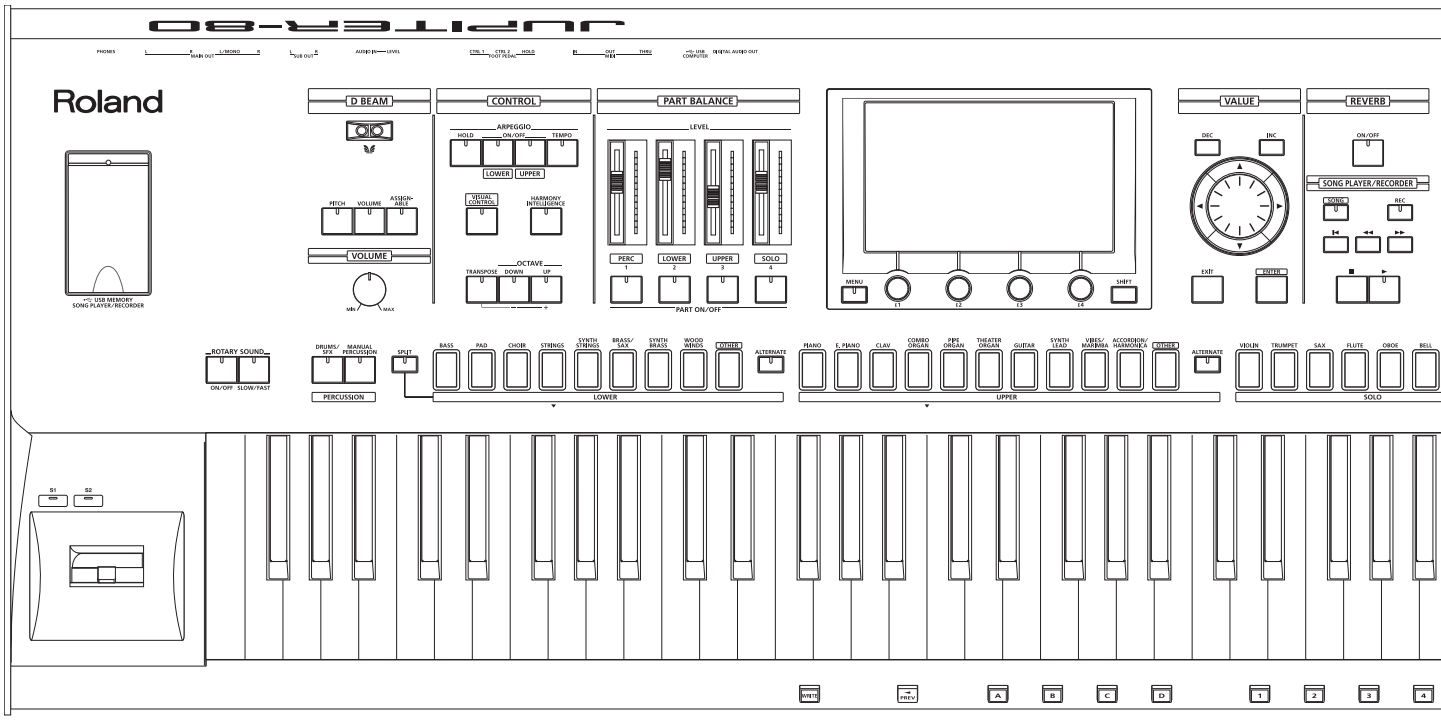


JUPITER-80

Parameter Guide

Roland

Contents

The Parameter Guide (this document) presents a detailed explanation of each parameter.
Explanations of parameters and notes regarding the settings are provided for each screen shown in the screen flowchart (p. 3–p. 7).

Refer to this guide when you want to learn more about the parameters, or to get tips for creating sounds.

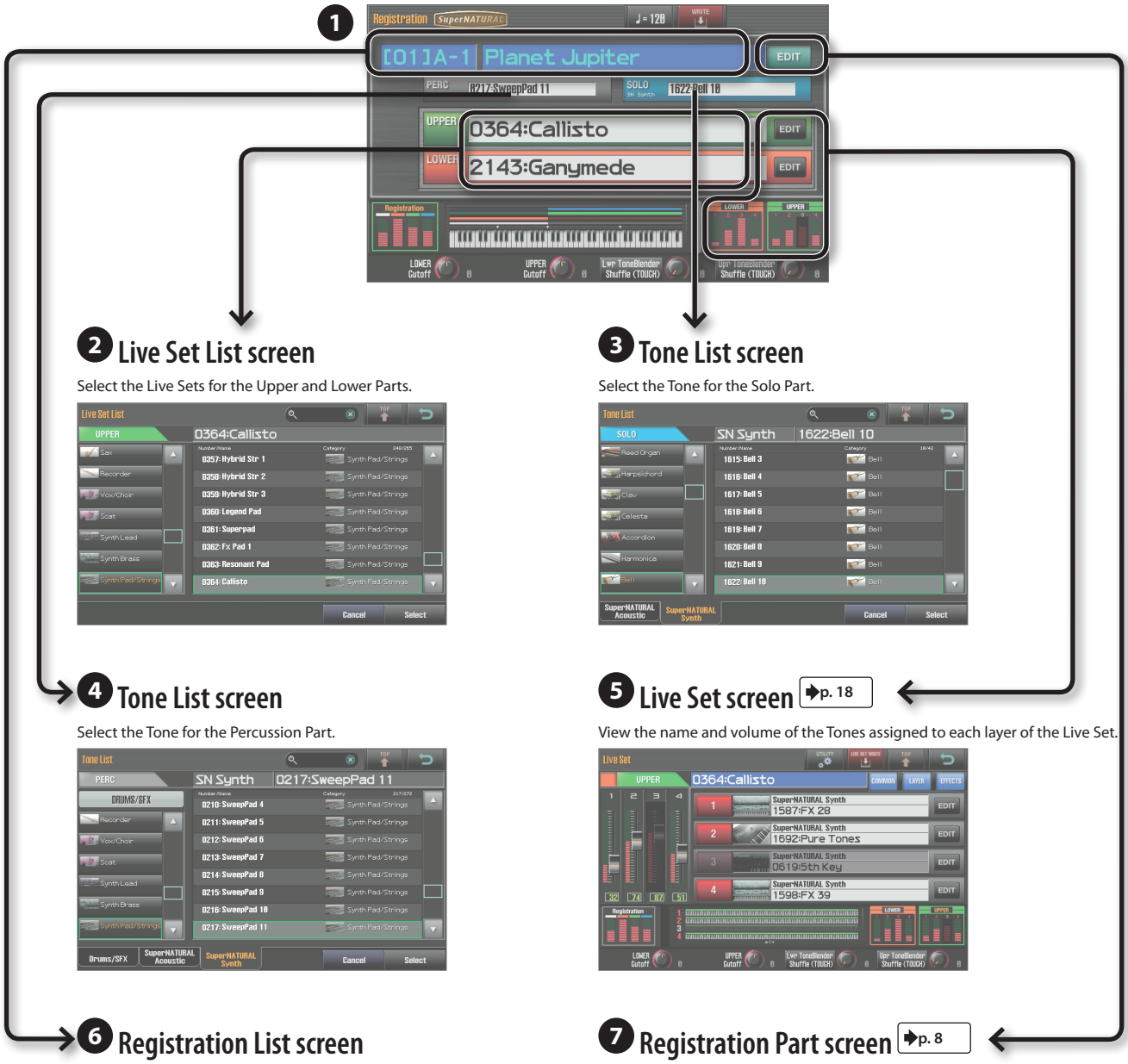
Navigating Between Screens

On the JUPITER-80, you navigate between screens by touching the enclosed areas or buttons shown in the illustrations below. Here we explain how to navigate between screens.
The explanations in this manual include illustrations that depict what should typically be shown by the display. Note, however, that your unit may incorporate a newer, enhanced version of the system (e.g., includes newer sounds), so what you actually see in the display may not always match what appears in the manual.

The explanations of the parameters are organized by screen.
The parameters shown in each screen are described on the page indicated like this: p. xx.

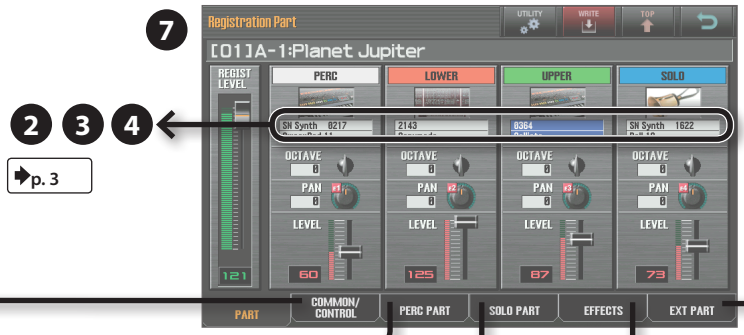
Registration Screen

This is the main screen that appears when you turn on the power. It shows the name of the currently selected Registration, the sound and volume of each Part, and the split status.



Registration Part Screen p. 8

Here you can view the volume of the Registration, and the volume and pan settings of each Part.



8 Registration PERC Part screen p. 13

Edit the settings of the Percussion Part.

9 Registration SOLO Part screen p. 13

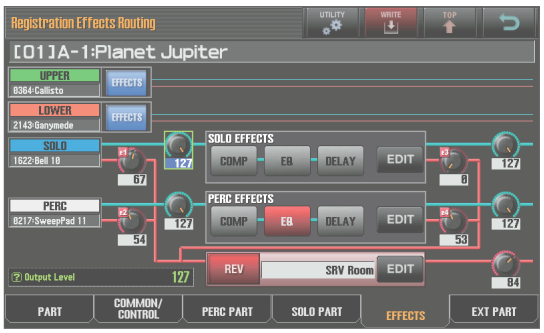
Edit the settings of the Solo Part.

10 Registration Common/Control screen

Make overall settings for the Registration. p. 8

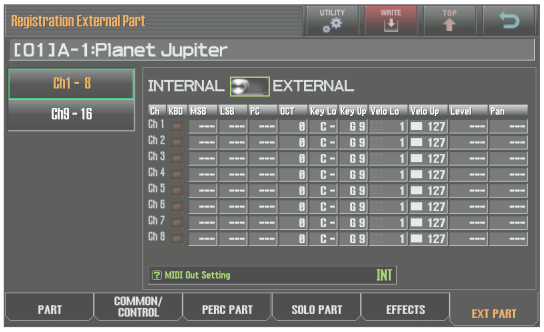
11 Registration Effects Routing screen

Edit the effect settings for the Registration. p. 16



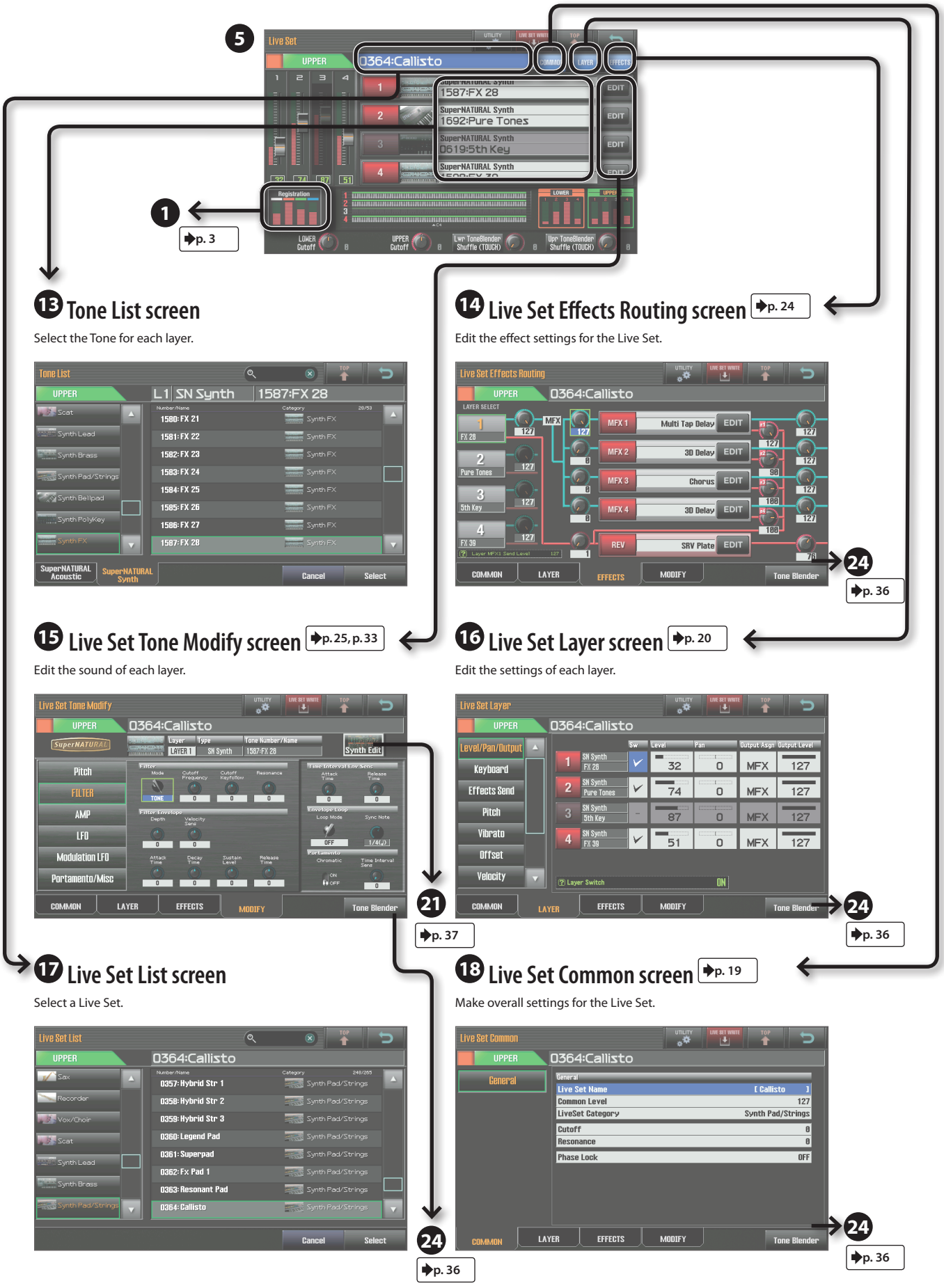
12 Registration External Part screen p. 17

Edit Part settings for an external MIDI device.



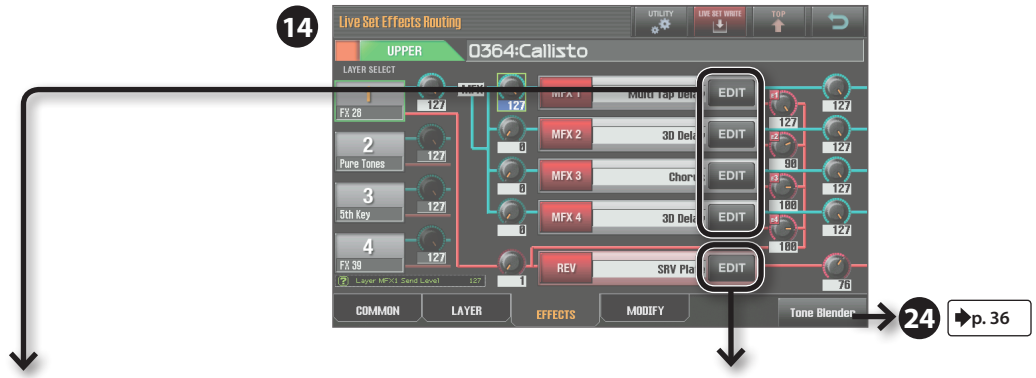
Live Set Screen p. 18

View the name and volume of the Tones assigned to each layer of the Live Set.



Live Set Effects Routing Screen p. 24

Edit the effect settings for the Live Set.



19 Live Set MFX screen p. 42–

Edit the parameters of each multi-effect.

20 Live Set Reverb screen p. 79

Edit the reverb parameters of the Live Set.

Synth Tone Edit (OSC/FILTER/AMP) Screen p. 37

Edit the oscillator, filter, and amp settings of the SuperNATURAL Synth Tone.

22 LFO screen

Edit the Tone's LFO settings.

23 Pro Edit screen

Make detailed settings for the Tone.

Tone Blender Screen p. 36

Simultaneously edit multiple parameters of the Live Set.

24

List of Shortcuts

By holding down the [SHIFT] button and pressing another button, you can edit the settings of the button you pressed; i.e., this is a shortcut to the corresponding editing screen.

Shortcut	Description	Page
[SHIFT] + [ASSIGNABLE]	Accesses the D Beam Assign setting screen.	p. 9
[SHIFT] + [S1] (or S2)	Accesses the Switch S1 Assign (or Switch S2 Assign) setting screen.	p. 9
[SHIFT] + [HOLD] **[SHIFT] + ARPEGGIO LOWER [ON/OFF]** **[SHIFT] + ARPEGGIO UPPER [ON/OFF]**	Accesses the arpeggiator setting screen.	p. 10
[SHIFT] + [HARMONY INTELLIGENCE]	Accesses the Harmony Type setting screen.	p. 12
[SHIFT] + [SPLIT]	Accesses the Lower Split Point setting screen.	p. 8
[SHIFT] + [SOLO SPLIT]	Accesses the Solo Split Point setting screen.	p. 8
[SHIFT] + LOWER [BASS]	Accesses the Synth Tone Edit screen for layer 1 of the Live Set assigned to the Lower Part.	p. 37
[SHIFT] + LOWER [PAD]	Accesses the Synth Tone Edit screen for layer 2 of the Live Set assigned to the Lower Part.	
[SHIFT] + LOWER [CHOIR]	Accesses the Synth Tone Edit screen for layer 3 of the Live Set assigned to the Lower Part.	
[SHIFT] + LOWER [STRINGS]	Accesses the Synth Tone Edit screen for layer 4 of the Live Set assigned to the Lower Part.	
[SHIFT] + LOWER [SYNTH BRASS]	Accesses the Live Set Common screen of the Lower Part.	p. 19
[SHIFT] + LOWER [WOOD WINDS]	Accesses the Live Set Layer screen of the Lower Part.	p. 20
[SHIFT] + LOWER [OTHER]	Accesses the Live Set Effects Routing screen of the Lower Part.	p. 24
[SHIFT] + UPPER [PIANO]	Accesses the Synth Tone Edit screen for layer 1 of the Live Set assigned to the Upper Part.	p. 37
[SHIFT] + UPPER [E. PIANO]	Accesses the Synth Tone Edit screen for layer 2 of the Live Set assigned to the Upper Part.	
[SHIFT] + UPPER [CLAV]	Accesses the Synth Tone Edit screen for layer 3 of the Live Set assigned to the Upper Part.	
[SHIFT] + UPPER [COMBO ORGAN]	Accesses the Synth Tone Edit screen for layer 4 of the Live Set assigned to the Upper Part.	
[SHIFT] + UPPER [VIBES/MARIMBA]	Accesses the Live Set Common screen of the Upper Part.	p. 19
[SHIFT] + UPPER [ACCORDION/HARMONICA]	Accesses the Live Set Layer screen of the Upper Part.	p. 20
[SHIFT] + UPPER [OTHER]	Accesses the Live Set Effects Routing screen of the Upper Part.	p. 24
[SHIFT] + rotate the [E1]–[E4] knobs	Accesses the Tone Blender screen. * This function is available in Registration screens and Live Set screens, and requires that Tone Blender (CC79) be assigned as one of the Knob E1 Assign–Knob E4 Assign settings ("Registration Common/Control Screen" (P. 8)).	p. 36

Parameter List

The following icons indicate how the parameters are saved.

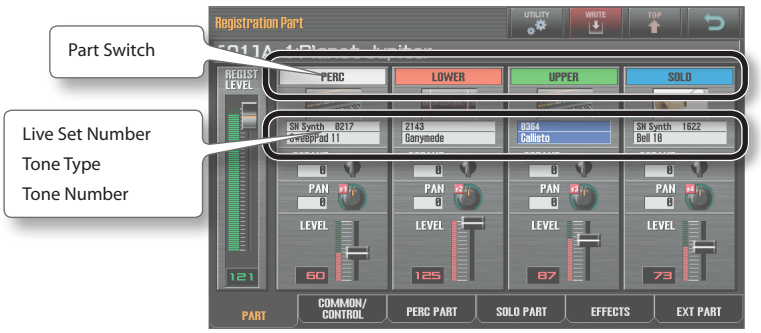
Registration : Saved as Registration parameters.

Live Set : Saved as Live Set parameters.

Tone : Saved as Synth Tone parameters.

Registration Part Screen

Registration

Parameter	Value	Explanation
REGIST LEVEL	0–127	Volume of the registration. Use this to adjust the volume balance between registrations.
Part Switch	OFF, ON	Part on/off switch. 
Live Set Number	-	Assigns a sound to the part. A Live Set is assigned to the upper part and the lower part, and a Tone is assigned to the solo part and the percussion part. * The SuperNATURAL acoustic tone 0028:TW Organ can't be assigned to the solo part or percussion part.
Tone Type	-	
Tone Number	-	
OCTAVE	-3– +3	Part (keyboard) pitch in one-octave steps. This can't be specified for a part to which manual percussion is assigned.
PAN	L64–0–63R	Part panning (left/right position).
LEVEL	0–127	Part volume. This is used mainly to adjust the volume balance between parts.

Registration Common/Control Screen

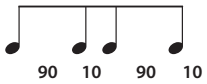
Registration

Parameter	Value	Explanation
General tab		
Registration Name	-	Name of the registration.
Registration Level	Described in the Registration Part screen's "REGIST LEVEL" (p. 8).	
Tempo	20–250	Tempo for the arpeggio, LFO, effects, metronome, etc.
Transpose Switch	OFF, ON	Specifies the keyboard pitch in semitone steps.
Transpose Value	-5 (G)– +6 (F#)	
Octave Shift	-3– +3	Specifies the keyboard pitch in octave steps.
Keyboard tab		
Solo Split	OFF, ON	If this is on, the sound of the solo part will be sounded by keys to the right of the solo split point, and the sound of the upper part will be sounded by those to the left. The solo split point key will be the lowest note of the solo part (it will be included in the solo part).
Solo Split Point	F1–G7	Specifies the solo split point.
Lower Split	OFF, ON	If this is on, the sound of the upper part will be sounded by keys to the right of the lower split point, and the sound of the lower part will be sounded by those to the left. The lower split point key will be the highest note of the lower part (it will be included in the lower part).
Lower Split Point	E1–F#7	Specifies the lower split point.

Parameter	Value	Explanation
Pedal/D Beam tab		
D Beam Assign	This selects the function that's controlled when the D Beam controller's ASSIGNABLE button is on.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	AFTERTOUCH	Aftertouch
	BEND UP	The same effect as when the pitch bend lever is moved to the right.
	BEND DOWN	The same effect as when the pitch bend lever is moved to the left.
Control Pedal 1 Assign **Control Pedal 2 Assign**	These select the functions that are controlled by pedals connected to the FOOT PEDAL CTRL 1 and 2 jacks. Control Pedal 1 Assign and Control Pedal 2 Assign settings are enabled when the system parameters Control Pedal 1 Assign Source or Control Pedal 2 Assign Source are set to REGISTRATION.	
	OFF	No function is assigned.
	CC01–31, 33–95	Controller numbers 1–31, 33–95
	AFTERTOUCH	Aftertouch
	BEND UP	The same effect as when the pitch bend lever is moved to the right.
	BEND DOWN	The same effect as when the pitch bend lever is moved to the left.
Knob/S1-S2 tab		
Knob E1 Assign **Knob E2 Assign** **Knob E3 Assign** **Knob E4 Assign**	These select the functions that are assigned to E1–E4. You can specify whether the setting will apply to Upper or Lower.	
	No Assign	No function is assigned.
	Cutoff	Adjust the Live Set Common Cutoff.
	Resonance	Adjust the Live Set Common Resonance.
	Attack Time Offset	Adjust the Live Set Layer Attack Time Offset.
	Decay Time Offset	Adjust the Live Set Layer Decay Time Offset.
	Release Time Offset	Adjust the Live Set Layer Release Time Offset.
	Vibrato Rate	Adjust the Live Set Layer Vibrato Rate.
	Vibrato Depth	Adjust the Live Set Layer Vibrato Depth.
	Vibrato Delay	Adjust the Live Set Layer Vibrato Delay.
	CC05 (Porta Time)	Transmit the corresponding control change.
	CC07 (Volume)	
	CC10 (Pan)	
	CC16 (Modify-1)	
	CC17 (Modify-2)	
	CC18 (Modify-3)	
	CC19 (Modify-4)	
	CC65 (PortamentoSw)	
	CC71 (Resonance)	
	CC72 (Release Time)	
	CC73 (Attack Time)	
	CC74 (Cutoff)	
	CC75 (Decay Time)	
	CC76 (Vib Rate)	
	CC77 (Vib Depth)	
	CC78 (Vib Delay)	
	CC79 (Tone Blender)	
	CC80 (Variation-1)	
	CC81 (Variation-2)	
	CC82 (Variation-3)	
	CC83 (Variation-4)	
	CC91 (Reverb)	

Parameter List

Parameter	Value	Explanation
Switch S1 Assign **Switch S2 Assign**	These select the functions that are assigned to the [S1]/[S2] buttons. Some SuperNATURAL acoustic tones allow you to use control changes to modify the tone character of the sound or switch to a different variation sound. For details, refer to "Control Change Assign List" (p. 80).	
	OFF	
	CC01 (Modulation)	Transmit a control change.
	CC02 (Breath)	
	CC03	
	CC04 (Foot Type)	
	CC11 (Expression)	
	CC12	
	CC13	
	CC14	
	CC15	
	CC16 (Modify-1)	Transmit a control change. If a SuperNATURAL acoustic tone is selected, a specific effect will be applied (p. 80).
	CC17 (Modify-2)	
	CC18 (Modify-3)	
	CC19 (Modify-4)	
	CC20	Transmit a control change.
	CC21	
	CC22	
	CC23	
	CC24	
	CC25	
	CC26	
	CC27	
	CC28	
	CC29	
	CC30	
	CC31	
	CC64 (Hold-1)	
	CC65 (PortamentoSw)	
	CC66 (Sostenuto)	
	CC67 (Soft)	
	CC68 (Legato Sw)	
	CC69 (Hold-2)	
	CC79 (Tone Blender)	
	CC80 (Variation-1)	Transmit a control change. If a SuperNATURAL acoustic tone is selected, a specific effect will be applied (p. 80).
	CC81 (Variation-2)	
	CC82 (Variation-3)	
	CC83 (Variation-4)	
	AFTERTOUCH	Transmit aftertouch.
	MONO/POLY	Transmit a control change.
Switch S1 Type **Switch S2 Type**	LATCH	Switch the setting on/off each time you press the button.
	MOMENTARY	The setting will be on while the button is held down, and off when released.
Arpeggio tab		
Upper Switch **Lower Switch**	OFF, ON	Turns the arpeggiator on/off.
Style	P001–P128, U001–U128	Specifies the basic style of the arpeggio. You can create your own original arpeggio style by importing an SMF into an arpeggio style. For details, refer to JUPITER-80 Owner's Manual "Creating an Arpeggio Style from a MIDI File (Import)."
Hold	OFF, ON	Turns the arpeggio hold function on/off.
Variation	1–	Each arpeggio style provides several variations (patterns). Here you can select the variation number. The number of variations will depend on the arpeggio style.

