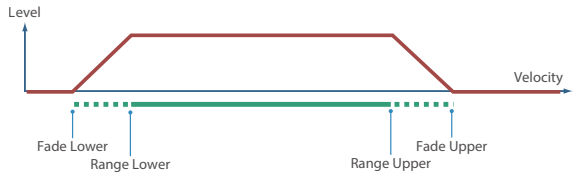
INST WAVE

Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Wave Bank	A, B, C, D	Specifies the bank of the Wave Group.
Wave Number L		Specifies the wave number within the group specified by Wave Group. If using mono, specify only the left side (L). If using stereo, specify the right side (R) as well. If using mono, specify only Wave Number L and leave Wave Number R at 0: OFF. If you specify only Wave Number R, no sound is heard.
Wave Number R		
Wave Gain	-18–+12 [dB]	Specifies the gain (amplitude) of the waveform. The value will change in 6 dB (decibel) steps. Each 6 dB increase doubles the gain.
Wave FXM Switch	OFF, ON	This sets whether FXM will be used (ON) or not (OFF). * **FXM (Frequency Cross Modulation) uses a specified waveform to apply frequency modulation to the currently selected waveform, creating complex overtones. This is useful for creating dramatic sounds or sound effects.**
Wave FXM Color	1–4	Specifies how FXM will perform frequency modulation. Higher settings result in a grainier sound, while lower settings result in a more metallic sound.
FXM Depth	0–16	Specifies the depth of the modulation produced by FXM.
Wave Coarse Tune	-48–48	Adjusts the pitch of each wave's sound up or down in semitone steps (+/-4 octaves). **MEMO** The Coarse Tune of the entire drum partial is set by the Source Key (p. 32).
Wave Fine Tune	-50–+50	Adjusts the pitch of each Wave's sound up or down in 1-cent steps (+/-50 cents). * **One cent is 1/100th of a semitone.** **MEMO** The Fine Tune of the entire drum partial is set by the Fine Tune (p. 32).
Wave Level	0–127	Adjusts the level of each Wave. **MEMO** The volume level of each drum partial is set with the Partial Level; the volume levels of the entire drum kit is set with the Level (p. 32).
Wave Pan	L64–63R	This specifies the pan of the waveform. "L64" is far left, "0" is center, and "63R" is far right.
Wave Random Pan Sw	OFF, ON	Use this setting to cause the waveform's panning to change randomly each time a key is pressed (ON) or not (OFF). * **The range of the panning change is set by the Random Pan Depth (p. 35).**
Wave Alter Pan Sw	OFF, ON, REVS	This setting causes panning of the waveform to be alternated between left and right each time a key is pressed. Set this to "ON" to pan the Wave according to the Alternate Pan Depth settings, or to "REVS" when you want the panning reversed. If you do not want the panning to change each time a key is pressed, set this to "OFF."

INST WMT

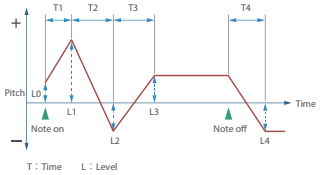
Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.

Parameter	Value	Explanation
Wave Delay Mode		Wave delay This produces a time delay between the moment a key is pressed (or released), and the moment the Wave actually begins to sound. You can also make settings that shift the timing at which each Wave is sounded. This differs from the Delay in the internal effects, in that by changing the sound qualities of the delayed Wave and changing the pitch for each Wave, you can also perform arpeggio-like passages just by pressing one key. You can also synchronize the Wave delay time to the tempo of the external MIDI sequencer.
Wave Delay Mode	NORMAL	The Wave begins to play after the time specified in the Wave Delay Time parameter has elapsed. 
	HOLD	Although the Wave begins to play after the time specified in the Wave Delay Time parameter has elapsed, if the key is released before the time specified in the Wave Delay Time parameter has elapsed, the Wave is not played. 
	KEY-OFF-NORMAL	Rather than being played while the key is pressed, the Wave begins to play once the period of time specified in the Wave Delay Time parameter has elapsed after release of the key. This is effective in situations such as when simulating noises from guitars and other instruments. 
	KEY-OFF-DECAY	Rather than being played while the key is pressed, the Wave begins to play once the period of time specified in the Wave Delay Time parameter has elapsed after release of the key. Here, however, changes in the TVA Envelope begin while the key is pressed, which in many cases means that only the sound from the release portion of the envelope is heard. 
Wave Delay Time Sync	OFF, ON	Set this ON if you want the Wave delay time to synchronize with the tempo.
Wave Delay Time (note)	1/64T–2	This is available when Wave Delay Time Sync is ON. It specifies the delay time in terms of a note value.
Wave Delay Time	0–1023	This is available when Wave Delay Time Sync is OFF. It specifies the delay time without regard to the tempo.

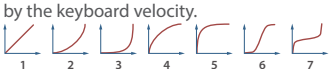
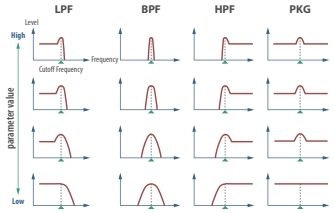


Parameter	Value	Explanation
Velocity Range Low	1–127	Specifies the lower limit (Lower) and upper limit (Upper) of the velocities that will sound the Wave.
Velocity Range Up	1–127	Make these settings when you want to play different Waves depending on your keyboard dynamics.
Velocity Fade Low	0–127	Specifies the degree to which the Wave is sounded by notes played more softly than Velocity Range Low. If you don't want the tone to sound at all, set this parameter to "0."
Velocity Fade Up	0–127	Specifies the degree to which the Wave is sounded by notes played more strongly than Velocity Range Up. If you don't want the tone to sound at all, set this parameter to "0."

PITCH ENV

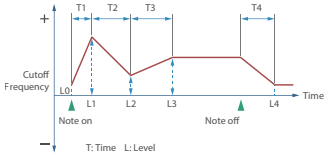
Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Env Depth	-100–+100	Adjusts the effect of the Pitch Envelope. Higher settings will cause the pitch envelope to produce greater change. Negative (-) value will invert the shape of the envelope.
Env Velocity Sens	-100–+100	Keyboard playing dynamics can be used to control the depth of the pitch envelope. If you want the pitch envelope to have more effect for strongly played notes, set this parameter to a positive (+) value. If you want the pitch envelope to have less effect for strongly played notes, set this to a negative (-) value.
Env Time 1 Velocity Sens	-100–+100	This allows keyboard dynamics to affect the Time 1 of the Pitch envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time 4 Velocity Sens	-100–+100	Use this parameter when you want key release speed to affect the Time 4 value of the pitch envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time 1–4	0–1023	Specify the pitch envelope times (Time 1–Time 4). Higher settings will result in a longer time until the next pitch is reached. (For example, Time 2 is the time over which the pitch changes from Level 1 to Level 2.) 
Env Level 0–4	-511–+511	Specify the pitch envelope levels (Level 0–Level 4). It determines how much the pitch changes from the reference pitch (the value set with Coarse Tune or Fine Tune on the Pitch screen) at each point. Positive (+) value will cause the pitch to be higher than the standard pitch, and negative (-) value will cause it to be lower.

INST FILTER

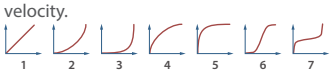
Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Filter Type	Selects the type of filter.	
	OFF	No filter is used.
	LPF	Low Pass Filter. This cuts the frequencies in the region above the cutoff frequency (Cutoff Frequency). Since this cuts the high-frequency region, the sound becomes more mellow. This is the most common filter used in synthesizers.
	BPF	Band Pass Filter. This leaves only the frequencies in the region of the cutoff frequency (Cutoff Frequency), and cuts the rest. This can be useful when creating distinctive sounds.
	HPF	High Pass Filter. This cuts the frequencies in the region below the cutoff frequency (Cutoff Frequency). This is suitable for creating percussive sounds emphasizing their higher tones.
	PKG	Peaking Filter. This emphasizes the frequencies in the region of the cutoff frequency (Cutoff Frequency). This can be used to portray the resonance peak of a drum.
	LPF2	Low Pass Filter 2. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter is half that of the LPF. This makes it a comparatively warmer low pass filter. This filter is good for use with simulated instrument sounds such as the acoustic piano. * **If you set "LPF2," the setting for the Resonance parameter will be ignored (p. 34).**
	LPF3	Low Pass Filter 3. Although frequency components above the Cutoff frequency (Cutoff Frequency) are cut, the sensitivity of this filter changes according to the Cutoff frequency. While this filter is also good for use with simulated acoustic instrument sounds, the nuance it exhibits differs from that of the LPF2, even with the same TVF Envelope settings. * **If you set "LPF3," the setting for the Resonance parameter will be ignored (p. 34).**
Cutoff Frequency	0–1023	Selects the frequency at which the filter begins to have an effect on the waveform's frequency components. With "LPF/LPF2/LPF3" selected for the Filter Type parameter, lower cutoff frequency settings reduce a tone's upper harmonics for a more rounded, warmer sound. Higher settings make it sound brighter. If "BPF" is selected for the Filter Type, harmonic components will change depending on the TVF Cutoff Frequency setting. This can be useful when creating distinctive sounds. With "HPF" selected, higher Cutoff Frequency settings will reduce lower harmonics to emphasize just the brighter components of the sound. With "PKG" selected, the harmonics to be emphasized will vary depending on Cutoff Frequency setting.
Cutoff Velocity Curve	FIXED, 1–7	Selects one of the following seven curves that determine how keyboard playing dynamics (velocity) influence the cutoff frequency. Set this to "FIXED" if you don't want the Cutoff frequency to be affected by the keyboard velocity. 
Cutoff Velocity Sens	-100–+100	Use this parameter when changing the cutoff frequency to be applied as a result of changes in playing velocity. Specify a positive "+" value if you want the cutoff frequency to raise when you play strongly, or a negative "-" value if you want it to lower.
Resonance	0–1023	Emphasizes the portion of the sound in the region of the cutoff frequency, adding character to the sound. Excessively high settings can produce oscillation, causing the sound to distort. 
Resonance Velocity Sens	-100–+100	Use this parameter when changing the resonance to be applied as a result of changes in playing velocity. Specify a positive "+" value if you want resonance to increase when you play strongly, or a negative "-" value if you want it to decrease.

FILTER ENV

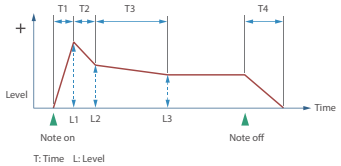
Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Env Depth	-63–+63	Specifies the depth of the Filter envelope. Higher settings increase the change produced by the Filter envelope. Negative (-) value will invert the shape of the envelope.
Env Velocity Curve	FIXED, 1–7	Selects one of the following seven types of curve by which keyboard playing dynamics affect the depth of the filter envelope. If you don't want keyboard playing dynamics to affect the filter envelope depth, specify "FIXED." 
Env Velocity Sens	-100–+100	Specify this if you want keyboard playing dynamics to affect the filter envelope depth. Specify a positive "+" value if you want the filter envelope to apply more deeply as you play more strongly, or a negative "-" value if you want it to apply less deeply.
Env Time 1 Velocity Sens	-100–+100	Specify this if you want keyboard playing dynamics to affect Time 1 of the filter envelope. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time 4 Velocity Sens	-100–+100	Specify this if you want key release velocity to affect Time 4 of the filter envelope. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.

Parameter	Value	Explanation
Env Time 1–4	0–1023	Specify the filter envelope times (Time 1–Time 4). Higher settings will lengthen the time until the next cutoff frequency level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.) 
Env Level 0–4	0–1023	Specify the filter envelope levels (Level 0–Level 4). Specify the amount of cutoff frequency change at each point relative to the reference cutoff frequency (the cutoff frequency value specified in the Filter screen).

INST AMP

Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Level Velocity Curve	FIXED, 1–7	Selects one of the following seven curves that determine how keyboard dynamics will affect the volume. Set this to "FIXED" if you don't want the volume of the partial to be affected by the keyboard velocity. 
Level Velocity Sens	-100–+100	Set this when you want the volume of the partial to change depending on the force with which you press the keys. Set this to a positive (+) value to have the changes in partial volume increase the more forcefully the keys are played; to make the partial play more softly as you play harder, set this to a negative (-) value.
Random Pan Depth	0–63	Use this parameter when you want the stereo location to change randomly each time you press a key. Higher values will produce a greater amount of change.
Alternate Pan Depth	L64–63R	This setting causes panning to be alternated between left and right each time a key is pressed. Higher values will produce a greater amount of change. "L" or "R" settings will reverse the order in which the pan will alternate between left and right. For example, if the INST WAVE setting Wave Alter Pan Sw is ON or REVS for the two waves, the pan will alternate each time the key is pressed.

AMP ENV

Parameter	Value	Explanation
Current Note	21 (A0)–108 (C8)	Selects the key.
Inst Number	000–	Selects the Inst to be assigned to the key.
Env Time 1 Velocity Sens	-100–+100	Specify this if you want keyboard dynamics to affect the AMP envelope's Time 1. If you want Time 1 to be speeded up for strongly played notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time 4 Velocity Sens	-100–+100	Specify this if you want key release velocity to affect the AMP envelope's Time 4. If you want Time 4 to be speeded up for quickly released notes, set this parameter to a positive (+) value. If you want it to be slowed down, set this to a negative (-) value.
Env Time 1–4	0–1023	Specify the AMP envelope times (Time 1–Time 4). Higher settings lengthen the time until the next volume level is reached. (For example, Time 2 is the time over which Level 1 will change to Level 2.)
Env Level 1–3	0–1023	Specify the AMP envelope levels (Level 1–Level 3). These specify the amount of change at each point relative to the reference volume (the partial level value specified in the Amp screen). 

V-Piano Tone Parameters (VPno)

1. **Select the zone to which the tone is assigned.**
2. **Press the [MENU] button.**
   The MENU screen appears.
3. **Touch <TONE EDIT>.**
   The TONE EDIT screen appears.
4. **Touch the tab of the section that you want to edit.**
5. **Move the cursor to the desired parameter, and edit the value.**

NOTE

The edited parameters are temporary. They are lost when you turn off the power. If you want to keep your changes, you must save the tone.

PIANO DESIGNER

Parameter	Value	Explanation
Level	0–127	Adjusts the overall volume of the tone.
Lid	0–6	Reproduces the way the brightness of a grand piano's sound is affected by how much the piano's lid is opened. Higher settings open the lid more, producing a brighter sound.
String Resonance	0–10	When the keys are pressed on an acoustic piano, the strings for keys that are already pressed also vibrate sympathetically. The function used to reproduce is called "String Resonance." Increasing the value increases the amount of effect.
Damper Resonance	0–10	This adjusts the damper resonance of the acoustic piano sound (the sympathetic vibration produced in strings other than those actually played when you press the damper pedal). Higher settings will make the sympathetic vibration louder.
Hammer Noise	-2–+2	This adjusts the sound of the hammer striking the string of an acoustic piano. Higher values will increase the sound of the hammer striking the string.
Duplex Scale	0–10	Adjusts the sound of the sympathetically vibrating aliquot strings on an acoustic piano. Higher values increase the volume of the sympathetic vibration.
	What is Duplex Scale? "Duplex Scale" refers to a system that causes sympathetic vibrations in the sections of the string toward the front and toward the back. It can produce sound that is richer and brighter by adding the string's higher harmonics. Because no damper (sound-stopping mechanism) is applied to the front or back sections of the string, the resonating sounds linger even after the sound of the string stops when you release the played key.	
Key Off Resonance	0–10	This adjusts resonances such as the key-off sound of an acoustic piano (subtle sounds that are heard when you release a key). Higher settings will make the sympathetic vibration louder.
Cabinet Resonance	0–10	Adjusts the body resonance of the grand piano itself. Higher values will produce a larger body resonance.
Sound Board Resonator	0–4	When you play a chord, this setting improves the clarity of the individual notes in the chord, creating a more beautiful resonance. Higher settings produce a clearer resonance.
Damper Noise	0–10	Adjusts the damper noise (the sound that occurs when the strings of an acoustic piano are released by pressing the damper pedal). Increasing this value increases the sound that is heard when the strings are released.
Key Off Noise	0–10	This adjusts resonances such as the key-off sound of an acoustic piano (subtle sounds that are heard when you release a key). Higher settings will make the sympathetic vibration louder.

TUNING

You can make fine adjustments to the tuning of each key.

Press the key that you want to adjust, and then edit the value.

Parameter	Value	Explanation
Type	OFF, PRESET, USER	Selects the type of tuning. PRESET is the tuning curve that's factory-set for the FANTOM. If you choose USER, you'll be able to specify the tuning of each key.
Value	-50.0–+50.0	Allows for fine adjustments to the tuning of each key in steps of 0.1 cents, over a range of -50.0 to +50.0 cents.

