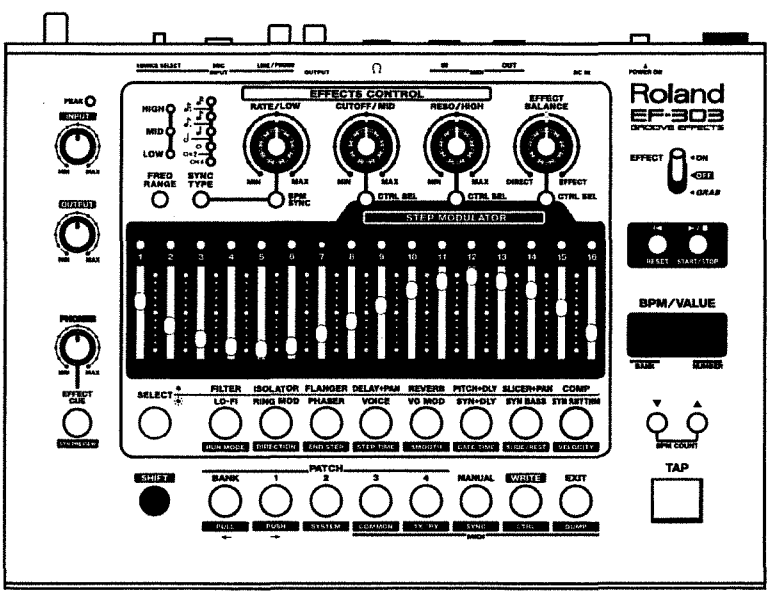
Roland®

EF-303

GROOVE EFFECTS

Owner's Manual

Before using this unit, carefully read the sections entitled: "USING THE UNIT SAFELY" and "IMPORTANT NOTES" (Owner's manual p. 2-3, p. 7). These sections provide important information concerning the proper operation of the unit. Additionally, in order to feel assured that you have gained a good grasp of every feature provided by your new unit, Owner's mamual should be read in its entirety. The manual should be saved and kept on hand as a convinenient reference.



INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠WARNING and ⚠CAUTION Notices

⚠WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

⚠	The △ symbol alerts the user to important instructions or warnings.The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠WARNING

- Before using this unit, make sure to read the instructions below, and the Owner's Manual.
- Do not open (or modify in any way) the unit or its AC adaptor.
- Do not attempt to repair the unit, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.
- Never use or store the unit in places that are:
  - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are
  - Damp (e.g., baths, washrooms, on wet floors); or are
  - Humid; or are
  - Exposed to rain; or are
  - Dusty; or are
  - Subject to high levels of vibration.
- Make sure you always have the unit placed so it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces.

⚠WARNING

- Be sure to use only the AC adaptor supplied with the unit. Also, make sure the line voltage at the installation matches the input voltage specified on the AC adaptor's body. Other AC adaptors may use a different polarity, or be designed for a different voltage, so their use could result in damage, malfunction, or electric shock.
- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards!
- This unit, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist.
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit.

⚠WARNING

- Immediately turn the power off, remove the AC adaptor from the outlet, and request servicing by your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page when:
  - The AC adaptor, the power-supply cord, or the plug has been damaged; or
  - Objects have fallen into, or liquid has been spilled onto the unit; or
  - The unit has been exposed to rain (or otherwise has become wet); or
  - The unit does not appear to operate normally or exhibits a marked change in performance.

- In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

- Protect the unit from strong impact. (Do not drop it!)

- Do not force the unit's power-supply cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through.

- Before using the unit in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

⚠ CAUTION

- The unit and the AC adaptor should be located so their location or position does not interfere with their proper ventilation.

- Always grasp only the plug on the AC adaptor cord when plugging into, or unplugging from, an outlet or this unit.

- Whenever the unit is to remain unused for an extended period of time, disconnect the AC adaptor.

- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed so they are out of the reach of children.

- Never climb on top of, nor place heavy objects on the unit.

- Never handle the AC adaptor or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit.

- Before moving the unit, disconnect the AC adaptor and all cords coming from external devices.

- Before cleaning the unit, turn off the power and unplug the AC adaptor from the outlet (p.14).

- Whenever you suspect the possibility of lightning in your area, disconnect the AC adaptor from the outlet.

Contents

IMPORTANT NOTES

In addition to the items listed under "USING THE UNIT SAFELY" on page 2-3, please read and observe the following:

Power Supply

- Do not use this unit on the same power circuit with any device that will generate line noise (such as an electric motor or variable lighting system).
- The AC adaptor will begin to generate heat after long hours of consecutive use. This is normal, and is not a cause for concern.
- Before connecting this unit to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this unit; or move it farther away from the source of interference.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.
- Do not expose the unit to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the unit.
- To avoid possible breakdown, do not use the unit in a wet area, such as an area exposed to rain or other moisture.

Maintenance

- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a cloth impregnated with a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and Data

- Please be aware that all data contained in the unit's memory may be lost when the unit is sent for repairs. Important data should always be backed up in another MIDI device (e.g., a sequencer), or written down on paper (when possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data, and Roland assumes no liability concerning such loss of data.

Additional Precautions

- Please be aware that the contents of memory can be irretrievably lost as a result of a malfunction, or the improper operation of the unit. To protect yourself against the risk of loosing important data, we recommend that you periodically save a backup copy of important data you have stored in the unit's memory in another MIDI device (e.g., a sequencer).
- Unfortunately, it may be impossible to restore the contents of data that was stored in another MIDI device (e.g., a sequencer) once it has been lost. Roland Corporation assumes no liability concerning such loss of data.
- Use a reasonable amount of care when using the unit's buttons, sliders, or other controls; and when using its jacks and connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting / disconnecting all cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- To avoid disturbing your neighbors, try to keep the unit's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially when it is late at night).
- When you need to transport the unit, package it in the box (including padding) that it came in, if possible. Otherwise, you will need to use equivalent packaging materials.
- Use a cable from Roland to make the connection. If using some other make of connection cable, please note the following precautions.
  - Some connection cables contain resistors. Do not use cables that incorporate resistors for connecting to this unit. The use of such cables can cause the sound level to be extremely low, or impossible to hear. For information on cable specifications, contact the manufacturer of the cable.

Copyright

- Unauthorized recording, distribution, sale, lending, public performance, broadcasting, or the like, in whole or in part, of a work (musical composition, video, broadcast, public performance, or the like) whose copyright is held by a third party is prohibited by law.
- Do not use this unit for purposes that could infringe on a copyright held by a third party. Roland assumes no responsibility whatsoever with regard to any infringements of third-party copyrights arising through your use of this unit.

Features

Carefully selected effect algorithms

Sixteen effects for groove applications include a "filter," "isolator," and even a "synth" algorithm that can be used as a monophonic synthesizer.

Step Modulator with up to 16 steps

A "step modulator" allows you to cyclically change effect settings to specified values, letting you create new sounds that cannot be produced simply by turning knobs. By modulating "synth" or "synth rhythm," you can even produce sequenced phrases.

Patch memory

Provides patch memory, which allows you to store up to sixteen effects setups or step modulator settings for immediate recall when desired.

Synthesizer function

The effect algorithms include three algorithms that can be used as monophonic synthesizers. The EF-303 can even play synth sounds by itself. By using this in conjunction with the step modulator, you can intuitively express your own personal phrases.

BPM auto-detect function

The EF-303 features the auto BPM counter that has been so popular on the DJ series of Roland DJ mixers. BPM can be detected automatically from an analog record, making it easy to synchronize effect cycles.

Monitor (EFFECT CUE) function

The monitor function lets you audition just the effect sound through headphones. This allows more accurate DJ performances in live situations.

MIDI support

By connecting an external sound module to the MIDI connector you can use the EF-303 as a MIDI step sequencer. It provides MIDI start/stop functionality, and can easily be synchronized with an external MIDI device. By connecting various MIDI devices you can construct your own personalized DJ system for an even broader universe of sounds.

Wide range of input jacks

In addition to mic and line input jacks, the EF-303 also supports phono input, allowing a turntable to be connected directly. In addition to functioning as a DJ mixer, the EF-303 supports a range of uses such as microphones and keyboards, making it an ideal tool for everything from live performance to serious recording.

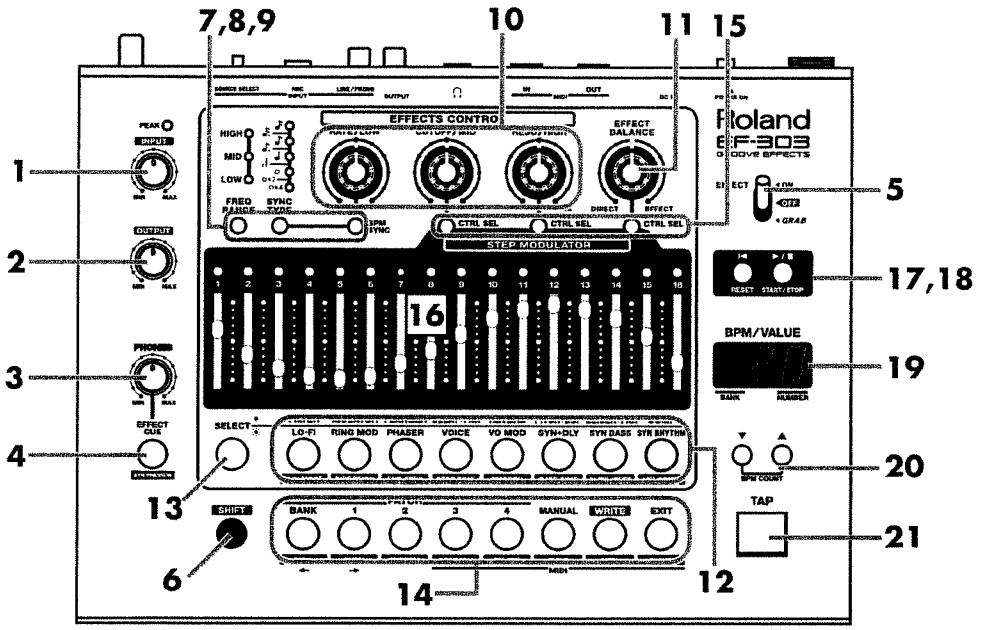
Full range of basic functionality, with an easy-to-use front panel

Based on the control system of the popular DJ-2000, the EF-303 provides a full range of basic functionality.

The slanted panel ensures good visibility, and four knobs and sixteen sliders make for ease of operation. Each parameter can be controlled directly, allowing expressive possibilities not found on other effect units. The panel features a distinctive silver tone with red contrast, creating a commanding presence in the DJ booth or on stage. The EF-303 opens up a new dimension in performance effects.

Panel Descriptions

Front Panel



1. [INPUT] LEVEL Knob

This knob adjusts the signal level that is input from the [INPUT] jack.

→ **Adjusting the level** (p. 15)

2. [OUTPUT] LEVEL Knob

This knob adjusts the level of the signal that is output when the effect is on.

→ **Adjusting the level** (p. 15)

3. [PHONES] Knob

This knob adjusts the signal level that is output from the [HEADPHONE] jack.

→**Adjusting the level** (p. 15)

4. [EFFECT CUE] Button

Determines what is to be monitored through headphones.

With each press of the button, the LED is either lighted or extinguished.

LED extinguished: For monitoring the same signal as that sent from [OUTPUT].

LED lit: For monitoring the effect sound.

→ **Adjusting the level** (p. 15)

5. [GRAB(EFFECT)] Switch

This switch turns the effects on/off.

→ **How the Effects Work** (p. 35)

6. [SHIFT] Button

When used in conjunction with another button, this changes the function of the other button.

When you hold down the [SHIFT] button and press another button, the function enclosed in a rectangle below that button is activated.

7. [FREQ RANGE] Button

This button selects the frequency range over which the effect will be applied.

→ **How the Effects Work** (p. 35)

8. [SYNC TYPE] Button

This button selects the beat (note value) to which the effect will be synchronized.

→ **How the Effects Work** (p. 35)

9. [BPM SYNC] Button

This button lets you synchronize the effect to the beat (note value) selected by SYNC TYPE.

→ **How the Effects Work** (p. 35)

10. [EFFECTS CONTROL] Knobs

- [RATE/LOW] Knob
- [CUTOFF/MID] Knob
- [RESO/HIGH] Knob

These knobs modify effect parameters.

→ **How the Effects Work** (p. 35)

→ **Effect parameter Chart** (p. 70)

11. [EFFECT BALANCE] Knob

This knob adjusts the volume balance between the direct signal (the sound not processed by the effect) and the effect signal (the sound processed by the effect).

→**How the Effects Work** (p. 35)

12. [Effect Select] Buttons

These buttons select effect types.

When used in conjunction with the [SELECT] button, these buttons allow you to select 16 different effects.

→ **How the Effects Work** (p. 35)

When used in conjunction with the [SHIFT] button, these buttons make Step Modulator settings.

→ **Settings for the entire step modulator** (p. 40)

13. [SELECT] Button

For switching between the upper and lower rows of the effects selected using the [Effect Select] buttons.

→ **How the Effects Work** (p. 35)

14. [PATCH] Buttons

Provide for selection of patches in memory.

→ **What is a patch?** (p. 43)

When used in conjunction with the [SHIFT] button, these buttons are used to make overall settings for the EF-303.

They function as the [PULL/PUSH] buttons to make fine adjustments in the timing at which sounds are heard, and as [◄— / —►] buttons to make various overall settings for the EF-303.

→ **Overall settings (SYSTEM)** (p. 52)

→**Using the step modulator** (p. 38)

→ **Making fine adjustments to the step timing ([PUSH/ PULL] buttons)** (p. 46)

→ **Using the step modulator** (p. 38)

15. [CTRL SEL] Button

Provides for selection of the parameter to be modified by the step modulator.

→**Using the step modulator** (p. 38)

16. [STEP MODULATOR] Sliders

When using the step modulator, these sliders adjust the values of the effect parameters.

→**Using the step modulator** (p. 38)

17. [START/STOP] Button

Starts and stops the step modulator.

→ **Using the step modulator** (p. 38)

18. [RESET] Button

Allows you to jump to the beginning in the step modulator.

→ **Using the step modulator** (p. 38)

19. [BPM/VALUE] Display Area

This area shows the BPM (tempo) and parameters.

→ **What is BPM?** (p. 45)

20. [▼, ▲] Buttons

These buttons set the BPM (tempo) or parameters.

→ **Setting BPM manually** [BPM ▲ / ▼](p. 45)

If you press the [BPM ▼] and [BPM ▲] buttons simultaneously, the BPM auto detect function will operate.

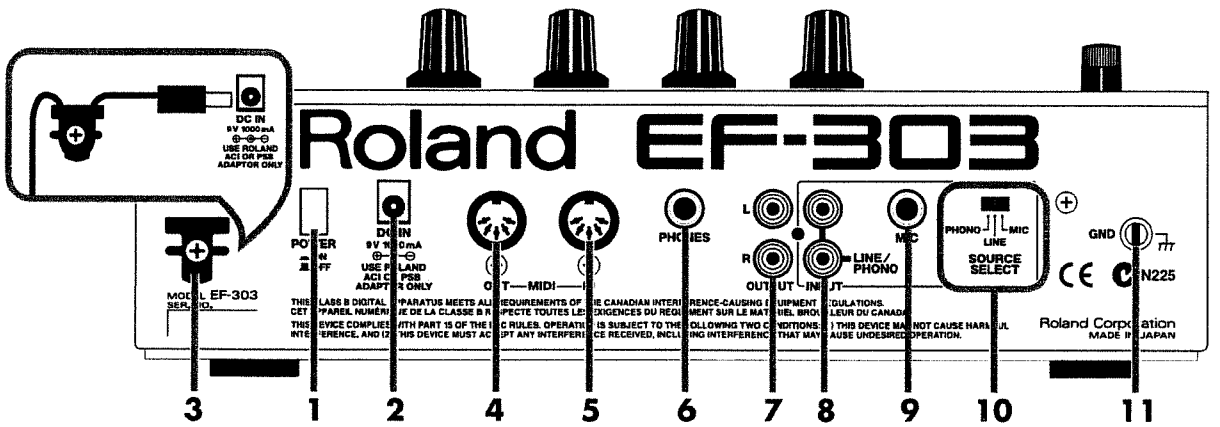
→ **Setting BPM by automatic detection (BPM COUNT)** (p. 45)

21. [TAP] Pad

You can set BPM (tempo) by tapping this pad at the corresponding interval.

→**Setting the BPM by tapping a pad (TAP)** (p. 45)

Rear Panel



1. [POWER] Switch

This switch turns the power on/off.

2. [DC IN] Connector

Connect the AC adapter to this connector.

Only the supplied AC adapter may be used.

3. [Cable Hook]

To prevent the inadvertent disruption of power to your unit (should the plug be pulled out accidentally), and to avoid applying undue stress to the AC adaptor jack, anchor the power cord using the cord hook, as shown in the illustration.

4. [MIDI OUT] Connector

This connector transmits MIDI messages from the EF-303 to an external MIDI device.

→ **Using the EF-303 with External MIDI Devices** (p. 47)

5. [MIDI IN] Connector

This connector receives MIDI messages from external MIDI devices.

→ **Using the EF-303 with External MIDI Devices** (p. 47)

6. [PHONES] Jack

Accepts connection of headphones.

→ **Adjusting the level** (p. 15)

7. [OUTPUT L/R] Jacks

These are audio signal output jacks. Connect them to an audio system or mixer.

→ **Example of DJ System** (p. 12)

8. [INPUT L/R] Jacks

These are audio signal input jacks. Connect them to your CD player, turntable, or external sound module.

→ **Example of DJ System** (p. 12)

9. [MIC] Jack

A microphone can be connected to this jack.

→**Example of DJ System** (p. 12)

NOTE

This jack is only for use with a microphone. Do not connect any other type of device to this jack.

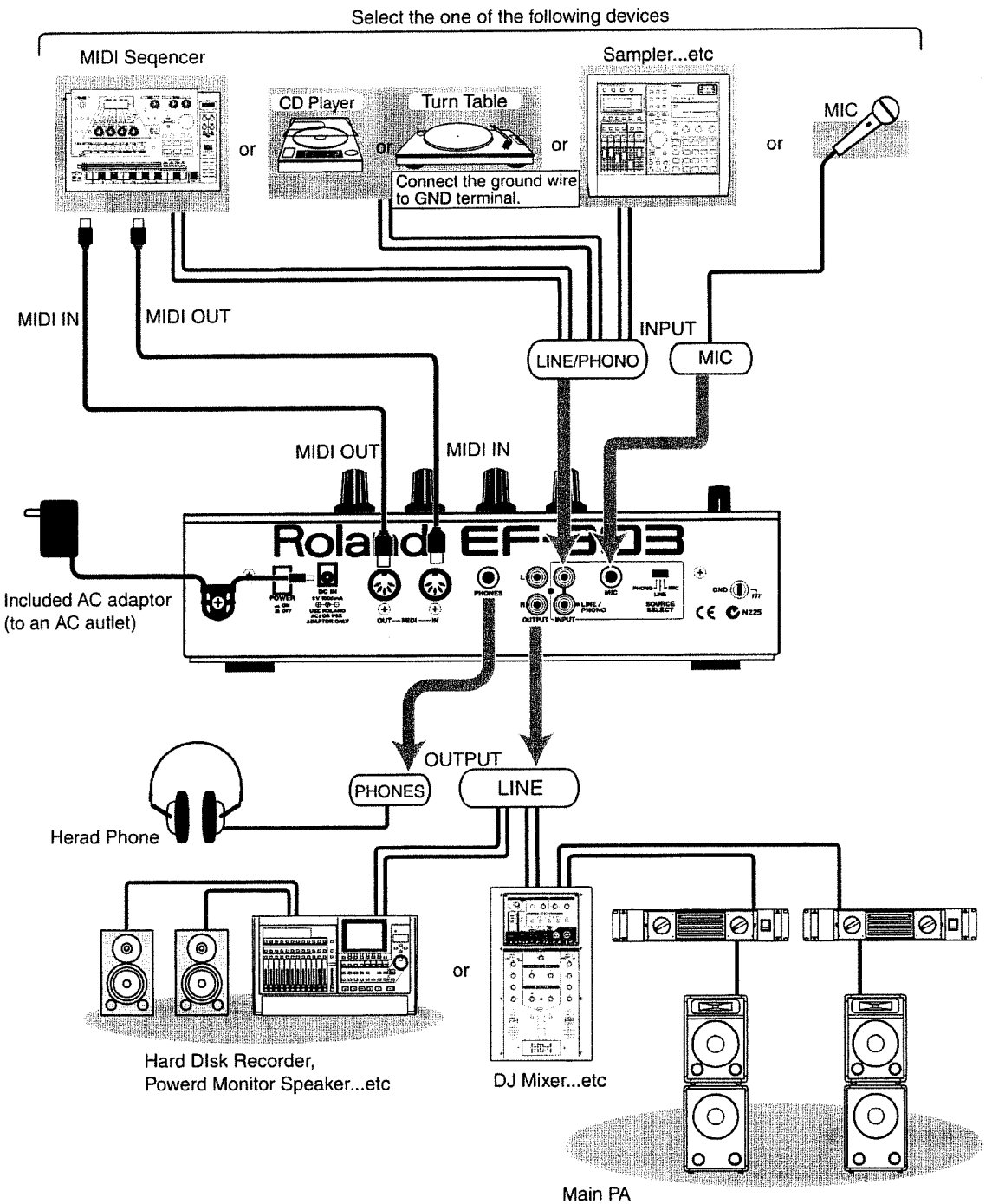
10. [SOURCE SELECT] Switch

Set this to MIC, LINE, or PHONO depending on the input device.

11. [GND] Terminal

Connect the ground wire of your turntable to this terminal.