Parameter	Value	Explanation
Motif	Choose one of the following to specify the order in which the notes of the chord you play will be sounded.	
	UP	The notes will be sounded from the lowest to the highest note you play.
	DOWN	The notes will be sounded from the highest to the lowest note you play.
	UP&DOWN	The notes will be sounded from the lowest to the highest note, and then back down to the lowest note.
	RANDOM	The notes you play will be sounded in random order.
	NOTE ORDER	The notes you play will be sounded in the order you played them. You can create a melody line by playing the notes in the appropriate order. The order of up to 128 notes can be remembered.
	GLISSANDO	A chromatic glissando will be sounded upward and then downward repeatedly between the lowest and highest notes you played. Play two notes; the lowest and highest desired notes.
	CHORD	All of the notes you play will sound simultaneously.
	AUTO1	The timing at which each note will sound is assigned automatically, starting at the lowest note you play.
	AUTO2	The timing at which each note will sound is assigned automatically, starting at the highest note you play.
	PHRASE	Play only one key; a phrase based on the pitch of that key will be sounded. If you play more than one key, the last key you play will take priority.
Velocity	REAL, 1–127	Specifies the loudness at which the notes you play will be sounded. If you want the notes to be sounded at the velocity with which you actually struck the key, choose "REAL." If you want the notes to be sounded at a fixed velocity regardless of how strongly you struck the key, specify that value (1–127).
Oct Range	-3– +3	Specifies the range in octaves in which the arpeggio will be sounded. Choose "0" if you want only the notes you play to be sounded. Choose "+1" if you want the notes of the chord you played as well as the same notes one octave higher to be sounded. Choose "-1" if you want the notes of the chord you played as well as the notes one octave lower to be sounded.
Accent	0–100%	Modifies the groove of the performance by adjusting the strength of the accents and the duration of the notes. The "100%" setting produces the strongest sense of groove.
Shuffle Rate	0–100%	Produces a shuffle rhythm by adjusting the timing of the notes. With the "50%" setting, notes will be sounded at equal intervals. As this value is increased, the result will be more like dotted notes. **Shuffle Rate = 50%**  **50 50 50 50** **Shuffle Rate = 90%**  **90 10 90 10**
Shuffle Resolution	♪, ♪	Specifies the timing (as a note value) at which the notes will be heard.

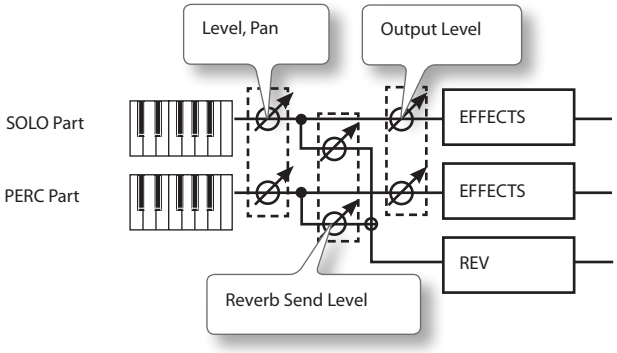
Parameter List

Parameter	Value	Explanation
Harmony Intelligence tab		
Harmony Switch	OFF, ON	Turns the harmony intelligence on/off.
Harmony Type	ORGAN	Harmony appropriate for organ sounds will be produced.
	BIG BAND	Harmony typical of big band jazz will be produced. This is appropriate for brass sounds.
	STRINGS	Harmony typical of a string ensemble will be produced. This is appropriate for string sounds.
	BLOCK	Block chord harmony will be produced. This is appropriate for piano or mallet sounds.
	HYMN	Harmony appropriate for hymns will be produced. This is appropriate for choir sounds.
	TRADITIONAL	Two notes of harmony will be added to the notes you play.
	DUET	Simple duet harmony will be produced. This is appropriate for brass sounds.
	COMBO	Combination harmony will be produced. This is appropriate for brass or wind sounds.
	COUNTRY	Open chord harmony will be produced. This is appropriate for guitar sounds.
	BROADWAY	Flamboyant show-type harmony will be produced. This is appropriate for organ sounds.
	GOSPEL	Gospel harmony will be produced. This is appropriate for organ or choir sounds.
	OCTAVE1	The note you play will be layered with a note one octave lower.
	OCTAVE2	The note you play will be layered with a note two octaves lower.
	1NOTE	One note of harmony will be added to the note you play.
	2NOTES	Two notes of harmony will be added to the note you play.
	3NOTES	Three notes of harmony will be added to the note you play.
	4NOTES	Four notes of harmony will be added to the note you play.
Control Sw tab		
Bend (Bender)	OFF, ON	For each controller, you can specify whether MIDI messages will be transmitted to the part (ON) or not transmitted (OFF). If INTERNAL is set for "MIDI Out Setting" (p. 17), these settings also apply to the MIDI output.
Mod (Modulation)		
S1 (Switch S1)		
S2 (Switch S2)		
Hold (Hold Pedal)		
Pedal1 (Control Pedal 1)		
Pedal2 (Control Pedal 2)		
Aft (Aftertouch)		
DBeam (D Beam)		

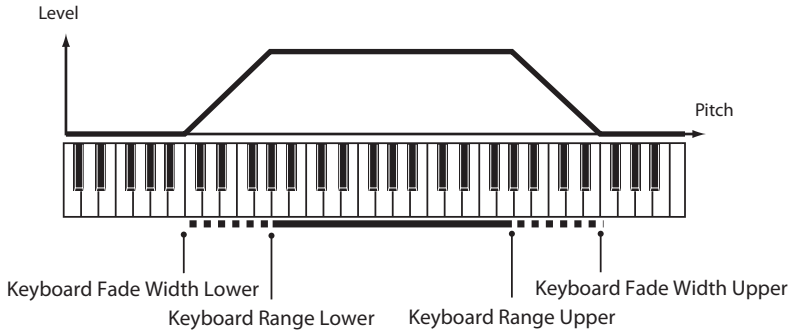
Registration PERC Part Screen, Registration SOLO Part Screen

Registration

Parameter	Value	Explanation
Level/Pan/Output tab		



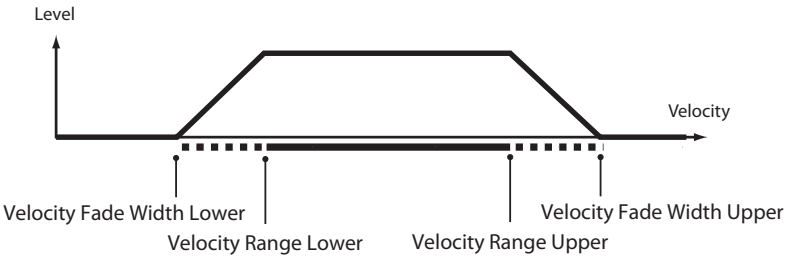
Level	0–127	Volume of the part.
Pan	L64–0–63R	Part panning.
Output Level	0–127	Volume at which the part's sound is sent to the effect.
Reverb Send Level	0–127	Volume at which the part's sound is sent to the reverb.
Keyboard tab		

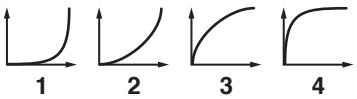


Keyboard Fade Width Upper *5	0–127	Determines what will happen to the part level when a note that's higher than Key Range Upper is played. If you don't want the layer to sound at all, set this parameter to "0."
Keyboard Range Upper *5	(Keyboard Range Lower)–G9	Specifies the highest note that the layer will sound for each part.
Keyboard Range Lower *5	C-–(Keyboard Range Upper)	Specifies the lowest note that the layer will sound for each part.
Keyboard Fade Width Lower *5	0–127	Determines what will happen to the part level when a note that's lower than Key Range Lower is played. If you don't want the layer to sound at all, set this parameter to "0."
Pitch tab		
Octave Shift *6	-3– +3	Pitch of the part sound (in 1-octave units)
Coarse Tune	-48– +48	Pitch of the part sound (in semitones, +/-4 octaves)
Fine Tune	-50– +50	Pitch of the part sound (in 1-cent steps; one cent is 1/100th of a semitone)
Pitch Bend Range	0–24	Amount of pitch change in semitones (2 octaves) that will occur when the Pitch Bend Lever is moved. The amount of change when the lever is tilted is set to the same value for both left and right sides.
	TONE	The pitch bend range setting of the tone assigned to the part will be used.
Portamento Switch *6, *9	OFF	Portamento will not be applied.
	ON	Portamento will be applied.
	TONE	The portamento switch setting of the tone assigned to the part will be used.
Portamento Time *6	0–127	Time over which the pitch change will occur when using portamento
	TONE	The portamento time setting of the tone assigned to the part will be used.

Parameter List

Parameter	Value	Explanation
Vibrato tab		
Vibrato Rate	-64– +63	For each part, adjust the vibrato speed
Vibrato Depth	-64– +63	For each part, this adjusts the depth of the vibrato effect
Vibrato Delay	-64– +63	For each part, this adjusts the time delay until the vibrato
Offset tab		
Cutoff Offset *2	-64– +63	Cutoff frequency of the part
Resonance Offset *2	-64– +63	Resonance of the part
Attack Time Offset *2	-64– +63	Amp/Filter Envelope of the part Attack Time
Decay Time Offset *7	-64– +63	Amp/Filter Envelope of the part Decay Time
Release Time Offset *2	-64– +63	Amp/Filter Envelope of the part Release Time
Velocity tab		



Velocity Fade Width Lower	0–127	Determines what will happen to the tone's level when the tone is played at a velocity lower than Velo Range Lower. If you don't want the tone to sound at all, set this parameter to "0."
Velocity Range Lower	1–(Velocity Range Upper)	Specifies the lowest velocity at which the part will sound.
Velocity Range Upper	(Velocity Range Lower)–127	Specifies the highest velocity at which the part will sound.
Velocity Fade Width Upper	0–127	Determines what will happen to the tone's level when the tone is played at a velocity greater than Velo Range Upper. If you don't want the tone to sound at all, set this parameter to "0."
Velocity Sens Offset	-63– +63	Adjusts the velocity sensitivity. The higher the value, the greater the sensitivity.
Velocity Curve Type	OFF, 1–4	Velocity curve for each part. Selects for each part one of the four following Velocity Curve types that best matches the touch of the keyboard. Set this to "OFF" if you are using the keyboard's own velocity curve. 
Mono/Poly/Misc tab		
Mono/Poly *6	MONO	The tone assigned to the part will only play monophonically. The most recently played note will take priority.
	POLY	Chords can be played on the tone assigned to the part.
	TONE	The mono/poly setting of the tone assigned to the part will be used.
	SOLO 1	The tone assigned to the part will only play monophonically. The highest note will take priority.
	SOLO 2	The tone assigned to the part will only play monophonically. The lowest note will take priority.
Legato Switch *6	Legato refers to playing smoothly without a perceptible break between notes.	
	OFF	Legato will not be applied to the part.
	ON	Legato will be applied to the part when you play single notes.
	TONE	The legato setting of the tone assigned to the part will be used.
Voice Reserve	0–63, FULL	This setting specifies the number of voices that will be reserved for each part when more than 128 voices are played simultaneously.

Parameter	Value	Explanation
Rx Filter1 tab		
Receive Bender	OFF, ON	Specifies whether the part will receive messages of a specific MIDI part (ON) or will not receive them (OFF).
Receive Polyphonic Key Pressure *6		
Receive Channel Pressure *6		
Receive Modulation (CC01) *6		
Receive Expression (CC11)		
Receive Hold-1 (CC64)		
Rx Filter2 tab		
Receive Breath Type (CC02) *8	OFF, ON	Specifies whether the part will receive messages of a specific MIDI part (ON) or will not receive them (OFF).
Receive Foot Type (CC04) *8		
Receive Portamento (CC05, CC65) *6		
Receive Filter Offset (CC71, CC74)		
Receive Envelope Offset (CC72, CC73, CC75)		
Receive Reverb Send (CC91)		
Receive Modify (CC16-19) *6		
Receive Variation (CC80-83) *6		

*2 This has no effect on the SuperNATURAL acoustic tones Concert Grand (0001)–Honky-tonk (0009) and TW Organ (0028). Also, the effect may be difficult to notice for some SuperNATURAL acoustic tones.

*5 This has no effect if a manual percussion sound is assigned. Manual percussion is played using the leftmost fifteen notes of the keyboard.

*6 This has no effect if a manual percussion or Drums/SFX sound is assigned.

*7 This has no effect on SuperNATURAL acoustic tones other than Vibraphone (0026), Marimba (0027), Timpani (0049), Steel Drums (0077), APS Vibraphone (0078), APS Marimba (0079), APS Timpani (0094), and APS Steel Drums (0117).

*8 This has no effect if a SuperNATURAL synth tone, manual percussion, or Drums/SFX sound is assigned.

*9 This has no effect on the SuperNATURAL acoustic tones TW Organ (0028), Timpani (0049), and APS Timpani (0094).

Registration Effects Routing Screen

Registration

Parameter	Value	Explanation
Reverb Switch	OFF, ON	Turns the reverb on/off for the solo and percussion parts.
Output Level	Described in "Output Level" (p. 13) for the Registration PERC Part screen and Registration SOLO Part.	
Reverb Send Level	Described in "Reverb Send Level" (p. 13) for the Registration PERC Part screen and Registration SOLO Part screen.	
Comp Switch	OFF, ON	Turns each effect on/off
EQ Switch		
Delay Switch		
Effects Reverb Send Level	0–127	Level of the signal sent from the effect to the reverb
Effects Output Level	0–127	Output level of the effect
Reverb Level	0–127	Output level of the reverb

SOLO EFFECTS, PERC EFFECTS

COMP tab		
Comp Switch	OFF, ON	Compressor switch for the solo and percussion parts
Attack	0–127	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
Threshold	0–127	Adjusts the volume at which compression begins
Post Gain	0– +18dB	Adjusts the output gain.
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	Gain of the high range
Comp Level	0–127	Output Level
EQ tab		
EQ Switch	OFF, ON	Equalizer switch for the solo and percussion parts
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid1 Freq	200–8000Hz	Frequency of the middle range 1
Mid1 Gain	-15– +15dB	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 for Q to narrow the range to be affected.
Mid2 Freq	200–8000Hz	Frequency of the middle range 2
Mid2 Gain	-15– +15dB	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 for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
EQ Level	0–127	Output Level
DELAY tab		
Delay Switch	OFF, ON	Delay switch for the solo and percussion parts
Delay Left	0–1300msec, note (p. 86)	Adjusts the time until the delay sound is heard.
Delay Right		
Phase Left	Phase of the left delay sound	
	NORMAL	Non-inverted
	INVERSE	Inverted
Phase Right	Phase of the right delay sound	
	NORMAL	Non-inverted
	INVERSE	Inverted
Feedback Mode	NORMAL, CROSS	Selects the way in which delay sound is fed back into the effect. See the figures "43 : DELAY" (p. 63).
Feedback	-98– +98%	Adjusts the amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Low Gain	-15– +15dB	Gain of the low range

High Gain	-15– +15dB	Gain of the high range
Balance	D100:0W–D0:100W	Volume balance between the direct sound (D) and the delay sound (W)
Delay Level	0–127	Output Level

Reverb

For details on the reverb effect, refer to "Reverb Parameters" (p. 79).

Registration External Part Screen

Registration

Parameter	Value	Explanation
Ch1-8 tab, Ch9-16 tab		
MIDI Out Setting	MIDI output settings	
	INT (INTERNAL)	MIDI output will occur according to the part settings.
	EXT (EXTERNAL)	MIDI output will occur according to the settings in the Registration External Part screen. This is convenient when using the JUPITER-80 as a master keyboard.
KBD (Keyboard Switch)	OFF, ON	MIDI channels that are turned on will be output.
MSB (External Bank Select MSB)	0–127, ---	If you want a bank select number and program change number to be transmitted when you switch registrations, specify the desired values here. If you don't want these to be transmitted, choose "---".
LSB (External Bank Select LSB)		
PC (Program Change)	1–128, ---	
OCT (Part Octave Shift)	-3– +3	Specifies the pitch of each channel in steps of an octave.
Key Lo (Keyboard Range Lower)	C-– (Key Up)	Specifies the bottom key of the key range for each channel.
Key Up (Keyboard Range Upper)	(Key Lo)–G9	Specifies the top key of the key range for each channel.
Velo Lo (Velocity Range Lower)	1– (Velo Up)	Specifies the lower limit of the velocity range for each channel.
Velo Up (Velocity Range Upper)	(Velo Lo)–127	Specifies the upper limit of the velocity range for each channel.
Level (External Level)	0–127, ---	If you want a volume message to be transmitted when you switch registrations, specify its value here. If you don't want these to be transmitted, choose "---".
Pan (External Pan)	L64–0–63R, ---	If you want a pan message to be transmitted when you switch registrations, specify its value here. If you don't want these to be transmitted, choose "---".

Live Set Screen

Live Set

Parameter	Value	Explanation
Level	0–127	Volume of each layer. This setting's main purpose is to adjust the volume balance between layer. 
Layer Switch	OFF, ON	Layer on/off setting
Tone Type	SuperNATURAL Acoustic, SuperNATURAL Synth	Selects the type of tone.
Tone Number	0001–	Selects the tone. * The SuperNATURAL acoustic tone 0028:TW Organ can be assigned only to layer 1 of the upper part and lower part.

Live Set Common Screen

Live Set

Parameter	Value	Explanation
General tab		
Live Set Name	-	Name of the live set.
Common Level	0–127	Adjusts the overall volume of the live set.
LiveSet Category	No assign, Ac.Piano, Pop Piano, E.Grand Piano, E.Piano1, E.Piano2, E.Organ, Pipe Organ, Reed Organ, Harpsichord, Clav, Celesta, Accordion, Harmonica, Bell, Mallet, Ac.Guitar, E.Guitar, Dist.Guitar, Ac.Bass, E.Bass, Synth Bass, Plucked/Stroke, Solo Strings, Ensemble Strings, Orchestral, Solo Brass, Ensemble Brass, Wind, Flute, Sax, Recorder, Vox/Choir, Scat, Synth Lead, Synth Brass, Synth Pad/ Strings, Synth Bellpad, Synth PolyKey, Synth FX, Synth Seq/Pop, Phrase, Pulsating, Beat&Groove, Hit, Sound FX, Drums, Percussion, Stack, Zone, Distorted	Selects the category of the live set.
Cutoff *2	-64– +63	Specifies the cutoff frequency for the entire live set.
Resonance *2	-64– +63	Specifies the resonance for the entire live set.
Phase Lock *3	OFF, ON	Turn this "ON" if you want to align the timing at which each layer produces sound. If this is "ON," all layers will sound simultaneously when all are ready. This means that in some cases, it might take a moment from when the note message is received until the sound is heard. Turn this "ON" if necessary.

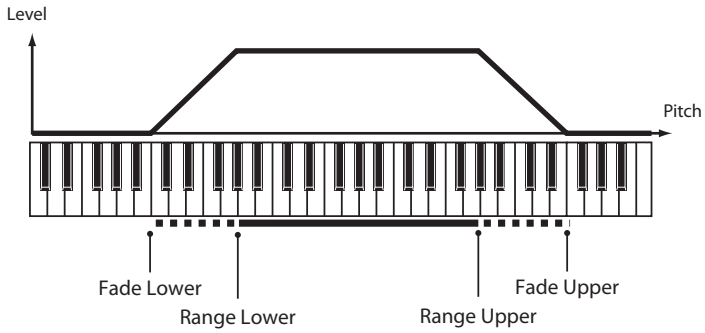
*2 This has no effect on the SuperNATURAL acoustic tones Concert Grand (0001)–Honky-tonk (0009) and TW Organ (0028). Also, the effect may be difficult to notice for some SuperNATURAL acoustic tones.

*3 This has no effect on the SuperNATURAL acoustic tone TW Organ (0028).

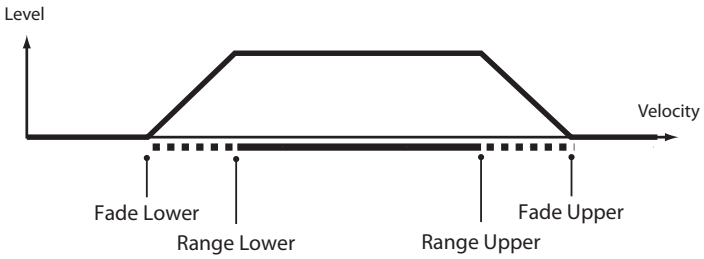
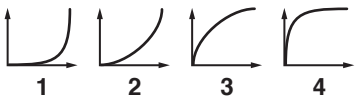
Live Set Layer Screen

Live Set

Parameter	Value	Explanation
Level/Pan/Output tab		
Sw (Layer Switch)	OFF, ON	Layer on/off setting
Level	0–127	Volume of each layer. This setting's main purpose is to adjust the volume balance between layer.
Pan	L64–0–63R	Left/right position of each layer
Output Assign	MFX	Output in stereo via the MFX.
	L+R	Output in stereo from the OUTPUT jacks without passing through MFX.
Output Level	0–127	Level of the signal that is sent to the output destination specified by Output Assign
Keyboard tab		



Fade Lower (Key Fade Lower) *3	0–127	Determines what will happen to the layer's level when a note that's lower than Key Range Lower is played. If you don't want the layer to sound at all, set this parameter to "0."
Range Lower (Key Range Lower)	C-– (Range Upper)	Specifies the lowest note that the layer will sound for each layer.
Range Upper (Key Range Upper)	(Range Lower)–G9	Specifies the highest note that the layer will sound for each layer.
Fade Upper (Key Fade Upper) *3	0–127	Determines what will happen to the layer's level when a note that's higher than Key Range Upper is played. If you don't want the layer to sound at all, set this parameter to "0."
Effects Send tab		
MFX1 Send (Layer MFX1 Send Level)	0–127	Level of the signal sent from the layer to MFX 1–4
MFX2 Send (Layer MFX2 Send Level)		
MFX3 Send (Layer MFX3 Send Level)		
MFX4 Send (Layer MFX4 Send Level)		
Reverb Send (Reverb Send Level)	0–127	Level of the signal sent from the layer to reverb
Pitch tab		
Octave (Octave Shift)	-3– +3	Pitch of the layer's sound (in 1-octave units)
Coarse (Coarse Tune)	-48– +48	Pitch of the layer's sound (in semitones, +/-4 octaves)
Fine (Fine Tune) *3	-50– +50	Pitch of the layer's sound (in 1-cent steps; one cent is 1/100th of a semitone)
Bend Range (Pitch Bend Range)	0–24	Amount of pitch change in semitones (2 octaves) that will occur when the Pitch Bend Lever is moved. The amount of change when the lever is tilted is set to the same value for both left and right sides.
	TONE	The bend range setting specified by the tone will be used.
Porta SW (Portamento Switch) *9	OFF	Portamento will not be applied.
	ON	Portamento will be applied.
	TONE	The portamento switch setting of the tone assigned to the layer will be used.
PortaTime (Portamento Time) *9	0–127	Time over which the pitch change will occur when using portamento
	TONE	The portamento time setting of the tone assigned to the layer will be used.

