Roland

E-4 (Version 1.02)

Owner's Manual

Table of contents

Panel Descriptions

Top Panel

1. Jacks

Controller	Explanation
CHARGE indicator	**When charging via USB port:** **Orange (lit):** Charging. **Green (lit):** Charging is completed. **Green and orange (blinking):** A charging error occurred. Please contact your dealer or a Roland customer service center. https://roland.cm/service **When not charging via USB port:** **Red (lit):** The remaining battery power is low. Charge the battery. * The unit powers down within 30 minutes.
SYNC IN jack	Use this jack to input synchronization signals from an external device.
SYNC OUT jack	Use this jack to output synchronization signals to an external device.
MIX IN jack	This is the audio input jack. The sound from connected devices is output from the MIX OUT jack.
MIX OUT/HEADSET jack	This is the audio output jack. Connect a pair of headphones or headset here. You can use also this jack as a MIC IN jack if you've connected a headset.
[VOLUME] knob	Adjusts the volume of audio coming from the MIX OUT jack.

*   Use cables with monaural mini phone type plugs to connect to/from the SYNC IN/OUT jacks. Do not use cables with stereo mini phone type plugs, as these cables do not work.

*   Do not connect an audio device to the SYNC OUT jack. Doing so may cause a malfunction.

* If an external device is connected to the SYNC IN jack, the unit synchronizes with the clocks inputted to the SYNC IN jack, regardless of the MIDI Clock Sync setting.

* Use cables with stereo miniature phone type plugs to connect to/from the MIX IN/OUT jacks. Do not use cables with monaural mini phone type plugs, as these cables do not work.

* You can use a headset with a 3.5 mm CTIA-type mini plug (4-pole).

2. Mic operations

Controller	Explanation
[SENS] knob	Adjusts the sensitivity of the mic input.
PEAK indicator	Lights up when the mic's input level is too high. Adjust the sensitivity using the [SENS] knob so that the light only illuminates every once in a while.

3. Effect switches

Controller	Explanation
[AUTO PITCH] button	Adjusts (corrects) the pitch of your voice.
[HARMONY] button	Adds a harmony to your voice.
[VOCODER] button	Changes your voice to a vocoder voice.

4. LOOPER section

Controller	Explanation
[■] (stop) button	Stops playback of the recorded audio. Long-press to delete the recorded audio.
[▶/●] (play/record) button	Press to start recording and play back recorded audio. Long-press to undo or to redo overdubbing.

* Hold down the [■] (stop) button and press the [▶/●] (play/record) button to play back the audio you recorded from the beginning.

5. Display

| Item	Explanation
Display	Shows the tempo. This affects the SCATTER and MFX cycles.

6. Sound control

Controller	Explanation
[PITCH] slider	Sets the pitch of the voice. You can change the pitch up and down one octave.
[FORMANT] slider	Adjusts the formant of the voice. Settings in the negative (–) direction produce a more masculine vocal character, and settings in the positive (+) direction produce a more feminine vocal character.
[SCATTER] dial	Adjusts the scatter depth and type. The first two digits indicate the type, and the last two digits indicate the depth.
[REVERB] slider	Adjusts the reverb volume.

7. Jacks and ports

Name of jack or port	Explanation
MIC IN jack	Connect an unbalanced dynamic mic here.

Rear Panel
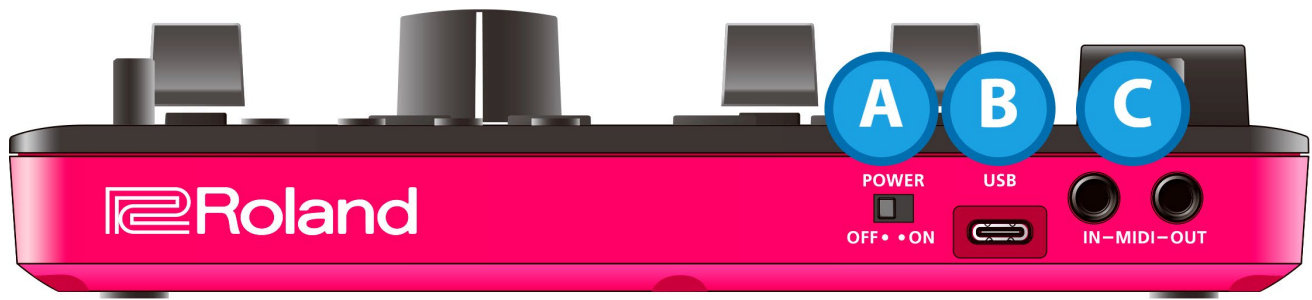
A. [POWER] switch

Turns the power on/off.

B. USB port (USB Type-C®)

Use a commercially available USB 2.0 cable (Type-A to C, or Type-C to C) to connect this port to your computer.

This is used to transfer USB MIDI and USB audio data.

    *   Do not use a USB cable that is designed only for charging. Cables used for charging only cannot transmit data.

C. MIDI IN/MIDI OUT jacks

Use TRS/TRS connecting cables (BCC-1-3535 or BCC-2-3535, sold separately) or TRS/MIDI connecting cables (BMIDI-5-35, BMIDI-1-35 or BMIDI-2-35, sold separately) to connect this unit to an external MIDI device.

You can make this unit play in sync with a MIDI device by connecting the devices with a commercially available MIDI cable.

    *   Do not connect audio devices to these jacks. Doing so may cause a malfunction.

Configuring the Mic Input (MIC IN)

Preventing accidental sounds (LOW CUT FILTER)
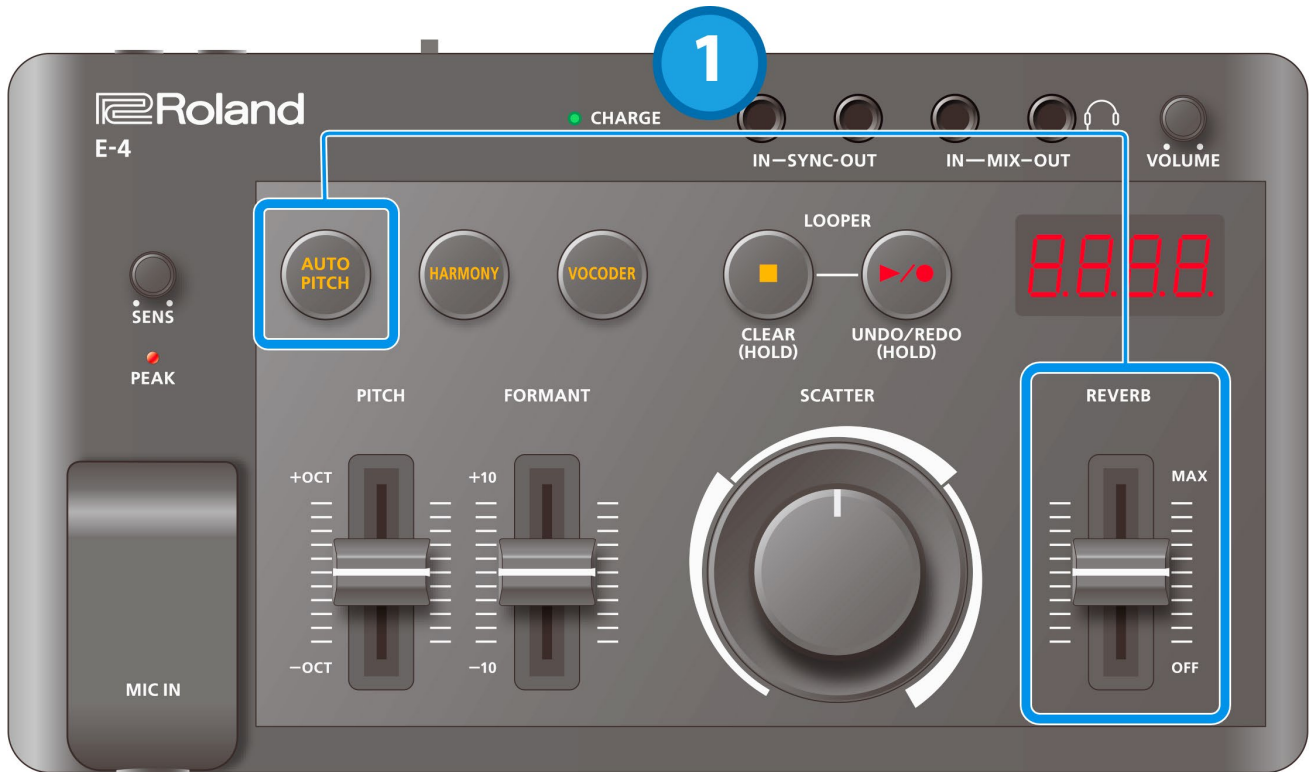
1. **Move the [REVERB] slider while holding down the [AUTO PITCH] button.**