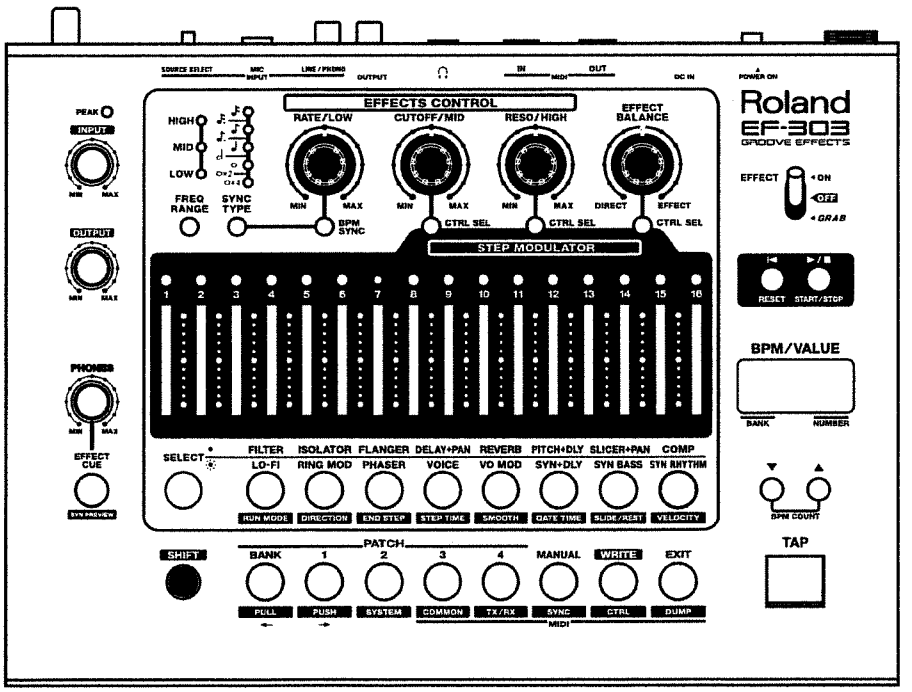
Example of DJ System



- To prevent malfunction and/or damage to speakers or other devices, always turn down the volume, and turn off the power on all devices before making any connections.
- Howling could be produced depending on the location of microphones relative to speakers. This can be remedied by
  1. Changing the orientation of the microphone(s)
  2. Relocating microphone(s) at a greater distance from speakers.
  3. Lowering volume levels.

Blank Chart

Please make and use copies for saving your settings data. The supplied stickers can be used for "marking" on the EF-303 main unit.



Turning the power on/off

Turning the power on

* *A built-in circuitry protection feature requires that you wait a few moments after power-up while the unit is being readied for normal operation.*

1 Make sure that the EF-303's[INPUT] LEVEL knob and [OUTPUT] LEVEL knob, and the volume controls of the connected amp system are turned to the minimum position.

2 Turn on the power switch located on the rear panel of the EF-303.

3 Turn on the power of the amp system connected to the EF-303.

4 Raise the volume of the amp system to an appropriate level.

Turning the power off

You must also observe the correct procedure when turning the power off.

1 Before you turn off the power, make sure that the EF-303's [INPUT] LEVEL knob and [OUTPUT] LEVEL knob, and the volume controls of the connected amp system are turned to the minimum position.

2 Turn off the power of the connected amp system.

3 Turn off the power of the EF-303.

- Once the connections have been completed (p. 12), turn on power to your various devices in the order specified. By turning on devices in the wrong order, you risk causing malfunction and/or damage to speakers and other devices.

- Always make sure to have the volume level turned down before switching on power. Even with the volume all the way down, you may still hear some sound when the power is switched on, but this is normal, and does not indicate a malfunction.

Adjusting the level

On the EF-303, you can use the following procedure to adjust the input signal, output signal, and the volume (level) for headphone monitoring.

1 Set the [SOURCE SELECT] switch.

PHONO: Turntable

LINE: Synthesizer, sound module, CD player etc.

MIC: Microphone

2 Adjust the input signal to an appropriate level.

Turn the [INPUT] knob so that the [PEAK] indicator lights briefly.

3 Set the [GRAB (effect)] switch to "ON."

4 Adjust the signal that is output from the EF-303 to an appropriate level.

Turn the [OUTPUT] as appropriate for your situation.

5 If you are using headphones, select the signal that you wish to monitor, and adjust the level appropriately.

Turn the [PHONES] knob to an appropriate level.

Set the [EFFECT CUE] switch to select the signal that you wish to monitor.

LED extinguished : You will monitor the same signal as sent from OUTPUT.

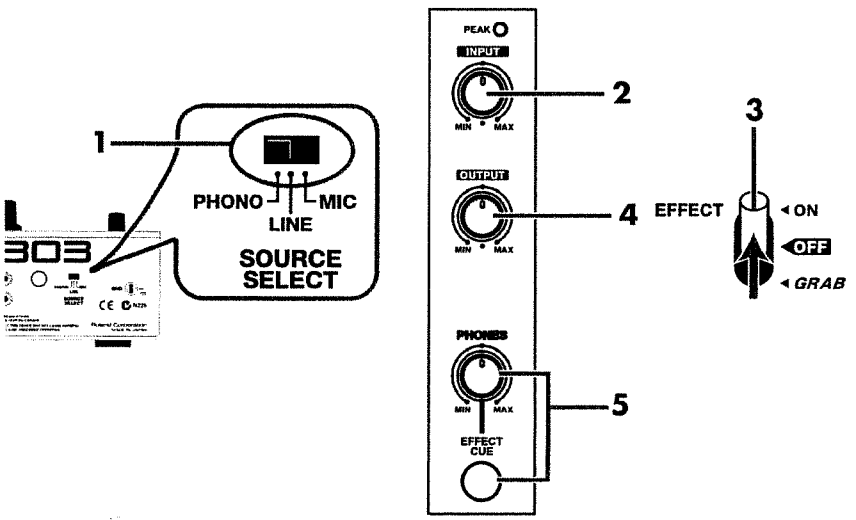
LED lit: You will always monitor the effect sound, regardless of the position of the [GRAB (effect)] switch.

NOTE

Be aware that if you have set the [INPUT] knob near MAX and the [OUTPUT] knob near MIN, a high volume may suddenly be output when you move the [GRAB (effect)] switch to the "OFF" position.
→How the EF-303 Is Organized (p. 34)

MEMO

You can use the [OUTPUT] knob to adjust the volume balance between the direct sound and the effect sound.



Restoring the factory settings (Factory Reset)

You can return the following settings of the EF-303 to their factory-set values.

Settings that are reset

- System settings
- Patch memory

1 While holding down the [SHIFT] button, turn on the power.

FACTRY

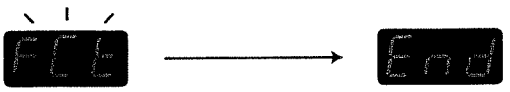
2 Press the [WRITE] button.

If you decide not to execute the operation, press the [EXIT] button.

3 A message will ask you to confirm the operation. If you wish to execute, press the [WRITE] button once again. To cancel without executing, press the [EXIT] button.

SURE

The BPM display area will blink while the Factory Reset is being performed. When it is completed, the display indicate "END".



FACTRY END

4 Turn the power on once again.

NOTE

If the internal memory of the EF-303 contains important data, use the Bulk Dump operation to save the data on an external MIDI sequencer or similar device before you execute Factory Preset. → **Saving EF-303 settings on an external sequencer (BULK DUMP)** (p. 50))

NOTE

Do not turn off the power while the BPM display is blinking. Doing so may damage the system.

EF-303

GROOVE EFFECTS

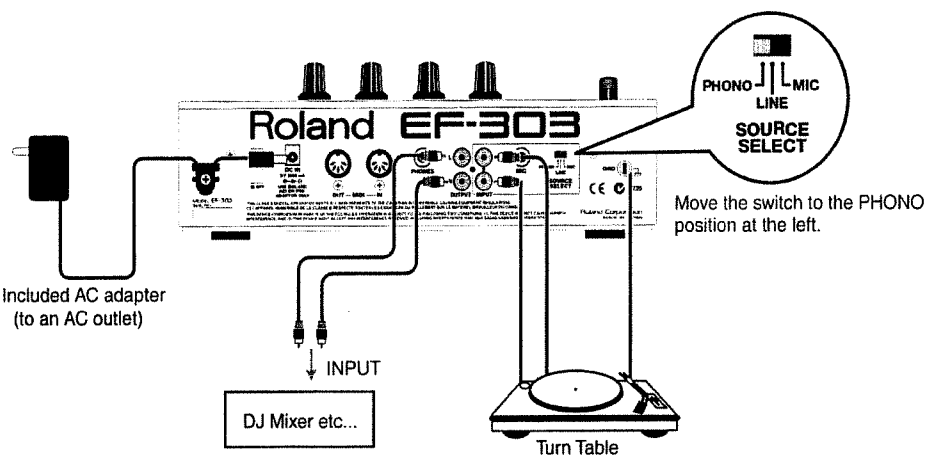
QUICK START

Applying effects to a turntable

Make settings and select a patch

Here are the basic connections for applying effects to the output signal of a turntable (record).

Use only the supplied AC adapter. Use of any other AC adapter may cause malfunction.



[SOURCE SELECT] switch: In this example we are applying effects to the output signal of a turntable, so set the switch to "PHONO."

NOTE
Before making connections to other devices, be sure to turn down the volume of all devices and then turn off the power to prevent malfunction or speaker damage.

1 Turn on the power.

Turning the power on/off (p. 14)

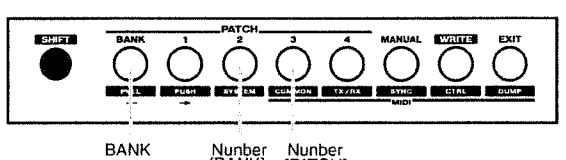
2 Adjust the level.

Adjusting the level (p. 15)

3 Let's select the 2-3 "SLICER + PAN" patch.

*Depending on musical contents, the resulting effect may not be immediately obvious.

What is a patch? (p. 43)



Press the [BANK] button, then press the [2] button. This selects Bank 2. Next, press the [3] button. This selects the "SLICER + PAN" patch of BANK 2 number 3.

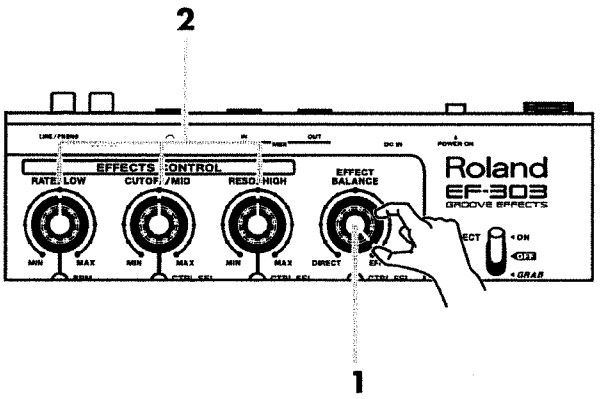
NOTE
At the factory settings, Patch No. 3 in BANK 2 uses the "SLICER + PAN" effect algorithm.

4 Turn the [GRAB (effect)] switch "ON."

The effect will be turned on.

What is the [GRAB (effect)] switch? (p. 37)

Adjust the knobs

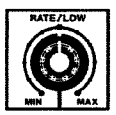


1 Turn the [EFFECT BALANCE] knob all the way to the right.

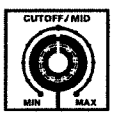
Only the effect sound will be output.

What is effect balance? (EFFECT BALANCE) (p. 37)

2 Try turning the various [EFFECTS CONTROL] knobs.



[RATE/LOW] The slice rate will change.



[CUTOFF/MID] The location of the sliced sound will change.

[RESO/HIGH] The slice level will change.

SLICER+PAN (p. 60)

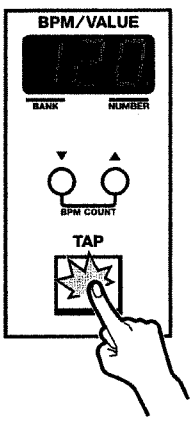
Use together with the Step Modulator

Patch 2-3 "SLICER + PAN" already contains step modulator slider data that cuts the sound on even-numbered beats (beat 2, beat 4, etc.).

Using the step modulator (p. 38)

Setting BPM by tapping the pad (TAP)

If you tap the [TAP] pad three times or more at quarter-note intervals, the BPM will be calculated automatically. After you press the [EXIT] button, the value will appear in the BPM display.



Playing back the Step Modulator

1 Press the [START/STOP] button to play back the step modulator.

You should press the button in time with the tempo of the song.

If your timing was accurate, the effect will cut the even-numbered beats (beat 2, beat 4, etc.) of the sound.

If your timing was inaccurate, you can either press the [RESET] button to re-start from the beginning, or use the [PUSH]/[PULL] buttons to make fine adjustments to the timing.

Operating the step modulator (Sequence) (p. 39)

2 Press the [START/STOP] button once again to stop the step modulator.

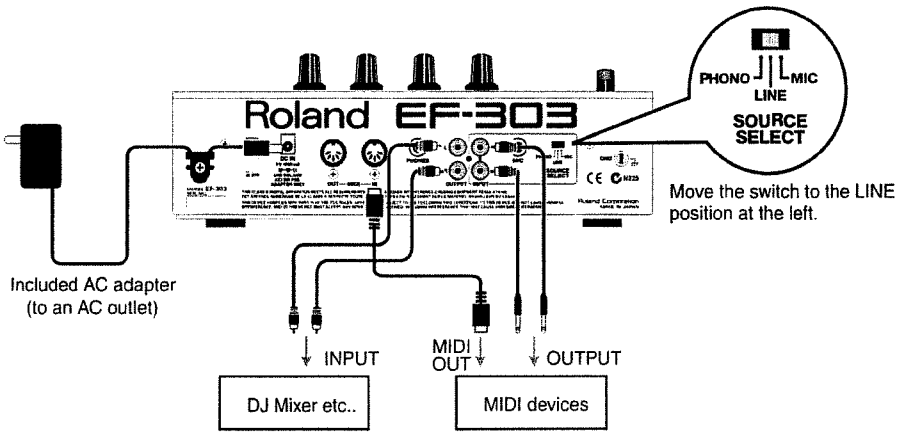
If you would also like to adjust the playback speed of the step modulator, or change the way in which it plays, refer to **Using the step modulator** (p. 38).

Synchronizing with MIDI devices

Make settings and select a patch

Here we will explain basic connections for using the EF-303 to apply effects to the output signal of an external MIDI device.

Use only the supplied AC adapter. Use of any other AC adapter may cause malfunction.

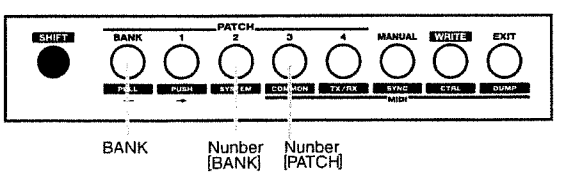


[SOURCE SELECT] switch: Since in this example we will be applying effects to the output signal of the MIDI device, set the switch to "LINE."

1 Turn on the power.

2 Adjust the level.

3 Select the 2-3 "SLICER + PAN" patch.



Press the [BANK] button, then press the [2] button. This selects Bank 2. Next, press the [3] button. This selects Patch No. 3 in BANK 2, "SLICER + PAN."

NOTE
Before making connections to other devices, be sure to turn down the volume of all devices and then turn off the power to prevent malfunction or speaker damage.

Turning the power on/off (p. 14)

Adjusting the level (p. 15)

What is a patch? (p. 43)

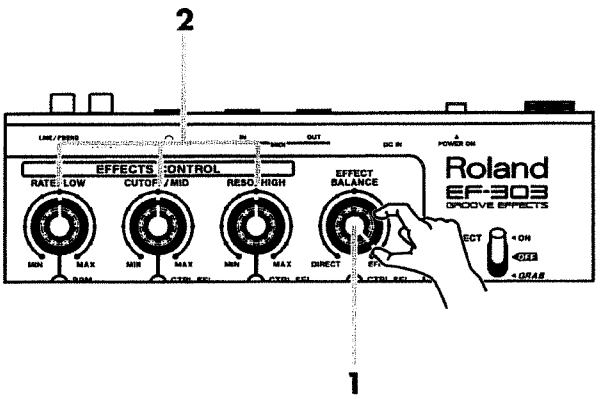
NOTE
If the EF-303 is still in the factory-set state, Patch No. 3 of BANK 2 uses the "SLICER + PAN" effect algorithm.

4 Set the [GRAB (effect)] switch to "ON."

The effect will be turned on.

What is the [GRAB (effect)] switch? (p. 37)

Adjust the knobs

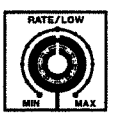


1 Turn the [EFFECT BALANCE] knob all the way to the right.

Only the effect sound will be output.

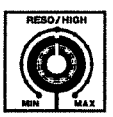
What is effect balance? (EFFECT BALANCE) (p. 37)

2 Try turning the various [EFFECTS CONTROL] knobs.



[RATE/LOW] The slice rate will change.

[CUTOFF/MID] The location of the sliced sound will change.



[RESO/HIGH] The slice level will change.

SLICER+PAN (p. 60)

Using the step modulator

Patch 2-3 ("SLICER + PAN") already contains step modulator slider data that cuts the sound on even-numbered beats (beat 2, beat 4, etc.).

Using the step modulator (p. 38)

Using MIDI messages to set the BPM

You can synchronize the step modulator sequencer of the EF-303 to MIDI Clock messages that are transmitted from an external MIDI sequencer or hard disk recorder. Here's how to synchronize the step modulator of the EF-303 to the playback of an external MIDI device.

1 Set the SYNC MODE setting to "SLAVE."

While holding down the [SHIFT] button, press the [MANUAL] button.

Press the [▲] button twice to set SYNC MODE to "SLAVE."

SLAVE

Synchronization settings (SYNC) (p. 54)

2 Press the [EXIT] button twice.

3 Press the [RESET] button to return to the step at the beginning of the pattern.

The [STEP MODULATOR] indicator will return to the beginning.

Using the step modulator (p. 38)

4 Make settings on your external MIDI sequencer so that it will transmit MIDI Clock messages. For details on making this setting, refer to the owner's manual for your external MIDI sequencer.

Play back the step modulator

1

Press the play button (PLAY) on your external MIDI device, and the step modulator of the EF-303 will start in sync with the external MIDI device. The even-numbered beats of the sound will be cut in precise synchronization with the playback of the external MIDI device.

2

Press the stop button (STOP) on your external MIDI device to stop the step modulator.

If you wish to reverse the playback direction of the step modulator, refer to **Using the step modulator** (p. 38).

Using the step modulator (p. 38)

MEMO

If you only want to synchronize, you can either make settings so that playback data is not sent from the external MIDI device, or set the external MIDI device to a channel that the EF-303 is not using.

Using the EF-303 with External MIDI Devices (p. 47)

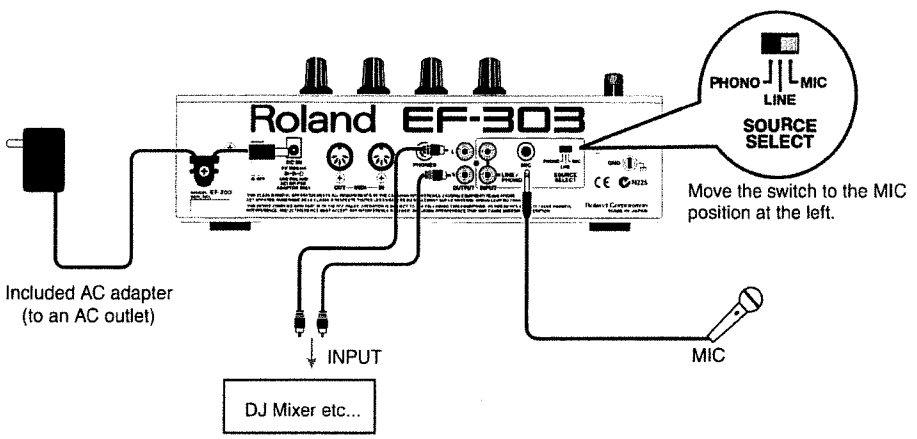
"Synchronizing the EF-303 to the playback of an external sequencer (p. 49)

Applying effects to a microphone

Make settings and select a patch

This section explains the basic connections for applying effects to the output signal of a microphone.

Use only the supplied AC adapter. Use of any other AC adapter may cause malfunction.



[SOURCE SELECT] switch: In this example we will apply effects to the microphone, so set the switch to "MIC."

1 Turn on the power.

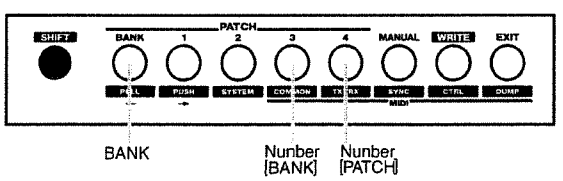
Turning the power on/off (p. 14)

2 Adjust the level.

Adjusting the level (p. 15)

3 Select the 3-4"VOICE " patch.

What is a patch? (p. 43)



Press the [BANK] button, then press the [3] button. This selects Bank 3. Next, press the [4] button once again. This selects Patch No. 4 of BANK 3, "VOICE."

NOTE
Before making connections to other devices, be sure to turn down the volume of all devices and then turn off the power to prevent malfunction or speaker damage.

