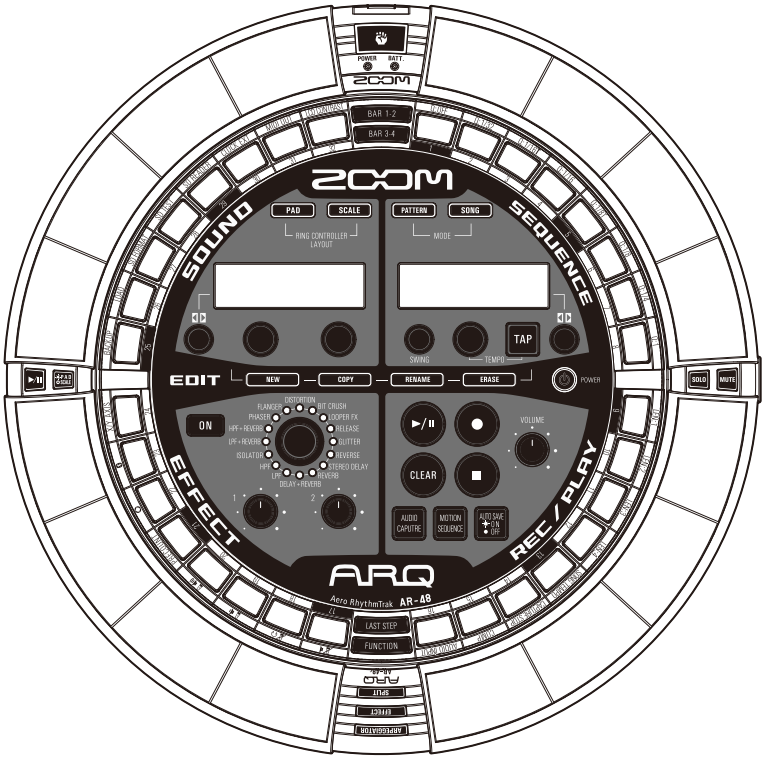
ZOOM

ARQ
Aero RhythmTrak
AR-48



Operation Manual

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Usage and Safety Precautions

Safety Precautions

In this operation manual, symbols are used to highlight warnings and cautions that you must read to prevent accidents. The meanings of these symbols are as follows.

Warning	**Something that could cause serious injury or death**
Caution	**Something that could cause injury or damage to the equipment**

Other symbols used

❗	**An action that is mandatory**
⃠	**An action that is prohibited**

⚠ Warning

Operation using an AC adapter

- ❗ Never use any AC adapter other than a ZOOM AD-14.
- ⃠ Do not do anything that could exceed the ratings of outlets and other electrical wiring equipment.
  Before using the equipment in a foreign country or other region where the electrical voltage differs, always consult with a shop that carries ZOOM products and use the appropriate AC adapter.

Operation with batteries

- ❗ Use 2 commercially-available 1.5V AA batteries (alkaline or nickel metal hydride).
- ❗ Carefully study warning indications on batteries before use.
- ❗ Always keep the battery cover closed during use.

Alterations

- ⃠ Do not open the case or modify the product.

⚠ Caution

Product handling

- ❗ Do not drop, bump or apply excessive force to the unit.
- ❗ Be careful not to allow foreign objects or liquids to enter the unit.

Operating environment

- ⃠ Do not use in extremely high or low temperatures.
- ⃠ Do not use near heaters, stoves and other heat sources.
- ⃠ Do not use in very high humidity or where it could be splashed by water.
- ⃠ Do not use in places with frequent vibrations.
- ⃠ Do not use in places with much dust or sand.

AC adapter handling

- ❗ When disconnecting the power plug from an outlet, always pull on the plug itself.
- ❗ Disconnect the power plug from the outlet when the unit will not be used for a long time and whenever there is lightning.

Battery handling

- ❗ Install batteries with the correct +/– orientations.
- ❗ Use the specified batteries.
  Do not use new and old batteries together. Do not use batteries of different brands or types together.
- ❗ Remove the batteries when the unit will not be used for a long time.
  If a leak occurs, thoroughly wipe the battery case and battery terminals to remove the leaked fluid.

Connection cables and input/output jacks

- ❗ Always turn the power OFF for all equipment before connecting any cables.
- ❗ Always disconnect all connection cables and the AC adapter before moving the unit.

Volume

- ⃠ Do not use at a loud volume for a long time.

Usage Precautions

Interference with other electrical equipment

In consideration of safety, the **AR-48** has been designed to minimize its emission of electromagnetic waves and to suppress interference from external electromagnetic waves. However, equipment that is very susceptible to interference or that emits powerful electromagnetic waves could result in interference if placed nearby. If this occurs, place the **AR-48** and the other device farther apart.
With any type of electronic device that uses digital control, including the **AR-48**, electromagnetic interference could cause malfunction, corrupt or destroy data and result in other unexpected trouble. Always use caution.

Cleaning

Use a soft cloth to clean the exterior of the unit if it becomes dirty. If necessary, use a damp cloth that has been wrung out well to wipe it.
If the Ring Controller surface becomes dirty, wipe it with a soft damp cloth that does not shed fibers.
Never use abrasive cleansers, wax or solvents such as alcohol, benzene or paint thinner.

Breakdown and malfunction

If the unit becomes broken or malfunctions, immediately disconnect the AC adapter, turn the power off and disconnect other cables. Contact the store where you bought the unit or ZOOM service with the following information: product model, serial number and specific symptoms of breakdown or malfunction, along with your name, address and telephone number.

Usage and Safety Precautions (continued)

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FCC regulation warning (for U.S.A.)

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.**

For EU Countries

CE **Declaration of Conformity**

The contents of this document and the specifications of the product could be changed without notice.

Introduction

Thank you very much for purchasing a ZOOM Aero RhythmTrak **AR-48**. The **AR-48** has the following features.

• Ring Controller with 16 pads and LEDs

You can input instruments by assigning different sounds to these 16 pads like drums or assigning them different pitches like a keyboard. In addition, the multicolor LEDs allow you to see instrument input status at a glance.

• 32 STEP keys on Base Station

The Base Station has 32 STEP keys especially for step input.

By using these keys, you can quickly input sequences for the selected instrument.

• Ring Controller can be removed from Base Station

The Ring Controller can be removed from the Base Station to perform with it in hand. You can now realize entertaining performances in ways that are not possible with conventional rhythm machines.

• Accelerometer built into Ring Controller

You can control the arpeggiator timing, instruments and effect parameters by tilting the Ring Controller. Enjoy a new feeling of controlling sound with your body.

• Automatic detection of grip area

The grip area setting function can prevent misoperation when holding the Ring Controller during performances.

The position can be set easily when holding it in the most comfortable position.

• Ring Controller and Base Station can be connected with Bluetooth LE (using BTA-1 sold separately)

By using BTA-1 units (sold separately), the Ring Controller and the Base Station can be connected wirelessly with Bluetooth LE. Power consumption is low, so use for long periods of time is possible.

• Use as a MIDI controller possible

The Ring Controller can be independently used as a multifunction MIDI controller when connected to a computer or other device by USB. When using a BTA-1 (sold separately), it can also be connected to a Mac or iOS device by Bluetooth LE.

The Base Station also has a MIDI OUT jack. By connecting it to a computer or synthesizer, MIDI messages can be output by using the **AR-48** sequences and operating the keys and knobs on the Base Station.

• Built-in sound sources can be edited in various ways

The sounds included in the **AR-48** have a variety of adjustable parameters that increase their expressive ranges.

Each of the sound parameters can be set easily while checking them on the display.

In addition, each pattern can use the sounds of up to 16 instruments (16 simultaneous voices), allowing the creation of rich musical pieces.

• Over 400 PCM sound sources and 70 synthesizer oscillator types built-in

From the rich selection of sound sources, you will be able to find sounds that fit your image of the music you want to make.

The sounds are organized by categories so you can find them quickly.

• Various creation modes

Performance patterns can be created in two ways. You can build patterns one step at a time using the STEP keys and you can record patterns by playing the 16 pads in real time. Furthermore, in SONG mode, you can combine patterns to create complete songs.