LEVEL

This is a fine adjustment to the volume of each key.

Press the key that you want to adjust, and then edit the value.

Parameter	Value	Explanation
Type	OFF, PRESET, USER	If you choose USER, you'll be able to edit the volume of each key.
Value	-50–0	Lower values cause the key to be softer than the other keys.

CHARACTER

This is a fine adjustment to the sound quality of each key.

Press the key that you want to adjust, and then edit the value.

Parameter	Value	Explanation
Type	OFF, PRESET, USER	If you choose USER, you'll be able to edit the Character of each key.
Value	-5–0–+5	Higher values produce a harder sound; lower values produce a more mellow sound.

MFX

Parameter	Value	Explanation
MFX Type	Selects the MFX type.	
MFX Sw	OFF, ON	Switches the MFX on/off.
MFX Chorus Send Level	0–127	Adjusts the amount of chorus. If you don't want to add the chorus effect, set it to 0.
MFX Reverb Send Level	0–127	Adjusts the amount of reverb. If you don't want to add the reverb effect, set it to 0.

MFX CTRL

Parameter	Value	Explanation
Control 1–4 Source	Specifies the MIDI message that will control the corresponding MFX CONTROL parameter.	
	OFF	MFX CONTROL will not be used.
	CC01–31	Controller number 1–31
	CC33–95	Controller number 33–95
	BEND	Pitch bend
	AFT	Aftertouch
	SYS-CTRL1–4	Use the controller that is assigned by the System Control Source 1–4.
Control 1–4 Destination		Specifies the multi-effect parameters that are controlled by MFX Control. The multi-effects parameters available for control will depend on the multi-effects type.
Control 1–4 Sens	-63–+63	Specifies the depth of MFX CONTROL. Specify a positive (+) value if you want to change the value of the assigned destination in a positive direction (larger, toward the right, faster, etc.), or specify a negative (-) value if you want to change the value in a negative direction (smaller, toward the left, slower, etc.). Larger values will allow a greater amount of control.

System Effect Parameters (SYSTEM EFFECT)

1. Press the [MENU] button.

The MENU screen appears.

2. Touch <EFFECTS EDIT>.

The EFFECTS EDIT screen appears.

3. Touch <EDIT> for the section that you want to edit.

4. Move the cursor to the desired parameter, and edit the value.

NOTE

The edited effect settings are temporary. They are lost when you turn off the power. If you want to keep your changes, you must save the system settings.

Master FX (MASTER FX)

Parameter	Value	Explanation
Send To Analog Filter Switch	OFF, ON	Specifies whether the MASTER FX output destination is sent to the Analog Filter. ON: The output is sent to the Analog Filter. OFF: The output is sent directly from the MAIN OUT jacks without passing through the Analog Filter.

Mastering COMP

Parameter	Value	Explanation
Switch	OFF, ON	Specifies whether the mastering COMP (a compressor applied to the entire sound generator of the FANTOM) is used (ON) or not used (OFF).
Low Attack Time	0.1–100 [ms]	Specifies the time from when the input exceeds Low Threshold until compression is applied to the volume of the low-frequency band.
Low Release Time	10–1000 [ms]	In a state when compression is already being applied, this specifies the time from when the input decreases below Low Threshold until the low-frequency band stops being compressed.
Low Threshold	-60–0 [dB]	Specifies the volume level at which compression starts for the low-frequency band.
Low Ratio	1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1	Specifies the compression ratio for the low-frequency band.
Low Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than Low Threshold. Higher values produce a smoother transition.
Low Output Gain	-24.0–+24.0 [dB]	Specifies the output volume of the low-frequency band.
Mid Attack Time	0.1–100 [ms]	Specifies the time from when the input exceeds Mid Threshold until compression is applied to the volume of the mid-frequency band.
Mid Release Time	10–1000 [ms]	In a state when compression is already being applied, this specifies the time from when the input decreases below Mid Threshold until the mid-frequency band stops being compressed.
Mid Threshold	-60–0 [dB]	Specifies the volume level at which compression starts for the mid-frequency band.
Mid Ratio	1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1	Specifies the compression ratio for the mid-frequency band.
Mid Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than Mid Threshold. Higher values produce a smoother transition.
Mid Output Gain	-24.0–+24.0 [dB]	Specifies the output volume of the mid-frequency band.
High Attack Time	0.1–100 [ms]	Specifies the time from when the input exceeds High Threshold until compression is applied to the volume of the high-frequency band.
High Release Time	10–1000 [ms]	In a state when compression is already being applied, this specifies the time from when the input decreases below High Threshold until the high-frequency band stops being compressed.
High Threshold	-60–0 [dB]	Specifies the volume level at which compression starts for the high-frequency band.
High Ratio	1:1, 2:1, 3:1, 4:1, 8:1, 16:1, 32:1, INF:1	Specifies the compression ratio for the high-frequency band.
High Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than High Threshold. Higher values produce a smoother transition.
High Output Gain	-24.0–+24.0 [dB]	Specifies the output volume of the high-frequency band.
Split Freq Low	16–16000 [Hz]	Specifies the frequency at which the low-frequency band (LOW) and mid-frequency band (MID) are divided.
Split Freq Hi		Specifies the frequency at which the high-frequency band (HIGH) and mid-frequency band (MID) are divided.

Mastering EQ

Parameter	Value	Explanation
Switch	OFF, ON	Specifies whether the mastering EQ (an equalizer applied to the entire sound generator of the FANTOM) is used (ON) or not used (OFF).
EQ Input Gain	-24–+24 [dB]	Adjusts the amount of boost/cut for the input to the EQ.
Low Gain	-24–+24 [dB]	Gain of the low range.
Low Freq	20–16000 [Hz]	Frequency of the low range.
Mid1 Gain	-24–+24 [dB]	Gain of the middle frequency range 1.
Mid1 Freq	20–16000 [Hz]	Frequency of the middle range 1.
Mid1 Q	0.5–16.0	Width of the middle frequency range 1. Set a higher value to narrow the range to be affected.
Mid2 Gain	-24–+24 [dB]	Gain of the middle frequency range 2.
Mid2 Freq	20–16000 [Hz]	Frequency of the middle range 2.
Mid2 Q	0.5–16.0	Width of the middle frequency range 2. Set a higher value to narrow the range to be affected.
Mid3 Gain	-24–+24 [dB]	Gain of the middle frequency range 3.
Mid3 Freq	20–16000 [Hz]	Frequency of the middle range 3.
Mid3 Q	0.5–16.0	Width of the middle frequency range 3. Set a higher value to narrow the range to be affected.
High Gain	-24–+24 [dB]	Gain of the high range
High Freq	20–16000 [Hz]	Frequency of the high range.

Audio in Effect (AUDIO IN EFFECT)

LOW CUT

Parameter	Value	Explanation
Low Cut Frequency	20–800 [Hz]	Specifies the frequency below which the low range is cut.

INPUT EQ

Parameter	Value	Explanation
Switch	OFF, ON	Specifies whether the input EQ (an equalizer applied to an external input of FANTOM) is used (ON) or not used (OFF).
EQ Input Gain	-24–+24 [dB]	Adjusts the amount of boost/cut for the input to the EQ.
Low Gain	-24–+24 [dB]	Gain of the low range.
Low Freq	20–16000 [Hz]	Frequency of the low range.
Mid1 Gain	-24–+24 [dB]	Gain of the middle frequency range 1.
Mid1 Freq	20–16000 [Hz]	Frequency of the middle range 1.
Mid1 Q	0.5–16.0	Width of the middle frequency range 1. Set a higher value to narrow the range to be affected.
Mid2 Gain	-24–+24 [dB]	Gain of the middle frequency range 2.
Mid2 Freq	20–16000 [Hz]	Frequency of the middle range 2.
Mid2 Q	0.5–16.0	Width of the middle frequency range 2. Set a higher value to narrow the range to be affected.
Mid3 Gain	-24–+24 [dB]	Gain of the middle frequency range 3.
Mid3 Freq	20–16000 [Hz]	Frequency of the middle range 3.
Mid3 Q	0.5–16.0	Width of the middle frequency range 3. Set a higher value to narrow the range to be affected.
High Gain	-24–+24 [dB]	Gain of the high range
High Freq	20–16000 [Hz]	Frequency of the high range.

INPUT REVERB

Parameter	Value	Explanation
Reverb Type	Selects the types of reverb.	
Switch	OFF, ON	Switches the reverb on/off.
Level	0–127	Specifies the output level of the sound with reverb applied.
Reverb Parameters	Edit the parameters of the selected reverb type. The available parameters differ depending on the type of reverb you selected in Reverb Type. ➡ **"Reverb Parameters"** (p. 8)	

MFX/IFX Parameters

00 Thru

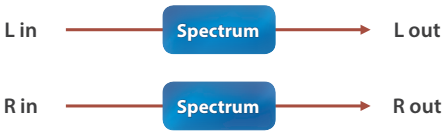
01 Equalizer

This is a four-band stereo equalizer (low, mid x 2, high).

Parameter	Value	Explanation
Low Freq (Low Frequency)	20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400 [Hz]	Frequency of the low range
Low Gain	-15–+15 [dB]	Gain of the low range
Mid1 Freq (Mid1 Frequency)	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 1
Mid1 Gain	-15–+15 [dB]	Gain of the middle range 1
Mid1 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 1 Set a higher value to narrow the range to be affected.
Mid2 Freq (Mid2 Frequency)	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 2
Mid2 Gain	-15–+15 [dB]	Gain of the middle range 2
Mid2 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 2 Set a higher value to narrow the range to be affected.
High Freq (High Frequency)	2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 16000 [Hz]	Frequency of the high range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

02 Spectrum

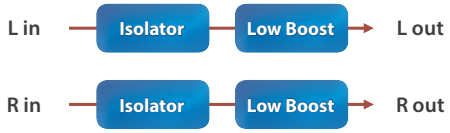
This is a stereo spectrum. Spectrum is a type of filter which modifies the timbre by boosting or cutting the level at specific frequencies.



Parameter	Value	Explanation
Band1 (250 Hz)	-15–+15 [dB]	Gain of each frequency band
Band2 (500 Hz)		
Band3 (1000 Hz)		
Band4 (1250 Hz)		
Band5 (2000 Hz)		
Band6 (3150 Hz)		
Band7 (4000 Hz)		
Band8 (8000 Hz)		
Q	0.5, 1.0, 2.0, 4.0, 8.0	Simultaneously adjusts the width of the adjusted ranges for all the frequency bands.
Level	0–127	Output Level

03 Isolator

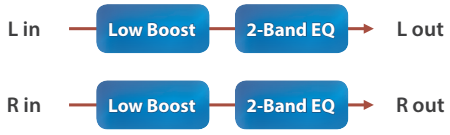
This is an equalizer which cuts the volume greatly, allowing you to add a special effect to the sound by cutting the volume in varying ranges.



Parameter	Value	Explanation
Boost/Cut Low	-60–+4 [dB]	These boost and cut each of the High, Middle, and Low frequency ranges. At -60 dB, the sound becomes inaudible. 0 dB is equivalent to the input level of the sound.
Boost/Cut Mid	-60–+4 [dB]	
Boost/Cut High	-60–+4 [dB]	
Anti Phase Low Sw	OFF, ON	Turns the Anti-Phase function on and off for the Low frequency ranges. When turned on, the counter-channel of stereo sound is inverted and added to the signal.
Anti Phase Low Level	0–127	Level of the Anti-Phase function for the Low frequency ranges. Adjusting this level for certain frequencies allows you to lend emphasis to specific parts. (This is effective only for stereo source.)
Anti Phase Mid Sw	OFF, ON	Settings of the Anti-Phase function for the Middle frequency ranges. The parameters are the same as for the Low frequency ranges.
Anti Phase Mid Level	0–127	
Low Boost Sw	OFF, ON	Turns Low Booster on/off. This emphasizes the bottom to create a heavy bass sound.
Low Boost Level	0–127	Increasing this value gives you a heavier low end. Depending on the Isolator and filter settings this effect may be hard to distinguish.
Level	0–127	Output Level

04 Low Boost

Boosts the volume of the lower range, creating powerful lows.



Parameter	Value	Explanation
Boost Frequency	50, 56, 63, 71, 80, 90, 100, 112, 125 [Hz]	Center frequency at which the lower range will be boosted
Boost Gain	0–+12 [dB]	Center frequency at which the lower range will be boosted
Boost Width	WIDE, MID, NARROW	Width of the lower range that will be boosted
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

05 Super Filter

This is a filter with an extremely sharp slope. The cutoff frequency can be varied cyclically.

Parameter	Value	Explanation
Filter Type	LPF, BPF, HPF, NOTCH	Type of filter Frequency range that will pass through each filter **LPF:** frequencies below the cutoff **BPF:** frequencies in the region of the cutoff **HPF:** frequencies above the cutoff **NOTCH:** frequencies other than the region of the cutoff
Filter Slope	-12, -24, -36 [dB]	Amount of attenuation per octave **-12 dB:** Gentle, **-24 dB:** Steep, **-36 dB:** Extremely steep
Filter Cutoff	0–127	Cutoff frequency of the filter Increasing this value will raise the cutoff frequency.
Filter Resonance	0–100	Filter resonance level Increasing this value will emphasize the region near the cutoff frequency.
Filter Gain	0–+12 [dB]	Amount of boost for the filter output
Modulation Sw	OFF, ON	On/off switch for cyclic change
Modulation Wave	TRI, SQR, SIN, SAW1, SAW2	How the cutoff frequency will be modulated **TRI:** Triangle wave **SQR:** Square wave **SIN:** Sine wave **SAW1:** Sawtooth wave (upward) **SAW2:** Sawtooth wave (downward)
	SAW1 SAW2 	
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Attack	0–127	Speed at which the cutoff frequency will change This is effective if Modulation Wave is SQR, SAW1, or SAW2.
Level	0–127	Output Level

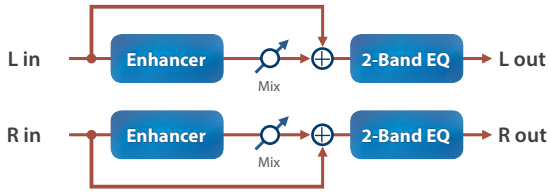
06 Step Filter

This is a filter whose cutoff frequency can be modulated in steps. You can specify the pattern by which the cutoff frequency will change.

Parameter	Value	Explanation
Step 01–16	0–127	Cutoff frequency at each step
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Attack	0–127	Speed at which the cutoff frequency changes between steps
Filter Type	LPF, BPF, HPF, NOTCH	Type of filter Frequency range that will pass through each filter **LPF:** frequencies below the cutoff **BPF:** frequencies in the region of the cutoff **HPF:** frequencies above the cutoff **NOTCH:** frequencies other than the region of the cutoff
Filter Slope	-12, -24, -36 dB	Amount of attenuation per octave **-12 dB:** Gentle, **-24 dB:** Steep, **-36 dB:** Extremely steep
Filter Resonance	0–127	Filter resonance level Increasing this value will emphasize the region near the cutoff frequency.
Filter Gain	0–+12 [dB]	Amount of boost for the filter output
Level	0–127	Output Level

07 Enhancer

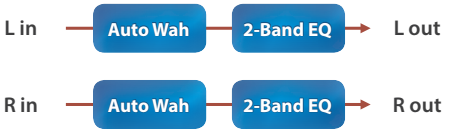
Controls the overtone structure of the high frequencies, adding sparkle and tightness to the sound.



Parameter	Value	Explanation
Sens	0–127	Sensitivity of the enhancer
Mix	0–127	Level of the overtones generated by the enhancer
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

08 Auto Wah

Cyclically controls a filter to create cyclic change in timbre.



Parameter	Value	Explanation
Filter Type	LPF, BPF	Type of filter **LPF:** Produces a wah effect in a broad frequency range. **BPF:** Produces a wah effect in a narrow frequency range.
Manual	0–127	Center frequency at which the wah effect is applied
Peak	0–127	Width of the frequency region at which the wah effect is applied Increasing this value will make the frequency region narrower.
Sens	0–127	Adjusts the sensitivity with which the filter is controlled.
Polarity	UP, DOWN	Direction in which the filter will move **UP:** The filter will change toward a higher frequency. **DOWN:** The filter will change toward a lower frequency.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the wah effect
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Adjusts the degree of phase shift of the left and right sounds when the wah effect is applied.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

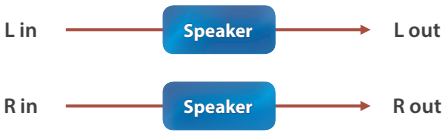
09 Humanizer

Adds a vowel character to the sound, making it similar to a human voice.