Value	Explanation
10, 25, 50, 100	Sets the cutoff frequency of the low cut filter.

Reducing feedback (NOISE GATE)
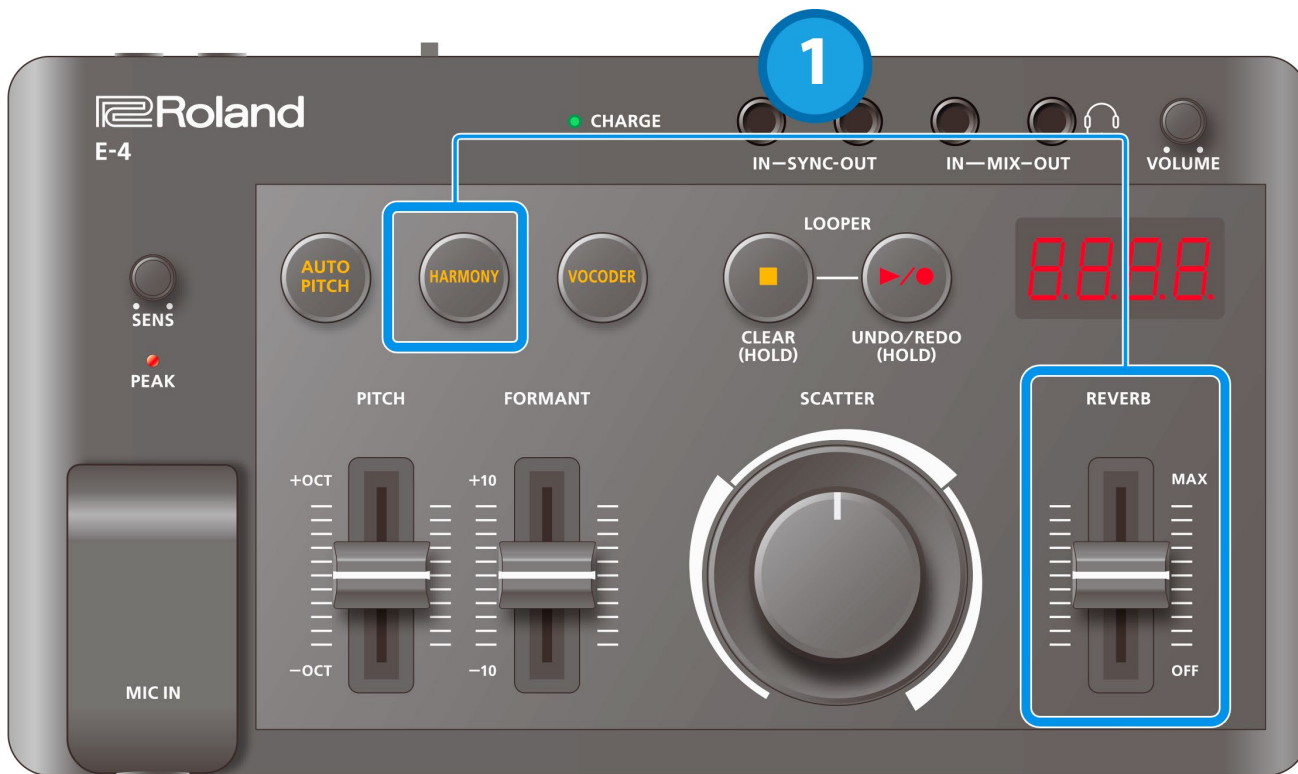
1. **Move the [REVERB] slider while holding down the [HARMONY] button.**

Value	Explanation
OFF, -9, -18, -InF	Sets how much floor noise you want to reduce.

Correcting the Pitch (AUTO PITCH)

This effect adjusts or corrects the pitch of your voice.

1.   **Press the [AUTO PITCH] button to make it light up.**

AUTO PITCH turns on.
This blinks when the "robot" setting is on.

Setting a fixed pitch for your voice (ROBOT)

This sets how the pitch is corrected when the AUTO PITCH is on.

1. **Move the [PITCH] slider while holding down the [AUTO PITCH] button.**

   When a setting besides "Auto" is selected, your voice changes to an uninflected robotic voice with a fixed pitch.

Value	Explanation
F .-2	Sets the voice at a fixed pitch two octaves lower.
F .-1	Sets the voice at a fixed pitch one octave lower.
AUto (Auto)	Corrects the pitch of the voice to match the key value.
F IH (Fix)	Sets the voice at a fixed pitch.
F . 1	Sets the voice at a fixed pitch one octave higher.

   * You can also use an external MIDI device to input the key, which sets the fixed pitch.

   ➜ Controlling the vocoder from an external device (KEY IN)(P.18)

Setting the correction depth (AUTO PITCH DEPTH)

This sets how much the pitch is corrected when the [AUTO PITCH] button is pressed thereafter.