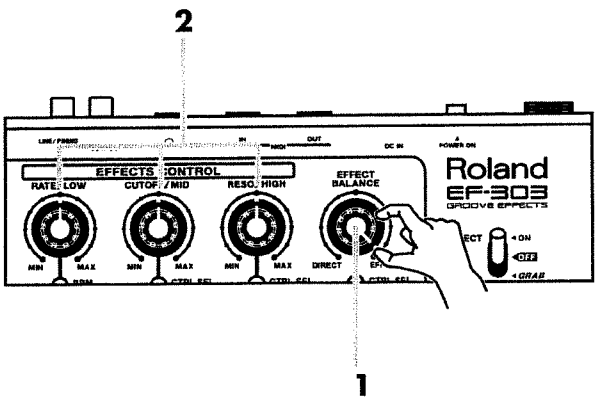
NOTE
At the factory settings, Patch No. 4 in BANK 3 uses the "VOICE" effect algorithm.

4 Set the [GRAB (effect)] switch "ON."

What is the [GRAB (effect)] switch? (p. 37)

The effect will be turned on. The voice or other sound being input to the microphone will change.

Adjust the knobs

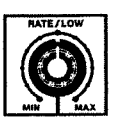


1 Turn the [EFFECT BALANCE] knob all the way to the right.

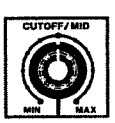
Only the effect sound will be output at the same volume.

What is effect balance? (EFFECT BALANCE) (p. 37)

2 Try turning the various [EFFECTS CONTROL] knobs.



[RATE/LOW] The time of reverb sound (REV TIME) will change.



[CUTOFF/MID] FORMANT will change.

[RESO/HIGH] The amount of pitch shift (PITCH) will change.

Using the Step Modulator

Patch 3-4 ("VOICE") contains Step Modulator Slider settings, which provide for incremental changes in the vocal quality.

Using the step modulator (p. 38)

Playing back the Step Modulator

1 Press the [START/STOP] button to play back the step modulator.

Sing (or speak) into the microphone, and the vocal quality will be modified randomly.

2 Press the [START/STOP] button once again to stop the step modulator.

If you would also like to adjust the playback speed of the step modulator, or change the way in which it plays, refer to **Using the step modulator** (p. 38).

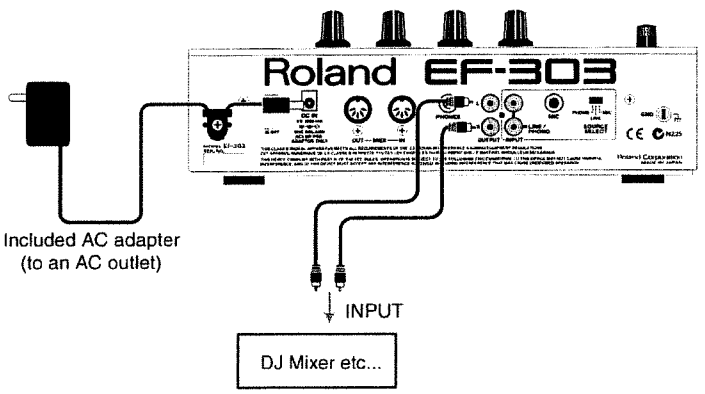
Using the EF-303 as a synthesizer

The internal effect [SYN (synthesizer) + DLY (delay)] lets you use the EF-303 as a monophonic (single-note) synthesizer.

Make settings and select a patch

Here we will explain basic connections for using the EF-303 as a synthesizer.

Use only the supplied AC adapter. Use of any other AC adapter may cause malfunction.



NOTE
Before making connections to other devices, be sure to turn down the volume on all devices, then turn off their power to prevent malfunction or speaker damage.

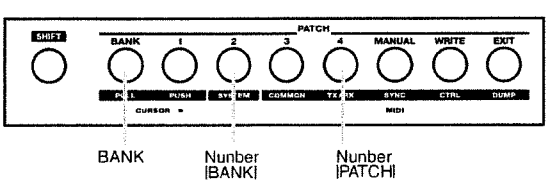
1 Turn on the power.

Turning the power on/off (p. 14)

2 Select the 4-2 [SYN (synthesizer) + DLY (delay)] patch.

What is a patch? (p. 43)

NOTE
At the factory settings, Patch No. 2 in BANK 4 uses the "SYN + DLY" effect algorithm.



Press the [BANK] button, then press the [4] button. This selects Bank 4. Next, press the [2] button. Patch No. 2 of BANK 4, "SYN + DLY" is now selected.

3 Set the [GRAB (effect)] switch "ON."

The effect will be turned on.

What is the [GRAB (effect)] switch? (p. 37)

Playing sounds with the step modulator

Patch 4-2 [SYN + DLY] already contains step modulator settings that play a phrase.

Using the step modulator (p. 38)

Playing back the Step Modulator

When the synthesizer algorithm is selected, and all of the [CTRL SEL] buttons are extinguished, the step modulator can be used to control the pitch of the synth sound.

1

Turn down the level.

Set the [OUTPUT] level to MIN.

2

Press the [START/STOP] button to play back the step modulator.

3

Adjust the levels.

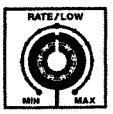
Adjust the EF-303's [OUTPUT] level and the master volume of the external device so they're at appropriate levels.

The pre-programmed synth phrase will play.

If you would also like to adjust the playback speed (step time) of the step modulator, or change the way in which it plays, refer to **Using the step modulator** (p. 38).

Adjust the knobs

4 Try turning the various [EFFECTS CONTROL] knobs.



The amount of delay sound that is repeated (FEEDBACK) will change.

[RATE/LOW]

The cutoff frequency will change.

[CUTOFF/MID]

The resonance will change.

[RESO/HIGH]

* *Synth preview function [SYN PREVIEW]*

You can press [SHIFT] + [EFFECT CUE] to enable the Synth Preview function, and operate the EF-303 like a keyboard.

MEMO

If you wish to turn the delay on, turn [BPM SYNC] on.

SYN+DLY: synth + delay (p. 64)

Using an external MIDI keyboard to play the EF-303

When a synthesizer algorithm is selected, the EF-303 can receive note messages at its MIDI IN connector and function as a MIDI sound module. In this case, you must set the MIDI channel of the external MIDI keyboard to match the MIDI channel of the EF-303.

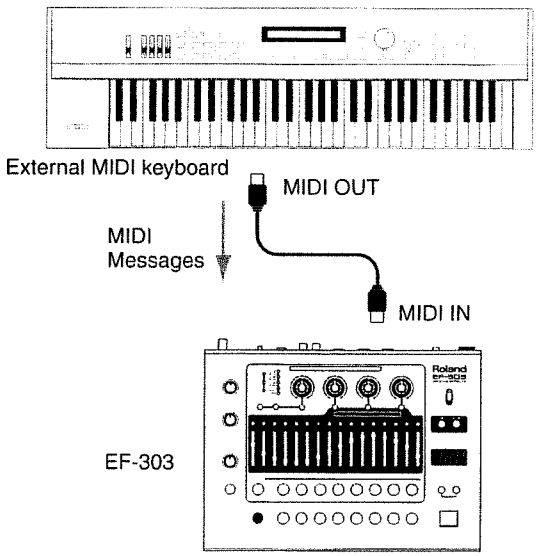
Using the EF-303 with External MIDI Devices (p. 47)

1 Use a MIDI cable to connect the EF-303 and your external MIDI keyboard.

2 Set the MIDI channel of your external MIDI keyboard to the same setting as the EF-303. For details on making this settings, refer to the owner's manual for your external MIDI keyboard.

NOTE
At the factory settings, the EF-303's MIDI channel is set to ch. 1.

3 Play your keyboard.

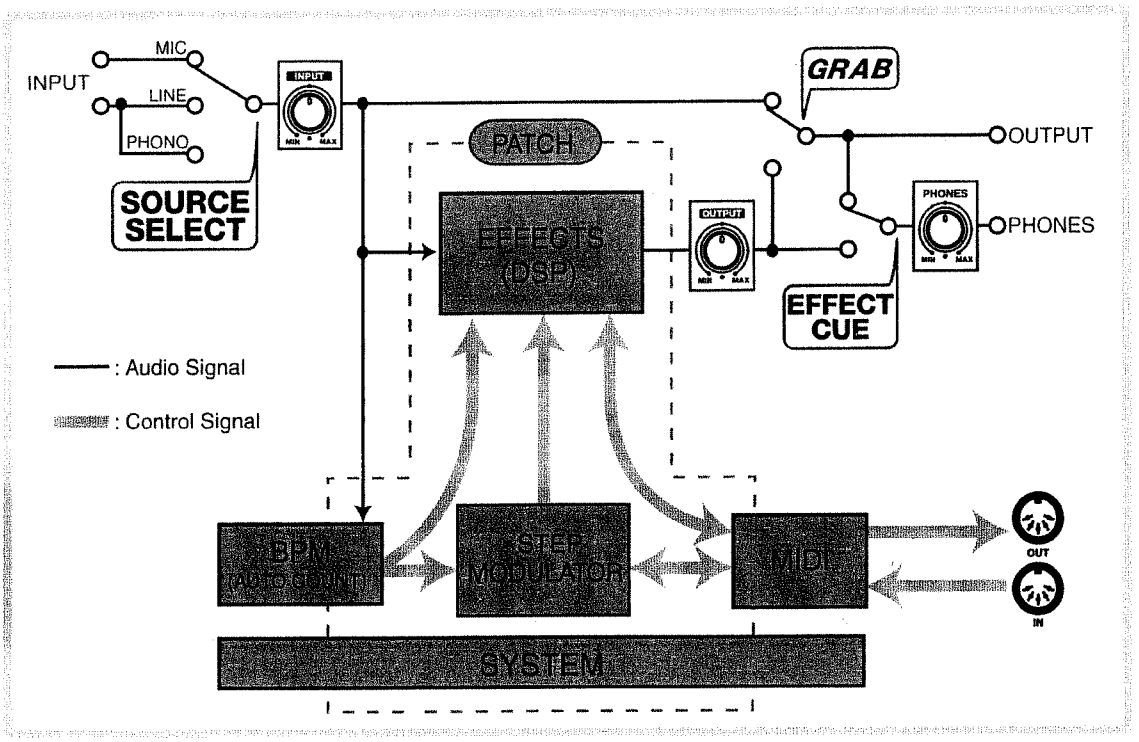


Memo

EF-303
GROOVE EFFECTS
ADVANCED USE

How the EF-303 Is Organized

Basic structure of the EF-303



Effect section (EFFECTS)

This is the section that actually processes the sound. You can modify the effect settings by operating the knobs or switches, or by using the step modulator or messages from an external MIDI device.

Step modulator section (STEP MODULATOR)

This section lets you apply time-variable change to the parameters of the internal effects. You can use the sixteen sliders to visually adjust the depth of change for the parameters. You can also apply changes to an external MIDI device in the same way.

BPM settings (BPM)

Here you can specify the BPM (tempo) of the song to which you wish to apply effects. There are three ways to set the BPM: auto, tap, and manual. By using this in conjunction with the STEP TIME or BPM SYNC functions, it is easy to synchronize the step modulator or internal LFO (*) to the song. The tempo of an external MIDI device can also be synchronized to the BPM you specify.

* *LFO (Low Frequency Oscillator)*

Patch section (PATCH)

Here you can store the settings of the effect section and step modulator section in internal memory, so that they can be recalled by a single button.

System settings (SYSTEM)

Here you can make settings that affect the entire EF-303. These settings are stored in internal memory.

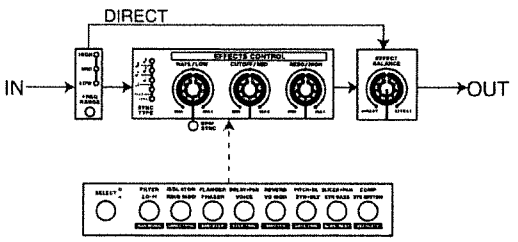
MIDI system settings (MIDI)

Here you can make MIDI-related settings for the EF-303. These settings are stored in internal memory. Some of these settings are stored in the patch section.

How the Effects Work

About the EF-303's effects

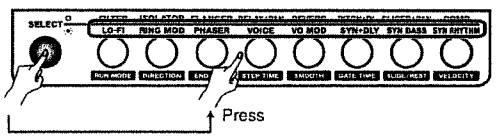
The EF-303 provides sixteen algorithms (such as filter or isolator), and you can select any one of these to use.



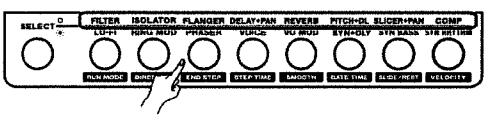
Selecting algorithms

Effect algorithms are selected using the [SELECT] button and the [Effect Select] buttons.

After pressing the [SELECT] button, and confirming that its indicator is lighted, you can then press an [Effect Select] button to select the effects appearing in the lower row of the panel (e.g., LO-FI or RING MOD).



When the [SELECT] button is extinguished, you can select the effects appearing in the upper row of the panel (e.g., FILTER or ISOLATOR)



Types of algorithm

The EF-303 has sixteen different algorithms that you will find immediately useful in music production and DJ club performance.

Algorithms	Features
FILTER	Adjust the brightness of the sound
ISOLATOR	Boost/cut a specific frequency range
FLANGER	Add a metallic resonance
DELAY+PAN	Change the delay + move the sound to left or right
REVERB	Add reverberation
PITCH+DLY	Change the pitch + add a delayed sound
SLICER+PAN	Intermittently cut the sound +move the sound to left or right
COMP	Make the volume more consistent
LO-FI	Give the sound a "low-fidelity" character
RING MOD	Give the sound a non-pitched unmusical character
PHASER	Modulate the sound
VOICE	Change the pitch or character of a voice
VO MOD	Use your voice to modify the synth sound
SYN+DLY	Play a synth lead sound + apply a delay
SYN BASS	Play a synth bass sound
SYN RHYTHM	Play synth rhythm sounds

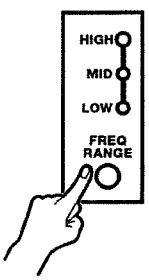
* *Effects FILTER through COMP are in the upper row, and LO-FI through SYN RHYTHM in the lower row.*

Select the range over which the effect is to be applied (FREQ RANGE)

Use the [FREQ RANGE] button to select the frequency range over which the effect is to be applied.

Each press of the button takes you to the next setting, in the order of HIGH→MID→LOW→FULL.

- HIGH (HIGH LED lit): The effect is applied only to the high-frequency range, such as cymbals.
- MID (MID LED lit): The effect is applied only to the mid-frequency range, such as vocals.
- LOW (LOW LED lit): The effect is applied only to the low-frequency range, such as bass and drums (bass drum).
- FULL (all LEDs lit): The effect is applied to the entire frequency range.



NOTE

For some effect algorithms, this button plays a different role.

Effects for which the frequency range cannot be selected: ISOLATOR, VOICE, VO MOD, SYN + DLY, SYN BASS, SYN RHYTHM

For details refer to the effect parameter chart.

→ **Effect parameter Chart** (p. 70)

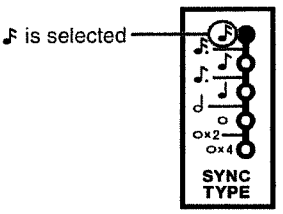
Selecting the beat (note value) to which the effect is to be synchronized (SYNC TYPE)

Use the [SYNC TYPE] button to select the beat (note value) to which the effect is to be synchronized.

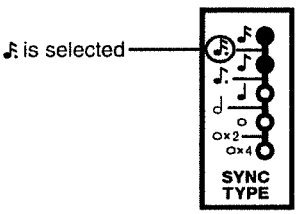
This beat (note value) will be the basis for the BPM.

Values: 16th, dotted 16th, 8th, dotted 8th, quarter note, half note, whole note, two whole notes, four whole notes 16th triplet, 8th triplet, quarter note triplet

- If only one LED is lit, the beat immediately to the left of the LED is selected.



- If two LEDs are lit, the beat beside the lit LED is selected.



* *[EXIT] + [SYNC TYPE] selects a triplet; the LEDs will be lit in reverse.*

- A triplet of the beat at the immediate left of the single dark LED is selected.

Synchronizing effects (BPM SYNC)

By turning the [BPM SYNC] button "ON (lit)," you can synchronize the effect to the beat (note value) selected by SYNC TYPE.

→ **Effect parameter Chart** (p. 70)

What are the effect control knobs?

The effect section has three knobs, [RATE/LOW], [CUTOFF/MID], and [RESO/HIGH]. These are collectively referred to as the effect control [EFFECTS CONTROL] knobs. These knobs can be used to modify the parameters of the effect.

The parameters that are modified (i.e., the role of the knobs) will differ depending on the effect that is selected.

For details refer to the Effect Parameter Chart.

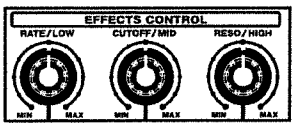
→ **Effect algorithms** (p. 57)

You can also use the step modulator instead of these knobs to modify the effect parameters.

For details refer to the section on the step modulator.

→ **Using the step modulator** (p. 38)

→ **[CTRL SELECT] Button**(p. 10)



NOTE

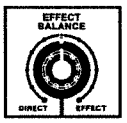
Behavior of knobs during use of patches

- If you move the knobs after selecting a patch, the settings of the selected patch will be discarded; instead, the values actually indicated by the knobs will be placed in effect.
- If you hold down the [SHIFT] button and move the knobs, the BPM display will show the patch parameter values, allowing you to check the settings of that patch. (The actual values of the knobs will not be applied to the effect.)

What is effect balance? (EFFECT BALANCE)

Effect balance is the relative volume of the direct signal (the sound to which no effect is applied) respective to the effect signal (the signal after it's been processed by the effect). On the EF-303, you can turn the [EFFECT BALANCE] knob to adjust this balance. If you turn the knob fully counterclockwise (DIRECT), only the direct signal will be output. If you turn the knob fully clockwise (EFFECT), only the effect signal will be output. If you place the knob at the center, the direct signal and effect signal will be output at a 1:1 ratio.

* *If you set FREQ RANGE to either HIGH, MID, or LOW, placing the knob at the center will output the effect sound of the selected frequency range, and the remaining direct sound at a 1:1 ratio.*



NOTE

If the SYSTEM setting DIRECT MUTE is "ON," the direct signal will not be output.

→ **Direct Mute setting** (p. 53)

What is the [GRAB (effect)] switch?

This is the effect on/off switch. If it is in the "ON" position, the effect will always be on.

If you move the switch to the GRAB position, the effect will be on only while you hold the switch in that position.

In the "OFF" position, the effect will be off.

MEMO

By using the [GRAB (effect)] switch, you can easily switch the effect on/off in a rhythmical way. By using the various knobs in conjunction with the [GRAB (effect)] switch, you can create more dynamic DJ performances.

MEMO

With Grab Reset, a System setting, at "ON," you can flip the [GRAB(Effect)] switch to "ON," and obtain the same result as you would if you pressed the RESET switch.

Using the step modulator

What is a step modulator?

A step modulator is a modulator that has the characteristics of an analog sequencer. It's easy to operate, and opens up new possibilities for effect units, such as effects that change on each beat.

The step modulator of the EF-303

- Parameter values of the internal effects can be varied over a range of 128 levels in 16 steps.
- The change in values (the progression of steps) can be synchronized to the BPM.

You can also advance one step manually (by pressing a button) or randomly.

- By using the "SYNTH BASS" effect algorithm for the internal effect, you can create arpeggiator-like effects without using an external sound module.

Playing sounds from the step modulator

By operating the step modulator on a synth-type algorithm, you can automatically play synthesizer bass or techno lines. When doing so, it is also effective to use the effect control knobs in conjunction with the step modulator to vary another parameter.

SYN+DLY: synth + delay (p. 64)

NOTE

Only very simple lines can be played by the step modulator. If you want complex phrases to play automatically, use an external MIDI sequencer with the EF-303.

Basic structure

Broadly speaking, the step modulator consists of three sections.

1. Sequence

Runs and stops the step modulator.

Operating the step modulator (Sequence) (p. 39)

2. Parameter

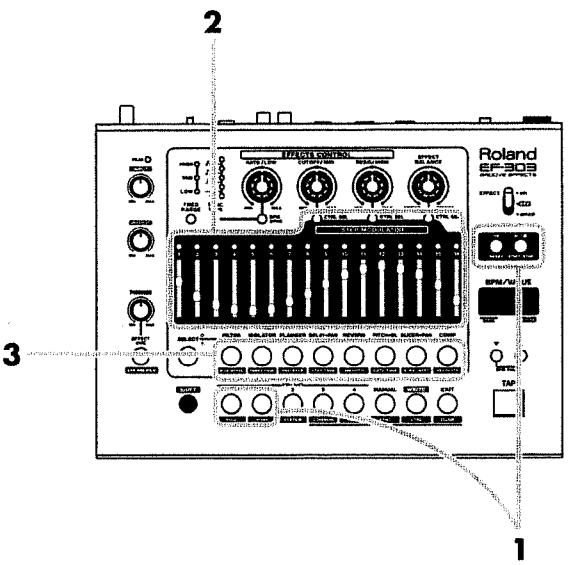
Parameter settings.

Adjusting the parameters (p. 39)

3. Overall settings

Make various overall settings for the step modulator, such as specifying the end step.

Making overall settings for the step modulator (p. 40)



Operating the step modulator (Sequence)

[START/STOP] button

Start/stop the step modulator.

[RESET] button

Step modulator stopped: Return to the first step and pause.

Step modulator running: Return to the first step and continue playing.

MEMO

If the system setting [GRAB RESET] switch is turned "ON," you can use the [GRAB] switch as the [RESET] button.

Overall settings (SYSTEM) (p. 52)

[PUSH/PULL] buttons

These make temporary changes in the specified BPM, allowing you to make fine adjustments to the synchronization between the step modulator and an external audio source (e.g. CD or record player).