Parameter	Value	Explanation
Drive Sw	OFF, ON	Overdrive on/off
Drive	0–127	Degree of distortion Also changes the volume.
Vowel1	a, e, i, o, u	Selects the vowel.
Vowel2	a, e, i, o, u	Vowel2
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency at which the two vowels switch
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of the effect
Input Sync Sw	OFF, ON	LFO reset on/off If this is ON, the LFO for switching the vowels is reset by the input signal.
Input Sync Threshold	0–127	Volume level at which reset is applied
Manual	0–100	Point at which Vowel 1/2 switch **0–49:** Vowel 1 will have a longer duration. **50:** Vowel 1 and 2 will be of equal duration. **51–100:** Vowel 2 will have a longer duration.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Pan	L64–63R	Stereo location of the output sound
Level	0–127	Output Level

10 Speaker Simulator

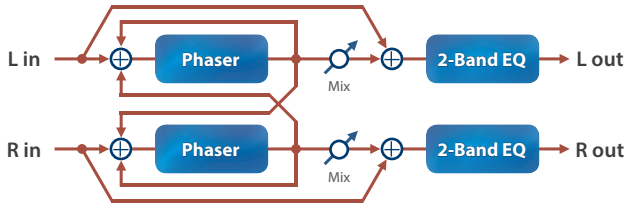
Simulates the speaker type and microphone settings used to record the speaker sound.



Parameter	Value	Explanation		
		Cabinet	Diameter (in inches) and number of the speaker	Microphone
Speaker Type	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN 1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN 2	Open back enclosure	12 x 2	Condenser
	BUILT-IN 3	Open back enclosure	12 x 2	Condenser
	BUILT-IN 4	Open back enclosure	12 x 2	Condenser
	BUILT-IN 5	Open back enclosure	12 x 2	Condenser
	BG STACK 1	Sealed enclosure	12 x 2	Condenser
	BG STACK 2	Large sealed enclosure	12 x 2	Condenser
	MS STACK 1	Large sealed enclosure	12 x 4	Condenser
	MS STACK 2	Large sealed enclosure	12 x 4	Condenser
	METAL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Mic Setting	1, 2, 3	Adjusts the location of the microphone that is recording the sound of the speaker. This can be adjusted in three steps, with the microphone becoming more distant in the order of 1, 2, and 3.		
Mic Level	0–127	Volume of the microphone		
Direct Level	0–127	Volume of the direct sound		
Level	0–127	Output Level		

11 Phaser 1

This is a stereo phaser. A phase-shifted sound is added to the original sound and modulated.

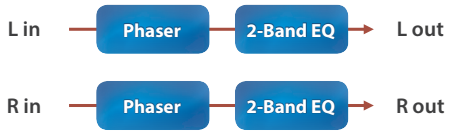


Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE	Number of stages in the phaser
Manual	0–127	Center frequency at which the sound is modulated
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Modulation rate
Rate (note)	Note ➡ "Note" (p. 76)	
Depth	0–127	Depth of modulation
Polarity	INVERSE, SYNCHRO	Selects whether the left and right phase of the modulation will be the same or the opposite. INVERSE: The left and right phase will be opposite. When using a mono source, this spreads the sound. SYNCHRO: The left and right phase will be the same. Select this when inputting a stereo source.
Resonance	0–127	Amount of feedback
Cross Feedback	-98–+98 [%]	Adjusts the proportion of the phaser sound that is fed back into the effect. Negative (-) settings will invert the phase.
Mix	0–127	Level of the phase-shifted sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

12 Phaser 2

This simulates an analog phaser of the past.

It is particularly suitable for electric piano.

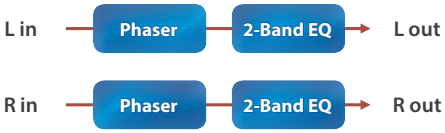


Parameter	Value	Explanation
Rate	0–100	Modulation rate
Color	1, 2	Modulation character
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

13 Phaser 3

This simulates a different analog phaser than Phaser 2.

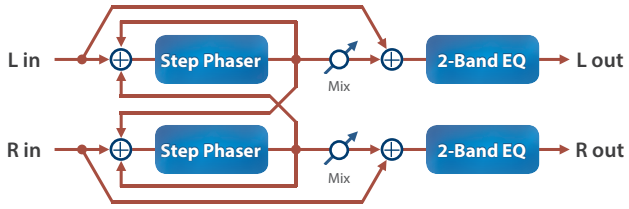
It is particularly suitable for electric piano.



Parameter	Value	Explanation
Speed	0–100	Speed of modulation
Depth	0–127	Depth of modulation
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

14 Step Phaser

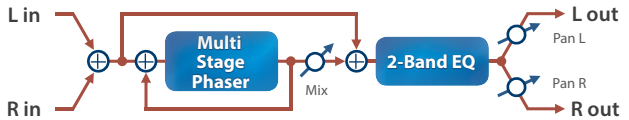
This is a stereo phaser. The phaser effect will be varied gradually.



Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE	Number of stages in the phaser
Manual	0–127	Center frequency at which the sound is modulated
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Modulation rate
Rate (note)	Note ➡ "Note" (p. 76)	
Depth	0–127	Depth of modulation
Polarity	INVERSE, SYNCHRO	Selects whether the left and right phase of the modulation will be the same or the opposite. **INVERSE:** The left and right phase will be opposite. When using a mono source, this spreads the sound. **SYNCHRO:** The left and right phase will be the same. Select this when inputting a stereo source.
Resonance	0–127	Amount of feedback
Cross Feedback	-98–+98 [%]	Adjusts the proportion of the phaser sound that is fed back into the effect. Negative (-) settings will invert the phase.
Step Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Step Rate (Hz)	0.10–20.00 [Hz]	Rate of the step-wise change in the phaser effect
Step Rate (note)	Note ➡ "Note" (p. 76)	
Mix	0–127	Level of the phase-shifted sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

15 Multi Stage Phaser

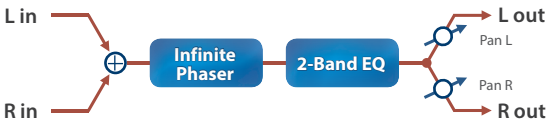
Extremely high settings of the phase difference produce a deep phaser effect.



Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE, 16-STAGE, 20-STAGE, 24-STAGE	Number of stages in the phaser
Manual	0–127	Center frequency at which the sound is modulated
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Modulation rate
Rate (note)	Note ➡ "Note" (p. 76)	
Depth	0–127	Depth of modulation
Resonance	0–127	Amount of feedback
Mix	0–127	Level of the phase-shifted sound
Pan	L64–63R	Stereo location of the output sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

16 Infinite Phaser

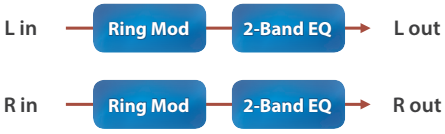
A phaser that continues raising/lowering the frequency at which the sound is modulated.



Parameter	Value	Explanation
Mode	1, 2, 3, 4	Higher values will produce a deeper phaser effect.
Speed	-100–100	Speed at which to raise or lower the frequency at which the sound is modulated (+: upward / -: downward)
Resonance	0–127	Amount of feedback
Mix	0–127	Level of the phase-shifted sound
Pan	L64–63R	Stereo location of the output sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

17 Ring Modulator

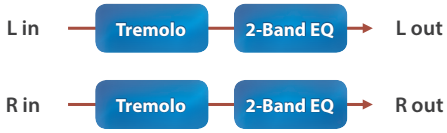
This is an effect that applies amplitude modulation (AM) to the input signal, producing bell-like sounds. You can also change the modulation frequency in response to changes in the volume of the sound sent into the effect.



Parameter	Value	Explanation
Frequency	0–127	Adjusts the frequency at which modulation is applied.
Sens	0–127	Adjusts the amount of frequency modulation applied.
Polarity	UP, DOWN	Determines whether the frequency modulation moves towards higher frequencies or lower frequencies. **UP:** The filter will change toward a higher frequency. **DOWN:** The filter will change toward a lower frequency.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

18 Tremolo

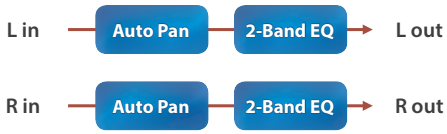
Cyclically changes the volume.



Parameter	Value	Explanation
Mod Wave	TRI, SQR, SIN, SAW1, SAW2, TRP	Modulation wave **TRI:** Triangle wave **SQR:** Square wave **SIN:** Sine wave **SAW1/2:** Sawtooth wave **TRP:** Trapezoidal wave
	SAW1 SAW2 	
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of the change
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth to which the effect is applied
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

19 Auto Pan

Cyclically modulates the stereo location of the sound.



Parameter	Value	Explanation
Mod Wave	TRI, SQR, SIN, SAW1, SAW2, TRP	How the pan changes **TRI:** Triangle wave **SQR:** Square wave **SIN:** Sine wave **SAW1/2:** Sawtooth wave **TRP:** Trapezoidal wave
	SAW1 SAW2 R R  L L	
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of the change
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth to which the effect is applied
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

20 Slicer

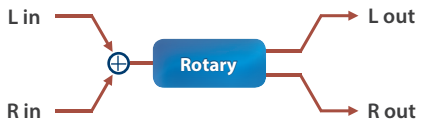
By applying successive cuts to the sound, this effect turns a conventional sound into a sound that appears to be played as a backing phrase. This is especially effective when applied to sustain-type sounds.

Parameter	Value	Explanation
Step 01–16	0–127	Level at each step
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Rate at which the 16-step sequence will cycle
Rate (note)	Note ➡ **"Note"** (p. 76)	
Attack	0–127	Speed at which the level changes between steps
Input Sync Sw	OFF, ON	Specifies whether an input note will cause the sequence to resume from the first step of the sequence (ON) or not (OFF)
Input Sync Threshold	0–127	Volume at which an input note will be detected
Mode	LEGATO, SLASH	Sets the manner in which the volume changes as one step progresses to the next. **LEGATO:** The change in volume from one step's level to the next remains unaltered. If the level of a following step is the same as the one preceding it, there is no change in volume. **SLASH:** The level is momentarily set to 0 before progressing to the level of the next step. This change in volume occurs even if the level of the following step is the same as the preceding step.
Shuffle	0–127	Timing of volume changes in levels for even-numbered steps (step 2, step 4, step 6...). The higher the value, the later the beat progresses.
Level	0–127	Output Level

21 Rotary

This simulates a classic rotary speaker of the past.

Since the operation of the high-frequency and low-frequency rotors can be specified independently, the distinctive modulation can be reproduced realistically. This is most effective on organ patches.

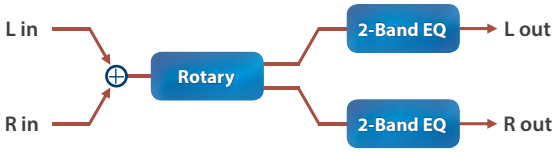


Parameter	Value	Explanation
Speed	SLOW, FAST	Simultaneously switch the rotational speed of the low frequency rotor and high frequency rotor. **SLOW:** Slows down the rotation to the Slow Rate. **FAST:** Speeds up the rotation to the Fast Rate.
Woofer Slow Speed	0.05–10.00 [Hz]	Slow speed (SLOW) of the low frequency rotor
Woofer Fast Speed	0.05–10.00 [Hz]	Fast speed (FAST) of the low frequency rotor
Woofer Acceleration	0–15	Adjusts the time it takes the low frequency rotor to reach the newly selected speed when switching from fast to slow (or slow to fast) speed.
Woofer Level	0–127	Volume of the low frequency rotor
Tweeter Slow Speed	0.05–10.00 [Hz]	Settings of the high frequency rotor The parameters are the same as for the low frequency rotor
Tweeter Fast Speed	0.05–10.00 [Hz]	
Tweeter Acceleration	0–15	
Tweeter Level	0–127	
Separation	0–127	Spatial dispersion of the sound
Level	0–127	Output Level

22 VK Rotary

This type provides modified response for the rotary speaker, with the low end boosted further.

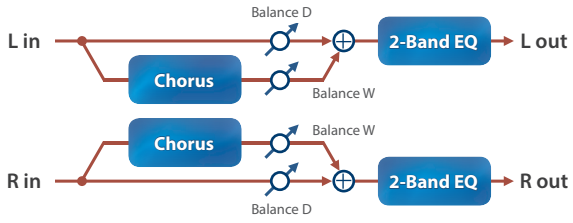
This effect features the same specifications as the VK-7's built-in rotary speaker.



Parameter	Value	Explanation
Speed	SLOW, FAST	Rotational speed of the rotating speaker **SLOW:** Slow **FAST:** Fast
Brake	OFF, ON	Switches the rotation of the rotary speaker. When this is turned on, the rotation will gradually stop. When it is turned off, the rotation will gradually resume.
Woofer Slow Speed	0.05–10.00 [Hz]	Low-speed rotation speed of the woofer
Woofer Fast Speed	0.05–10.00 [Hz]	High-speed rotation speed of the woofer
Woofer Trans Up	0–127	Adjusts the rate at which the woofer rotation speeds up when the rotation is switched from Slow to Fast.
Woofer Trans Down	0–127	Adjusts the rate at which the woofer rotation speeds up when the rotation is switched from Fast to Slow.
Woofer Level	0–127	Volume of the woofer
Tweeter Slow Speed	0.05–10.00 [Hz]	Settings of the tweeter The parameters are the same as for the woofer.
Tweeter Fast Speed	0.05–10.00 [Hz]	
Tweeter Trans Up	0–127	
Tweeter Trans Down	0–127	
Tweeter Level	0–127	
Spread	0–10	Sets the rotary speaker stereo image.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level Higher values will increase the distortion.
OD Drive	0–127	Degree of distortion
OD Level	0–127	Volume of the overdrive

23 Chorus

This is a stereo chorus. A filter is provided so that you can adjust the timbre of the chorus sound.



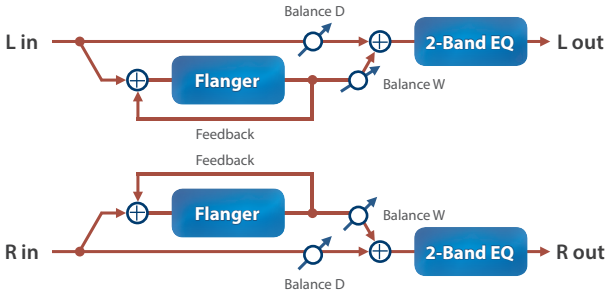
Parameter	Value	Explanation
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** No filter is used. **LPF:** Cuts the frequency range above the Cutoff Freq **HPF:** Cuts the frequency range below the Cutoff Freq
Cutoff Freq	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Basic frequency of the filter
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Spatial spread of the sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0–127	Output Level

24 Flanger

This is a stereo flanger (The LFO has the same phase for left and right.).

It produces a metallic resonance that rises and falls like a jet airplane taking off or landing.

A filter is provided so that you can adjust the timbre of the flanged sound.

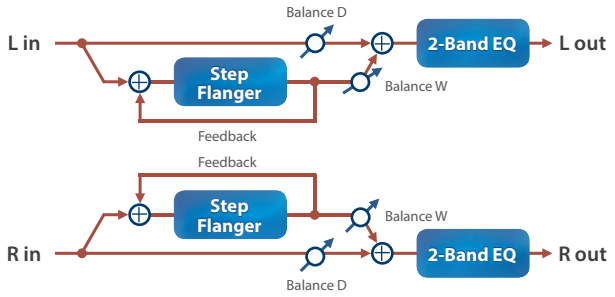


Parameter	Value	Explanation
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** No filter is used. **LPF:** Cuts the frequency range above the Cutoff Freq **HPF:** Cuts the frequency range below the Cutoff Freq
Cutoff Freq	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Basic frequency of the filter
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Spatial spread of the sound
Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Level	0–127	Output Level

25 Step Flanger

This is a flanger in which the flanger pitch changes in steps.

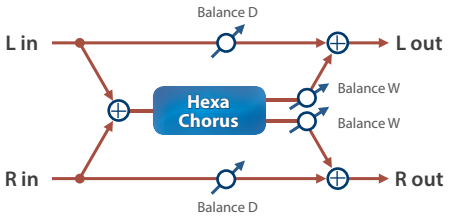
The speed at which the pitch changes can also be specified in terms of a note-value of a specified tempo.