* This only works when "Auto" correction method is selected.
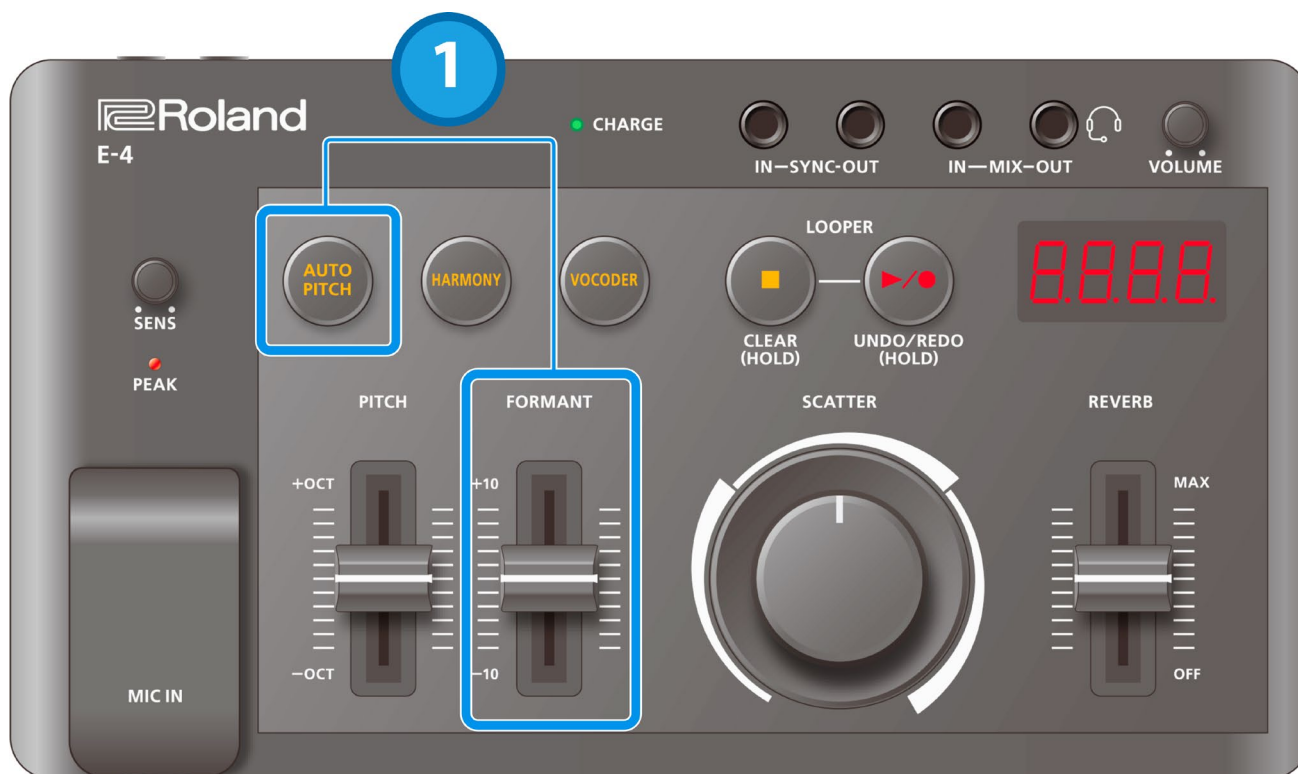
1. **Move the [FORMANT] slider while holding down the [AUTO PITCH] button.**

Setting the key and scale for pitch correction (KEY, SCALE)
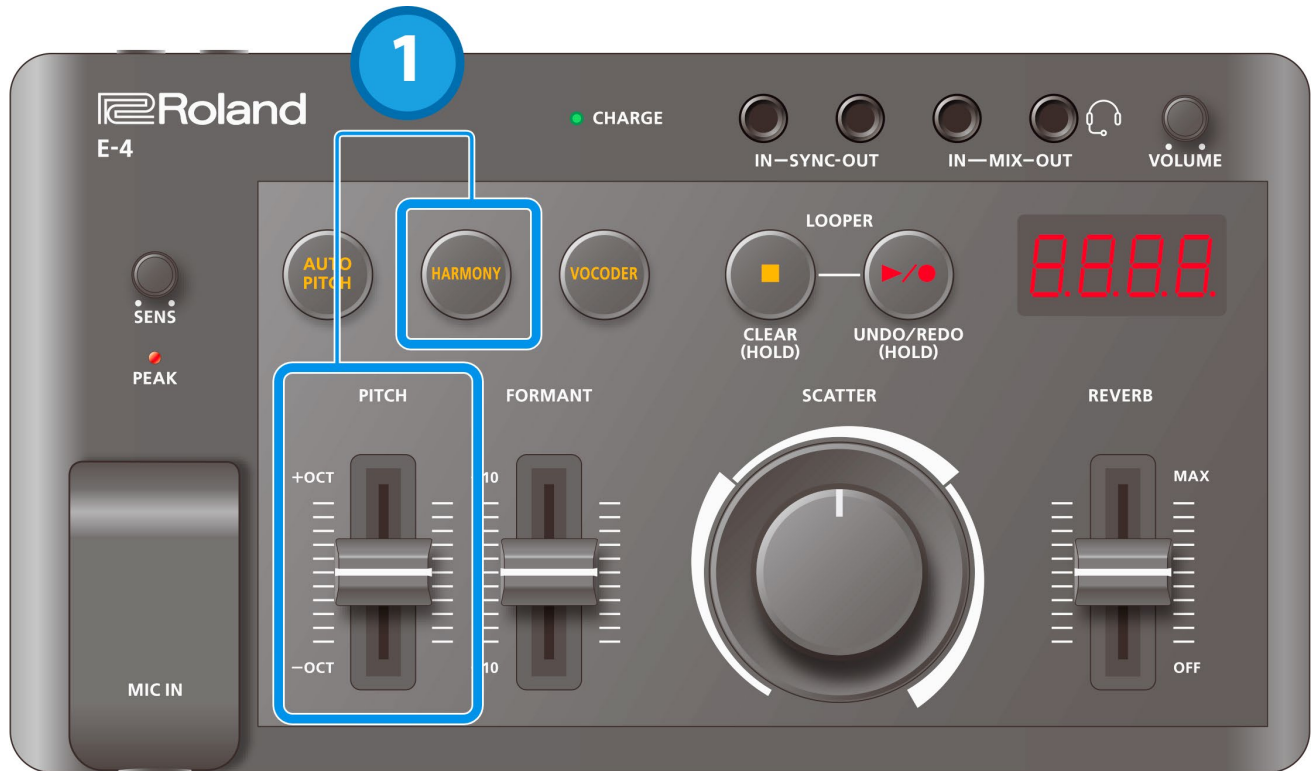
1. **Move the [PITCH] slider while holding down the [HARMONY] button.**

    This sets the key and scale to which the pitch is corrected when the [AUTO PITCH] button is pressed thereafter.

    When the method of pitch correction is set to "Auto", the pitch is adjusted to the scale; and when the method is set to "Fix", the pitch is adjusted to the key you selected.

Value	Explanation
A̅ ̅n (Am)–*A̅bn* (Abm)	Sets the minor scale of the key you select.
Chrn (Chromatic)	Sets a chromatic scale.
A̅ (A)–*A̅b* (Ab)	Sets the major scale of the key you select.

Adding Harmonies (HARMONY)

This feature adds a harmony to your voice.

1. **Press the [HARMONY] button to make it light.**

   This turns HARMONY on.

Setting the harmony key and scale (KEY, SCALE)
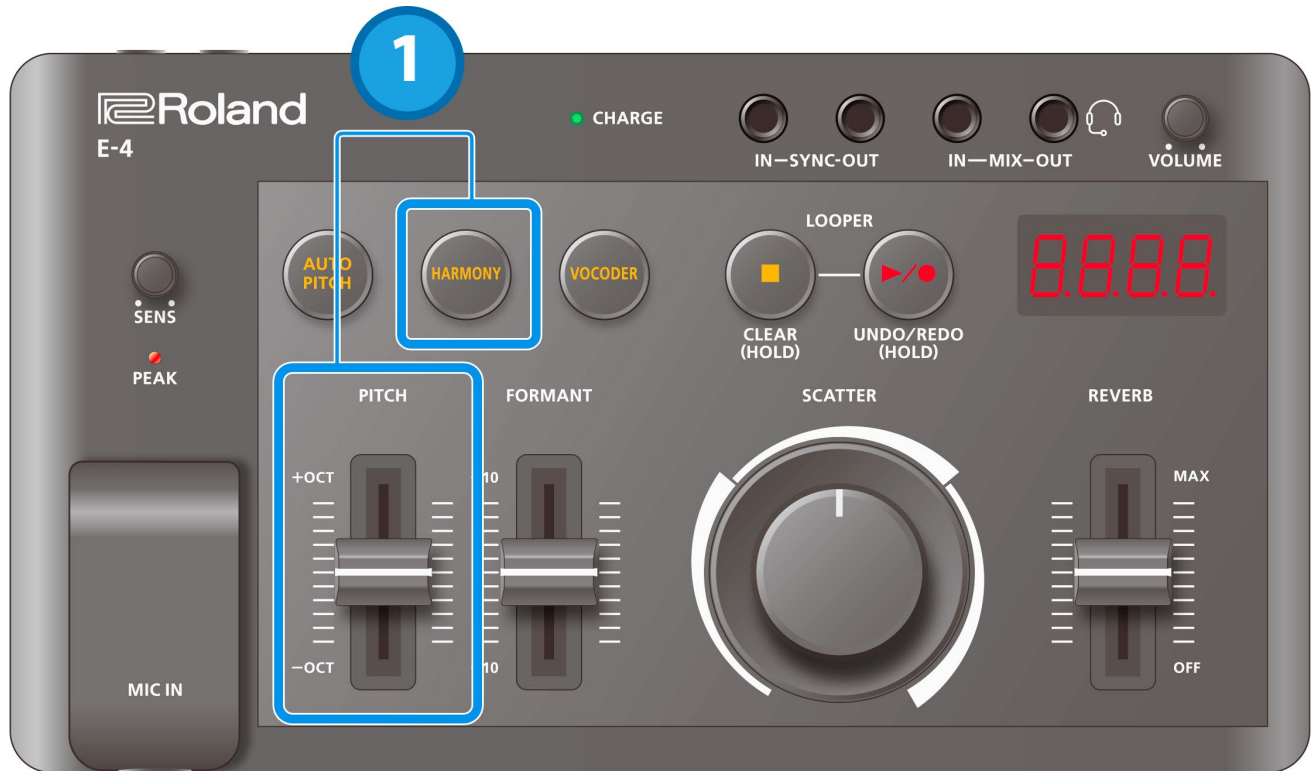
1. **Move the [PITCH] slider while holding down the [HARMONY] button.**