To use these buttons, hold down the [SHIFT] button and press the [PUSH] or [PULL] button to adjust the speed.

[SHIFT]+[PUSH] button: The BPM setting will rise. Use this when the step modulator is running behind the external audio source.

[SHIFT]+[PULL] button: The BPM setting will fall. Use this when the step modulator is running ahead of the external audio source.

Making fine adjustments to the step timing ([PUSH/PULL] buttons) (p. 46)

Adjusting the parameters

[CTRL SEL (Control Select)] buttons

These buttons select the parameter that will be controlled by the step modulator. In this case, The LED of the Control Select button lights.

- LED lights→Controlled by STEP MODULATOR
- LED blinking/extinguished→Controlled by Knobs

While the Step Modulator is running, the knobs will take back their control from the moment they are moved.

< Knobs that can be controlled by the step modulator >

- [EFFECTS CONTROL] knobs

These knobs control the corresponding parameter.

NOTE

The [RATE/LOW] knob may change depending on the effect algorithm.

→ **Effect parameter Chart** (p. 70)

→ **Effect algorithms** (p. 57)

- [EFFECTS BALANCE] knob

This knob adjusts the effect balance.

[STEP MODULATOR] sliders

These sliders specify the value of the parameter at each step of the step modulator.

To select the parameter that will be controlled, use the [CTRL SEL] buttons. The sixteen [STEP MODULATOR] sliders allow the value to be changed in realtime.

Making overall settings for the step modulator

To make overall settings for the step modulator, hold down the [SHIFT] button and press an [Effect Select] button.

There are two types of settings: "settings for the entire step modulator," and "settings for each step."

Settings for the entire step modulator

Hold down the [SHIFT] button and press the [Effect Select] button for the desired function to access its setting.

Use the [▼ , ▲] buttons to change the setting.

Press the [EXIT] button to exit the setting.

RUN MODE ([SHIFT]+[FILTER/LO-FI])

This specifies the playback speed of the step modulator. There are three possible modes for the playback speed.

< Values >

REPEAT: When you press the [START/STOP] button the step modulator will run, and will continue repeating until the button is pressed again.

If you press the button while the step modulator is running, it will stop at that step.

If you press the button while the step modulator is stopped, it will begin running from the current step.

SINGLE: Each time you press the [START/STOP] button, the step modulator will run from the first to the last step.

If you press the button while the step modulator is running, it will stop at that step.

If you press the button while the step modulator is stopped, it will begin running from the current step.

1STEP: Each time you press the [START/STOP] button, you will advance one step.

DIRECTION ([SHIFT]+[ISOLATOR/RING MOD])

Specifies the playback direction of the step modulator.

< Values >

FORWARD: Play back in the forward direction.

BACKWARD: Play back in the backward direction.

ALTERNATE1: Play back in alternate directions.

Set the End Step to 15.

1 2 3 - - - - - - -15

1 2 3 - - - - - 14

2 3 - - - - - - -15

ALTERNATE2: Play back in alternate directions, covering the first and last steps twice each.

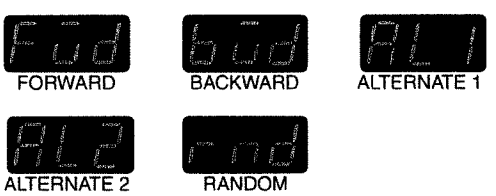
Set the End Step to 15.

1 2 3 - - - - - - -15

1 2 3 - - - - - - -15

1 2 3 - - - - - - -15

RANDOM: Play back randomly.



END STEP ([SHIFT]+[FLANGER/PHASER])

Specifies the number of steps used by the step modulator (i.e., the number of changes that will occur each cycle).

< Values >

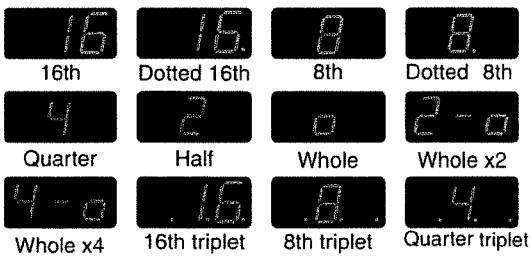
1–16

STEP TIME ([SHIFT]+[DELAY+PAN/VOICE])

Select one step of the step modulator as the beat (note value) unit. The beat is based on the BPM. The setting will be shown by the SYNC TYPE indicator (blinking).

< Values >

16th, dotted 16th, 8th, dotted 8th, quarter, Half, whole, whole note x 2, whole x 4, 16th triplet, 8th triplet, quarter triplet



SMOOTH ([SHIFT]+[REVERB/VO MOD])

Smoothly connect the difference between each step and the next.

NOTE

When you use the EF-303 as a synthesizer, the SMOOTH effect cannot be obtained. To create a similar effect, use SLIDE.

< Values >

ON: The steps will be connected smoothly.

OFF: The steps will not be connected smoothly. The change will occur in a "stair-step" fashion.

Settings you make for each step

NOTE

These settings are valid only if a synth-type algorithm (synth + delay, synth bass, synth rhythm) or voice modulator algorithm is used.

To access each setting, hold down the [SHIFT] button and press the [Effect Select] button for the desired setting.

Use the [←, →, ▼, ▲] buttons to change the settings.

- [←, →] buttons: Select the step number for which you wish to make settings.

The step modulator indicator will blink to indicate the step number.

- [▼, ▲] buttons: Change the settings of each step.

* *You can use the slider to change the settings of each step.*

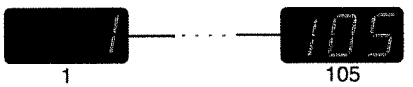
[EXIT] button when you are finished making the setting.

GATE TIME ([SHIFT]+[PITCH+DL/SY+DLY])

Sets the time length of each step.

< Values >

1–105

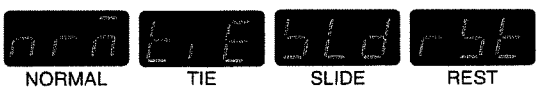


SLIDE/REST ([SHIFT]+[SLICER+PAN/SYN BASS])

Specifies the transition method of individual steps.

< Values >

NORMAL, TIE, SLIDE, REST

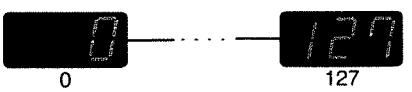


VELOCITY ([SHIFT]+[COMP/SYN RYTHM])

Specifies the velocity for each step when a synth-type algorithm is used.

< Values >

0–127



Tips for using the step modulator and the effects

By using the step modulator in conjunction with the various effects, you can create a variety of interesting results.

Applying complex changes to the effect parameters

By using the step modulator to control effect parameters, you can create results that would be impossible by manually moving the knobs or by using the LFO (an oscillator that creates cyclic change).

Smooth changes or abrupt changes can be adjusted visually, using the sliders. It is particularly effective to adjust the steps to the timing intervals at which the rhythm or the instruments are heard. By using this together with the SMOOTH function, you can even produce continuous changes.

Example parameters: CUTOFF (FILTER), DEPTH (FLANGER, PHASER), PITCH (PITCH+DLY), LEVEL (SLICER+PAN), FREQUENCY (RING MOD), FORMANT(VOICE), etc.

Applying an effect at a specific timing

By using the step modulator to control EFFECT BALANCE, you can apply the effect at a specific timing.

For example by changing this parameter to the DIRECT setting (lowering the slider) at the timing of the bass drum (beginning of the beats), you can make the rhythm stand out while still applying the effect to the overall sound.

Example parameters: EFFECT BALANCE (All Effects)

Creating a phrase

By using the step modulator to control PITCH, you can compose a melody of up to sixteen steps.

You can use RUN MODE, DIRECTION, and END STEP settings to modify the phrase, and use GATE TIME, SLIDE/REST, and VELOCITY settings to create staccato, rests, and adjust the loudness of the sound.

By using this together with the System settings KEY and SCALE, you can even create musical expressions. Adjustments will be easier to make if you reduce the SLIDER RANGE.

You can also expand your system by using an external sound module.

Parameter examples: NOTE (VO MOD, SYN+DLY, SYN BASS, SYN RHYTHM)

Saving Effect Settings

What is a patch?

The EF-303 can store various effect settings (algorithm type and knob/slider settings) together into what is known as a "patch." The internal memory of the EF-303 is capable of storing up to 16 patches.

When purchased, the memory contains patches that you might find immediately useful. Or, you can overwrite them at will.

A group of four such patches is referred to as a "bank." The EF-303 has four banks, [1]–[4], with 4 (banks) x 4 (numbers) for a total of 16 patches.

Factory-set patches

Saving a patch (PATCH) (p. 44)

Selecting a patch

You can select a patch by pressing the [BANK] button and one of the [1]–[4] buttons.

When you select a patch, the [EFFECTS CONTROL] knob and [STEP MODULATOR] slider settings stored in that patch will be recalled.

1. Press the [BANK] button to enter bank input mode.

At this time, the bank number will be blinking in the BPM display.

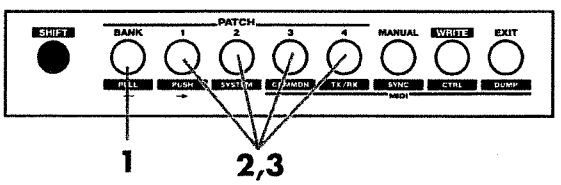
If you wish to exit this mode, press the [EXIT] button.

2. Press a button from [1] through [4] to input the bank.

At this time, the item that is blinking in the BPM display will change—instead of the bank select number, it will be the patch select number.

If you wish to return to bank input mode, press the [EXIT] button.

3. Once again press one of the [1]–[4] buttons to input the number.



Checking the parameters of a patch

When selecting a patch, the parameter values will not always necessarily match the position of the slider/knobs.

- If you hold down the [SHIFT] button and move the knobs, the BPM display will show the patch parameter values, allowing you to check the settings of that patch. (The actual position of the knobs will not be applied to the effect.)
- If you hold down the [SHIFT] button and [SELECT] Button and move the knobs or slider, the BPM display will show the actual values of knobs and the slider. The actual values of the knobs and the slider will be applied to the effect.

What is the [MANUAL]

[Manual] is a function that makes the parameters match the positions of the sliders/knobs while editing.

When you edit a patch to change the sound, the various parameter values will not necessarily match the positions of the sliders/knobs. When you use manual mode, the sound will always match the position of the sliders/knobs, making this mode useful when you are creating sounds from scratch.

* *When the Manual mode button's LED is blinking, the parameter values will not always necessarily match the position of the slider/knobs.*

Factory-set patches

With the factory settings, internal memory contains sixteen patches for immediate use. (*Refer to the table below.)

You can make your own parameter settings, and save them by overwriting the factory patches. For details refer to "Saving a patch."

NUMBER / BANK	1	2	3	4
1	FILTER	ISOLATOR	FLANGER	DELAY +PAN
2	REVERB	PITCH +DLY	SLICER +PAN	COMP
3	LO-FI	RING MOD	PHASER	VOICE
4	VO MOD	SYN +DLY	SYN BASS	SYN RHYTHM

*inside the frame are the kind of algorithms used

Saving a patch (PATCH)

1. Press [WRITE] to enter Write mode.

*In the BPM display, the number at the right (as soon from the front) will be flashing.

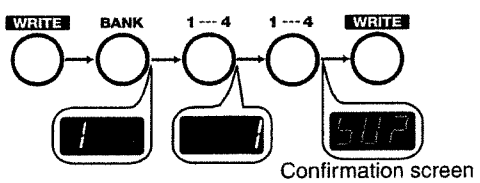
*If you want to change the bank number, press the [BANK] button to get the number at the left (as soon from the front) to begin flashing. To choose the bank you want to save, use the buttons from [1] to [4] to change banks.

2. Choose the patch you want to save by pressing the corresponding button from [1] to [4].

The BPM display shows a confirmation screen. To quit without saving, press the [EXIT] button.

3. To go ahead and save it, press the [WRITE] button.

While the patch is being saved, the BPM display flashes. When finished, you're returned to step 1.



NOTE

Please note that patch data cannot be saved while the STEP MODULATOR is playing.

NOTE

Do not turn off the power while the display is blinking. Doing so may destroy the data.

NOTE

The saved data will be written over the previous data of the patch, so be sure of the patch number you select.

Contents of the saved data

Each patch contains the following settings.

- Type of algorithm
- [FREQ RANGE]
- [SYNC TYPE]
- [CTRL SEL]
- [BPM SYNC]
- [EFFECTS CONTROL] knob setting
- [EFFECT BALANCE] knob setting
- [STEP MODULATOR] setting
- CTRL (MIDI) -related system settings
- BPM
- SLIDER RANGE (Upper limit / Lower limit)
- Key

Applying Effects in Sync with the BPM of a Song

What is BPM?

BPM stands for Beats Per Minute, and refers to the number of quarter notes in each minute.

When the power is turned on, the BPM will be set to 120.0.

The BPM can be set in the range of 20.0–240.0. (When calculated automatically, the range will be 90.0–180.0.).

The EF-303 is able to automatically detect the BPM from the audio signal of a connected record or CD, and make this setting automatically.

By connecting a MIDI cable, the EF-303 can be synchronized to the synchronization signal received from an external MIDI device; or conversely, an external MIDI device can synchronize to the EF-303.

MEMO

By holding down the [SHIFT] button and pressing the [▼], [▲] buttons, you can view or set the decimal portion of the current BPM in the BPM display.

MEMO

The EF-303's "BPM SYNC" function can synchronize some of the parameters of each effect to the currently displayed BPM.

For example, in the case of the "Filter," the "LFO RATE" will synchronize to the BPM.

Effect parameter Chart (p. 70)

Setting the BPM by tapping a pad (TAP)

If you press [TAP] for three times or more in time with the quarter notes, the BPM will be calculated automatically. The value will be shown in the BPM display.

Setting BPM manually (▼, ▲)

If you already know the desired BPM, or if you want to make fine adjustments, you can set BPM manually. Pressing the [▼] button or [▲] button will change the setting in one-BPM increments.

By holding down the [SHIFT] button while you do this, you can view or change the setting in 0.1 BPM increments. At this time, the BPM display will be shifted one place to the left, and the value one place after the decimal point will be displayed.

Setting BPM by automatic detection (BPM COUNT)

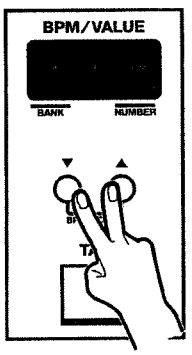
The BPM can be detected automatically from an external device (such as a record player or CD player).

The BPM range that can be detected automatically is 90.0–180.0 BPM.

1. Simultaneously press the [▼] button and [▲] button.

The BPM will be detected automatically from the signal that is being input.

While detection is in progress, the BPM display will appear as follows.



2. When detection is completed, the BPM value will be shown in the BPM display.
   - If detection was successful: The detected BPM value will be displayed.
   - If detection was unsuccessful: The display will indicate [Err] (error). To erase the [Err] display or cancel detection while it is in progress, press the [EXIT] button.

* *If the input level of the channel to be detected is not appropriate, the BPM display will show the following.*

Use the [INPUT] knob to adjust the level appropriately, and then perform the automatic detection once again.

Adjusting the level (p. 15)

NOTE

Depending on the signal or the style of the song, it may be impossible to detect the BPM accurately.

Setting BPM via MIDI messages

The EF-303 can set its BPM according to synchronization messages from an external MIDI device. Conversely, synchronization messages can be sent to an external MIDI device according to the BPM specified on the EF-303.

Using the EF-303 with External MIDI Devices (p. 47)

Making fine adjustments to the step timing ([PUSH/PULL] buttons)

If a BPM value detected from a CD player or record player is used to synchronize a MIDI instrument for an extended time, limitations in the precision of the BPM setting or inaccuracies due to wow/flutter on the record player may cause synchronization to drift slightly. If this occurs, you can make fine adjustments to the step timing without changing the BPM you specified.

- [PUSH] button ([SHIFT] + [1])
  Momentarily speeds up the BPM.
- [PULL] button ([SHIFT] + [BANK])
  Momentarily slows down the BPM.

MEMO

Since the EF-303's "SYNC TYPE" is determined by the BPM, the [PUSH/PULL] buttons will also affect the effect parameters if the [BPM SYNC] button is on.

MEMO

If you have made MIDI connections with the EF-303 as the master, the spacing of the MIDI synchronization messages transmitted from the EF-303 will also be affected by the [PUSH/PULL] buttons.

Using the EF-303 with External MIDI Devices

What is MIDI?

MIDI (Musical Instrument Digital Interface) is a standard that allows performances and other data to be exchanged between electronic musical instruments and computers. Data can be transmitted and received if a MIDI cable is used to connect devices that have MIDI connectors. Virtually all electronic musical instruments today are equipped with MIDI. Without using MIDI, an external keyboard cannot be used to play the EF-303, or the step modulator of the EF-303 used to play an external sound module. Although the EF-303 can be used without knowing very much about MIDI, this chapter provides a simple explanation of the EF-303's MIDI functionality so that you can take the fullest advantage of electronic musical instruments.
The EF-303 can receive MIDI performance data to operate its effects, or play back MIDI musical data.

About MIDI connectors

The EF-303 has two MIDI connectors

MIDI OUT connector

MIDI messages are transmitted from this connector to external MIDI devices. MIDI messages received from MIDI IN can also be re-transmitted without change from this connector.

MIDI overall settings (COMMON) (p. 55)

MIDI transmit/receive settings (TX/RX) (p. 55)

MIDI IN connector

MIDI messages from external MIDI devices are received at this connector. When the EF-303 receives MIDI messages, it can produce sounds or switch settings.

MIDI transmit/receive settings (TX/RX) (p. 55)

MIDI transmit/receive settings (TX/RX) (p. 55)

About MIDI channels

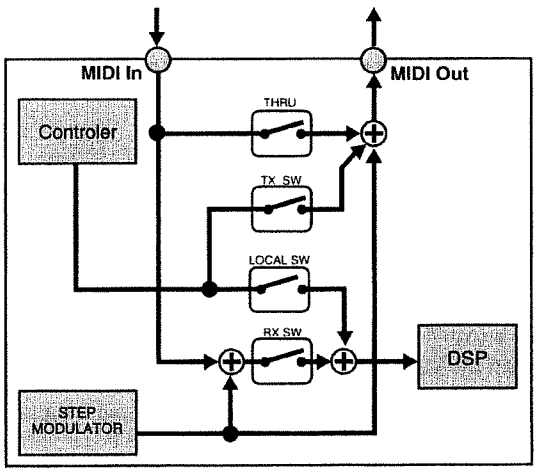
MIDI transmits performance data for up to sixteen musical parts over a single MIDI cable. This is made possible by MIDI channels. By using MIDI channels, the receiving device is able to choose from the large amount of incoming data, and use only the data that it needs. There are sixteen MIDI channels, numbered 1 through 16, and messages are received when the MIDI channels of the transmitting and receiving devices match.

On the EF-303 you can select one of these sixteen channels.

MIDI overall settings (COMMON) (p. 55)

MIDI data flow inside the EF-303

MIDI data flows inside the EF-303 as follows.



EF-303

The device that transmits tempo data and start/stop messages is called the "master," and the device that synchronizes to this data is called the "slave."

Applications/connections when using external MIDI devices

Playing the EF-303 as an external sound module

MIDI note messages can be transmitted from an external MIDI sequencer or keyboard to play the EF-303's internal synthesizer effect. To do this, you will need to select one of the synth-type algorithms (synth+delay, synth bass, synth rhythm). Set the transmit channel of the external MIDI keyboard to match the MIDI channel of the EF-303. For example if the MIDI channel of the EF-303 is set to "1," set the transmit channel of the external MIDI keyboard to "1."

MIDI overall settings (COMMON) (p. 55)

Selecting patches from an external MIDI device

You can switch patches by transmitting Program Change (PC) messages from an external MIDI device to the EF-303. To do this, the Receive Program Change Switch (r.PC) setting must be "ON."

MIDI transmit/receive settings (TX/RX) (p. 55)

For details on transmitting Program Changes from an external MIDI device, refer to the manual for your device.

Using the EF-303 to control an external MIDI device

The EF-303 can transmit operations of its knobs or sliders from its MIDI OUT connector.

By setting the channel of the receiving external MIDI device to the same setting of the MIDI channel of the EF-303, you can play the external MIDI device.

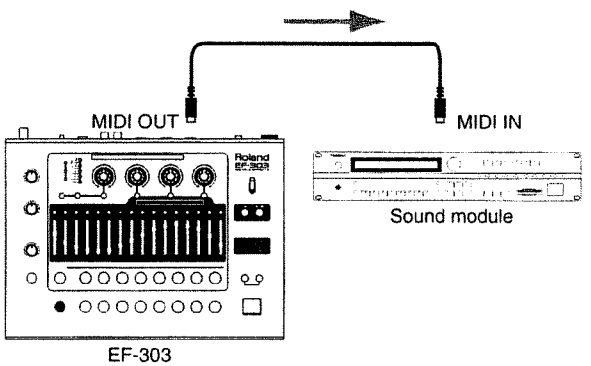
1. Set the MIDI channel of the external sound module to match the MIDI channel of the EF-303.
2. Set the EF-303's "Knob destination setting" and "Slider destination setting" to "EXT."

With these settings, performance data will be transmitted from MIDI OUT.