- **Use up to two effects simultaneously**

You can use an effect on individual instruments, as well as a master effect at the same time. This vastly increases sound design possibilities.

- **Inputs for electronic instruments and audio devices**

You can perform while listening to the input from a connected device and capture input sounds to use as sound sources.

- **Loading of audio files possible**

You can use a computer to save WAV files on an SD card and load them for use as sound sources. (An SD card (not included) is required.)

- **Headphone output independent from other outputs**

The second stereo output allows you to output a metronome just to the headphones, for example.

Explanation of terms

Pattern

This is a short musical part of several bars. Patterns are made of sequences (performance information) and oscillators (sounds). You can also save parameters controlled by the Ring Controller, quantization and other settings for each pattern separately.

The **AR-48** has preset patterns that cover a variety of musical genres.

Song

This is a combination of multiple patterns that form a single musical piece.

Step

A step is the length of the shortest notes that can be input to a sequence.

Steps are usually one 16th of a bar, so you can set sounds to occur in 16th note intervals. This length can be changed in the settings.

Sequence

A sequence is performance data that records the timing when various sounds are played.

With the **AR-48** you can input sequences one step at a time and record sequences by playing the pads in real time.

Instrument

These are the smallest elements of sounds. A variety of sound sources, including drum sets, percussion instruments, basses and synthesizers, are already prepared for use.

You can also use WAV files saved on an SD card by a computer as instruments.

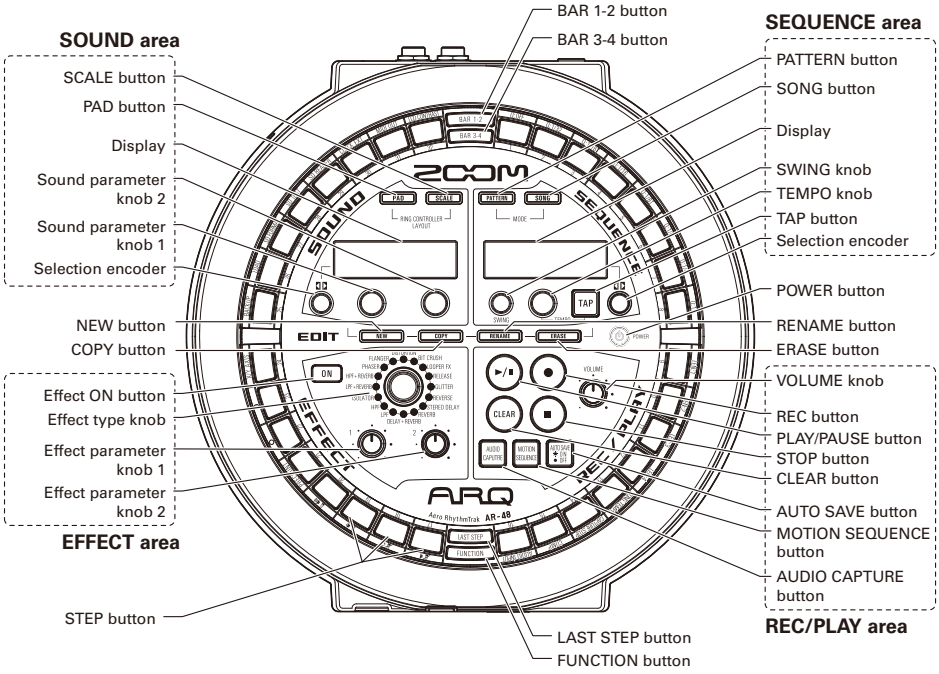
In addition to selecting sounds, various settings are available in each instrument. These include envelopes with attack and sustain times, filters and effects.

Overview

Names of parts

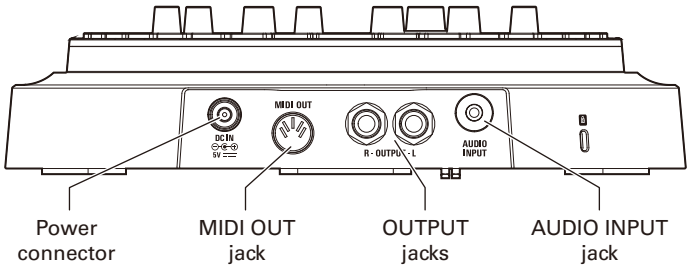
Base Station

■ Top

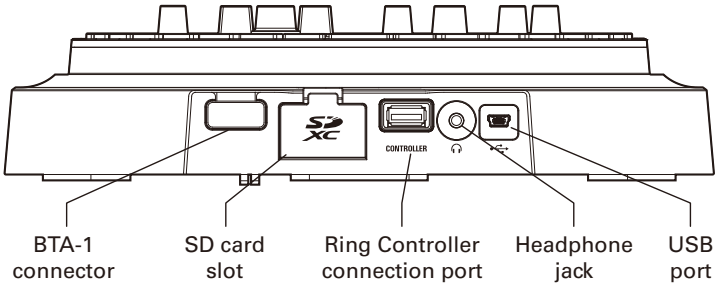


Names of parts (continued)

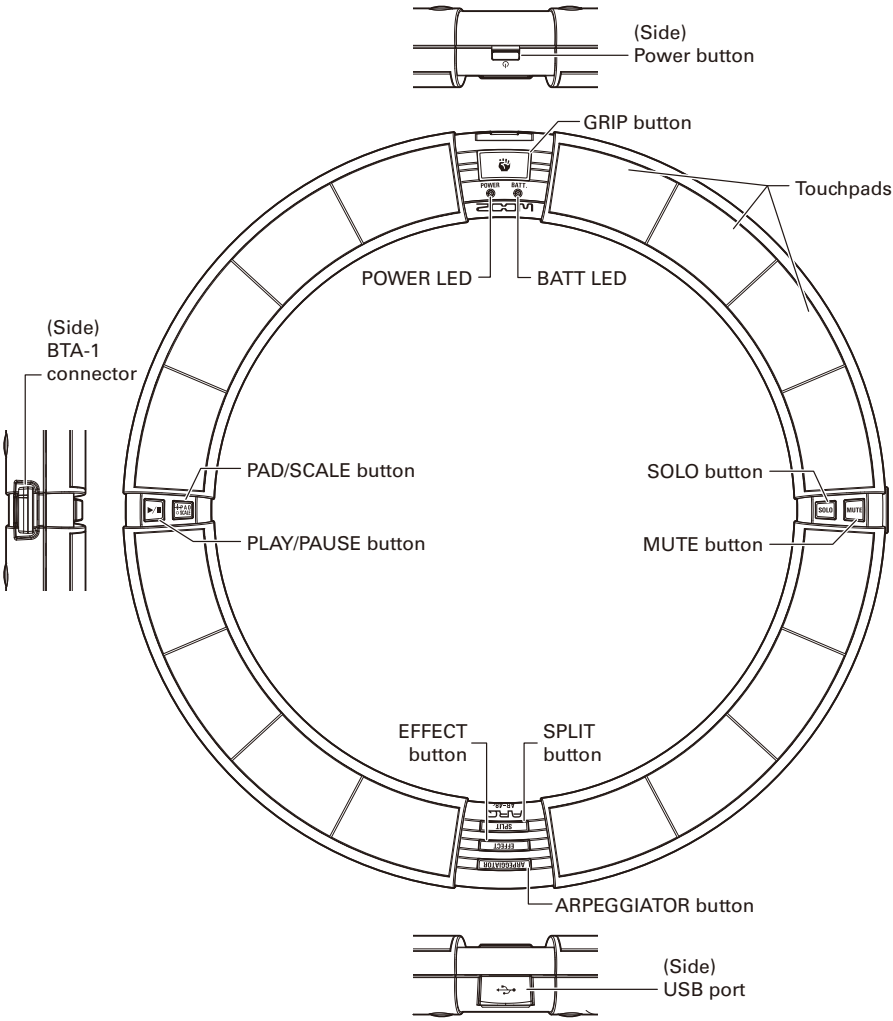
■ Back



■ Front

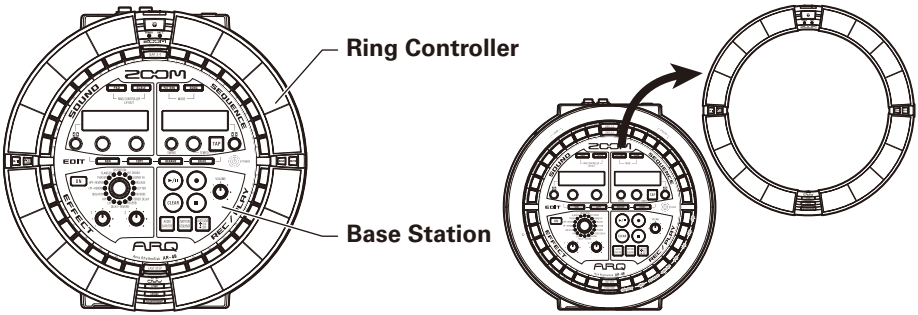


Ring Controller



Using the AR-48

The **AR-48** consists of a Base Station and a Ring Controller.