Parameter	Value	Explanation
Filter Type	OFF, LPF, HPF	Type of filter **OFF:** No filter is used. **LPF:** Cuts the frequency range above the Cutoff Freq **HPF:** Cuts the frequency range below the Cutoff Freq
Cutoff Freq	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Basic frequency of the filter
Pre Delay	0.0–100.0 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Spatial spread of the sound
Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Step Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Step Rate (Hz)	0.10–20.00 [Hz]	Rate (period) of pitch change
Step Rate (note)	Note ➡ **"Note"** (p. 76)	
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Level	0–127	Output Level

26 Hexa-Chorus

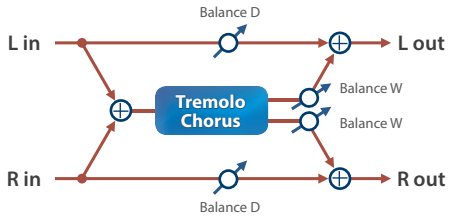
Uses a six-phase chorus (six layers of chorused sound) to give richness and spatial spread to the sound.



Parameter	Value	Explanation
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Pre Delay Deviation	0–20	Adjusts the differences in Pre Delay between each chorus sound.
Depth Deviation	-20–20	Adjusts the difference in modulation depth between each chorus sound.
Pan Deviation	0–20	Adjusts the difference in stereo location between each chorus sound. **0:** All chorus sounds will be in the center. **20:** Each chorus sound will be spaced at 60 degree intervals relative to the center.
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0–127	Output Level

27 Tremolo Chorus

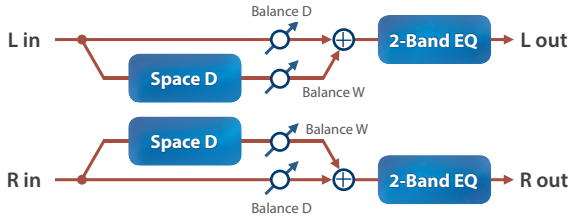
This is a chorus effect with added Tremolo (cyclic modulation of volume).



Parameter	Value	Explanation
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the chorus effect
Cho Note (Chorus Rate (note))	Note ➡ "Note" (p. 76)	
Chorus Depth	0–127	Modulation depth of the chorus effect
Tremolo Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Tremolo Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the tremolo effect
Tremolo Rate (note)	Note ➡ "Note" (p. 76)	
Tremolo Separation	0–127	Depth of the tremolo effect
Tremolo Phase	0–180 [deg]	Spread of the tremolo effect
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the tremolo chorus sound (W)
Level	0–127	Output Level

28 Space-D

This is a multiple chorus that applies two-phase modulation in stereo. It gives no impression of modulation, but produces a transparent chorus effect.



Parameter	Value	Explanation
Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ "Note" (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Spatial spread of the sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Level	0–127	Output Level

29 Overdrive

This is an overdrive that provides heavy distortion.

Parameter	Value	Explanation
Drive	0–127	Degree of distortion Also changes the volume.
Tone	0–127	Sound quality of the Overdrive effect
Amp Sw	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** Small amp **BUILT-IN:** Single-unit type amp **2-STACK:** Large double stack amp **3-STACK:** Large triple stack amp
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Pan	L64–63R	Stereo location of the output sound
Level	0–127	Output Level

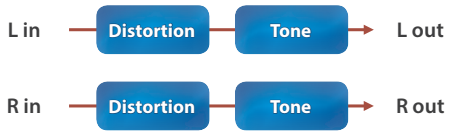
30 Distortion

This is a distortion effect that provides heavy distortion.

Parameter	Value	Explanation
Drive	0–127	Degree of distortion Also changes the volume.
Tone	0–127	Sound quality of the Overdrive effect
Amp Sw	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** Small amp **BUILT-IN:** Single-unit type amp **2-STACK:** Large double stack amp **3-STACK:** Large triple stack amp
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Pan	L64–63R	Stereo location of the output sound
Level	0–127	Output Level

31 T-Scream

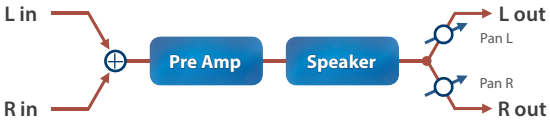
This models a classic analog overdrive. It is distinctive in adding an appropriate amount of overtones without muddying the sound.



Parameter	Value	Explanation
Distortion	0–127	Degree of distortion Also changes the volume.
Tone	0–127	Tonal character of the overdrive
Level	0–127	Output Level

32 Guitar Amp Simulator

This is an effect that simulates the sound of a guitar amplifier.

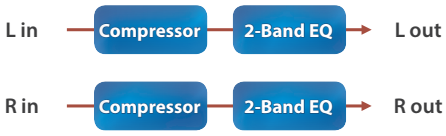


Parameter	Value	Explanation
Pre Amp Sw	OFF, ON	Turns the amp switch on/off.
Pre Amp Type		Type of guitar amp
	JC-120	This models the sound of the Roland JC-120.
	CLEAN TWIN	This models a Fender Twin Reverb.
	MATCH DRIVE	This models the sound input to left input on a Matchless D/C-30. A simulation of the latest tube amp widely used in styles from blues and rock.
	BG LEAD	This models the lead sound of the MESA/Boogie combo amp. The sound of a tube amp typical of the late '70s to '80s.
	MS1959I	This models the sound input to Input I on a Marshall 1959. This is a trebly sound suited to hard rock.
	MS1959II	This models the sound input to Input II on a Marshall 1959.
	MS1959I+II	This models the sound of connecting inputs I and II on a Marshall 1959 in parallel. It creates a sound with a stronger low end than I.
	SLDN LEAD	This models a Soldano SLO-100. This is the typical sound of the eighties.
	METAL 5150	This models the lead channel of a Peavey EVH5150.
	METAL LEAD	This is distortion sound that is ideal for performances of heavy riffs.
	OD-1	This models the sound of the BOSS OD-1. This produces sweet, mild distortion.
	OD-2 TURBO	This is the high-gain overdrive sound of the BOSS OD-2.
	DISTORTION	This gives a basic, traditional distortion sound.
	FUZZ	A fuzz sound with rich harmonic content.
Pre Amp Volume	0–127	Volume and amount of distortion of the amp
Pre Amp Master	0–127	Volume of the entire pre-amp
Pre Amp Gain	LOW, MIDDLE, HIGH	Amount of pre-amp distortion
Pre Amp Bass Pre Amp Middle Pre Amp Treble	0–127	Tone of the bass/mid/treble frequency range
Pre Amp Presence	0–127	Tone for the ultra-high frequency range
Pre Amp Bright	OFF, ON	Turning this "On" produces a sharper and brighter sound. * This parameter applies to the "JC-120," "CLEAN TWIN," "MATCH DRIVE," and "BG LEAD" Pre Amp Types.

Parameter	Value	Explanation		
Speaker Sw	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).		
Speaker Type		Cabinet	Diameter (in inches) and number of the speaker	Microphone
	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN 1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN 2	Open back enclosure	12 x 2	Condenser
	BUILT-IN 3	Open back enclosure	12 x 2	Condenser
	BUILT-IN 4	Open back enclosure	12 x 2	Condenser
	BUILT-IN 5	Open back enclosure	12 x 2	Condenser
	BG STACK1	Sealed enclosure	12 x 2	Condenser
	BG STACK2	Large sealed enclosure	12 x 2	Condenser
	MS STACK1	Large sealed enclosure	12 x 4	Condenser
	MS STACK2	Large sealed enclosure	12 x 4	Condenser
	MTL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Mic Setting	1, 2, 3	Adjusts the location of the microphone that is recording the sound of the speaker. This can be adjusted in three steps, with the microphone becoming more distant in the order of 1, 2, and 3.		
Mic Level	0–127	Volume of the microphone		
Direct Level	0–127	Volume of the direct sound		
Pan	L64–63R	Stereo location of the output sound		
Level	0–127	Output Level		

33 Compressor

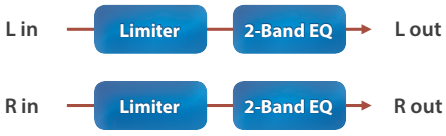
Flattens out high levels and boosts low levels, smoothing out fluctuations in volume.



Parameter	Value	Explanation
Attack	0–124	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
Release	0–124	Adjusts the time after the signal volume falls below the Threshold Level until compression is no longer applied.
Threshold	-60–0 [dB]	Adjusts the volume at which compression begins
Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than Threshold. Higher values produce a smoother transition.
Ratio	1:1, 1.5:1, 2:1, 4:1, 16:1, INF:1	Compression ratio
Post Gain	0–+18 [dB]	Adjusts the output gain.
Level	0–127	Output Level

34 Limiter

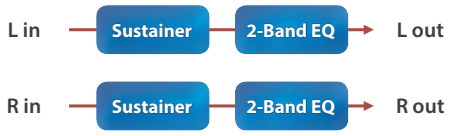
Compresses signals that exceed a specified volume level, preventing distortion from occurring.



Parameter	Value	Explanation
Release	0–127	Adjusts the time after the signal volume falls below the Threshold Level until compression is no longer applied.
Threshold	0–127	Adjusts the volume at which compression begins
Ratio	1.5:1, 2:1, 4:1, 100:1	Compression ratio
Post Gain	0–+18 [dB]	Adjusts the output gain.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

35 Sustainer

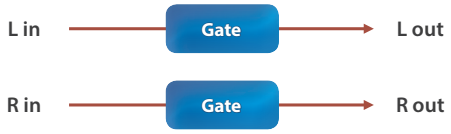
By compressing loud input and boosting low input, this effect keeps the volume consistent to produce a sustain effect without distortion.



Parameter	Value	Explanation
Sustain	0–127	Adjusts the range in which a low input signal is boosted to a consistent volume. Higher values produce longer sustain.
Attack	0–127	Time until the volume is compressed
Release	0–127	Time until compression is removed
Post Gain	-15–+15 [dB]	Adjusts the output gain.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

36 Gate

Cuts the reverb's delay according to the volume of the sound sent into the effect. Use this when you want to create an artificial-sounding decrease in the reverb's decay.

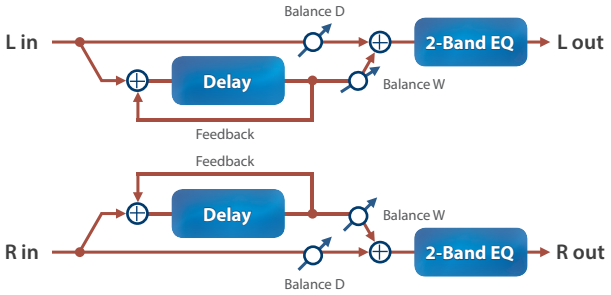


Parameter	Value	Explanation
Threshold	0–127	Volume level at which the gate begins to close
Mode	GATE, DUCK	Type of gate **GATE:** The gate will close when the volume of the original sound decreases, cutting the original sound. **DUCK (Duking):** The gate will close when the volume of the original sound increases, cutting the original sound.
Attack	0–127	Adjusts the time it takes for the gate to fully open after being triggered.
Hold	0–127	Adjusts the time it takes for the gate to start closing after the source sound falls beneath the Threshold.
Release	0–127	Adjusts the time it takes the gate to fully close after the hold time.
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

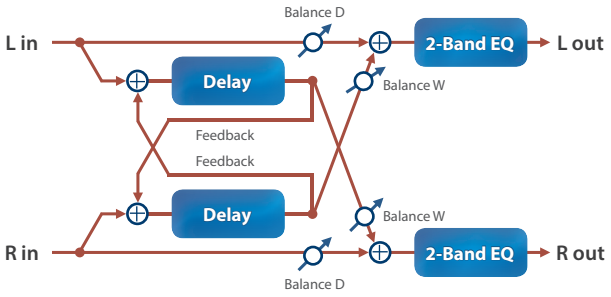
37 Delay

This is a stereo delay.

When Feedback Mode is NORMAL:



When Feedback Mode is CROSS:

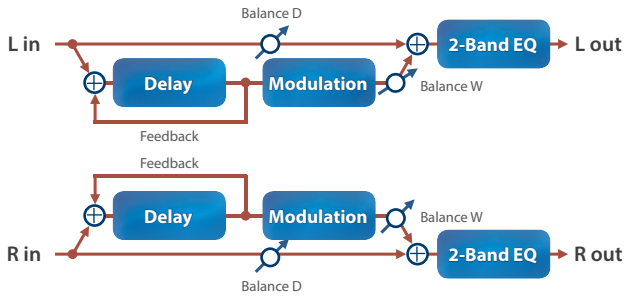


Parameter	Value	Explanation
Delay Left (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Left (msec)	1–1300 [msec]	Adjusts the time until the left delay sound is heard.
Delay Left (note)	Note ➡ **"Note"** (p. 76)	
Delay Right (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Right (msec)	1–1300 [msec]	Adjusts the time until the right delay sound is heard.
Delay Right (note)	Note ➡ **"Note"** (p. 76)	
Phase Left	NORMAL, INVERSE	Phase of left and right delay sound **NORMAL:** Non-inverted **INVERT:** Inverted
Phase Right		
Feedback Mode	NORMAL, CROSS	Selects the way in which delay sound is fed back into the effect. (See the figures above.)
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (BYPASS: no cut).
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

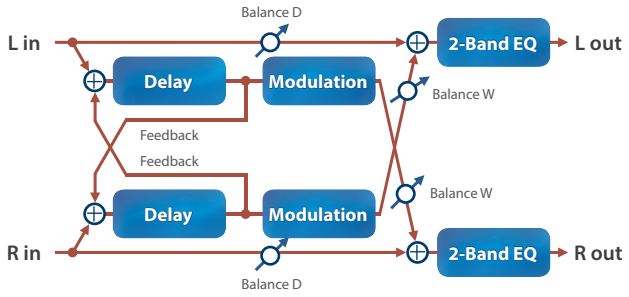
38 Modulation Delay

Adds modulation to the delayed sound.

When Feedback Mode is NORMAL:



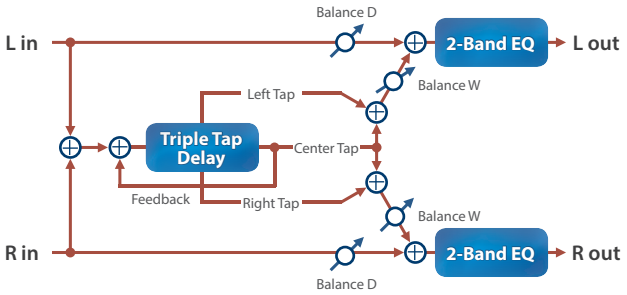
When Feedback Mode is CROSS:



Parameter	Value	Explanation
Delay Left (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Left (msec)	1–1300 [msec]	Adjusts the time until the left delay sound is heard.
Delay Left (note)	Note ➡ **"Note"** (p. 76)	
Delay Right (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Right (msec)	1–1300 [msec]	Adjusts the time until the right delay sound is heard.
Delay Right (note)	Note ➡ **"Note"** (p. 76)	
Feedback Mode	NORMAL, CROSS	Selects the way in which delay sound is fed back into the effect. (See the figures above.)
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Depth of modulation
Phase	0–180 [deg]	Spatial spread of the sound
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

39 3Tap Pan Delay

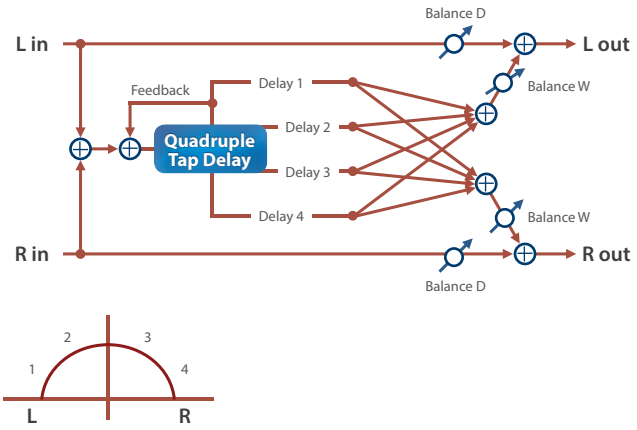
Produces three delay sounds; center, left and right.



Parameter	Value	Explanation
Delay Left (sync switch)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Left (msec)	1–2600 [msec]	Adjusts the time until the left delay sound is heard.
Delay Left (note)	Note ➡ **"Note"** (p. 76)	
Delay Right (sync switch)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Right (msec)	1–2600 [msec]	Adjusts the time until the right delay sound is heard.
Delay Right (note)	Note ➡ **"Note"** (p. 76)	
Delay Center (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Center (msec)	1–2600 [msec]	Adjusts the time until the center delay sound is heard.
Delay Center (note)	Note ➡ **"Note"** (p. 76)	
Center Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Left Level	0–127	Volume of each delay sound
Right Level	0–127	
Center Level	0–127	
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

40 4Tap Pan Delay

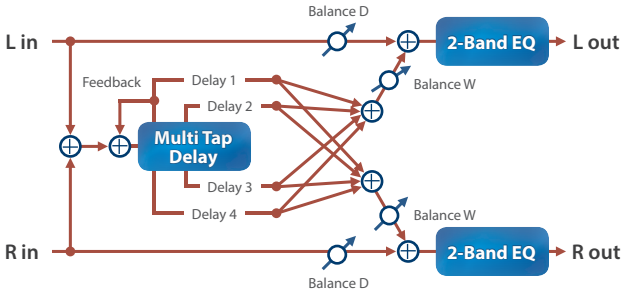
This effect has four delays.



