

D-05 Parameter Guide



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01

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Basic Operation

Basic Operation for Editing

The items that you can edit are grouped into screens. To find the item that you want to edit, switch between display screens as necessary.

1. Make sure that the PATCH TOP screen is shown.
2. Press the [EDIT] button.

```
Edit Menu
(TnTune)(RtEdit)
```

3. Press the [F2] (PtEdit) button.
The Patch Edit Menu screen appears.

```
Patch Edit Menu
(P-Name) (Ctrl)
```

4. Use the [←] [→] buttons to switch pages, and use the [F1] [F2] buttons to select the item that you want to edit.

Item	Explanation
P-Name (Patch Name)	Rename the patch. Use the [F1] [F2] buttons to move the cursor Use the numeric keys to input characters Press the [EXIT] button to exit the screen
Ctrl (Control)	Control functions (p. 3)
Output	Output mode (p. 4)
Chase	Chase function (p. 4)
MIDI	MIDI functions for each patch (p. 5)

5. Use the [←] [→] buttons to switch pages, and use the [F1] [F2] buttons to select the item that you want to edit.

```
Control Edit
Bend 05 AfpB 00
```

When you press a [F1] [F2] button, the selected parameter blinks.

6. Use the joystick or the [INCREMENT] [DECREMENT] buttons to edit the setting.
Press the [EXIT] button to return to the Patch Edit Menu screen.

7. Repeat steps 5–6 to make patch factor settings.

8. If you want to save the edited settings, perform the Write operation.

➔ "Saving Patches" (p. 7)

If you don't want to save, press the [EXIT] button to return to the PATCH TOP screen. If you return to the PATCH TOP screen without saving, the colon (:) between the patch number and patch name blinks, indicates that the patch settings are modified (the patch is being edited).

* If you select another patch while editing, or turn off the power, the changes you made to the patch settings are lost.

Settings Common to All Screens

UPPER/LOWER/VALUE/LOCAL (switching the joystick's function)



These buttons switch the function of the joystick. The function changes each time you press a selection button.

Indicator / Button	Explanation
UPPER	The up/down direction changes the part balance, and the left/right direction changes the partial balance of the selected part.
LOWER	
VALUE	Enters values, such as during editing.
LOCAL	Enables local editing (a function that lets you use the joystick to simultaneously edit adjacent items in the display).
Select button	Switches in the order of UPPER → LOWER → VALUE → LOCAL.

KEY MODE



Key Mode refers to the Upper and Lower Tones are played on the keyboard.

1. In the main screen, press the [F1] button and then use the [INCREMENT] [DECREMENT] buttons to edit the parameter.

Value: WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S

Indication	Description
WHOLE	Upper Tone can be played in 16 voice polyphony
DUAL	Both Upper and Lower Tones are played by each key in 8 voices polyphony.
SPLIT	The Split mode divides the keyboard into upper and lower sections, where two different Tones can be played in 8 voices polyphony. That is, the D-05 works like two 8 voice synthesizers. The Split Point (where the keyboard is divided into two sections) is shown next to the Key Mode indication.
SEP (Separate)	The Separate mode lets you control the upper and lower sections on separate MIDI channels.
WHOL-S (Whole Solo)	The Upper Tone is monophonic.
DUAL-S (Dual Solo)	Both Upper and Lower Tones are monophonic.
SPL-US (Split Upper Solo)	The Upper Tone is monophonic, and the Lower Tone is 8 voices polyphonic.
SPL-LS (Split Lower Solo)	The Lower Tone is monophonic, and the Upper Tone is 8 voices polyphonic.
SEP-S (Separate Solo)	The Upper Tone and Lower Tone can be controlled on separate MIDI channels. The Upper Tone is monophonic.

* The way in which the Key Mode affects how the voices play depends on whether the D-05 is in mono mode or poly mode.
➔ "Key Mode Alteration" (p. 18)

SPLIT (Split Point)

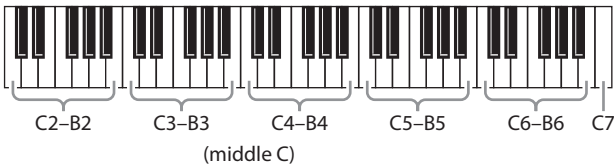


This specifies the split point that is used when the KEY MODE (key mode) is set to SPLIT (split), SPL-US (split upper solo), or SPL-LS (split lower solo).

The Split Point can be changed as follows.

1. In the main screen, press the [F2] (SP) button and then use the [INCREMENT] [DECREMENT] buttons to edit the parameter.

Value: C2–C7



BALANCE (Tone Balance)

The volume balance of the Upper and the Lower Tone can be change.

1. In the main screen, press the [→] button.

The page changes.



2. Press the [F1] (Bal) button, and then use the [INCREMENT] [DECREMENT] buttons to edit the parameter.

Value: 0–100

TRANSPOSE (Transpose)

The pitch range of the keyboard can be transposed (shifted) in semitone steps.

1. In the main screen, press the [→] button.

The page changes.



2. Press the [F2] (Trns) button, and then use the [INCREMENT] [DECREMENT] buttons to edit the parameter.

If you hold down the [SHIFT] button and use the [INCREMENT] [DECREMENT] buttons to edit the parameter, the value changes in steps of one octave (12 semitones).

Value: -36–0–+36

CHASE (Chase Button)



Switches the Chase function (p. 4) on and off.

Value: OFF, ON

PORTAMENTO (Portamento Button)

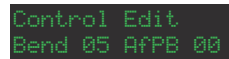


Switches the Portamento function on and off. Portamento is a slide from one pitch to another, and is often used for violin performance.

Value: OFF, ON

CONTROL

These parameters specify how the control functions affect each patch.



Bend (Bender Range)

This specifies the available range of pitch change when you operate pitch bend.

The variable range set here may result differently depending on the setting of the Tone Parameter Bender Mode (p. 12).

Value: 0–12

AfterPB (Aftertouch, Pitch Bender)

This sets the sensitivity of the aftertouch effect on pitch. Higher values mean higher sensitivity. A Minus setting decreases the pitch, and a plus setting increases it.

Value: -12–+12

Port (Portamento Time)

This sets the portamento time from one note to another. Higher values make the time longer.

Value: 0–100

Port (Portamento Mode)

This selects the Tone that should take on the Portamento effect. When the Key Mode is Whole, Portamento always works whichever of the above three modes may be selected.

Value: U, L, UL

Indication	Function
U	Works on the Upper Tone.
L	Works on the Lower Tone.
UL	Works on the both Tones.

* Even when Portamento is set to ON, the Portamento ON/OFF message sent from an external device can change the settings of Portamento.

Hold (Hold Mode)

This selects the Tone that on the Pedal Hold effect. When the Key mode is Whole, Pedal Hold always works whichever of the above three modes may be selected.

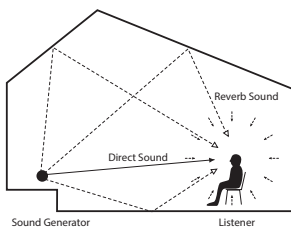
Value: U, L, UL

Indication	Function
U	Works on the Upper Tone.
L	Works on the Lower Tone.
UL	Works on the both Tones.

OUTPUT (Output Mode)

The Output Mode determines how the Tones take on the reverb effect, and how the Tones appear at the outputs. A sound reverberated in an acoustic environment consists of three parts. First, you hear the direct sound as it travels from the source outward. Next the early reflection resounds once, or several time, from the walls, ceiling, and floor. Finally, you hear the reverberated sound as it reflects many times in the environment.

```
Output Mode Edit
Mode 01 Rev 24
```



Mode (Output Mode)

Here you can choose one of four modes to specify how the reverb applied to the two tones is sent from the output.

Value: 01-04

Indication	Function
01	Stereo reverb works on the mixed sound of Upper and Lower Tones, and id sent out in stereo.
02	The Mixture of Upper and Lower takes on stereo reverb, and the direct sound is sent out separately for Upper and Lower.
03	Only the Upper Tone takes on reverb. Upper and lower Tones are sent out separately.
04	Only the Lower Tone takes on reverb, Upper and Lower Tones are sent out separately.

Rev (Reverb Type)

Selects one of the 32-reverb types.

Value: 1-32

* A reverb type (any one of types 17-32) from another bank can be copied to a reverb type (any one of types 17-32) of patch bank U1-U8.

➔ "Copying a Reverb Type" (p. 6)

Rbal (Reverb Balance)

Sets the volume of the reverb and direct sounds.

Value: 0-100

Indication	Function
100	The volume of the reverb sound = maximum, the volume of the direct sound = 0.
0	The volume of the reverb sound = 0, the volume of the direct sound = maximum.

Vol (Total Volume)

Sets the volume of both tones, and therefore adjusts the volume difference between Patches.

Value: 0-100

CHASE

The Chase Play function makes it possible to output the Lower Tone slightly later than the Upper Tone, which is actually played on the keyboard. This function, however, is only available in Dual or Whole Key Mode.

```
Chase Edit
ModeULU Lev 50
```

Mode (Chase Mode)

Sets how tones sound. Depending on the Chase Level and Velocity, the number of repeats of the delayed sound differ.

Value: UL, ULL, ULU

• When the Key Mode is Dual

Indication	Function
UL	The Upper Tone then the Lower Tone is played.
ULL	The Upper, then the Lower Tone is repeated.
ULU	The Upper, the Lower and the Upper Tone alternate.

• When the Key Mode is Whole

Indication	Function
UL	The Upper Tone is played twice.
ULL	Upper Tone is repeated.
ULU	Upper Tone is repeated.

Lev (Chase Level)

This adjusts the level of the sound that is heard after a delay relative to the Upper Tone, which is heard first. Higher values produce a higher level.

Value: 0-100

Time (Chase Time)

Adjusts the sounding time. Higher value is longer time.

Value: 0–100

TONETUNE

The relative pitch of the Upper and the Lower Tones can be separately set. By setting slightly different pitches, a detune effect can be obtained. Also, by lowering the pitch of the Upper Tone, and raising the pitch of the Lower Tone, the pitches of the Two Tones can become exactly the same.

```

P2:1:Neo Horizon
LKey 00 Ukey 00

```

LKey (Key Shift of the Lower Tone)

Allows you to shift the pitch of the Lower Tone in semi-tone steps.

Value: -24–+24 (+/- 2 octave)

UKey (Key Shift of the Upper Tone)

Allows you to shift the pitch of the Upper Tone in semi-tone steps.

Value: -24–+24 (+/- 2 octave)

LTun (Fine Tuning of the Lower Tone)

Allows you to Tune the pitch of the Lower Tone.

Value: -50–+50 (approx. +/- 2 cents)

UTun (Fine Tuning of the Upper Tone)

Allows you to Tune the pitch of the Upper Tone.

Value: -50–+50 (approx. +/- 2 cents)

MIDI (MIDI Functions)

You can change the setting of the MIDI Functions included Patch Factor as follows.

```

MIDI Edit
TxCH B TxPC OFF

```

TxCH (Transmit Channel)

The transmit channel of each Patch can be set to a deferent number from the basic channel ("**Function Menu**" → "**MIDI**" → "**CH**" parameter). At B, the channel number is the same as the Basic Channel.

Value: B (Basic), 1–16

TxPC (Transmit Program Change Number)

A Program Change number to be transmitted can be set for each patch individually. At OFF, the Program Change number preprogrammed in each Patch is transmitted.

Value: OFF, 1–100

SepCH (Receive Channel in Separate Mode)

A receive MIDI Channel in separate mode can be set for each Patch individually. At OFF, the receive channel set in MIDI Functions commonly set for System Function is used ("**Function Menu**" → "**MIDI**" → "**SepCH**" parameter).

Value: OFF, 1–16

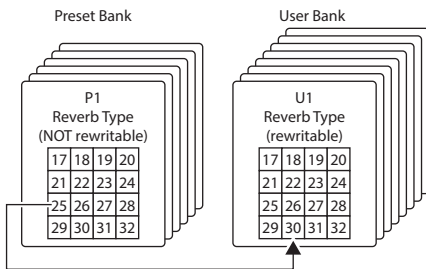
Copying a Reverb Type

Copying a Reverb Type

In addition to the patches (64 patches), 16 reverb types (17–32) are also saved to the D-05's patch banks (P1–P6, U1–U8). Different reverb types 17–32 are saved to each patch bank. The reverb types you can use vary with the selected patch as described below.

- All shared common reverb types (1–16) can be used.
- The reverb types 17–32 in individual banks can be used only with the patches (64 patches) contained in that bank.
- Reverb types from a bank other than the internal banks (any from 1 through 32) can be copied to a reverb type in the internal banks (any from 17 through 32).
- This is convenient when, for example, you want to use Reverb Type 25 (Gate Reverb) from the Patch Bank P1 as Reverb Type 30 in the Patch Bank U1.

Common Reverb Type (NOT rewritable)			
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16



* Reverb Types (17–32) are transferred simultaneously with patch data when patch data is transferred from the D-50 to the D-05 (bulk loaded) or from the D-05 to the D-50 (bulk dumped).

1. Hold down the **[SHIFT]** button and press the **[WRITE]** button.

The Reverb Write screen appears.

```
Reverb Write  
To: U8-24
```

2. Use the **[F1]** **[F2]** buttons and the **[INCREMENT]** **[DECREMENT]** buttons to select the copy-destination.

3. Press the **[→]** button.

A confirmation message appears.

```
Reverb Write?  
[EXIT]:N [ENT]:Y
```

If you decide to cancel, press the **[EXIT]** button.

4. Press the **[ENTER]** button.

```
Completed.
```

When saving is finished, the destination indicates Completed.

Saving Patches

1. Press the [WRITE] button.

The WRITE screen appears.

```
(Patch Name)  
To: U2-11
```

2. Use the [INCREMENT] [DECREMENT] buttons and the PATCH BANK [1]–[8] and NUMBER [1]–[8] buttons to select the save-destination.

3. Press the [→] button.

A confirmation message appears.

```
Patch Write?  
[EXIT]:N [ENT]:Y
```

4. Press the [ENTER] button.

```
Completed.
```

When saving is finished, the destination indicates Completed.

Tone Parameters (Upper/Lower Tone Menu)

1. Make sure that the PATCH TOP screen is shown.

2. Press the [EDIT] button.

```
Edit Menu
(TnTune)(RtEdit)
```

3. Use the [←] [→] buttons to switch the page so that (L-Tone) (U-Tone) is displayed.

```
Edit Menu
(L-Tone)(U-Tone)
```

4. Use the [F1] (lower) [F2] (upper) buttons to select the tone that you want to edit.

```
Upper Tone Menu
(T-Name)(Common)
```

5. Use the [←] [→] buttons to switch pages, and use the [F1] [F2] buttons to select the item that you want to edit.

Item	Explanation
T-Name (Tone Name)	Edits the tone name. Use the [F1] [F2] buttons to move the cursor Use the numbers to enter characters Press the [EXIT] button to exit the screen
Common	Common parameters
Part-1 (Partial 1 Parameter)	Partial parameters
Part-2 (Partial 2 Parameter)	Partial parameters
T-Copy (Tone Copy)	Copies a tone. Select the copy-source, and press the [→] button Assign a name, and press the [→] button

Common Parameters (Common)

- "Struct (Structure)" (p. 8)
- "P-ENV (Pitch Envelope)" (p. 8)
- "LFO (Low Frequency Oscillator)" (p. 9)
- "EQ/CHORUS (Equalizer/Chorus)" (p. 10)

Struct (Structure)

Str (Structure Number)

Selects one of seven ways in which the partials are combined and used.