Value	Explanation
A ⊓ (Am)– *Abⁿ* (Abm)	Sets the minor scale of the key you select.
Chr⊓ (Chromatic)	Creates harmonies based on chromatic scale steps in fixed proportions, which are independent of the key or scale.
A (A)–*Ab* (Ab)	Sets the major scale of the key you select.

Setting the harmony type (HARMONY TYPE)
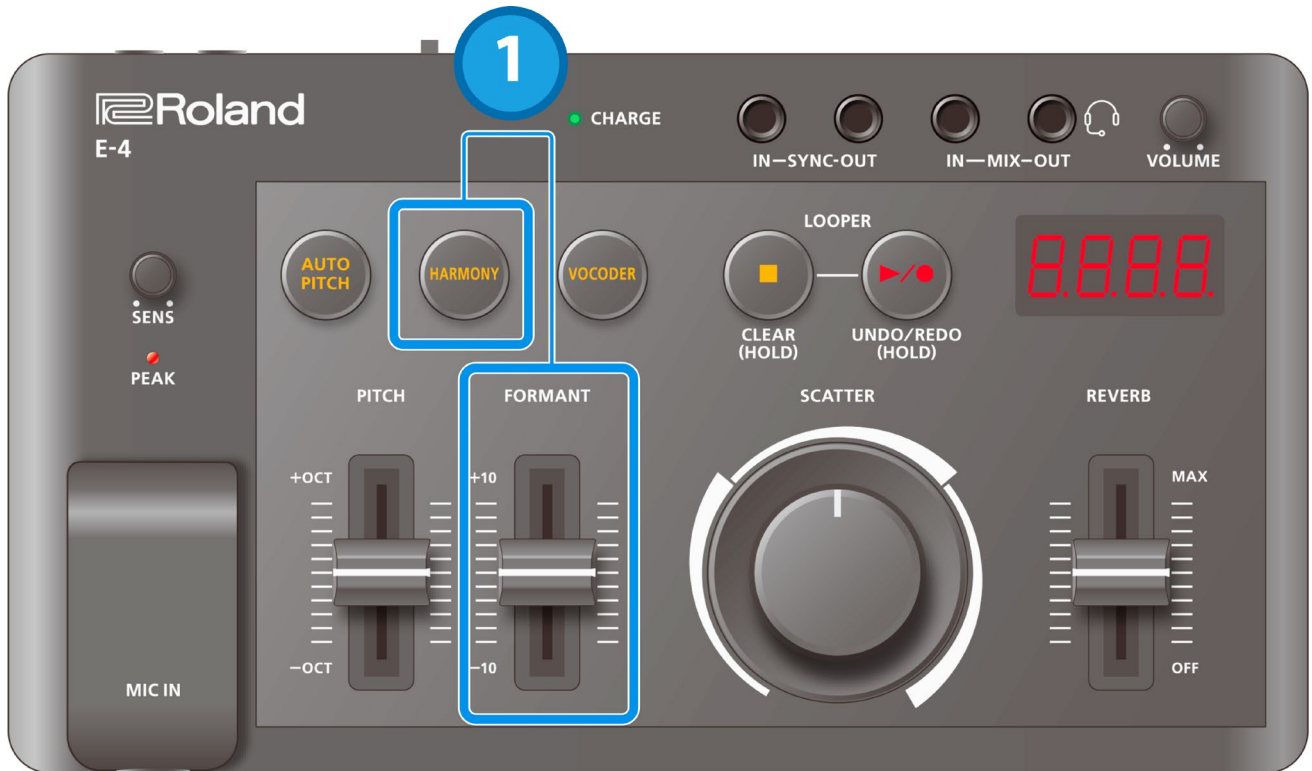
1. **Move the [FORMANT] slider while holding down the [HARMONY] button.**

   The chord structure for each type is shown below.
   The values shown in parentheses apply when using minor scale settings.

Value	Voice 2	Voice 3	Voice 4
UdP5 (UpDownP5)	+12	-12	+7
UPdn (UpDown)	+12	-12	
-Oct (-Octave)	-12		
Oct (Octave)	+12		
P5 (P5)	+7		
3rd (3rd)	+4 (+3)		
5th (5th)	+4 (+3)	+7	
-5th (-5th)	+4 (+3)	-5	
7th (7th)	+4 (+3)	+7	+11 (+10)
-7th (-7th)	+4 (+3)	+7	-1 (-2)

Using a Vocoder Voice to Alter the Sound (VOCODER)

This feature changes your voice to a vocoder voice.

A vocoder is an effect that combines the sounds of a built-in synthesizer (carrier) with your voice input (modulator).

1. **Press the [VOCODER] button to make it light up.**

   This activates the vocoder.

Setting the carrier waveform (WAVEFORM)