Parameter	Value	Explanation
Delay 1 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 1 Time (msec)	1–2600 [msec]	Adjusts the time until Delay 1 is heard.
Delay 1 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 2 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 2 Time (msec)	1–2600 [msec]	Adjusts the time until Delay 2 is heard.
Delay 2 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 3 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 3 Time (msec)	1–2600 [msec]	Adjusts the time until Delay 3 is heard.
Delay 3 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 4 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 4 Time (msec)	1–2600 [msec]	Adjusts the time from the original sound until Delay 4 is heard.
Delay 4 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 1 Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay 1 Level	0–127	Output level of Delays 1–4
Delay 2 Level		
Delay 3 Level		
Delay 4 Level		
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

41 Multi Tap Delay

This effect has four delays. Each of the Delay Time parameters can be set to a note length based on the selected tempo. You can also set the panning and level of each delay sound.

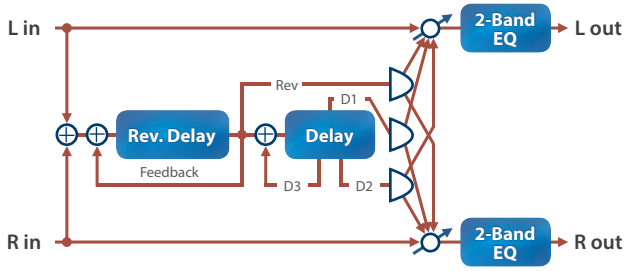


Parameter	Value	Explanation
Delay 1 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 1 Time (msec)	1–2600 [msec]	Adjusts the time from the original sound until Delay 1 is heard.
Delay 1 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 2 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 2 Time (msec)	1–2600 [msec]	Adjusts the time from the original sound until Delay 2 is heard.
Delay 2 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 3 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 3 Time (msec)	1–2600 [msec]	Adjusts the time from the original sound until Delay 3 is heard.
Delay 3 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 4 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay 4 Time (msec)	1–2600 [msec]	Adjusts the time from the original sound until Delay 4 is heard.
Delay 4 Time (note)	Note ➡ **"Note"** (p. 76)	
Delay 1 Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay 1 Pan	L64–63R	Stereo location of Delays 1–4
Delay 2 Pan		
Delay 3 Pan		
Delay 4 Pan		
Delay 1 Level	0–127	Output level of Delays 1–4
Delay 2 Level		
Delay 3 Level		
Delay 4 Level		
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

42 Reverse Delay

This is a reverse delay that adds a reversed and delayed sound to the input sound.

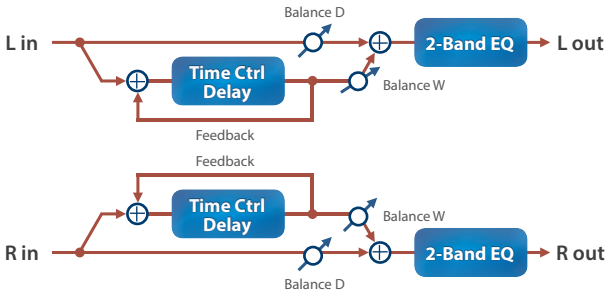
A tap delay is connected immediately after the reverse delay.



Parameter	Value	Explanation
Threshold	0–127	Volume at which the reverse delay will begin to be applied
Rev Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Rev Delay Time (msec)	1–1300 [msec]	Delay time from when sound is input into the reverse delay until the delay sound is heard
Rev Delay Time (note)	Note ➡ "Note" (p. 76)	
Rev Delay Feedback	-98–+98 [%]	Proportion of the delay sound that is to be returned to the input of the reverse delay (negative (-) values invert the phase)
Rev Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Frequency at which the high-frequency content of the reverse-delayed sound will be cut (BYPASS: no cut)
Rev Delay Pan	L64–63R	Panning of the reverse delay sound
Rev Delay Level	0–127	Volume of the reverse delay sound
Delay 1 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Delay 1 Time (msec)	1–1300 [msec]	Delay time from when sound is input into the tap delay until the delay sound is heard
Delay 1 Time (note)	Note ➡ "Note" (p. 76)	
Delay 2 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Delay 2 Time (msec)	1–1300 [msec]	Delay time from when sound is input into the tap delay until the delay sound is heard
Delay 2 Time (note)	Note ➡ "Note" (p. 76)	
Delay 3 Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Delay 3 Time (msec)	1–1300 [msec]	Delay time from when sound is input into the tap delay until the delay sound is heard
Delay 3 Time (note)	Note ➡ "Note" (p. 76)	
Delay 3 Feedback	-98–+98 [%]	Proportion of the delay sound that is to be returned to the input of the tap delay (negative (-) values invert the phase)
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Frequency at which the hi-frequency content of the tap delay sound will be cut (BYPASS: no cut)
Delay 1 Pan	L64–63R	Panning of the tap delay sounds
Delay 2 Pan	L64–63R	
Delay 1 Level	0–127	Volume of the tap delay sounds
Delay 2 Level	0–127	
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

43 Time Ctrl Delay

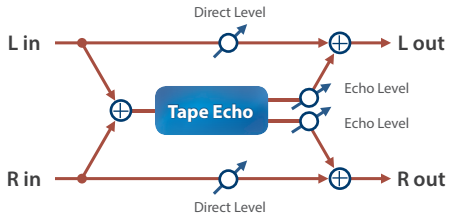
A stereo delay in which the delay time can be varied smoothly.



Parameter	Value	Explanation
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Delay Time (msec)	1–1300 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ "Note" (p. 76)	
Acceleration	0–15	Speed at which the current delay time changes to the specified delay time when you change the delay time. This affects the speed of pitch change as well as the delay time.
Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (BYPASS: no cut).
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Level	0–127	Output Level

44 Tape Echo

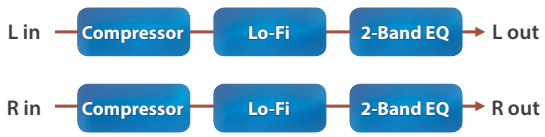
A virtual tape echo that produces a realistic tape delay sound. This simulates the tape echo section of a Roland RE-201 Space Echo.



Parameter	Value	Explanation
Mode	S, M, L, S+M, S+L, M+L, S+M+L	Combination of playback heads to use Select from three different heads with different delay times. **S:** Short **M:** Middle **L:** Long
Repeat Rate	0–127	Tape speed Increasing this value will shorten the spacing of the delayed sounds.
Intensity	0–127	Amount of delay repeats
Bass	-15–+15 [dB]	Boost/cut for the lower range of the echo sound
Treble	-15–+15 [dB]	Boost/cut for the upper range of the echo sound
Head S Pan	L64–63R	Independent panning for the short, middle, and long playback heads
Head M Pan	L64–63R	
Head L Pan	L64–63R	
Tape Distortion	0–5	Amount of tape-dependent distortion to be added This simulates the slight tonal changes that can be detected by signal-analysis equipment. Increasing this value will increase the distortion.
W/F Rate	0–127	Speed of wow/flutter (complex variation in pitch caused by tape wear and rotational irregularity)
W/F Depth	0–127	Depth of wow/flutter
Echo Level	0–127	Volume of the echo sound
Direct Level	0–127	Volume of the original sound
Level	0–127	Output Level

45 LOFI Compress

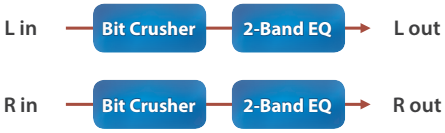
Degrades the sound quality.



Parameter	Value	Explanation
Pre Filter Type	1, 2, 3, 4, 5, 6	Selects the type of filter applied to the sound before it passes through the Lo-Fi effect. **1:** Compressor off **2–6:** Compressor on
LoFi Type	1, 2, 3, 4, 5, 6, 7, 8, 9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Filter Type	OFF, LPF, HPF	Selects the type of filter applied to the sound after it passes through the Lo-Fi effect. **OFF:** No filter is used. **LPF:** Cuts the frequency range above the Cutoff Freq **HPF:** Cuts the frequency range below the Cutoff Freq
Post Filter Cutoff	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Basic frequency of the Post Filter
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

46 Bit Crusher

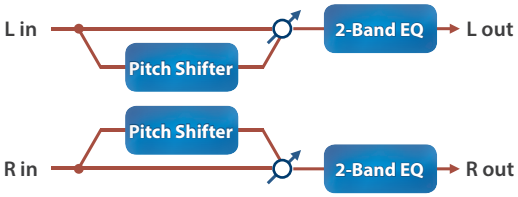
This creates a lo-fi sound.



Parameter	Value	Explanation
Sample Rate	0–127	Adjusts the sample rate.
Bit Down	0–20	Adjusts the bit depth.
Filter	0–127	Adjusts the filter depth.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

47 Pitch Shifter

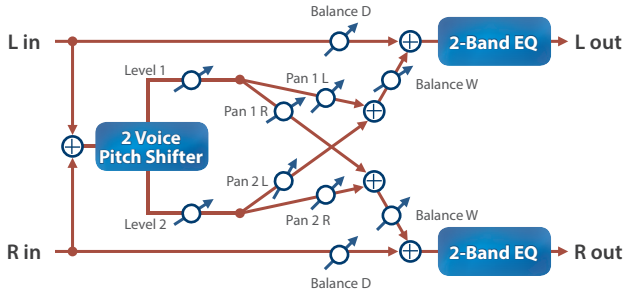
A stereo pitch shifter.



Parameter	Value	Explanation
Coarse	-24–+12 [semi]	Adjusts the pitch of the pitch shifted sound in semitone steps.
Fine	-100–+100 [cent]	Adjusts the pitch of the pitch shifted sound in 2-cent steps.
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–1300 [msec]	Adjusts the delay time from the direct sound until the pitch shifted sound is heard.
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Feedback	-98–+98 [%]	Adjusts the proportion of the pitch shifted sound that is fed back into the effect. Negative (-) settings will invert the phase.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the pitch shifted sound (W)
Level	0–127	Output Level

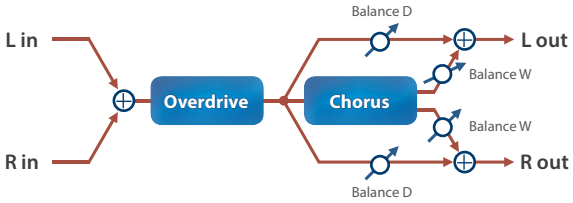
48 2Voice Pitch Shifter

Shifts the pitch of the original sound. This 2-voice pitch shifter has two pitch shifters, and can add two pitch shifted sounds to the original sound.



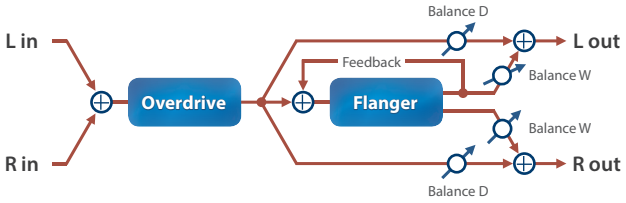
Parameter	Value	Explanation
Pitch1 Coarse	-24–+12 [semi]	Adjusts the pitch of Pitch Shift 1 in semitone steps.
Pitch1 Fine	-100–+100 [cent]	Adjusts the pitch of Pitch Shift Pitch 1 in 2-cent steps.
Pitch1 Delay (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Pitch1 Delay (msec)	1–1300 [msec]	Adjusts the delay time from the direct sound until the Pitch Shift 1 sound is heard.
Pitch1 Delay (note)	Note ➡ "Note" (p. 76)	
Pitch1 Feedback	-98–+98 [%]	Adjusts the proportion of the pitch shifted sound that is fed back into the effect. Negative (-) settings will invert the phase.
Pitch1 Pan	L64–63R	Stereo location of the Pitch Shift 1 sound
Pitch1 Level	0–127	Volume of the Pitch Shift 1 sound
Pitch2 Coarse	-24–+12 [semi]	Settings of the Pitch Shift 2 sound. The parameters are the same as for the Pitch Shift 1 sound.
Pitch2 Fine	-100–+100 [cent]	
Pitch2 Delay (sync sw)	OFF, ON	
Pitch2 Delay (msec)	1–1300 [msec]	
Pitch2 Delay (note)	Note ➡ "Note" (p. 76)	
Pitch2 Feedback	-98–+98 [%]	
Pitch2 Pan	L64–63R	
Pitch2 Level	0–127	
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the pitch shifted sound (W)
Level	0–127	Output Level

49 Overdrive → Chorus



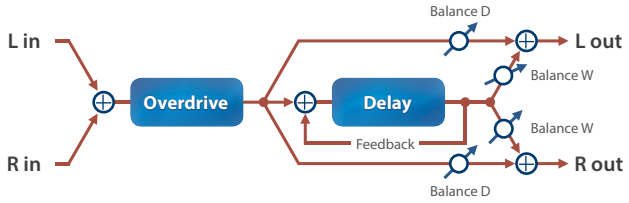
Parameter	Value	Explanation
Overdrive Drive	0–127	Degree of distortion Also changes the volume.
Overdrive Pan	L64–63R	Stereo location of the overdrive sound
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Chorus Rate (note)	Note ➡ "Note" (p. 76)	
Chorus Depth	0–127	Depth of modulation
Chorus Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the chorus (W) and the sound that is not sent through the chorus (D).
Level	0–127	Output Level

50 Overdrive → Flanger



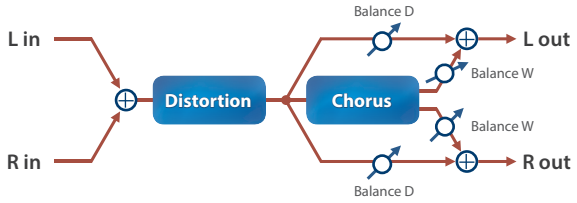
Parameter	Value	Explanation
Overdrive Drive	0–127	Degree of distortion Also changes the volume.
Overdrive Pan	L64–63R	Stereo location of the overdrive sound
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Flanger Rate (note)	Note ➡ "Note" (p. 76)	
Flanger Depth	0–127	Depth of modulation
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).
Level	0–127	Output Level

51 Overdrive → Delay



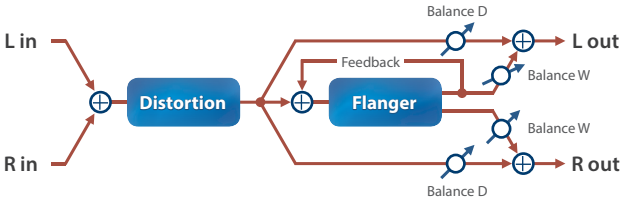
Parameter	Value	Explanation
Overdrive Drive	0–127	Degree of distortion Also changes the volume.
Overdrive Pan	L64–63R	Stereo location of the overdrive sound
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–2600 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

52 Distortion → Chorus



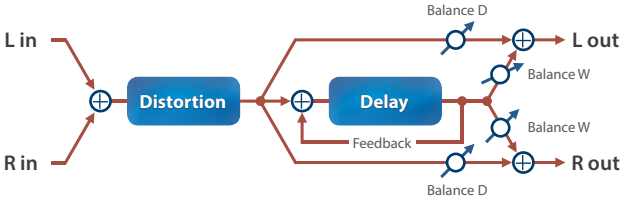
Parameter	Value	Explanation
Distortion Drive	0–127	Degree of distortion Also changes the volume.
Distortion Pan	L64–63R	Stereo location of the overdrive sound
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Chorus Rate (note)	Note ➡ **"Note"** (p. 76)	
Chorus Depth	0–127	Depth of modulation
Chorus Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the chorus (W) and the sound that is not sent through the chorus (D).
Level	0–127	Output Level

53 Distortion → Flanger



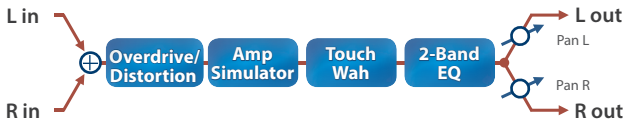
Parameter	Value	Explanation
Distortion Drive	0–127	Degree of distortion Also changes the volume.
Distortion Pan	L64–63R	Stereo location of the overdrive sound
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Flanger Rate (note)	Note ➡ **"Note"** (p. 76)	
Flanger Depth	0–127	Depth of modulation
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).
Level	0–127	Output Level

54 Distortion → Delay



Parameter	Value	Explanation
Distortion Drive	0–127	Degree of distortion Also changes the volume.
Distortion Pan	L64–63R	Stereo location of the overdrive sound
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–2600 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