Value: 01–07

Number	Partial 1	Partial 2	Combination of two Partial
01	S	S	Mixture of Partial 1 and partial 2.
02	S	S	Mixture of Partial 1 and ring-modulation.
03	P	S	Mixture of Partial 1 and partial 2.
04	P	S	Mixture of Partial 1 and ring-modulation.
05	S	P	Mixture of Partial 1 and ring-modulation.
06	P	P	Mixture of Partial 1 and partial 2.

Number	Partial 1	Partial 2	Combination of two Partial
07	P	P	Mixture of Partial 1 and ring-modulation.

S: Synthesizer Sound Generator

P: PCM Sound Generator

R: Ring Modulator

P-ENV (Pitch Envelope)

P-ENV Edit (Envelope)

```
U:P-Env Edit
Velo 00 TKF 00
```

Velo (Velocity Range)

Sets the maximum effect of the velocity that controls the pitch of the P-ENV. At higher values, the keyboard velocity has a greater effect on the envelope.

Value: 0–2

TKF (Keyfollow (Time))

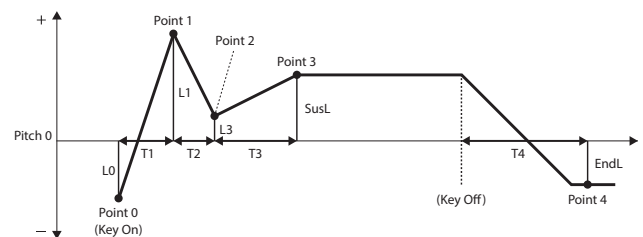


Sets the time of the P-ENV depending on the key played. Higher values change the time more drastically.

Value: 0–4

P-ENV Time (Pitch Envelope Time)

The envelope curve is determined by times and levels.



T1 (Time 1)

Sets the time needed from point 0 (the moment the key is pressed) to point 1.

Value: 0–50

T2 (Time 2)

Sets the time needed from point 1 to point 2.

Value: 0–50

T3 (Time 3)

Sets the time needed from point 2 to point 3.

Value: 0–50

T4 (Time 4)

Sets the time needed from the moment the key is released to point 4.

Value: 0–50

P-ENV Level Edit

L0 (Level 0)

Sets the pitch created the moment a key is pressed.

Value: -50–+50

L1 (Level 1)

Sets the pitch of the point 1.

Value: -50–+50

L2 (Level 2)

Sets the pitch of the point 2.

Value: -50–+50

SusL (Sustain level)

Sets the pitch of the point 3.

Value: -50–+50

EndL (End Level)

Sets the pitch of the point 4.

Value: -50–+50

* If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

* The maximum variable range of each level will depend on the Velocity Range in P-ENV. (p. 8)

Velocity Range	Level	Range
0	+50	+1 octave
	-50	-1 octave
1	+50	+1.5 octave
	-50	-1.5 octave
2	+50	+2 octave
	-50	-2 octave

Pitch Mod (Pitch Modulation)

Depending on how the LFO in WG Mod (p. 11) is set, the vibrato set here may have no effect at all.

```
U:P-Mod Edit
LFOD 02
```

LFOD (LFO Depth)

Sets the depth of LFO-1, that controls the WG pitch. Higher values deepen the effect.

Value: 0–100

Levr (Pitch Lever Modulation)

Sets the sensitivity of the vibrato depth controlled by the bender lever. Higher values deepen the effect.

Value: 0–100

Aftr (Pitch Aftertouch Modulation)

This sets the sensitivity of the vibrato depth controlled by aftertouch. Higher values deepen the vibrato effect.

Value: 0–100

LFO (Low Frequency Oscillator)




The parameters of LFO-2 and LFO-3 can be set like LFO-1, except for a few parameters.

```
U:LFO1 Edit
WaveTRI Rate 74
```

Wave (LFO Waveform)

Selects the LFO waveform.

Value: TRI, SAW, SQU, RND

Indication	Waveform
TRI (Triangle wave)	
SAW (Sawtooth)	
SQU (Square wave)	
RND (Random)	Waveform changes randomly.

Rate (LFO Rate)

Sets the rate (frequency) of the LFO. Higher values quicken the rate.

Value: 0–100

Dely (LFO Delay Time)

This sets the time needed for the LFO to appear, from the moment a key is pressed. Higher values increase the delay time.

Value: 0–100

Sync

Selects the timing of the LFO oscillation as follows. For LFO-2 and LFO-3, KEY cannot be selected.

Value: OFF, ON, KEY

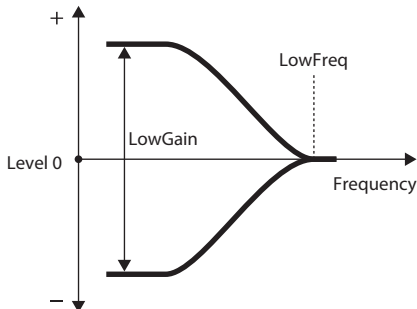
Indication	Function
OFF	LFO does not sync to the keyboard.
ON	When a key is played after all keys have been released, the LFO begins its wave generating process from the beginning.
KEY	LFO begins its wave generation from the beginning each time a new key is played.

EQ/CHORUS (Equalizer/Chorus)

EQ Edit (Equalizer)

In the equalizer section, the frequency characteristic of the sound can be modified.

```
U:EQ Edit
Lf 300 Lg +01
```



Lf (Low Frequency)

Sets the frequency where the gain is altered in the low to middle range.

Value: 63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840 Hz

Lg (Low Gain)

Sets the gain of the lower frequencies.

"+" settings raise the gain, and "-" settings lower it.

Value: -12--+12 dB

Hf (High Frequency)

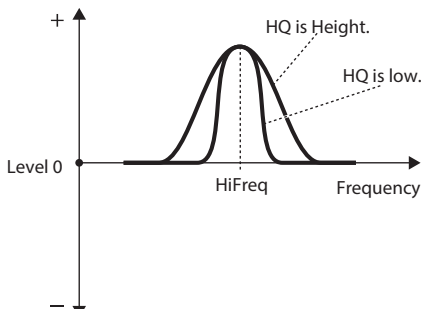
Sets the frequency where the gain is altered in the middle to high range.

Value: 250, 300, 350, 420, 500, 600, 700, 840 Hz, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5 kHz

HQ (High Q)

Sets the width of the frequency band where the gain is boosted or cut. With a higher value, the frequency band is narrower, and vice versa.

Value: 0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0

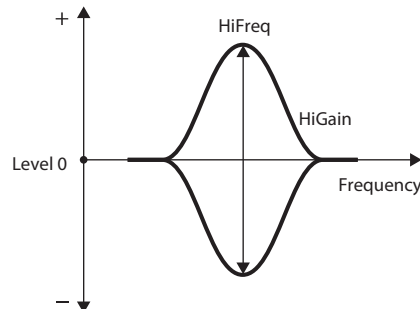


Hg (High Gain)

Sets the gain of the Hf frequency.

"+" settings raise the gain and "-" settings lower it.

Value: -12--+12 dB



Chorus Edit (Chorus)

```
U:Chorus Edit
Type 02 Rate 25
```

Type (Chorus Type)

Selects one of the 8 basic chorus effects.

Value: 01-08

Indication	Type
01	Chorus 1
02	Chorus 2
03	Flanger 1
04	Flanger 2
05	Feedback Chorus
06	Tremolo
07	Chorus Tremolo
08	Dimension

Rate (Chorus Rate)

Sets the rate of the chorus effect. Higher values quicken the rate.

Value: 0-100

Dpth (Chorus Depth)

Sets the depth of the chorus effect. Higher values deepen the effect.

Value: 0-100

Bal (Chorus Balance)

This sets the volume balance of the chorus of the chorus sound and normal sound.

Value: 0-100

Partial Parameters (Part-1, Part-2)

Restriction of the available parameters caused by Structure

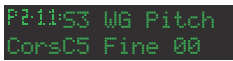
Depending on what Structure is used, the available parameters may be different.

1. Some parameters included in a Partial that uses a PCM sound generator are invalid.
2. With Ring Modulation, some parameters in Partial 2 will automatically become the same as for Partial 1. Therefore, the values shown in the display are irrelevant with the actual values.

- "PITCH (WG Pitch)" (p. 11)
- "Form (WG Form)" (p. 12)
- "TVF (Time Variant Filter)" (p. 13)
- "TVA (Time Variant Amplifier)" (p. 15)
- "**Init*" (Initialize)

PITCH (WG Pitch)

WG Pitch (Pitch)



Cors (Pitch Coarse)

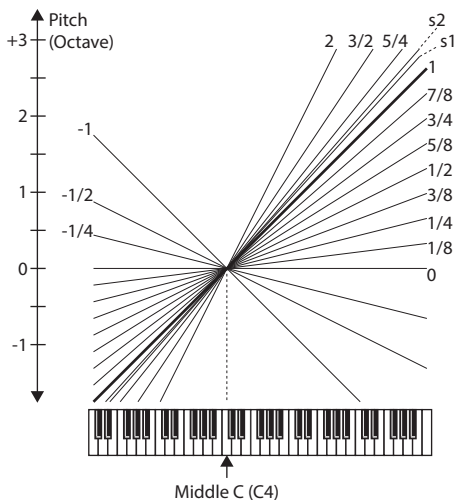
Sets the standard pitch of a Partial in semi-tone steps. The standard pitch is the pitch at C4 (middle C) key.

Value: C1–C7

Fine (Pitch Fine)

Makes a fine adjustment to the standard pitch.

Value: -50–+50



KF (Keyfollow (pitch))

Usually, the keyboard to a synthesizer assigns a semi-tone to each key. This parameter can change the pitch ratio as show below. The value represents how many octaves are changed over 12 keys.

Value: -1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2

* s1 or s2 may be selected for slightly stretching octaves.

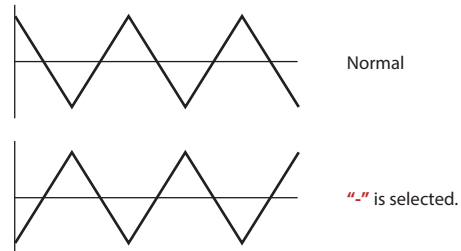
s1: Pitch 1 cent higher than one octave.

s2: Pitch 5 cents higher than one octave.

WG Mod (Modulation)



LFO (LFO Mode)

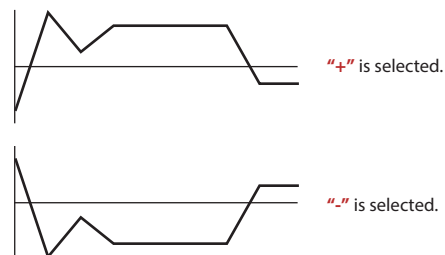


Selects one of the following four vibrato modes.

Value: OFF, (+), (-), A&L

Indication	Function
OFF	No vibrato is obtained.
(+)	Vibrato is on.
(-)	Vibrato is on but inverted.
A&L	Vibrato can be obtained only by Aftertouch and Bender Lever.

ENV (P-ENV Mode)



Selects one of the following three modes, determining how the pitch is controlled by P-ENV.

Value: OFF, (+), (-)

Indication	Function
OFF	No alteration.
(+)	Pitch changes with the set P-ENV curve.
(-)	Pitch changes with the P-ENV curve inverted.

Bend (Bender Mode)

Selects how the pitch is controlled by the bender lever as follows.

Value: OFF, KF, Norm

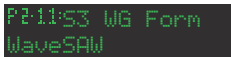
Indication	Function
OFF	No pitch alteration by moving the lever right or the left.
KF	Pitch changes within the Bender range, set in Patch Factors, plus Keyfollow (Pitch) of WG.
Norm	Pitch changes within the Bender range, set in Patch Factors.

Bender Mode Example:

- If the Bender range (p. 3) is set to 12 (1 octave), and the Keyfollow (Pitch) (p. 11) of WG is set to 2, the maximum pitch change caused by moving the Bender Lever is 2 octaves.
- When the Keyfollow (Pitch) (p. 11) of WG is set to zero, there is no pitch change caused by the Bender lever.

Form (WG Form)

WG Form (Waveform)



Wave (Waveform)

Selects the waveform of the synthesizer sound generator.

Value: SQU, SAW

Indication	Waveform
SQU (Square wave)	
SAW (Sawtooth)	

* A sawtooth waveform is produced by processing a square Waveform at the TVF, that is, all the waveform are square at WG even when a sawtooth is selected.

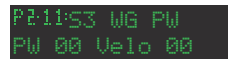
PCM (PCM Wave Number)

This selects one of the 100 different sampled waves of the PCM sound generator.

➔ **"Waveform"** (p. 29)

Value: 1-100

WG PW (Pulse Width)

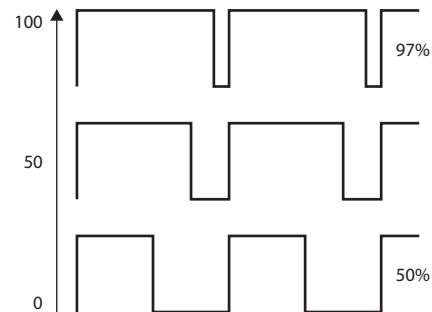


PW (Pulse Width)

A square waveform has exactly the same width, up and down but a Pulse waveform has different widths. The ratio of upper width to lower is called pulse width. Depending on the set pulse width value, the harmonic content of the sound changes greatly.

Value: 0-100

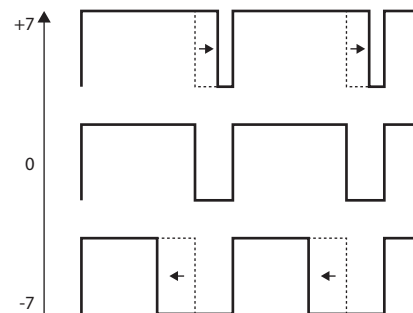
* When a sawtooth is selected with WG Waveform, pulse width 50% raises the pitch by an octave.



Velo (Velocity Range)

Sets the sensitivity of the velocity that controls the pulse width. With "-" values, the pulse width becomes smaller by playing the keyboard harder, and with "+" values, the pulse width becomes wider by playing the keyboard harder.

Value: -7-+7



Aftr (Aftertouch Range)

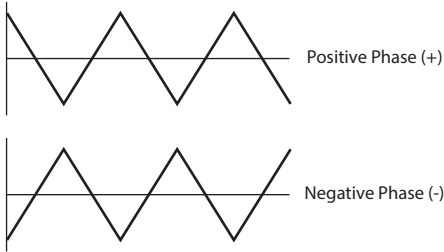
Sets the sensitivity of the aftertouch that controls the pulse width. With "-" values, the pulse width becomes smaller with stronger aftertouch, and with "+" values, the pulse width becomes wider with stronger aftertouch.

Value: -7-+7

LFO (LFO Select)

Pulse Width Modulation (PWM) means changing the pulse width periodically. LFO Select decides which of the LFO's is to be used for modulating the pulse width.

Value: +1, -1, +2, -2, +3, -3



Indication	LFO (Phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)

LFOD (LFO Depth)

This sets the depth of the PWM. Higher values Deepen the effect.