Setting the carrier waveform changes the harmonic structure of the sound.
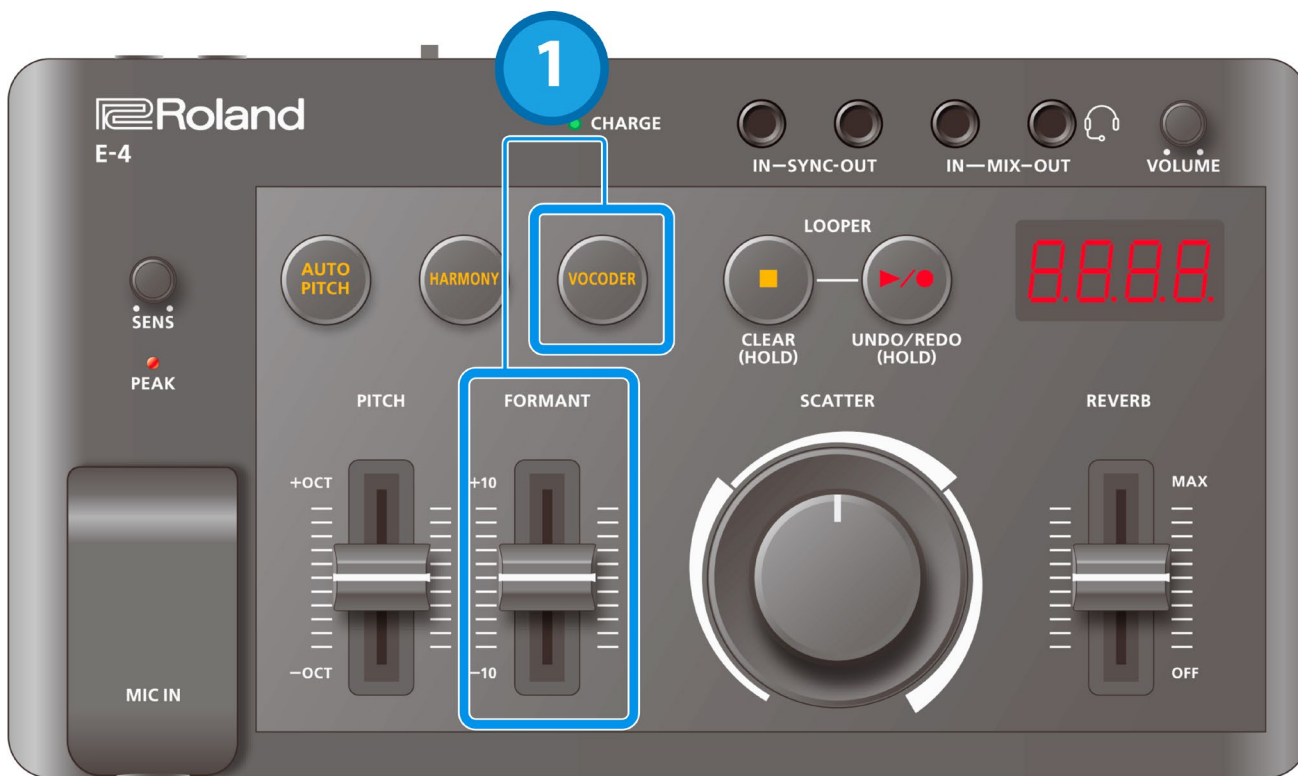
1. **Move the [FORMANT] slider while holding down the [VOCODER] button.**

Value	Explanation
𝟝𝖺𝗎2 (Saw2)–𝟝𝖺 .49 (Saw49)	Sawtooth wave with only a small amount of the fundamental frequency
𝟝𝖺 .50 (Saw50)–𝟝𝖺𝗎1 (Saw1)–𝟝𝟫 .49 (Square49)	Sawtooth wave
𝟝𝟫 .50 (Square50)–𝟝𝟫𝗋 (Square)–𝖯1 .49 (Pulse49)	Square wave
𝖯1 .50 (Pulse50)–𝖯1𝟝 (Pulse)–𝗇1 49 (Noise49)	Pulse wave
𝗇1 50 (Noise50)–𝗇1𝟝 (Noise)	Noise

Adding a chord (HARMONY)

1. **Press the [HARMONY] button.**

   You can press the [HARMONY] button to add more carrier voices.
   You can also set the pitch of the carrier.

Setting the carrier to a fixed pitch

➡ Correcting the Pitch (AUTO PITCH)(P.8)

Setting the chord type

➡ HARMONY_TYPE(P.14)

Setting the chord key and scale

➡ KEY_SCALE(P.13)

Controlling the vocoder from an external device (KEY IN)

1. **Long-press the [AUTO PITCH] button, [HARMONY] button and [VOCODER] button at the same time to enter the menu.**

2. **Press the [VOCODER] button to make it light up.**

    "ᴋᴇƳ.ı" is displayed.

3. **Use the [SCATTER] dial to set the MIDI channel to that of the external device.**

4. **Long-press the [AUTO PITCH] button, [HARMONY] button and [VOCODER] button at the same time to exit the menu.**

5. **Play the vocoder by inputting MIDI notes and pitch bends on an external device or via USB.**

6. **By pressing the [HARMONY] button to make it light up.**

    You can play chords with a maximum of four voices.

*   The [AUTO PITCH] button blinks when inputting messages from an external MIDI device.

Using the Looper

The looper is a feature that records your performance or what you say/sing into the mic, and plays this back over and over in a loop while letting you overdub new parts or just play back what you recorded.

"Recording" and "overdubbing"

In this manual, we refer to the act of recording to an empty track for the first time as "recording". Any subsequent recordings that you make to add on top of the existing recording, we refer to as "overdubbing".

You can see how the buttons are lit up or what is on the display to check the looper status.

Status	[■ (stop)] button	[▶/● (play/record)] button	Display
Standby	Unlit	Unlit	
Recording or overdubbing	Unlit	Lit (red)	*rEC*
Playing	Unlit	Lit (green)	*PLAY*
Stopped	Unlit	Blinking (green)	*StOP*
Clear			*CLr* (blinking)
Undo			*UNdO* (blinking)
Redo			*rEdo* (blinking)

Using the Looper as a Master External Device (Using the Internal Clock)

Recording audio input

1. Press the [▶/●] (play/record) button.

Recording starts when you press the button. If recording is already in progress, playback starts.

"rEC" is displayed, and the [▶/●] (play/record) button lights up red (recording/overdubbing).

2. To finish the recording, press the [▶/●] (play/record) button again.

Playback begins as-is.

The internal BPM is determined at the point when recording ends (the SYNC OUT F8 pulse changes).

The SYNC OUT clock returns to the beginning.

"PLAY" is displayed, and the [▶/●] (play/record) button lights up green (playback).

Stopping audio that's playing back (or switching to standby)

1. **Press the [■] (stop) button during playback.**

   Playback stops when you press the button.
   The display indicates "*StOP*".

Playing back recorded audio

1. **Record once, and then stop recording.**

   ➡ Recording audio input

2. **Press the [▶/●] (play/record) button when recording has stopped.**

   Playback begins when you press the button. SYNC OUT clock returns to the beginning (when set to do so).
   During playback, the [▶/●] (play/record) button lights up and "*PLAY*" is displayed.

Layering audio recordings (overdub)

1. **Press the [▶/●] (play/record) button when playback or recording is stopped.**

   Playback begins.
   The [▶/●] (play/record) button lights up green.

2. **Press the [▶/●] (play/record) button again.**

   Recording starts when you press the button.
   During recording, the [▶/●] (play/record) button lights up red and "⌐EC" is displayed.

Using the Looper in Sync with External Device Clocks

Recording audio input

1. **Press the [▶/●] (play/record) button.**

    The unit enters record standby mode, and "rEC" blinks in the display.
    Recording starts when the next clock is inputted.
    During recording or overdubbing, "rEC" is displayed and the [▶/●] (play/record) button lights up red.

2. **To finish the recording, press the [▶/●] (play/record) button again.**

    "PLAY" blinks in the display and the unit enters record stop mode.
    Recording stops when the next clock is inputted, and playback automatically begins.
    During playback, "PLAY" is displayed, and the [▶/●] (play/record) button lights up green.

* If a device is connected to the SYNC IN jack, press the [▶/●] (play/record) button to begin recording.

* If a device is connected to the MIDI jacks or to the USB port (for USB MIDI), the unit begins synchronization when a MIDI start message (FA) is received.

Stopping audio that's playing back (or switching to standby)

1. **Press the [■] (stop) button during playback.**

   The display indicates "STOP", and playback stops when the next clock is inputted.

Playing back recorded audio

1. **Record once, and then stop recording.**

2. **Press the [▶/●] (play/record) button when playback or recording is stopped.**

   Playback starts when the next clock is inputted.
   During playing back, the [▶/●] (play/record) button blinks green and "$PLAY$" is displayed.