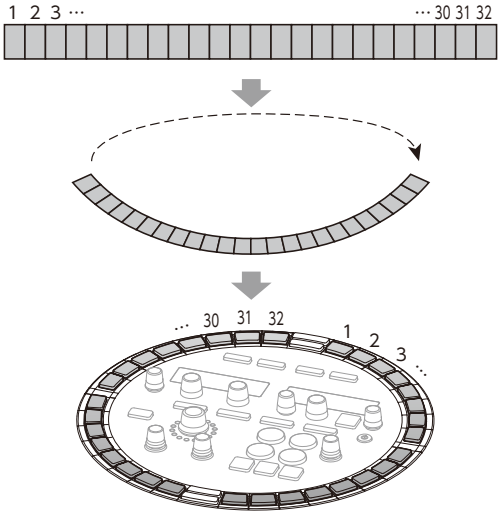


With the Base Station, you can create and save patterns, songs and other musical pieces, as well as edit tones, for example. Use the Ring Controller for input when creating music.
Since the Ring Controller can be detached from the Base Station, you can hold it in your hand and play it like an instrument. You can also connect it by USB or Bluetooth LE to a Mac computer or iOS device and use it as a MIDI controller. (→ P. 96)

NOTE

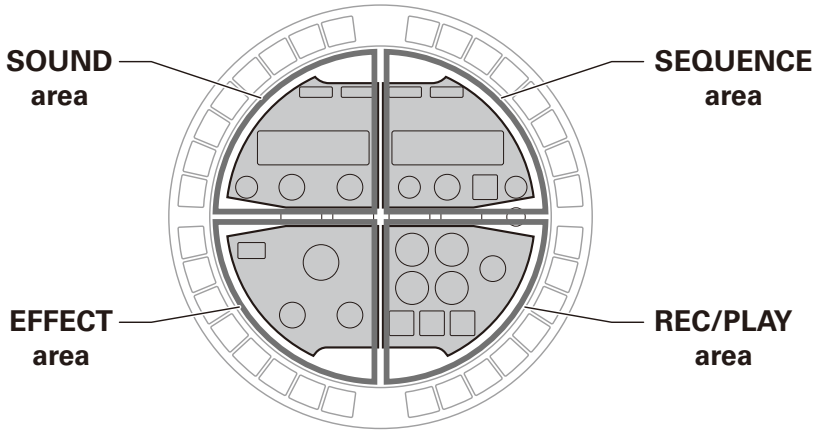
BTA-1 units (sold separately) are necessary to connect by Bluetooth LE.

The Ring Controller has 16 pads with multicolor LEDs. The Base Station also has 32 STEP keys, so you can quickly create patterns and songs. Arranging the STEP keys in a ring, instead of the usual straight lines, enables confirmation and operation of all steps in a compact form.



The 4 Base Station areas

The Base Station is divided into four areas according to use.



SOUND area: Use to control the parameters of instruments assigned to pads. Parameters related to the instrument are shown on the display.

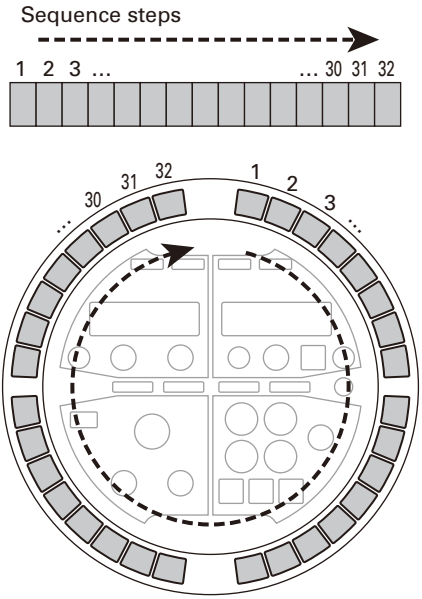
SEQUENCE area: Use to set the tempo and other sequence parameters. The display shows pattern and song names.

REC/PLAY area: Use to control sequences, including playback and recording.

EFFECT area: Use to control effects applied to output.

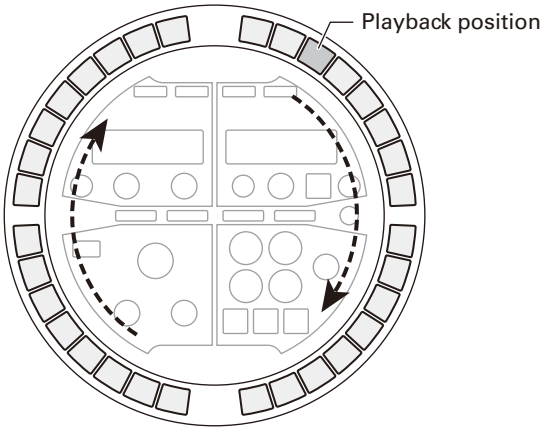
STEP key overview

The Base Station has 32 STEP keys that can be used to input sequences, for example.
You can input instruments one step at a time to create patterns.



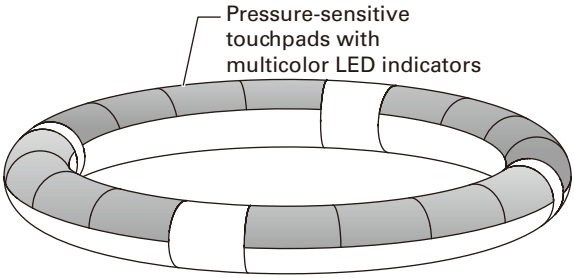
Playback position

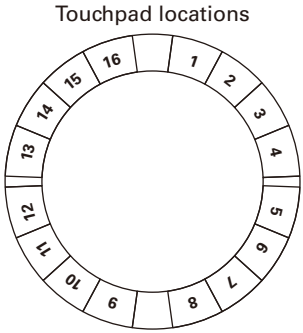
During playback of a pattern or song, for example, the STEP key LEDs light green at the step currently playing.



Ring Controller overview

The **AR-48** Ring Controller surface has 16 pressure-sensitive touchpads.
Using these pads, you can input and edit patterns and songs and perform in real-time, for example.

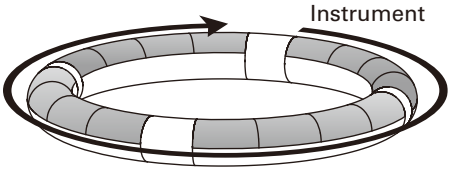




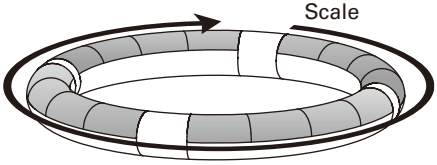
Assignment of functions

Various functions are assigned to the Ring Controller pads according to the operation status and mode.