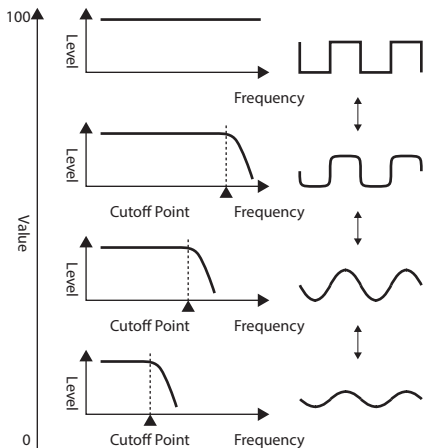
Value: 0-100

TVF (Time Variant Filter)

Freq (Cutoff Frequency)

Sets the cutoff point of the TVF. As you lower the value, higher frequencies are removed and the waveform gradually become an approximation of a sine wave, then the sound will finally fade out.

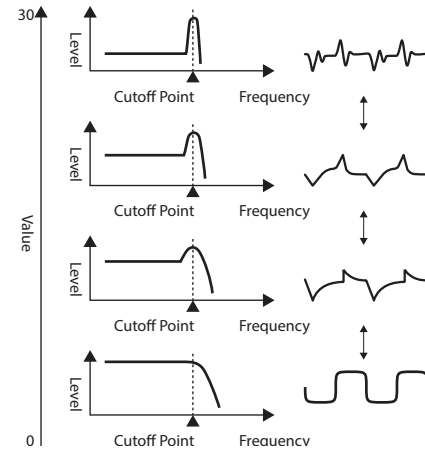
Value: 0-100



Reso (Resonance)

Boosts the cutoff point. As you increase the value, specific harmonics are emphasized and the sound will become more unusual, more electronic in nature.

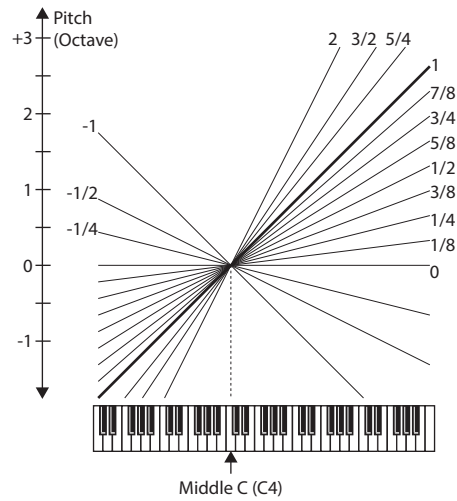
Value: 0-30



KF (Keyfollow (Cutoff Point))

Keyfollow can change the cutoff point depending on the key played. Just like the Keyfollow of WG pitch, the value represents how many octaves change over 12 keys.

Value: -1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2



BP (Bias Point)

You can add a further change (= bias level) to the Keyfollow curve, and set the range (bias direction) where the bias level is valid. The bias range is where the bias level is valid on the keyboard. It can be set with the bias point (where the bias range begins) and bias direction (< or >).

Value: <A1-<C7, >A1->C7

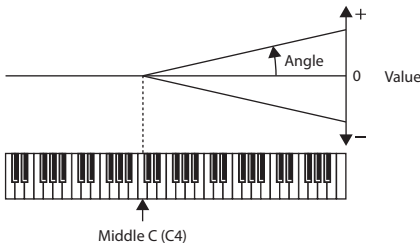
Display Example	Example Function
>C4	The bias level is only valid on the keyboard above the C4 key.
<C4	The bias level is only valid on the keyboard below the C4 key.

BLvl (Bias Level)

The bias level can be set. "+" values raise the curve, and "-" value lower the curve.

Value: -7~+7

Keyfollow Adjustment



The curve in the picture represents the Keyfollow value with the bias level added.

This means that if the keyfollow slope is different, the actual slope will differ even if the value of the slope to be biased is the same.

TVF Keyfollow (Cutoff Point): 0

Bias Direction: >C4

TVF ENV (TVF Envelope)



Dpth (ENV Depth)

Sets the depth of the TVF ENV modulation that changes the TVF cutoff Point. Higher values deepen the effect.

Value: 0-100

Velo (Velocity Range)

Sets the sensitivity of the velocity than controls the depth of the TVF ENV. At higher values, the effect is deeper by playing harder.

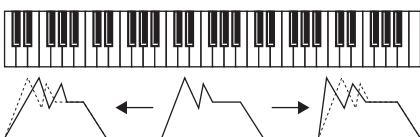
Value: 0-100

DKF (Keyfollow (Depth))

This can change the TVF ENV depth depending on the key played. Higher values change the depth more drastically.

Value: 0-4

TKF (Keyfollow (Time))

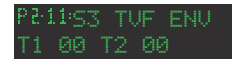
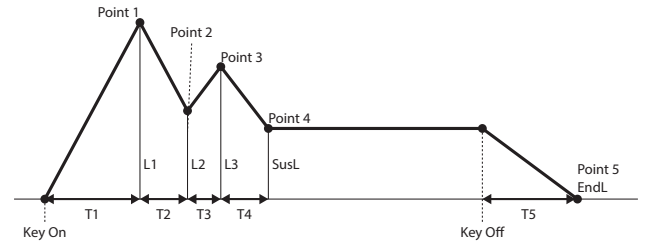


This can change the time of the TVF ENV depending on the key played. Higher values change the time more drastically.

Value: 0-4

TVF ENV Time (TVF Envelope Time)

An envelope curve is determined by times and levels.



T1 (Time 1)

Sets the time needs to reach point 1 from the moment the key is pressed.

Value: 0-100

T2 (Time 2)

Sets the time needed to reach point 2 from point 1.

Value: 0-100

T3 (Time 3)

Sets the time needed to reach point 3 from point 2.

Value: 0-100

T4 (Time 4)

Sets the time needed to reach point 4 from point 3.

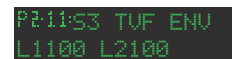
Value: 0-100

T5 (Time 5)

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0-100

TVF ENV Level (TVF Envelope Level)



L1 (Level 1)

Sets the of point 1.

Value: 0-100

L2 (Level 2)

Sets the level of point 2.

Value: 0-100

L3 (Level 3)

Sets the level of point 3.

Value: 0-100

SusL (Sustain level)

This sets the level of point 4.

Value: 0-100

EndL (End Level)

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

- * The End Level is retained until you release and play the key again.
- * If the Levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

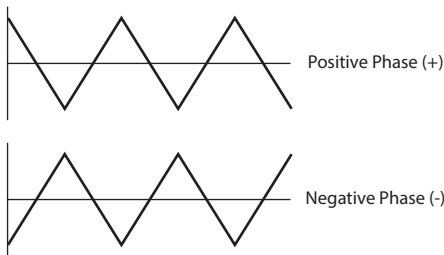
TVF MOD (TVF Modulation)

```
P2:11:53 TVF Mod
LFO +1 LFOD 00
```

LFO (LFO Select)

Selects the LFO that changes cutoff point periodically (creating growl effects).

Value: +1, -1, +2, -2, +3, -3



Indication	LFO (Phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)

LFOD (LFO Depth)

Sets the depth of a growl effect. Higher values deepen the effect.

Value: 0–100

Aftr (Aftertouch Range)

Sets the sensitivity of the aftertouch that controls the cutoff point. “-” values lower the cutoff point by stronger Aftertouch, and “+” values raise it.

Value: -7–+7

TVA (Time Variant Amplifier)

TVA

```
P2:11:53 TVA
Levl 80 Velo+10
```

Levl (Level)

Sets the volume of a Partial. Higher values may cause sound distortion. If so, lower the value. Even when the Level is set to zero here, the sound may not be completely muted if the TVA ENV curve is high.

Value: 0–100

Velo (Velocity Range)

Sets the sensitivity of the velocity that controls the volume of the sound. “-” values lower the level by harder playing, and “+” values raise the level by harder playing.

Value: -50–+50

BP (Bias Point)

You can change the overall volume of the keyboard (= bias level) from the set level, and set the range (bias direction) where the bias level is valid.

This bias range is where the bias level is valid on the keyboard. It can be set with the bias point (Where the bias range begins) and bias direction (< or >).

Value: <A1–<C7, >A1–>C7

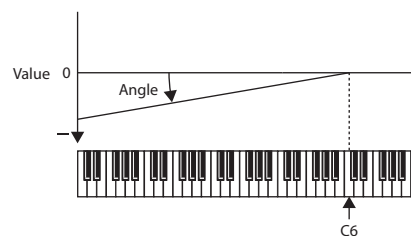
Display Example	Function Example
>C4	The bias level is only valid on the keyboard above the C4 key.
<C4	The bias level is only valid on the keyboard below the C4 key.

BLvl (Bias Level)

The curve (bias level) can be set. Lower values make the curve steeper.

Value: -12–0

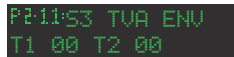
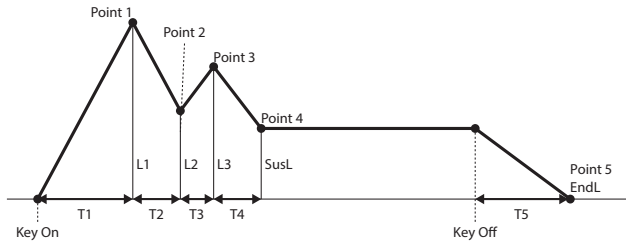
Volume Adjustment



Bias Point: >C6

TVA ENV Time (TVA Envelop Time)

An envelope curve is determined by times and levels.



T1 (Time 1)

Sets the time needed to reach point 1 from the moment the key is pressed.

Value: 0–100

T2 (Time 2)

Sets the time needed to reach point 2 from point 1.

Value: 0–100

T3 (Time 3)

Sets the time needed to reach point 3 from point 2.

Value: 0–100

T4 (Time 4)

Sets the time needed to reach point 4 from point 3.

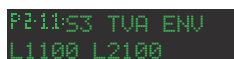
Value: 0–100

T5 (Time 5)

Sets the time needed to reach point 5 from the moment the key is released.

Value: 0–100

TVA ENV Level (Level)



L1 (Level 1)

Sets the level of point 1.

Value: 0–100

L2 (Level 2)

Sets the level of point 2.

Value: 0–100

L3 (Level 3)

Sets the level of point 3.

Value: 0–100

SusL (Sustain level)

Sets the level of point 4.

Value: 0–100

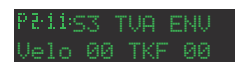
EndL (End Level)

To lower the level after releasing the key, set this to 0, and to raise the level, set it to 100.

Value: 0, 100

- * The End Level remains until the key is released and played again. That is, at a value of 100, the sound remains. However, the PMC Sound Generator's One-shot sounds do not remain even when set to 100.
- * If the levels of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

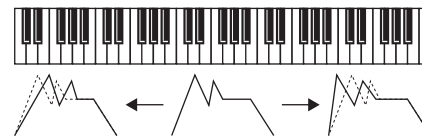
TVA ENV (Envelope)



Velo (Velocity Follow (Time 1))

Sets the sensitivity of the velocity that controls the Time 1 of the TVA ENV. Increasing the sensitivity shortens Time 1, by stronger playing.

Value: 0–4



TKF (Keyfollow (Time))

This can change the time of the TVA ENV depending on the key played. 0 to 4 are valid. Higher values change the time more drastically.

Value: 0–4

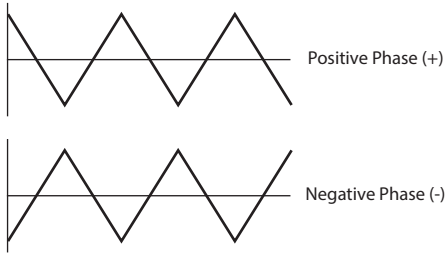
TVA MOD (TVA Modulation)

```
P2:11:53 TVA Mod
LFO +1 LFOD 00
```

LFO (LFO Select)

Selects the LFO that changes the volume periodically (tremolo effects).

Value: +1, -1, +2, -2, +3, -3



Indication	LFO (phase)
+1	LFO-1 (+)
-1	LFO-1 (-)
+2	LFO-2 (+)
-2	LFO-2 (-)
+3	LFO-3 (+)
-3	LFO-3 (-)

LFOD (LFO Depth)

Sets the depth of the tremolo effect. Higher values deepen the effect.

Value: 0-100

Aftr (Aftertouch Range)

Sets the sensitivity of the aftertouch that controls the volume.

“-” values lower the volume by stronger aftertouch. And “+” values increase the volume by stronger aftertouch.

Value: -7+7

Key Mode Alteration

The way in which the Key Mode (p. 2) affects how notes are sounded differs depending on whether you're using the D-05 in mono mode or in poly mode.

Mono Mode, Poly Mode

When you're using the D-05 from an external MIDI device, the D-05 can receive MIDI channels in the following two ways.

The D-05 can be used in one or the other of these two modes.

Name	Function
Poly Mode	Allows the control of more than one Key message on one channel at a time. The D-05 is 16 or 8 voices polyphonic (depending on the patch used). So the Poly Mode can be used the D-05 is controlled by a keyboard or sequencer.
Mono Mode	Allows only one MIDI message on one channel. The D-05 is 8 voices polyphonic using 8 MIDI channels. The Mono mode is ideal for a MIDI Guitar System (GR-33, GR-20, etc.) hat has Mono mode, and transmits the messages of each string separately on a different channel. In the other words, Mono mode makes it possible to reproduce guitar sounds without spoiling the natural characteristics of the instrument.

Select Poly or Mono mode depending on the type of Mode Message sent from the external MIDI device.

When Mono mode messages are received by the D-05, the messages can now be received on a channel group (= eight consecutive MIDI channels, the basic channel being the lowest number).

* **The Mono mode of the D-05 allows it to receive only the note and bender messages for each channel, therefore it is NOT possible to set a different sound for each note separately.**

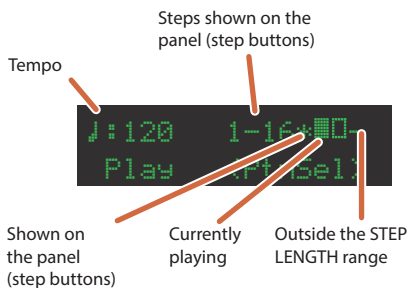
SEQUENCER/ARPEGGIATOR

When you want to use the sequencer, press the **[SEQUENCER]** button.



The PATCH BANK **[1]–[8]** buttons and NUMBER **[1]–[8]** buttons indicate the status of each step in the step display area that's selected (STEP: 1–16, 17–32, 33–48, 49–64).

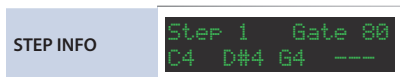
SEQ MAIN (sequencer screen)



You can change the tempo when the tempo is displayed and no item is selected by the **[F1]** **[F2]** buttons.

Use the **[←]** **[→]** buttons to change the range of steps that are shown.

Press a **[1]–[16]** button to enable step input. The screen shows step information.



Play/Stop

Plays/stops the selected pattern.

(PtnSel) Pattern Select

Accesses the pattern select screen.

SEQ PRM (sequencer parameter)

In the SEQ MAIN screen, hold down the **[SHIFT]** button and press the **[F2]** button to access the SEQ PRM screen.

Len (Length)

Specifies the pattern length (number of steps).

Value: 1–64

Scal (Scale)

Specifies the note value of one step.

Value: 4, 8, 16, 32, 4T, 8T, 16T

Indication	Explanation
4	Quarter note
8	Eighth note
16	Sixteenth note
32	Thirty-second note
4T	Quarter-note triplet
8T	Eighth note triplet
16T	Sixteenth note triplet

Shfl (Shuffle)

Specifies the amount of rhythm “bounce” (shuffle).

Value: -90–0–+90

Gate (Gate)

Specifies the note duration for one step.

Value: 1–100

Off (Off Step Mode)

Specifies whether muted steps will be treated as rests or skipped (Off Step Mode).