## How the looper's state changes with the synchronization type

The sync works differently depending on how the external device is connected.

See the information below for how sync works differently when you press the buttons.

Operation	How the external device is connected		
	No connection	**SYNC IN jack**	**MIDI jack / USB MIDI**
Recording	When released	When released	Waiting for clock
Playback	When released	Waiting for clock	Waiting for clock
Stop	When released	Waiting for clock	Waiting for clock
Overdubbing	When released	Waiting for clock	Waiting for clock
Clear	When released	When released	When released
Undo	When released	When released	When released
Redo	When released	When released	When released

Setting the Clock Timing

The dot in the bottom right of the display appears when the unit is waiting for a clock timing from an external device.
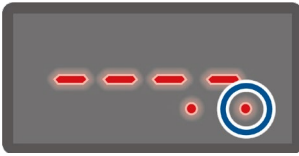
1. **Press the [AUTO PITCH] button, [HARMONY] button and [VOCODER] button at the same time.**

   Switches the unit to menu mode.

2. **Select using the [FORMANT] slider.**

Value	Explanation
1_8 (1/8), *1_4* (1/4), *1_2* (1/2), *1* (1)	Sets the clock timing at which the schedule starts.

3. **When you are finished, press the [AUTO PITCH] button, [HARMONY] button and [VOCODER] button at the same time.**

* The timing to start synchronization is different depending on what the clock is synchronized to.

  External MIDI: Synchronization starts when the external device starts.
  SYNC IN (trigger): Synchronization starts when you press the record button.

Erasing the Recorded Audio (Clear)

1. **Long-press the [■] (stop) button.**

   "_Clr_" blinks in the display.
   The data is cleared once you take your finger off the button.

Undoing/Reverting an Overdub (Undo/Redo)

1. **Long-press the [▶/●] (play/record) button.**

   "*Undo*" or "*rEdo*" blinks in the display.
   The undo (or redo) operation is executed once you take your finger off the button.

Replaying Recorded Audio from the Beginning (Restart)

1. **Hold down the [■] (stop) button and press the [▶/●] (play/record) button during playback.**

   The recorded audio plays back again from the beginning.

Swapping Inputted Notes by Step (SCATTER)

The scatter effect swaps the loop playback for different steps, and then changes the playback direction and gate length to add a digital-type groove to the loop playback.
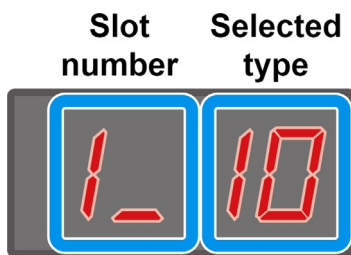

1. **Turn the [SCATTER] dial.**

   The recorded audio is split up and then played back.
   The type that's set for each slot changes through 10 different phases.

Setting the type for each slot

You can set the type you want for each SCATTER slot.

Slot number   **Selected type**

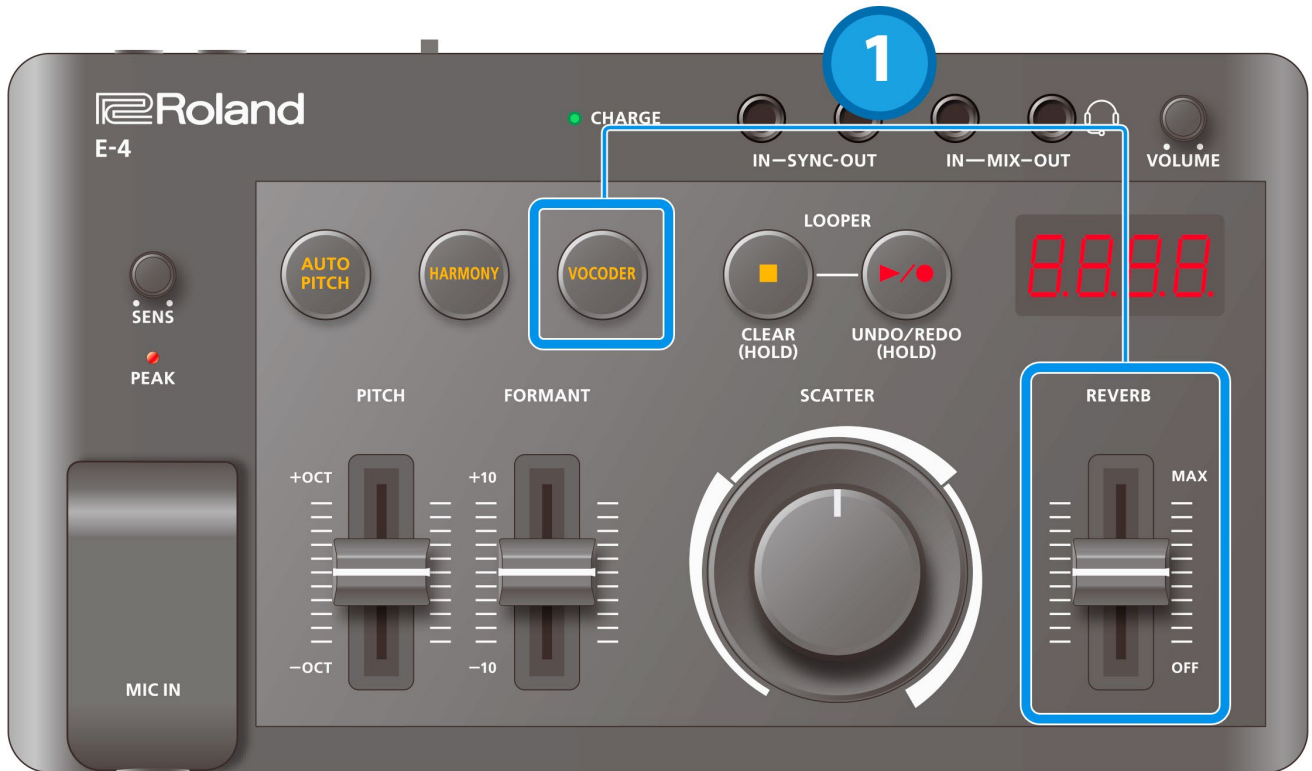| Operation	Displayed value	Explanation
[AUTO PITCH] + [SCATTER]	1_ 1– 1_ 19	Selects the SLOT1 type.
[HARMONY] + [SCATTER]	2_ 1–2_ 19	Selects the SLOT2 type.
[VOCODER] + [SCATTER]	3_ 1–3_ 19	Selects the SLOT3 type.
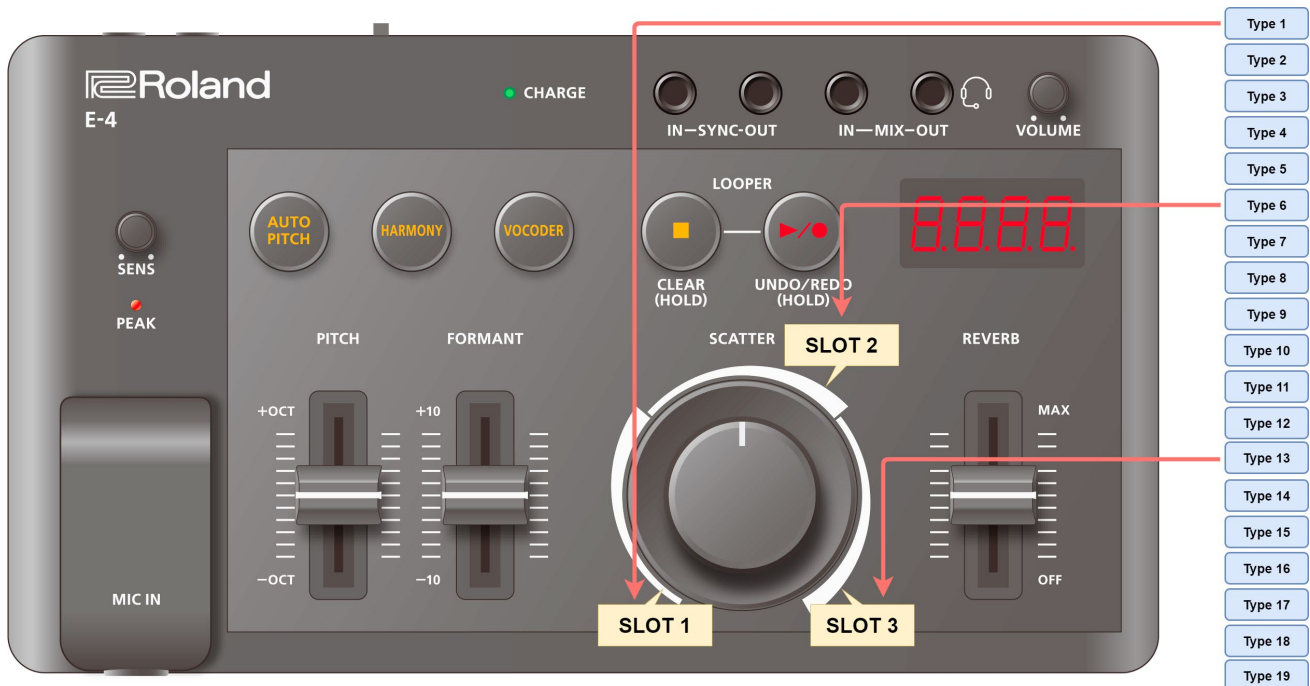
Adding Reverberation (REVERB)