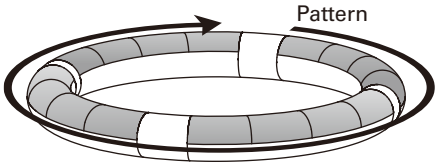
Example: In PATTERN mode and PAD layout, you can play the instruments assigned to pads in real-time by tapping them.



Example: In PATTERN mode and SCALE layout, you can play the Ring Controller like a keyboard with each pad having a different pitch.



Example: In SONG mode, different patterns can be assigned to each pad, allowing you to tap the pads to change and play back patterns



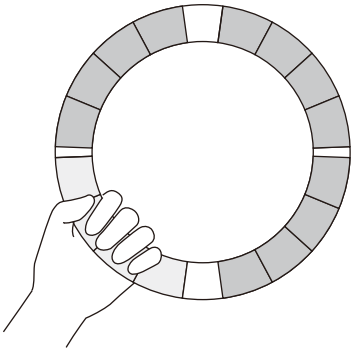
HINT

Since input procedures differ for each mode, see the explanation pages for each operation for details.

Ring Controller overview (continued)

Grip area

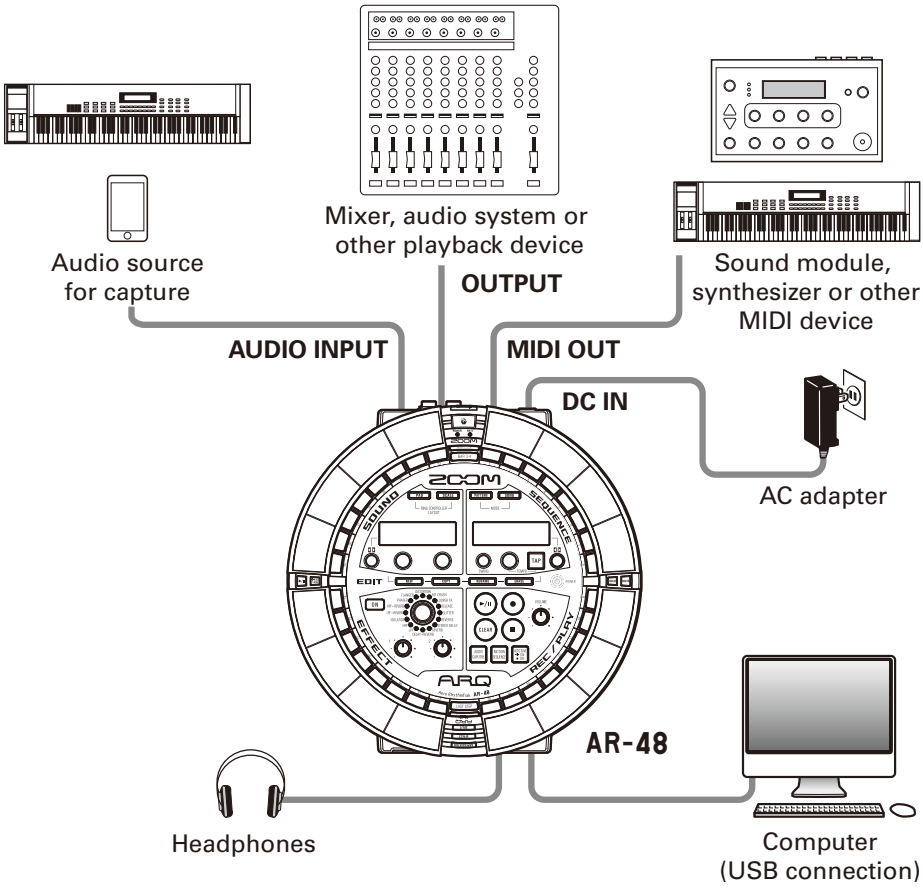
You can set a grip area that does not respond to touch in order to prevent pads from being pressed unintentionally when using the Ring Controller separately from the Base Station. You can set the grip area range as you like.
For details about how to set this, see "Grip area setting" (→ P. 98).



Accelerometer

Using the accelerometer built into the Ring Controller, you can control arpeggiator timing, instruments and effect parameters by tilting it.
See “Controlling parameters with the Ring Controller” for details (→ P. 82).

Connecting other devices



Switching modes

With the **AR-48**, you can create patterns and combine multiple patterns to create songs.

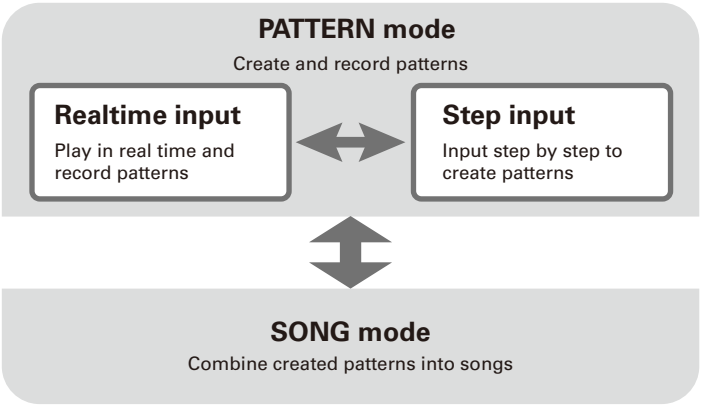
The **AR-48** has two main modes for creating music . By switching between these modes, you can alternate between creating patterns and creating songs.

Use PATTERN mode to create patterns.
The two ways to input patterns are real-time input and step input.

- Real-time input: Record a performance as a pattern by playing the pads in real-time.
- Step input: Record instrument sounds one step at a time to create patterns.

Use SONG mode to create songs.

- In SONG mode, create songs by playing and changing patterns in real-time and recording the results.



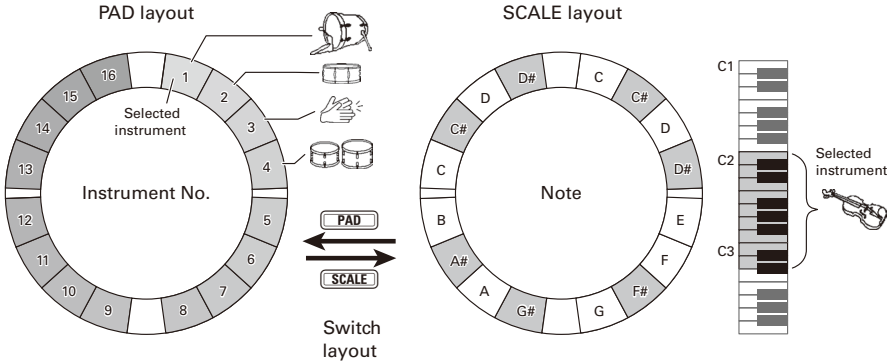
Instrument overview

The **AR-48** can use up to 16 sound sources in a single pattern. Each of these is called an instrument and produces sound from waveform data, such as a drum hit, from a WAV file loaded from an SD card, or from the built-in synthesizer. In addition to its sound (oscillator), each instrument has various settings. These include envelopes with attack and sustain times, filters, effects and pad colors.
Instruments are assigned numbers from 1 to 16. In PATTERN mode, you can edit the sound and sequence for the instrument selected by number.

Changing the Ring Controller layout

The **AR-48** Ring Controller has the two following layouts. Press [PAD] and [SCALE] to switch between them. Up to 16 sounds can be generated simultaneously in either layout.

PAD layout	Various instruments can be assigned to the 16 pads and used to perform. This layout is especially useful for playing drum sets, but other instruments can also be assigned in the same way. The note (pitch) that sounds when a pad is played in PAD layout is C4.
SCALE layout	Play one instrument with a musical scale, using the pads like a keyboard. The pads become like a keyboard in a musical scale order. The Ring Controller LEDs light with a pale color for white keyboard keys and a dark color for black keyboard keys. The scale can also be set to major or minor, for example. This is useful for playing instruments that produce scaled pitches, but it can also be used to play snares and other percussion instruments.