* This setting is not saved in the pattern.

Value: REST, SKIP

Indication	Explanation
REST	Rest
SKIP	Skip

Ord (Step Order)

Specifies the playback order of the steps.

* This setting is not saved in the pattern.

Value: →, ←, ←→, →←, RND

Indication	Explanation
→	Play forward from the first step.
←	Play backward from the last step.
←→	Play forward from the first step, and then play backward from the last step.
→←	Play with even-numbered and odd-numbered steps inverted.
RND	Play steps randomly.

S. Stp (Start Step)

By specifying the start step, you can make playback start from a step that's mid-way through the pattern. Steps earlier than this step are not played.

* This setting is not saved in the pattern.

1. Hold down the **[F1]** button and use the **[INCREMENT]** **[DECREMENT]** buttons to edit the value.

Value: -, 1–64

Indication	Explanation
-	Not specified
1–64	First step

E.STP (End Step)

By specifying the last step, you can make a step that's mid-way through the pattern be treated as though it were the last step. Steps later than this step are not played.

* This setting is not saved in the pattern.

1. Hold down the **[F2]** button and use the **[INCREMENT]** **[DECREMENT]** buttons to edit the value.

Value: -, 1–64

Indication	Explanation
-	Not specified
1–64	Last step

*** Clear ***

Clears the pattern.

PATTERN WRITE

While the sequencer screen is displayed, press the **[WRITE]** button.

(Pattern name)

Edits the pattern name.

[F1] [F2] buttons: Move the cursor

Tempo

Specifies the tempo.

Value: OFF, 40–300

Indication	Explanation
OFF	The tempo is not stored.
40–300	The pattern is stored with the specified tempo.

Shuffle

Specifies the amount of rhythm **“bounce”** (shuffle).

Value: OFF, -90–0–90

Indication	Explanation
OFF	The amount of shuffle is not stored.
-90–0–90	The pattern is stored with the specified amount of shuffle.

Pattern Patch

Here’s how to specify the patch that is used when the patch is played.

1. Use the **[INCREMENT] [DECREMENT] [PRESET/USER], PATCH BANK, and PATCH NUMBER** buttons to specify the value.
2. If you want to turn this parameter OFF, press the **[PRESET/USER]** button and then press the **[DECREMENT]** button to select **“OFF.”**

Value: OFF, P1-11–U8-88

Indication	Explanation
OFF	The patch is not stored.
P1-11–U8-88	The pattern plays with the specified patch.

During STEP REC (step recording screen)

In the SEQ MAIN screen, hold down the **[SHIFT]** button and press the **[F1]** button to access the STEP REC screen.

Rest ([F1] button)	Inputs a rest.
Tie ([F2] button)	Inputs a tie (the note value is added to the preceding step).

Use the **[←] [→]** buttons to change the range of steps that are shown.

When you press a key, a note is input at the current step. The screen shows step information.

STEP INFO	Step 1 Gate 80 C4 D#4 G4 ---
-----------	---------------------------------

Press a **[1]–[16]** button to enable step input. The screen shows step information.

STEP INFO	Step 1 Gate 80 C4 D#4 G4 ---
-----------	---------------------------------

ARP (arpeggiator)

To access the arpeggiator screen, hold down the **[SHIFT]** button and press the **[SEQUENCER]** button.

J:125	ARP
Sw OFF	Typ UP1

Sw (Switch)

Turns the arpeggiator on/off.

Value: OFF, ON

Typ (Type)

Selects the type of arpeggio.

Value: UP1, U&D1, DOWN1, UP2, U&D2, DOWN2

Indication	Explanation
UP1	Upward one octave
U&D1	Upward and downward one octave
DOWN1	Downward one octave
UP2	Upward two octaves
U&D2	Upward and downward two octaves
DOWN2	Downward two octaves

Scal (Scale)

Specifies the note value of one step.

Value: 4, 8, 16, 32, 4T, 8T, 16T

Indication	Explanation
4	Quarter note
8	Eighth note
16	Sixteenth note
32	Thirty-second note
4T	Quarter-note triplet
8T	Eighth note triplet
16T	Sixteenth note triplet

Hold

If this is on, the arpeggio continues playing according to the chord you had been playing even after you release your hand.

If you play a different chord while the arpeggio is being held, the arpeggio also changes.

Transferring Patches To and From the D-50/550

You can use MIDI to transmit patch data (64 patches) saved on your D-50 and receive the data with the D-05. This procedure is known as **“bulk load.”** This is an easy and convenient way to take your own original patches (64 patches) created with the D-50 and use them with the D-05.

Conversely, you can also send patch data edited using the D-05 via MIDI to the D-50/550. This procedure is called **“bulk dump.”**

* Read this material together with the D-50/550 Owner’s Manual.

Data transfer

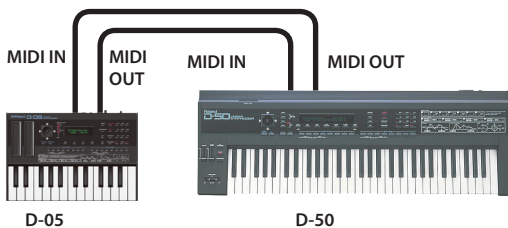
A set of data can be sent to another D-50 using Roland MIDI exclusive messages, and stored on that device. This is called **“data transfer”**; transmitting data is called **“bulk dump,”** and receiving this data is called **“bulk load.”**

Data transfer can occur using either of two methods: handshake or one-way.

Handshake data transfer

Handshake transfers the data while verifying that the other connected device has correctly received the data; this allows the data to be sent reliably and quickly.

< Handshake connections >



1. Set the receiving unit and the transmitting unit to the same basic channel.
2. Turn memory protect off for the receiving unit (**“Function Menu”** → **“Func”** → **“Protect”** parameter).
3. Press the data transfer button of the receiving unit and the transmitting unit. (in the case of the D-50/D-550)
4. Put the receiving unit in the receive-ready condition.

Operations on the D-05

From U1–U8, select the group that you want to transfer.

* P1–P6 cannot be transferred.

- 4-1. Press the **[FUNCTION]** button.

```
Function Menu
(Func) (MIDI)
```

- 4-2. Press the **[←]** button to access the (B.Dump) (B.Load) screen.

```
Function Menu
(B.DUMP)(B.Load)
```

- 4-3. Press the **[F2]** button.

```
Bulk Load Sure?
[EXIT]:N [ENT]:Y
```

- 4-4. Press the **[ENTER]** button.

Read this material together with the D-50/550 Owner’s Manual.

5. Put the transmitting unit in the transmit-ready condition.

Operations on the D-05

From U1–U8, select the group that you want to transfer.

* P1–P6 cannot be transferred.

- 5-1. Press the **[FUNCTION]** button.

```
Function Menu
(Func) (MIDI)
```

- 5-2. Press the **[←]** button to access the (B.Dump) (B.Load) screen.

```
Function Menu
(B.DUMP)(B.Load)
```

- 5-3. Hold down the **[SHIFT]** button and press the **[F1]** button.

```
Bulk Dump Sure?
[EXIT]:N [ENT]:Y
```

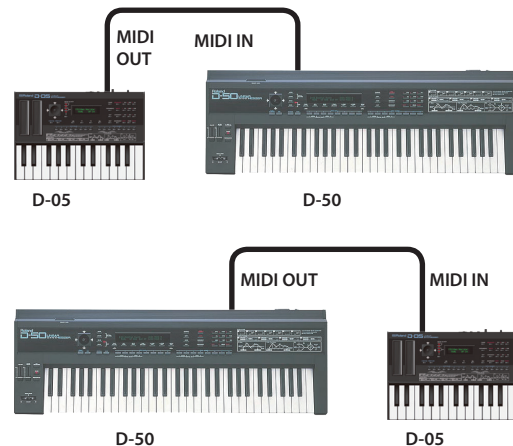
- 5-4. Press the **[ENTER]** button.

Read this material together with the D-50/550 Owner’s Manual.

One-way data transfer

One-way is the method in which data is sent from one unit regardless of the state of the receiving unit. Although the connection is simple, it takes somewhat longer to transfer the data than the handshake transfer method.

< One-way connection >



1. Set the receiving unit and the transmitting unit to the same basic channel.
2. Turn memory protect off for the receiving unit (**“Function Menu”** → **“Func”** → **“Protect”** parameter).
3. Press the data transfer button of the receiving unit and the transmitting unit. (in the case of the D-50/D-550)
4. Put the receiving unit in the receive-ready condition.

Operations on the D-05

From U1–U8, select the group that you want to transfer.

* P1–P6 cannot be transferred.

4-1. Press the **[FUNCTION]** button.

```
Function Menu
(Func) (MIDI)
```

4-2. Press the **[←]** button to access the (B.Dump) (B.Load) screen.

```
Function Menu
(B.Dump)(B.Load)
```

4-3. Hold down the **[SHIFT]** button and press the **[F2]** button.

```
BulkLoad.0 Sure?
[EXIT]:N [ENT]:Y
```

4-4. Press the **[ENTER]** button.

Read this material together with the D-50/550 Owner's Manual.

5. Put the transmitting unit in the transmit-ready condition.

Operations on the D-05

From U1–U8, select the group that you want to transfer.

* P1–P6 cannot be transferred.

5-1. Press the **[FUNCTION]** button.

```
Function Menu
(Func) (MIDI)
```

5-2. Press the **[←]** button to access the (B.Dump) (B.Load) screen.

```
Function Menu
(B.Dump)(B.Load)
```

5-3. Hold down the **[SHIFT]** button and press the **[F1]** button.

```
BulkDump.0 Sure?
[EXIT]:N [ENT]:Y
```

5-4. Press the **[ENTER]** button.

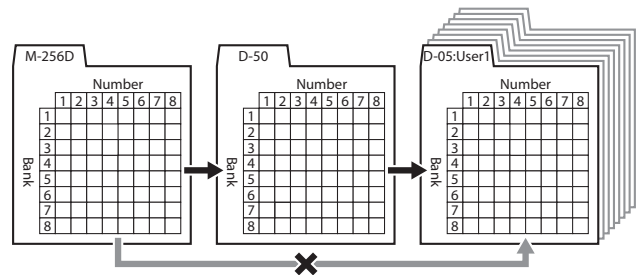
Read this material together with the D-50/550 Owner's Manual.

Transferring Patches from the D-50 to the D-05

Patches (64 patches) bulk loaded from the D-50 to the D-05 are temporarily transferred to the patch bank that includes the current patch.

Currently Patch Sample	→	Destination Patch Bank Sample
U1-11: Fantasia	→	User1-11–User1-88
U6-88: Big Wave	→	User6-11–User6-88

- The patches (64 patches) originally residing in the bulk load destination will appear to have been overwritten.
- Patches saved to memory cards used with the D-50 (M-256D) cannot be transferred directly from these memory cards to the D-05. First, transfer the patch data to the D-50 from the memory card (M-256D), then transfer the patch data from the D-50 to the D-05.



Transferring Patches from the D-50/550 to the D-05

- * You cannot bulk load data when a patch in the Preset Banks (P1 – P6) is selected.
- * The D-05 display does not change immediately following the bulk load. You can confirm the outcome of the transfer by switching patches.

Sound List

Preset Patches

W = WHOLE, D = DUAL, S = SPLIT

P1 (Preset 1:Original D-50)

	No.1	2	3	4	5	6	7	8
BANK 1	Fantasia (D)	Metal Harp (D)	Jazz Guitar Duo (D)	Arco Strings (D)	Horn Section (D)	Living Calliope (D)	D-50 Voices (D)	Slow Rotor (D)
2	DigitalNativeDance (D)	Bass Marimba (D)	Flute-Piano Duo (S)	Combie Strings (D)	Harpsichord Stabs (D)	Griittarr (D)	Nylon Atmosphere (D)	Synthetic Electric (D)
3	Breathy Chiffer (D)	Gamelan bell (D)	Slap Brass (D)	PressureMe Strings (D)	Rich Brass (D)	Pipe Solo (D)	Soundtrack (D)	Cathedral Organ (D)
4	Shamus Theme (D)	Vibraphone (D)	Basin Strat Blues (S)	Pizzagogo (D)	Flutish Brass (D)	Pressure Me Lead (W)	Spacious Sweep (W)	Piano-Fifty (D)
5	Glass Voices (D)	Hollowed Harp (D)	Ethnic Session (D)	Jete Strings (D)	Stereo Polysynth (D)	Tine Wave (D)	Syn-Harmonium (W)	Rock Organ (D)
6	Staccato Heaven (D)	Oriental Bells (D)	E-Bass and E-Piano (S)	Legato Strings (D)	JX Horns-Strings (D)	Shakuhachi (D)	Choir (D)	Picked Guitar Duo (D)
7	Nightmare (D)	Syn Marimba (D)	Slap Bass n Brass (S)	String Ensemble (D)	Velo-Brass (W)	Digital Cello (D)	O K Chorale (D)	Planissimo (D)
8	Intruder FX (D)	Steel Pick (D)	Synth Bass (D)	Afterthought (D)	Bones (D)	Bottle Blower (D)	Future Pad (D)	PCM E-Piano (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Bright Hall
18.	Large Cave
19.	Steel Pan
20.	Delay (248 ms)
21.	Delay (338 ms)
22.	Cross Delay (157 ms)
23.	Cross Delay (252 ms)
24.	Cross Delay (274-137 ms)
25.	Gate Reverb
26.	Reverse Gate (360 ms)
27.	Reverse Gate (480 ms)
28.	Slap Back
29.	Slap Back
30.	Slap Back
31.	Twisted Space
32.	Space

P2 (Preset 2: New for D-05)

	No.1	2	3	4	5	6	7	8
BANK 1	Neo Horizon (D)	Aqua Bells (D)	Lead with Joystk (D)	D-50SynBrass (D)	Fat Warm Pad (D)	MoodSwingKeys (D)	PlaceLetsGo Bs (D)	Industrial Move (D)
2	A Bright Day (D)	Music Box (W)	Hammer Feel (D)	Darjiling (D)	I Saw The Light (D)	MiamiVibe EP (D)	Power Key Bs (D)	Fantasy Orche MW (D)
3	Alienz in G (D)	Space Harp (D)	Gargle Lead (D)	Tweeters (D)	Future is Behind (D)	80s Clav (D)	DoubleGritBs (D)	Transformed (D)
4	Grim Sweeper (D)	Higher Bell (D)	Minneapolis (D)	Spectral Voices (D)	Thoughts (D)	The House Piano (D)	MoonStroller Bs (D)	DanceCombination (D)
5	Magnif Pad (D)	Wonder Drops (D)	MuiltMod Ld (D)	The Synth Brass (D)	Saw Strings (D)	End of the 7 Era (D)	Mono Octabass (W)	Rave Stab P (D)
6	Rain Forest (D)	Fly Fairy (D)	TrashTalk Ld (D)	Chop Flutes (D)	Atmostrings (D)	Ripper Bars (D)	Synthetic Bass (D)	Auto Work (S)
7	FastMosphere Pad (D)	Twinkle Bugs (D)	Fifty Lead (D)	D-Choir (D)	Waving Strings (D)	Open Da Gate (D)	Bass Compression (D)	DeathBrassBand (D)
8	Zenigma Pad (D)	Christmas Time (D)	Narky Light (D)	50 Flutes (D)	Elliptic Orbit (D)	Wide DooWah (D)	ControllahBs (D)	Touchdown (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Bright Hall
18.	Large Cave
19.	Steel Pan
20.	Delay (248 ms)
21.	Delay (338 ms)
22.	Cross Delay (157 ms)
23.	Cross Delay (252 ms)
24.	Cross Delay (274-137 ms)
25.	Gate Reverb
26.	Reverse Gate (360 ms)
27.	Reverse Gate (480 ms)
28.	Slap Back
29.	Slap Back
30.	Slap Back
31.	Twisted Space
32.	Space