Knob destination settings (p. 53)

Slider destination setting (p. 54)

3. Play back the EF-303's step modulator or operate its knobs and sliders.

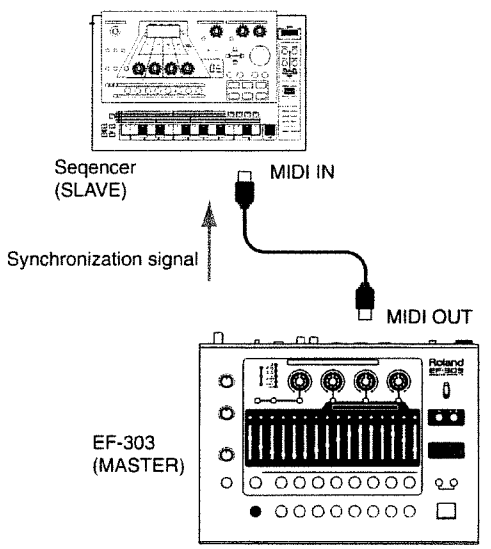


Synchronizing with an external MIDI device

The step modulator of the EF-303 can play back in synchronization with another sequencer.

Synchronizing an external sequencer to the playback of the EF-303

An external MIDI sequencer can be made to synchronize to the MIDI Clock messages transmitted from the EF-303, so that it will play back in synchronization. Here's how to synchronize an external MIDI sequencer to a pattern of the EF-303.



1. Set SYNC OUT to "ON."

Synchronization message transmission (Sync Out) setting (p. 54)

With this setting, synchronization messages will be transmitted from the EF-303's MIDI OUT.

2. For the "Knob/slider-related settings (CTRL)," set both "Knob destination setting" and "Slider destination setting" to "INT." With these settings, only synchronization data and Start and Stop commands will be transmitted from the EF-303's MIDI OUT.

Knob destination settings (p. 53)

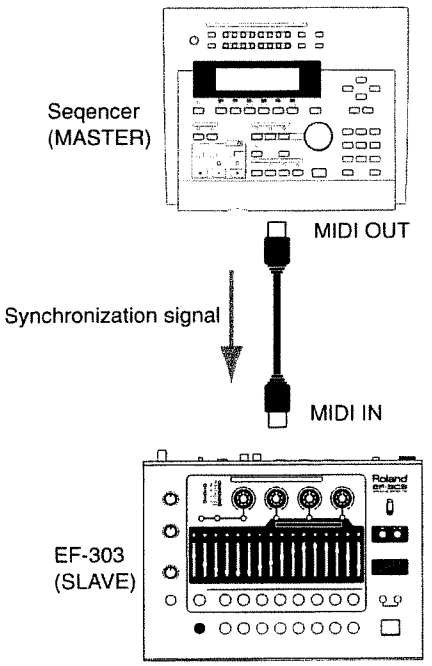
Slider destination setting (p. 54)

3. Set your external MIDI sequencer so that it will synchronize to MIDI Clock messages that it receives. For details on making this setting, refer to the owner's manual for your external MIDI sequencer.

4. Press the EF-303's [START/STOP] button, and synchronized playback will begin.
5. To stop synchronized playback, press the EF-303's [START/STOP] button once again. The external MIDI sequencer will also stop.

Synchronizing the EF-303 to the playback of an external sequencer

Here's how you can make the step modulator of the EF-303 play back in synchronization with the MIDI Clock messages transmitted from an external MIDI sequencer or a hard disk recorder.



Make EF-303 settings

1. Set SYNC MODE to "SLAVE."

Synchronization settings (SYNC) (p. 54)

Make settings for the external sequencer

2. Set the external MIDI sequencer so that it will transmit MIDI Clock messages. For details on making this settings, refer to the owner's manual for your external MIDI sequencer.

Begin synchronized playback

3. Press the [PLAY] button of your external MIDI sequencer, and synchronized playback will begin.
4. To stop synchronized playback, press the [STOP] button of your external MIDI sequencer.

NOTE

If necessary, make settings so that performance data is not transmitted from the external device to the EF-303. (Alternatively, make settings so that data is not transmitted on the control channel used by the EF-303.) If you do not make this setting, performance data from the external device will change the settings of the EF-303. For details refer to the owner's manual of the external MIDI device.

NOTE

It is also possible to control only pattern playback/stop without synchronizing to the MIDI Clock messages from the external MIDI sequencer. To do this, set the Sync Mode of the EF-303 to "REMOTE."

Synchronizing the playback of two EF-303 units

Here's how you can connect two EF-303 units, and synchronize them so that their step modulator patterns play in synchronization.

Make settings for the master unit

1. On the master unit, set the "Knob/slider-related settings (CTRL)" parameters "Knob destination" and "Slider destination" both to "INT." With this setting, the EF-303 will transmit only synchronization messages from MIDI OUT; i.e., slider or knob operations on the master unit will not be transmitted to the slave unit.

Make settings for the slave unit

2. On the slave unit (the unit that synchronizes to the master), set the Sync Mode to "SLAVE."

Synchronization settings (SYNC) (p. 54)

Start synchronized playback

3. Press the [START/STOP] button of the master, and the two EF-303 units will begin synchronized playback.
4. To stop synchronized playback, press the [START/STOP] button of the master unit once again.

NOTE

If the Step Time or End Step of the step modulator patterns being synchronized are different, the playback will drift apart even though the two units are synchronized. When using synchronized playback, it is best to set the Step Time and End Step identically on both units.

Using the EF-303 with a computer

By using MIDI sequencer software on your personal computer, you can use the EF-303 as a synth sound module or controller. Make connections as shown in the following example.

* *In order to connect a computer and play the EF-303 using MIDI sequencer software etc., you will need to use a MIDI interface appropriate for your computer.*

1. In your MIDI sequencer software, turn the Thru function "ON."
2. Make the following settings on the EF-303.
   - Knob destinations: all "EXT"

→ **Knob destination settings** (p. 53)

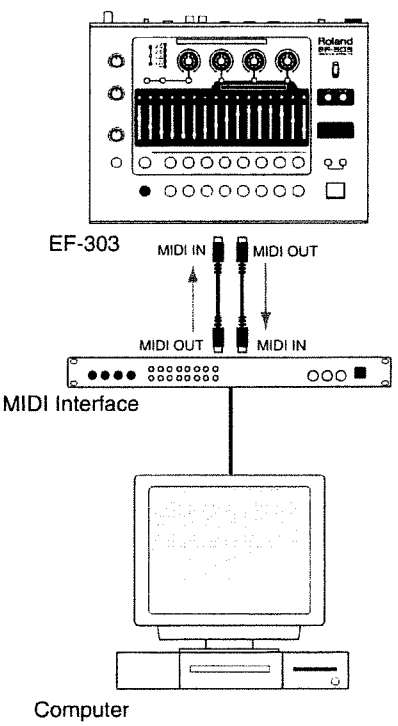
   - Slider destinations: all "EXT"

→ **Slider destination setting** (p. 54)

   - Soft Thru switch: OFF

→ **Soft Thru** (p. 55)

3. In your MIDI sequencer software, set the MIDI channel to match the MIDI channel of the EF-303. With these settings, you can operate the knobs or sliders of the EF-303, and record/play back their messages on the sequencer.



Saving EF-303 settings on an external sequencer (BULK DUMP)

Sets of data containing the settings of the currently selected patch or of all patches and settings can be transmitted from the EF-303, and saved on an external device. This function is called "bulk dump." Bulk dump allows EF-303 data to be saved on an external MIDI sequencer.

Saving EF-303 data on an external MIDI sequencer

Before you begin, use a MIDI cable to connect the EF-303's MIDI OUT to the MIDI IN of the external sequencer.

1. Hold down the [SHIFT] button, and press the [EXIT] button to enter Bulk Dump mode.

You can exit this mode by pressing the [EXIT] button.

2. Use the [← , →] buttons to select the type of data that you wish to transmit, and press the [WRITE] button.

<Values>

- PATCH: Settings of the currently selected patch will be transmitted.
- ALL: Settings for all patches and system settings will be transmitted.

3. Press the [WRITE] button, and the display screen will ask you to confirm the operation.

4. Begin real-time recording on the external sequencer.
5. Press the [WRITE] button, and bulk dump transmission will begin. If you press the [EXIT] button, the operation will be halted.

While the bulk dump is being transmitted, the BPM display will blink. When transmission is completed, the display will indicate this.

NOTE

Do not turn off the power while the display is blinking. The data will not be transmitted correctly.

Contents of the transmitted data

PATCH:

- Effect settings
- Step modulator slider settings
- ASSIGN settings

ALL:

- Settings for all patches
- SYSTEM settings

Restoring EF-303 data from the external sequencer to the EF-303

Use the following procedure to restore previously-saved bulk data to the EF-303.

Before you begin, use a MIDI cable to connect the EF-303's MIDI IN to the MIDI OUT of the external sequencer.

1. Hold down the [SHIFT] button, and press the [EXIT] button to enter Bulk Dump mode.

To exit this mode, press the [EXIT] button.

2. Use the [← , →] buttons to select RECEIVE, and press the [WRITE] button.


RECEIVE

3. To receive the data, press the [WRITE] button.The EF-303 enters the bulk data reception mode, and BPM display will blink.

If you press the [EXIT] button, reception will be halted, and you will return to step 1.


RECEIVE

4. Begin playback (start) on the external sequencer.The bulk data will be transmitted from the sequencer.

5. After the transmission is complete, press the [EXIT] button on EF-303, and a screen concerned with the saving of data will appear.


SURE

6. To save the data, press the [WRITE] button, and the bulk data will be stored in memory.

If you press the [EXIT] button, the saving of data will be halted.

* *Do not turn off the power while the display is blinking. The data will not be received correctly.*

* *When a bulk data is received, the data will overwrite all existing patch and setting data. Be careful not to overwrite important data that you wish to keep.*

Contents of the received data

PATCH:

- Effect settings
- Step modulator slider settings
- ASSIGN settings

ALL:

- Settings for all patches
- SYSTEM settings

System settings

System settings are remembered even if you turn off the power.

Overall settings (SYSTEM)

1. Hold down [SHIFT] and press the [2] button to access the SYSTEM setting.
2. When you press the [◄—] or [—►] button, the parameter display will change. Press the buttons as many times as necessary to access the desired parameter setting.
3. Use the [▲] or [▼] button to set the value of the parameter.
4. When you have finished making settings, press the [EXIT] button twice. If the value has been changed, the display will ask you for confirmation. Press the [WRITE] button to save the settings.

If you do not wish to save the settings, press the [EXIT] button once again.

Slider range lower limit (Range)

This sets the lower limit for the range of the EF-303's sliders.

< Values >

0–127

* *These settings are saved in patch memory.*

Slider range upper limit (Range)

This sets the upper limit for the range of the EF-303's sliders.

< Values >

0–127

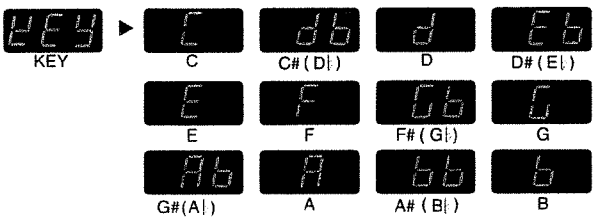
* *These settings are saved in patch memory.*

Synth key (Key)

This sets the key of the EF-303's internal synth.

< Values >

C, C#, D, D#, E, F, F#, G, G#, A, A#, B



* *These settings are saved in patch memory.*

Synth scale (Scale)

This sets the scale of the EF-303's internal synth. The EF-303 provides 21 different scale settings, and you can select one of these.

< Values >

Chromatic Scale....Minor Pentatonic scale

1 Chromatic Scale
2 Tcherepnin's Scale
3 Spanish Scale
4 Blues Mixolydian Scale
5 Combination of Diminished Scale
6 Diatonic Major Scale
7 Natural Minor Scale
8 Harmonic Major Scale
9 Harmonic Minor Scale
10 Double Harmonic Scale
11 Melodic Minor Scale
12 Gypsy Scale
13 Dominant Scale
14 Whole Tone Scale
15 Hexatonic Blue Scale
16 Augumented Scale
17 Ryukyu Scale
18 In Sen Scale,Decending
19 In Sen Scale,Ascending
20 Major Pentatonic Scale
21 Minor Pentatonic Scale

* *These settings are saved in patch memory.*

Synth tuning (Tuning)

This tunes the EF-303's internal synth. The display will indincate the current frequency of A4 note (middle A on the keyboard). The hundreds place of the freqency will not displayed.

< Values >

427.4–452.6Hz

GRAB (Effect) switch setting

If this setting is "ON," moving the GRAB (Effect) switch to the "ON" or "GRAB" position while the step modulator is playing will cause the step modulator to be reset just as if the [RESET] button were pressed. Normally you will leave this "OFF."

< Values >

ON, OFF

Direct Mute setting

If this setting is "ON," the direct sound will be forcibly muted. In this case, turning the [EFFECT BALANCE] knob all the way to the right will cause the effect sound to be output, and turning it all the way to the left will produce silence. Normally you will leave this "OFF."

< Values >

ON, OFF

MEMO

This setting is useful when the EF-303 is connected to the send/return of a mixer.

Knob/slider-related settings (CTRL)

1. Hold down [SHIFT], and press the [WRITE] button to access the CTRL(control) setting display.
2. Use the [◄—][—►] buttons to switch parameter display screens. Press the buttons as many times as necessary to access the desired parameter screen.
3. Use the [▲][▼] buttons to set the parameter value.
4. When you are finished making settings, press the [EXIT] button twice.

* *These settings are saved in patch memory.*

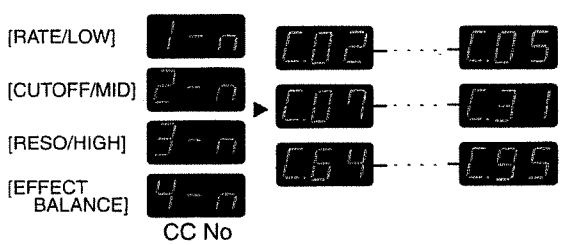
Saving a patch (PATCH) (p. 44)

Knob control change number settings

This specifies the MIDI messages (control change number) sent from the knobs.

< Values >

CC02–CC05, CC07–CC31, CC64–CC95



Knob destination settings

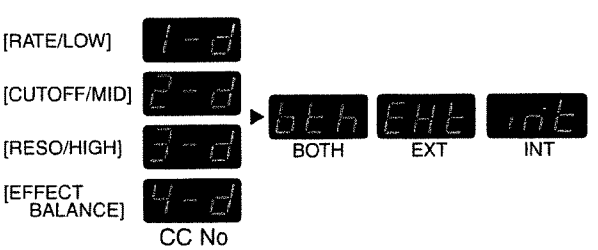
This specifies the destination to which MIDI messages (control changes) from the knobs are sent.

< Values >

BOTH: Messages from the knobs will be sent both to the internal effect and to MIDI OUT.

EXT: Messages from the knobs will be sent only to MIDI OUT.

INT: Messages from the knobs will be sent only to the internal effect.

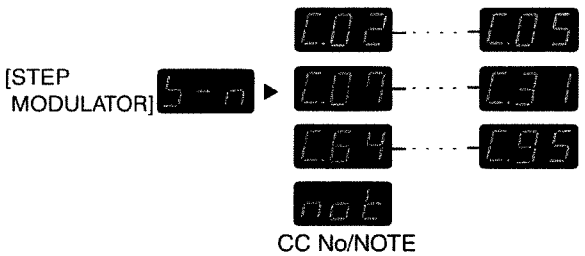


Slider control change / note number setting

This sets the MIDI messages (control change or note) sent from the step modulator.

< Values >

CC02–CC05, CC07–CC31, CC64–CC95, NOTE



Slider destination setting

This sets the destination to which MIDI messages from the step modulator will be sent.

< Values >

INT: Messages from the knobs will be sent only to the internal effect.

EXT: Messages from the knobs will be sent only from MIDI OUT.

BOTH: Messages from the knobs will be sent both to the internal effect and from MIDI OUT.

Synchronization settings (SYNC)

1. Hold down [SHIFT] and press the [MANUAL] button to access the SYNC setting display.
2. Use steps 2–4 of "System settings" to make settings.

→ **Overall settings (SYSTEM)** (p. 52)

Synchronization (Sync Mode)

This setting specifies how the step modulator will operate, and how MIDI Clock will be transmitted or received.

< Values >

INT: BPM will be controlled by the internal tempo clock. Even if MIDI Clock messages are received from an external device, they will be ignored.

SLAVE: The BPM will synchronize to the MIDI Clock from an external device. The step modulator will not play when you press the [START/STOP] button.

REMOTE: Basic operation is the same as for "INT." However, Start/Stop messages from an external MIDI device can be used to start/stop the step modulator.

Synchronization message transmission (Sync Out) setting

Specify whether synchronization-related MIDI messages will be transmitted.

< Values >

ON, OFF

MIDI overall settings (COMMON)

1. Hold down [SHIFT] and press the [3] button to access the COMMON setting screen.
2. Make settings as described in steps 2–4 of "System settings.

→ **Overall settings (SYSTEM)** (p. 52)

MIDI Channel

This is the channel on which MIDI data will be transmitted and received via MIDI IN/OUT.

Turn this "OFF" if you do not want to switch patches using MIDI messages, or if you do not want knob movements to be transmitted via MIDI.

< Values >

1-16, OFF

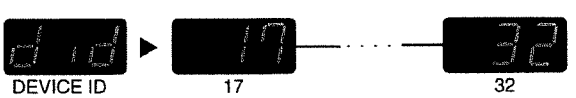
Unit ID number (Device ID)

This sets the device ID number for system exclusive messages, allowing different units of the same model to be distinguished. System exclusive messages will be received only if the device ID within the message matches the device ID number specified on the receiving MIDI device.

This setting makes it possible to simultaneously and independently send system exclusive messages to multiple EF-303 units.

< Values >

17–32



* *The device ID for a bulk dump (a type of system exclusive message) is transmitted with the setting you make here.*

Soft Thru

This allows messages received at MIDI IN to be retransmitted (THRU'ed) without change from MIDI OUT.

When this function is turned "ON," MIDI messages received at the MIDI IN connector will be retransmitted without change from the MIDI OUT connector. (I.e., the MIDI OUT connector can be used as a MIDI THRU connector.)

< Values >

ON, OFF

Local Switch

This specifies whether messages from the controller section (e.g., sliders and knobs) will be transmitted to the internal effect. If this setting is "OFF," messages from the controllers will not be transmitted to the internal effect.

< Values >

ON, OFF

MIDI transmit/receive settings (TX/RX)

1. Hold down [SHIFT] and press the [4] button to access the TX/RX setting display.
2. Make settings as described in steps 2–4 of "System settings".

→ **Overall settings (SYSTEM)** (p. 52)

Program change reception (RX.Program Change)

Specify whether the EF-303 will receive program change messages. If this is "OFF," program changes will not be received.

< Values >

ON, OFF

Control change reception (RX.Control Change)

Specify whether the EF-303 will receive control change messages.

MODE 1: Control Change messages will be received.

MODE 2: Control Change messages will be received. Also, SYNTH+DLY and SYN BASS parameters will be received as Control Change messages.

If this is "OFF," control changes will not be received.

* *In MODE 2, parameters will receive MIDI messages in a way that differs from the official MIDI specifications. Be aware that MODE 2 is a non-standard use of MIDI.*

< Values >

ON, OFF

Pitch bend reception (RX.Pitch Bend)

Specify whether the EF-303 will receive pitch bend messages. If this is "OFF," pitch bend will not be received.

< Values >

ON, OFF

System exclusive reception (RX.SystemExclusive)

Specify whether the EF-303 will receive system exclusive messages. If this is "OFF," system exclusive will not be received.

< Values >

ON, OFF

Program change transmission (TX.Program Change)

Specify whether a program change message will be transmitted from MIDI OUT when the patch is switched. If this is "OFF", program changes will not be transmitted.

< Values >

ON, OFF

Transmit edit data (TX.Edit Data)

Specify whether the settings of a patch will be transmitted as system exclusive data when you modify that patch. If this is "OFF," the system exclusive data will not be transmitted.

< Values >

ON, OFF

Effect algorithms

FILTER

This modifies the brightness of the sound. You can use this to significantly change the frequency characteristics of the input sound, making the sound brighter, darker, or more distinctive.

[SYNC TYPE]

The rate (LFO RATE) is specified in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

[BPM SYNC]

OFF: Specifies the rate (LFO RATE).

Turning the knob toward the right will make the modulation faster.

ON: Specifies the depth (LFO DEPTH).

Turning the knob toward the right will make the modulation deeper.

[CUTOFF/MID] knob

Adjust the cutoff frequency (CUTOFF FREQ).

Turning the knob toward the left will cut more of the high range.

[RESO/HIGH] knob

Adjust the resonance (RESONANCE).

Turning the knob toward the right will produce a stronger character.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (CUTOFF FREQ)
- [RESO/HIGH] knob (RESONANCE)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

* *Be careful not to raise the resonance excessively.*

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	LFO RATE	16th triplet – whole x 4
RATE/LOW	LFO RATE	0–127
	LFO DEPTH	0–127
CUTOFF/MID	CUTOFF FREQ	0–127
RESO/HIGH	RESONANCE	0–127
EFFECT BAL	EFX BAL	DIR–EFX

ISOLATOR

This boosts/cuts a specific frequency range of the input sound.

[SYNC TYPE]

No effect.

[RATE/LOW] knob

Boosts or cuts the low frequency range (LOW).

Turning the knob toward the right will boost the low frequency range.

Turning the knob toward the left will make the low frequency range less audible.

When the knob is in the center position, the level will be the same as the input sound.

[CUTOFF/MID] knob

Boosts or cuts the mid frequency range (MID).

Turning the knob toward the right will boost the mid frequency range.

Turning the knob toward the left will make the mid frequency range less audible.

When the knob is in the center position, the level will be the same as the input sound.

[RESO/HIGH] knob

Boosts or cuts the high frequency range (HIGH).