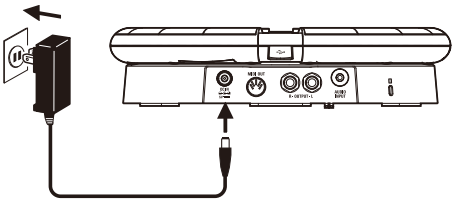


Preparations

Turning the power on and off

Base Station power

1. Connect the included AC adapter to the Base Station.



2. Press and hold POWER on the Base Station.

The Base Station software version appears on the screen.

3. Press and hold POWER to turn the power OFF.

HINT

When the Ring Controller is connected to the Base Station by USB, turning the Base Station power ON/OFF will also turn the Ring Controller ON/OFF.

NOTE

Use the AC adapter to power the **AR-48** even when it is connected to a computer or other device by USB.

Ring Controller power

■ When connected by USB

When the Ring Controller is connected to the Base Station or a computer by USB, it will automatically turn on and operate on USB bus power.

When operating on USB bus power, the Ring Controller POWER LED will light red, and ⏻ will be disabled.

■ When using a BTA-1 and connected by Bluetooth LE

If BTA-1 (sold separately) units have been installed in the Base Station and Ring Controller and they are connected by Bluetooth LE, the Ring Controller will be powered by AA batteries.

In this case, the Ring Controller BATT LED will light and ⏻ will be enabled.

HINT

- Press ⏻ to show the Ring Controller remaining battery charge on the SOUND display.
- Even if a BTA-1 is installed, it will operate on USB bus power if connected by a USB cable.

Turning the power on and off (continued)

■ Turning the Ring Controller on

1. Press [⏻] for at least 2 seconds.

This turns on the Ring Controller.

■ Turning the Ring Controller off

1. Press [⏻] for at least 2 seconds.

HINT

- When connected to the Base Station by Bluetooth LE, turning off the Ring Controller will also turn off the Base Station.
- When operating on AA batteries, the BATT LED will blink when the remaining battery charge is less than 10%.

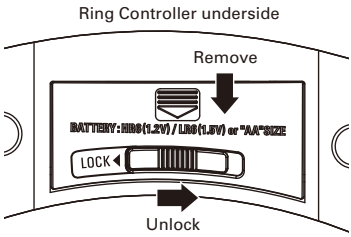
■ Changing the Ring Controller batteries

The Ring Controller can be powered by two AA batteries.

1. Turn the Ring Controller off.

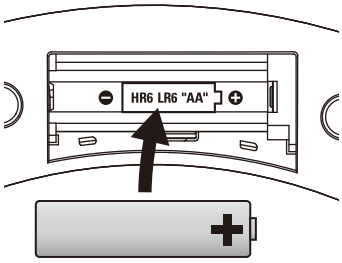
2. Unlock and remove the battery compartment covers.

The Ring Controller has battery compartment covers in two places.



3. Install the batteries.

Be sure to orient the batteries correctly.



4. Replace and lock the battery compartment covers.

NOTE

Always replace both batteries at the same time with new batteries.

Loading SD cards

■ Loading and removing SD cards

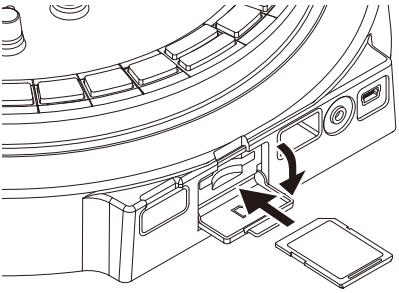
1. Turn the power off.

2. Open the SD card slot cover on the Base Station.

3. Insert the SD card into the slot.

To eject an SD card:

Push the card further into the slot and then pull it out.



NOTE

- If no SD card is loaded in the **AR-48**, captured data cannot be saved and patterns and songs that are created cannot be backed up.
- When inserting an SD card, be sure to insert the correct end with the top side up as shown.
- Before using SD cards that have just been purchased or that have been formatted on a computer, they must be formatted by the **AR-48**.
- SD card formatting instructions (→ P. 91)

Character input screen use

■ Changing characters

1. Turn to underline the character to change.

2. Press to confirm the character to change.

3. Turn to change the character, and press to confirm it.

HINT

Select "INS" to insert a space at that position and move that character and all those following one to the right. This cannot be used if there are already 16 characters
Select "DEL" to delete that character and move all those following one to the left.

4. To end editing, turn to select OK, and press .

HINT

- The following characters can be used.
  (space) ! # & ' ( ) + , - 0 1 2 3 4 5 6 7 8 9 ; = @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ ] ^ _ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { } ~
- Some characters might not be usable depending on the item being input.

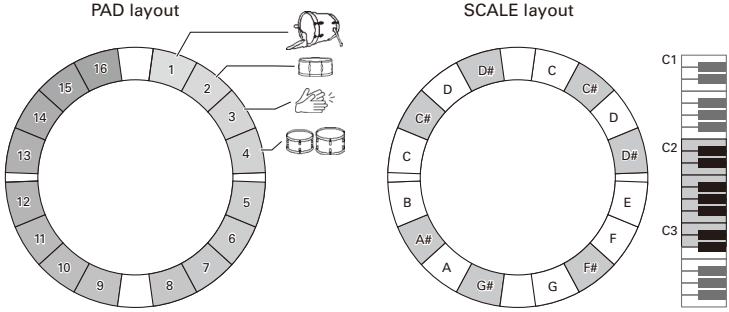
PATTERN mode

PATTERN mode overview

Use PATTERN mode to create patterns.
You can input patterns in two ways: real-time input and step input.

Real-time input

You can tap pads to perform as you like. You can also record performances in real-time to create patterns.
With this input method, each pad on the Ring Controller corresponds to a single instrument (PAD layout) or note (SCALE layout). (→ P. 19)



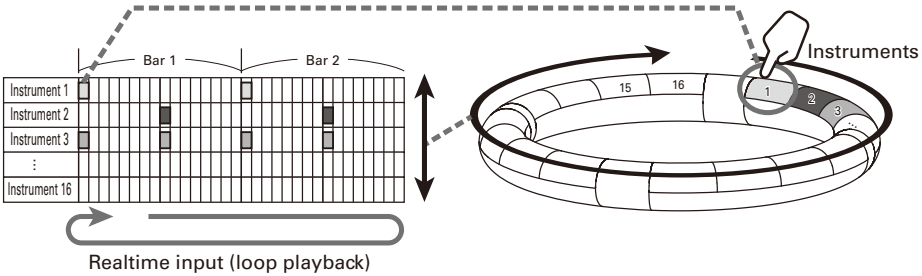
HINT

In PAD layout, the note (pitch) C4 is output when a pad is played.

PATTERN mode overview (continued)

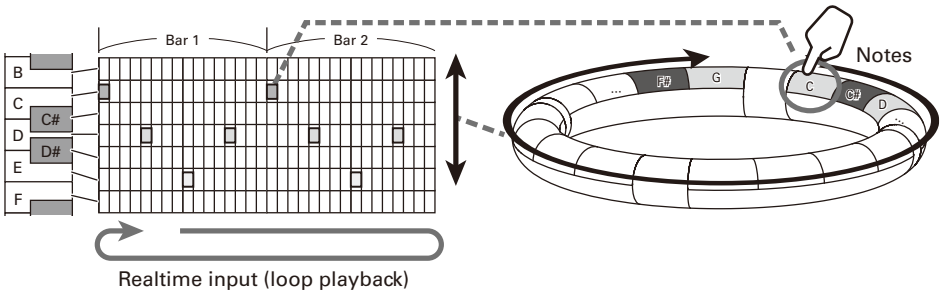
Creating patterns in PAD layout

After starting real-time input, tap pads for an instrument to input it.
The pattern will start loop playback, and you can overdub as many times as you like.