P3 (Preset 3:PN-D50-01)

	No.1	2	3	4	5	6	7	8
BANK 1	Bouncing Bows (D)	Deep Analog Strings (D)	Psycho Strings (D)	Warm Strings (D)	Deep String Ensmbl (D)	Symphony Strings (D)	Chase String Ensmb (D)	Baroque Strings (D)
2	Cello (D)	Viola (D)	Solo Violin (D)	Contra Bass (D)	Choir and Strings (D)	Harpsi Strings (D)	Horns and Strings (D)	Pulse Pad (D)
3	Classical Horn (D)	Fanfare (D)	Tuba (W)	Velo-Brass 2 (D)	Stab Brass (D)	Mallet Horns (D)	Slow Brass Sweep (D)	Slappin Brass (D)
4	Tenor Saxophone (D)	Alto Saxophone (D)	Soprano Saxophone (D)	EPiano n Sopranino (S)	Wild Blow (D)	Squeeze de Sax (W)	Harmonica (W)	Whistling Soldiers (S)
5	Flute-Piccolo (D)	Oboe (D)	Bassoon (D)	Clarinet (D)	Ocarina (W)	Breathing Pipe (D)	Calliope (D)	Wabi Sabi (D)
6	Synth Lead 1 (D)	Synth Lead 2 (W)	Griittarr 2 (D)	5th Lead Synth (W)	Analog Solo (D)	Synth Lead 3 (W)	Gotham Low (W)	Taj Mahal (D)
7	Ham and Organ (D)	Slow Rotor 2 (D)	Slow to Fast Rotor (D)	Good and Old Days (W)	Percussive E-Organ (D)	SlapBass and Organ (S)	Pipe Organ (W)	Weird Organ (D)
8	Star Peace Chorus (D)	Spacy Voice (D)	Thinful (D)	V-Harmonium (D)	Android (D)	Nuns (D)	Pressure Pad (D)	Digital Sound (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Very Small Hall
18.	Medium Small Hall
19.	Medium Large Hall
20.	Very Large Hall
21.	Slap Back (short)
22.	Slap Back (medium)
23.	Slap Back (long)
24.	Cross Delay (34-102 ms)
25.	Cross Delay (103-206 ms)
26.	Cross Delay (130 ms)
27.	Cross Delay (306-153 ms)
28.	Cross Delay (191 ms)
29.	Cross Delay (220 ms)
30.	Cross Delay (22.5-284 ms)
31.	Cross Delay (382-11 ms)
32.	Cross Delay (28-426 ms)

P4 (Preset 4:PN-D50-02)

	No.1	2	3	4	5	6	7	8
BANK 1	Synthetic Piano 1 (D)	Upright Pianer (D)	Loud Piano (D)	Tack Piano (D)	Synthetic Piano 2 (W)	High Piano (D)	Two Part Invention (D)	HarpichordCoupler (W)
2	Electric Piano (D)	Xmod Attack EPiano (W)	Harmonic E-Piano (D)	Reluctant E-Piano (D)	Tines (D)	Old Clav (W)	Painful Clav (D)	Flanging Clav (D)
3	Guitar Frets (D)	Jazz Guitar (W)	Spanishart (D)	Acoustic Guitr Box (D)	Harp (W)	Koto (D)	Sitar (D)	Hawaiian Palms (S)
4	Marimba (D)	Xylophone (D)	Glockenspiel (W)	Jamaican Steel (D)	Perc AAAH (D)	Tremolo BrassBells (D)	Sth Voice Bells (D)	Xylo Gate (W)
5	SambaDrum n Agogo (S)	Drums Set 1 (S)	Drums Set 2 (S)	Percussion Set 1 (S)	Gron Percussion (D)	Bell Tree (W)	Serrengetti (D)	Bellocell (D)
6	Fingered Bass (D)	Slap Bass 1 (D)	Slap It (D)	Picked Bass (D)	Fretless Bass (D)	Acoustic Bass (D)	Synth Bass 2 (D)	SlapBass-SynBrass (S)
7	Stringz n Bellz (D)	Bright Wave (D)	Gotham Chords (D)	Wonderwave (D)	GamelanBells 2 (D)	Ethnic Fifth (W)	Japanese Duo 1 (S)	Japanese Duo 2 (S)
8	AQUA (D)	Jet Wars (S)	Orchestra Hit (D)	Clock Factory (D)	Gunfire - Ricochet (D)	Fast Forward (W)	Air Raid Siren (D)	Sweep Loop on C (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Very Small Room
18.	Medium Small Room
19.	Medium Room
20.	Large Room
21.	Metal Can
22.	Short Gate (140 ms)
23.	Medium Gate (250 ms)
24.	Long Gate (390 ms)
25.	Reverse Gate (270 ms)
26.	Reverse Gate (440 ms)
27.	Delay (94 ms)
28.	Delay (122 ms)
29.	Delay (142 ms)
30.	Cross Delay (168 ms)
31.	Delay (212 ms)
32.	Delay (290 ms)

P5 (Preset 5:PN-D50-03)

	No.1	2	3	4	5	6	7	8
BANK 1	String Section (D)	Syn-Strings Hi (D)	Tension Strings (D)	Planetary Strings (D)	Symphony Orchestra (D)	Analog Syn-Strings (D)	Crescendo Strings (D)	Warm Strings Pad (D)
2	Vibrato Cello (D)	String Quartette (D)	Pizz Typewriter (D)	Strings Horn (D)	Strings ElecPiano (D)	High-Strings Oboe (D)	Cello-ViolaPiccolo (D)	Bass-PianoStrings (D)
3	Powerful Brass (D)	Mute Trumpet (W)	Westerly Brass (D)	Flugel Horn (W)	Eye Brasspad (D)	Trumpeters (D)	Pressure 5th Horns (D)	Pianish Horns (D)
4	Baritone Saxophone (D)	Silver Saxophones (D)	Saxcessive Tones (D)	Synthesized Sax (W)	Growl Saxophone (D)	Sopranino Sax (D)	Xarmonica (W)	Happy Whistler (D)
5	Breathy Flute (D)	Bohemian (D)	Recorder (D)	Breeze Pipe (D)	Flutes Ensemble (D)	Woodwinds (S)	Pipe Bags (D)	Vibe n Clarinet (S)
6	Heavy Metal Lead (D)	Monophonic Lead (D)	Pulse Lead (W)	Squeeze Lead (D)	Energetical Lead (D)	Monotone Lead (D)	Harmonics Lead (D)	Metallic Lead (D)
7	Jazz Organ (D)	Huge Pipes (D)	Velocity Rotor (D)	Choral Organ (D)	Click Organ (D)	Solid Beat (D)	Wavy Motion (D)	Pressure Generator (D)
8	Whispy Voice (D)	Alpha Omega Ensemble (D)	Voice n Sawz (D)	4th Synth Voice (D)	Husky Voices (D)	Stereo Panorama (D)	Voyageur (D)	Glass Voice 2 (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Cross Delay (114 ms)
18.	Cross Delay (165 ms)
19.	Cross Delay (198 ms)
20.	Cross Delay (240 ms)
21.	Tap Delay (110-38 ms)
22.	Tap Delay (50-180 ms)
23.	Tap Delay (250-500 ms)
24.	Pan Delay (250-500 ms)
25.	Single Delay (136 ms)
26.	Single Delay (205 ms)
27.	Single Delay (270 ms)
28.	Single Delay (355 ms)
29.	Single Delay (430 ms)
30.	Single Delay (500 ms)
31.	Rolling (short)
32.	Rolling (long)

P6 (Preset 6:PN-D50-04)

	No.1	2	3	4	5	6	7	8
BANK 1	Perc E-Piano (D)	Ballad Piano Choir (D)	New Age Piano (D)	Xmod E-Piano (W)	Vividly Piano (D)	Air Piano (D)	Honky-Tonk Piano (D)	Antique harpsichord (D)
2	Spanish Guitar (D)	Ringmod E-Guitar (D)	Gypsy Guitar (D)	Rock Guitar (D)	HarpStrings (D)	Dulcimer Voice (D)	Combie Clav (D)	Stereo Clav (D)
3	Toys in the Attic (D)	Music Toybox (D)	Bells Harmony (D)	Star Chime (D)	African Kalimba (D)	Okinawa Session (S)	Jamaican Sounds (D)	India (S)
4	Sweet Vibes (D)	Clear Bell Pad (W)	Marimbell (D)	Venetian Cafe (S)	Grand Canyon (S)	Funky Bed Trax (S)	Ohayashi (S)	Koto-BambooFlute (S)
5	Digital Atmosphere (W)	Polyphonic Synth (D)	Pad Combo (D)	Attack-Reso Synth (D)	Velo-Oct Pulse (D)	Perc Release (D)	Steam Synth Pad (D)	Zean- - - (D)
6	Hopper Bass (D)	Electric Pick Bass (D)	Octave Synth Bass (D)	Natural Bass (D)	Glide Bass (D)	Funky Reso-Bass (D)	Steelblue Bass (D)	Funky Cutting (S)
7	Soundtrack n Hold (D)	Reso Release (D)	Ballet Voices U-L (D)	PressPan SamplHold (D)	Twilight Zone (D)	AfterBend-Panning (D)	All Diminish Chord (D)	Cosmo Voices (D)
8	Marshy Zone (D)	Dense Forest (D)	F-1 Grand Prix (D)	Passing Sky (D)	Devildom (S)	Haunted Bells (D)	Vietnam FX (S)	Big Waves (D)

Reverb type

01.	Small Hall
02.	Medium Hall
03.	Large Hall
04.	Chapel
05.	Box
06.	Small Metal Room
07.	Small Room
08.	Medium Room
09.	Medium Large Room
10.	Large Room
11.	Single Delay (102 ms)
12.	Cross Delay (180 ms)
13.	Cross Delay (224 ms)
14.	Cross Delay (148-296 ms)
15.	Short Gate (200 ms)
16.	Long Gate (480 ms)

17.	Small Hall
18.	Medium Hall
19.	Large Hall
20.	Cave
21.	Small Room
22.	Medium Room
23.	Large Room
24.	Garage
25.	Slap Back
26.	Small Can
27.	Metal Box
28.	Medium Gate (320 ms)
29.	Long Gate (430 ms)
30.	Gate Reverse (370 ms)
31.	Space
32.	Flange Space

Waveform

Oneshot

Number	Indication	PCM Name
1	Marmba	Marimba
2	Vibes	Vibraphone
3	Xylo1	Xylophone 1
4	Xylo2	Xylophone 2
5	Log_Bs	Log bass
6	Hammer	Hammer
7	JpnDrm	Japanese Drum
8	Kalmba	Kalimba
9	Pluck	Pluck 1
10	Chink	Chink
11	Agogo	Agogo
12	3angle	Triangle
13	Bells	Bell's
14	Nails	Nail File
15	Pick	Pick
16	Lpiano	Low Piano
17	Mpiano	Mid Piano
18	Hpiano	High Piano
19	Harpsi	Harpsichord
20	Harp	Harp
21	Orgprc	Organ Percussion
22	Steel	Steel Strings
23	Nylon	Nylon Strings
24	Eguit1	Electric Guitar 1
25	Eguit2	Electric Guitar 2
26	Dirt	Dirty Guitar
27	P_Bass	Pick Bass
28	Pop	Pop Bass
29	Thump	Thump
30	Uprite	Upright Bass
31	Clarnt	Clarinet
32	Breath	Breath
33	Steam	Steamer
34	FluteH	High Flute
35	FluteL	Low Flute
36	Guiro	Guiro
37	IndFlt	Indian Flute
38	Harmo	Flute Harmonics
39	Lips1	Lips 1
40	Lips2	Lips 2
41	Trumprt	Trumpet
42	Bones	Trombones
43	Contra	Contrabass
44	Cello	Cello
45	VioBow	Violin bow
46	Violns	Violins
47	Pizz	Pizzicart

Loop

Number	Indication	PCM Name
48	Drawbr	Draw bars (Loop)
49	Horgan	High Organ (Loop)
50	Lorgan	Low Organ (Loop)
51	EP_Ip1	Electric Piano (Loop 1)
52	EP_Ip2	Electric Piano (Loop 2)
53	CLAVIp	Clavi (Loop)
54	HC_Ip	Harpsichord (Loop)
55	EP_Ip1	Electric Bass (Loop 1)
56	AB_Ip	Acoustic Bass (Loop)
57	EB_Ip2	Electric Bass (Loop 2)
58	EB_Ip3	Electric Bass (Loop 3)
59	EG_Ip	Electric Guitar (Loop)
60	CELLIp	CELLIp (Loop)
61	VIOLIp	Violin (Loop)
62	ReedIp	Lead (Loop)
63	SAXIp1	Sax (Loop 1)
64	SAXIp2	Sax (Loop 2)
65	Aah_Ip	Aah (Loop)
66	Ooh_Ip	Ooh (Loop)
67	ManIp1	Male (Loop 1)
68	Spect1	Spectrum 1 (Loop)
69	Spect2	Spectrum 2 (Loop)
70	Spect3	Spectrum 3 (Loop)
71	Spect4	Spectrum 4 (Loop)
72	Spect5	Spectrum 5 (Loop)
73	Spect6	Spectrum 6 (Loop)
74	Spect7	Spectrum 7 (Loop)
75	ManIp2	Male (Loop 2)
76	Noise	Noise (Loop)

Loop (Some of the sounds 1 to 76, are combined and looped.)