Parameter	Value	Explanation
Vibrato tab		
Vib Rate (Vibrato Rate) *3	-64– +63	For each layer, adjust the vibrato speed
Vib Depth (Vibrato Depth) *3	-64– +63	For each layer, this adjusts the depth of the vibrato effect
Vib Delay (Vibrato Delay) *3	-64– +63	For each layer, this adjusts the time delay until the vibrato
Offset tab		
Cutoff (Cutoff Offset) *2	-64– +63	Cutoff frequency
Resonance (Resonance Offset) *2	-64– +63	Resonance
Attack Time (Attack Time Offset) *2	-64– +63	Amp/Filter Envelope of the layer Attack Time
Decay (Decay Time Offset) *7	-64– +63	Amp/Filter Envelope of the layer Release Time
Release (Release Time Offset) *2	-64– +63	Amp/Filter Envelope of the layer Decay Time
Velocity tab		
		
FadeLower (Velocity Fade Lower) *3	0–127	Determines what will happen to the tone's level when the tone is played at a velocity lower than Velo Range Lower. If you don't want the tone to sound at all, set this parameter to "0."
VeloLower (Velocity Range Lower) *3	1– (Upper)	Specifies the lowest velocity at which the layer will sound.
VeloUpper (Velocity Range Upper) *3	(Lower)–127	Specifies the highest velocity at which the layer will sound.
FadeUpper (Velocity Fade Upper) *3	0–127	Determines what will happen to the tone's level when the tone is played at a velocity greater than Velo Range Upper. If you don't want the tone to sound at all, set this parameter to "0."
VeloSens (Velocity Sens Offset) *1	-63– +63	Adjusts the velocity sensitivity. The higher the value, the greater the sensitivity.
Curve (Velocity Curve Type)	OFF, 1–4	Velocity curve for each layer Selects for each layer one of the four following Velocity Curve types that best matches the touch of the keyboard. Set this to "OFF" if you are using the keyboard's own velocity curve. 
Mono/Poly/Misc tab		
Mono/Poly *3	MONO	The tone assigned to the layer will only play monophonically. The most recently played note will take priority.
	POLY	Chords can be played on the tone assigned to the layer.
	TONE	The mono/poly setting of the tone assigned to the layer will be used.
	SOLO 1	The tone assigned to the layer will only play monophonically. The highest note will take priority.
	SOLO 2	The tone assigned to the layer will only play monophonically. The lowest note will take priority.
Legato (Legato Switch) *1	Legato refers to playing smoothly without a perceptible break between notes.	
	OFF	Legato will not be applied to the layer.
	ON	Legato will be applied to the layer when you play single notes.
	TONE	The legato setting of the tone assigned to the layer will be used.
LayerSection (Layer Section Switch)	OFF, ON	If this is on, you'll be able to play the layer as part of a Section. By assigning wind or string instruments to multiple layers, you can create the impression of a brass section or string section. For details on how this works, refer to "LayerSection examples" (p. 23). This parameter is valid for SuperNATURAL Acoustic wind instruments and string instruments (with the exception of some ethnic sounds).
VoiceRsv (Voice Reserve)	0–63, FULL	This setting specifies the number of voices that will be reserved for each layer when more than 128 voices are played simultaneously. It is not possible for the settings of all layers to total an amount greater than 64. The remaining number of available voices will be displayed at (rest=). Pay attention to this readout as you make Voice Reserve settings.

Parameter	Value	Explanation
Rx Filter1 tab		
Bend (Receive Bender) *3	OFF, ON	Turn reception of specific MIDI messages on/off for each layer
PAf (Receive Poly Key Press) *3		
CAf (Receive Channel Press) *3		
Mod (Receive Modulation: CC01) *3		
Exp (Receive Expression: CC11) *3		
Hold (Receive Hold-1: CC64) *3		
Rx Filter2 tab		
Breath (Receive Breath Type: CC02) *4	OFF, ON	Turn reception of specific MIDI messages on/off for each layer
Foot (Receive Foot Type: CC04) *4		
Porta (Receive Portamento: CC05, CC65) *3		
Filter (Receive Filter Offset: CC71, CC74) *3		
Env (Receive Envelope Offset: CC72, CC73, CC75) *3		
Reverb (Receive Reverb Send: CC91)		
Modify (Receive Modify: CC16-19)		
Vari (Receive Variation: CC80-83)		

*1 This has no effect on SuperNATURAL acoustic tones other than Concert Grand (0001) through Honky-tonk (0009).

*2 This has no effect on the SuperNATURAL acoustic tones Concert Grand (0001)–Honky-tonk (0009) and TW Organ (0028).
Also, the effect may be difficult to notice for some SuperNATURAL acoustic tones.

*3 This has no effect on the SuperNATURAL acoustic tone TW Organ (0028).

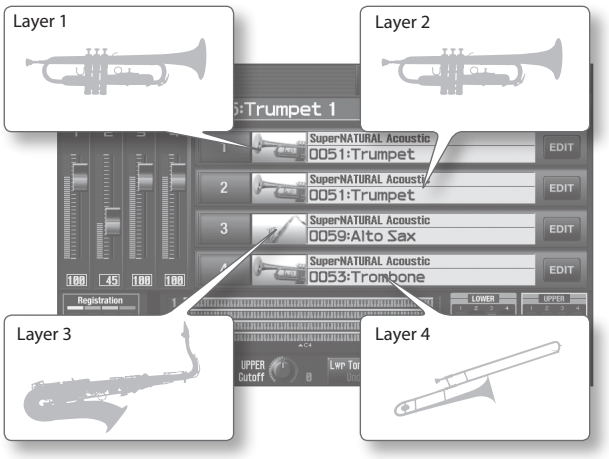
*4 This has no effect on the SuperNATURAL acoustic tone TW Organ (0028) or on SuperNATURAL synth tones.

*7 This has no effect on SuperNATURAL acoustic tones other than Vibraphone (0026), Marimba (0027), Timpani (0049), Steel Drums (0077), APS Vibraphone (0078), APS Marimba (0079), APS Timpani (0094), and APS Steel Drums (0117).

*9 This has no effect on the SuperNATURAL acoustic tones TW Organ (0028), Timpani (0049), and APS Timpani (0094).

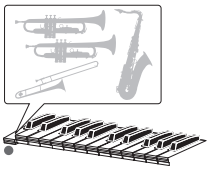
LayerSection examples

(LayerSection turned on for all layers)



When a single note is played

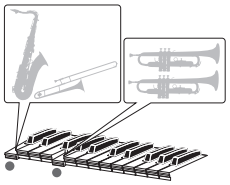
All instruments for which LayerSection is turned on will sound at the same pitch.
Each instrument will be assigned to an appropriate octave.



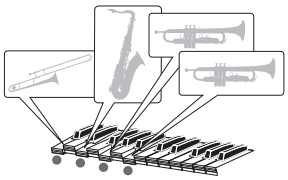
When multiple notes are played simultaneously

Each instrument will automatically be assigned to the appropriate one of the notes you played.

- Example: Two notes played simultaneously



- Example: Four notes played simultaneously



MEMO

- When you turn LayerSection on and play multiple notes simultaneously, the layers (sounds) will be assigned in the order of their layer number, starting with the high note.
- The "Coarse Tune" setting is used only if LayerSection is turned on and you're playing a single note; it has no effect when you play multiple notes simultaneously (chords).
  For example, if you're using brass section sounds, and want the trombone to sound one octave lower for single notes, but at the normal pitch for chords, set Coarse Tune to "-12."

Live Set Effects Routing Screen

Live Set

Parameter	Value	Explanation
Output Level	0–127	Level of the signal sent to the output destination specified by Output Assign
Output Assign	MFX	Output in stereo via the MFX.
	L+R	Output in stereo from the OUTPUT jacks without passing through MFX.
Layer MFX1 Send Level	0–127	Levels of the signals sent from each layer to MFX 1–4
Layer MFX2 Send Level		
Layer MFX3 Send Level		
Layer MFX4 Send Level		
Reverb Send Level	0–127	Level of the signal sent from each layer to the reverb
MFX Sw	OFF, ON	Multi-effects on/off
Type	0–76	Type of multi-effect to use (choose one of 76 types) For details on each multi-effect, refer to "Multi-Effects Parameters (MFX)" (p. 42).
MFX Output Level	0–127	Volume of the sound that has been processed by the multi-effect
MFX Reverb Send Level	0–127	Amount of reverb applied to the sound that has been processed by the multi-effect
Reverb Sw	OFF, ON	Reverb on/off
Reverb Type	For details on how this reverb effect, refer to "Reverb Parameters" (p. 79).	
	00 (OFF)	Reverb will not be used
	01 (REVERB)	Basic reverb
	02 (SRV ROOM)	Reverb that simulates the reverberation of a room
	03 (SRV HALL)	Reverb that simulates the reverberation of a hall
	04 (SRV PLATE)	Simulation of a plate echo (a reverb device that uses a metal plate)
	05 (GM2 REVERB)	GM2 reverb
Reverb Level	0–127	Volume of the reverb sound

Live Set Tone Modify Screen (SuperNATURAL Acoustic Tones)

Live Set

Changes in dynamics

You can produce changes in dynamics that are idiomatic to each specific instrument, shifting smoothly from subtle to powerful sounds in a natural way that goes beyond a mere change in volume.

* Dynamics can be controlled by Note-on Velocity, the Modulation controller (CC01), or Expression (CC11).

After playing a key, you can operate the Modulation controller (CC01) to continuously control the dynamics (percussion instruments, struck-string instruments, and plucked-string instruments are excepted).

Legato effect

With the exception of some sounds, legato playing (the technique of playing the next key before releasing the previous key) lets you play notes that are smoothly connected.

* To obtain a legato effect, set Mono/Poly (p. 21) to TONE or MONO.

Performance variation sounds

Musically appropriate performance variations are provided for each instrument, and you can use control changes (CC80–CC83) to instantly switch between these variations while you perform.

0001:Concert Grand–0009:Honky Tonk

Differences in your playing strength will smoothly change the tone character in a natural way.

Parameter	Value	Explanation
String Resonance	0–127	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 will increase the amount of effect.
Key Off Resonance	0–127	This adjusts resonances such as the key-off sound of an acoustic piano (subtle sounds that are heard when you release a key). Higher values will increase the volume of the resonances.
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.
Stereo Width	0–63	The higher the value set, the wider the sound is spread out.
Nuance	TYPE1, TYPE2, TYPE3	This changes the Tone's subtle nuances by altering the phase of the left and right sounds. This effect is difficult to hear when headphones are used. This has no effect for 0008:Concert Mono.
Tone Character	-5– +5	Higher values produce a harder sound; lower values produce a more mellow sound.

0010:Pure Vintage EP1–0025:Clav CA Combo

A key-off noise typical of that instrument will be heard when you release the key.

Parameter	Value	Explanation
Key Off Noise (CC16)	-64– +63	Adjusts the amount of key-off noise. Higher settings will raise the volume. This has no effect for 0012:Pure Wurly.

0026:Vibraphone, 0027:Marimba, 0078:APS Vibraphone, 0079:APS Marimba

You can play a roll by operating the Modulation controller (CC01) while playing a note.
You can produce a glissando effect by operating the pitch bend lever while holding down a note, or by playing legato with the Portamento SW (CC65) turned on.
If Bend Range is set to Tone, you can produce a glissando effect by operating the pitch bend lever.
If Bend Range is set to anything other than Tone, this effect will be obtained if Bend Mode (CC19) is turned on. Use this when you want to switch between glissando playing and conventional pitch change.
By using Mute (CC18) you can simulate the technique of using your hand or mallet to mute the vibration (sound). It is effective to assign this to the D Beam controller.

Parameter	Value	Explanation
Mallet Hardness (CC16)	-64– +63	Adjusts the hardness of the mallet. Higher settings produce the sound of a harder mallet.
Roll Speed (CC17)	-64– +63	Adjusts the speed of the roll effect.
Variation	Refer to p. 32.	Performance variation sounds

0028:TW Organ

0028:TW Organ can be assigned only to layer 1 of the upper part or lower part.

Parameter	Value	Explanation
Harmonic Bar tab		
Harmonic Bar 16'	0–8	Adjust the level of each footage. A different harmonic component is assigned to each footage; the sound of the organ is created by mixing these components. The 8' footage is the core of the sound; this is the basic pitch around which the sound is created.
Harmonic Bar 5-1/3'	0–8	
Harmonic Bar 8'	0–8	
Harmonic Bar 4'	0–8	
Harmonic Bar 2-2/3'	0–8	
Harmonic Bar 2'	0–8	
Harmonic Bar 1-3/5'	0–8	
Harmonic Bar 1-1/3'	0–8	
Harmonic Bar 1'	0–8	
Leakage Level	0–127	Level at which the signal of tonewheels unrelated to the pressed keys is mixed into the input
Percussion tab		
Percussion Switch	OFF, ON	If this is on, a crisp attack will be added to the beginning of the notes.
Percussion Soft	NORM	The percussion sound will be at the normal volume, and the sound of the harmonic bars will be reduced.
	SOFT	The percussion sound will be reduced, and the harmonic bars will be at the normal volume.
Percussion Soft Level	0–15	Volume of the percussion sound when Percussion Soft is set to SOFT
Percussion Normal Level	0–15	Volume of the percussion sound when Percussion Soft is set to NORM
Percussion Slow	FAST	The percussion sound will disappear immediately, producing a sharp attack.
	SLOW	The percussion sound will disappear slowly, producing a more gentle attack.
Percussion Slow Time	0–127	Decay time of the percussion sound when Percussion Slow is set to SLOW
Percussion Fast Time	0–127	Decay time of the percussion sound when Percussion Slow is set to FAST
Percussion Harmonic	2ND	The percussion sound will be the same pitch as the 4' harmonic bar.
	3RD	The percussion sound will be the same pitch as the 2-2/3' harmonic bar.
Percussion Recharge Time	0–10	Normally, the percussion sound will be added only to the first note of successive notes played legato. This reproduces the characteristics of the analog circuitry that produced the percussion sound in tonewheel organs, which caused the percussion sound to be softer when keys were pressed in quick succession. This specifies the characteristics of this analog circuit.
Percussion Harmonic Bar Level	0–127	The volume of the organ will be reduced if Percussion Soft is set to NORM. This specifies how much the volume will be reduced.
Click Level tab		
Key On Click Level	0–31	Level of the key-click when a key is pressed
Key Off Click Level	0–31	Level of the key-click when a key is released

0029:French Accordion, 0030:Italian Accordion, 0032:Bandoneon, 0080:APS Accordion, 0082:APS Bandoneon

These sounds let you produce distinctive volume changes, as if you were operating the bellows of the instrument.
If Bend Range is set to Tone, moving the pitch bend lever upward will produce a tremolo effect, as if you were moving the bellows in small steps.
If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between the tremolo effect and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of key noise heard when you press or release a key.

0031:Harmonica, 0081:APS Harmonica

If Bend Range is set to Tone, moving the pitch bend lever upward will produce a wah effect as if you were using your hands to enclose the harmonica.
If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between the wah effect and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) of the breath noise.

0033:Nylon Guitar–0035:SteelStr Guitar, 0083:APS Nylon Guitar–0084:APS SteelStr Gt.

Note numbers 34 and lower will produce ghost notes as played on a guitar.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the volume of the string grazing or picking noise. This has no effect on the 0083:APS Nylon Guitar and 0084:APS SteelStr Gt.
Strum Speed (CC17)	-64– +63	Adjusts the deviation in the timing of sound production by the strings when strumming with Strum Mode turned on. Higher values produce a greater time deviation. The effect will be more significant for lower velocities.
Strum Mode (CC19)	OFF, ON	If Strum Mode is turned on, strumming will be produced when you play multiple keys simultaneously. This also reproduces the difference in time at which each string of a guitar is sounded. The guitar's up strokes and down strokes will alternately be produced when chords are played in succession. It is effective to use this with Hold turned on.
Variation	Refer to p. 32.	Performance variation sounds

0036:Acoustic Bass–0041:Fretless Bass, 0085:APS Acoustic Bs.–0088:APS Fretless Bs.

By playing legato rapidly, you can simulate techniques that are distinctive of a bass, such as slides or hammering-on, depending on the speed at which you played the notes.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the volume of the string grazing or picking noise. This has no effect on the 0085:APS Acoustic Bs. – 0088:APS Fretless Bs.
Variation	Refer to p. 32.	Performance variation sounds

0042:Violin–0047:Contrabass, 0089:APS Violin–0092:APS Contrabass

If Porta SW (p. 20) is turned on, a portamento effect typical of a violin will be produced. Note ranges corresponding to open strings will produce an open-string sound without vibrato.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of string grazing noise.
Variation	Refer to p. 32.	Performance variation sounds

0048:Harp, 0093:APS Harp

By turning Glissando mode (CC19) on, you can cause only the notes included in a specific scale to be sounded.
This lets you easily produce an idiomatic harp glissando simply by playing a glissando on the white keys.
It is effective to play this while holding down the HOLD pedal.
By using Mute (CC18) you can simulate the technique of using your hand to stop the vibration of the strings.

Parameter	Value	Explanation
Glissando Mode (CC19)	OFF, ON	If this is on, you can produce the effect of sweeping across the harp strings by playing a glissando on the keyboard.
Play Scale	7th, Major, Minor, Hrm-Mi (Harmonic Minor), Dim (Diminish), Whole (Whole Tone)	Specifies the scale used when Glissando Mode is on.
Scale Key	C, Db, D, Eb, E, F, Gb, G, Ab, A, Bb, B	Specifies the key of the scale produced when you play a glissando with Glissando Mode turned on.
Variation	Refer to p. 32.	Performance variation sounds

0049:Timpani, 0094:APS Timpani

You can play a roll by operating the Modulation controller (CC01) while playing a note.
You can use Mute (CC18) to simulate the muting technique of using your hand to press down on the timpani.
It is effective to assign this to the D Beam controller.

Parameter	Value	Explanation
Roll Speed (CC17)	-64– +63	Adjusts the speed of the roll effect.
Variation	Refer to p. 32.	Performance variation sounds

0050:Strings, 0095:APS Strings

Parameter	Value	Explanation
Variation	Refer to p. 32.	Performance variation sounds

0051:Trumpet, 0052:Flugel Horn, 0056:Mute Trumpet, 0057:French Horn, 0096:APS Trumpet, 0098:APS Mute Trumpet, 0099:APS French Horn

By setting Bend Range to Tone, you can use the pitch bend lever to create discontinuous pitch changes or falls that are typical of a brass instrument.

- Moving the pitch bend lever in the upward direction will create a discontinuous pitch change typical of brass instruments.
- Moving the pitch bend lever in the downward direction will produce a fall effect.

If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between discontinuous pitch changes or falls, and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise for the brass instrument.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0053:Trombone–0055:Bass Trombone, 0097:APS Trombone

By playing legato with the Portamento SW turned on, you can create the effect of glissando performance on a trombone.

By setting Bend Range to Tone, you can use the pitch bend lever to create discontinuous pitch changes or falls that are typical of a brass instrument.

- Moving the pitch bend lever in the upward direction will create a discontinuous pitch change typical of brass instruments.
- Moving the pitch bend lever in the downward direction will produce a fall effect.

If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between discontinuous pitch changes or falls, and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise for the brass instrument.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0058:Soprano Sax–0061:Baritone Sax, 0100:APS Soprano Sax–0103:APS Baritone Sax

If Bend Range is set to Tone, you can use the pitch bend lever to create glissando or fall effects.

- Moving the pitch bend lever in the upward direction will produce a glissando effect.
- Moving the pitch bend lever in the downward direction will produce a fall effect.

If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between glissando/fall effects and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of the brass instrument's breath noise or key noise.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0062:Oboe–0069:Flute 2, 0104:APS Oboe–0109:APS Flute

If Bend Range is set to Tone, you can use the pitch bend lever to create glissando or fall effects.

- Moving the pitch bend lever in the upward direction will produce a glissando effect.
- Moving the pitch bend lever in the downward direction will produce a fall effect.

If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between glissando/fall effects and conventional pitch change.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise for the brass instrument.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0070:Pan Flute, 0110:APS Pan Flute

If Bend Range is set to Tone, you can use the pitch bend lever to create glissando or fall effects.

- Moving the pitch bend lever in the upward direction will produce a glissando effect.
- Moving the pitch bend lever in the downward direction will produce a fall effect.

If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between glissando/fall effects and conventional pitch change.
You can create a flutter sound by using Flutter (CC81) to switch the variation. Strongly played notes will sound a phrase typical of pan flutes.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise for the brass instrument.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0071:Shakuhachi, 0072:Ryuteki, 0111:APS Shakuhachi, 0112:APS Ryuteki

Legato playing will produce notes that are connected as if they were played in a single breath.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of breath noise for the brass instrument.
Growl Sens (CC18)	0–127	Adjusts the distinctive nuance (growl) that occurs when a brass instrument is blown.
Variation	Refer to p. 32.	Performance variation sounds

0073:Sitar, 0113:APS Sitar

Note numbers 47 and below will produce a sitar sound effect.
CC80 values in the range of 64–127 will play a tambura phrase, and values in the range 0–63 will silence it.

Parameter	Value	Explanation
Resonance Level (CC16)	-64– +63	Adjusts the sympathetic resonance. Higher settings will increase the sympathetic resonance.
Tambura Level	-64– +63	Adjusts the volume of the tambura sound effect sounded by CC80.
Tambura Pitch	-12– +12	Adjusts the pitch of the tambura sound effect sounded by CC80.

0074:Uilleann Pipes, 0114:APS UilleannPipe

CC80 values in the range of 64–127 will sound a drone. Values in the range of 0–63 will silence the drone.

Parameter	Value	Explanation
Drone Level	-64– +63	Adjusts the volume of the drone sound effect sounded by CC80.
Drone Pitch	-12– +12	Adjusts the pitch of the drone sound effect sounded by CC80.
Variation	Refer to p. 32.	Performance variation sounds

0075:Erhu, 0115:APS Erhu

Turning the Portamento SW on will produce the smooth pitch change typical of this instrument.
Note ranges corresponding to open strings will produce an open-string sound without vibrato.

Parameter	Value	Explanation
Noise Level (CC16)	-64– +63	Adjusts the amount of string grazing noise.
Variation	Refer to p. 32.	Performance variation sounds

0076:Sarangi, 0116:APS Sarangi

Turning the Portamento SW on will produce the smooth pitch change typical of this instrument.
Note ranges corresponding to open strings will produce an open-string sound without vibrato.
CC80 values in the range of 64–127 will play a tambura phrase, and values in the range 0–63 will silence it.

Parameter	Value	Explanation
Resonance Level (CC16)	-64– +63	Adjusts the sympathetic resonance. Higher settings will increase the sympathetic resonance.
Tambura Level	-64– +63	Adjusts the volume of the tambura sound effect sounded by CC80.
Tambura Pitch	-12– +12	Adjusts the pitch of the tambura sound effect sounded by CC80.

0077:Steel Drums, 0117:APS Steel Drums

You can play a roll by operating the Modulation controller (CC01) while playing a note.
You can produce a glissando effect by employing pitch bend while playing the keyboard, or by playing legato with the Portamento SW (CC65) turned on.
If Bend Range is set to Tone, you can use the pitch bend lever to produce a glissando effect.
If Bend Range is set to anything other than Tone, this effect will be produced if Bend Mode (CC19) is turned on. Use this when you want to switch between glissando/fall effects and conventional pitch change.
By using Mute (CC18) you can simulate the technique of using your hand or mallet to mute the vibration (sound). It is effective to assign this to the D Beam controller.