Creating patterns in SCALE layout

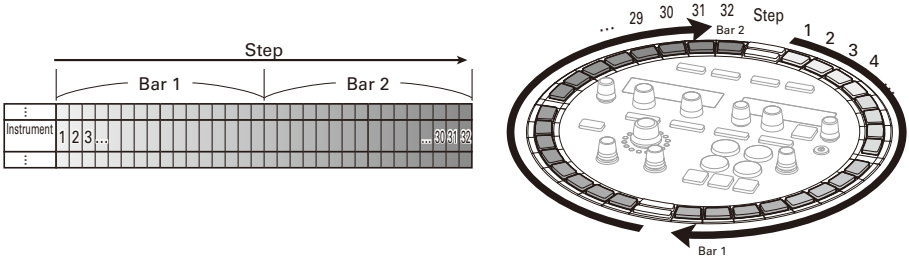
After selecting an instrument, start real-time input and tap pads to input their notes.
The pattern will start loop playback. When set to polyphonic, you can also input chords.
Scales can be used to input every instrument numbered 1–16.



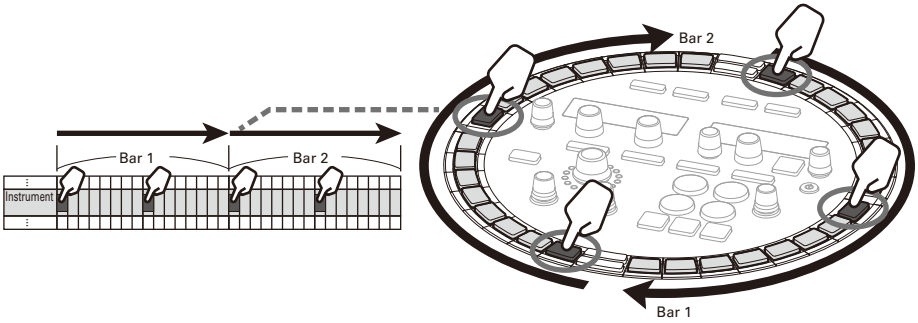
PATTERN mode overview (continued)

Step input

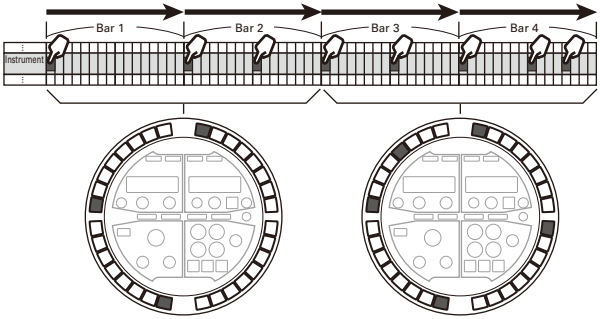
With STEP input, you can create patterns by inputting them one step at a time.
Using this input method, each ▭ step key on the Base Station corresponds to one step.



Since the Base Station is divided into 32 steps, you can input two musical bars at a time (when the smallest step is a 16th note).



If the pattern is longer than two bars, the Base Station display will switch every two bars (when the smallest step is a 16th note).



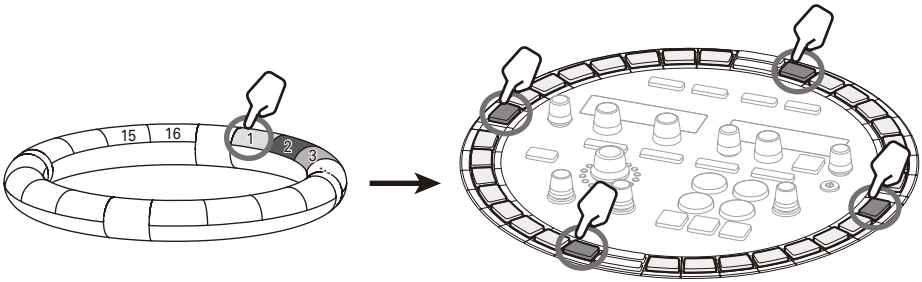
Press a Ring Controller pad, to show the sequence for that instrument on the ▭ step keys.

Press a ▭ to brightly light the pads on the Ring Controller for the instruments recorded at that step and play those instrument sounds.

Press a ▭ during playback to start the sequence from that position.

Creating patterns in PAD layout

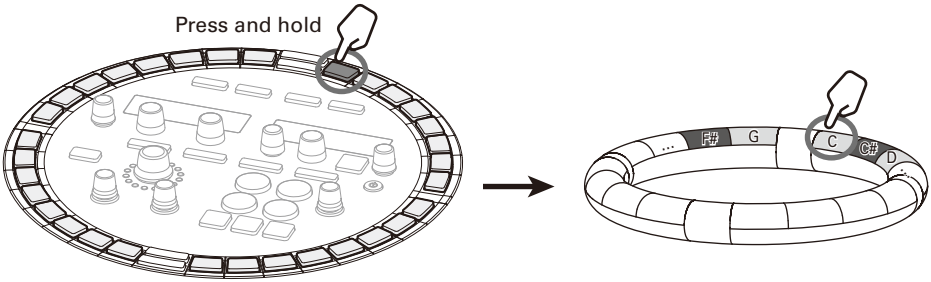
The Ring Controller pads correspond to different instruments. While pressing a pad that corresponds to an instrument, use the Base Station ▭ keys to input the sequence for that instrument.
This method allows you to quickly switch between and input multiple instruments.



While pressing a pad for an instrument...　　...set its steps

Creating patterns in SCALE layout

The pads on the Ring Controller correspond to notes in a scale. While pressing ▭ for the step to input, tap pads to input notes.
This method allows you to easily input cords.

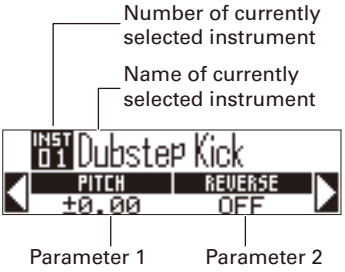


While pressing the key for the step to input...　　...set the pitch

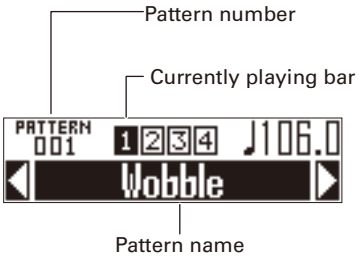
PATTERN mode overview (continued)

Screen overview

SOUND display



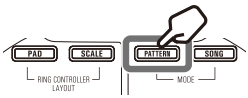
SEQUENCE display



Operation overview

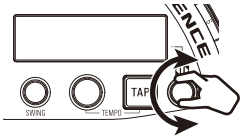
Enter PATTERN mode

Press [PATTERN] to enter PATTERN mode.



Select a pattern

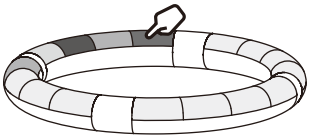
Turn in the SEQUENCE area to select the pattern number.



Confirm the instruments

Tap the pads on the Ring Controller if you want to listen to the sounds of the input instruments.

When a pad is tapped, its instrument becomes "selected" and it lights white. The name and parameters of the instrument are shown on the SOUND display.



Press [SCALE] to change the Ring Controller to SCALE layout.

HINT

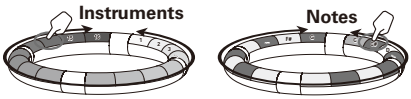
By pressing [PATTERN] as you tap a pad, you can select its instrument without playing its sound.

① Start real-time input

Press ● to enter standby, and press ▶/II to start real-time input.

In PAD layout, tap the pads of instruments to input them in time with the pattern that is playing back in a loop.

In SCALE layout, tap the pads of notes to input them in time with the pattern that is playing back in a loop.



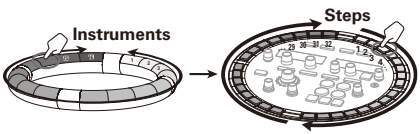
End real-time input

Press ■ to end real-time input.

② Start step input

While pressing a pad that corresponds to the instrument to input, press the ▭ keys to edit the sequence for that instrument.

In addition, you can tap pads while pressing a ▭ key to input instruments (in PAD layout) or notes (in SCALE layout) to input them at that step.