Number	Indication
77	Loop01
78	Loop02
79	Loop03
80	Loop04
81	Loop05
82	Loop06
83	Loop07
84	Loop08
85	Loop09
86	Loop10
87	Loop11
88	Loop12
89	Loop13
90	Loop14
91	Loop15
92	Loop16
93	Loop17
94	Loop18
95	Loop19
96	Loop20

Number	Indication
97	Loop21
98	Loop22
99	Loop23
100	Loop24

Parameter List

Patch Factors

Settings Common to All Screens (PATCH TOP) (p. 2)

KEY MODE	Key Mode	WHOLE, DUAL, SPLIT, SEP, WHOL-S, DUAL-S, SPL-US, SPL-LS, SEP-S
SPLIT	Split Point	C2-C7
BALANCE	Tone Balance	0-100
TRANSPOSE	Transpose	-36-+36
Chase Switch	Chase Switch	OFF, ON
Portamento Switch	Portamento Switch	OFF, ON

CONTROL (p. 3)

Bend	Bender Range	0-12
AfterPB	Aftertouch Bend Range	-12-+12
Hold	Hold Mode	U, L, UL
Time	Portamento Time	0-100
Mode	Portamento Mode	U, L, UL

OUTPUT (p. 4)

Mode	Output Mode	1-4
RevType	Reverb Type	1-32
RevbAl	Reverb Balance	0-100
Vol	Total Volume	0-100

CHASE (p. 4)

Mode	Chase Mode	UL, ULL, ULU
Level	Chase Level	0-100
Time	Chase Time	0-100

STONE TUNE (p. 5)

LKey	L-Tone Key Shift	-24-+24
UKey	U-Tone Key Shift	-24-+24
LTun	L-Tone Fine Tune	-50-+50
UTun	U-Tone Fine Tune	-50-+50

MIDI (p. 5)

TxCH	Transmit CH	B, 1-16
TxPC	Transmit Program Change	Off, 1-100
SepCH	Separate Mode Receive CH	Off, 1-16

Tone Parameters

Common Parameters

Struct (p. 8)

Structure	Struct	Structure	1-7
-----------	--------	-----------	-----

P-ENV (p. 8)

P-ENV	Velo	Velocity Range	0-2
	TKF	Time Keyfollow	0-4
P-ENV Time	T1	Time1	0-50
	T2	Time2	0-50
	T3	Time3	0-50
	T4	Time4	0-50
P-ENV Level	L0	Level0	-50-0-+50
	L1	Level1	-50-+50
	L2	Level2	-50-+50
	SusL	Sustain Level	-50-+50
	EndL	End Level	-50-+50
Pitch Mod	LFOD	LFO Depth	0-100
	Lever	Pitch Lever Modulation	0-100
	Aftr	Pitch Aftertouch Modulation	0-100

LFO (p. 9)

LFO-1	Wave	Waveform	TRI, SAW, SQU, RND
	Rate	Rate	0-100
	Delay	Delay Time	0-100
	Sync	Sync.	Off, On, KEY
LFO-2	Wave	Waveform	TRI, SAW, SQU, RND
	Rate	Rate	0-100
	Delay	Delay Time	0-100
	Sync	Sync.	Off, On
LFO-3	Wave	Waveform	TRI, SAW, SQU, RND
	Rate	Rate	0-100
	Delay	Delay Time	0-100
	Sync	Sync.	Off, On

EQ (p. 10)

EQ	LowFreq	Low Frequency	63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840
	LowGain	Low Gain	-12-+12
	HiFreq	High Frequency	250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5
	HiQ	High Q	0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0
	HiGain	High Gain	-12-+12

Chorus	Type	Chorus Type	1–8
	Rate	Chorus Rate	0–100
	Depth	Chorus Depth	0–100
	Balance	Chorus Balance	0–100

Partial Parameters

FORM (p. 12)

WG Form	Wave	Waveform	SQU, SAW
	PCM	PCM Wave No.	1–100
WG PW	PW	Pulse Width	0–100
	Velo	Velocity Range	-7–+7
	After	Aftertouch Range	-7–+7
	LFO	LFO Select	+1, -1, +2, -2, +3, -3
	LFOD	LFO Depth	0–100

PITCH (p. 11)

WG Pitch	Coars	Coarse	C1–C7
	Fine	Fine	-50–+50
	KF	Keyfollow	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2
WG Mod	LFO	LFO Mode	Off, (+), (-), A&L
	ENV	P-ENV Mode	Off, (+), (-)
	Bend	Bender Mode	Off, KEY, Norm

TVF (p. 13)

TVF	Freq	Cutoff Frequency	0–100
	Reso	Resonance	0–30
	KF	Keyfollow	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2
	BP	Bias Point/Bias Direction	<A1 – <C7, >A1 – >C7
	BLevel	Bias Level	-7–+7
TVF ENV	Depth	Depth	0–100
	Velo	Velocity Range	0–100
	DKF	Depth Keyfollow	0–4
	TKF	Time Keyfollow	0–4
TVF ENV Time	T1	Time1	0–100
	T2	Time2	0–100
	T3	Time3	0–100
	T4	Time4	0–100
	T5	Time5	0–100
TVF ENV Level	L1	Level1	0–100
	L2	Level2	0–100
	L3	Level3	0–100
	SusL	Sustain Level	0–100
	EndL	End Level	0, 100

TVA (p. 15)

TVA	Level	Level	0–100
	Velo	Velocity Range	-50–+50
	BP	Bias Point/Bias Direction	<A1 – <C7, >A1 – >C7
	BLevel	Bias Level	-12–0
TVA ENV	Velo	Velocity Follow	0–4
	TKF	Time Keyfollow	0–4
TVA ENV Time	T1	Time1	0–100
	T2	Time2	0–100
	T3	Time3	0–100
	T4	Time4	0–100
	T5	Time5	0–100
TVA ENV Level	L1	Level1	0–100
	L2	Level2	0–100
	L3	Level3	0–100
	SusL	Sustain Level	0–100
	EndL	End Level	0, 100

MOD (p. 15, p. 17)

TVF MOD	LFO	LFO Select	+1, -1, +2, -2, +3, -3
	LFOD	LFO Depth	0–100
	After	Aftertouch Range	-7–+7
TVA MOD	LFO	LFO Select	+1, -1, +2, -2, +3, -3
	LFOD	LFO Depth	0–100
	After	Aftertouch Range	-7–+7

System Parameters

Function (Function screen)

MastTune (Master Tune)	Specifies the reference pitch.
Protect	Turns memory protect on/off.
AutoOff	Enables automatic power-off when a certain length of time has elapsed since the unit was last played or operated.
Demo	Specifies the time (minutes) until the LED demo begins. If this is OFF, the demo is disabled.
LCDCont (LCD Contrast)	Adjusts the contrast of the display.
SndMode (Sound Mode)	Original This mode simulates the sound engine of the D-50. Clear This mode uses digital processing that is more accurate than on the D-50, delivering clear sound.
C1Scale	Specifies a note scale type for the ribbon controller (C1).
C2Hold	Turns on/off the hold function of the ribbon controller (C2).

MIDI Implementation

Model: D-05
Date: Sep. 09, 2017
Version: 1.00

1. Data Transmission

Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
kk = note number:	00H - 7FH (0 - 127)	
vv = note off velocity:	00H - 7FH (0 - 127)	

● Note on

Status	2nd byte	3rd byte
9nH	kkH v	vH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
kk = note number:	00H - 7FH (0 - 127)	
vv = note on velocity:	01H - 7FH (1 - 127)	

● Control Change

○ Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H - FH (ch.1 - 16)
mm, ll = Bank number: 00 00H - 7F 7FH (bank.1 - bank.16384)

* The Patches corresponding to each Bank Select are as follows.

BANK SELECT		PROGRAM NUMBER	BATCH BANK	PATCH NUMBER
MSB	LSB			
087	000	001 - 064	Internal 1	11 - 88
	001	001 - 064	Internal 2	11 - 88
	002	001 - 064	Internal 3	11 - 88
	003	001 - 064	Internal 4	11 - 88
	004	001 - 064	Internal 5	11 - 88
	005	001 - 064	Internal 6	11 - 88
	006	001 - 064	Internal 7	11 - 88
	007	001 - 064	Internal 8	11 - 88
	008	001 - 064	Preset 1	11 - 88
	009	001 - 064	Preset 2	11 - 88
	010	001 - 064	Preset 3	11 - 88
	011	001 - 064	Preset 4	11 - 88
	012	001 - 064	Preset 5	11 - 88
	013	001 - 064	Preset 6	11 - 88

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Modulation depth:	00H - 7FH (0 - 127)	

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH
n = MIDI channel number:	0H - FH (ch.1 - 16)	
vv = Volume:	00H - 7FH (0 - 127)	

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	
vv = Control value:	00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON	

○ Portamento Switch (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	
vv = Control value:	00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON	

● Program change

Status	2nd byte
CnH	ppH
n = MIDI channel number:	0H - FH (ch.1 - ch.16)
pp = Program number:	00H - 3FH (prog.1 - prog.64)

* Not transmitted when Program Change Switch (SYSTEM MIDI) is OFF.

● Channel Aftertouch

Status	2nd byte
DnH	vvH
n = MIDI channel number:	0H - FH (ch.1 - ch.16)
vv = Aftertouch Value:	00H - 7FH (0 - 127)

● Pitch Bender Change

Status	2nd byte	3rd byte
EnH	llH	mmH
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	
mm, ll = Pitch Bender value:	00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)	

Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	

● OMNI OFF (Controller number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H
n = MIDI channel number:	0H - FH (ch.1 - ch.16)	

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H - FH (ch.1 - ch.16)

■ System Realtime Messages

● Active Sensing

Status: FEH
 * This message is transmitted at intervals of approximately 250 msec.

● System Exclusive Messages

Status	
FOH	:System Exclusive
F7H	:EOX (End of Exclusive)

Transmitted in the following three cases.
 1. When Operating Bulk-Dump
 2. If Exclusive of System MIDI is "P-Dump," this unit transmits all parameters in the patch when the patch is changed.
 3. If Exclusive of System MIDI is "TxEdit," this unit transmits the parameter when the parameter is edited.
 Refer to Section 3 to see details.

2. Receive data

■ Channel Voice Messages

● Note off

Status	2nd byte	3rd byte
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number: 0H - FH (ch.1 - ch.16)
 kk = note number: 00H - 7FH (0 - 127)
 vv = note off velocity: 00H - 7FH (0 - 127)

● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 kk = note number: 00H - 7FH (0 - 127)
 vv = note on velocity: 01H - 7FH (1 - 127)

● Control Change

○ Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 mm, ll = Bank number: 00 00H - 7F 7FH (bank.1 - bank.16384)

* The Patches corresponding to each Bank Select are as follows.

BANK SELECT	PROGRAM NUMBER	BATCH BANK	PATCH NUMBER	
				MSB
087	000	001 - 064	Internal 1	11 - 88
	001	001 - 064	Internal 2	11 - 88
	002	001 - 064	Internal 3	11 - 88
	003	001 - 064	Internal 4	11 - 88
	004	001 - 064	Internal 5	11 - 88
	005	001 - 064	Internal 6	11 - 88
	006	001 - 064	Internal 7	11 - 88
	007	001 - 064	Internal 8	11 - 88
	008	001 - 064	Preset 1	11 - 88
	009	001 - 064	Preset 2	11 - 88
	010	001 - 064	Preset 3	11 - 88
	011	001 - 064	Preset 4	11 - 88
	012	001 - 064	Preset 5	11 - 88
	013	001 - 064	Preset 6	11 - 88

○ Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Modulation depth: 00H - 7FH (0 - 127)

○ Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Portamento Time: 00H - 7FH (0 - 127)

○ Data Entry (Controller number 6, 38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	lIH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 mm, lI = the value of the parameter specified by RPN/NRPN
 mm = MSB, lI = LSB

○ Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Volume: 00H - 7FH (0 - 127)

○ Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Control value: 00H - 7FH (0 - 127) 0-63 = OFF, 64-127 = ON

○ Portamento Switch (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Control value: 00H - 7FH (0 - 127) 0 - 63 = OFF, 64 - 127 = ON

○ RPN MSB/LSB (Controller number 100, 101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	lIH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 mm = upper byte (MSB) of parameter number specified by RPN
 lI = lower byte (LSB) of parameter number specified by RPN

<<< RPN >>>

Control Changes include RPN (Registered Parameter Numbers), which are extended.

When using RPNs, first RPN (Controller numbers 100 and 101; they can be sent in any order) should be sent in order to select the parameter, then Data Entry (Controller numbers 6 and 38) should be sent to set the value.

This device receives the following RPNs.

RPN	Data entry	Notes
MSB, LSB 00H, 00H	MSB, LSB mmH, lIH	Pitch Bender Range mm: 00H - 0CH (0 - 12 semitones) lI: ignored (processed as 00H) Up to 1 octave can be specified in semitone steps.
00H, 01H	mmH, lIH	Fine Tuning mm, lI: 00 00H - 40 00H - 7F 7FH (-50 - 0 - +50 cent)

● Program change

Status	2nd byte
CnH	ppH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 pp = Program number: 00H - 3FH (prog.1 - prog.64)

* Not received when the Program Change Switch (SYSTEM MIDI) is OFF.

● Channel Aftertouch

Status	2nd byte
DnH	vvH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 vv = Aftertouch Value: 00H - 7FH (0 - 127)

● Pitch Bender Change

Status	2nd byte	3rd byte
EnH	lIH	mmH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 mm, lI = Pitch Bender value: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

■ Channel Mode Messages

● All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* When this message is received, all notes currently sounding on the corresponding channel will be turned off.

● Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* When this message is received, all controllers on the corresponding channel will be set to their reset values.

● MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n = MIDI channel number: 0H - FH (ch.1 - 16)
 mm = mono number: 00H - 10H (0 - 16)

MONO mode, each message is recognized on the channel shown below.

mm	Channel range that is specified
0	8
1-8	1-8
9-16	8
17 or higher	Ignored

If mono mode is detected, each type of message is recognized on the channels shown below, according to the SYSTEM MIDI "Control" setting.

Message	Control in MIDI function	
	B.CH	G.CH
Note on/off	individual	
Control Change	basic	Global
Mode Message	basic	Global
Program Change	basic	Global
Aftertouch	basic	Global
Pitch Bender Change	individual	
Exclusive	basic	Global

"Basic" refers to the basic channel specified by the SYSTEM MIDI "MIDI CH" setting; "global" refers to the MIDI channel that is numbered one below the basic channel. However, if the basic channel is 1, the global channel will be 16.

● POLY (Controller number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H - FH (ch.1 - 16)

* These Mode Messages (2nd byte = 123-127) are also recognized as All Sounds Off and Reset All Controllers.

System Realtime Message

Active Sensing

Status

FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 300 ms, the same processing will be carried out as when All Notes Off are received, and message interval monitoring will be halted.

System Exclusive Message

Status

F0H : System Exclusive

F7H : EOX (End of Exclusive)

* Exclusive message can change either each parameter individually or all parameters, of a patch or tone.
 * Refer to Section 3 to see details.

3. Exclusive Communication

3.1 Message Format

Roland's exclusive format (type IV) messages all have the following structure.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
MDL	Model-ID
CMD	Command-ID
[BODY]	Data
F7H	EOX (End Of Exclusive)

MIDI status (F0H), (F7H)

Exclusive messages are enclosed between two status bytes; a "maker ID" is required after the F0H status byte. <This is prescribed by MIDI Specification version 1.0.>

Maker ID (41H)

This is Roland's ID. The "maker ID" specifies the manufacturer whose exclusive message this is.

Device ID "DEV"

This distinguishes between multiple devices. Normally, this will be a value that is one less than the "basic channel" (00H-0FH), but in the case of a device that has multiple basic channels, it may also be specified as (00H-1FH).

Model ID "MDL"

This has a fixed value for each model. However, if the same data is used by differing models, the same value is used. For expansion, (00H) is used; the number of (00H) is also used to differentiate various things.

For example,

(01H),
 (02H),
 (03H),
 (00H, 01H),
 (00H, 02H),
 (00H, 00H, 01H)

each indicate different models.

Command ID "CMD"

This indicates the role of the message.

For expansion, (00H) is used; the number of (00H) is also used to differentiate various things.

For example,

(01H),
 (02H),
 (03H),
 (00H, 01H),
 (00H, 02H),
 (00H, 00H, 01H)

each indicate different roles.

Data body [BODY]

This is the actual body of data that is transmitted or received. The size and content differ depending on the "model ID" and "command ID."

3.2 Data Transfer Using Address Mapping

Address mapping is the method in which data is transferred according to the format described in section 3.1. With this method, waveform data, sound data, switch information, and parameters are assigned to the address space specified for each model, so that various types of data can be transferred by specifying its address.

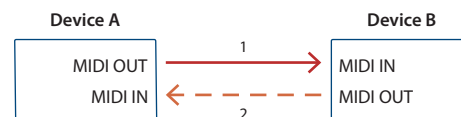
This means that the data transfer method does not differ depending on the model or the type of data. There are two methods of transferring the data: one-way and handshake.

Depending on the model and on the type of data, one or another of the two methods is used, or in some cases only one method is possible.

One-way method (see 3.3)

This method is suitable for transferring relatively small amounts of data; it transfers data by unilaterally transmitting an exclusive message.