1. **Adjust the depth of the reverb with the [REVERB] slider.**

   When turned off, reverb is not applied.

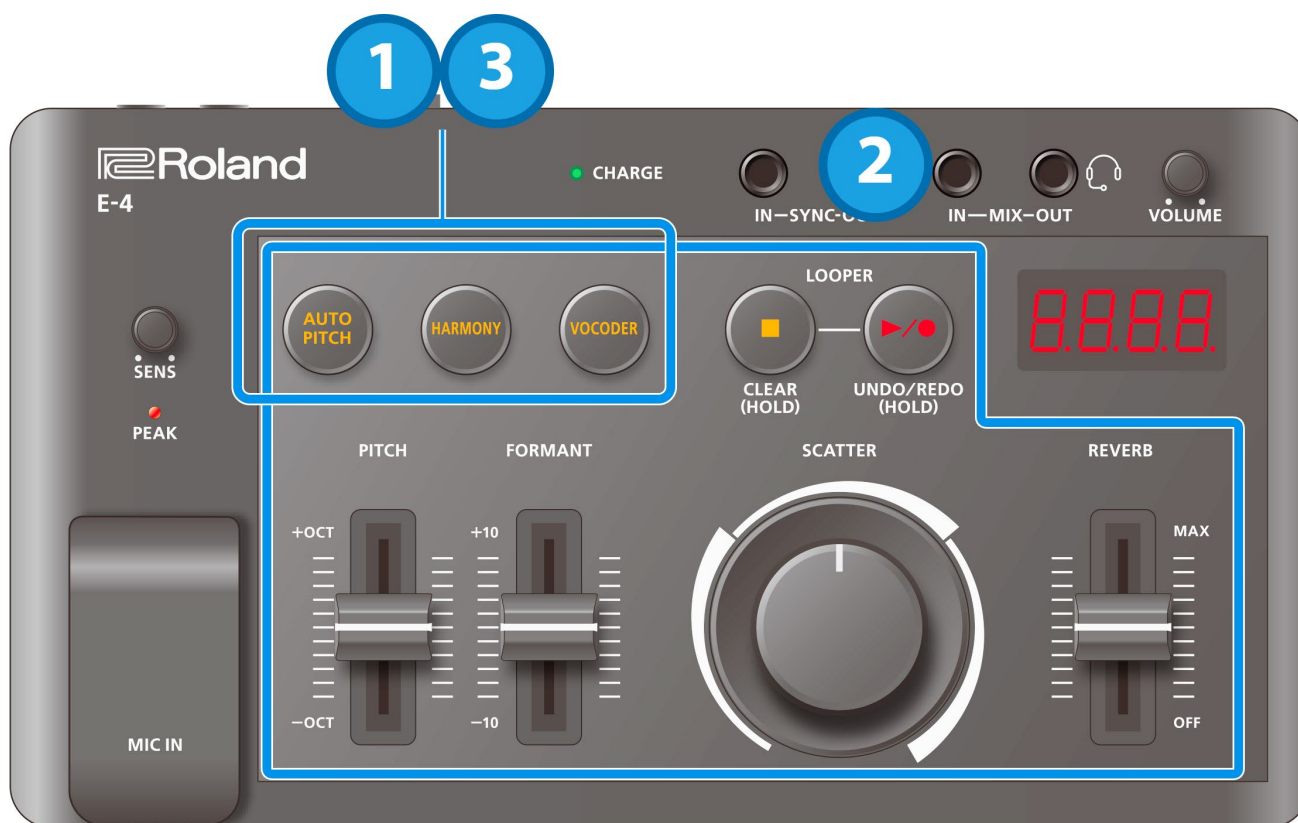# Using effects other than reverb

1. **Move the [REVERB] slider while holding down the [VOCODER] button to select an effect.**

Value	Explanation
rub (Reverb)	Adds reverberation.
Echo (Echo)	Adds an echoing sound.
dly (Delay)	Repeats the sound of your voice in sync with the tempo.
Cho (Chorus)	Adds a stereo feel to the sound.

Setting the Menu

1. **Press the [AUTO PITCH], [HARMONY] and [VOCODER] buttons at the same time.**

   The unit enters menu mode.

2. **Use the buttons and sliders to make the settings.**

   For details, refer to the parameters below.

3. **When you are finished, press the [AUTO PITCH], [HARMONY] and [VOCODER] buttons at the same time.**

System settings

Item	Controller	Value	Explanation
USB OUT ROUTING	[AUTO PITCH] button	∏ IH .0 . ∏ IC . I (Mix Out, Mic In)	Sets whether to use the output audio from your computer or tablet for the MIC IN input (∏ IC . I) or for the MIX OUT input (∏ IH .0).
FORCE HEADSET	[HARMONY] button	Auto . Forc (Auto, Force)	When this is set to "Forc", only the headset mic is used, regardless of whether a front mic is plugged in.
MIDI KEY IN	[VOCODER] button	OFF . ЬEY . I (Off, Key In)	When this is set to "ЬEY . I", the pitch remains fixed when note messages are input.
MIDI THROUGH	[■] (stop) button	OFF . Fhru (Off, Through)	When this is set to "Fhru", the messages that are input from the MIDI IN connector are output to the MIDI OUT connector.
AIRA LINK (*1)	[▶/●] (play/record) button	OFF . A LnЬ (Off, AIRA Link)	Set this to "A LnЬ" when connecting a device via USB that is compatible with AIRA LINK, such as the MX-1. Otherwise, leave this at the "OFF" setting. The setting takes effect after the unit is powered off and on again.
MIDI CHANNEL	[SCATTER] dial	Ch . I–Ch . I6	Specifies the MIDI transmit/receive channel.
SYNC CLOCKS	[PITCH] slider	I . 2 . 3 . 4 . 6 . 8 . I2 . 24	Sets the number of sync clocks per beat.
SYNC RATE	[FORMANT] slider	I_8 . I_4 . I_2 . I (1/8, 1/4, 1/2, 1)	Sets the synchronization cycle for the looper.