55 OD/DS → TouchWah

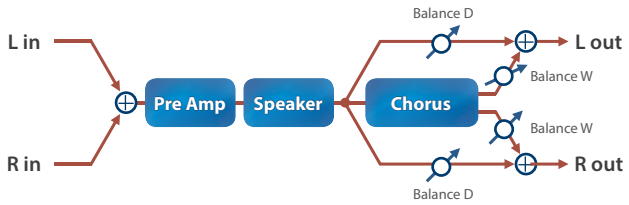


Parameter	Value	Explanation
Drive Switch	OFF, ON	Turns overdrive/distortion on/off
Drive Type	OVERDRIVE, DISTORTION	Type of distortion
Drive	0–127	Degree of distortion Also changes the volume.
Tone	0–127	Sound quality of the Overdrive effect
Amp Switch	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** Small amp **BUILT-IN:** Single-unit type amp **2-STACK:** Large double stack amp **3-STACK:** Large triple stack amp
TWah Switch	OFF, ON	Wah on/off
TWah Mode	LPF, BPF	Type of filter **LPF:** Produces a wah effect in a broad frequency range. **BPF:** Produces a wah effect in a narrow frequency range.
TWah Polarity	DOWN, UP	Direction in which the filter will move **UP:** The filter will change toward a higher frequency. **DOWN:** The filter will change toward a lower frequency.
TWah Sens	0–127	Adjusts the sensitivity with which the filter is controlled.
TWah Manual	0–127	Center frequency at which the wah effect is applied
TWah Peak	0–127	Width of the frequency region at which the wah effect is applied Increasing this value will make the frequency region narrower.
TWah Balance	D100:0W–D0:100W	Volume balance of the sound that passes through the wah (W) and the unprocessed sound (D)
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

56 OD/DS → AutoWah

Parameter	Value	Explanation
Drive Switch	OFF, ON	Turns overdrive/distortion on/off
Drive Type	OVERDRIVE, DISTORTION	Type of distortion
Drive	0–127	Degree of distortion Also changes the volume.
Tone	0–127	Sound quality of the Overdrive effect
Amp Switch	OFF, ON	Turns the Amp Simulator on/off.
Amp Type	SMALL, BUILT-IN, 2-STACK, 3-STACK	Type of guitar amp **SMALL:** Small amp **BUILT-IN:** Single-unit type amp **2-STACK:** Large double stack amp **3-STACK:** Large triple stack amp
AutoWah Switch	OFF, ON	Wah on/off
AutoWah Mode	LPF, BPF	Type of filter **LPF:** Produces a wah effect in a broad frequency range. **BPF:** Produces a wah effect in a narrow frequency range.
AutoWah Manual	0–127	Center frequency at which the wah effect is applied
AutoWah Peak	0–127	Width of the frequency region at which the wah effect is applied Increasing this value will make the frequency region narrower.
AutoWah Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
AutoWah Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the wah effect
AutoWah Rate (note)	Note ➡ **"Note"** (p. 76)	
AutoWah Depth	0–127	Depth of modulation
AutoWah Balance	D100:0W–D0:100W	Volume balance of the sound that passes through the wah (W) and the unprocessed sound (D)
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

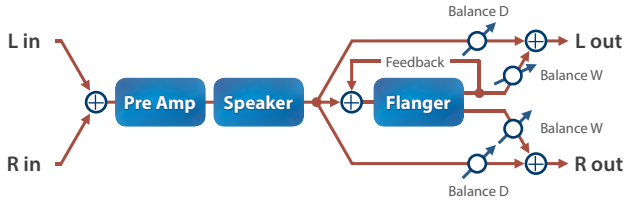
57 GtAmpSim → Chorus



Parameter	Value	Explanation
Pre Amp Sw	OFF, ON	Turns the amp switch on/off.
Pre Amp Type		**Type of guitar amp**
	JC-120	This models the sound of the Roland JC-120.
	CLEAN TWIN	This models a Fender Twin Reverb.
	MATCH DRIVE	This models the sound input to left input on a Matchless D/C-30. A simulation of the latest tube amp widely used in styles from blues and rock.
	BG LEAD	This models the lead sound of the MESA/Boogie combo amp. The sound of a tube amp typical of the late '70s to '80s.
	MS1959I	This models the sound input to Input I on a Marshall 1959. This is a trebly sound suited to hard rock.
	MS1959II	This models the sound input to Input II on a Marshall 1959.
	MS1959I+II	This models the sound of connecting inputs I and II on a Marshall 1959 in parallel. It creates a sound with a stronger low end than I.
	SLDN LEAD	This models a Soldano SLO-100. This is the typical sound of the eighties.
	METAL 5150	This models the lead channel of a Peavey EVH 5150.
	METAL LEAD	This is distortion sound that is ideal for performances of heavy riffs.
	OD-1	This models the sound of the BOSS OD-1. This produces sweet, mild distortion.
	OD-2 TURBO	This is the high-gain overdrive sound of the BOSS OD-2.
	DISTORTION	This gives a basic, traditional distortion sound.
	FUZZ	A fuzz sound with rich harmonic content.
Pre Amp Volume	0–127	Volume and amount of distortion of the amp
Pre Amp Master	0–127	Volume of the entire pre-amp
Pre Amp Gain	LOW, MIDDLE, HIGH	Amount of pre-amp distortion
Pre Amp Bass	0–127	Tone of the bass/mid/treble frequency range
Pre Amp Middle	0–127	
Pre Amp Treble	0–127	

Parameter	Value	Explanation		
Speaker Sw	OFF, ON	Selects whether the sound will be sent through the speaker (ON) or not (OFF)		
Speaker Type		Cabinet	Diameter (in inches) and number of the speaker	Microphone
	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN2	Open back enclosure	12 x 2	Condenser
	BUILT-IN3	Open back enclosure	12 x 2	Condenser
	BUILT-IN4	Open back enclosure	12 x 2	Condenser
	BUILT-IN5	Open back enclosure	12 x 2	Condenser
	BG STACK1	Sealed enclosure	12 x 2	Condenser
	BG STACK2	Large sealed enclosure	12 x 2	Condenser
	MS STACK1	Large sealed enclosure	12 x 4	Condenser
	MS STACK2	Large sealed enclosure	12 x 4	Condenser
	MTL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Chorus Switch	OFF, ON	Chorus on/off		
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.		
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation		
Chorus Depth	0–127	Depth of modulation		
Chorus Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the chorus (W) and the sound that is not sent through the chorus (D).		
Level	0–127	Output Level		

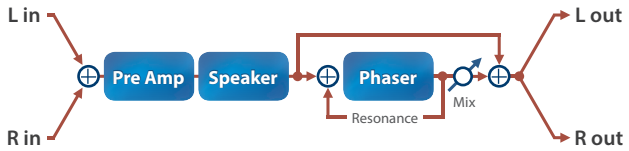
58 GtAmpSim → Flanger



Parameter	Value	Explanation
Pre Amp Sw	OFF, ON	Turns the amp switch on/off.
Pre Amp Type		**Type of guitar amp**
	JC-120	This models the sound of the Roland JC-120.
	CLEAN TWIN	This models a Fender Twin Reverb.
	MATCH DRIVE	This models the sound input to left input on a Matchless D/C-30. A simulation of the latest tube amp widely used in styles from blues and rock.
	BG LEAD	This models the lead sound of the MESA/Boogie combo amp. The sound of a tube amp typical of the late '70s to '80s.
	MS1959I	This models the sound input to Input I on a Marshall 1959. This is a trebly sound suited to hard rock.
	MS1959II	This models the sound input to Input II on a Marshall 1959.
	MS1959I+II	This models the sound of connecting inputs I and II on a Marshall 1959 in parallel. It creates a sound with a stronger low end than I.
	SLDN LEAD	This models a Soldano SLO-100. This is the typical sound of the eighties.
	METAL 5150	This models the lead channel of a Peavey EVH5150.
	METAL LEAD	This is distortion sound that is ideal for performances of heavy riffs.
	OD-1	This models the sound of the BOSS OD-1. This produces sweet, mild distortion.
	OD-2 TURBO	This is the high-gain overdrive sound of the BOSS OD-2.
	DISTORTION	This gives a basic, traditional distortion sound.
	FUZZ	A fuzz sound with rich harmonic content.
Pre Amp Volume	0–127	Volume and amount of distortion of the amp
Pre Amp Master	0–127	Volume of the entire pre-amp
Pre Amp Gain	LOW, MIDDLE, HIGH	Amount of pre-amp distortion
Pre Amp Bass	0–127	Tone of the bass/mid/treble frequency range
Pre Amp Middle	0–127	
Pre Amp Treble	0–127	

Parameter	Value	Explanation		
Speaker Sw	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).		
Speaker Type		Cabinet	Diameter (in inches) and number of the speaker	Microphone
	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN2	Open back enclosure	12 x 2	Condenser
	BUILT-IN3	Open back enclosure	12 x 2	Condenser
	BUILT-IN4	Open back enclosure	12 x 2	Condenser
	BUILT-IN5	Open back enclosure	12 x 2	Condenser
	BG STACK1	Sealed enclosure	12 x 2	Condenser
	BG STACK2	Large sealed enclosure	12 x 2	Condenser
	MS STACK1	Large sealed enclosure	12 x 4	Condenser
	MS STACK2	Large sealed enclosure	12 x 4	Condenser
	MTL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Flanger Switch	OFF, ON	Flanger on/off		
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.		
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation		
Flanger Depth	0–127	Depth of modulation		
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.		
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).		
Level	0–127	Output Level		

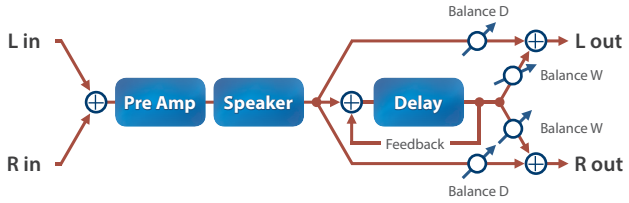
59 GtAmpSim → Phaser



Parameter	Value	Explanation
Pre Amp Sw	OFF, ON	Turns the amp switch on/off.
Pre Amp Type		**Type of guitar amp**
	JC-120	This models the sound of the Roland JC-120.
	CLEAN TWIN	This models a Fender Twin Reverb.
	MATCH DRIVE	This models the sound input to left input on a Matchless D/C-30. A simulation of the latest tube amp widely used in styles from blues and rock.
	BG LEAD	This models the lead sound of the MESA/Boogie combo amp. The sound of a tube amp typical of the late '70s to '80s.
	MS1959I	This models the sound input to Input I on a Marshall 1959. This is a trebly sound suited to hard rock.
	MS1959II	This models the sound input to Input II on a Marshall 1959.
	MS1959I+II	This models the sound of connecting inputs I and II on a Marshall 1959 in parallel. It creates a sound with a stronger low end than I.
	SLDN LEAD	This models a Soldano SLO-100. This is the typical sound of the eighties.
	METAL 5150	This models the lead channel of a Peavey EVH5150.
	METAL LEAD	This is distortion sound that is ideal for performances of heavy riffs.
	OD-1	This models the sound of the BOSS OD-1. This produces sweet, mild distortion.
	OD-2 TURBO	This is the high-gain overdrive sound of the BOSS OD-2.
	DISTORTION	This gives a basic, traditional distortion sound.
	FUZZ	A fuzz sound with rich harmonic content.
Pre Amp Volume	0–127	Volume and amount of distortion of the amp
Pre Amp Master	0–127	Volume of the entire pre-amp
Pre Amp Gain	LOW, MIDDLE, HIGH	Amount of pre-amp distortion
Pre Amp Bass	0–127	Tone of the bass/mid/treble frequency range
Pre Amp Middle	0–127	
Pre Amp Treble	0–127	

Parameter	Value	Explanation		
Speaker Sw	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).		
Speaker Type		Cabinet	Diameter (in inches) and number of the speaker	Microphone
	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN2	Open back enclosure	12 x 2	Condenser
	BUILT-IN3	Open back enclosure	12 x 2	Condenser
	BUILT-IN4	Open back enclosure	12 x 2	Condenser
	BUILT-IN5	Open back enclosure	12 x 2	Condenser
	BG STACK1	Sealed enclosure	12 x 2	Condenser
	BG STACK2	Large sealed enclosure	12 x 2	Condenser
	MS STACK1	Large sealed enclosure	12 x 4	Condenser
	MS STACK2	Large sealed enclosure	12 x 4	Condenser
	MTL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Phaser Switch	OFF, ON	Phaser on/off		
Phaser Rate (Hz)	0.05–10.00 [Hz]	Modulation rate		
Phaser Manual	0–127	Center frequency at which the sound is modulated		
Phaser Depth	0–127	Depth of modulation		
Phaser Resonance	0–127	Amount of feedback		
Phaser Mix	0–127	Level of the phase-shifted sound		
Level	0–127	Output Level		

60 GtAmpSim → Delay



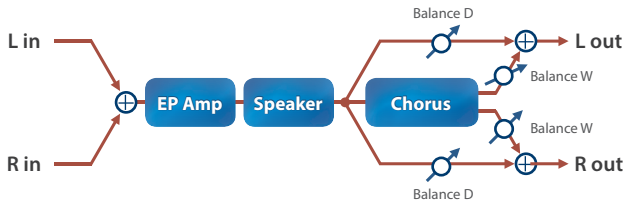
Parameter	Value	Explanation
Pre Amp Sw	OFF, ON	Turns the amp switch on/off.
Pre Amp Type		Type of guitar amp
	JC-120	This models the sound of the Roland JC-120.
	CLEAN TWIN	This models a Fender Twin Reverb.
	MATCH DRIVE	This models the sound input to left input on a Matchless D/C-30. A simulation of the latest tube amp widely used in styles from blues and rock.
	BG LEAD	This models the lead sound of the MESA/Boogie combo amp. The sound of a tube amp typical of the late '70s to '80s.
	MS1959I	This models the sound input to Input I on a Marshall 1959. This is a trebly sound suited to hard rock.
	MS1959II	This models the sound input to Input II on a Marshall 1959.
	MS1959I+II	This models the sound of connecting inputs I and II on a Marshall 1959 in parallel. It creates a sound with a stronger low end than I.
	SLDN LEAD	This models a Soldano SLO-100. This is the typical sound of the eighties.
	METAL 5150	This models the lead channel of a Peavey EVH5150.
	METAL LEAD	This is distortion sound that is ideal for performances of heavy riffs.
	OD-1	This models the sound of the BOSS OD-1. This produces sweet, mild distortion.
	OD-2 TURBO	This is the high-gain overdrive sound of the BOSS OD-2.
	DISTORTION	This gives a basic, traditional distortion sound.
	FUZZ	A fuzz sound with rich harmonic content.
Pre Amp Volume	0–127	Volume and amount of distortion of the amp
Pre Amp Master	0–127	Volume of the entire pre-amp
Pre Amp Gain	LOW, MIDDLE, HIGH	Amount of pre-amp distortion
Pre Amp Bass	0–127	Tone of the bass/mid/treble frequency range
Pre Amp Middle	0–127	
Pre Amp Treble	0–127	

Parameter	Value	Explanation		
Speaker Sw	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).		
Speaker Type		Cabinet	Diameter (in inches) and number of the speaker	Microphone
	SMALL 1	Small open-back enclosure	10	Dynamic
	SMALL 2	Small open-back enclosure	10	Dynamic
	MIDDLE	Open back enclosure	12 x 1	Dynamic
	JC-120	Open back enclosure	12 x 2	Dynamic
	BUILT-IN1	Open back enclosure	12 x 2	Dynamic
	BUILT-IN2	Open back enclosure	12 x 2	Condenser
	BUILT-IN3	Open back enclosure	12 x 2	Condenser
	BUILT-IN4	Open back enclosure	12 x 2	Condenser
	BUILT-IN5	Open back enclosure	12 x 2	Condenser
	BG STACK1	Sealed enclosure	12 x 2	Condenser
	BG STACK2	Large sealed enclosure	12 x 2	Condenser
	MS STACK1	Large sealed enclosure	12 x 4	Condenser
	MS STACK2	Large sealed enclosure	12 x 4	Condenser
	MTL STACK	Large double stack	12 x 4	Condenser
	2-STACK	Large double stack	12 x 4	Condenser
	3-STACK	Large triple stack	12 x 4	Condenser
Delay Switch	OFF, ON	Delay on/off		
Delay Time	1–1300 [msec]	Delay time from when the original sound is heard to when the delay sound is heard		
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.		
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Frequency at which the high-frequency portion of the delay sound will be cut (**BYPASS:** no cut)		
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).		
Level	0–127	Output Level		