Turning the knob toward the right will boost the high frequency range.

Turning the knob toward the left will make the mid frequency range less audible.

When the knob is in the center position, the level will be the same as the input sound.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [RATE/LOW] knob (LOW)
- [CUTOFF/MID] knob (MID)
- [RESO/HIGH] knob (HIGH)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

* *If you wish to adjust the [RATE/LOW] knob (LOW), press the [BPM SYNC] button.*

* *If you select the Isolator, the [FREQ RANGE] will always be set to "FULL."*

Controller	Parameter	Value
FREQ RANGE	-	-
SYNC TYPE	-	-
RATE/LOW	LOW	-60–+4dB
CUTOFF/MID	MID	-60–+4dB
RESO/HIGH	HIGH	-60–+4dB
EFFECT BAL	EFX BAL	DIR–EFX

FLANGER

This adds a metallic resonance to the sound, producing a hard-edged mechanical modulation.

[SYNC TYPE]

The rate (LFO RATE) is specifies in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

Specifies the rate (LFO RATE).

[CUTOFF/MID] knob

Specifies the depth (LFO DEPTH).

Turning the knob toward the right will deepen the modulation.

[RESO/HIGH] knob

Adjust the resonance (RESONANCE).

Turning the knob toward the right will give the sound a stronger character.

[EFFECT BALANCE] knob

Adjust the volume balance between the direct signal and the effect signal.

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (LFO DEPTH)
- [RESO/HIGH] knob (RESONANCE)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

* *When the [BPM SYNC] button is lit, the [RATE/LOW] knob has no effect.*

* *If the [CTRL SEL] button of the [CUTOFF/MID] knob is pressed, the [RATE/LOW] knob has no effect.*

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	LFO RATE	16th triplet – whole x 4
RATE/LOW	LFO RATE	0–127
CUTOFF/MID	LFO DEPTH	0–127
RESO/HIGH	RESONANCE	0–127
EFFECT BAL	EFX BAL	DIR–EFX

DELAY+PAN

"DELAY" adds a time-delayed sound to the original sound, and "PAN" positions the location to left or right.

[SYNC TYPE]

The delay time (DELAY TIME) is specified in units of the note value shown by the SYNC TYPE indicator.

* *Delay time (DELAY TIME): The length of time from when the original sound is heard until the delayed sound is heard.*

* *The longest delay time is 1.3 sec.*

[RATE/LOW] knob

Set the delay time (DELAY TIME).

* *If the [BPM SYNC] button is lit, the [RATE/LOW] knob has no effect.*

[CUTOFF/MID] knob

Adjust the location (PAN) of the delayed sound.

Turning the knob toward the right (left) will move the delayed sound toward the OUTPUT R (L) channel.

[RESO/HIGH] knob

Adjust the amount of delayed sound that will be repeated (FEEDBACK).

Turning the knob toward the right will increase the amount of sound that is repeated.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (PAN)
- [RESO/HIGH] knob (FEEDBACK)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	DELAY TIME	16th triplet – whole x 4
RATE/LOW	DELAY TIME	0–127
CUTOFF/MID	PAN	L63–0–R63
RESO/HIGH	FEEDBACK	0–127
EFFECT BAL	EFX BAL	DIR–EFX

REVERB

This adds reverberation to the sound

[SYNC TYPE]

The gate time (GATE TIME) is adjusted in units of the note value shown by the SYNC TYPE indicator.

* *This will change only if BPM SYNC is ON.*

[RATE/LOW] knob

Adjust the length of reverberation (REV TIME).

Turning the knob toward the right will lengthen the reverberation.

[CUTOFF/MID] knob

Adjust the location of the reverberated sound (PAN).

Turning the knob toward the right (left) will move the reverberated sound toward the OUTPUT R (L) channel.

[RESO/HIGH] knob

Set the input volume level at which starts closing the gate to cut the reverb sound.(THRESHOLD).

Turning the knob clockwise will increase the volume level of the direct sound at which the reverb sound is cut.

* *This will change only if BPM SYNC is ON.*

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (PAN)
- [RESO/HIGH] knob (THRESHOLD)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	GATE TIME	16th triplet – whole x 4
RATE/LOW	REV TIME	0–127
CUTOFF/MID	PAN	L63–0–R63
RESO/HIGH	THRESHOLD	0–127
EFFECT BAL	EFX BAL	DIR–EFX

PITCH+DLY: Pitch shifter+Delay

"Pitch shifter" changes the pitch of the original sound, and "DELAY" adds a time-delayed sound to the original sound.

Functions of the [EFFECTS CONTROL] knobs

[SYNC TYPE]

Set the delay time (DELAY TIME) in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

Adjust the amount of delayed sound that is repeated (FEEDBACK).

Turning the knob toward the right will increase the amount of delayed sound that is repeated.

* *This will change only if BPM SYNC is ON.*

[CUTOFF/MID] knob

Adjust the location (PAN) of the delayed sound.

Turning the knob toward the right (left) will move the delayed sound toward the OUTPUT R channel (L channel).

[RESO/HIGH] knob

Adjust the amount of pitch change that will occur (PITCH).

Turning the knob toward the right will raise the pitch.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (PAN)
- [RESO/HIGH] knob (PITCH)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	DELAY TIME	16th triplet – whole x 4
RATE/LOW	FEEDBACK	0–127
CUTOFF/MID	PAN	L63–0–63R
RESO/HIGH	PITCH	-3oct – +3oct
EFFECT BAL	EFX BAL	DIR –EFX

SLICER+PAN

The "slicer" intermittently cuts the sound, and "pan" positions it to left or right.

[SYNC TYPE]

Specifies the slice rate (SLICE RATE) in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

Specifies the slice rate (SLICE RATE).

Turning the knob toward the right will shorten the slice rate.

* *If the [BPM SYNC] button is lit, the [RATE/LOW] knob will have no effect.*

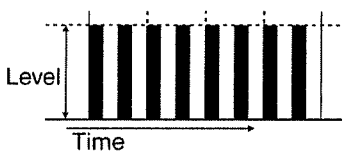
[CUTOFF/MID] knob

Adjust the position (PAN) of the sliced sound.

Turning the knob toward the right (left) will move the sliced sound toward the OUTPUT R channel (L channel).

[RESO/HIGH] knob

Set the slice level (SLICE LEVEL).



[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (PAN)
- [RESO/HIGH] knob (SLICE LEVEL)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	SLICE RATE	16th triplet – whole x 4
RATE/LOW	SLICE RATE	0–127
CUTOFF/MID	PAN	L63–0–R63
RESO/HIGH	SLICE LEVEL	0–127
EFFECT BAL	EFX BAL	DIR–EFX

COMP: compressor

This effect makes the volume more consistent.

[SYNC TYPE]

Specifies the compression ratio of the "output sound : original sound" (RATIO).

Pressing the button toward the right will increase the compression of the output sound.

[RATE/LOW] knob

Adjust the time from when the volume exceeds the threshold level until compression begins (ATTACK TIME).

Turning the knob toward the right will lengthen the time.

[CUTOFF/MID] knob

Adjust the time from when the volume drops below the threshold level until compression is no longer applied (RELEASE TIME).

Turning the knob toward the right will lengthen the time.

[RESO/HIGH] knob

Sets the volume level at which the compression begins.

Turning the knob clockwise will decrease the volume level at which the compression begins.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [RATE/LOW] knob (ATTACK TIME)
- [CUTOFF/MID] knob (RELEASE TIME)
- [RESO/HIGH] knob (THRESHOLD)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	RATIO	1 : 1 (16th)
		4 : 3 (8th)
		2 : 1 (4th)
		4 : 1 (whole)
		∞ : 1 (whole X 4)
RATE/LOW	ATTACK TIME	0–127
CUTOFF/MID	RELEASE TIME	0–127
RESO/HIGH	THRESHOLD	0–127
EFFECT BAL	EFX BAL	DIR–EFX

LO-FI

This gives the sound a "low fidelity" character.

[SYNC TYPE]

No effect.

[RATE/LOW] knob

Specifies the amount of distortion (DRIVE).

Turning the knob toward the right will increase the distortion (DRIVE).

[CUTOFF/MID] knob

Specifies the fraction to which the SAMPLE RATE will be lowered from the current sample rate.

Turning the knob toward the right will decrease the setting.

[RESO/HIGH] knob

Specified the number of bits (BIT RESOLUTION).

Turning the knob toward the right will make the sound rougher.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [RATE/LOW] knob (DRIVE)
- [CUTOFF/MID] knob (SAMPLE RATE)
- [RESO/HIGH] knob (BIT RESOLUTION)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	-	-
RATE/LOW	DRIVE	0–127
CUTOFF/MID	SAMPLE RATE	0–127
RESO/HIGH	BIT RESOLUTION	16 BIT–1 BIT
EFFECT BAL	EFX BAL	DIR –EFX

RING MOD: Ring Modulator

This gives the sound a metallic character with little sense of pitch.

[SYNC TYPE]

Specifies the rate (LFO RATE) in units of the note value shown by the indicator.

[RATE/LOW] knob

[BPM SYNC]

OFF: Specifies the rate (LFO RATE).

Turning the knob toward the right will make the modulation faster.

ON: Specifies the depth (LFO DEPTH).

Turning the knob toward the right will deepen the modulation.

[CUTOFF/MID] knob

Adjust the cutoff frequency (CUTOFF FREQ).

Turning the knob toward the right will cause more of the high range to be cut.

[RESO/HIGH] knob

Adjust the frequency of the internal oscillator (carrier).

Turning the knob toward the right will raise the frequency.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (CUTOFF FREQ)
- [RESO/HIGH] knob (FREQ)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	LFO RATE	16th triplet– whole x 4
RATE/LOW	LFO RATE	0–127
	LFO DEPTH	0–127
CUTOFF/MID	CUTOFF FREQ	0–127
RESO/HIGH	FREQ	0–127
EFFECT BAL	EFX BAL	DIR – EFX

PHASER

This applies a "twisting" modulation to the sound.

[SYNC TYPE]

Specifies the rate (LFO RATE) in units of the note value shown by the indicator.

[RATE/LOW] knob

Specifies the rate of modulation (LFO RATE).

Turning the knob toward the right will shorten the cycle.

* *The [RATE/LOW] knob is valid only when [BPM SYNC] is OFF. When the [BPM SYNC] is ON, this knob has no effect.*

[CUTOFF/MID] knob

Specifies the depth (LFO DEPTH).

Turning the knob toward the right will deepen the modulation.

[RESO/HIGH] knob

Adjust the resonance (RESONANCE).

Turning the knob toward the right will give the sound a stronger character.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (CENTER FREQ)
- [RESO/HIGH] knob (RESONANCE)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

* *CENTER FREQ sets the center frequency at which the phaser effect is applied.*

* *If the [CTRL SEL] button of the [CUTOFF/MID] knob is pressed, the [RATE/LOW] knob will have no effect.*

Controller	Parameter	Value
FREQ RANGE	FREQ RANGE	HIGH, MID, LOW, FULL
SYNC TYPE	LFO RATE	16th triplet– whole x 4
RATE/LOW	LFO RATE	0–127
CUTOFF/MID	LFO DEPTH	0 –127
RESO/HIGH	RESONANCE	0 –127
EFFECT BAL	EFX BAL	DIR–EFX

VOICE

This effect modifies the pitch and character of the sound.

[FREQ RANGE]

Turn the Robot function on/off.

(All lit): The Robot function is off.

(All blinking): The Robot function is on.

* *Robot function: This outputs the sound at a fixed pitch that is not affected by the input pitch, producing an expressionless vocal character.*

* *For this algorithm, it is not possible to use [FREQ RANGE] to select the frequency range.*

[SYNC TYPE]

No effect.

[BPM SYNC]

No effect.

[RATE/LOW] knob

Adjust the length of reverberation (REV TIME).

Turning the knob toward the right will lengthen the reverberation.

[CUTOFF/MID] knob

Adjust the formants (FORMANT).

Turning the knob toward the right will give the sound the character of smaller vocal cords.

* *Formants (fixed regions of frequency emphasis) are one of the elements that determine the character of a voice.*

[RESO/HIGH] knob

Specfies the amount of pitch change that will occur. (PITCH)

Turning the knob toward the right will raise the pitch.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (FORMANT)
- [RESO/HIGH] knob (PITCH)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

* *This algorithm can be used only with single notes.*

Controller	Parameter	Value
FREQ RANGE	ROBOT	ON, OFF
SYNC TYPE	-	-
RATE/LOW	REV TIME	0–127
CUTOFF/MID	FORMANT	0–127
RESO/HIGH	PITCH	-1 Oct.–+ 1 Oct.
EFFECT BAL	EFX BAL	DIR–EFX

VO MOD: Voice Modulator

This creates the impression that the internal synth sound (instrument) is producing a human voice.

* *Connect a mic to INPUT, and speak into it.*

Play the internal synth sound either from the step modulator or in keyboard mode.

* *By switching the operation mode, you can input an instrument from an external source.*

[FREQ RANGE]

Switch the operation mode.

Synth mode (all lit): The internal oscillator will be used for the instrumental sound.

L-R mode (all blinking): Input an instrumental sound to the [INPUT L] jack, and input a voice (MIC) to the [INPUT R] jack.

* *We recommend that you pass the mic signal through a preamp (mixer) before connecting it.*

[SYNC TYPE]

The reverb time (REV TIME) is adjusted in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

Adjust the amount of reverb (REVERB LEVEL).

Turning the knob toward the right will increase the effect.

[CUTOFF/MID] knob

Adjust the volume (OSC LEVEL) of internal synth sound (Instrument).

L-R mode: Adjust the volume (L-ch LEVEL) of INPUT L (MIC).

[RESO/HIGH] knob

Synth mode: Adjust the volume (MIC LEVEL) of INPUT (MIC).

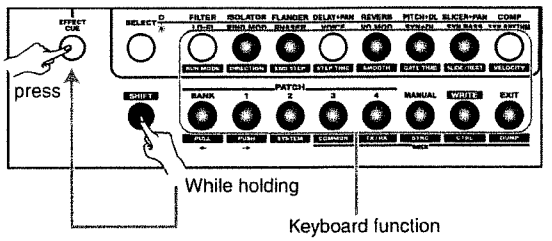
L-R mode: Adjust the volume (R-ch LEVEL) of INPUT R.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

SYN PREVIEW ([SHIFT]+[EFFECT CUE])

Hold down [SHIFT] and press the [EFFECT CUE] button to select Keyboard mode, which allows you to use the patch buttons and effect select buttons to play the internal synth sound as if you were using a keyboard.



* *Each time you press the [▲] button, the range will be shifted upward by one octave. Each time you press [▼] button.*

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (OSC LEVEL)
- [RESO/HIGH] knob (MIC/L-ch LEVEL)
- [EFFECT BALANCE] knob (EFFECT BALANCE)

NOTE

Near the upper and lower note number limits, pitches may not change, or the changes may be unstable (this changes with the conditions in each of the parameter settings).

Controller	Parameter	Value
FREQ RANGE	MODE	SYNTH MODE, L-R MODE
SYNC TYPE	REV TIME	16th triplet– whole x 4
RATE/LOW	REV LEVEL	0–127
CUTOFF/MID	OSC/L-ch LEVEL	0–127
RESO/HIGH	MIC/R-ch LEVEL	0–127
EFFECT BAL	EFX BAL	DIR–EFX

SYN+DLY: synth + delay

This is a synthesizer algorithm that allows the EF-303 to produce sound by itself.

[SYNC TYPE]

The delay time (DELAY TIME) is set in units of the note value shown by this indicator.

[RATE/LOW] knob

Adjust the amount of delay sound that is repeated (FEEDBACK).

Turning the knob toward the right will increase the amount of delay sound that is repeated.

* *Delay will not function if [BPM SYNC] is OFF.*

[CUTOFF/MID] knob

Adjust the cutoff frequency (CUTOFF FREQ) of the synth sound.

Turning the knob toward the left will cut the high range.

[RESO/HIGH] knob

Adjust the resonance (RESONANCE) of the synth sound.

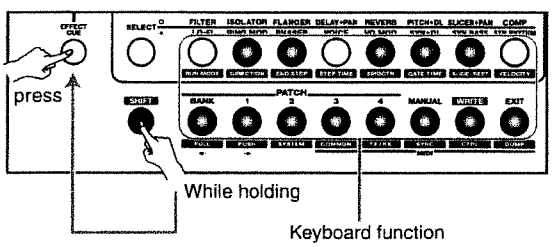
Turning the knob toward the right will give the sound a stronger character.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

SYN PREVIEW ([SHIFT]+[EFFECT CUE])

Hold down the [SHIFT] button and press the [EFFECT CUE] button to enter Synthe Preview mode, where you can use the patch buttons and effect select buttons to play the synth sound as if you were playing a keyboard.



* *Each time you press the [▲] button, the range will be shifted upward by one octave. Each time you press [▼] button.*

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (CUTOFF FREQ)
- [RESO/HIGH] knob (RESONANCE)
- [EFFECT BALANCE] knob (EFFECT BALANCE)
- When all are dark, the pitch (PITCH) will be controlled.

* *When a Synth algorithm is selected, the [FREQ RANGE] button will have no effect, and its indicator will go dark.*

* *The following parameters can be controlled via MIDI.*

- Note-on/off
- Velocity
- Bend
- Cutoff frequency, resonance
- Envelope (attack, decay, sustain, release)
- Portamento
- LFO depth and rate

→ **MIDI Implementation** (p. 71)

NOTE

Near the upper and lower note number limits, pitches may not change, or the changes may be unstable (this changes with the conditions in each of the parameter settings).

Controller	Parameter	Value
FREQ RANGE	-	-
SYNC TYPE	DELAY TIME	16th triplet – whole x 4
RATE/LOW	FEEDBACK	0–127
CUTOFF/MID	CUTOFF FREQ	0–127
RESO/HIGH	RESONANCE	0–127
EFFECT BAL	EFX BAL	DIR–EFX

SYN BASS: synth bass

This algorithm simulates a typical synthesizer bass.

[SYNC TYPE]

No effect.

[RATE/LOW] knob

Adjust the amount of drive (DRIVE).

Turning the knob toward the right will increase the amount of drive.

[CUTOFF/MID] knob

Adjust the cutoff frequency (CUTOFF FREQ) of the synth sound.

Turning the knob toward the left will cut more of the high range.

[RESO/HIGH] knob

Adjust the resonance (RESONANCE).

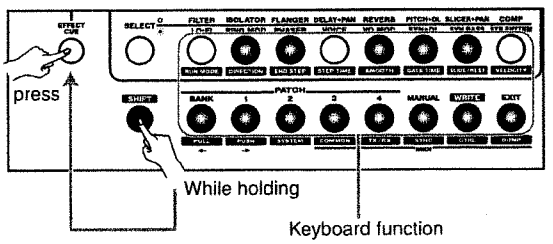
Turning the knob toward the right will give a stronger character to the sound.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

SYN PREVIEW ([SHIFT]+[EFFECT CUE])

Hold down the [SHIFT] button and press the [EFFECT CUE] button to enter Synthe Preview mode, where you can use the patch buttons and effect select buttons to play the synth bass sound as though you were playing a keyboard.



* *Each time you press the [▲] button, the range will be shifted upward by one octave. Each time you press[▼] button.*

Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (CUTOFF FREQ)
- [RESO/HIGH] knob (RESONANCE)
- [EFFECT BALANCE] knob (EFFECT BALANCE)
- If control select is not selected, the pitch (PITCH) will be controlled.

* *When a Synth algorithm is selected, the [FREQ RANGE] button will have no effect, and its indicator will be dark.*

- Note-on/off
- Velocity
- Bend
- Cutoff frequency, resonance
- Envelope (attack, decay, sustain, release)
- Portamento
- LFO depth and rate

→ **MIDI Implementation** (p. 71)

NOTE

Near the upper and lower note number limits, pitches may not change, or the changes may be unstable (this changes with the conditions in each of the parameter settings).

Controller	Parameter	Value
FREQ RANGE	-	-
SYNC TYPE	-	-
RATE/LOW	DRIVE	0–127
CUTOFF/MID	CUTOFF FREQ	0–127
RESO/HIGH	RESONANCE	0–127
EFFECT BAL	EFX BAL	DIR–EFX

SYN RHYTHM: synth rhythm

This algorithm lets the EF-303 function as a rhythm sound module that can produce sound by itself.

You can select one of four drum kits. Each drum kit provides four sounds: a bass drum, snare drum, and open/closed hi-hat sounds. You can also use the step modulator to create simple rhythm patterns.

[FREQ RANGE]

Select the drum kit.

[SYNC TYPE]

The reverb time (REV TIME) is adjusted in units of the note value shown by the SYNC TYPE indicator.

[RATE/LOW] knob

Adjust the amount of reverb (REVERB LEVEL).

Turning the knob toward the right will increase the effect.

[CUT OFF/MID] knob

Adjust the volume of the snare-drum(SNARE LEVEL).

The volume of the snare-drum increases as the knob is turned clockwise.

[RESO/HIGH] knob

Adjust the volume of the hi-hat (HH LEVEL).

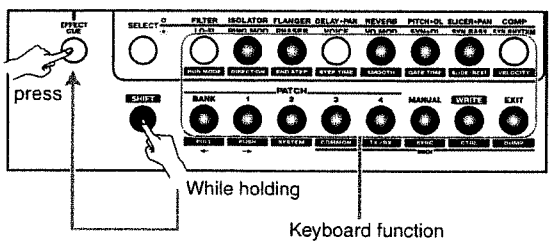
The volume of the hi-hat increases as the knob is turned clockwise.