Parameter	Value	Explanation
Resonance Level (CC16)	-64– +63	Adjusts the sympathetic resonance. Higher settings will increase the sympathetic resonance.
Roll Speed (CC17)	-64– +63	Adjusts the speed of the roll effect.
Variation	Refer to p. 32.	Performance variation sounds

Performance Variations for SuperNATURAL Acoustic Tones

SuperNATURAL Acoustic Tones		Variation			
		1	2	3	4
0001	Concert Grand	-	-	-	-
0002	Grand Piano1	-	-	-	-
0003	Grand Piano2	-	-	-	-
0004	Grand Piano3	-	-	-	-
0005	Mellow Piano	-	-	-	-
0006	Bright Piano	-	-	-	-
0007	Upright Piano	-	-	-	-
0008	Concert Mono	-	-	-	-
0009	Honky-tonk	-	-	-	-
0010	Pure Vintage EP1	-	-	-	-
0011	Pure Vintage EP2	-	-	-	-
0012	Pure Wurly	-	-	-	-
0013	Pure Vintage EP3	-	-	-	-
0014	Tined EP1	-	-	-	-
0015	Tined EP2	-	-	-	-
0016	Old Hammer EP	-	-	-	-
0017	Dyno Piano	-	-	-	-
0018	Clav CB Flat	-	-	-	-
0019	Clav CA Flat	-	-	-	-
0020	Clav CB Medium	-	-	-	-
0021	Clav CA Medium	-	-	-	-
0022	Clav CB Brillia	-	-	-	-
0023	Clav CA Brillia	-	-	-	-
0024	Clav CB Combo	-	-	-	-
0025	Clav CA Combo	-	-	-	-
0026	Vibraphone	Dead Stroke	Tremolo Sw	-	-
0027	Marimba	Dead Stroke	-	-	-
0028	TW Organ	-	-	-	-
0029	French Accordion	-	-	-	-
0030	ItalianAccordion	-	-	-	-
0031	Harmonica	-	-	-	-
0032	Bandoneon	-	-	-	-
0033	Nylon Guitar	Mute	Harmonics	-	-
0034	Flamenco Guitar	Rasgueado	Harmonics	-	-
0035	SteelStr Guitar	Mute	Harmonics	-	-
0036	Acoustic Bass	Staccato	Harmonics	-	-
0037	Fingered Bass	Slap	Harmonics	-	-
0038	Fingered Bass 2	Slap	Harmonics	-	-
0039	Picked Bass	Bridge Mute	Harmonics	-	-
0040	Picked Bass 2	Bridge Mute	Harmonics	-	-
0041	Fretless Bass	Staccato	Harmonics	-	-
0042	Violin	Staccato	Pizzicato	Tremolo	-
0043	Violin 2	Staccato	Pizzicato	Tremolo	-
0044	Viola	Staccato	Pizzicato	Tremolo	-
0045	Cello	Staccato	Pizzicato	Tremolo	-
0046	Cello 2	Staccato	Pizzicato	Tremolo	-
0047	Contrabass	Staccato	Pizzicato	Tremolo	-
0048	Harp	Nail	-	-	-
0049	Timpani	Flam	Accent Roll	-	-
0050	Strings	Staccato	Pizzicato	Tremolo	Fall
0051	Trumpet	Staccato	Fall	-	-
0052	Frugal Horn	Staccato	Fall	-	-
0053	Trombone	Staccato	Fall	-	-
0054	Trombone 2	Staccato	Fall	-	-
0055	Bass Trombone	Staccato	Fall	-	-
0056	Mute Trumpet	Staccato	Fall	-	-
0057	French Horn	Staccato	-	-	-
0058	Soprano Sax	Staccato	Fall	-	-
0059	Alto Sax	Staccato	Fall	-	-
0060	Tenor Sax	Staccato	Fall	-	-

SuperNATURAL Acoustic Tones		Variation			
		1	2	3	4
0061	Baritone Sax	Staccato	Fall	-	-
0062	Oboe	Staccato	-	-	-
0063	English Horn	Staccato	-	-	-
0064	Bassoon	Staccato	-	-	-
0065	Clarinet	Staccato	-	-	-
0066	Bass Clarinet	Staccato	-	-	-
0067	Piccolo	Staccato	-	-	-
0068	Flute	Staccato	-	-	-
0069	Flute2	Staccato	-	-	-
0070	Pan Flute	Staccato	Flutter	-	-
0071	Shakuhachi	Staccato	Ornament	-	-
0072	Ryuteki	Staccato	Ornament	-	-
0073	Sitar	-	-	-	-
0074	Uilleann Pipes	-	Ornament	-	-
0075	Erhu	Staccato	Ornament	-	-
0076	Sarangi	-	-	-	-
0077	Steel Drums	Mute	-	-	-
0078	APS Vibraphone	Dead Stroke	Tremolo Sw	-	-
0079	APS Marimba	Dead Stroke	-	-	-
0080	APS Accordion	-	-	-	-
0081	APS Harmonica	-	-	-	-
0082	APS Bandoneon	-	-	-	-
0083	APS Nylon Guitar	Mute	Harmonics	-	-
0084	APS SteelStr Gt.	Mute	Harmonics	-	-
0085	APS Acoustic Bs.	Staccato	Harmonics	-	-
0086	APS Fingered Bs.	Slap	Harmonics	-	-
0087	APS Picked Bass	Bridge Mute	Harmonics	-	-
0088	APS Fretless Bs.	Staccato	Harmonics	-	-
0089	APS Violin	Staccato	Pizzicato	Tremolo	-
0090	APS Viola	Staccato	Pizzicato	Tremolo	-
0091	APS Cello	Staccato	Pizzicato	Tremolo	-
0092	APS Contrabass	Staccato	Pizzicato	Tremolo	-
0093	APS Harp	Nail	-	-	-
0094	APS Timpani	Flam	Accent Roll	-	-
0095	APS Strings	Staccato	Pizzicato	Tremolo	Fall
0096	APS Trumpet	Staccato	Fall	-	-
0097	APS Trombone	Staccato	Fall	-	-
0098	APS Mute Trumpet	Staccato	Fall	-	-
0099	APS French Horn	Staccato	-	-	-
0100	APS Soprano Sax	Staccato	Fall	-	-
0101	APS Alto Sax	Staccato	Fall	-	-
0102	APS Tenor Sax	Staccato	Fall	-	-
0103	APS Baritone Sax	Staccato	Fall	-	-
0104	APS Oboe	Staccato	-	-	-
0105	APS English Horn	Staccato	-	-	-
0106	APS Bassoon	Staccato	-	-	-
0107	APS Clarinet	Staccato	-	-	-
0108	APS Piccolo	Staccato	-	-	-
0109	APS Flute	Staccato	-	-	-
0110	APS Pan Flute	Staccato	Flutter	-	-
0111	APS Shakuhachi	Staccato	Ornament	-	-
0112	APS Ryuteki	Staccato	Ornament	-	-
0113	APS Sitar	-	-	-	-
0114	APS UilleannPipe	-	Ornament	-	-
0115	APS Erhu	Staccato	Ornament	-	-
0116	APS Sarangi	-	-	-	-
0117	APS Steel Drums	Mute	-	-	-

Live Set Tone Modify Screen (SuperNATURAL Synth Tones)

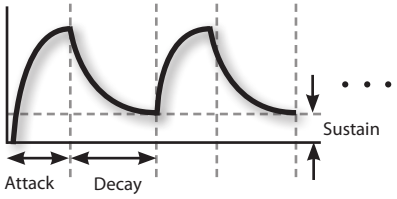
Live Set

Parameter	Value	Explanation
Pitch tab		
Pitch Envelope		
Depth	-12– +12	Adjusts the OSC Pitch Env Depth (p. 38) of the tone assigned to the layer. The final value is the sum of this value and the OSC Pitch Env Depth.
Attack Time	-63– +63	Adjusts the OSC Pitch Env Attack Time (p. 38) of the tone assigned to the layer. The final value is the sum of this value and the OSC Pitch Env Attack Time. Higher settings will result in a longer time until the next pitch is reached.
Decay Time	-63– +63	Adjusts the OSC Pitch Env Decay Time (p. 38) of the tone assigned to the layer. The final value is the sum of this value and the OSC Pitch Env Decay Time. Higher settings will result in a longer time until the next pitch is reached.
FILTER tab		
Filter		
Mode	OFF	No filter is used.
	LPF	Low Pass Filter This reduces the volume of all frequencies above the Cutoff Frequency (p. 33) in order to round off, or un-brighten the sound.
	BPF	Band Pass Filter This leaves only the frequencies in the region of the Cutoff Frequency (p. 33), 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 (p. 33). 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 (p. 33). You can use this to create wah-wah effects by employing an LFO to change the Cutoff Frequency cyclically.
	TONE	The setting of the tone assigned to the layer will be used.
Cutoff Frequency	-63– +63	Adjusts the FILTER Cutoff (p. 39) of the tone assigned to the layer. The final value is the sum of the FILTER Cutoff, the Live Set Common screen's Cutoff (p. 19), the Live Set Layer screen's Cutoff Offset (p. 21), and the value of this parameter.
Cutoff Keyfollow	-200, -190, …, +190, +200	Amount of change in the cutoff frequency relative to the position of the key that you played The final value is the sum of this value and the FILTER Cutoff Keyfollow (p. 39).
Resonance	-63– +63	Adjusts the FILTER Resonance (p. 39) of the tone assigned to the layer. The final value is the sum of the FILTER Resonance, Live Set Common screen's Resonance (p. 19), the Live Set Layer screen's Resonance Offset (p. 21), and the value of this parameter.
Filter Envelope		
Depth	-63– +63	Adjusts the FILTER Env Depth (p. 39) of the tone assigned to the layer. The final value is the sum of this value and the FILTER Env Depth.
Velocity Sens	-63– +63	Adjusts the FILTER Env Velocity Sens (p. 39) of the tone assigned to the layer. The final value is the sum of this value and the FILTER Env Velocity Sens.
Attack Time	-63– +63	Adjusts the FILTER Env Attack Time (p. 39) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Attack Time Offset (p. 21), the FILTER Env Attack Time, and the value of this parameter.
Decay Time	-63– +63	Adjusts the FILTER Env Decay Time (p. 39) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Decay Time Offset (p. 21), the FILTER Env Decay Time, and the value of this parameter.
Sustain Level	-63– +63	Adjusts the FILTER Env Sustain Level (p. 39) of the tone assigned to the layer. The final value is the sum of this value and the FILTER Env Sustain Level.
Release Time	-63– +63	Adjusts the FILTER Env Release Time (p. 39) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Release Time Offset (p. 21), the FILTER Env Release Time, and the value of this parameter.

Parameter List

Parameter	Value	Explanation
AMP tab		
AMP Level		
Velocity Sens	-63– +63	Adjusts the AMP Level Velocity Sens (p. 39) of the tone assigned to the layer. The final value is the sum of this value and the AMP Level Velocity Sens.
Keyfollow	-100, -90, …, +90, +100, TONE	Specify this if you want to vary the volume according to the position of the key that you play. With the C4 key (middle C) as the base volume, "+" values will make the volume increase as you play above C4; "-" values will make the volume decrease. Higher values will produce greater change. If this is set to TONE, the AMP Level Keyfollow (p. 39) setting of the tone assigned to the layer will be used.
AMP Envelope		
Attack Time	-63– +63	Adjusts the AMP Env Attack Time (p. 40) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Attack Time Offset (p. 21), the AMP Env Attack Time, and the value of this parameter.
Decay Time	-63– +63	Adjusts the AMP Env Decay Time (p. 40) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Decay Time Offset (p. 21), the AMP Env Decay Time, and the value of this parameter.
Sustain Level	-63– +63	Adjusts the AMP Env Sustain Level (p. 40) of the tone assigned to the layer. The final value is the sum of this value and the AMP Env Sustain Level.
Release Time	-63– +63	Adjusts the AMP Env Release Time (p. 40) of the tone assigned to the layer. The final value is the sum of the Live Set Layer screen's Release Time Offset (p. 21), the AMP Env Release Time, and the value of this parameter.
LFO tab		
LFO		
Shape	Selects the LFO waveform. If anything other than TONE is selected, the LFO will be applied to the FILTER using the waveform selected for the tone's LFO Shape (p. 40) plus the waveform selected here.	
	SIN	Sine wave
	TRI	Triangle wave
	SAW-UP	Sawtooth wave
	SQR	Square wave
	RND	Random wave
	S&H	Sample and Hold (The LFO value will change once each cycle.)
	TONE	The settings of the tone assigned to the layer will be used.
Rate	0–127	Modulation speed of the LFO
	note (p. 86)	If you want the LFO rate to be synchronized with the tempo, this should be set in terms of a note value.
	TONE	The setting of the tone assigned to the layer will be used.
Key Trigger	OFF, ON	Specifies whether the LFO cycle will be synchronized to begin when the key is pressed (ON) or not (OFF).
	TONE	The setting of the tone assigned to the layer will be used.
LFO Depth		
Pitch	OFF, -63– +63	Depth of LFO applied to the pitch If this is OFF, the result will be the same as a setting of 0, regardless of the tone's setting. The final value is the sum of this value and the LFO Pitch Depth.
Filter	OFF, -63– +63	Depth of LFO applied to the cutoff frequency If this is OFF, the result will be the same as a setting of 0, regardless of the tone's setting. The final value is the sum of this value and the LFO Filter Depth.
AMP	OFF, -63– +63	Depth of LFO applied to the volume If this is OFF, the result will be the same as a setting of 0, regardless of the tone's setting. The final value is the sum of this value and the LFO Amp Depth.
Pan	OFF, -63– +63	Depth of LFO applied to pan (stereo position) If this is OFF, the result will be the same as a setting of 0, regardless of the tone's setting. The final value is the sum of this value and the LFO Pan Depth.

Parameter	Value	Explanation
Modulation LFO tab		
Modulation LFO		
Shape	Selects the LFO waveform.	
	SIN	Sine wave
	TRI	Triangle wave
	SAW-UP	Sawtooth wave
	SQR	Square wave
	RND	Random wave
	S&H	Sample and Hold (The LFO value will change once each cycle.)
	TONE	The settings of the tone assigned to the layer will be used.
Rate	0–127	Modulation speed of the LFO
	note (p. 86)	If you want the LFO rate to be synchronized with the tempo, this should be set in terms of a note value.
	TONE	The setting of the tone assigned to the layer will be used.
Key Trigger	OFF, ON	Specifies whether the LFO cycle will be synchronized to begin when the key is pressed (ON) or not (OFF).
	TONE	The setting of the tone assigned to the layer will be used.
Modulation LFO Depth		
Pitch	OFF, -63– +63	Depth of LFO applied to the pitch When the modulation lever is in the center position, the LFO specified by Shape will be applied.
Filter	OFF, -63– +63	Depth of LFO applied to the cutoff frequency When the modulation lever is in the center position, the LFO specified by Shape will be applied.
AMP	OFF, -63– +63	Depth of LFO applied to the volume When the modulation lever is in the center position, the LFO specified by Shape will be applied.
Pan	OFF, -63– +63	Depth of LFO applied to pan (stereo position) When the modulation lever is in the center position, the LFO specified by Shape will be applied.
Portamento/Misc tab		
Portamento Mode	NORMAL	Portamento will always be applied.
	LEGATO	Portamento will be applied only when you play legato.
	TONE	The setting of the tone assigned to the layer will be used.
Modulation Limit	0–127	You can change the depth of the Ring Modulator (p. 37) and Super Saw Detune (p. 38) of the tone assigned to the layer. Normally, you can leave this set at 100.

Time Interval Env Sens		
Attack Time	0–127	Shortens the FILTER and AMP Attack Time (p. 39) according to the spacing between note-on events. Higher values produce a greater effect. With a setting of 0, there will be no effect. This is effective when you want to play rapid notes using a sound that has a slow attack (Attack Time).
Release Time	0–127	Shortens the FILTER and AMP Release Time (p. 39) if the interval between one note-on and the next note-off is brief. Higher values produce a greater effect. With a setting of 0, there will be no effect. This is effective when you want to play staccato notes using a sound that has a slow release.
Envelope Loop		
Loop Mode	Use this to loop the envelope between certain regions during a note-on.  	
	OFF	The envelope will operate normally.
	FREE-RUN	When the Decay segment has ended, the envelope will return to the Attack. The Attack through Decay segments will repeat until note-off occurs.
	TEMPO-SYNC	Specifies the loop rate as a note value (p. 86) (Sync Note parameter). Returns to the Attack at the specified rate. If the Attack+Decay time is shorter than the specified rate, the Sustain Level will be maintained. If the Attack+Decay time is longer than the specified rate, the envelope will return to the Attack even though the Decay has not been completed. This will continue repeating until note-off occurs.
Sync Note	note (p. 86)	Specifies the loop rate when Loop Mode is set to TEMPO-SYNC.
Portamento		
Chromatic	OFF, ON	If this is turned on, portamento will operate in semitone steps.
Time Interval Sens	0–127	Shortens the Portamento Time (p. 41) according to the spacing between note-on events. Higher values produce a greater effect. With a setting of 0, there will be no effect.

Tone Blender Screen

Live Set

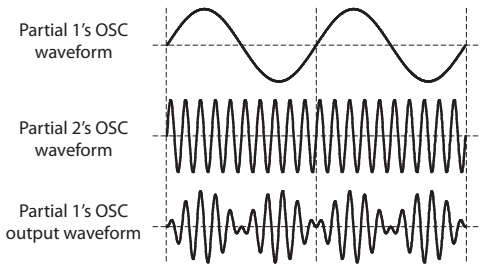
Parameter	Value	Explanation
Level (Destination Level)	0–127	Values of the layer's parameters (destination values) produced when the Tone Blender Control (CC79) is at 127 (maximum).
Pan (Destination Pan)	L64–0–63R	
Cutoff (Destination Cutoff) *2	-64– +63	
Reso (Destination Resonance) *2	-64– +63	
Attack (Destination Attack) *2	-64– +63	
Decay (Destination Decay) *7	-64– +63	
Release (Destination Release) *2	-64– +63	
MFX1 (Destination MFX1 Send)	0–127	
MFX2 (Destination MFX2 Send)	0–127	
MFX3 (Destination MFX3 Send)	0–127	
MFX4 (Destination MFX4 Send)	0–127	
Rev (Destination Reverb Send)	0–127	

***2** This has no effect on the SuperNATURAL acoustic tones Concert Grand (0001)–Honky-tonk (0009) and TW Organ (0028). Also, the effect may be difficult to notice for some SuperNATURAL acoustic tones.

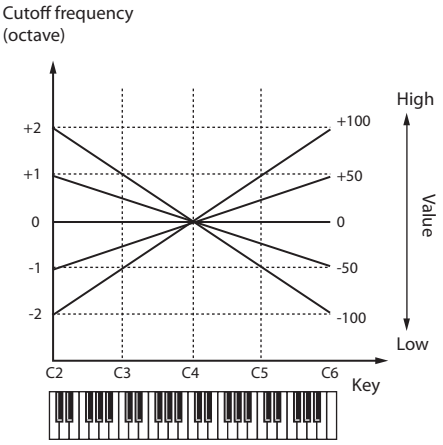
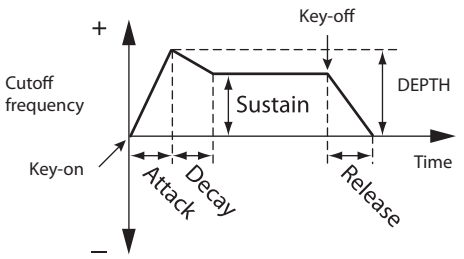
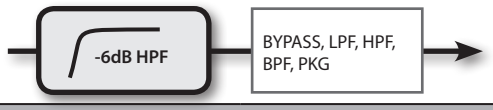
***7** This has no effect on SuperNATURAL acoustic tones other than Vibraphone (0026), Marimba (0027), Timpani (0049), Steel Drums (0077), APS Vibraphone (0078), APS Marimba (0079), APS Timpani (0094), and APS Steel Drums (0117).

Synth Tone Edit (PRO EDIT) Screen

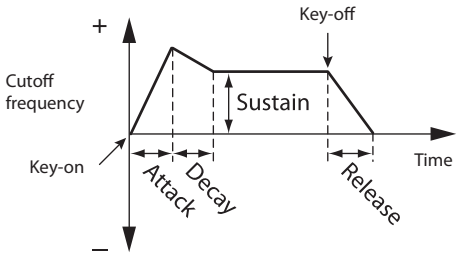
Tone

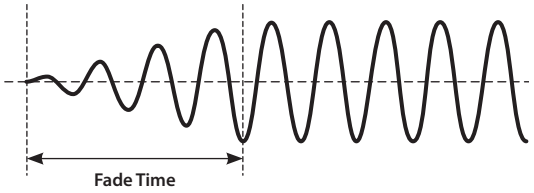
Parameter	Value	Explanation
Partial 1-3 Switch	OFF, ON	Use these buttons to turn on the partial that you want to be heard.
Partial 1-3 Select	OFF, ON	Use these buttons to select the partial that you want to edit.
COMMON tab		
Tone Name	-	Name of the tone.
Tone Category	No assign, Ac.Piano, Pop Piano, E.Grand Piano, E.Piano1, E.Piano2, E.Organ, Pipe Organ, Reed Organ, Harpsichord, Clav, Celesta, Accordion, Harmonica, Bell, Mallet, Ac.Guitar, E.Guitar, Dist.Guitar, Ac.Bass, E.Bass, Synth Bass, Plucked/Stroke, Solo Strings, Ensemble Strings, Orchestral, Solo Brass, Ensemble Brass, Wind, Flute, Sax, Recorder, Vox/Choir, Scat, Synth Lead, Synth Brass, Synth Pad/ Strings, Synth Bellpad, Synth PolyKey, Synth FX, Synth Seq/Pop, Phrase, Pulsating, Beat&Groove, Hit, Sound FX, Drums, Percussion	Selects the tone's category.
Tone Level	0–127	Adjusts the overall volume of the tone.
RING Switch	OFF, ON	Turns ring modulator on/off. By multiplying partial 1's OSC and partial 2's OSC, this creates a complex, metallic-sounding waveform like that of a bell. The partial 1's OSC waveform will change as shown in the illustration, and partial 2's OSC will be output with its original waveform.  The modulator LFO will always use the partial parameter settings, regardless of the LFO Shape, Rate, and Key Trigger settings of the Live Set Modify parameters. If Ring Switch is turned on, the OSC Pulse Width Mod Depth, OSC Pulse Width, and SUPER SAW Detune of partial 1 and partial 2 cannot be used. In addition, if an asymmetrical square wave is selected as the OSC waveform, the OSC variation will be ignored, and there will be a slight difference in sound compared to the originally selected waveform.
Wave Shape	0–127	Partial 1 will be modulated by the pitch of partial 2. Higher values produce a greater effect. This has no effect if the partial 1 waveform is PW-SQR or SP-SAW.
Analog Feel	0–127	Use this to apply "1/f fluctuation," a type of randomness or instability that is present in many natural systems (such as a babbling brook or whispering breeze) and is perceived as pleasant by many people. By applying "1/f fluctuation" you can create the natural-sounding instability that is characteristic of an analog synthesizer.
Unison Switch	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.

<table>
<tr><th>Parameter</th><th>Value</th><th>Explanation</th></tr>
<tr><td>Unison Size</td><td>2, 4, 6, 8</td><td>Number of notes assigned to each key when the Unison Switch is on
Example: If Unison Size is 8
<table><tr><th>Number of keys pressed</th><th>Number of notes sounded</th></tr><tr><td>1</td><td>8</td></tr><tr><td>2</td><td>4 each</td></tr><tr><td>3–4</td><td>2 each</td></tr><tr><td>5–8</td><td>1 each</td></tr></table></td></tr>
<tr><td colspan="3">OSC tab</td></tr>
<tr><td rowspan="7">OSC Wave</td><td>SAW</td><td>This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at all integer multiples of that fundamental.</td></tr>
<tr><td>SQR</td><td>This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at odd-numbered multiples of that fundamental.</td></tr>
<tr><td>PW-SQR</td><td>The overtone structure of this waveform will vary significantly depending on the width of the upper portion of the waveform (Pulse Width).</td></tr>
<tr><td>TRI</td><td>This waveform contains a sine wave fundamental plus a fixed proportion of sine wave harmonics at even-numbered multiples of that fundamental.</td></tr>
<tr><td>SINE</td><td>This is a sine wave. This is a waveform that produces just a single frequency; it is the basis of all sound.</td></tr>
<tr><td>NOISE</td><td>This waveform contains all frequencies. It is suitable for percussion instrument sounds or sound effects.</td></tr>
<tr><td>SUPER SAW (SP-SAW)</td><td>This produces a tone similar to seven sawtooth waves heard simultaneously. Pitch-shifted sounds are added to the center sound. It is suitable for strings sounds, and for creating thick sounds.</td></tr>
<tr><td>PCM</td><td>This is a PCM waveform.</td></tr>
<tr><td>OSC Wave Variation</td><td>A, B, C</td><td>You can select variations of the currently selected WAVE.
* This has no effect for SP-SAW or PCM.</td></tr>
<tr><td>Wave Number</td><td>1–363</td><td>Selects the PCM waveform.
* This is valid only if PCM is selected for OSC Wave.</td></tr>
<tr><td>Wave Gain</td><td>-6, 0, +6, +12</td><td>Specifies the gain (amplitude) of the waveform.
The value will change in 6 dB (decibel) steps. Each 6 dB increase doubles the gain.
* This is valid only if PCM is selected for OSC Wave.</td></tr>
<tr><td>OSC Pulse Width Mod Depth</td><td>0–127</td><td>Specifies the amount (depth) of LFO applied to PW (Pulse Width).
If the OSC Wave has selected (PW-SQR), you can use this slider to specify the amount of LFO modulation applied to PW (pulse width).
If the Ring Switch is on, this has no effect on partials 1 and 2.</td></tr>
<tr><td>OSC Pulse Width</td><td>0–127</td><td>Specifies the pulse width.
If the OSC Wave has selected (PW-SQR), you can use this slider to specify the width of the upper portion of the square wave (the pulse width) as a percentage of the entire cycle.
Decreasing the value will decrease the width, approaching a square wave (pulse width = 50%).
Increasing the value will increase the width, producing a distinctive sound.
If the Ring Switch is on, this has no effect on partials 1 and 2.</td></tr>
<tr><td>OSC Pulse Width Shift</td><td>0–127</td><td>Shifts the range of change. Normally, you can leave this at 127.
If the Ring Switch is on, this has no effect on partials 1 and 2.</td></tr>
<tr><td>Super Saw Detune</td><td>0–127</td><td>Specifies the amount of pitch difference between the seven sawtooth waves layered within a single oscillator.
Higher values will increase the pitch difference. (OSC Detune applies an equal amount of pitch difference between each of the seven sawtooth waves.)
If the Ring Switch is on, this has no effect on partials 1 and 2.
* This is valid only if SP-SAW is selected for OSC Wave.</td></tr>
<tr><td colspan="3">Pitch tab</td></tr>
<tr><td>OSC Pitch</td><td>-24– +24</td><td>Adjusts the pitch in semitone steps.</td></tr>
<tr><td>OSC Detune</td><td>-50– +50</td><td>Adjusts the pitch in steps of one cent.</td></tr>
<tr><td>OSC Pitch Env Attack Time</td><td>0–127</td><td>Specifies the attack time of the pitch envelope.
This specifies the time from the moment you press the key until the pitch reaches its highest (or lowest) point.</td></tr>
<tr><td>OSC Pitch Env Decay Time</td><td>0–127</td><td>Specifies the decay time of the pitch envelope.
This specifies the time from the moment the pitch reaches its highest (or lowest) point until it returns to the pitch of the key you pressed.</td></tr>
<tr><td>OSC Pitch Env Depth</td><td>-63– +63</td><td>This specifies how much the pitch envelope will affect the pitch.</td></tr>
<tr><td>Octave Shift</td><td>-3– +3</td><td>Specifies the octave of the tone.</td></tr>
<tr><td>Pitch Bend Range Up</td><td>0– +24</td><td>Specifies the amount of pitch change that occurs when the pitch bend/modulation lever is moved all the way to the right.</td></tr>
<tr><td>Pitch Bend Range Down</td><td>0– -24</td><td>Specifies the amount of pitch change that occurs when the pitch bend/modulation lever is moved all the way to the left.</td></tr>
</table>

Parameter	Value	Explanation
FILTER tab		
FILTER Mode	BYPASS, LPF, HPF, BPF, PKG	Selects the type of filter.
FILTER Slope	-12dB, -24dB	This button selects the slope (steepness) of the filter.
FILTER Cutoff	0–127	Specifies the cutoff frequency.
FILTER Cutoff Keyfollow	-100– +100	Here's how you can make the filter cutoff frequency to vary according to the key you play. 
FILTER Env Velocity Sens	-63– +63	Here's how you can make the filter envelope depth vary according to the strength with which you play the key.
FILTER Resonance	0–127	Resonance emphasizes the sound in the region of the filter cutoff frequency.
FILTER Env Attack Time	0–127	This specifies the time from the moment you press the key until the cutoff frequency reaches its highest (or lowest) point.
FILTER Env Decay Time	0–127	This specifies the time from when the cutoff frequency reaches its highest (or lowest) point, until it decays to the sustain level.
FILTER Env Sustain Level	0–127	This specifies the cutoff frequency that will be maintained from when the decay time has elapsed until you release the key.
FILTER Env Release Time	0–127	This specifies the time from when you release the key until the cutoff frequency reaches its minimum value.
FILTER Env Depth	-63– +63	This specifies the direction and depth to which the cutoff frequency will change.
		