61 EPAmpSim → Tremolo

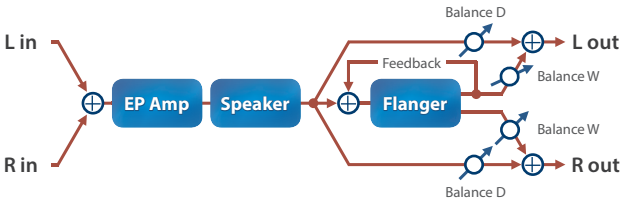
Parameter	Value	Explanation
Type		Type of amp
	OLDCASE	A standard electric piano sound of the early 70s
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
	WURLY	A standard electric piano sound of the 60s
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Tremolo Switch	OFF, ON	Tremolo on/off
Tremolo Speed (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Tremolo Speed (Hz)	0.05–10.00 [Hz]	Rate of the tremolo effect
Tremolo Speed (note)	Note ➡ "Note" (p. 76)	
Tremolo Depth	0–127	Depth of the tremolo effect
Tremolo Duty	-10–+10	Adjusts the duty cycle of the LFO waveform used to apply tremolo.
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

62 EPAmpSim → Chorus



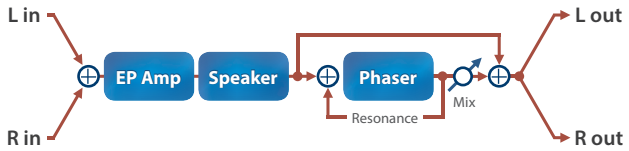
Parameter	Value	Explanation
Type		Type of amp
	OLDCASE	A standard electric piano sound of the early 70s
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Chorus Switch	OFF, ON	Chorus on/off
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Chorus Rate (note)	Note ➡ "Note" (p. 76)	
Chorus Depth	0–127	Depth of modulation
Chorus Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the chorus (W) and the sound that is not sent through the chorus (D).
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

63 EPAmpSim → Flanger



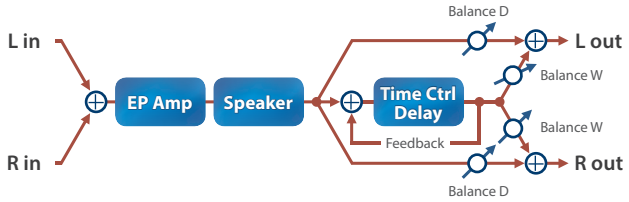
Parameter	Value	Explanation
Type		Type of amp
	OLDCASE	A standard electric piano sound of the early 70s
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Flanger Switch	OFF, ON	Flanger on/off
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Flanger Rate (note)	Note ➡ "Note" (p. 76)	
Flanger Depth	0–127	Depth of modulation
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

64 EPAmpSim → Phaser



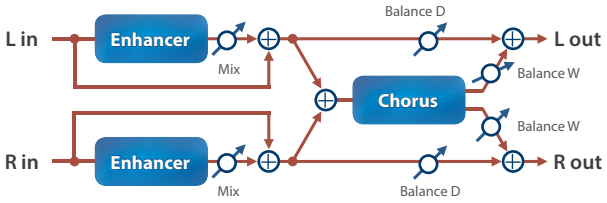
Parameter	Value	Explanation
Type		Type of amp
	OLDCASE	A standard electric piano sound of the early 70s
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Phaser Switch	OFF, ON	Phaser on/off
Phaser Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Phaser Rate (Hz)	0.05–10.00 [Hz]	Modulation rate
Phaser Rate (note)	Note ➡ **"Note"** (p. 76)	
Phaser Manual	0–127	Center frequency at which the sound is modulated
Phaser Depth	0–127	Depth of modulation
Phaser Resonance	0–127	Amount of feedback
Phaser Mix	0–127	Level of the phase-shifted sound
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

65 EPAmpSim → Delay



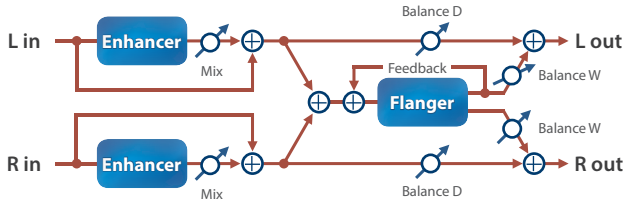
Parameter	Value	Explanation
Type		Type of amp
	OLDCASE	A standard electric piano sound of the early 70s
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Delay Switch	OFF, ON	Delay on/off
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–1300 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Accel	0–15	Speed at which the current delay time changes to the specified delay time when you change the delay time. This affects the speed of pitch change as well as the delay time.
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Frequency at which the high-frequency portion of the delay sound will be cut (**BYPASS:** no cut)
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Switch	OFF, ON	Overdrive on/off
OD Gain	0–127	Overdrive input level
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

66 Enhancer → Chorus



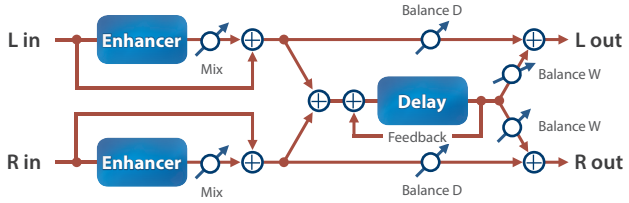
Parameter	Value	Explanation
Enhancer Sens	0–127	Sensitivity of the enhancer
Enhancer Mix	0–127	Level of the overtones generated by the enhancer
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Chorus Rate (note)	Note ➡ **"Note"** (p. 76)	
Chorus Depth	0–127	Depth of modulation
Chorus Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the chorus (W) and the sound that is not sent through the chorus (D).
Level	0–127	Output Level

67 Enhancer → Flanger



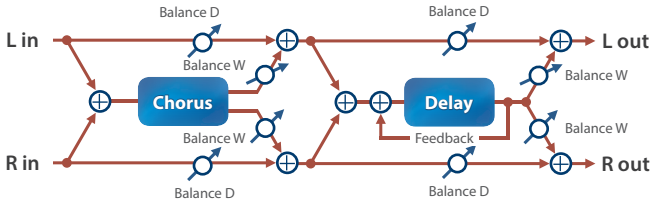
Parameter	Value	Explanation
Enhancer Sens	0–127	Sensitivity of the enhancer
Enhancer Mix	0–127	Level of the overtones generated by the enhancer
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Flanger Rate (note)	Note ➡ **"Note"** (p. 76)	
Flanger Depth	0–127	Depth of modulation
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).
Level	0–127	Output Level

68 Enhancer → Delay



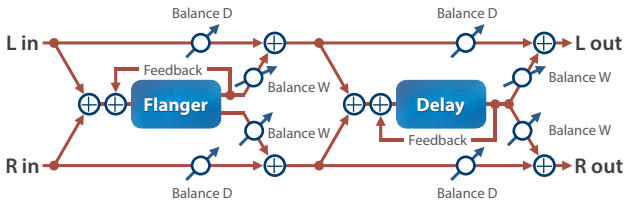
Parameter	Value	Explanation
Enhancer Sens	0–127	Sensitivity of the enhancer
Enhancer Mix	0–127	Level of the overtones generated by the enhancer
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–2600 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

69 Chorus → Delay



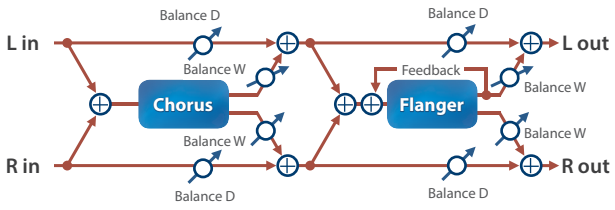
Parameter	Value	Explanation
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Chorus Rate (note)	Note ➡ **"Note"** (p. 76)	
Chorus Depth	0–127	Depth of modulation
Chorus Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Delay Time (msec)	1–2600 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

70 Flanger → Delay



Parameter	Value	Explanation
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Frequency of modulation
Flanger Rate (note)	Note ➡ "Note" (p. 76)	
Flanger Depth	0–127	Depth of modulation
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Delay Time (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Delay Time (msec)	1–2600 [msec]	Delay time from when the original sound is heard to when the delay sound is heard
Delay Time (note)	Note ➡ "Note" (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

71 Chorus → Flanger

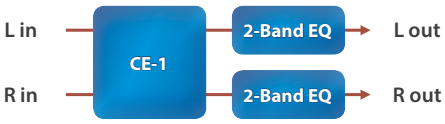


Parameter	Value	Explanation
Chorus Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Chorus Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the chorus effect
Chorus Rate (note)	Note ➡ "Note" (p. 76)	
Chorus Depth	0–127	Modulation depth of the chorus effect
Chorus Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the chorus sound (W)
Flanger Pre Delay	0.0–100 [msec]	Adjusts the delay time from the direct sound until the flanger sound is heard.
Flanger Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ "Tempo" (p. 5)
Flanger Rate (Hz)	0.05–10.00 [Hz]	Modulation frequency of the flanger effect
Flanger Rate (note)	Note ➡ "Note" (p. 76)	
Flanger Depth	0–127	Modulation depth of the flanger effect
Flanger Feedback	-98–+98 [%]	Adjusts the proportion of the flanger sound that is fed back into the effect. Negative (-) settings will invert the phase.
Flanger Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the flanger (W) and the sound that is not sent through the flanger (D).
Level	0–127	Output Level

72 CE-1

This models the classic BOSS CE-1 chorus effect unit.

It provides a chorus sound with a distinctively analog warmth.



Parameter	Value	Explanation
Intensity	0–127	Chorus depth
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

73 SBF-325

This effect reproduces Roland's SBF-325 analog flanger.

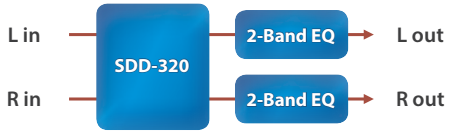
It provides three types of flanging effect (which adds a metallic resonance to the original sound) and a chorus-type effect.

Parameter	Value	Explanation
Mode		Types of flanging effect
	FL1	A typical mono flanger
	FL2	A stereo flanger that preserves the stereo positioning of the original sound
	FL3	A cross-mix flanger that produces a more intense effect
	CHO	A chorus effect
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.02–5.00 [Hz]	Modulation frequency of the flanger effect
Rate (note)	Note ➡ **"Note"** (p. 76)	
Depth	0–127	Modulation depth of the flanger effect
Manual	0–127	Center frequency at which the flanger effect is applied
Feedback	0–127	Amount by which the flanging effect is boosted If Mode is CHO, this setting is ignored.
CH-R Mode Phase	NORM, INV	Phase of the right channel modulation: Normally, you will leave this at Normal (NORM). If you specify Inverted (INV), the modulation (upward/downward movement) of the right channel is inverted.
CH-L Phase		Phase when mixing the flanging sound with the original sound **NORM:** normal phase **INV:** inverse phase
CH-R Phase		
Level	0–127	Output Level

74 SDD-320

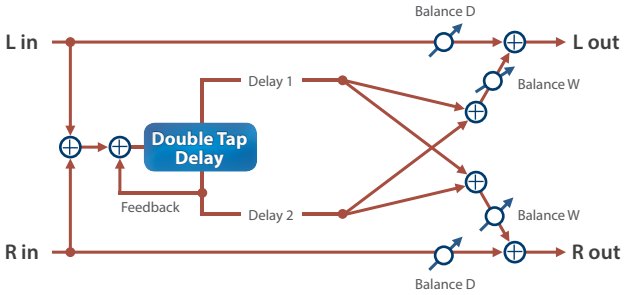
This models Roland's DIMENSION D (SDD-320).

It provides a clear chorus sound.



Parameter	Value	Explanation
Mode	1, 2, 3, 4, 1+4, 2+4, 3+4	Switches the mode.
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Level	0–127	Output Level

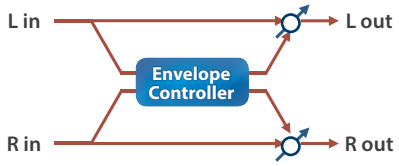
75 2Tap Pan Delay



Parameter	Value	Explanation
Delay Time (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
Delay Time (msec)	1–2600 [msec]	Adjusts the delay time from the direct sound until the second delay sound is heard.
Delay Time (note)	Note ➡ **"Note"** (p. 76)	
Delay Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
Delay HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
Delay 1 Pan	L64–63R	Stereo location of Delay 1
Delay 2 Pan	L64–63R	Stereo location of Delay 2
Delay 1 Level	0–127	Volume of delay 1
Delay 2 Level	0–127	Volume of delay 2
Low Gain	-15–+15 [dB]	Gain of the low range
High Gain	-15–+15 [dB]	Gain of the high range
Balance	D100:0W–D0:100W	Adjusts the volume balance between the sound that is sent through the delay (W) and the sound that is not sent through the delay (D).
Level	0–127	Output Level

76 Transient

This effect lets you control the way in which the sound attacks and decays.



Parameter	Value	Explanation
Attack	-50–+50	Character of the attack. Higher values make the attack more aggressive; lower values make the attack milder.
Release	-50–+50	Character of the decay. Higher values make the sound linger; lower values make the sound cutoff quickly.
Output Gain	-24–+12 [dB]	Output gain
Sense	LOW, MID, HIGH	Quickness with which the attack is detected
Level	0–127	Output Level

77 Mid-Side EQ

This effect allows the left/right signals that have similar phase to be tonally adjusted in a different way than the left/right signals that have different phase.

Parameter	Value	Explanation
M EQ Switch	OFF, ON	Switches whether to apply tonal adjustment to left/right input signals whose phase is similar (in phase).
M Input Gain	-12.00–+12.00 [dB]	Volume of left/right input signals whose phase is similar (in phase)
M Low Frequency	20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400 [Hz]	Frequency of the low range
M Low Gain	-12.00–+12.00 [dB]	Gain of the low range
M Mid1 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 1
M Mid1 Gain	-12.00–+12.00 [dB]	Gain of the middle range 1
M Mid1 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 1 Set a higher value to narrow the range to be affected.
M Mid2 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 2
M Mid2 Gain	-12.00–+12.00 [dB]	Gain of the middle range 2
M Mid2 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 2 Set a higher value to narrow the range to be affected.
M Mid3 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 3
M Mid3 Gain	-12.00–+12.00 [dB]	Gain of the middle range 3
M Mid3 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 3 Set a higher value to narrow the range to be affected.
M High Frequency	2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 16000 [Hz]	Frequency of the high range
M High Gain	-12.00–+12.00 [dB]	Gain of the high range
S EQ Switch	OFF, ON	Switches whether to apply tonal adjustment to left/right input signals whose phase is distant (opposite phase).
S Input Gain	-12.00–+12.00 [dB]	Volume of left/right signals whose phase is distant (opposite phase)
S Low Frequency	20, 25, 31, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400 [Hz]	Frequency of the low range
S Low Gain	-12.00–+12.00 [dB]	Gain of the low range
S Mid1 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 1
S Mid1 Gain	-12.00–+12.00 [dB]	Gain of the middle range 1
S Mid1 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 1 Set a higher value to narrow the range to be affected.
S Mid2 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 2
S Mid2 Gain	-12.00–+12.00 [dB]	Gain of the middle range 2
S Mid2 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 2 Set a higher value to narrow the range to be affected.
S Mid3 Frequency	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000 [Hz]	Frequency of the middle range 3
S Mid3 Gain	-12.00–+12.00 [dB]	Gain of the middle range 3
S Mid3 Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range 3 Set a higher value to narrow the range to be affected.
S High Frequency	2000, 2500, 3150, 4000, 5000, 6300, 8000, 10000, 12500, 16000 [Hz]	Frequency of the high range
S High Gain	-12.00–+12.00 [dB]	Gain of the high range
Level	0–127	Output Level

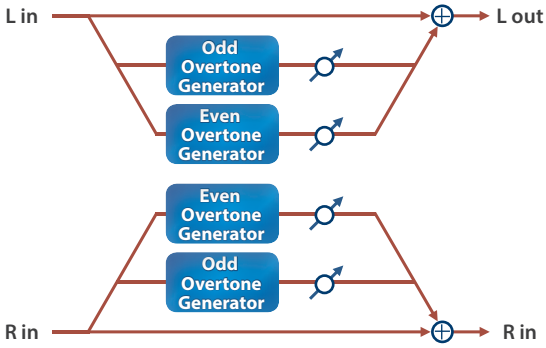
78 Mid-Side Compressor

This effect allows the left/right signals that have similar phase to be adjusted to a different sense of volume than the left/right signals that have different phase.