[EFFECT BALANCE] knob

This knob adjust the volume balance between the direct signal and the effect signal

SYN PREVIEW ([SHIFT]+[EFFECT CUE])

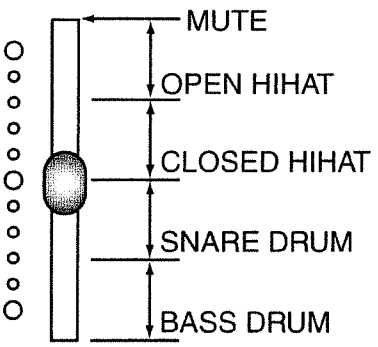
Hold down [SHIFT] and press the [EFFECT CUE] button to enter Synthe Preview mode, where you can use the patch buttons and effect select buttons to play the synth drum sounds.



Step modulator

The step modulator can control the parameters of the following knobs.

- [CUTOFF/MID] knob (SNARE LEVEL)
- [RESO/HIGH] knob (HH LEVEL)
- [EFFECT BALANCE] knob (EFFECT BALANCE)
- When Control Select is not chosen, the slider can be set to any of five positions, corresponding to: bass drum, snare drum, closed hi-hat, open hi-hat, or mute.



Controller	Parameter	Value
FREQ RANGE	DRUM KIT	A, B, C, D
SYNC TYPE	REVERB TIME	16th triplet– whole x 4
RATE/LOW	REVERB LEBEL	0–127
CUT OFF/MID	SNARE LEVEL	0–127
RESO/HIGH	HH LEVEL	0–127
EFFECT BAL	EFX BAL	DIR–EFX

Troubleshooting

If the EF-303 does not operate correctly, please check the following points first.

If this does not resolve the problem, contact a Roland Service Center or your dealer.

Power does not come on, or power comes on but unit does not operate

Are you using the supplied AC adapter?

→ The EF-303 will not operate correctly with an AC adapter other than the supplied one, since the specifications will be different.

If you are using the supplied AC adapter but the EF-303 still does not operate, check whether the correct voltage is being supplied.

NOTE

Multiple devices that use large amounts of power should not be connected to the same outlet using "splitter" plugs or cords.

No sound/Insufficient volume

Is the power of the EF-303 or connected device turned on?

→ Check the settings of the device (p. 14).

→ Check the connections of the device (p. 12).

Is the volume of the connected amp/mixer raised?

→ Check the settings of the connected device.

A cable may be broken.

→ Try exchanging the connection cable.

Could you be using a connection cable containing a built-in resistor?

→ Use a connection cable without a resistor (such as one in the Roland PCS series).

Is the [SOURCE SELECT] switch selected correctly?

→ Check the setting (p. 15).

The [INPUT LEVEL] knob may have been turned down all the way.

→ Adjust it to an appropriate volume (p. 15).

The [OUTPUT LEVEL] knob may have been turned down all the way.

→ Adjust it to an appropriate volume (p. 15).

No sound only when the effect is OFF

→ If the [SYSTEM] setting "DIRECT MUTE" is turned "ON," turning the [GRAB(EFFECT)] switch OFF will mean that no direct sound is output either. Check the setting (p. 53).

No sound only when effect is ON

→ Depending on the effect settings, there may be no sound (or very low volume. Check the effect settings, and try setting the [EFFECT BALANCE] knob to DIRECT (p. 37).

No sound from the headphones

The [PHONES] knob may be turned all the way down.

→ Adjust it to an appropriate volume (p. 15).

The [EFFECT CUE] button may be lit.

→ Press the [EFFECT CUE] button. Depending on the effect settings, this may cause no sound to be output. Check the effect settings, and try setting the [EFFECT BALANCE] knob to DIRECT (p. 15).

Effect not applied when using internal effect (synth sound is not heard)

The [GRAB (EFFECT)] switch may be OFF.

→ Check the setting (p. 15).

The [EFFECT BALANCE] knob may be at DIRECT.

→ Check the setting (p. 37).

A synth-type algorithm may be selected.

→ There will be no sound until you start the step modulator, or supply note-on data—either by means of the keyboard mode or by using an external MIDI device (p. 29).

Can't use the effect control knobs to control effect parameters in real time

Depending on the type of effect, or on settings such as [BPM SYNC], the knobs may have no effect.

→ For details refer to the effect parameter list (p. 70).

Is the internal effect specified as the output destination for the data from the [EFFECTS CONTROL] knobs?

→ Set the [CTRL] setting so that the output destination of the [EFFECTS CONTROL] knob data is either "INT" or "BTH" (p. 53).

Effect does not synchronize to the tempo of the song (input source)

Has the BPM value been set to match the song?

→ Set the correct BPM (p. 45).

Is [BPM SYNC] pressed?

→ Check the setting (p. 36).

Are you using MIDI synchronization?

→ Check the MIDI synchronization setting (p. 46).

A synth algorithm patch sounds at a pitch other than the specified note

Is tuning set correctly in the oscillator section?

→ Use [SYSTEM] to set the tuning (p. 53).

[SLIDE] may be on.

→ If [SLIDE] is on, the pitch will change smoothly, causing the pitch to be something other than you intend. Check the setting (p. 41).

Step modulator does not play when you press [START/STOP]

Is [CTRL SEL] selected?

→ Press the appropriate [CTRL SEL] for the parameter that you wish to modulate (p. 39).

MIDI messages are not received/transmitted

Is the MIDI cable connected correctly?

→ Check the connections between devices (p. 12).

Is the MIDI cable broken?

→ Try using a different MIDI cable.

Is the [COMMON] "SOFT THRU" setting appropriate?

→ If this is set to "THRU," the EF-303's MIDI OUT connector will function as a MIDI THRU connector (p. 55).

Is the MIDI channel set appropriately?

→ Make sure that the MIDI channels on both devices match (p. 55).

Is the device ID set correctly?

→ If you wish to transfer data between two EF-303 units, make sure that both units are set to the same device ID (p. 55).

Is MIDI [Tx/Rx] set correctly?

→ Check the [Tx/Rx] setting (p. 55).

The EF-303 and an external MIDI device do not synchronize properly

Are the synchronization-related parameters set correctly?

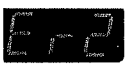
→ Set the slave device so that it receives synchronization messages, and set the master device so that it transmits synchronization messages while it plays (p. 48).

Error Messages

An error message will be displayed if the EF-303 is operated incorrectly, or if it is unable to perform an operation successfully. Take the appropriate action for the error message that appears.

Cause: Too many MIDI messages were received all at once, and the EF-303 was unable to process them.

Action: Reduce the amount of recorded data that is being sent to the EF-303.



Cause: There is a problem with the MIDI cable connection.

Action: Check to make sure the MIDI cable has not been disconnected or severed.

Cause: An exclusive message with an incorrect checksum value was received.

Action: Correct the checksum value.

Cause: An exclusive message with an incorrect format was received.

Action: Check the transmitted data, and perform the operation once again. Also make sure that the MIDI cable has not been disconnected or broken.

Cause: The contents of internal memory may have gotten corrupted.

Action: Try carrying out a factory reset (p. 16). If this does not resolve the problem, contact a nearby Roland service center.

EF-303 EFFECTS PARAMETER CHART

← :Modulated by STEP MODULATOR

	EFFECT	FREQ RANGE	SYNC TYPE	RATE / LOW		CUTOFF / MID		RESO / HIGH		EFFECT BALANCE		MEMO
				BPM SYNC OFF	BPM SYNC ON	CTRL SEL OFF	CTRL SEL ON	CTRL SEL OFF	CTRL SEL ON	CTRL SEL OFF	CTRL SEL ON	
1	FILTER	○	LFO RATE (Select note)	LFO RATE 0~127	LFO DEPTH 0~127	CUTOFF 0~127	←	RESONANCE 0~127	←	DIR-MIX-EFX 0~127	←	
2	ISOLATOR	-	-	LOW 0~127	←	MID 0~127	←	HIGH 0~127	←	DIR-MIX-EFX 0~127	←	
3	FLANGER	○	LFO RATE (Select note)	LFO RATE 0~127	-	LFO DEPTH 0~127	DELAY TIME 0~127	RESONANCE 0~127	←	DIR-MIX-EFX 0~127	←	
4	DELAY + PAN	○	DELAY TIME (Select note)	DELAY TIME 0~127	-	PAN R63-L64	←	FEEDBACK 0~127	←	DIR-MIX-EFX 0~127	←	
5	REVERB	○	GATE TIME (Select note)	REVERB TIME 0~127		PAN R63-L64	←	THRESHOLD 0~127	←	DIR-MIX-EFX 0~127	←	
6	PITCH SHIFTER	○	DELAY TIME (Select note)	-	FEEDBACK 0~127	PAN R63-L64	←	PITCH 0~127	←	DIR-MIX-EFX 0~127	←	
7	SLICER + PAN	○	SLICE RATE (Select note)	SLICE RATE 0~127	-	PAN R63-L64	←	SLICE LEVEL 0~127	←	DIR-MIX-EFX 0~127	←	
8	COMP	○	RATIO	ATTACK TIME 0~127	←	RELEASE TIME 0~127	←	THRESHOLD 0~127	←	DIR-MIX-EFX 0~127	←	
9	LO - FI	○	-	DRIVE 0~127	←	SAMPLE RATE 0~127	←	BIT RESOLUTION 0~127	←	DIR-MIX-EFX 0~127	←	
10	RING MOD	○	LFO RATE (Select note)	LFO RATE 0~127	LFO DEPTH 0~127	CUTOFF 0~127	←	FREQ 0~127	←	DIR-MIX-EFX 0~127	←	
11	PHASER	○	LFO RATE (Select note)	LFO RATE 0~127	-	LFO DEPTH 0~127	CENTER FREQ 0~127	RESONANCE 0~127	←	DIR-MIX-EFX 0~127	←	
12	VOICE	ROBOT	-	REVERB LEVEL 0~127	-	FORMANT 0~127	←	PITCH 0~127	←	DIR-MIX-EFX 0~127	←	
13	VO MOD	INT	REVERB TIME (Select note)	REVERB LEVEL 0~127		OSC LEVEL 0~127	←	MIC LEVEL 0~127	←	DIR-MIX-EFX 0~127	←	[SYN PREVIEW] function is valid.
		EXT	REVERB TIME (Select note)	REVERB LEVEL 0~127		Lch LEVEL 0~127	←	Rch LEVEL 0~127	←	DIR-MIX-EFX 0~127	←	
14	SYN +DLY	-	DELAY TIME (Select note)	-	FEEDBACK 0~127	CUTOFF 0~127	←	RESONANCE 0~127	←	DIR-MIX-EFX 0~127	←	[SYN PREVIEW] function is valid.
15	SYNTH BASS	-	-	DRIVE 0~127	-	CUTOFF 0~127	←	RESONANCE 0~127	←	DIR-MIX-EFX 0~127	←	[SYN PREVIEW] function is valid.
16	SYN RHYTHM	-	REVERB TIME (Select note)	REVERB LEVEL 0~127		SNARE LEVEL 0~127	←	HH LEVEL 0~127	←	DIR-MIX-EFX 0~127	←	[SYN PREVIEW] function is valid.

MIDI Implementation

Model: EF-303(Groove Effects)
Date: Jul. 26 2000
Version: 1.00

Symbol	Description	Range
n	MIDI Channel	0H - FH (ch.1 - ch.16)
vv	Control value	00H - 7FH (0 - 127)
kk	Note Number	00H - 7FH (0 - 127)
xx	ON/OFF	00H - 3FH (0 - 63:OFF), 40H - 7FH (64 - 127:ON)

1. MIDI messages used by the sound source section

■Channel voice messages

●Note Off

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

* Not received by the effect algorithm.

●Note On

status	2nd byte	3rd byte
9nH	kkH	vvH

* Not received by the effect algorithm.

●Control Change

○General purpose Controller1 - 4 (Controller number 2 - 5, 7 - 31, 64 - 95)

status	2nd byte	3rd byte
BnH	02H-5FH	vvH

●Program Change

status	2nd byte
CnH	ppH

pp=Program number: 00H - 0FH (prog.1 - prog.16)

* Not received when the Rx Program Change parameter is OFF.

●Pitch Bend Change

status	2nd byte	3rd byte
EnH	llH	mmH

mm,ll=Pitch Bend value: 00 00H - 40 00H - 7F 7FH (-8192 - 0 - +8191)

* Not received when the Rx SW parameter is OFF.
* Not received by the effect algorithm.

■Channel Mode messages

●Reset All Controllers (Controller number 121)

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

* Not received when the Rx SW parameter is OFF.
* When this message is received, the following controllers will be set to their reset values.

Controller	Resetvalue
Pitch Bend Change	0 (center)
Modulation	0 (off)
Portament	off

●All Note Off (Controller number 123)

status	2nd byte	3rd byte
BnH	7BH	00H

* When All Note Off is received, all currently sounding notes of the corresponding channel will be turned off.

●Omni Off (Controller number 124)

status	2nd byte	3rd byte
BnH	7CH	00H

* The same processing as when All Note Off is received will be done.

●Omni On (Controller number 125)

status	2nd byte	3rd byte
BnH	7DH	00H

* The same processing as when All Note Off is received will be done. The instrument will not be set to OMNI ON.

●Mono (Controller number 126)

status	2nd byte	3rd byte
BnH	7EH	mmH

mm=Mono number: 00H - 10H (0 - 16)

* The same processing as when All Note Off is received will be done.

●Poly (Controller number 127)

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

* The same processing as when All Note Off is received will be done.

■System Realtime messages

●Timing Clock

status
F8H

* This is received when Sync Mode is SLAVE. Settings can be made to synchronize the LFO rate.

●Active Sensing

status
FEH

* When an Active Sensing message is received, the unit will begin monitoring the interval at which MIDI messages are received. During monitoring, if more than 420 ms passes without a message being received, the same processing will be done as when All Sound Off, All Note Off, and Reset All Controllers messages are received. Then monitoring will be halted.

■System Exclusive messages

status	data byte	status
F0H	iiH, ddH, ..., eeH	F7H

F0H: System Exclusive message status

ii = ID number: This is the ID number (manufacturer ID) that specifies the manufacturer whose exclusive message this is. Roland's manufacturer ID is 41H.ID numbers 7EH and 7FH are defined in an expansion of the MIDI standard as Universal Non-realtime messages (7EH) and Universal Realtime Messages (7FH).

dd,...., ee = data: 00H - 7FH (0 - 127)

F7H: EOX (End Of Exclusive) This is the last status of system exclusive message.

●Data Request 1 RQ1

This message requests the other device to transmit data. The address and size indicate the type and amount of data that is requested. When a Data Request message is received, if the device is in a state in which it is able to transmit data, and if the address and size are appropriate, the requested data is transmitted as a Data Set 1 (DT1) message. If the conditions are not met, nothing is transmitted.

The model ID of the exclusive messages used by this instrument is 00 33H.

status	data byte	status
F0H	41H, dev, 00H, 33H, 11H, aaH, bbH, ccH, ddH, ssH, ttH, uuH, vvH, sum	F7H

Byte	Remarks
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H - 1FH)
00H	model ID (EF-303)
33H	model ID (EF-303)
11H	command ID (RQ1)
aaH	address MSB
bbH	address
ccH	address
ddH	address LSB
ssH	size MSB
ttH	size
uuH	size
vvH	size LSB
sum	checksum
F7H	EOX (End Of Exclusive)

* This message is not received if the Rx.Sys-Ex parameter is OFF.

●Data Set 1 DT1

This message transmits the actual data, and is used when you wish to set the data of the receiving device.

status	data byte	status
F0H	41H, dev, 00H, 33H, 12H, aaH, bbH, ccH, ddH, eeH, ... ffH, sum	F7H

Byte	Remarks
F0H	Exclusive status
41H	ID number (Roland)
dev	device ID (dev: 10H - 1FH)
00H	model ID (EF-303)
33H	model ID (EF-303)
12H	command ID (DT1)
aaH	address MSB
bbH	address
ccH	address
ddH	address LSB
eeH	data: The actual data to be transmitted. Multi-byte data is transmitted in the order of the address.
:	:
ffH	data
sum	checksum
F7H	EOX (End Of Exclusive)

* Data whose size is greater than 128 bytes should be divided into packets of 128 bytes or less and transmitted. Successive Data Set 1 messages should have at least 20 ms of time interval between them.
* This message is not received if the Rx.Sys-Ex parameter is OFF.

2. MIDI messages used by the step modulator section

2.1 Messages acknowledged for synchronization

■System Realtime messages

●Timing Clock

status
F8H

* This message will be received if the Sync Mode parameter is SLAVE.

●Start

status
FAH

* This message will be received if the Sync Mode parameter is SLAVE or REMOTE.

●Continue

status
FBH

* This message will be received if the Sync Mode parameter is SLAVE or REMOTE.

●Stop

status
FCH

* This message will be received if the Sync Mode parameter is SLAVE or REMOTE.

2.2 Data transmission

2.2.1 Messages transmitted during playback.

■Channel Voice messages

●Note Off

status	2nd byte	3rd byte
8nH	kkH	40H

●Note On

status	2nd byte	3rd byte
9nH	kkH	vvH

●Control Change

status	2nd byte	3rd byte
BnH	kkH	vvH

kk=controller number: 02H - 5FH (2 - 5, 7 - 31, 64 - 95)

2.2.2 If the Through parameter is ON, messages received (except for System Common messages and System Realtime messages) will be transmitted.

2.2.3 Messages that are generated and transmitted

2.2.3.1 Messages automatically generated by the system

■Channel Mode messages

●Omni Off (Controller number 124)

status	2nd byte	3rd byte
BnH	7CH	00H

* At start-up, this message is transmitted to all channels.

●Poly (Controller number 127)

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

* At start-up, this message is transmitted to all channels.

2.2.3.2 Messages generated and transmitted when the Sync Out is ON

■System Common messages

●Song Position Pointer

status	2nd byte	3rd byte
F2H	mmH	llH

mm,ll=value: 00 00H - 7F 7FH (0 - 16383)

■System Realtime messages

●Timing Clock

status
F8H

●Start

status
FAH

●Continue

status
FBH

●Stop

status
FCH

3. System Exclusive Map

Start Address	Description	
00 00 00 00	System	1-1
01 00 00 00	Temporary Patch	1-2
02 00 00 00	User Patch 1-1	1-2
02 01 00 00	User Patch 1-2	
:		
02 0F 00 00	User Patch 4-4	

●1-1.System

Offset Address		Description	
00 00	0aaa aaaa	Master Tune	0 - 126 (427.4 - 452.6)
00 01	0000 000a	Direct Mute	0 - 1 (OFF, ON)
00 02	0000 000a	Grab Reset	0 - 1 (OFF, ON)
00 03	0000 000a	Reserve	0 - 1 (---)
00 04	0000 000a	Receive Program Change	0 - 1 (OFF, ON)
00 05	0000 000a	Reserve	0 - 1 (---)
00 06	0000 00aa	Receive Control Change	0 - 2 (OFF, MODE1,MODE2)
00 07	0000 000a	Reserve	0 - 1 (---)
00 08	0000 000a	Reserve	0 - 1 (---)
00 09	0000 000a	Receive Pitch Bend	0 - 1 (OFF, ON)
00 0A	0000 000a	Reserve	0 - 1 (---)
00 0B	000a aaaa	MIDI Channel	0 - 16 (1 - 16, OFF)
00 0C	0000 000a	Transmit Program Change	0 - 1 (OFF, ON)
00 0D	0000 000a	Reserve	0 - 1 (---)
00 0E	0000 000a	Transmit Edit Data	0 - 1 (OFF, ON)
00 0F	0000 000a	Reserve	0 - 1 (---)
00 10	0000 000a	Monitor	0 - 1 (OUTPUT, CUE)
00 11	0000 000a	Reserve	0 - 1 (---)
Total size	00 00 00 12		

●1-2.Patch

Offset Address		Description	
00 00	000a aaaa	Multi-FX Type	0 - 15 (1-16)
00 01	0aaa aaaa	Multi-FX Parameter 1	0 - 127
00 02	0aaa aaaa	Multi-FX Parameter 2	0 - 127
00 03	0aaa aaaa	Multi-FX Parameter 3	0 - 127
00 04	0aaa aaaa	Multi-FX Parameter 4	0 - 127
00 05	0aaa aaaa	Multi-FX Parameter 5	0 - 127
00 06	0aaa aaaa	Multi-FX Parameter 6	0 - 127
00 07	0aaa aaaa	Multi-FX Parameter 7	0 - 127
00 08	0aaa aaaa	Multi-FX Parameter 8	0 - 127
00 09	0aaa aaaa	Multi-FX Parameter 9	0 - 127
00 0A	0aaa aaaa	Multi-FX Parameter 10	0 - 127
00 0B	0aaa aaaa	Multi-FX Parameter 11	0 - 127
00 0C	0aaa aaaa	Multi-FX Parameter 12	0 - 127
00 0D	0aaa aaaa	Multi-FX Parameter 13	0 - 127
00 0E	0aaa aaaa	Multi-FX Parameter 14	0 - 127
00 0F	0aaa aaaa	Multi-FX Parameter 15	0 - 127
00 10	0aaa aaaa	Multi-FX Parameter 16	0 - 127
00 11	0aaa aaaa	Multi-FX Parameter 17	0 - 127
00 12	0aaa aaaa	Multi-FX Parameter 18	0 - 127
00 13	0aaa aaaa	Multi-FX Parameter 19	0 - 127
00 14	0aaa aaaa	Multi-FX Parameter 20	0 - 127
00 15	0aaa aaaa	Multi-FX Parameter 21	0 - 127
00 16	0aaa aaaa	Multi-FX Parameter 22	0 - 127
00 17	0aaa aaaa	Multi-FX Parameter 23	0 - 127
00 18	0aaa aaaa	Multi-FX Parameter 24	0 - 127
00 19	0aaa aaaa	Multi-FX Parameter 25	0 - 127
00 1A	0aaa aaaa	Multi-FX Parameter 26	0 - 127
00 1B	0aaa aaaa	Multi-FX Parameter 27	0 - 127
00 1C	0aaa aaaa	Multi-FX Parameter 28	0 - 127
00 1D	0aaa aaaa	Multi-FX Parameter 29	0 - 127
00 1E	0aaa aaaa	Multi-FX Parameter 30	0 - 127
00 1F	0aaa aaaa	Multi-FX Parameter 31	0 - 127
00 20	0aaa aaaa	Multi-FX Parameter 32	0 - 127
00 21	0aaa aaaa	Multi-FX Parameter 33	0 - 127
00 22	0aaa aaaa	Multi-FX Parameter 34	0 - 127
00 23	0aaa aaaa	Multi-FX Parameter 35	0 - 127
00 24	0aaa aaaa	Multi-FX Parameter 36	0 - 127
00 25	0aaa aaaa	Multi-FX Parameter 37	0 - 127
00 26	0aaa aaaa	Multi-FX Parameter 38	0 - 127
00 27	0aaa aaaa	Multi-FX Parameter 39	0 - 127
00 28	0aaa aaaa	Multi-FX Parameter 40	0 - 127
00 29	0aaa aaaa	Reserve	0 - 127 (---)
00 2A	00aa aaaa	C1 Assign	0 - 40 (MFX_PRM1 - MFX_PRM40)
00 2B	00aa aaaa	C2 Assign	0 - 40