Operation overview (continued)

Preparations

■ Enter the mode

1. Press PATTERN.

■ Select a pattern

Select a pattern to use for input.

1. Turn the dial in the SEQUENCE area to select the pattern.

The name of the selected pattern appears on the SEQUENCE display.

HINT

- If a pattern is in the middle of playing back, the pattern will change after the current pattern plays back. The name of the pattern will blink until it changes.
- Press NEW to create a new empty pattern. (→ P. 47)

■ Select an instrument

Use the Ring Controller pads to select instruments.

1. CONTROLLER Tap the pad for the instrument to be input.

2. Press the dial in the SOUND area, and turn the dial to select the instrument sound parameter that you want to edit.

3. Use dial 1 and dial 2 to adjust sound parameters.

HINT

- Editing sounds (→ P. 48)
- One pattern can use up to 16 instruments.

■ Set the tempo

1. Turn TEMPO.

The tempo can be set from 40.0–250.0 BPM in 0.1BPM increments.

HINT

You can also press TAP repeatedly at the desired tempo to set it (in quarter notes).

■ Set the pattern length

You can change the pattern length. This can be set between 1 and 4 bars.

When making a pattern longer, you can also copy the sequence you have already input to the lengthened part.

When a pattern is shortened, the already input sequence will not be cleared.

1. While pressing FUNCTION, press [9] (LEN:1) – [12] (LEN:4).

The length in bars is set according to the [ ] pressed.

Press [9] (LEN:1) to set it to 1 bar.

Press [12] (LEN:4) to set it to 4 bars.

Real-time pattern input

Input a pattern

1. Press ●.

● lights, showing that recording standby has started.

2. Press ▶/II.

This starts the precount. After the precount completes, you can input instruments.

HINT

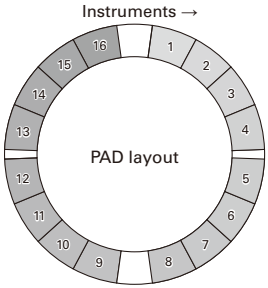
- Setting the precount (→ P.39)
- You can press ● during pattern playback to start input. In this case, there will be no precount.

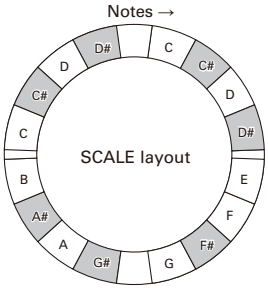
3. CONTROLLER

In PAD layout, tap the pad for the instrument you want to input.

In SCALE layout, tap the pad for the note you want to input.

Play along with the metronome.





HINT

- By setting quantization, input can automatically be corrected if it varies from the rhythm. (→ P.41)
- Changing the metronome settings (→ P. 39)
- The velocity that a pad is tapped is also recorded.

4. Press ■ to end input.

This ends recording.

HINT

Press ▶/II to pause recording.

Press ● to stop recording but continue playback. You can tap pads at this point to check the sounds without recording the performance.

Pattern step input

Pattern input

■ Select an instrument and input a pattern

1. Press BAR 1-2 or BAR 3-4 to select the bars to input.

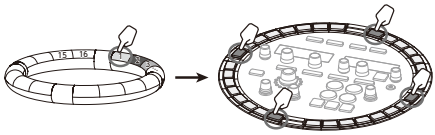
2. CONTROLLER Press the pad for the instrument to be input.

The SEQUENCE display will appear as shown below. The velocity that the pad is tapped will be recorded in the step.

3. To change the length of the sound input, turn in the SEQUENCE area.

4. While pressing the pad from step 2, press for the step to input.

The LED for the tapped key will light red.



5. To clear an input step, tap that again.

The step will be cleared and the LED will become unlit.

NOTE

This method can be used when playing back and when stopped.

■ Select steps and input a pattern

1. Press BAR 1-2 or BAR 3-4 to select the bars to input.

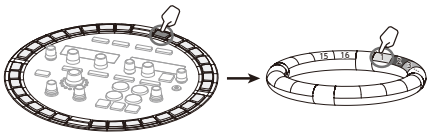
2. Press ▭ for the step to be input.

The pressed ▭ lights green, and the SEQUENCE display will appear as shown below.

3. To change the length of the sound input, turn ◯ in the SEQUENCE area.

4. While pressing ▭ from step 2, tap the pad to input.

The tapped pad will light brightly. The tapping velocity is also recorded in the step.



5. To clear an input instrument, tap the pad again.

The tapped pad will light dimly.

NOTE

This method can only be used when playback is stopped.

HINT

If QUANTIZE is set to 1/32 or 1/16T, the ring of ▭ keys will show one bar. In this case, press BAR 1-2 to switch between bars 1 and 2. In the same manner, press BAR 3-4 to switch between bars 3 and 4.

Playing back patterns

1. Press (►/II).

Playback starts and (►/II) lights.

2. Press (►/II) again to pause.

Playback pauses and (►/II) blinks.

3. Press (■) to stop playback.

(►/II) becomes unlit when playback stops.

HINT

- When a pattern has 3 or more bars, BAR 1-2 and BAR 3-4 will automatically switch during playback.
- Press a ▭ to start playback of the sequence from that step.

Clearing parts of patterns

1. Press (►/II).

The pattern plays back.

2. Press and hold (CLEAR).

(CLEAR) lights, and the SEQUENCE display will appear as shown below.

3. CONTROLLER While the part you want to clear is playing back:

In PAD layout, press and hold the pad for the instrument you want to clear.

In SCALE layout, press and hold the pad for the note you want to delete.

The sequence (performance data) will be deleted while the pad is being pressed.

4. CONTROLLER Stop pressing the pad when playback of the part you want to clear has stopped.

5. Release (CLEAR) to stop clearing.

Arpeggiator

This function can be used to make an instrument play automatically when triggered by a pad. Pressing multiple pads will trigger multiple instruments in order.
By pressing chord tones in SCALE layout, the notes in the chord can be played back one at a time.

■ Operation procedures

1. CONTROLLER Press ARPEGGIATOR.

The arpeggiator setting screen opens on the SEQUENCE display.

2. Use SWING to select ON or LATCH.

This enables the arpeggiator.

When ON is selected, sound will be output automatically while pads are being pressed.

When LATCH is selected, sounds will automatically start output when pads are pressed and stop when their pads are pressed again.

HINT

Automatic output in LATCH mode can also be stopped by pressing ■.

3. Turn TEMPO to change the arpeggiator style.

The STYLE can be set to REPEAT, SEQUENCE, UP, DOWN, UP&DOWN, or RANDOM.

Depending on the selected STYLE, performance types and other detailed settings can be made.

4. If the selected STYLE has parameters 2 and 3, turn ◀▶ in the SEQUENCE area.

Use SWING and TEMPO to make the settings shown on the next page.

Arpeggiator parameter list

Style	Effect	Parameter 2 (use SWING to set)	Parameter 3 (use TEMPO to set)
Repeat	Pressed pads will sound repeatedly. If multiple pads are pressed, they will all sound at the same time repeatedly.	Pattern This sets the timing of the arpeggiator. In addition to simply repeating the sounds at fixed intervals (1/32, 1/16Tri, 1/16, 1/8Tri, 1/8, 1/4, 1/2 or 1/1), you can also select preset sequences (Seq 1–32). (Arpeggiator parameter lists → P. 119)	Number of note In addition to the note of the pad, a number of intervals can also be set to sound. When set to 1, only the pad sounds. Higher numbers add fifths and octaves above. If the number is set to 2 or higher, you can select Up, Down, UpDown or Random as the order they make sound. (Arpeggiator parameter lists → P. 118)
Sequence	If the pressed pad has a recorded sequence, the instrument will play with that sequence. If the pad does not have a recorded sequence, it will sound just once without repeating. If multiple pads are pressed at the same time, they will sound at the same time repeatedly.		
Up	If multiple pads are pressed at the same time, they will sound in order from the lowest instrument number.	Pattern This sets the timing of the arpeggiator. In addition to simply repeating the sounds at fixed intervals (1/32, 1/16Tri, 1/16, 1/8Tri, 1/8, 1/4, 1/2 or 1/1), you can also select preset sequences (Seq 1–32). (Arpeggiator parameter lists → P.119)	Octave This can be set from 1 to 4. If Octave is set to 1, only the pads pressed will sound. If it is set to 2, notes one octave above will sound in addition to the pad notes. In the same manner, if sets to 3 or 4, notes 2–3 octaves above will also sound.
Down	If multiple pads are pressed at the same time, they will sound in order from the highest instrument number.		
Up & Down	If multiple pads are pressed at the same time, they will sound in order from the lowest to the highest instrument number. Then, they will sound from the highest to the lowest.		
Random	If multiple pads are pressed at the same time, they will sound in random order.		