HPF Cutoff	0–127	Specifies the cutoff frequency of an independent -6 dB high-pass filter. 
AMP tab		
AMP Level	0–127	Partial volume.
AMP Level Velocity Sens	-63– +63	Here's how you can make the volume vary according to the strength with which you play the keyboard.
AMP Pan	L64–64R	Here's how to change the stereo position of the partial.
AMP Level Keyfollow	-100, -90, -80, -70, -60, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +60, +70, +80, +90, +100	Specify this if you want to vary the volume according to the position of the key that you play. With the C4 key (middle C) as the base volume, "+" values will make the volume increase as you play above C4; "-" values will make the volume decrease. Higher values will produce greater change.

Parameter	Value	Explanation
AMP Env Attack Time	0–127	Specifies the attack time of the amp envelope. This specifies the time from the moment you press the key until the maximum volume is reached.
AMP Env Decay Time	0–127	Specifies the decay time of the amp envelope. This specifies the time from when the maximum volume is reached, until it decays to the sustain level.
AMP Env Sustain Level	0–127	Specifies the sustain level of the amp envelope. This specifies the volume level that will be maintained from when the attack and decay times have elapsed until you release the key.
AMP Env Release Time	0–127	Specifies the release time of the amp envelope. This specifies the time from when you release the key until the volume reaches its minimum value.



LFO tab		
LFO Shape	Selects the LFO waveform.	
	TRI	Triangle wave
	SIN	Sine wave
	SAW	Sawtooth wave
	SQR	Square wave
	S&H	Sample and Hold (The LFO value will change once each cycle.)
	RND	Random wave
LFO Rate	0–127	Specifies the LFO rate when Modulation LFO Tempo Sync Switch is OFF.
LFO Tempo Sync Switch	OFF, ON	If this is ON, the LFO rate can be specified as a note value relative to the tempo.
LFO Tempo Sync Note	note (p. 86)	Specifies the LFO rate when Modulation LFO Tempo Sync Switch is ON.
LFO Fade Time	0–127	This specifies the time from when the partial sounds until the LFO reaches its maximum amplitude. 
LFO Key Trigger	OFF, ON	If this is on, the LFO cycle will be restarted when you press a key.
LFO Pitch Depth	-63– +63	This allows the LFO to modulate the pitch, producing a vibrato effect.
LFO Filter Depth	-63– +63	This allows the LFO to modulate the FILTER CUTOFF (cutoff frequency), producing a wah effect.
LFO Amp Depth	-63– +63	This allows the LFO to modulate the AMP LEVEL (volume), producing a tremolo effect.
LFO Pan Depth	-63– +63	Here's how to make the PAN (stereo position) vary (Auto Panning).
Modulation LFO tab		
Modulation LFO Shape	Selects the LFO waveform. There is an LFO that is always applied to the partial, and a MODULATION LFO for applying modulation when the pitch bend/ modulation lever is moved away from yourself.	
	TRI	Triangle wave
	SIN	Sine wave
	SAW	Sawtooth wave
	SQR	Square wave
	S&H	Sample and Hold (The LFO value will change once each cycle.)
	RND	Random wave
Modulation LFO Rate	0–127	Specifies the LFO rate when Modulation LFO Tempo Sync Switch is OFF.
Modulation LFO Tempo Sync Switch	OFF, ON	If this is ON, the LFO rate can be specified as a note value relative to the tempo.
Modulation LFO Tempo Sync Note	note (p. 86)	Specifies the LFO rate when Modulation LFO Tempo Sync Switch is ON.
Modulation LFO Pitch Depth	-63– +63	This allows the LFO to modulate the pitch, producing a vibrato effect.

Parameter	Value	Explanation
Modulation LFO Filter Depth	-63– +63	This allows the LFO to modulate the FILTER CUTOFF (cutoff frequency), producing a wah effect.
Modulation LFO Amp Depth	-63– +63	This allows the LFO to modulate the AMP LEVEL (volume), producing a tremolo effect.
Modulation LFO Pan Depth	-63– +63	Here's how to make the PAN (stereo position) vary (Auto Panning).
Modulation LFO Rate Control	-63– +63	Make these settings if you want to change the Modulation LFO Rate when the modulation lever is operated. Specify a positive (+) value if you want the Modulation LFO Rate to speed up when you move the modulation lever; specify a negative (-) value if you want it to slow down.
Mono/Porta tab		
Mono/Poly	POLY, MONO	Specifies whether notes will sound polyphonically (POLY) or monophonically (MONO).
Legato Switch	OFF, ON	This is valid only if the Mono/Poly parameter is set to "MONO." If this is on, pressing a key while the previous key remains held down will cause the pitch to change to that of the newly pressed key while maintaining the state in which the previous note was being sounded. This produces an effect similar to hammering-on or pulling-off when playing a guitar.
Portamento Switch	OFF, ON	Specifies whether the portamento effect will be applied (ON) or not applied (OFF).
Portamento Time	0–127	Specifies the time taken for the pitch to change when playing portamento. Higher values lengthen the time over which the pitch will change to the next note.
Portamento Mode	NORMAL	Portamento will always be applied.
	LEGATO	Portamento will be applied only when you play legato (i.e., when you press the next key before releasing the previous key).
Aftertouch tab		
Cutoff Aftertouch Sens	-63– +63	Specifies how aftertouch pressure will affect the cutoff frequency. Specify a positive (+) value if you want aftertouch to raise the cutoff frequency; specify a negative (-) value if you want aftertouch to lower the cutoff frequency.
Level Aftertouch Sens	-63– +63	Specifies how aftertouch pressure will affect the volume. Specify a positive (+) value if you want aftertouch to increase the volume; specify a negative (-) value if you want aftertouch to decrease the volume.

Multi-Effects Parameters (MFX)

The multi-effects feature 76 types different kinds of effects. Some of the effects consist of two or more different effects connected in series.

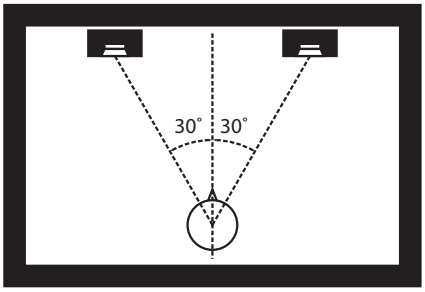
Parameters marked with a sharp "#" can be controlled using a MFX CONTROL (Two setting items will change simultaneously for "#1" and "#2").

When Using 3D Effects

The following 3D effects utilize RSS (Roland Sound Space) technology to create a spaciousness that cannot be produced by delay, reverb, chorus, etc.

29: 3D CHORUS
30: 3D FLANGER
31: 3D STEP FLANGER
52: 3D DELAY

When using these effects, we recommend that you place your speakers as follows. Also, make sure that the speakers are at a sufficient distance from the walls on either side.



If the left and right speakers are too far apart, or if there is too much reverberation, the full 3D effect may not appear. Each of these effects has an "Output Mode" parameter. If the sound from the OUTPUT jacks is to be heard through speakers, set this parameter to "SPEAKER." If the sound is to be heard through headphones, set it to "PHONES." This will ensure that the optimal 3D effect will be heard. If this parameter is not set correctly, the full 3D effect may not appear.

About the STEP RESET function

06 : STEP FILTER
16 : STEP RING MODULATOR
19 : STEP PAN
20 : SLICER
63 : STEP PITCH SHIFTER

The above five types contain a sixteen-step sequencer. For these types, you can use a MFX CONTROL to reset the sequence to play from the first step. To do this, set the MFX CONTROL Destination to "Step Reset."

For example if you are using the modulation lever to control the effect, you would make the following settings.

Parameter	Value
Source	CC01: MODULATION
Destination	Step Reset
Sens	+63

With these settings, the sequence will play back from the first step whenever you operate the modulation lever.

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)."

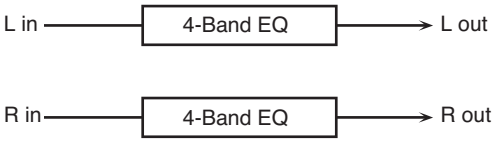
The parameters that can be controlled are preset for each MFX type, and are the parameters marked by a "#" symbol in the following explanations of each MFX parameter. Up to four multi-effects control settings can be assigned using MFX 1–4.

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

Parameter	Value	Explanation
Source (1–4)	Specifies the MIDI message that will control the corresponding MFX CONTROL parameter.	
	OFF	MFX will not be used.
	CC01–31	Controller number 1–31
	CC33–95	Controller number 33–95
	PITCH BEND	Pitch bend
	AFTERTOUCH	Aftertouch
	SYS CTRL1–4	Use the controller that is assigned by the System Parameter setting Sys Ctrl 1–4 Source.
Destination (1–4)	Refer to the parameters marked "#" on p. 44 and following	Selects the multi-effect parameter that will be controlled by control source 1–4. The type of parameters that can be selected will depend on the type of multi-effect you've selected in MFX Type.
Sens (1–4)	-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.

01 : EQUALIZER

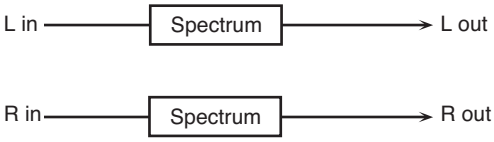
This is a four-band stereo equalizer (low, mid x 2, high).



Parameter	Value	Explanation
Low Freq	200, 400Hz	Frequency of the low range
Low Gain #	-15– +15dB	Gain of the low range
Mid1 Freq	200–8000Hz	Frequency of the middle range 1
Mid1 Gain	-15– +15dB	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 for Q to narrow the range to be affected.
Mid2 Freq	200–8000Hz	Frequency of the middle range 2
Mid2 Gain	-15– +15dB	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 for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain #	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

02 : SPECTRUM

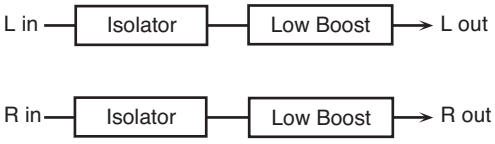
This is a stereo spectrum. Spectrum is a type of filter which modifies the timbre by boosting or cutting the level at specific frequencies.



Parameter	Value	Explanation
Band1 (250Hz)	-15– +15dB	Gain of each frequency band
Band2 (500Hz)		
Band3 (1000Hz)		
Band4 (1250Hz)		
Band5 (2000Hz)		
Band6 (3150Hz)		
Band7 (4000Hz)		
Band8 (8000Hz)		
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

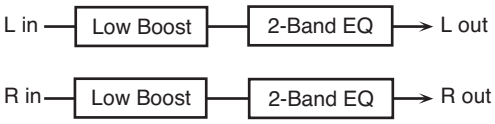
This is an equalizer which cuts the volume greatly, allowing you to add a special effect to the sound by cutting the volume in varying ranges.



Parameter	Value	Explanation
Boost/Cut Low #	-60– +4dB	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 #		
Boost/Cut High #		
Anti Phase Low Sw	OFF, ON	Turns the Anti-Phase function on and off for the Low frequency ranges. When turned on, the counterchannel of stereo sound is inverted and added to the signal.
Anti Phase Low Level	0–127	Adjusts the level settings 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

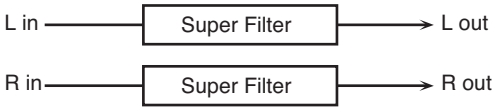
Boosts the volume of the lower range, creating powerful lows.



Parameter	Value	Explanation
Boost Frequency #	50–125Hz	Center frequency at which the lower range will be boosted
Boost Gain #	0– +12dB	Amount by which the lower range will be boosted
Boost Width	WIDE, MID, NARROW	Width of the lower range that will be boosted
Low Gain	-15– +15dB	Gain of the low frequency range
High Gain	-15– +15dB	Gain of the high frequency range
Level	0–127	Output level

05 : SUPER FILTER

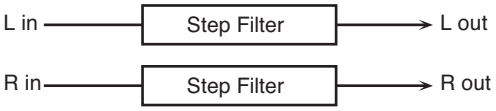
This is a filter with an extremely sharp slope. The cutoff frequency can be varied cyclically.



Parameter	Value	Explanation
Filter Type	Filter type 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	Amount of attenuation per octave	
	-12dB	Gentle
	-24dB	Steep
	-36dB	Extremely steep
Filter Cutoff #	0–127	Cutoff frequency of the filter Increasing this value will raise the cutoff frequency.
Filter Resonance #	0–127	Filter resonance level Increasing this value will emphasize the region near the cutoff frequency.
Filter Gain	0– +12dB	Amount of boost for the filter output
Modulation Sw	OFF, ON	On/off switch for cyclic change
Modulation Wave	How the cutoff frequency will be modulated	
	TRI	Triangle wave
	SQR	Square wave
	SIN	Sine wave
	SAW1	Sawtooth wave (upward)
	SAW2	Sawtooth wave (downward)
		
Rate #	0.05–10.00Hz, note (p. 86)	Rate of modulation
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.



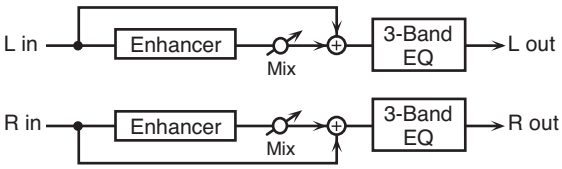
Parameter	Value	Explanation
Step 01-16	0–127	Cutoff frequency at each step
Rate #	0.05–10.00Hz, note (p. 86)	Rate of modulation
Attack #	0–127	Speed at which the cutoff frequency changes between steps
Filter Type	Filter type Frequency range that will pass through each filter	
	LPF	Frequencies below the 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	Amount of attenuation per octave	
	-12dB	Gentle
	-24dB	Steep
	-36dB	Extremely steep
Filter Resonance #	0–127	Filter resonance level Increasing this value will emphasize the region near the cutoff frequency.
Filter Gain	0– +12dB	Amount of boost for the filter output
Level	0–127	Output level

MEMO

You can use MFX CONTROL to make the step sequence play again from the beginning (p. 43).

07 : ENHANCER

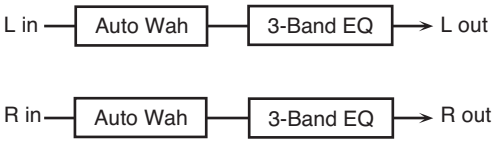
Controls the overtone structure of the high frequencies, adding sparkle and tightness to the sound.



Parameter	Value	Explanation
Sens #	0–127	Sensitivity of the enhancer
Mix #	0–127	Level of the overtones generated by the enhancer
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

08 : AUTO WAH

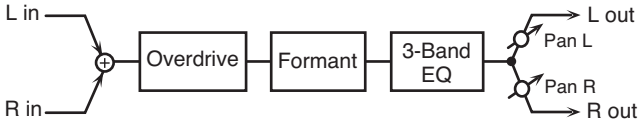
Cyclically controls a filter to create cyclic change in timbre.



Parameter	Value	Explanation
Filter Type	Type of filter	
	LPF	The wah effect will be applied over a wide frequency range.
	BPF	The wah effect will be applied over a narrow frequency range.
Manual #	0–127	Adjusts the center frequency at which the effect is applied.
Peak	0–127	Adjusts the amount of the wah effect that will occur in the range of the center frequency. Set a higher value for Q to narrow the range to be affected.
Sens #	0–127	Adjusts the sensitivity with which the filter is controlled.
Polarity	Sets the direction in which the frequency will change when the auto-wah filter is modulated.	
	UP	The filter will change toward a higher frequency.
	DOWN	The filter will change toward a lower frequency.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth #	0–127	Depth of modulation
Phase #	0–180deg	Adjusts the degree of phase shift of the left and right sounds when the wah effect is applied.
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

09 : HUMANIZER

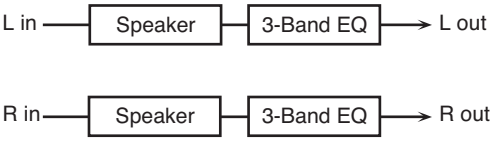
Adds a vowel character to the sound, making it similar to a human voice.



Parameter	Value	Explanation
Drive Sw	OFF, ON	Turns Drive 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	
Rate #	0.05–10.00Hz, note (p. 86)	Frequency at which the two vowels switch
Depth #	0–127	Effect depth
Input Sync Sw	OFF, ON	LFO reset on/off Determines whether the LFO for switching the vowels is reset by the input signal (ON) or not (OFF).
Input Sync Threshold	0–127	Volume level at which reset is applied
Manual #	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.
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Pan #	L64–63R	Stereo location of the output
Level	0–127	Output Level

10 : SPEAKER SIMULATOR

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



Parameter	Value	Explanation
Speaker Type	(See the table below.)	Type of speaker
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
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

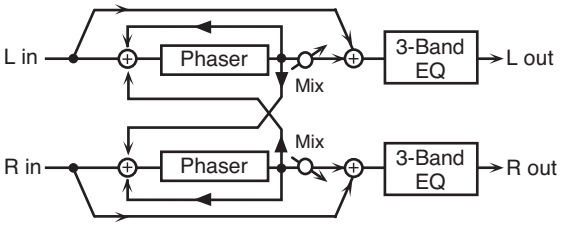
Specifications of each Speaker Type

The speaker column indicates the diameter of each speaker unit (in inches) and the number of units.

Type	Cabinet	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 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

11 : PHASER

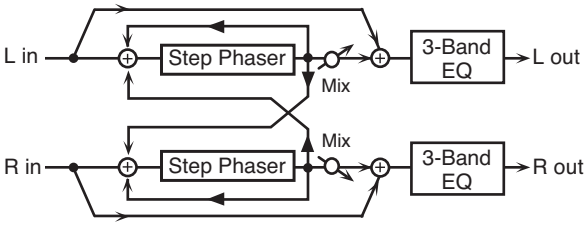
This is a stereo phaser. A phase-shifted sound is added to the original sound and modulated.



Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE	Number of stages in the phaser
Manual #	0–127	Adjusts the basic frequency from which the sound will be modulated.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Polarity	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 values invert the phase.)
Mix #	0–127	Level of the phase-shifted sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

12 : STEP PHASER

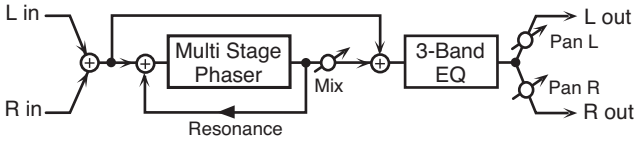
This is a stereo phaser. The phaser effect will be varied gradually.



Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE	Number of stages in the phaser
Manual #	0–127	Adjusts the basic frequency from which the sound will be modulated.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Polarity	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 values invert the phase.)
Step Rate #	0.10–20.00Hz, note (p. 86)	Rate of the step-wise change in the phaser effect
Mix #	0–127	Level of the phase-shifted sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

13 : MULTI STAGE PHASER

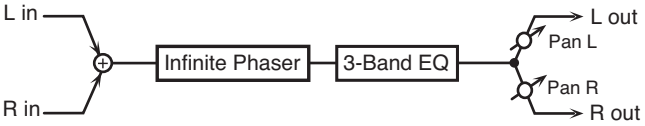
Extremely high settings of the phase difference produce a deep phaser effect.



Parameter	Value	Explanation
Mode	4-STAGE, 8-STAGE, 12-STAGE, 16-STAGE, 20-STAGE, 24-STAGE	Number of phaser stages
Manual #	0–127	Adjusts the basic frequency from which the sound will be modulated.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
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
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

14 : INFINITE PHASER

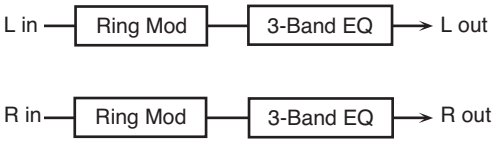
A phaser that continues raising/lowering the frequency at which the sound is modulated.



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	Volume of the phase-shifted sound
Pan #	L64–63R	Panning of the output sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

15 : RING MODULATOR

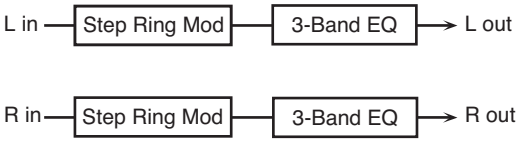
This is an effect that applies amplitude modulation (AM) to the input signal, producing bell-like sounds. You can also change the modulation frequency in response to changes in the volume of the sound sent into the effect.



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	Determines whether the frequency modulation moves towards higher frequencies or lower frequencies.	
	UP	Higher frequencies
	DOWN	Lower frequencies
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

16 : STEP RING MODULATOR

This is a ring modulator that uses a 16-step sequence to vary the frequency at which modulation is applied.



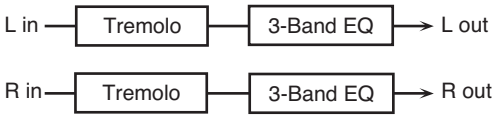
Parameter	Value	Explanation
Step 01-16	0–127	Frequency of ring modulation at each step
Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the 16-step sequence will cycle
Attack #	0–127	Speed at which the modulation frequency changes between steps
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

MEMO

You can use MFX CONTROL to make the step sequence play again from the beginning (p. 43).

17 : TREMOLO

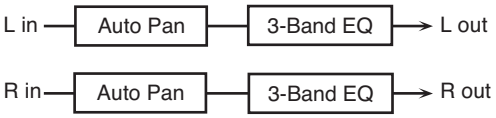
Cyclically modulates the volume to add tremolo effect to the sound.

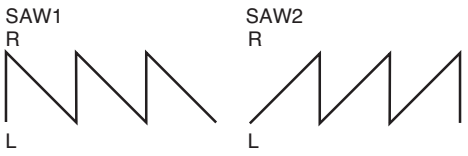


Parameter	Value	Explanation
Mod Wave	Modulation Wave	
	TRI	Triangle wave
	SQR	Square wave
	SIN	Sine wave
	SAW1/2	Sawtooth wave
		
Rate #	0.05–10.00Hz, note (p. 86)	Frequency to which the effect is applied
Depth #	0–127	Depth to which the effect is applied
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

18 : AUTO PAN

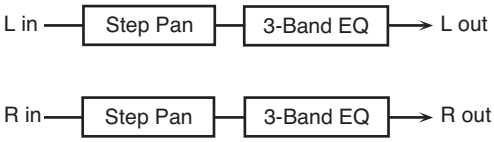
Cyclically modulates the stereo location of the sound.



Parameter	Value	Explanation
Mod Wave	Modulation Wave	
	TRI	Triangle wave
	SQR	Square wave
	SIN	Sine wave
	SAW1/2	Sawtooth wave
		
Rate #	0.05–10.00Hz, note (p. 86)	Frequency to which the effect is applied
Depth #	0–127	Depth to which the effect is applied
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

19 : STEP PAN

This uses a 16-step sequence to vary the panning of the sound.



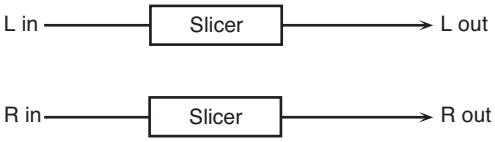
Parameter	Value	Explanation
Step 01-16	L64–63R	Pan at each step
Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the 16-step sequence will cycle
Attack #	0–127	Speed at which the pan changes between steps
Input Sync Sw	OFF, ON	Specifies whether an input note will cause the sequence to resume from the first step of the sequence (ON) or not (OFF)
Input Sync Threshold	0–127	Volume at which an input note will be detected
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

MEMO

You can use MFX CONTROL to make the step sequence play again from the beginning (p. 43).

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 #	0.05–10.00Hz, note (p. 86)	Rate at which the 16-step sequence will cycle
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	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

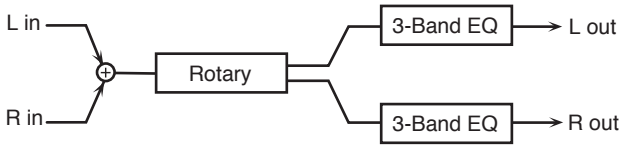
MEMO

You can use MFX CONTROL to make the step sequence play again from the beginning (p. 43).

21 : ROTARY

The Rotary effect simulates the sound of the rotary speakers often used with the electric organs of the past.

Since the movement of the high range and low range rotors can be set independently, the unique type of modulation characteristic of these speakers can be simulated quite closely. This effect is most suitable for electric organ Tones.