Connection diagram

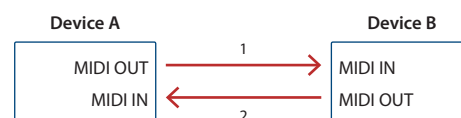


If "data request" (see 3) is used, connection 2 is required.

Handshake method (see 3.4)

This method transfers data using bi-directional verification (handshaking) between the transmitting and receiving devices. When transferring large amounts of data, this method provides high reliability and faster transfer.

Connection diagram



Both connections 1 and 2 are required.

Regarding the above two methods

* The "command ID" is fixed according to the transfer method.

* Data transfer cannot occur unless both device [A] and device [B] use the same method, are both in a state that allows them to transfer data, and are both set to matching "device ID" and "model ID."

3.3 Transferring Data Using the One-Way Method

When transferring relatively small amount of data, this method transmits the data unilaterally without checking each message. However, when consecutively sending large amount of data, an appropriate interval of time (at least 20 msec) is inserted between transmissions. This method requires that the receiving device be able to correctly receive the data within that time.

Types of message

Byte	Explanation
Request data 1	RQ1 (11H)
Data set	DT1 (12H)

● Request data 1 "RQ1" (11H)

Transmit this when you want the other device to send you data. The address and size indicate the size of data that is requested.

If this message is received, and if that device is able to transmit data, and the address and size are appropriate, the requested data is sent as a "data reset" message. If these conditions are not met, nothing is sent.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
11H	Command-ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check Sum
F7H	EOX (End Of Exclusive)

- * The size indicates the address of the entire data that is being requested; it is not the number of bytes of data in a single "data set 1" message.
- * For each model, the amount of data that can be transmitted at one time is fixed depending on the type of data, and in some cases the data must be transmitted and received in divisions of the specified address.
- * The address and size are numbers of bytes, and are determined for each "model ID."
- * The check sum is the value that causes the lower seven bits to be zero when the address, the size, and the check sum itself are added.

● Data set 1 "DT1" (12H)

This transmits the actual data.

Although each individual byte of data has an address, this message allows the address of a single item of data, or the starting address of multiple items of data, together with the data alone, to be transmitted in the order of the addresses.

According to the MIDI specification, messages other than realtime messages cannot interrupt an exclusive message. In consideration of devices that implement "soft-thru," Roland limits the amount of data that is transferred in a single "data set 1" to a maximum of 256 bytes; for this reason, large amount of data that exceed 256 bytes are divided and transmitted in multiple pieces.

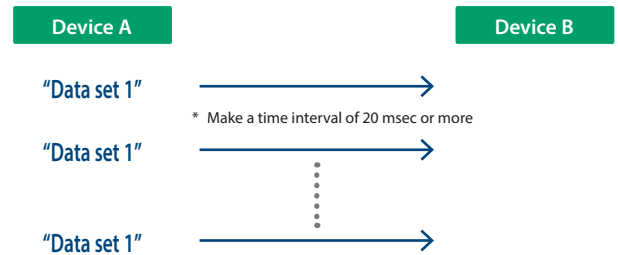
Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
12H	Command-ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Data
⋮	⋮
sum	Check Sum
F7H	EOX (End Of Exclusive)

- * This message allows transfer of just the valid portion within the range indicated by the "data request 1" message.
- * For each model, the number of data items that can be transmitted at once is determined according to the type of data, and in some cases, these must be transmitted or received at divisions of the specified address.
- * The number of address bytes is determined for each "model ID."
- * The check sum is the value that causes the lower seven bits to be zero when the address, the size, and the check sum itself are added.

● Example of transmission and reception

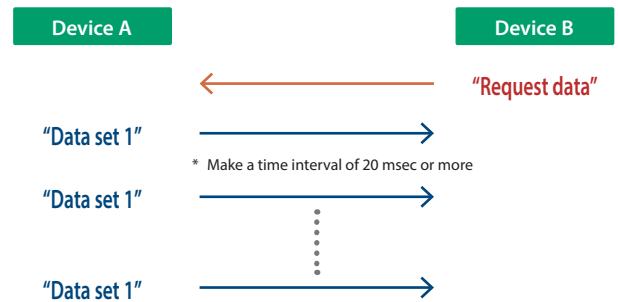
○ When device (A) transfers data to device (B)

Simply transmit a "data set 1" message.



○ When device (B) requests data transmission from device (A)

First a "data request 1" message is transmitted. Then, device (A) transmits a "data set 1" message.



■ 3.4 Transferring Data Using the Handshake Method

The handshake method transfers data while performing bi-directional verification between the two devices. Since data is transferred while checking whether it was transferred correctly, it is highly reliable, and since data is transmitted successively as soon as the receiving device is ready, data transfer takes a shorter time than the one-way method which involves waiting for an interval of time.

When transferring a large amount of MIDI data, such as sampler waveform data or data for all sounds of a synthesizer, the handshake method is more appropriate than the one-way method.

Types of message

Byte	Explanation
Want to send data	WSD (40H)
Request data	RQD (41H)
Data set	DAT (42H)
Acknowledge	ACK (43H)
End of data	EOD (45H)
Communication error	ERR (4EH)
Rejection	RJC (4FH)

● Want to send data "WSD" (40H)

Transmit this when you want to send data to the other device. The address and size indicate the amount of data that you want to send.

If this message is received, and if that device is able to receive data, and the address and size are appropriate, then it transmits an "acknowledge" message. If not, the device transmits a "rejection" message.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
40H	Command-ID
aaH	Address MSB
⋮	⋮
	LSB

Byte	Explanation
ssH	Size MSB
⋮	⋮
	LSB
sum	Check Sum
F7H	EOX (End Of Exclusive)

- * The size indicates the address range of the entire data that is being requested; it is not the number of bytes of data in a single "data set" message.
- * For some models, the amount of data that can be transmitted at one time might be fixed depending on the type of data, and in some cases the data must be transmitted and received in specific divisions or divided by addresses.
- * The address and size are the same number of bytes, and are determined for each "model ID."
- * The check sum is the value that causes the lower seven bits to be zero when the address, the size, and the check sum itself are added.

● Request data "RQD" (41H)

This is transmitted when requesting the other device to transmit data. The address and size indicate the data and the amount being requested.

If this message is received, and if that device is in a condition of being able to transmit data, and if the address and size are appropriate, then it transmits the requested data as a "data set" message. If not, the device transmits a "rejection" message.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
41H	Command-ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check Sum
F7H	EOX (End Of Exclusive)

- * The size indicates the address range of the entire data that is being requested; it is not the number of bytes of data in a single "data set" message.
- * For each model, the amount of data that can be transmitted at one time might be fixed depending on the type of data, and in some cases the data must be transmitted and received in divisions of specific addresses.
- * The address and size are the same number of bytes, and are determined for each "model ID."
- * The check sum is the value that causes the lower seven bits to be zero when the address, the size, and the check sum itself are added.

● Data set "DAT" (42H)

This transfers the actual data.

Although each byte of the data has an address, this message allows the address of a single item of data, or the starting address of multiple items of data, together with the data along, to be transmitted in the order of the addresses.

According to the MIDI specification, messages other than realtime messages cannot interrupt an exclusive message. In consideration of devices that implement "soft-thru," Roland limits the amount of data that is transferred in a single "data set" to a maximum of 256 bytes; for this reason, large amount of data that exceed 256 bytes are divided and transmitted in multiple pieces.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
42H	Command-ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Data
⋮	⋮
	⋮

Byte	Explanation
sum	Check Sum
F7H	EOX (End Of Exclusive)

- * This message allows transfer of just the valid portion within the range indicated by the "data request" or "data transmission request" message.
- * For each model, the number of data items that can be transmitted at once might be determined according to the type of data, or might have to be transmitted and received at divisions of the specified address.
- * The number of address bytes is determined for each "model ID."
- * The check sum is the value that causes the lower seven bits to be zero when the address, the size, and the check sum itself are added.

● Acknowledge "ACK" (43H)

This message is transmitted when a message such as "data transmit/receive request," "data set," or "data end" was received, and that message was correctly received and the corresponding preparations or processing were completed. After the other device receives this message, it proceeds to the next operation.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
43H	Command-ID
7FH	EOX (End Of Exclusive)

● End of data "EOD" (45H)

This message is transmitted in order to inform the other device that the data has ended. After this message, an "acknowledge" message is received from the other device, and then transfer ends.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
45H	Command-ID
7FH	EOX (End Of Exclusive)

● Communication error "ERR" (4EH)

If the message could not be received correctly, such as if check sum value does not match, then this message is transmitted to inform the other device of the error. However, it is also permissible to end communication by transmitting a "rejection" message instead of this message.

If this message is received, the last-transmitted message may be retransmitted once again, or a "rejection" message may be transmitted to end communication.

Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
4EH	Command-ID
7FH	EOX (End Of Exclusive)

● Rejection "RJC" (4FH)

This message is transmitted if you wish to forcibly end communication for some reason. This message could be transmitted in the following cases.

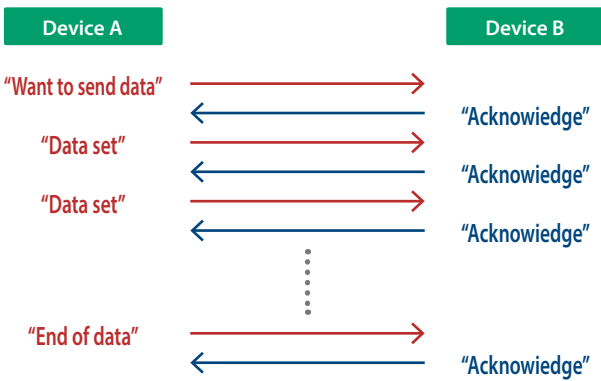
- If the size and address value indicated in a "data transmit/receive request" or "data request" was inappropriate, or if the device is not in a state in which it can transmit or receive data
- If the address or number of the data that was transmitted is inappropriate
- If data transmission/reception was stopped by a panel operation, etc.
- If a communication error occurred

This message can be transmitted at any time by either device, and the device that receives it must immediately stop communication.

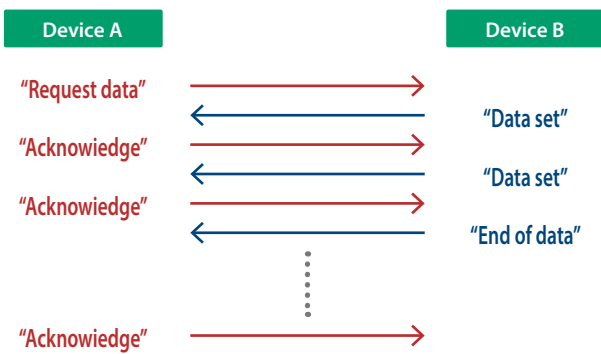
Byte	Explanation
F0H	Exclusive status
41H	Roland ID
DEV	Device-ID
14H	Model-ID (D-50)
4FH	Command-ID
7FH	EOX (End Of Exclusive)

● Example of the transmitting device

When device (A) transfers data to device (B)

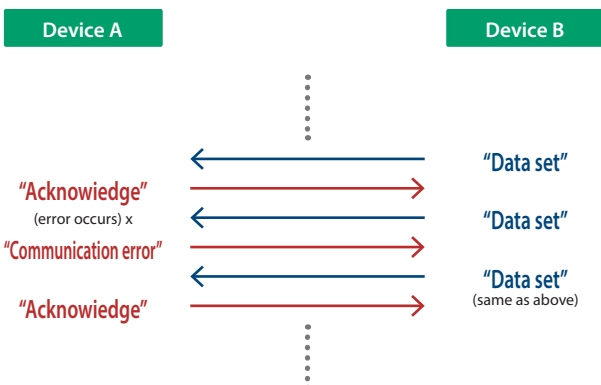


When device (A) requests data transmission from device (B)

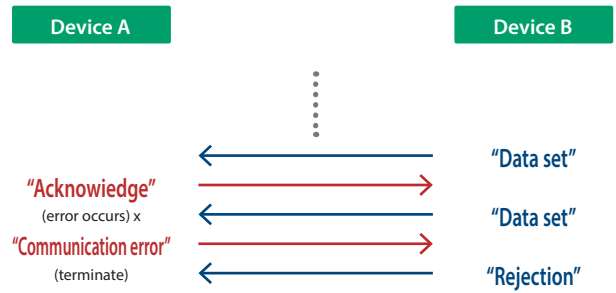


When an error occurs while device (A) is receiving data from device (B)

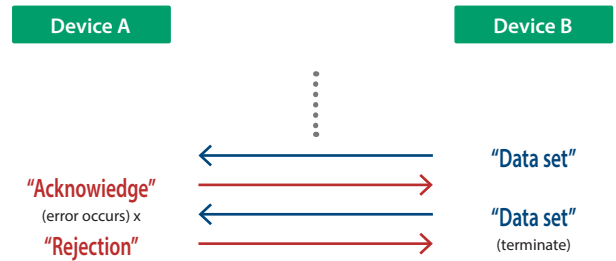
1. When requesting retransmission of data from device (B)



2. When device (B) rejects data retransmission, and terminate communication



3. When device (A) terminates immediately



■ 3.5 Address mapping

● Temporary area

Address		Description
[00-00-00]	Upper Partial-1	temp-area
[00-00-40]	Upper Partial-2	temp-area
[00-01-00]	Upper Common	temp-area
[00-01-40]	Lower Partial-1	temp-area
[00-02-00]	Lower Partial-2	temp-area
[00-02-40]	Lower Common	temp-area
[00-03-00]	Patch	temp-area

● Work area

The data in the bank of the currently selected patch can be transmitted and received using the following addresses.

Address	Description
[02-00-00]	Patch Memory 1-1
[02-03-40]	Patch Memory 1-2
:	:
[03-5C-40]	Patch Memory 8-8
[03-60-00]	Reverb Data 17
[03-62-78]	Reverb Data 18
:	:
[04-0C-08]	Reverb Data 32

Each patch memory has the following structure.