			(MFX_PRM1 - MFX_PRM40)
00 2C	00aa aaaa	C3 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 2D	00aa aaaa	C4 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 2E	00aa aaaa	C5 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 2F	00aa aaaa	C6 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 30	00aa aaaa	C7 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 31	00aa aaaa	C8 Assign	0 - 40
			(MFX_PRM1 - MFX_PRM40)
00 32	0aaa aaaa	C1 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 33	0000 00aa	C1 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 34	0aaa aaaa	C2 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 35	0000 00aa	C2 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 36	0aaa aaaa	C3 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 37	0000 00aa	C3 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 38	0aaa aaaa	C4 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 39	0000 00aa	C4 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 3A	0aaa aaaa	C5 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 3B	0000 00aa	C5 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 3C	0aaa aaaa	C6 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 3D	0000 00aa	C6 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 3E	0aaa aaaa	C7 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 3F	0000 00aa	C7 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 40	0aaa aaaa	C8 CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 41	0000 00aa	C8 Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 42	0000 0aaa	Ctrl Select No	0 - 4
			(OFF, C1, C2, C3, C4)
00 43	000a aaaa	Master Tempo(H)	0 - 18
			(40.0 - 240.0(TEMPO_H))
00 44	0aaa aaaa	Master Tempo(L)	0 - 127
			(40.0 - 240.0(TEMPO_L))
00 45	0aaa aaaa	Slider Range min	0 - 127
00 46	0aaa aaaa	Slider Range max	0 - 127
00 47	0000 aaaa	Synth Key	0 - 11
			(C, Db, D, Eb, E,F,Gb, G, Ab, A, Bb, B)
00 48	000a aaaa	Slider Scale	0 - 20
			(CHR, TCH, SPN, BLS, CD, MAJ, MIN, HMJ, HMI, DH, MMI, GPS, DOM, WT, HBL, AUG, RKY, ISD, ISA, PMJ, PMI)
00 49	0000 000a	Key Scale Active Sw	0 - 1
			(OFF, ON)
00 4A	0000 aaaa	Sync Note	0 - 11
			(16, doted-16,8, doted-8, 4, 2, o, ox2, ox4, 16th triplet, 8th triplet, 4th triplet)
00 4B	0000 000a	BPM Sync	0 - 1
			(OFF,ON)
00 4C	0000 0aaa	SM Destination	0 - 4
			(OFF, C1, C2, C3, C4)
00 4D	0000 00aa	Play Mode	0 - 2
			(REPEAT, SINGLE, ISTEP)
00 4E	0000 0aaa	Direction	0 - 4
			(FORWARD, BACKWARD, ALTERNATE1, ALTERNATE2, RANDOM)
00 4F	0000 aaaa	End Step	0 - 15
			(1 - 16)
00 50	0000 aaaa	SM Step Time	0 - 11
			(16, doted-16, 8, doted-8, 4, 2, o, ox2, ox4, 16th triplet, 8th triplet, 4th triplet)
00 51	0000 000a	Smooth	0 - 1
			(OFF, ON)
00 52	0000 000a	SM Out Message	0 - 1
			(CONTROL CHANGE, NOTE)
00 53	0aaa aaaa	SM CC Assign	2 - 95
			(CC02 - CC05, CC07 - CC31, CC64 - CC95)
00 54	0000 00aa	SM Output Mode	0 - 3
			(OFF, INTERNAL, EXTERNAL, BOTH)
00 55	0000 000a	Reserve	0 - 1
			(---)
00 56	0aaa aaaa	S1 Gate Time	0 - 105
			(0 - 105 (%))
00 57	0aaa aaaa	S2 Gate Time	0 - 105
			(0 - 105 (%))
00 58	0aaa aaaa	S3 Gate Time	0 - 105
			(0 - 105 (%))
00 59	0aaa aaaa	S4 Gate Time	0 - 105
			(0 - 105 (%))
00 5A	0aaa aaaa	S5 Gate Time	0 - 105
			(0 - 105 (%))
00 5B	0aaa aaaa	S6 Gate Time	0 - 105
			(0 - 105 (%))
00 5C	0aaa aaaa	S7 Gate Time	0 - 105
			(0 - 105 (%))
00 5D	0aaa aaaa	S8 Gate Time	0 - 105
			(0 - 105 (%))
00 5E	0aaa aaaa	S9 Gate Time	0 - 105
			(0 - 105 (%))
00 5F	0aaa aaaa	S10 Gate Time	0 - 105
			(0 - 105 (%))
00 60	0aaa aaaa	S11 Gate Time	0 - 105
			(0 - 105 (%))
00 61	0aaa aaaa	S12 Gate Time	0 - 105

00 62	0aaa aaaa	S13 Gate Time	0 - 105 (0 - 105 (%))
00 63	0aaa aaaa	S14 Gate Time	0 - 105 (0 - 105 (%))
00 64	0aaa aaaa	S15 Gate Time	0 - 105 (0 - 105 (%))
00 65	0aaa aaaa	S16 Gate Time	0 - 105 (0 - 105 (%))
00 66	0aaa aaaa	S1 Step Value	0 - 127 (0 - 127)
00 67	0aaa aaaa	S2 Step Value	0 - 127 (0 - 127)
00 68	0aaa aaaa	S3 Step Value	0 - 127 (0 - 127)
00 69	0aaa aaaa	S4 Step Value	0 - 127 (0 - 127)
00 6A	0aaa aaaa	S5 Step Value	0 - 127 (0 - 127)
00 6B	0aaa aaaa	S6 Step Value	0 - 127 (0 - 127)
00 6C	0aaa aaaa	S7 Step Value	0 - 127 (0 - 127)
00 6D	0aaa aaaa	S8 Step Value	0 - 127 (0 - 127)
00 6E	0aaa aaaa	S9 Step Value	0 - 127 (0 - 127)
00 6F	0aaa aaaa	S10 Step Value	0 - 127 (0 - 127)
00 70	0aaa aaaa	S11 Step Value	0 - 127 (0 - 127)
00 71	0aaa aaaa	S12 Step Value	0 - 127 (0 - 127)
00 72	0aaa aaaa	S13 Step Value	0 - 127 (0 - 127)
00 73	0aaa aaaa	S14 Step Value	0 - 127 (0 - 127)
00 74	0aaa aaaa	S15 Step Value	0 - 127 (0 - 127)
00 75	0aaa aaaa	S16 Step Value	0 - 127 (0 - 127)
00 76	0000 00aa	S1 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 77	0000 00aa	S2 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 78	0000 00aa	S3 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 79	0000 00aa	S4 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7A	0000 00aa	S5 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7B	0000 00aa	S6 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7C	0000 00aa	S7 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7D	0000 00aa	S8 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7E	0000 00aa	S9 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
00 7F	0000 00aa	S10 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 00	0000 00aa	S11 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 01	0000 00aa	S12 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 02	0000 00aa	S13 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 03	0000 00aa	S14 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 04	0000 00aa	S15 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 05	0000 00aa	S16 Step Status	0 - 3 (NORMAL, TIE, SLIDE, REST)
01 06	0aaa aaaa	S1 Velocity	0 - 127 (0 - 127)
01 07	0aaa aaaa	S2 Velocity	0 - 127 (0 - 127)
01 08	0aaa aaaa	S3 Velocity	0 - 127 (0 - 127)
01 09	0aaa aaaa	S4 Velocity	0 - 127 (0 - 127)
01 0A	0aaa aaaa	S5 Velocity	0 - 127 (0 - 127)
01 0B	0aaa aaaa	S6 Velocity	0 - 127 (0 - 127)
01 0C	0aaa aaaa	S7 Velocity	0 - 127 (0 - 127)
01 0D	0aaa aaaa	S8 Velocity	0 - 127 (0 - 127)
01 0E	0aaa aaaa	S9 Velocity	0 - 127 (0 - 127)
01 0F	0aaa aaaa	S10 Velocity	0 - 127 (0 - 127)
01 10	0aaa aaaa	S11 Velocity	0 - 127 (0 - 127)
01 11	0aaa aaaa	S12 Velocity	0 - 127 (0 - 127)
01 12	0aaa aaaa	S13 Velocity	0 - 127 (0 - 127)
01 13	0aaa aaaa	S14 Velocity	0 - 127 (0 - 127)
01 14	0aaa aaaa	S15 Velocity	0 - 127 (0 - 127)
01 15	0aaa aaaa	S16 Velocity	0 - 127 (0 - 127)
Total size	00 00 01 16		

■Effect Parameter List

○EFFECT 00:Filter

EFX	PARAMETER	VALUE	DISP
prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	RATE	0 - 127	0 - 127
prm3	CUTOFF	0 - 127	0 - 127
prm4	RESONANCE	0 - 127	0 - 127
prm6	DEPTH	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 01:Isolator

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	LOW	0 - 127	0 - 127
prm3	MID	0 - 127	0 - 127
prm4	HIGH	0 - 127	0 - 127

○EFFECT 02:Flanger

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	RATE	0 - 127	0 - 127
prm3	DEPTH	0 - 127	0 - 127
prm4	RESONANCE	0 - 127	0 - 127
prm7	DELAY-TIME	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 03:Delay+Pan

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	DELAY_TIME	0 - 127	0 - 127
prm3	PAN	0 - 127	0 - 127
prm4	FEEDBACK	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 04:Reverb

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	REVERB_TIME	0 - 127	0 - 127
prm3	PAN	0 - 127	0 - 127
prm4	THRESHOLD	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 05:Pitch+Dly

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	DELAY_TIME	0 - 127	0 - 127
prm3	PAN	0 - 127	0 - 127
prm4	PITCH	0 - 127	0 - 127
prm6	FEEDBACK	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 06:Slicer+Pan

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	SLICE_RATE	0 - 127	0 - 127
prm3	PAN	0 - 127	0 - 127
prm4	SLICE_LEVEL	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 07:Comp

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	ATTACK	0 - 127	0 - 127
prm3	RELEASE	0 - 127	0 - 127
prm4	THRESHOLD	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 08:Lo-fi

EFX	PARAMETER	VALUE	DISP
prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	DRIVE	0 - 127	0 - 127
prm3	SAMPLE_RATE	0 - 127	0 - 127
prm4	BIT_RESOLUTION	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 09:Ring Mod

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	RATE	0 - 127	0 - 127
prm3	CUTOFF	0 - 127	0 - 127
prm4	FREQUENCY	0 - 127	0 - 127
prm6	DEPTH	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 10:Phaser

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	RATE	0 - 127	0 - 127
prm3	DEPTH	0 - 127	0 - 127
prm4	RESONANCE	0 - 127	0 - 127
prm7	CENTER_FREQ	0 - 127	0 - 127
prm32	FREQ_RANGE	0 - 3	HIGH, MID, LOW, FULL

○EFFECT 11:Voice

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	REVERB_LEVEL	0 - 127	0 - 127
prm3	FORMANT	0 - 127	0 - 127
prm4	PITCH	0 - 127	0 - 127
prm32	ROBOT	0 - 1	NORMAL, ROBOT

○EFFECT 12:Vo Mod

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	REVERB_LEVEL	0 - 127	0 - 127
prm3	OSC/L-ch_LEVEL	0 - 127	0 - 127
prm4	MIC/R-ch_LEVEL	0 - 127	0 - 127
prm6	FEEDBACK	0 - 127	0 - 127
prm32	MODE	0 - 1	INTERNAL,EXTERNAL

○EFFECT 13:Syn+Dly

EFX	PARAMETER	VALUE	DISP
prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	DELAY_TIME	0 - 127	0 - 127
prm3	CUTOFF	0 - 127	0 - 127
prm4	RESONANCE	0 - 127	0 - 127
prm6	FEEDBACK	0 - 127	0 - 127
prm11	A_ENV_ATTACK	0 - 127	0 - 127
prm12	A_ENV_DECAY	0 - 127	0 - 127
prm13	A_ENV_SUSTAIN	0 - 127	0 - 127
prm14	A_ENV_RELEASE	0 - 127	0 - 127
prm15	A_ENV_DEPTH	0 - 127	0 - 127
prm16	A_ENV_VELOCITY	0 - 127	0 - 127
prm17	F_ENV_ATTACK	0 - 127	0 - 127
prm18	F_ENV_DECAY	0 - 127	0 - 127
prm19	F_ENV_SUSTAIN	0 - 127	0 - 127
prm20	F_ENV_RELEASE	0 - 127	0 - 127
prm21	F_ENV_DEPTH	0 - 127	0 - 127
prm22	F_ENV_VELOCITY	0 - 127	0 - 127
prm23	PORTAMNET_TIME	0 - 127	0 - 127
prm24	LFO_RATE	0 - 127	0 - 127
prm25	OSC_LFO_DEPTH	0 - 127	0 - 127
prm26	LFO_DELAY_TIME	0 - 127	0 - 127
prm27	PORTAMNET_SW	0 - 127	0 - 127
prm28	OSC_WAVE	0 - 127	0 - 127
prm29	F_CURVE	0 - 127	0 - 127

○EFFECT 14:Syn Bass

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	DRIVE	0 - 127	0 - 127
prm3	CUTOFF	0 - 127	0 - 127
prm4	RESONANCE	0 - 127	0 - 127
prm11	A_ENV_ATTACK	0 - 127	0 - 127
prm12	A_ENV_DECAY	0 - 127	0 - 127
prm13	A_ENV_SUSTAIN	0 - 127	0 - 127
prm14	A_ENV_RELEASE	0 - 127	0 - 127
prm15	A_ENV_DEPTH	0 - 127	0 - 127
prm16	A_ENV_VELOCITY	0 - 127	0 - 127
prm17	F_ENV_ATTACK	0 - 127	0 - 127
prm18	F_ENV_DECAY	0 - 127	0 - 127
prm19	F_ENV_SUSTAIN	0 - 127	0 - 127
prm20	F_ENV_RELEASE	0 - 127	0 - 127
prm21	F_ENV_DEPTH	0 - 127	0 - 127
prm22	F_ENV_VELOCITY	0 - 127	0 - 127
prm23	PORTAMNET_TIME	0 - 127	0 - 127
prm24	LFO_RATE	0 - 127	0 - 127
prm25	OSC_LFO_DEPTH	0 - 127	0 - 127
prm26	LFO_DELAY_TIME	0 - 127	0 - 127
prm27	PORTAMNET_SW	0 - 127	0 - 127
prm28	OSC_WAVE	0 - 127	0 - 127
prm29	F_CURVE	0 - 127	0 - 127

○EFFECT 15:Syn Rhythm

prm1	EFFECT_BAL	0 - 127	0 - 127
prm2	REVERB_LEVEL	0 - 127	0 - 127
prm3	SNARE_LEVEL	0 - 127	0 - 127
prm4	HH_LEVEL	0 - 127	0 - 127
prm32	DRUM KIT	0 - 3	DRUM A, DRUM B, DRUM C, DRUM D

Receive Setting Chart

PARAMETER	MODE1	MODE2
LFO RATE	EXCLUSIVE	CC16
OSC LFO DEPTH	EXCLUSIVE	CC01
OSC WAVE	EXCLUSIVE	EXCLUSIVE
PORTAMENT TIME	EXCLUSIVE	CC05
PORTAMENT SW	EXCLUSIVE	CC65
FILTER ENV DEPTH	EXCLUSIVE	CC81
FILTER ATTACK	EXCLUSIVE	CC82
FILTER DECAY	EXCLUSIVE	CC83
FILTER SUSTAIN	EXCLUSIVE	CC28
FILTER CURVE	EXCLUSIVE	EXCLUSIVE
FILTER RELEASE	EXCLUSIVE	CC29
AMP ATTACK	EXCLUSIVE	CC73
AMP DECAY	EXCLUSIVE	CC75
AMP SUSTAIN	EXCLUSIVE	CC31
AMP RELEASE	EXCLUSIVE	CC72

*These parameters are valid only when "SYN+DLY" or "SYN BASS" is selected.

Groove Effects

Model EF-303

MIDI Implementation Chart

Date : Jul. 26, 2000

Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic	Default	1 *1	1 *1	
Channel	Changed	1–16	1–16	
Mode	Default	Mode 3	Mode 3	
	Messages	OMNI OFF, POLY	Mode 3	
	Altered	**********		
Note Number :	True Voice	0–127	0–127	
		**********	0–127	
Velocity	Note On	O	O	
	Note Off	X	X	
After Touch	Key's	X	X	
	Channel's	X	X	
Pitch Bend		X	O *1	
Control Change	0, 32	X	X	Bank select
	1	X	O *1	Modulation
	5	O	O *1	Portament time
	6, 38	X	X	Data entry
	2–5, 7–31, 64–95	O *1 *2	X	Step Modulator
	2–5, 7–31, 64–95	X	O *1 *2	General purpose controller (RATE)
	2–5, 7–31, 64–95	X	O *1 *2	General purpose controller (CUTOFF)
	2–5, 7–31, 64–95	X	O *1 *2	General purpose controller (RESO)
	2–5, 7–31, 64–95	X	O *1 *2	General purpose controller (BALANCE)
	98, 99	X	X	NRPN LSB, MSB
	100, 101	X	X	RPN LSB, MSB
Program Change	: True Number	O *1	O *1	
		**********	0–15	Program No. 1–16
System Exclusive		O	O *1	
System Common	: Song Position	O	O	
	: Song Select	X	X	
	: Tune Request	X	X	
System Real Time	: Clock	O	O *1 *4	
	: Commands	O	O *1 *3	
Aux Messages	: All Sound Off	X	X	
	: Reset All Controllers	X	O	
	: Local On/Off	X	X	
	: All Notes Off	X	O (123–127) *5	
	: Active Sensing	O	O	
	: System Reset	X	X	
Notes		* 1 O X is selectable. * 2 Can be changed settings. * 3 When Sync Mode is SLAVE or REMOTE. * 4 When Sync Mode is SLAVE. * 5 Mode messages (123–127) are stored/transmitted after All Note Off processing is performed.		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

O : Yes
X : No

Specification

EF-303:GROOVE EFFECTS

Effects

16

Step Modulator

Track : 1

Steps : 16 (MAX)

Resolution : Triplet 16th note (Internal : 480 ticks per quarter note)

Tempo : Quarter note = 20 - 240

Patch Memory

16 (effect + Step Modulator)

AD Conversion

20 bit linear (64 times oversampling)

DA Conversion

20 bit linear (128 times oversampling)

Sampling Frequency

44.1 kHz

Frequency Response

20 Hz - 20 kHz +/- 1 dB (Typ.) (Input gain = MAX, Input level = -20 dBu)

Rated Input Level

INPUT (LINE) : -20 dBu

INPUT (PHONO) : -55 dBu

INPUT (MIC) : -50 dBu

Input Impedance

INPUT (LINE) : 64 kohms

INPUT (PHONO) : 64 kohms

INPUT (MIC) : 2.7 kohms

Rated Output Level

OUTPUT : -20 dBu

Output Impedance

OUTPUT : 600 ohms

PHONES : 100 ohms

Residual Noise Level

(Input terminated with 150 ohms, IHF-A, Typ.)

LINE : -88 dBu

PHONO : -80 dBu

MIC : -82 dBu

Connectors

INPUT (LINE/PHONO) : RCA type(L/R)

INPUT (MIC) : 1/4" TRS phone (UNBAL)

OUTPUT : RCA type (L/R)

PHONES : Stereo 1/4" phone

MIDI (IN/OUT)

DC IN for AC Adaptor

GND Terminal

Power Supply

DC 9V

Current Draw

600 mA

Dimensions

303 (W) X 235 (D) X 92.5 (H) mm

11-15/16(W) X 9-1/4(D) X 3-11/16 (H) inches

Weight

1.9kg /4 lbs 9 oz (without AC adaptor)

Accessories

Owner's Manual

Marking Stickers

AC Adaptor

Options

Audio cable : PCS-31/33

MIDI cable : MSC-15/25/50

* 0 dBu = 0.775 Vrms

* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

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MEMO

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5100 S. Eastern Avenue
Los Angeles, CA 90040-2938,
U. S. A.
TEL: (323) 890 3700

As of June 1, 2000 (Roland)

For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

For EU Countries

CE This product complies with the requirements of European.Directive 89/336/EEC.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Roland®

71673490

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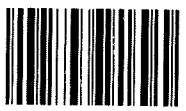

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