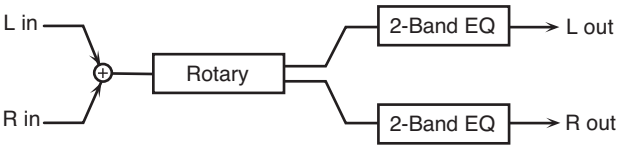


Parameter	Value	Explanation
Speed #	Simultaneously switch the rotational speed of the low frequency rotor and high frequency rotor.	
	SLOW	Slows down the rotation to the Slow Rate.
	FAST	FAST Speeds up the rotation to the Fast Rate.
Woofer Slow Speed	0.05–10.00Hz	Slow speed (SLOW) of the low frequency rotor
Woofer Fast Speed	0.05–10.00Hz	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. Lower values will require longer times.
Woofer Level	0–127	Volume of the low frequency rotor
Tweeter Slow Speed	0.05–10.00Hz	Settings of the high frequency rotor The parameters are the same as for the low frequency rotor
Tweeter Fast Speed	0.05–10.00Hz	
Tweeter Acceleration	0–15	
Tweeter Level	0–127	
Separation	0–127	Spatial dispersion of the sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

22 : VK ROTARY

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

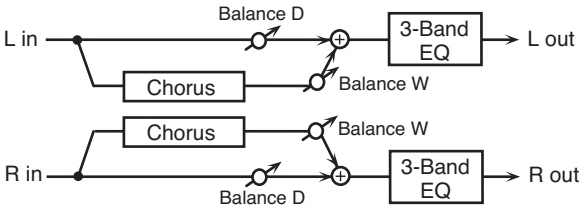
This effect features the same specifications as the VK-7's built-in rotary speaker.



Parameter	Value	Explanation
Speed #	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	0.05–10.00Hz	Low-speed rotation speed of the woofer
Woofer Fast Speed	0.05–10.00Hz	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	0.05–10.00Hz	Settings of the tweeter The parameters are the same as for the woofer.
Tweeter Fast Speed	0.05–10.00Hz	
Tweeter Trans Up	0–127	
Tweeter Trans Down	0–127	
Tweeter Level	0–127	
Spread	0–10	Sets the rotary speaker stereo image. The higher the value set, the wider the sound is spread out.
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

23 : CHORUS

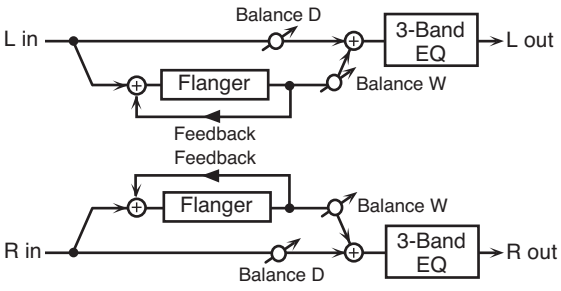
This is a stereo chorus. A filter is provided so that you can adjust the timbre of the chorus sound.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

24 : FLANGER

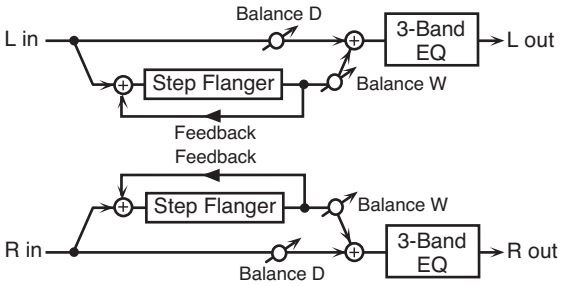
This is a stereo flanger. (The LFO has the same phase for left and right.)
It produces a metallic resonance that rises and falls like a jet airplane taking off or landing. A filter is provided so that you can adjust the timbre of the flanged sound.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
Feedback #	-98– +98%	Adjusts the proportion of the flanger sound that is fed back into the effect. (Negative values invert the phase.)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

25 : STEP FLANGER

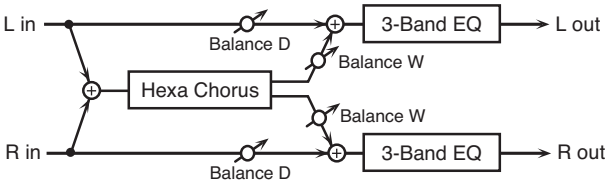
This is a flanger in which the flanger pitch changes in steps. The speed at which the pitch changes can also be specified in terms of a note-value of a specified tempo.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
Feedback #	-98– +98%	Adjusts the proportion of the flanger sound that is fed back into the effect. (Negative values invert the phase.)
Step Rate #	0.10–20.00Hz, note (p. 86)	Rate (period) of pitch change
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

26 : HEXA-CHORUS

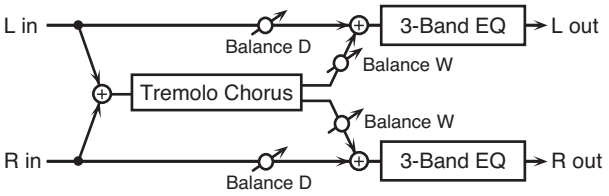
Uses a six-phase chorus (six layers of chorused sound) to give richness and spatial spread to the sound.



Parameter	Value	Explanation
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
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 effect sound (W)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

27 : TREMOLO CHORUS

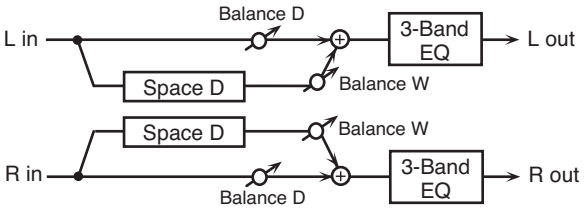
This is a chorus effect with added Tremolo (cyclic modulation of volume).



Parameter	Value	Explanation
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate #	0.05–10.00Hz, note (p. 86)	Modulation frequency of the chorus effect
Chorus Depth	0–127	Modulation depth of the chorus effect
Tremolo Rate #	0.05–10.00Hz, note (p. 86)	Modulation frequency of the tremolo effect
Tremolo Separation	0–127	Spread of the tremolo effect
Tremolo Phase	0–180deg	Spread of the tremolo effect
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

28 : SPACE-D

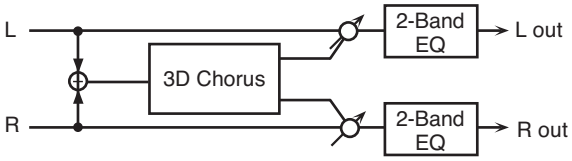
This is a multiple chorus that applies two-phase modulation in stereo. It gives no impression of modulation, but produces a transparent chorus effect.



Parameter	Value	Explanation
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

29 : 3D CHORUS

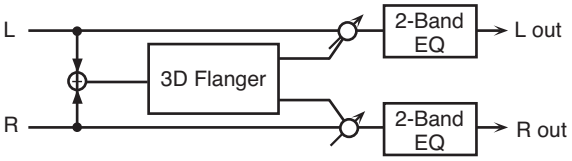
This applies a 3D effect to the chorus sound. The chorus sound will be positioned 90 degrees left and 90 degrees right.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Modulation depth of the chorus effect
Phase	0–180deg	Spatial spread of the chorus sound
Output Mode	The optimal 3D effect will be achieved.	
	SPEAKER	When using speakers
	PHONES	When using headphones
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

30 : 3D FLANGER

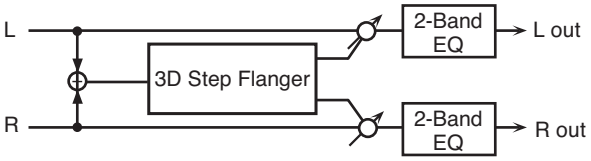
This applies a 3D effect to the flanger sound. The flanger sound will be positioned 90 degrees left and 90 degrees right.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the flanger sound
Feedback #	-98– +98%	Adjusts the proportion of the flanger sound that is fed back into the effect. (Negative values invert the phase.)
Output Mode	The optimal 3D effect will be achieved.	
	SPEAKER	When using speakers
	PHONES	When using headphones
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

31 : 3D STEP FLANGER

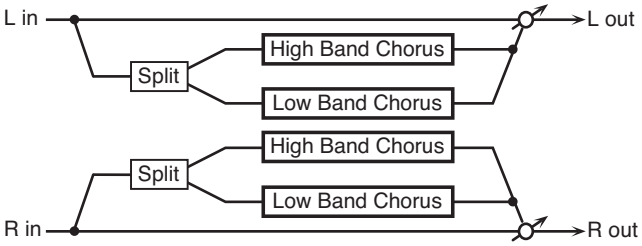
This applies a 3D effect to the step flanger sound. The flanger sound will be positioned 90 degrees left and 90 degrees right.



Parameter	Value	Explanation
Filter Type	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	200–8000Hz	Center frequency when using the filter to cut a specific frequency range
Pre Delay	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
Feedback #	-98– +98%	Adjusts the proportion of the flanger sound that is fed back into the effect. (Negative values invert the phase.)
Step Rate #	0.10–20.00Hz, note (p. 86)	Rate (period) of pitch change
Output Mode	The optimal 3D effect will be achieved.	
	SPEAKER	When using speakers
	PHONES	When using headphones
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

32 : 2 BAND CHORUS

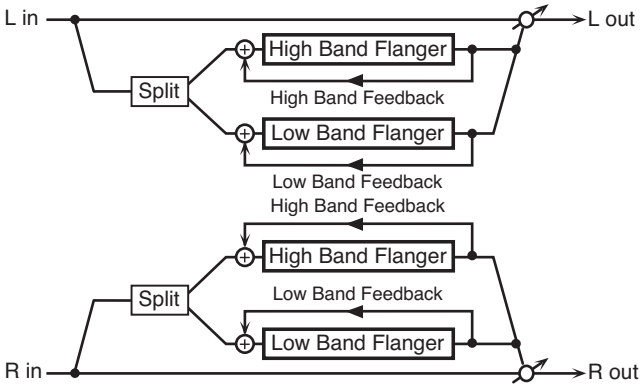
A chorus effect that lets you apply an effect independently to the low-frequency and high-frequency ranges.



Parameter	Value	Explanation
Split Freq	200–8000Hz	Frequency at which the low and high ranges will be divided
Low Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the low-range chorus sound is heard
Low Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the low-range chorus sound is modulated
Low Depth	0–127	Modulation depth for the low-range chorus sound
Low Phase	0–180deg	Spaciousness of the low-range chorus sound
High Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the high-range chorus sound is heard
High Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the low-range chorus sound is modulated
High Depth	0–127	Modulation depth for the high-range chorus sound
High Phase	0–180deg	Spaciousness of the high-range chorus sound
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

33 : 2 BAND FLANGER

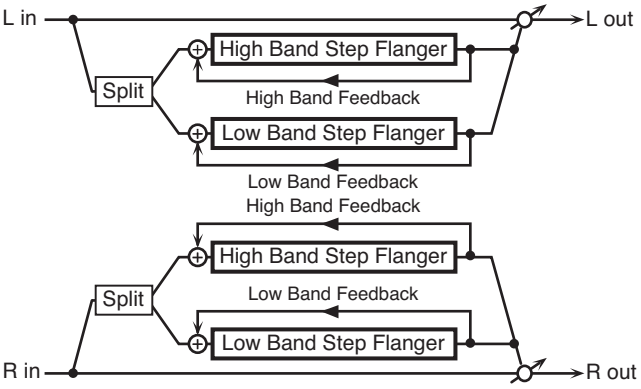
A flanger that lets you apply an effect independently to the low-frequency and high-frequency ranges.



Parameter	Value	Explanation
Split Freq	200–8000Hz	Frequency at which the low and high ranges will be divided
Low Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the low-range flanger sound is heard
Low Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the low-range flanger sound is modulated
Low Depth	0–127	Modulation depth for the low-range flanger sound
Low Phase	0–180deg	Spaciousness of the low-range flanger sound
Low Feedback #	-98– +98%	Proportion of the low-range flanger sound that is to be returned to the input (negative values invert the phase)
High Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the high-range flanger sound is heard
High Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the high-range flanger sound is modulated
High Depth	0–127	Modulation depth for the high-range flanger sound
High Phase	0–180deg	Spaciousness of the high-range flanger sound
High Feedback #	-98– +98%	Proportion of the high-range flanger sound that is to be returned to the input (negative values invert the phase)
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

34 : 2 BAND STEP FLANGER

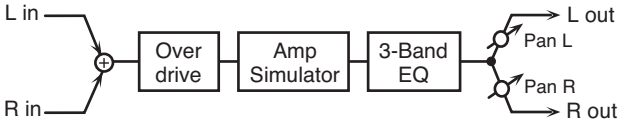
A step flanger that lets you apply an effect independently to the low-frequency and high-frequency ranges.



Parameter	Value	Explanation
Split Freq	200–8000Hz	Frequency at which the low and high ranges will be divided
Low Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the low-range flanger sound is heard
Low Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the low-range flanger sound is modulated
Low Depth	0–127	Modulation depth for the low-range flanger sound
Low Phase	0–180deg	Spaciousness of the low-range flanger sound
Low Feedback #	-98– +98%	Proportion of the low-range flanger sound that is to be returned to the input (negative values invert the phase)
Low Step Rate #	0.10–20.00Hz, note (p. 86)	Rate at which the steps will cycle for the low-range flanger sound
High Pre Delay	0.0–100msec	Delay time from when the original sound is heard to when the high-range flanger sound is heard
High Rate #	0.05–10.00Hz, note (p. 86)	Rate at which the high-range flanger sound is modulated
High Depth	0–127	Modulation depth for the high-range flanger sound
High Phase	0–180deg	Spaciousness of the high-range flanger sound
High Feedback #	-98– +98%	Proportion of the high-range flanger sound that is to be returned to the input (negative values invert the phase)
High Step Rate #	0.10–20.00Hz, note (p. 86)	Rate at which the steps will cycle for the high-range flanger sound
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

35 : OVERDRIVE

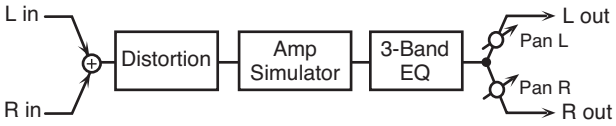
Creates a soft distortion similar to that produced by vacuum tube amplifiers.



Parameter	Value	Explanation
Drive #	0–127	Degree of distortion Also changes the volume.
Amp Type	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
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Pan #	L64–63R	Stereo location of the output sound
Level	0–127	Output Level

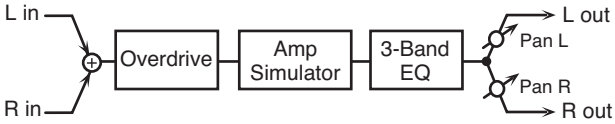
36 : DISTORTION

Produces a more intense distortion than Overdrive. The parameters are the same as for "35: OVERDRIVE."



37 : VS OVERDRIVE

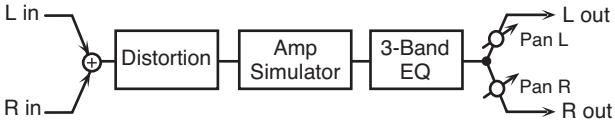
This is an overdrive that provides heavy distortion.



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	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
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Pan #	L64–63R	Stereo location of the output sound
Level	0–127	Output Level

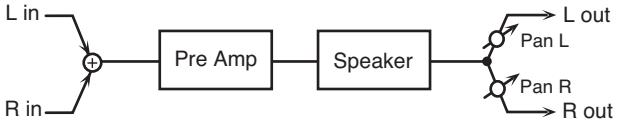
38 : VS DISTORTION

This is a distortion effect that provides heavy distortion. The parameters are the same as for "37: VS OVERDRIVE."



39 : 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	JC-120, CLEAN TWIN, MATCH DRIVE, BG LEAD, MS1959I, MS1959II, MS1959I+II, SLDN LEAD, METAL 5150, METAL LEAD, OD-1, OD-2 TURBO, DISTORTION, FUZZ	Type of guitar amp
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 Middle cannot be set if "MATCH DRIVE" is selected as the Pre Amp Type.
Pre Amp Middle		
Pre Amp Treble		
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," and "BG LEAD" Pre Amp Types.
Speaker Sw	OFF, ON	Determines whether the signal passes through the speaker (ON), or not (OFF).
Speaker Type	(See the table below.)	Type of speaker
Mic Setting	1, 2, 3	Adjusts the location of the microphone that's capturing the sound of the speaker. This can be adjusted in three steps, from 1 to 3, with the microphone becoming more distant as the value increases.
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

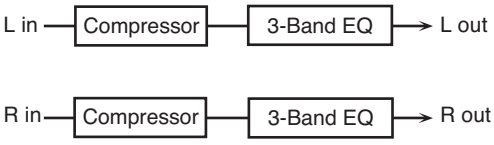
Specifications for each Speaker Type

The speaker column indicates the diameter of each speaker unit (in inches) and the number of units.

Type	Cabinet	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 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

40 : COMPRESSOR

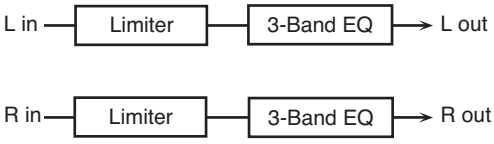
Flattens out high levels and boosts low levels, smoothing out fluctuations in volume.



Parameter	Value	Explanation
Attack #	0–127	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
Threshold #	0–127	Adjusts the volume at which compression begins
Post Gain	0– +18dB	Adjusts the output gain.
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

41 : LIMITER

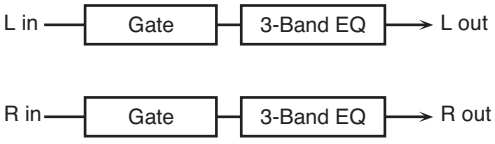
Compresses signals that exceed a specified volume level, preventing distortion from occurring.



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– +18dB	Adjusts the output gain.
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

42 : 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.

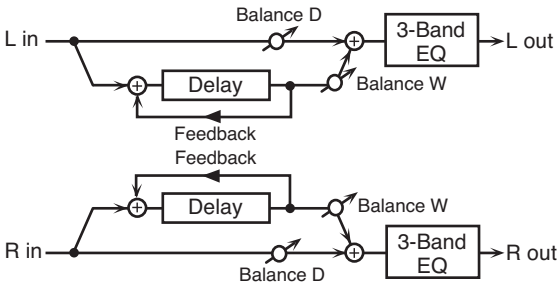


Parameter	Value	Explanation
Threshold #	0–127	Volume level at which the gate begins to close
Mode	Type of gate	
	GATE	The gate will close when the volume of the original sound decreases, cutting the original sound.
	DUCK	The gate will close when the volume of the original sound increases, cutting the 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)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

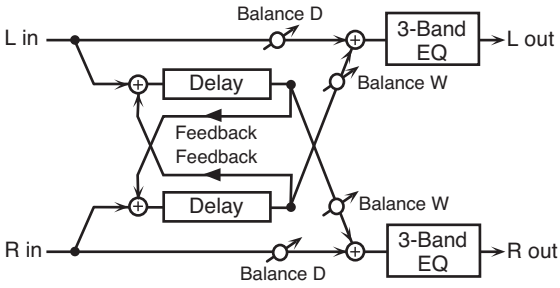
43 : DELAY

This is a stereo delay.

When Feedback Mode is NORMAL:



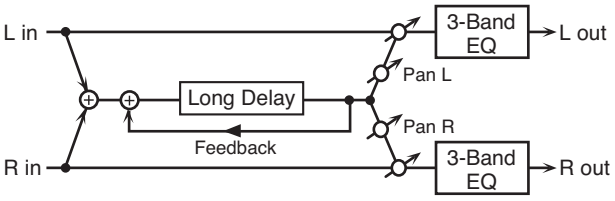
When Feedback Mode is CROSS:



Parameter	Value	Explanation
Delay Left	0–1300msec, note (p. 86)	Adjusts the time until the delay sound is heard.
Delay Right		
Phase Left	Phase of the left delay sound	
	NORMAL	Non-inverted
	INVERSE	Inverted
Phase Right	Phase of the right delay sound	
	NORMAL	Non-inverted
	INVERSE	Inverted
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 amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

44 : LONG DELAY

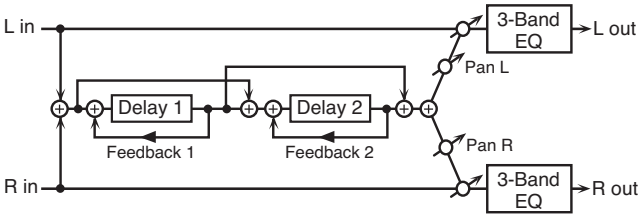
A delay that provides a long delay time.



Parameter	Value	Explanation
Delay Time	0–2600msec, note (p. 86)	Delay time from when the original sound is heard to when the delay sound is heard
Phase	NORMAL, INVERSE	Phase of the delay (NORMAL: non-inverted, INVERT: inverted)
Feedback #	-98– +98%	Proportion of the delay sound that is to be returned to the input (negative values invert the phase)
HF Damp	200–8000Hz, BYPASS	Frequency at which the high frequency content of the delayed sound will be cut (BYPASS: no cut)
Pan #	L64–63R	Panning of the delay sound
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

45 : SERIAL DELAY

This delay connects two delay units in series. Feedback can be applied independently to each delay unit, allowing you to produce complex delay sounds.

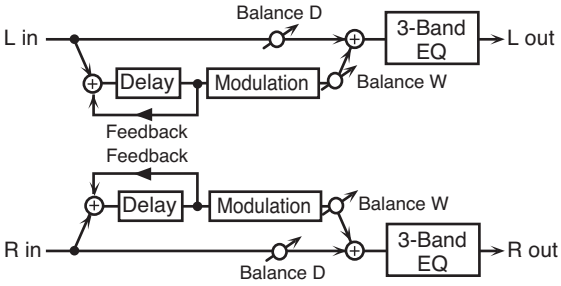


Parameter	Value	Explanation
Delay 1 Time	0–1300msec, note (p. 86)	Delay time from when sound is input to delay 1 until the delay sound is heard
Delay 1 Feedback #	-98– +98%	Proportion of the delay sound that is to be returned to the input of delay 1 (negative values invert the phase)
Delay 1 HF Damp	200–8000Hz, BYPASS	Frequency at which the high-frequency content of the delayed sound of delay 1 will be cut (BYPASS: no cut)
Delay 2 Time	0–1300msec, note (p. 86)	Delay time from when sound is input to delay 2 until the delay sound is heard
Delay 2 Feedback #	-98– +98%	Proportion of the delay sound that is to be returned to the input of delay 2 (negative values invert the phase)
Delay 2 HF Damp	200–8000Hz, BYPASS	Frequency at which the high-frequency content of the delayed sound of delay 2 will be cut (BYPASS: no cut)
Pan #	L64–63R	Panning of the delay sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

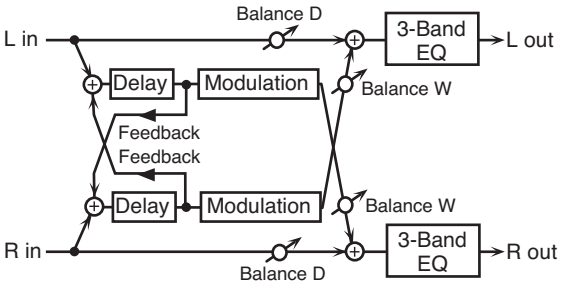
46 : MODULATION DELAY

Adds modulation to the delayed sound.

When Feedback Mode is NORMAL:



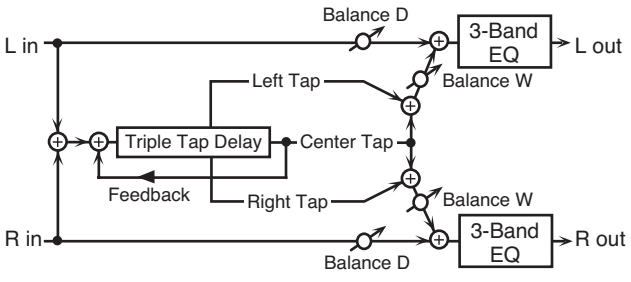
When Feedback Mode is CROSS:



Parameter	Value	Explanation
Delay Left	0–1300msec, note (p. 86)	Adjusts the time until the delay sound is heard.
Delay 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 amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
Depth	0–127	Depth of modulation
Phase	0–180deg	Spatial spread of the sound
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

47 : 3TAP PAN DELAY

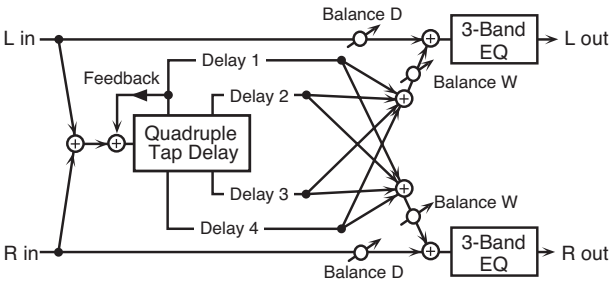
Produces three delay sounds; center, left and right.

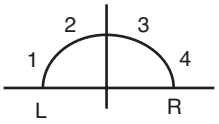


Parameter	Value	Explanation
Delay Left/Right/ Center	0–2600msec, note (p. 86)	Adjusts the time from the original sound until the left, right, and center delayed sounds are heard
Center Feedback #	-98– +98%	Adjusts the amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Left/Right/Center Level	0–127	Volume of each delay
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

48 : 4TAP PAN DELAY

This effect has four delays.



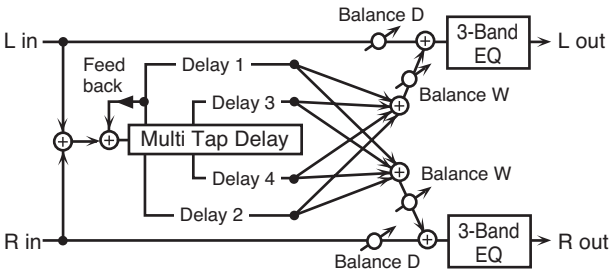


Stereo location of each delay

Parameter	Value	Explanation
Delay 1-4 Time	0–2600msec, note (p. 86)	Adjusts the time from the original sound until delay sounds 1–4 are heard
Delay 1 Feedback #	-98– +98%	Adjusts the amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Delay 1-4 Level	0–127	Volume of each delay
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

49 : MULTI TAP DELAY

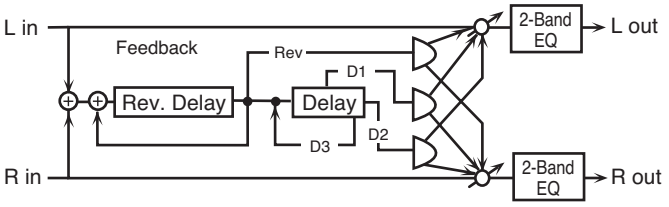
This effect provides four delays. Each of the Delay Time parameters can be set to a note length based on the selected tempo. You can also set the panning and level of each delay sound.