Offset	Description
[00-00-00]	Upper Partial-1
[00-00-40]	Upper Partial-2
[00-01-00]	Upper Common
[00-01-40]	Lower Partial-1
[00-02-00]	Lower Partial-2
[00-02-40]	Lower Common
[00-03-00]	Patch

3.6 Partial Parameter

Offset Address	Description				
00H	0vvv vvvv	WG Pitch	Coarse	0-72	C1, C#1...C7
01H	0vvv vvvv	WG Pitch	Fine	0-100	-50..0..+50
02H	0vvv vvvv	WG Pitch	Keyfollow	0-16	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2, s1, s2
03H	0vvv vvvv	WG Modulation	LFO Mode	0-3	Off, (+), (-), A&L
04H	0vvv vvvv	WG Modulation	P-ENV Mode	0-2	Off, (+), (-)
05H	0vvv vvvv	WG Modulation	Bender Mode	0-2	Off, Keyfollow, Normal
06H	0vvv vvvv	WG Waveform	Waveform	0-1	Square, Sawtooth
07H	0vvv vvvv	WG Waveform	PCM Wave No.	0-99	1..100
08H	0vvv vvvv	WG Pulse Width		0-100	0..100
09H	0vvv vvvv	WG Pulse Width	Velocity Range	0-14	-7..0..+7
0AH	0vvv vvvv	WG Pulse Width	LFO Select	0-5	+1, -1, +2, -2, +3, -3
0BH	0vvv vvvv	WG Pulse Width	LFO Depth	0-100	0..100
0CH	0vvv vvvv	WG Pulse Width	Aftertouch Range	0-14	-7..0..+7
0DH	0vvv vvvv	TVF	Cutoff Frequency	0-100	0..100
0EH	0vvv vvvv	TVF	Resonance	0-30	0..30
0FH	0vvv vvvv	TVF	Keyfollow	0-14	-1, -1/2, -1/4, 0, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 5/4, 3/2, 2
10H	0vvv vvvv	TVF	Bias Point/Bias Direction	0-63,64-127	<A1...<C7, >A1...>C7
11H	0vvv vvvv	TVF	Bias Level	0-14	-7..0..+7
12H	0vvv vvvv	TVF ENV	Depth	0-100	0..100
13H	0vvv vvvv	TVF ENV	Velocity Range	0-100	0..100
14H	0vvv vvvv	TVF ENV	Depth Keyfollow	0-4	0..4
15H	0vvv vvvv	TVF ENV	Time Keyfollow	0-4	0..4
16H	0vvv vvvv	TVF ENV Time	1	0-100	0..100
17H	0vvv vvvv	TVF ENV Time	2	0-100	0..100
18H	0vvv vvvv	TVF ENV Time	3	0-100	0..100
19H	0vvv vvvv	TVF ENV Time	4	0-100	0..100
1AH	0vvv vvvv	TVF ENV Time	5	0-100	0..100
1BH	0vvv vvvv	TVF ENV Level	1	0-100	0..100
1CH	0vvv vvvv	TVF ENV Level	2	0-100	0..100
1DH	0vvv vvvv	TVF ENV Level	3	0-100	0..100
1EH	0vvv vvvv	TVF ENV	Sustain Level	0-100	0..100
1FH	0vvv vvvv	TVF ENV	End Level	0-1	0, 100
20H	0vvv vvvv	TVF Modulation	LFO Select	0-5	+1, -1, +2, -2, +3, -3
21H	0vvv vvvv	TVF Modulation	LFO Depth	0-100	0..100
22H	0vvv vvvv	TVF Modulation	Aftertouch Range	0-14	-7..0..+7
23H	0vvv vvvv	TVA	Level	0-100	0..100
24H	0vvv vvvv	TVA	Velocity Range	0-100	-50..0..+50
25H	0vvv vvvv	TVA	Bias Point/Bias Direction	0-63,64-127	<A1...<C7, >A1...>C7
26H	0vvv vvvv	TVA	Bias Level	0-12	-12..0
27H	0vvv vvvv	TVA ENV Time	1	0-100	0..100
28H	0vvv vvvv	TVA ENV Time	2	0-100	0..100
29H	0vvv vvvv	TVA ENV Time	3	0-100	0..100
2AH	0vvv vvvv	TVA ENV Time	4	0-100	0..100
2BH	0vvv vvvv	TVA ENV Time	5	0-100	0..100
2CH	0vvv vvvv	TVA ENV Level	1	0-100	0..100
2DH	0vvv vvvv	TVA ENV Level	2	0-100	0..100
2EH	0vvv vvvv	TVA ENV Level	3	0-100	0..100
2FH	0vvv vvvv	TVA ENV	Sustain Level	0-100	0..100
30H	0vvv vvvv	TVA ENV	End Level	0-1	0, 100
31H	0vvv vvvv	TVA ENV	Velocity Follow	0-4	0..4
32H	0vvv vvvv	TVA ENV	Time Keyfollow	0-4	0..4
33H	0vvv vvvv	TVA Modulation	LFO Select	0-5	+1, -1, +2, -2, +3, -3
34H	0vvv vvvv	TVA Modulation	LFO Depth	0-100	0..100
35H	0vvv vvvv	TVA Modulation	Aftertouch Range	0-14	-7..0..+7

Offset Address	Description		
36H	0vvv vvvv	Extension	0-127
:	:	:	:
3FH	0vvv vvvv	Extension	0-127

3.7 Common Parameter

Offset Address	Description				
00H	0vvv vvvv	Tone Name	1	0-63	"A-'Z'a-'z",1'-'9'0','
:	:	:	:	:	:
:	:	:	:	:	:
09H	0vvv vvvv	Tone Name	10	0-63	
0AH	0vvv vvvv	Structure No.		0-6	1..7
0BH	0vvv vvvv	P-ENV Edit	Velocity Range	0-2	0.2
0CH	0vvv vvvv	P-ENV Edit	Time Keyfollow	0-4	0.4
0DH	0vvv vvvv	P-ENV Time Edit	1	0-50	0.50
0EH	0vvv vvvv	P-ENV Time Edit	2	0-50	0.50
0FH	0vvv vvvv	P-ENV Time Edit	3	0-50	0.50
10H	0vvv vvvv	P-ENV Time Edit	4	0-50	0.50
11H	0vvv vvvv	P-ENV Level Edit	0	0-100	-50..0..+50
12H	0vvv vvvv	P-ENV Level Edit	1	0-100	-50..0..+50
13H	0vvv vvvv	P-ENV Level Edit	2	0-100	-50..0..+50
14H	0vvv vvvv	P-ENV Edit	Sustain Level	0-100	-50..0..+50
15H	0vvv vvvv	P-ENV Edit	End Level	0-100	-50..0..+50
16H	0vvv vvvv	Pitch Mod Edit	LFO Depth	0-100	0..100
17H	0vvv vvvv	Pitch Mod Edit	Pitch Lever Modulation	0-100	0..100
18H	0vvv vvvv	Pitch Mod Edit	Pitch Aftertouch Modulation	0-100	0..100
19H	0vvv vvvv	LFO-1	Waveform	0-3	Triangle, Sawtooth, Square, Random
1AH	0vvv vvvv	LFO-1	Rate	0-100	0..100
1BH	0vvv vvvv	LFO-1	Delay Time	0-100	0..100
1CH	0vvv vvvv	LFO-1	Sync.	0-2	Off, On, Key
1DH	0vvv vvvv	LFO-2	Waveform	0-3	Triangle, Sawtooth, Square, Random
1EH	0vvv vvvv	LFO-2	Rate	0-100	0..100
1FH	0vvv vvvv	LFO-2	Delay Time	0-100	0..100
20H	0vvv vvvv	LFO-2	Sync.	0-1	Off, On
21H	0vvv vvvv	LFO-3	Waveform	0-3	Triangle, Sawtooth, Square, Random
22H	0vvv vvvv	LFO-3	Rate	0-100	0..100
23H	0vvv vvvv	LFO-3	Delay Time	0-100	0..100
24H	0vvv vvvv	LFO-3	Sync.	0-1	Off, On
25H	0vvv vvvv	EQ Edit	Low Frequency	0-15	63, 75, 88, 105, 125, 150, 175, 210, 250, 300, 350, 420, 500, 600, 700, 840
26H	0vvv vvvv	EQ Edit	Low Gain	0-24	-12..0..+12
27H	0vvv vvvv	EQ Edit	High Frequency	0-21	250, 300, 350, 420, 500, 600, 700, 840, 1.0, 1.2, 1.4, 1.7, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.7, 6.7, 8.0, 9.5
28H	0vvv vvvv	EQ Edit	High Q	0-8	0.3, 0.5, 0.7, 1.0, 1.4, 2.0, 3.0, 4.2, 6.0
29H	0vvv vvvv	EQ Edit	High Gain	0-24	-12..0..+12
2AH	0vvv vvvv	Chorus Edit	Chorus Type	0-7	1..8
2BH	0vvv vvvv	Chorus Edit	Chorus Rate	0-100	0..100
2CH	0vvv vvvv	Chorus Edit	Chorus Depth	0-100	0..100
2DH	0vvv vvvv	Chorus Edit	Chorus Balance	0-100	0..100
2EH	0vvv vvvv	Partial Mute		0-3	00, 01, 10, 11 (*1)
2FH	0vvv vvvv	Partial Balance		0-100	0..100
30H	0vvv vvvv	Extension		0-127	
31H	0vvv vvvv	Extension		0-127	
32H	0vvv vvvv	Extension		0-127	
33H	0vvv vvvv	Extension		0-127	
34H	0vvv vvvv	Extension		0-127	

Offset Address	Description		
35H	0vvv vvvv	Extension	0-127
36H	0vvv vvvv	Extension	0-127
37H	0vvv vvvv	Extension	0-127
38H	0vvv vvvv	Extension	0-127
39H	0vvv vvvv	Extension	0-127
3AH	0vvv vvvv	Extension	0-127
3BH	0vvv vvvv	Extension	0-127
3CH	0vvv vvvv	Extension	0-127
3DH	0vvv vvvv	Extension	0-127
3EH	0vvv vvvv	Extension	0-127
3FH	0vvv vvvv	Extension	0-127

3.8 Patch Parameter

Offset Address	Description				
00H	0vvv vvvv	Patch Name	1	0-63	"A'-Z";a'-z";1'-9";0";'
:	:	:	:	:	:
:	:	:	:	:	:
11H	0vvv vvvv	Patch Name	18	0-63	
12H	0vvv vvvv	Key Mode		0-8	Whole, Dual, Split, Separate, Whole-S, Dual-S, Split-US, Split-LS, Separate-S
13H	0vvv vvvv	Split Point		0-60	C2, C#2...C7
14H	0vvv vvvv	Portamento Mode		0-2	U, L, UL
15H	0vvv vvvv	Hold Mode		0-2	U, L, UL
16H	0vvv vvvv	U-Tone Key Shift		0-48	-24.0..+24
17H	0vvv vvvv	L-Tone Key Shift		0-48	-24.0..+24
18H	0vvv vvvv	U-Tone Fine Tune		0-100	-50.0..+50
19H	0vvv vvvv	L-Tone Fine Tune		0-100	-50.0..+50
1AH	0vvv vvvv	Bender Range		0-12	0..12
1BH	0vvv vvvv	Aftersustain (Pitch Bender)		0-24	-12.0..+12
1CH	0vvv vvvv	Portamento Time		0-100	0..100
1DH	0vvv vvvv	Output Mode		0-3	1..4
1EH	0vvv vvvv	Reverb Type		0-31	1..32 (17..32 Change Type)
1FH	0vvv vvvv	Reverb Balance		0-100	0..100
20H	0vvv vvvv	Total Volume		0-100	0..100
21H	0vvv vvvv	Tone Balance		0-100	0..100
22H	0vvv vvvv	Chase Mode		0-2	UL, ULL, ULU
23H	0vvv vvvv	Chase Level		0-100	0..100
24H	0vvv vvvv	Chase Time		0-100	0..100
25H	0vvv vvvv	MIDI	Transmit CH	0-16	Basic, 1..16
26H	0vvv vvvv	MIDI	Separate Mode Receive CH	0-16	Off, 1..16
27H	0vvv vvvv	MIDI	Transmit Program Change	0-100	Off, 1..100
28H	0vvv vvvv	Extension		0-127	
29H	0vvv vvvv	Extension		0-127	
2AH	0vvv vvvv	Extension		0-127	
2BH	0vvv vvvv	Extension		0-127	
2CH	0vvv vvvv	Extension		0-127	
2DH	0vvv vvvv	Extension		0-127	
2EH	0vvv vvvv	Extension		0-127	
2FH	0vvv vvvv	Extension		0-127	
30H	0vvv vvvv	Extension		0-127	
31H	0vvv vvvv	Extension		0-127	
32H	0vvv vvvv	Extension		0-127	
33H	0vvv vvvv	Extension		0-127	
34H	0vvv vvvv	Extension		0-127	

Offset Address	Description		
35H	0vvv vvvv	Extension	0-127
36H	0vvv vvvv	Extension	0-127
37H	0vvv vvvv	Extension	0-127
38H	0vvv vvvv	Extension	0-127
39H	0vvv vvvv	Extension	0-127
3AH	0vvv vvvv	Extension	0-127
3BH	0vvv vvvv	Extension	0-127
3CH	0vvv vvvv	Extension	0-127
3DH	0vvv vvvv	Extension	0-127
3EH	0vvv vvvv	Extension	0-127
3FH	0vvv vvvv	Extension	0-127

3.9 Reverb Block

Offset Address	Description		
00 00H	0000 aaaa	Reverb Data 1	
00 01H	0000 bbbb	aaaa bbbb	0-255
00 02H	0000 aaaa	Reverb Data 2	
00 03H	0000 bbbb	aaaa bbbb	0-255
:	:	:	:
:	:	:	:
02 76H	0000 aaaa	Reverb Data 188	
02 77H	0000 bbbb	aaaa bbbb	0-255

* 1: table 1 (Common Parameter - Partial Mute)

BIN	DEC	Description
00B	0	Partial2 Off, Partial1 Off
01B	1	Partial2 Off, Partial1 On
10B	2	Partial2 On, Partial1 Off
11B	3	Partial2 On, Partial1 On

4. Supplementary Material

Decimal and Hexadecimal Table

(An "H" is appended to the end of numbers in hexadecimal notation.)

In MIDI documentation, data values and addresses/sizes of Exclusive messages, etc. are expressed as hexadecimal values for each 7 bits.

The following table shows how these correspond to decimal numbers.

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

D: decimal

H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.

* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of $aa \times 128 + bb$.

* In the case of values which have a +/- sign, 00H = -64, 40H = +/-0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +/-0, and 7F 7FH = +8191. For example, if aa bbH were expressed as decimal, this would be $aa \text{ bbH} - 40 \text{ 00H} = aa \times 128 + bb - 64 \times 128$.

* Data marked "Use nibbled data" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of $a \times 16 + b$.

<Example1> What is the decimal expression of 5AH?

From the preceding table, 5AH = 90

<Example2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52

$18 \times 128 + 52 = 2356$

<Example3> What is the decimal expression of the nibbled value 0A 03 09 0D?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13

$((10 \times 16 + 3) \times 16 + 9) \times 16 + 13 = 41885$

<Example4> What is the nibbled expression of the decimal value 1258?

```

16 ) 1258
    ) 78...10
16 )  4...14
    )  0... 4

```

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the result is:

00 04 0E 0AH.

MIDI Implementation Chart

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 1-16	1 1-16	Memorized
Mode	Default Messages Altered	x *****	Mode 3 Mono, Poly, Omni Off Mode 1 → Mode 3 Mode 2 → Mode 4	
Note Number	: True Voice	0-127 *****	0-127 0-127	
Velocity	Note ON Note OFF	o x	o x	
Aftertouch	Key's Ch's	x x	x o	*1
Pitch Bend		o	o	*1
Control Change		0,32 o 1 o 5 x 7 x 6,38 x 64 x 65 o 100,101 x	*1 o *1 o o o o o o o (0,1)	*1 Bank select *1 Modulation *1 Portamento Time *1 Volume *2 Data Entry *1 Hold 1 *1 Portament SW *2 RPC (LSB,MSB)
Program Change		0-127	*1 0-63	*1
System Exclusive		o	*1 o	*1
System Common	: Song Pos : Song Sel : Tune	x x x	x x x	
System Real Time	: Clock : Start : Continue : Stop	o o x o	o o o o	
Aux Message	: All Sound Off : Reset All Controllers : Local On/Off : All Notes Off : Omni Mode Off : Omni Mode On : Mono Mode On : Poly Mode On : Active Sensing : System Reset	x o o x	o o (123-127) o x	Memorized
Notes	*1 Can be set to O or X manually, and memorized. *2 RPC=Registered parameter control number. RPC#0 : Pitch bend sensitivity RPC#1 : Master fine tuning Parameter Values are given by Data Entry			

Mode 1: Omni On, Poly
Mode 3: Omni Off, Poly

Mode 2: Omni On, Mono
Mode 4: Omni Off, Mono

o: Yes
x: No