Item	Controller	Value	Explanation
MIDI CLOCK SYNC	[REVERB] slider	*Auto* . *Int* . *MIdI* . *USb* (Auto, Int., MIDI, USB)	Sets which synchronization signal is used by this unit. *Auto* (Auto): Inputted clocks are accepted. *Int* (Int): The unit operates according to its internal clock. *MIdI* (MIDI): Only MIDI input is accepted. *USb* (USB): Only USB MIDI input is accepted. * Note that when an external device is connected to the SYNC IN jack, the unit always synchronizes to the clocks that are inputted to the SYNC IN jack.

*1: When using with another port besides the USB HOST 3 port on the MX-1, the unit starts up in battery-only mode. To use battery-only mode, turn on the power while holding down the [C] button.

MIDI settings

Function	MIDI messages	Explanation
ROBOT NOTE	Note On/Off	Controls the vocoder pitch using note numbers. The [AUTO PITCH] button blinks when notes are being input. When the [HARMONY] button is lit, a maximum of four chords can be controlled.
PITCH	Pitch Bend	Controls the [PITCH] slider value.
SYNC	Timing Clock	Controls the looper that synchronizes with the tempo data. Press the [▶/● (play/record)] and [■ (stop)] buttons to schedule playback and recording. The playing back or recording starts when the dot in the bottom right of the display lights up. Set this timing with the SYNC RATE in system setting.

Connecting to a Computer or Mobile Device

You can transmit and receive audio and MIDI data by connecting a USB cable from your computer or mobile device (smartphone or tablet) to this unit.

You don't need to install a device driver on your computer or other device to do this (the unit supports USB Audio Device Class 2.0 specs).

Note that data cannot be directly transmitted/received between this unit and your computer or mobile device if you're connecting through a USB hub.

Do not use a USB cable that is designed only for charging. Cables used for charging only cannot transmit data.

We cannot guarantee the correct functionality of all apps.

    *   Android devices are not guaranteed to work with this unit.

Turning AIRA LINK mode off

1. **Keep pressing the [AUTO PITCH], [HARMONY] and [VOCODER] buttons to enter menu mode.**

2. **Press the [▶/●] (play/record) button to make it go dark.**

   "*OFF*" is displayed.

3. **Keep pressing the [AUTO PITCH], [HARMONY] and [VOCODER] buttons to exit menu mode.**

4. **Turn the power off and then on again.**

Connecting to your computer

Use a USB Type-C to USB Type-A cable (included) or a cable that uses USB Type-C on both sides (included) to connect this unit to your computer.

Connecting to a mobile device

For iOS devices with Lightning connectors

Power up the unit in battery-only mode.

1. **Turn on the power while holding down the [VOCODER] button.**

   This powers up the unit in battery-only mode.

2. **Use an Apple-manufactured USB adaptor (such as the Lightning-USB Camera Adapter, the Lightning to USB 3 Camera Adapter and so on) as a converter for the iOS device's connector.**

3. **Use a USB cable (USB Type-C to USB Type-A cable, commercially available) to connect this unit to the USB adaptor.**

    *   Commercially available USB Type-C to Lightning conversion cables cannot be used.

For iOS devices with a USB Type-C port

Connect your iOS device to this unit using a USB cable with USB Type-C connectors on both ends (commercially available).

When doing so, you can power this unit from your iOS device.

Restoring the factory default settings (Factory Reset)

Here's how to return the E-4 to its factory-set state.

1. **While holding down the [■] (stop) button, turn on the power.**

   The [▶/●] (play/record) button button blinks.
   To cancel the factory reset, turn off the power.

2. **Press the [▶/●] (play/record) button button.**

   The factory reset is executed.

3. **When all buttons are blinking, turn the power of the E-4 off and then on again.**

Main Specifications

Effect Type	AUTO PITCH HARMONY VOCODER PITCH FORMANT SCATTER REVERB LOOPER
Maximum Recording Time	Approximately 24 seconds
Display	7 segments, 4 characters (LED)
Connectors	SYNC (IN, OUT) jacks: Miniature phone type MIX (IN, OUT) / HEADSET jacks: Stereo miniature phone type (Stereo, CTIA) MIDI (IN, OUT) jacks: Stereo miniature phone type MIC IN jack: Stereo phone type USB port: USB Type-C® (Audio, MIDI)
Power Supply	Rechargeable lithium-ion battery Obtained via USB port (USB bus power)
Current Draw	500 mA
Expected battery life under continuous use	Approx. 3.5 hours * These figures will vary depending on the actual conditions of use.
Expected battery charging time	Approx. 3 hours * To charge the unit, use the USB port of a computer or a commercially available USB power supply adaptor (5 V, 500 mA or higher).
Dimensions	188 (W) x 106.5 (D) x 41.7 (H) mm 7-7/16 (W) x 4-1/4 (D) x 1-11/16 (H) inches
Weight (including batteries)	290 g 11 oz
Accessories	Leaflet "Read Me First" USB Type-C to USB Type-A cable

Signal Flow
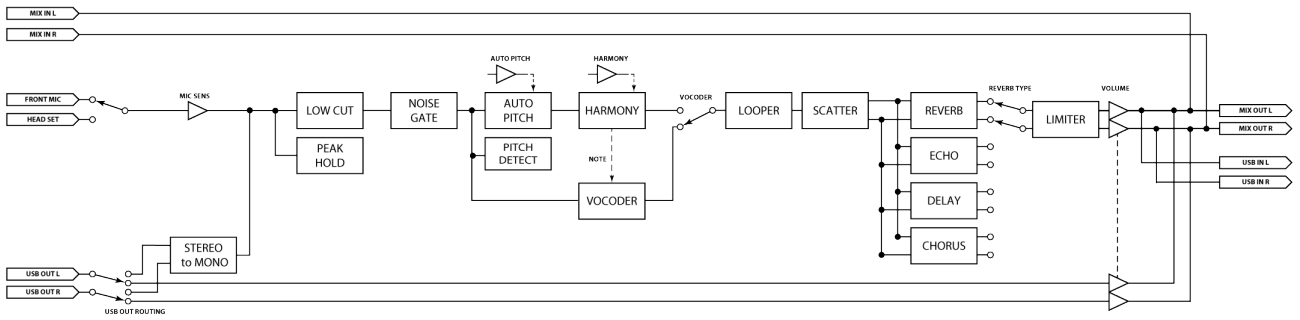
MIDI Implementation Chart

AIRA Compact

Model:E-4

Date: Feb. 7, 2022

Version 1.02

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	3 1–16	3 1–16	Memorized
Mode	Default Messages Altered	Mode 3 x x	Mode 3 x x	
Note Number	 : True Voice	x **********	0–127 0–127	
Velocity	Note On Note Off	o o	o o	
After Touch	Key's Channel's	x x	x x	
Pitch Bend		x	o	
Control Change		x	x	
Program Change	 : True Number	x **********	x **********	
System Exclusive		x	x	
System Common	: Song Position : Song Select : Tune Request	x x x	x x x	
System Real Time	: Clock : Start : Continue : Stop	o o x o	o o x o	
Aux Message	: All Sound Off : Reset All Controllers : All Notes Off : Omni Mode Off : Omni Mode On : Mono Mode On : Poly Mode On : Active Sensing : System Reset	o x x x x x x o x	x x x x x x x o x	Transmitted: MIDI OFFLINE

E-4

01

Owner's Manual

©2022 Roland Corporation