Parameter	Value	Explanation
Delay 1-4 Time	0–2600msec, note (p. 86)	Adjusts the time until Delays 1–4 are heard.
Delay 1 Feedback #	-98– +98%	Adjusts the amount of the delay sound that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Delay 1-4 Pan	L64–63R	Stereo location of Delays 1–4
Delay 1-4 Level	0–127	Output level of Delays 1–4
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

50 : REVERSE DELAY

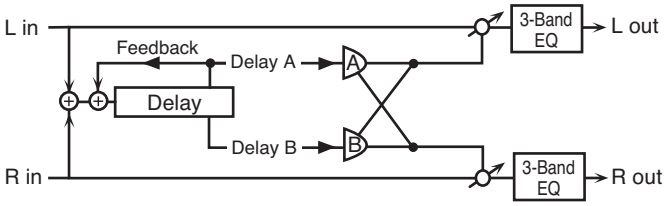
This is a reverse delay that adds a reversed and delayed sound to the input sound. A tap delay is connected immediately after the reverse delay.



Parameter	Value	Explanation
Threshold	0–127	Volume at which the reverse delay will begin to be applied
Rev Delay Time	0–1300msec, note (p. 86)	Delay time from when sound is input into the reverse delay until the delay sound is heard
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	200–8000Hz, BYPASS	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 - 3 Time	0–1300msec, note (p. 86)	Delay time from when sound is input into the tap delay until the delay sound is heard
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	200–8000Hz, BYPASS	Frequency at which the hi-frequency content of the tap delay sound will be cut (BYPASS: no cut)
Delay 1 Pan, Delay 2 Pan	L64–63R	Panning of the tap delay sounds
Delay 1 Level, Delay 2 Level	0–127	Volume of the tap delay sounds
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

51 : SHUFFLE DELAY

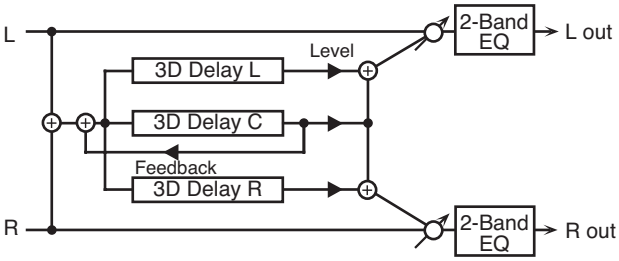
Adds a shuffle to the delay sound, giving the sound a bouncy delay effect with a swing feel.



Parameter	Value	Explanation
Delay Time #	0–2600msec, note (p. 86)	Adjusts the time until the delay sound is heard.
Shuffle Rate #	0–100	Adjusts the ratio (as a percentage) of the time that elapses before Delay B sounds relative to the time that elapses before the Delay A sounds. When set to 100, the delay times are the same.
Acceleration	0–15	Adjusts the speed which the Delay Time changes from the current setting to its specified new setting.
Feedback #	-98– +98%	Adjusts the amount of the delay that's feedback into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Pan A/B	L64–63R	Stereo location of Delay A/B
Level A/B	0–127	Volume of delay A/B
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

52 : 3D DELAY

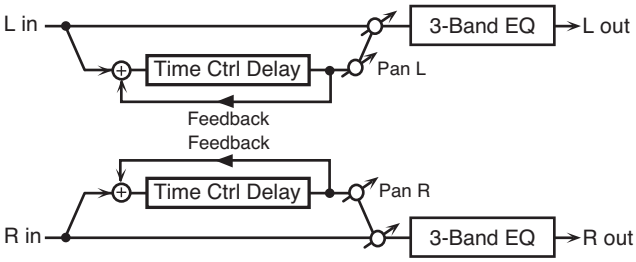
This applies a 3D effect to the delay sound. The delay sound will be positioned 90 degrees left and 90 degrees right.



Parameter	Value	Explanation
Delay Left	0–2600msec, note (p. 86)	Adjusts the delay time from the direct sound until the delay sound is heard.
Delay Right		
Delay Center		
Center Feedback #	-98– +98%	Adjusts the proportion of the delay sound that is fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect will be cut. (BYPASS: no cut)
Left Level	0–127	Output level of the center/left/right delay sound
Right Level		
Center Level		
Output Mode	The optimal 3D effect will be achieved.	
	SPEAKER	When using speakers
	PHONES	When using headphones
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

53 : TIME CTRL DELAY

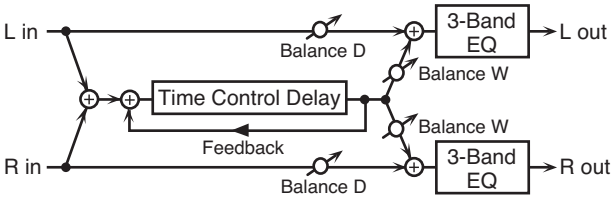
A stereo delay in which the delay time can be varied smoothly.



Parameter	Value	Explanation
Delay Time #	0–1300msec, note (p. 86)	Adjusts the time until the delay is heard.
Acceleration	0–15	Adjusts the speed which the Delay Time changes from the current setting to a specified new setting. The rate of change for the Delay Time directly affects the rate of pitch change.
Feedback #	-98– +98%	Adjusts the amount of the delay that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

54 : LONG TIME CTRL DELAY

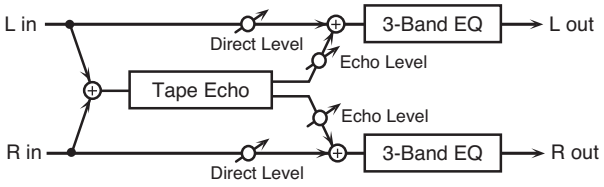
A delay in which the delay time can be varied smoothly, and allowing an extended delay to be produced.



Parameter	Value	Explanation
Delay Time #	0–2600msec, note (p. 86)	Adjusts the time until the delay is heard.
Acceleration	0–15	Adjusts the speed which the Delay Time changes from the current setting to a specified new setting. The rate of change for the Delay Time directly affects the rate of pitch change.
Feedback #	-98– +98%	Adjusts the amount of the delay that's fed back into the effect. (Negative values invert the phase.)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect is filtered out. (BYPASS: no cut)
Pan #	L64–63R	Stereo location of the delay
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

55 : TAPE ECHO

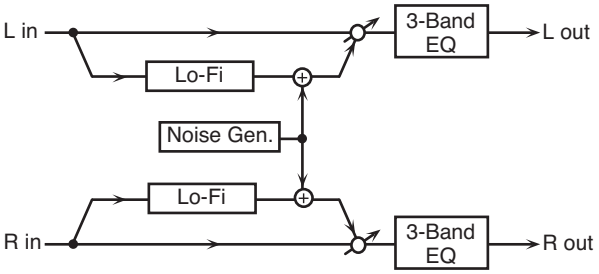
A virtual tape echo that produces a realistic tape delay sound. This simulates the tape echo section of a Roland RE-201 Space Echo.



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– +15dB	Boost/cut for the lower range of the echo sound
Treble	-15– +15dB	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		
Head L Pan		
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.
Wow/Flutter Rate	0–127	Speed of wow/flutter (complex variation in pitch caused by tape wear and rotational irregularity)
Wow/Flutter 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
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

56 : LOFI NOISE

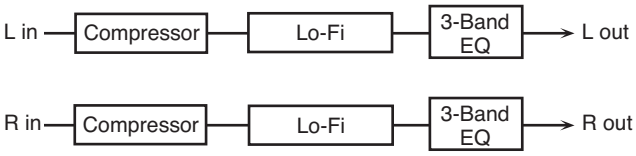
In addition to a lo-fi effect, this adds various types of noise such as white noise and disc noise.



Parameter	Value	Explanation
LoFi Type	1–9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Filter Type	Type of filter that follows the LoFi effect	
	OFF	No filter is used
	LPF	Cuts the frequency range above the Cutoff.
	HPF	Cuts the frequency range below the Cutoff.
Post Filter Cutoff	200–8000Hz	Center frequency of the filter
W/P Noise Type	WHITE, PINK	Switch between white noise and pink noise.
W/P Noise LPF	200–8000Hz, BYPASS	Center frequency of the low pass filter applied to the white/pink noise (BYPASS: no cut)
W/P Noise Level #	0–127	Volume of the white/pink noise
Disc Noise Type	LP, EP, SP, RND	Type of record noise The frequency at which the noise is heard depends on the selected type.
Disc Noise LPF	200–8000Hz, BYPASS	Adjusts the cutoff frequency of the low pass filter applied to the record noise. (BYPASS: no cut)
Disc Noise Level #	0–127	Volume of the record noise
Hum Noise Type	50Hz, 60Hz	Frequency of the hum noise
Hum Noise LPF	200–8000Hz, BYPASS	Center frequency of the low pass filter applied to the hum noise (BYPASS: no cut)
Hum Noise Level #	0–127	Volume of the hum noise
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

57 : LOFI COMPRESS

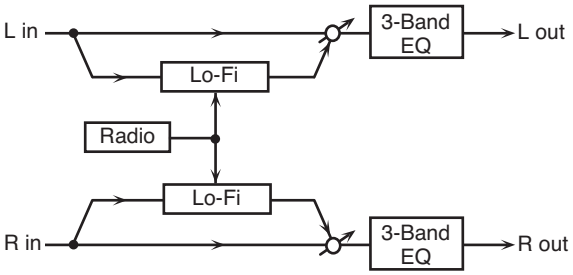
This is an effect that intentionally degrades the sound quality for creative purposes.



Parameter	Value	Explanation
Pre Filter Type	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	1–9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Filter Type	Type of filter that follows the LoFi effect	
	OFF	No filter is used
	LPF	Cuts the frequency range above the Cutoff
	HPF	Cuts the frequency range below the Cutoff
Post Filter Cutoff	200–8000Hz	Basic frequency of the Post Filter
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level #	0–127	Output Level

58 : LOFI RADIO

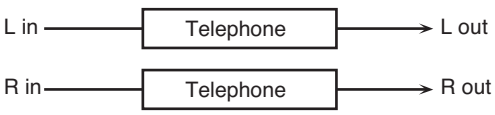
In addition to a Lo-Fi effect, this effect also generates radio noise.



Parameter	Value	Explanation
LoFi Type	1–9	Degrades the sound quality. The sound quality grows poorer as this value is increased.
Post Filter Type	Type of filter that follows the LoFi effect	
	OFF	No filter is used
	LPF	Cuts the frequency range above the Cutoff.
	HPF	Cuts the frequency range below the Cutoff.
Post Filter Cutoff	200–8000Hz	Basic frequency of the Post Filter
Radio Detune #	0–127	Simulates the tuning noise of a radio. As this value is raised, the tuning drifts further.
Radio Noise Level #	0–127	Volume of the radio noise
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

59 : TELEPHONE

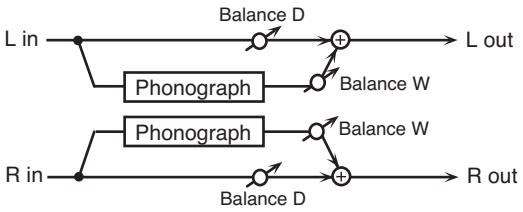
This effect produces a muffled sound, like that heard through a telephone.



Parameter	Value	Explanation
Voice Quality #	0–15	Audio quality of the telephone voice
Treble	-15– +15dB	Bandwidth of the telephone voice
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

60 : PHONOGRAPH

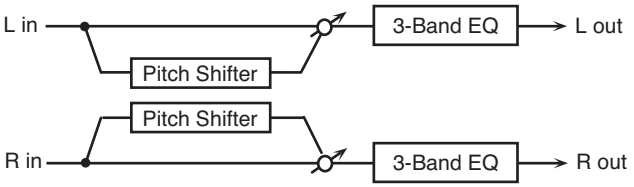
Simulates a sound recorded on an analog record and played back on a record player. This effect also simulates the various types of noise that are typical of a record, and even the rotational irregularities of an old turntable.



Parameter	Value	Explanation
Signal Distortion	0–127	Depth of distortion
Frequency Range	0–127	Frequency response of the playback system Decreasing this value will produce the impression of an old system with a poor frequency response.
Disc Type	LP, EP, SP	Rotational speed of the turntable This will affect the frequency of the scratch noise.
Scratch Noise Level	0–127	Amount of noise due to scratches on the record
Dust Noise Level	0–127	Volume of noise due to dust on the record
Hiss Noise Level	0–127	Volume of continuous "hiss"
Total Noise Level #	0–127	Volume of overall noise
Wow	0–127	Depth of long-cycle rotational irregularity
Flutter	0–127	Depth of short-cycle rotational irregularity
Random	0–127	Depth of indefinite-cycle rotational irregularity
Total Wow/Flutter #	0–127	Depth of overall rotational irregularity
Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the effect sound (W)
Level	0–127	Output Level

61 : PITCH SHIFTER

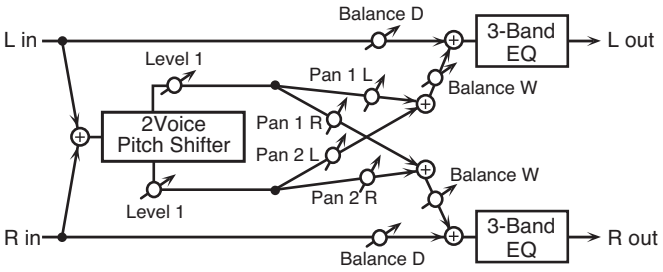
A stereo pitch shifter.



Parameter	Value	Explanation
Coarse #1	-24– +12semi	Adjusts the pitch of the pitch shifted sound in semitone steps.
Fine #1	-100– +100cent	Adjusts the pitch of the pitch shifted sound in 2-cent steps.
Delay Time	0–1300msec, note (p. 86)	Adjusts the delay time from the direct sound until the pitch shifted sound is heard.
Feedback #	-98– +98%	Adjusts the proportion of the pitch shifted sound that is fed back into the effect. (Negative values invert the phase.)
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

62 : 2VOICE PITCH SHIFTER

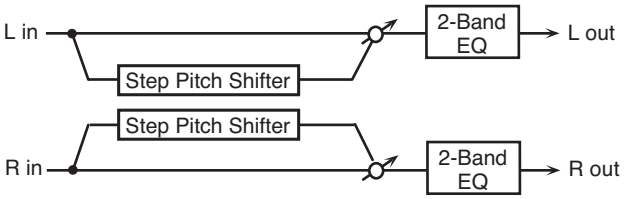
Shifts the pitch of the original sound. This 2-voice pitch shifter has two pitch shifters, and can add two pitch shifted sounds to the original sound.



Parameter	Value	Explanation
Pitch1 Coarse #1	-24– +12semi	Adjusts the pitch of Pitch Shift 1 in semitone steps.
Pitch1 Fine #1	-100– +100cent	Adjusts the pitch of Pitch Shift Pitch 1 in 2-cent steps.
Pitch1 Delay	0–1300msec, note (p. 86)	Adjusts the delay time from the direct sound until the Pitch Shift 1 sound is heard.
Pitch1 Feedback #	-98– +98%	Adjusts the proportion of the pitch shifted sound that is fed back into the effect. (Negative values invert the phase.)
Pitch1 Pan #	L64–63R	Stereo location of the Pitch Shift 1 sound
Pitch1 Level	0–127	Volume of the Pitch Shift1 sound
Pitch2 Coarse #2	-24– +12semi	Settings of the Pitch Shift 2 sound. The parameters are the same as for the Pitch Shift 1 sound.
Pitch2 Fine #2	-100– +100cent	
Pitch2 Delay	0–1300msec, note (p. 86)	
Pitch2 Feedback #	-98– +98%	
Pitch2 Pan #	L64–63R	
Pitch2 Level	0–127	
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	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

63 : STEP PITCH SHIFTER

A pitch shifter in which the amount of pitch shift is varied by a 16-step sequence.



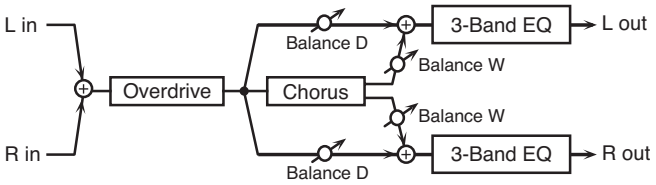
Parameter	Value	Explanation
Step 01-16	-24– +12semi	Amount of pitch shift at each step (semitone units)
Rate #	0.05–10.0Hz, note (p. 86)	Rate at which the 16-step sequence will cycle
Attack #	0–127	Speed at which the amount of pitch shift changes between steps
Gate Time #	0–127	Duration of the pitch shifted sound at each step
Fine	-100– +100cent	Pitch shift adjustment for all steps (2-cent units)
Delay Time	0–1300msec, note (p. 86)	Delay time from the original sound until the pitch-shifted sound is heard
Feedback #	-98– +98%	Proportion of the pitch-shifted sound that is to be returned to the input (negative values invert the phase)
Low Gain	-15– +15dB	Gain of the low range
High Gain	-15– +15dB	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

MEMO

You can use MFX CONTROL to make the step sequence play again from the beginning (p. 43).

64 : OVERDRIVE → CHORUS

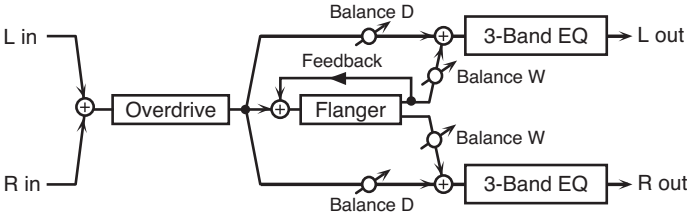
This effect connects an overdrive and a chorus in series.



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	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate #	0.05–10.00Hz, note (p. 86)	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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

65 : OVERDRIVE → FLANGER

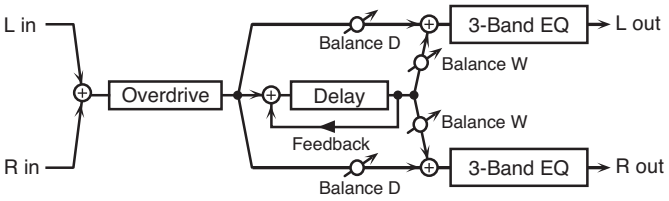
This effect connects an overdrive and a flanger in series.



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	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Flanger Rate #	0.05–10.00Hz, note (p. 86)	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 values 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

66 : OVERDRIVE → DELAY

This effect connects an overdrive and a delay in series.



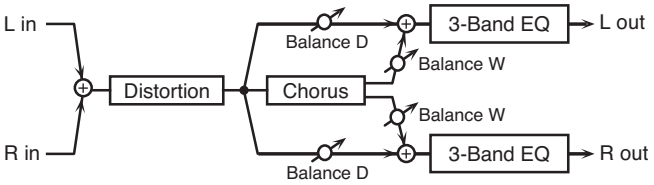
Parameter	Value	Explanation
Overdrive Drive #	0–127	Degree of distortion Also changes the volume.
Overdrive Pan #	L64–63R	Stereo location of the overdrive sound
Delay Time	0–2600msec, note (p. 86)	Adjusts the delay time from the direct sound until the delay sound is heard.
Delay Feedback #	-98– +98%	Adjusts the proportion of the delay sound that is fed back into the effect. (Negative values invert the phase.)
Delay HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

67 : DISTORTION → CHORUS

The parameters are essentially the same as in "64: OVERDRIVE → CHORUS," with the exception of the following two.

Overdrive Drive → Distortion Drive,

Overdrive Pan → Distortion Pan

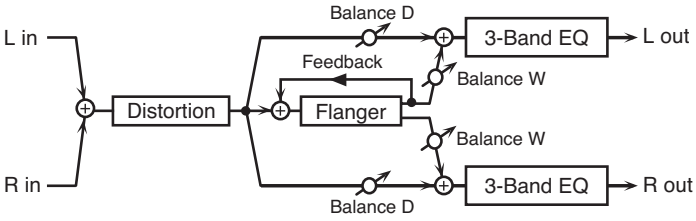


68 : DISTORTION → FLANGER

The parameters are essentially the same as in "65: OVERDRIVE → FLANGER," with the exception of the following two.

Overdrive Drive → Distortion Drive,

Overdrive Pan → Distortion Pan

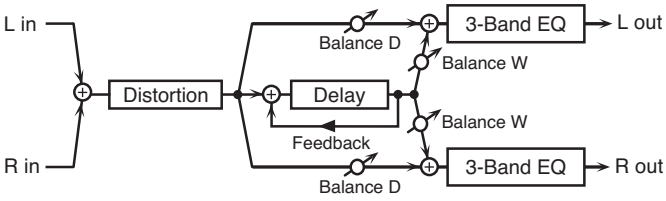


69 : DISTORTION → DELAY

The parameters are essentially the same as in "66: OVERDRIVE → DELAY," with the exception of the following two.

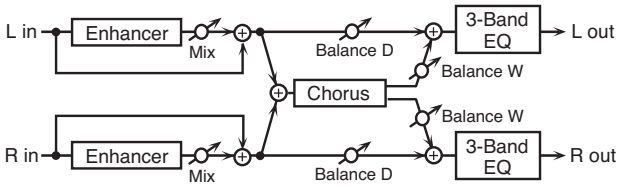
Overdrive Drive → Distortion Drive,

Overdrive Pan → Distortion Pan



70 : ENHANCER → CHORUS

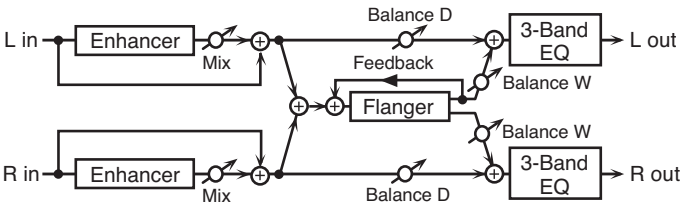
This effect connects an enhancer and a chorus in series.



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	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate #	0.05–10.00Hz, note (p. 86)	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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

71 : ENHANCER → FLANGER

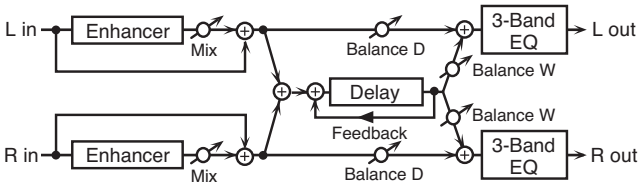
This effect connects an enhancer and a flanger in series.



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	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Flanger Rate #	0.05–10.00Hz, note (p. 86)	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 values 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

72 : ENHANCER → DELAY

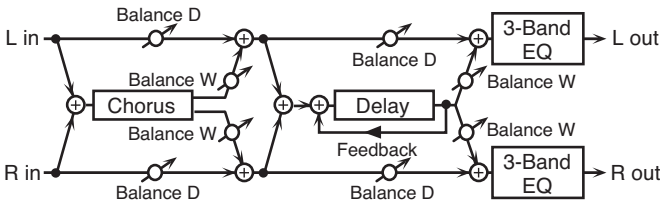
This effect connects an enhancer and a delay in series.



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	0–2600msec, note (p. 86)	Adjusts the delay time from the direct sound until the delay sound is heard.
Delay Feedback #	-98– +98%	Adjusts the proportion of the delay sound that is fed back into the effect. (Negative values invert the phase.)
Delay HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

73 : CHORUS → DELAY

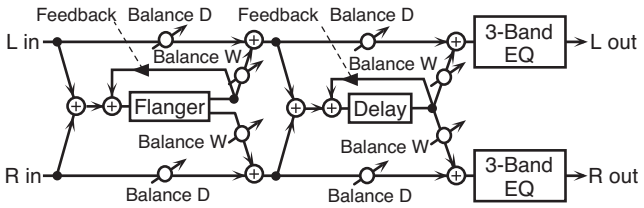
This effect connects a chorus and a delay in series.



Parameter	Value	Explanation
Chorus Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate #	0.05–10.00Hz, note (p. 86)	Frequency of modulation
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	0–2600msec, note (p. 86)	Adjusts the delay time from the direct sound until the delay sound is heard.
Delay Feedback #	-98– +98%	Adjusts the proportion of the delay sound that is fed back into the effect. (Negative values invert the phase.)
Delay HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

74 : FLANGER → DELAY

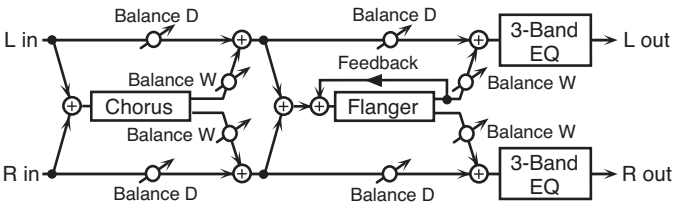
This effect connects a flanger and a delay in series.



Parameter	Value	Explanation
Flanger Pre Delay	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Flanger Rate #	0.05–10.00Hz, note (p. 86)	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 values invert the phase.)
Flanger Balance #	D100:0W–D0:100W	Volume balance between the direct sound (D) and the flanger sound (W)
Delay Time	0–2600msec, note (p. 86)	Adjusts the delay time from the direct sound until the delay sound is heard.
Delay Feedback #	-98– +98%	Adjusts the proportion of the delay sound that is fed back into the effect. (Negative values invert the phase.)
Delay HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which sound fed back to the effect 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

75 : CHORUS → FLANGER

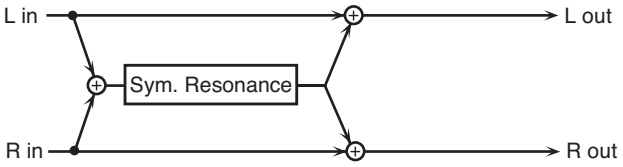
This effect connects a chorus and a flanger in series.