Parameter	Value	Explanation
M Comp Switch	OFF, ON	Switches whether to adjust the sense of volume for left/right input signals whose phase is similar (in phase).
M Attack	0–124	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
M Release	0–124	Adjusts the time after the signal volume falls below the Threshold Level until compression is no longer applied.
M Threshold	-60–0 [dB]	Adjusts the volume at which compression begins
M Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than THRESHOLD. Higher values produce a smoother transition.
M Ratio	1:1, 1.5:1, 2:1, 4:1, 16:1, INF:1	Compression ratio
M Post Gain	0–+18 [dB] -	Adjusts the output gain.
S Comp Switch	OFF, ON	Switches whether to adjust the sense of volume for left/right input signals whose phase is distant (opposite phase).
S Attack	0–124	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
S Release	0–124	Adjusts the time after the signal volume falls below the Threshold Level until compression is no longer applied.
S Threshold	-60–0 [dB]	Adjusts the volume at which compression begins
S Knee	0–30 [dB]	This is a function that smooths the onset of compression from the uncompressed state; it gradually applies compression starting earlier than THRESHOLD. Higher values produce a smoother transition.
S Ratio	1:1, 1.5:1, 2:1, 4:1, 16:1, INF:1	Compression ratio
S Post Gain	0–+18 [dB]	Adjusts the output gain.
Level	0–127	Output Level

79 Tone Fattener

This effect applies distinctive distortion, adding overtones to give more depth to the sound.



Parameter	Value	Explanation
Odd Level	0–400 [%]	Raising the value adds odd-order overtones.
Even Level	0–400 [%]	Raising the value adds even-order overtones.
Level	0–127	Output Level

80 Mid-Side Delay

This effect applies different amounts of delay to left/right signals of similar phase and differing phase.

Parameter	Value	Explanation
M Delay Level	0–127	Delay volume of left/right input signals whose phase is similar (in phase)
M Delay Mode	2Tap, 3Tap, 4Tap	Delay divisions for the input signals whose left/right phase is similar (identical phase)
M Delay Time (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
M Delay Time (msec)	1–1300 [msec]	Adjusts the time from the original sound until the delay sound is heard.
M Delay Time (note)	Note ➡ **"Note"** (p. 76)	
M Delay 1 Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
M HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
M Delay 1 Pan	L64–63R	Panning of the first delay sound
M Delay 2 Pan		Panning of the second delay sound
M Delay 3 Pan		Panning of the third delay sound
M Delay 4 Pan		Panning of the fourth delay sound
S Delay Level	0–127	Delay volume of left/right input signals whose phase is distant (opposite phase)
S Delay Mode	2Tap, 3Tap, 4Tap	Delay divisions for the input signals whose left/right phase is distant (reverse phase)
S Delay Time (sync sw)	OFF, ON	If this is ON, the delay synchronizes with the tempo.
S Delay Time (msec)	1–1300 [msec]	Adjusts the time from the original sound until the delay sound is heard.
S Delay Time (note)	Note ➡ **"Note"** (p. 76)	

Parameter	Value	Explanation
S Delay 1 Feedback	-98–+98 [%]	Adjusts the proportion of the delay sound that is fed back into the effect. Negative (-) settings will invert the phase.
S HF Damp	200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3150, 4000, 5000, 6300, 8000, BYPASS [Hz]	Adjusts the frequency above which the delay sound fed back to the effect is filtered out (**BYPASS:** no cut).
S Delay 1 Pan	L64–63R	Panning of the first delay sound
S Delay 2 Pan		Panning of the second delay sound
S Delay 3 Pan		Panning of the third delay sound
S Delay 4 Pan		Panning of the fourth delay sound
Level	0–127	Output Level

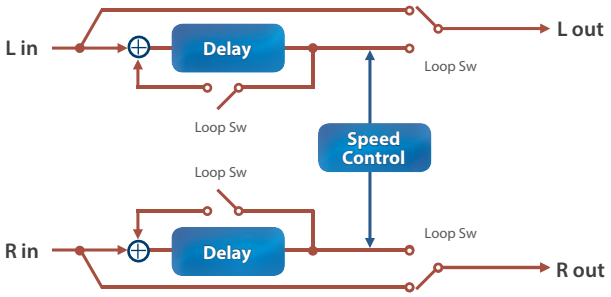
81 RD EPAmpSim

This is an effect that was developed for the RD series SuperNatural E.Piano.

Parameter	Value	Explanation
Bass	-50–+50	Amount of low-frequency boost/cut
Treble	-50–+50	Amount of high-frequency boost/cut
Tremolo Switch	OFF, ON	Tremolo on/off
Tremolo Type		Type of tremolo effect
	OLDCASE MONO	A standard electric piano sound of the early 70s (mono)
	OLDCASE STEREO	A standard electric piano sound of the early 70s (stereo)
	NEWCASE	A standard electric piano sound of the late 70s and early 80s
	DYNO	A classic modified electric piano
	WURLY	A classic electric piano of the '60s
Tremolo Speed (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Tremolo Speed (Hz)	0.05–10.00 [Hz]	Rate of the tremolo effect
Tremolo Speed (note)	Note ➡ **"Note"** (p. 76)	
Tremolo Depth	0–127	Depth of the tremolo effect
Tremolo Shape	0–20	Adjusts the waveform of the tremolo.
AMP Switch	OFF, ON	Turns the speaker and distortion on/off
Speaker Type	LINE, OLD, NEW, WURLY, TWIN	Type of speaker If LINE is selected, the sound will not be sent through the speaker simulation.
OD Drive	0–127	Degree of distortion Also changes the volume.
Level	0–127	Output Level

82 DJFX Looper

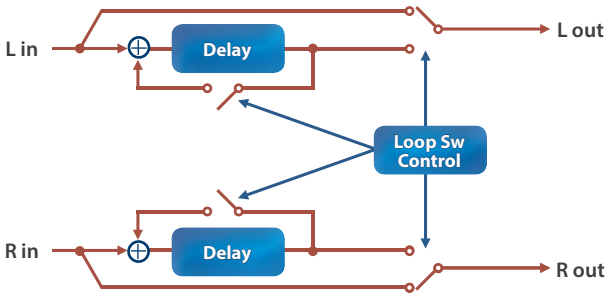
Loops a short portion of the input sound. You can vary the playback direction and playback speed of the input sound to add turntable-type effects.



Parameter	Value	Explanation
Length	0–127	Specifies the length of the loop.
Speed	-1.00–+1.00	Specifies the playback direction and playback speed. - direction: Reverse playback + direction: Normal playback 0: Stop playback As the value moves away from 0, the playback speed becomes faster.
Loop Sw	OFF, ON	If you turn this on while the sound is heard, the sound at that point will be looped. Turn this off to cancel the loop. * **If the effect is recalled with this ON, this parameter must be turned OFF and then turned ON again in order to make the loop operate.**
Level	0–127	Output Level

83 BPM Looper

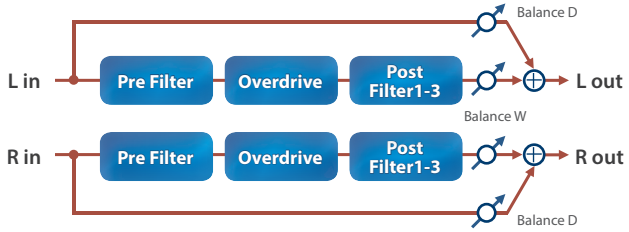
Loops a short portion of the input sound. This can automatically turn the loop on/off in synchronization with the rhythm.



Parameter	Value	Explanation
Length	0–127	Specifies the length of the loop.
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate Hz	0.05–10.00 [Hz]	Cycle at which the loop automatically turns on/off
Rate Note	Note ➡ **"Note"** (p. 76)	
On Timing	1–8	Specifies the timing within the cycle at which the loop automatically starts (which step of the eight timing divisions at which the sound is heard)
On Length	1–8	Specifies the length at which the loop automatically ends within the cycle (the number of times that the 1/8-length of sound is heard)
Loop Mode	OFF, AUTO, ON	If this is AUTO, the loop automatically turns on/off in synchronization with the rhythm. * **If the effect is recalled with this ON, this parameter must first be set to something other than ON in order to make the loop operate.**
Level	0–127	Output Level

84 Saturator

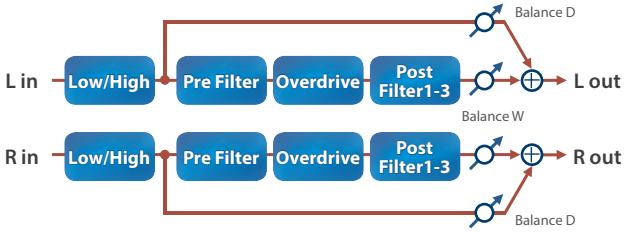
This effect combines overdrive and filter.



Parameter	Value	Explanation
DrvPre1 Type	THRU, LPF, HPF, LSV, HSV	Type of filter that precedes the distortion processing THRU: No filter is applied LPF: A filter that passes the sound below the specified frequency HPF: A filter that passes the sound above the specified frequency LSV: A filter that boosts/cuts the sound below the specified frequency HSV: A filter that boosts/cuts the sound above the specified frequency
DrvPre1 Frequency	20–16000 [Hz]	Frequency at which the pre-distortion filter operates
DrvPre1 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
Drive	0.0–+48.0 [dB]	Strength of distortion
DrvPost1 Type	THRU, LPF, HPF, LSV, HSV	Type of filter 1 which follows the distortion processing
DrvPost1 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 1 operates
DrvPost1 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
DrvPost2 Type	THRU, LPF, HPF, LSV, HSV	Type of filter 2 which follows the distortion processing
DrvPost2 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 2 operates
DrvPost2 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
DrvPost3 Type	THRU, LPF, HPF, BPF, PKG	Type of filter 3 which follows the distortion processing THRU: No filter is applied LPF: A filter that passes the sound below the specified frequency HPF: A filter that passes the sound above the specified frequency BPF: A filter that passes only the specified frequency PKG: A filter that boosts/cuts the specified frequency
DrvPost3 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 3 operates
DrvPost3 Gain	-24.0–+24.0 [dB]	For the PKG type, the amount of boost/cut
DrvPost3 Q	0.5–16.0	Width of the frequency range affected by the filter
Makeup Sense	-60.0–0.0 [dB]	Adjust this value so that the sound is not made louder when distortion is applied.
DrvPost Gain	-48.0–+12.0 [dB]	Gain following distortion processing
Drive Balance	D100:0W–D0:100W	Volume balance between the dry sound (D) and effect sound (W)
Level	0–127	Output Level

85 Warm Saturator

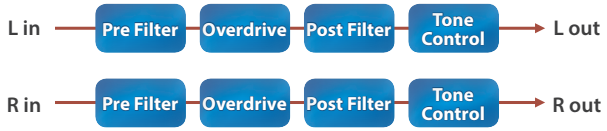
This is a variety of saturator, and is distinctive for its warmer sound.



Parameter	Value	Explanation
EQ Low Frequency	20–16000 [Hz]	Input filter (low range) Boosts/cuts the sound below the specified frequency.
EQ Low Gain	-24–+24 [dB]	Amount of boost/cut
EQ High Slope	THRU, -12dB, -24dB	Input filter (high range) Boosts/cuts the sound above the specified frequency.
EQ High Frequency	20–16000 [Hz]	Amount of boost/cut
DrvPre1 Type	THRU, LPF, HPF, LSV, HSV	Types of filter that precedes the distortion processing THRU: No filter is applied LPF: A filter that passes the sound below the specified frequency HPF: A filter that passes the sound above the specified frequency LSV: A filter that boosts/cuts the sound below the specified frequency HSV: A filter that boosts/cuts the sound above the specified frequency
DrvPre1 Frequency	20–16000 [Hz]	Frequency at which the pre-distortion filter operates
DrvPre1 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
Drive	0.0–+48.0 [dB]	Strength of distortion
DrvPost1 Type	THRU, LPF, HPF, LSV, HSV	Type of filter 1 which follows the distortion processing
DrvPost1 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 1 operates
DrvPost1 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
DrvPost2 Type	THRU, LPF, HPF, LSV, HSV	Type of filter 2 which follows the distortion processing
DrvPost2 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 2 operates
DrvPost2 Gain	-24.0–+24.0 [dB]	For the LSV/HSV types, the amount of boost/cut
DrvPost3 Type	THRU, LPF, HPF, LSV, HSV	Type of filter 3 which follows the distortion processing THRU: No filter is applied LPF: A filter that passes the sound below the specified frequency HPF: A filter that passes the sound above the specified frequency BPF: A filter that passes only the specified frequency PKG: A filter that boosts/cuts the specified frequency
DrvPost3 Frequency	20–16000 [Hz]	Frequency at which post-distortion filter 3 operates
DrvPost3 Gain	-24.0–+24.0 [dB]	For the PKG type, the amount of boost/cut
DrvPost3 Q	0.5–16.0	Width of the frequency range affected by the filter
Makeup Sense	-60.0–0.0 [dB]	Adjust this value so that the sound is not made louder when distortion is applied.
DrvPost Gain	-48.0–+12.0 [dB]	Gain following distortion processing
Drive Balance	D100:0W–D0:100W	Volume balance between the dry sound (D) and effect sound (W)
Level	0–127	Output Level

86 Fuzz

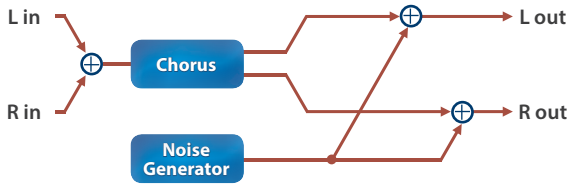
Adds overtones and intensely distorts the sound.



Parameter	Value	Explanation
Drive	0–127	Adjusts the amount of distortion. This also changes the volume.
Tone	0–100	Sound quality of the Overdrive effect
Level	0–127	Output Level

87 JUNO-106 Chorus

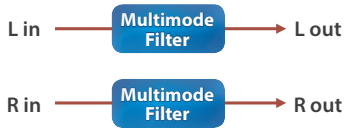
This models the chorus effects of the Roland JUNO-106.



Parameter	Value	Explanation
Mode	I, II, I+II, JX I, JX II	Type of Chorus I+II: The state in which two buttons are pressed simultaneously.
Noise Level	0–127	Volume of the noise produced by chorus
Balance	D100:0W–D0:100W	Volume balance between the dry sound (D) and effect sound (W)
Level	0–127	Output Level

88 Multi Mode Filter

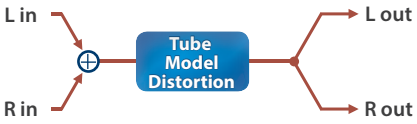
This is a filter that is adjusted for effective use in a DJ performance.



Parameter	Value	Explanation
Filter Type	LPF/HPF, LPF, HPF, BPF	Type of filter LPF/HPF: The filter type is automatically switched according to the Filter Tone parameter value.
Filter Tone	0–255	Frequency at which the filter operates
Filter Color	0–255	Filter resonance level Higher values more strongly emphasize the region of the operating frequency.
Filter Slope	-12, -24, -36 [dB]	Amount of attenuation per octave **-12 dB:** gentle **-24 dB:** steep **-36 dB:** extremely steep
Filter Gain	0–+12 [dB]	Amount of boost for the filter output
Level	0–127	Output Level

89 HMS Distortion

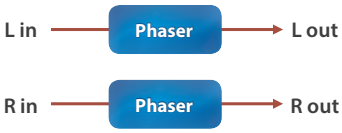
This is a distortion-type effect that models the vacuum tube amp section of a rotary speaker of the past.



Parameter	Value	Explanation
Distortion	0–127	Strength of distortion
Level	0–127	Output Level

90 Phaser 100

This simulates an analog phaser of the past.



Parameter	Value	Explanation
Rate (sync sw)	OFF, ON	If this is ON, the rate synchronizes with the tempo of the rhythm. ➡ **"Tempo"** (p. 5)
Rate (Hz)	0.05–10.00 [Hz]	Modulation rate
Rate (note)	Note ➡ **"Note"** (p. 76)	
Duty	-50–50	Adjusts the ratio of speeds at which the modulation rises or falls.
Min	0–100	Lower limit reached by modulation
Max	0–100	Upper limit reached by modulation
Manual Sw	OFF, ON	Applies modulation according to the value of the Manual parameter, rather than modulating automatically.
Manual	0–100	Center frequency at which the sound is modulated
Resonance	0–66	Amount of feedback
Mix	0–127	Level of the phase-shifted sound
Level	0–127	Output Level

Note

	Sixty-fourth-note triplet		Sixty-fourth note		Thirty-second-note triplet		Thirty-second note
	Sixteenth-note triplet		Dotted thirty-second note		Sixteenth note		Eighth-note triplet
	Dotted sixteenth note		Eighth note		Quarter-note triplet		Dotted eighth note
	Quarter note		Half-note triplet		Dotted quarter note		Half note
	Whole-note triplet		Dotted half note		Whole note		Double-note triplet
	Dotted whole note		Double note				