Parameter	Value	Explanation
Chorus Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the chorus sound is heard.
Chorus Rate #	0.05–10.00Hz, note (p. 86)	Modulation frequency of the chorus effect
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	0.0–100msec	Adjusts the delay time from when the direct sound begins until the flanger sound is heard.
Flanger Rate #	0.05–10.00Hz, note (p. 86)	Modulation frequency of the flanger effect
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 values 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).
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Level	0–127	Output Level

76 : SYMPATHETIC RESONANCE

On an acoustic piano, holding down the damper pedal allows other strings to resonate in sympathy with the notes you play, creating rich and spacious resonances. This effect simulates these sympathetic resonances.



Parameter	Value	Explanation
Damper #	0–127	Depth to which the damper pedal is pressed (controls the resonant sound)
Depth #	0–127	Depth of the effect
Octave	-3– +3 oct	Octave shift amount for the sympathetic resonance
Detune	-50– +50 cent	Pitch shift amount for the sympathetic resonance
Phase	NORMAL, INVERSE	Phase at which the sympathetic resonance is generated
Time	10–5000 ms	Time over which the sympathetic resonance will decay (lowering the Octave setting will make this more noticeable)
Low Damp Freq	20–1000Hz	Frequency at which the low-frequency content of the resonant sound will be cut
High Damp Freq	1000–10000Hz	Frequency at which the high-frequency content of the resonant sound will be cut
Level	0–127	Output Level

Reverb Parameters

These settings allow you to select the desired type of reverb, and its characteristics.

Parameter	Value	Explanation
Reverb Type	Type of reverb	
	00 : OFF	Reverb will not be used
	01 : Reverb	Basic reverb
	02 : SRV Room	Reverb that simulates the reverberation of a room
	03 : SRV Hall	Reverb that simulates the reverberation of a hall
	04 : SRV Plate	Simulation of a plate echo (a reverb device that uses a metal plate)
	05 : GM2 Reverb	GM2 reverb
Reverb Level	0–127	Volume of the reverb sound
01 : REVERB		
Type	Type of reverb/delay	
	ROOM1	Short reverb with high density
	ROOM2	Short reverb with low density
	STAGE1	Reverb with greater late reverberation
	STAGE2	Reverb with strong early reflections
	HALL1	Very clear-sounding reverb
	HALL2	Rich reverb
	DELAY	Conventional delay effect
	PAN-DELAY	Delay effect with echoes that pan left and right
Time	0–127	Time length of reverberation (Type: ROOM1–HALL2) Delay time (Type: DELAY, PAN-DELAY)
HF Damp	200–8000Hz, BYPASS	Adjusts the frequency above which the high-frequency content of the reverb sound will be cut, or "damped." (BYPASS: no cut)
Delay Feedback	0–127	Adjusts the amount of delay feedback when the Type setting is DELAY or PAN-DELAY. Amount of delay sound returned to the input (this setting is valid only if Type is DELAY or PAN-DELAY)
02 : SRV ROOM 03 : SRV HALL 04 : SRV PLATE		
COMP Sw	OFF, ON	Turns the COMP switch on/off.
Attack	0–127	Sets the time from when the input exceeds the Threshold until the volume starts being compressed
Threshold	0–127	Adjusts the volume at which compression begins
Post Gain	0– +18dB	Adjusts the output gain.
EQ Sw	OFF, ON	Turns the EQ switch on/off.
Low Freq	200, 400Hz	Frequency of the low range
Low Gain	-15– +15dB	Gain of the low range
Mid Freq	200–8000Hz	Frequency of the middle range
Mid Gain	-15– +15dB	Gain of the middle range
Mid Q	0.5, 1.0, 2.0, 4.0, 8.0	Width of the middle range Set a higher value for Q to narrow the range to be affected.
High Freq	2000, 4000, 8000Hz	Frequency of the high range
High Gain	-15– +15dB	Gain of the high range
Pre Delay	0.0–100msec	Adjusts the delay time from the direct sound until the reverb sound is heard.
Time	0–127	Time length of reverberation
Size	1–8	Size of the simulated room or hall
Density	0–127	Density of reverb
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 Freq	50–4000Hz	Adjusts the frequency below which the low-frequency content of the reverb sound will be reduced, or "damped."
LF Damp Gain	-36–0dB	Adjusts the amount of damping applied to the frequency range selected with LF Damp. With a setting of "0," there will be no reduction of the reverb's low-frequency content.
HF Damp Freq	4000–12500Hz	Adjusts the frequency above which the high-frequency content of the reverb sound will be reduced, or "damped."
HF Damp Gain	-36–0dB	Adjusts the amount of damping applied to the frequency range selected with HF Damp. With a setting of "0," there will be no reduction of the reverb's high-frequency content.
High Cut	160–12500Hz, BYPASS	Adjusts the frequency above which the high-frequency content of the reverb will be reduced. (BYPASS: no cut)
05 : GM2 REVERB		
Character	Type of reverb	
	0–5	Reverb
	6, 7	Delay
Pre-LPF	0–7	Cuts the high frequency range of the sound coming into the reverb. Higher values will cut more of the high frequencies.
Level	0–127	Output level of reverberation
Time	0–127	Time length of reverberation
Delay Feedback	0–127	Adjusts the amount of the delay sound that is fed back into the effect when the Character setting is 6 or 7.

Control Change Assign List

The sound of the SuperNATURAL acoustic tone can be controlled by receiving a specified control change (CC).

The parameters that are controlled by CC16–CC19 are the same as the parameters listed in "Live Set Tone Modify Screen (SuperNATURAL Acoustic Tones)" (P. 25) (except for *4–*9).

CC80–CC83 are performance variation sounds (except for *10).

SuperNATURAL Acoustic Tone		CC16	CC17	CC18	CC19	CC80	CC81	CC82	CC83
0001	Concert Grand	-	-	-	-	-	-	-	-
0002	Grand Piano1	-	-	-	-	-	-	-	-
0003	Grand Piano2	-	-	-	-	-	-	-	-
0004	Grand Piano3	-	-	-	-	-	-	-	-
0005	Mellow Piano	-	-	-	-	-	-	-	-
0006	Bright Piano	-	-	-	-	-	-	-	-
0007	Upright Piano	-	-	-	-	-	-	-	-
0008	Concert Mono	-	-	-	-	-	-	-	-
0009	Honky-tonk	-	-	-	-	-	-	-	-
0010	Pure Vintage EP1	Key Off Noise	-	-	-	-	-	-	-
0011	Pure Vintage EP2	Key Off Noise	-	-	-	-	-	-	-
0012	Pure Wurly	-	-	-	-	-	-	-	-
0013	Pure Vintage EP3	Key Off Noise	-	-	-	-	-	-	-
0014	Tined EP1	Key Off Noise	-	-	-	-	-	-	-
0015	Tined EP2	Key Off Noise	-	-	-	-	-	-	-
0016	Old Hammer EP	Key Off Noise	-	-	-	-	-	-	-
0017	Dyno Piano	Key Off Noise	-	-	-	-	-	-	-
0018	Clav CB Flat	Key Off Noise	-	-	-	-	-	-	-
0019	Clav CA Flat	Key Off Noise	-	-	-	-	-	-	-
0020	Clav CB Medium	Key Off Noise	-	-	-	-	-	-	-
0021	Clav CA Medium	Key Off Noise	-	-	-	-	-	-	-
0022	Clav CB Brillia	Key Off Noise	-	-	-	-	-	-	-
0023	Clav CA Brillia	Key Off Noise	-	-	-	-	-	-	-
0024	Clav CB Combo	Key Off Noise	-	-	-	-	-	-	-
0025	Clav CA Combo	Key Off Noise	-	-	-	-	-	-	-
0026	Vibraphone	Mallet Hardness	Roll Speed	Mute (*4)	Bend Mode (*9)	Dead Stroke	Tremolo Sw	-	-
0027	Marimba	Mallet Hardness	Roll Speed	Mute (*4)	Bend Mode (*9)	Dead Stroke		-	-
0028	TW Organ	-	-	-	-	-	-	-	
0029	French Accordion	Noise Level	-	-	Bend Mode (*6)	-	-	-	-
0030	ItalianAccordion	Noise Level	-	-	Bend Mode (*6)	-	-	-	-
0031	Harmonica	Noise Level	-	Growl Sens	Bend Mode (*7)	-	-	-	-
0032	Bandoneon	Noise Level	-	-	Bend Mode (*6)	-	-	-	-
0033	Nylon Guitar	Noise Level	Strum Speed	-	Strum Mode	Mute	Harmonics	-	-
0034	Flamenco Guitar	Noise Level	Strum Speed	-	Strum Mode	Rasgueado	Harmonics	-	-
0035	SteelStr Guitar	Noise Level	Strum Speed	-	Strum Mode	Mute	Harmonics	-	-
0036	Acoustic Bass	Noise Level	-	-	-	Staccato	Harmonics	-	-
0037	Fingered Bass	Noise Level	-	-	-	Slap	Harmonics	-	-
0038	Fingered Bass 2	Noise Level	-	-	-	Slap	Harmonics	-	-
0039	Picked Bass	Noise Level	-	-	-	Bridge Mute	Harmonics	-	-
0040	Picked Bass 2	Noise Level	-	-	-	Bridge Mute	Harmonics	-	-
0041	Fretless Bass	Noise Level	-	-	-	Staccato	Harmonics	-	-
0042	Violin	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0043	Violin 2	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0044	Viola	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0045	Cello	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0046	Cello 2	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0047	Contrabass	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0048	Harp	-	-	Mute (*5)	Glissando Mode	Nail	-	-	-

SuperNATURAL Acoustic Tone		CC65	CC76	CC01 (System Control 1 Source) *1	AFTERTOUCH (System Control 2 Source) *2
0001	Concert Grand	Portamento	-	Vibrato	-
0002	Grand Piano1	Portamento	-	Vibrato	-
0003	Grand Piano2	Portamento	-	Vibrato	-
0004	Grand Piano3	Portamento	-	Vibrato	-
0005	Mellow Piano	Portamento	-	Vibrato	-
0006	Bright Piano	Portamento	-	Vibrato	-
0007	Upright Piano	Portamento	-	Vibrato	-
0008	Concert Mono	Portamento	-	Vibrato	-
0009	Honky-tonk	Portamento	-	Vibrato	-
0010	Pure Vintage EP1	Portamento	-	Vibrato	-
0011	Pure Vintage EP2	Portamento	-	Vibrato	-
0012	Pure Wurly	Portamento	-	Vibrato	-
0013	Pure Vintage EP3	Portamento	-	Vibrato	-
0014	Tined EP1	Portamento	-	Vibrato	-
0015	Tined EP2	Portamento	-	Vibrato	-
0016	Old Hammer EP	Portamento	-	Vibrato	-
0017	Dyno Piano	Portamento	-	Vibrato	-
0018	Clav CB Flat	Portamento	-	Vibrato	-
0019	Clav CA Flat	Portamento	-	Vibrato	-
0020	Clav CB Medium	Portamento	-	Vibrato	-
0021	Clav CA Medium	Portamento	-	Vibrato	-
0022	Clav CB Brillia	Portamento	-	Vibrato	-
0023	Clav CA Brillia	Portamento	-	Vibrato	-
0024	Clav CB Combo	Portamento	-	Vibrato	-
0025	Clav CA Combo	Portamento	-	Vibrato	-
0026	Vibraphone	Portamento	Tremolo Speed	Roll Sw+Dynamics (*3)	-
0027	Marimba	Portamento	-	Roll Sw+Dynamics (*3)	-
0028	TW Organ	-	-	-	-
0029	French Accordion	Portamento	-	Dynamics	-
0030	ItalianAccordion	Portamento	-	Dynamics	-
0031	Harmonica	Portamento	-	Dynamics	Vibrato
0032	Bandoneon	Portamento	-	Dynamics	-
0033	Nylon Guitar	Portamento	-	Vibrato	Vibrato
0034	Flamenco Guitar	Portamento	-	Vibrato	Vibrato
0035	SteelStr Guitar	Portamento	-	Vibrato	Vibrato
0036	Acoustic Bass	Portamento	-	Vibrato	Vibrato
0037	Fingered Bass	Portamento	-	Vibrato	Vibrato
0038	Fingered Bass 2	Portamento	-	Vibrato	Vibrato
0039	Picked Bass	Portamento	-	Vibrato	Vibrato
0040	Picked Bass 2	Portamento	-	Vibrato	Vibrato
0041	Fretless Bass	Portamento	-	Vibrato	Vibrato
0042	Violin	Portamento	-	Dynamics+Vibrato	Vibrato
0043	Violin 2	Portamento	-	Dynamics+Vibrato	Vibrato
0044	Viola	Portamento	-	Dynamics+Vibrato	Vibrato
0045	Cello	Portamento	-	Dynamics+Vibrato	Vibrato
0046	Cello 2	Portamento	-	Dynamics+Vibrato	Vibrato
0047	Contrabass	Portamento	-	Dynamics+Vibrato	Vibrato
0048	Harp	Portamento	-	Vibrato	Vibrato

SuperNATURAL Acoustic Tone		CC16	CC17	CC18	CC19	CC80	CC81	CC82	CC83
0049	Timpani	-	Roll Speed	Mute (*4)	-	Flam	Accent Roll	-	-
0050	Strings	-	-	-	-	Staccato	Pizzicato	Tremolo	Fall
0051	Trumpet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0052	Flugel Horn	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0053	Trombone	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0054	Trombone 2	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0055	Bass Trombone	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0056	Mute Trumpet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0057	French Horn	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0058	Soprano Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0059	Alto Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0060	Tenor Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0061	Baritone Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0062	Oboe	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0063	English Horn	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0064	Bassoon	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0065	Clarinet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0066	Bass Clarinet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0067	Piccolo	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0068	Flute	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0069	Flute2	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0070	Pan Flute	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Flutter	-	-
0071	Shakuhachi	Noise Level	-	Growl Sens	-	Staccato	Ornament	-	-
0072	Ryuteki	Noise Level	-	Growl Sens	-	Staccato	Ornament	-	-
0073	Sitar	Resonance Level	-	-	-	Tambura (*10)	-	-	-
0074	Uilleann Pipes	-	-	-	-	Drone (*10)	Ornament	-	-
0075	Erhu	Noise Level	-	-	-	Staccato	Ornament	-	-
0076	Sarangi	Resonance Level	-	-	-	Tambura (*10)	-	-	-
0077	Steel Drums	Resonance Level	Roll Speed	Mute (*4)	Bend Mode (*9)	Mute	-	-	-
0078	APS Vibraphone	Mallet Hardness	Roll Speed	Mute (*4)	Bend Mode (*9)	Dead Stroke	Tremolo Sw	-	-
0079	APS Marimba	Mallet Hardness	Roll Speed	Mute (*4)	Bend Mode (*9)	Dead Stroke		-	-
0080	APS Accordion	Noise Level	-	-	Bend Mode (*6)	-	-	-	-
0081	APS Harmonica	Noise Level	-	Growl Sens	Bend Mode (*7)	-	-	-	-
0082	APS Bandoneon	Noise Level	-	-	Bend Mode (*6)	-	-	-	-
0083	APS Nylon Guitar	-	Strum Speed	-	Strum Mode	Mute	Harmonics	-	-
0084	APS SteelStr Gt.	-	Strum Speed	-	Strum Mode	Mute	Harmonics	-	-
0085	APS Acoustic Bs.	-	-	-	-	Staccato	Harmonics	-	-
0086	APS Fingered Bs.	-	-	-	-	Slap	Harmonics	-	-
0087	APS Picked Bass	-	-	-	-	Bridge Mute	Harmonics	-	-
0088	APS Fretless Bs.	-	-	-	-	Staccato	Harmonics	-	-
0089	APS Violin	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0090	APS Viola	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0091	APS Cello	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0092	APS Contrabass	Noise Level	-	-	-	Staccato	Pizzicato	Tremolo	-
0093	APS Harp	-	-	Mute (*5)	Glissando Mode	Nail	-	-	-
0094	APS Timpani	-	Roll Speed	Mute (*4)	-	Flam	Accent Roll	-	-
0095	APS Strings	-	-	-	-	Staccato	Pizzicato	Tremolo	Fall
0096	APS Trumpet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0097	APS Trombone	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0098	APS Mute Trumpet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0099	APS French Horn	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0100	APS Soprano Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0101	APS Alto Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0102	APS Tenor Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-
0103	APS Baritone Sax	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Fall	-	-

SuperNATURAL Acoustic Tone		CC65	CC76	CC01 (System Control 1 Source) *1	AFTERTOUCH (System Control 2 Source) *2
0049	Timpani	-	-	Roll Sw+Dynamics (*3)	-
0050	Strings	Portamento	-	Dynamics+Vibrato	Level
0051	Trumpet	Portamento	-	Dynamics+Vibrato	Vibrato
0052	Flugel Horn	Portamento	-	Dynamics+Vibrato	Vibrato
0053	Trombone	Portamento	-	Dynamics+Vibrato	Vibrato
0054	Trombone 2	Portamento	-	Dynamics+Vibrato	Vibrato
0055	Bass Trombone	Portamento	-	Dynamics+Vibrato	Vibrato
0056	Mute Trumpet	Portamento	-	Dynamics+Vibrato	Vibrato
0057	French Horn	Portamento	-	Dynamics+Vibrato	Vibrato
0058	Soprano Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0059	Alto Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0060	Tenor Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0061	Baritone Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0062	Oboe	Portamento	-	Dynamics+Vibrato	Vibrato
0063	English Horn	Portamento	-	Dynamics+Vibrato	Vibrato
0064	Bassoon	Portamento	-	Dynamics+Vibrato	Vibrato
0065	Clarinet	Portamento	-	Dynamics+Vibrato	Vibrato
0066	Bass Clarinet	Portamento	-	Dynamics+Vibrato	Vibrato
0067	Piccolo	Portamento	-	Dynamics+Vibrato	Vibrato
0068	Flute	Portamento	-	Dynamics+Vibrato	Vibrato
0069	Flute2	Portamento	-	Dynamics+Vibrato	Vibrato
0070	Pan Flute	Portamento	-	Dynamics+Vibrato	Vibrato
0071	Shakuhachi	Portamento	-	Dynamics+Vibrato	Vibrato
0072	Ryuteki	Portamento	-	Dynamics+Vibrato	Vibrato
0073	Sitar	Portamento	-	Vibrato	Vibrato
0074	Uilleann Pipes	Portamento	-	Dynamics	Vibrato
0075	Erhu	Portamento	-	Dynamics+Vibrato	Vibrato
0076	Sarangi	Portamento	-	Dynamics	Vibrato
0077	Steel Drums	Portamento	-	Roll Sw+Dynamics (*3)	-
0078	APS Vibraphone	Portamento	Tremolo Speed	Roll Sw+Dynamics (*3)	-
0079	APS Marimba	Portamento	-	Roll Sw+Dynamics (*3)	-
0080	APS Accordion	Portamento	-	Dynamics	-
0081	APS Harmonica	Portamento	-	Dynamics	Vibrato
0082	APS Bandoneon	Portamento	-	Dynamics	-
0083	APS Nylon Guitar	Portamento	-	Vibrato	Vibrato
0084	APS SteelStr Gt.	Portamento	-	Vibrato	Vibrato
0085	APS Acoustic Bs.	Portamento	-	Vibrato	Vibrato
0086	APS Fingered Bs.	Portamento	-	Vibrato	Vibrato
0087	APS Picked Bass	Portamento	-	Vibrato	Vibrato
0088	APS Fretless Bs.	Portamento	-	Vibrato	Vibrato
0089	APS Violin	Portamento	-	Dynamics+Vibrato	Vibrato
0090	APS Viola	Portamento	-	Dynamics+Vibrato	Vibrato
0091	APS Cello	Portamento	-	Dynamics+Vibrato	Vibrato
0092	APS Contrabass	Portamento	-	Dynamics+Vibrato	Vibrato
0093	APS Harp	Portamento	-	Vibrato	Vibrato
0094	APS Timpani	-	-	Roll Sw+Dynamics (*3)	-
0095	APS Strings	Portamento	-	Dynamics+Vibrato	Level
0096	APS Trumpet	Portamento	-	Dynamics+Vibrato	Vibrato
0097	APS Trombone	Portamento	-	Dynamics+Vibrato	Vibrato
0098	APS Mute Trumpet	Portamento	-	Dynamics+Vibrato	Vibrato
0099	APS French Horn	Portamento	-	Dynamics+Vibrato	Vibrato
0100	APS Soprano Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0101	APS Alto Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0102	APS Tenor Sax	Portamento	-	Dynamics+Vibrato	Vibrato
0103	APS Baritone Sax	Portamento	-	Dynamics+Vibrato	Vibrato

SuperNATURAL Acoustic Tone		CC16	CC17	CC18	CC19	CC80	CC81	CC82	CC83
0104	APS Oboe	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0105	APS English Horn	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0106	APS Bassoon	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0107	APS Clarinet	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0108	APS Piccolo	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0109	APS Flute	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	-	-	-
0110	APS Pan Flute	Noise Level	-	Growl Sens	Bend Mode (*8)	Staccato	Flutter	-	-
0111	APS Shakuhachi	Noise Level	-	Growl Sens	-	Staccato	Ornament	-	-
0112	APS Ryuteki	Noise Level	-	Growl Sens	-	Staccato	Ornament	-	-
0113	APS Sitar	Resonance Level	-	-	-	Tambura (*10)	-	-	-
0114	APS UilleannPipe	-	-	-	-	Drone (*10)	Ornament	-	-
0115	APS Erhu	Noise Level	-	-	-	Staccato	Ornament	-	-
0116	APS Sarangi	Resonance Level	-	-	-	Tambura (*10)	-	-	-
0117	APS Steel Drums	Resonance Level	Roll Speed	Mute (*4)	Bend Mode (*9)	Mute	-	-	-

SuperNATURAL Acoustic Tone		CC65	CC76	CC01 (System Control 1 Source) *1	AFTERTOUCH (System Control 2 Source) *2
0104	APS Oboe	Portamento	-	Dynamics+Vibrato	Vibrato
0105	APS English Horn	Portamento	-	Dynamics+Vibrato	Vibrato
0106	APS Bassoon	Portamento	-	Dynamics+Vibrato	Vibrato
0107	APS Clarinet	Portamento	-	Dynamics+Vibrato	Vibrato
0108	APS Piccolo	Portamento	-	Dynamics+Vibrato	Vibrato
0109	APS Flute	Portamento	-	Dynamics+Vibrato	Vibrato
0110	APS Pan Flute	Portamento	-	Dynamics+Vibrato	Vibrato
0111	APS Shakuhachi	Portamento	-	Dynamics+Vibrato	Vibrato
0112	APS Ryuteki	Portamento	-	Dynamics+Vibrato	Vibrato
0113	APS Sitar	Portamento	-	Vibrato	Vibrato
0114	APS UilleannPipe	Portamento	-	Dynamics	Vibrato
0115	APS Erhu	Portamento	-	Dynamics+Vibrato	Vibrato
0116	APS Sarangi	Portamento	-	Dynamics	Vibrato
0117	APS Steel Drums	Portamento	-	Roll Sw+Dynamics (*3)	-

*1 The setting of System Control 1 Source is used. With the factory settings, CC01 is assigned.

*2 The setting of System Control 2 Source is used. With the factory settings, AFTERTOUCH is assigned.

*3 Regardless of the System Control 1 Source setting, this can always be controlled by CC01.

*4 Mute: Simulates the technique of using a hand or mallet to stop the vibration (sound) of the instrument. Higher values will produce stronger muting.

*5 Mute: Simulates the technique of using a hand to stop the vibration of the string.

*6 Bend Mode: If Bend Range is set to anything other than Tone, operating the pitch bend lever when Bend Mode (CC19) is ON will produce a bellows tremolo effect. Use this if you want to switch between the tremolo effect and conventional pitch change.

*7 Bend Mode: If Bend Range is set to anything other than Tone, operating the pitch bend lever when Bend Mode (CC19) is ON will simulate the wah effect produced by cupping the hands around the instrument. Use this when you want to switch between the wah effect and conventional pitch change.

*8 Bend Mode: If Bend Range is set to anything other than Tone, operating the pitch bend lever when Bend Mode (CC19) is ON will produce a discontinuous pitch change. Use this if you want to switch between discontinuous pitch change and conventional pitch change.

*9 Bend Mode: If Bend Range is set to anything other than Tone, operating the pitch bend lever when Bend Mode (CC19) is ON will produce a glissando effect. Use this if you want to switch between glissando playing and conventional pitch change.

*10 The sound of the corresponding technique will be produced.

About Note

Some parameters (such as Rate or Delay Time) can be set in terms of a note value.

If Rate is specified as a note value, the modulation will be synchronized to the tempo.

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	**4**	Four whole notes	**8**	Eight whole notes
12	Twelve whole notes	**16**	Sixteen whole notes				

NOTE!

- If a parameter for which the Rate is specified as a note value is assigned as an MFX CONTROL destination, you cannot use MFX CONTROL to vary that parameter.
- If you specify the delay time as a note value, slowing down the tempo will not change the delay time beyond a certain length. This is because there is an upper limit for the delay time; if the delay time is specified as a note value and you slow down the tempo until this upper limit is reached, the delay time cannot change any further. This upper limit is the maximum value that can be specified when setting the delay time as a numerical value.
- The type (range) of selectable note values will vary depending on the parameter.