Clearing patterns

Clearing entire sequences

1. Press ▪ to stop sequence playback.

2. Press CLEAR.

This opens the CLEAR SEQUENCE screen on the SEQUENCE display.

Press CLEAR again to cancel.

HINT

Press ERASE if you want to erase all pattern data, including instruments and pattern names, along with sequences. (→ P. 45)

3. Use the dial in the SEQUENCE area to select the sequence you want to clear, and press the dial.

This opens a confirmation screen. Use the dial in the SEQUENCE area to select YES, and press the dial to clear the sequence.

HINT

- Select "All Instruments" to clear the entire sequence.
- In SCALE layout, notes will be cleared. Select "All Notes" to clear the entire SCALE layout sequence.
- If an instrument is cleared in PAD layout, notes input in SCALE layout will also all be cleared.

Other settings

Metronome settings

Make settings related to the metronome that plays back as a guide during recording.

■ Turning METRONOME OUTPUT on/off

1. While pressing FUNCTION, press -17.

When the metronome is set to playback, -17 lights red.

■ Turning METRONOME headphone output on/off

1. While pressing FUNCTION, press -18.

When the metronome is set to playback, -18 lights red.

■ Changing the metronome volume

1. To lower the volume, while pressing FUNCTION, press -19.

To raise the volume, while pressing FUNCTION, press -20.

This can be set from 0 to 10.

■ Turning precount on/off

1. While pressing FUNCTION, press -21.

When the precount is on, use the dial in the SEQUENCE area to set the count to 1–8 or SPECIAL.

HINT

When Special is selected, the count will sound as follows.

Other settings (continued)

Setting the pad splits

When PAD layout is selected, you can change the number of instruments assigned to the Ring Controller.
By default, you can play 16 instruments with the Ring Controller. You can, however, also reduce the number of instruments to make it easier to play when performing with it in hand.

1. CONTROLLER Press SPLIT.

SPLIT lights, and the number of instruments assigned to the Ring Controller decreases.

While pressing SPLIT, use the dial in the SEQUENCE area to set the number of assigned instruments to 8, 4, 2 or 1.

2. To cancel this split setting, press SPLIT again.

When SPLIT is unlit, the number of instruments assigned to the Ring Controller in PAD layout reverts to 16.

HINT

When the split setting is enabled, the instruments will be assigned to pads in order starting with instrument number 1.
For example, when set to 4, instruments numbered 1–4 will be assigned to pads.

Making pattern settings

Pattern settings include Auto Save, Quantize, Bar length, and Swing, as well as Ring Controller Accelerometer parameters.
These settings are saved separately for each pattern.

Changing the last step position

You can change the last step in the STEP key cycle on the Base Station.
For example, you can create patterns in triple time by setting the cycle to 24 steps.

1. While pressing LAST STEP, press the ▭ that corresponds to the number you want to set as the final step.

This can be set between 1 and 32.

NOTE

- If the Last Step is less than 32, sequence data up to that step will not be cleared.
- If the QUANTIZE setting is 1/32 or 1/16T, one step will be 1/32nd of a bar. If the Step setting is 1/16 or 1/8T, one step will be 1/32nd of 2 bars. So, the timing change when setting the Last Step will be different.
- When inputting steps, instruments and notes can not be input after the last step.

Quantization setting

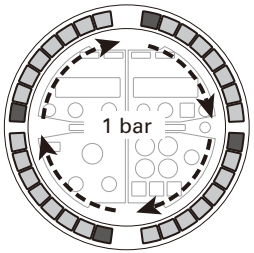
This sets the shortest note length that can be input into the sequence.
This sets timing correction during real-time input and when input can occur during step input.

1. Press FUNCTION

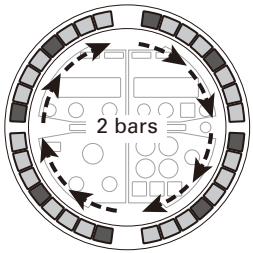
2. Press ▭-1 to ▭-8 to set the quantization value.

This can be set to OFF, 1/32, 1/16T (16th note triplet), 1/16, 1/8T (8th note triplet), 1/8, 1/4 or 1 BAR.

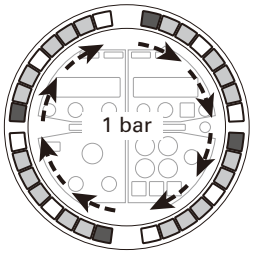
Making pattern settings (continued)



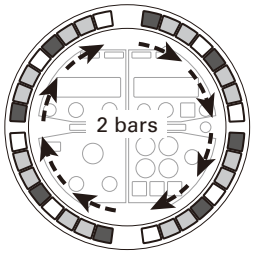
Quantize set to 1/32
8 steps = 1 beat
1 cycle = 1 bar



Quantize set to 1/16
4 steps = 1 beat
1 cycle = 2 bars



Quantize set to 1/16T
6 steps = 1 beat
1 cycle = 1 bar



Quantize set to 1/8T
3 steps = 1 beat
1 cycle = 2 bars

HINT

- When QUANTIZE is set to OFF, 1/8, 1/4 or 1 BAR, the Base Station keys function the same as when QUANTIZE is set to 1/16.
- When QUANTIZE is set to 1/16T or 1/8T, instruments and notes cannot be input at steps 4, 8, 12, 16, 20, 24, 28 or 32.

Swing setting

The amount of swing (rhythmic groove) can be set.

1. Turn SWING in the SEQUENCE area to set the amount of swing.

The swing range is ±50%.

Soloing

You can solo the playback of just the selected instrument.

1. CONTROLLER While pressing SOLO,

tap the pad for the instrument to be soloed.

Only the tapped pad lights, and other instruments stop making sounds.

SOLO stays lit while the solo function is activated.

Muting

You can mute just the selected instrument.

1. CONTROLLER While pressing MUTE,

tap the pad for the instrument to be muted.

The tapped pad becomes unlit and stops making sound.

MUTE stays lit while the mute function is activated.

NOTE

The solo and mute functions can only be used in PATTERN mode with PAD layout.

Pattern management

Copying and swapping instruments

1. CONTROLLER Tap the pad for the instrument to be copied or swapped.

2. Press COPY.

The destination for copying/swapping the instrument appears on the SOUND display.

3. Use the dial in the SOUND area to select the copy/swap destination instrument, and press the dial.

This opens copy/swap destination selection on the SOUND display.

HINT

You can also tap a pad to select the copy destination.

4. Use the dial in the SOUND area to select COPY or SWAP, and press the dial.

Press COPY to cancel and return to the previous screen.

Copying/swapping patterns

1. Turn the dial in the SEQUENCE area to select the pattern to copy/swap.

2. Press COPY.

The destination for copying/swapping the pattern appears on the SEQUENCE display.

3. Use the dial in the SEQUENCE area to select the copy/swap destination pattern, and press the dial.

This opens copy/swap destination selection on the SEQUENCE display.

4. Use the dial in the SEQUENCE area to select COPY or SWAP, and press the dial.

Press COPY to cancel and return to the Home Screen.

Erasing instruments

1. CONTROLLER Tap the pad for the instrument to erase.

2. Press ERASE.

The instrument to erase appears on the SOUND display.

HINT

You can tap a different pad to select a different instrument to erase.

3. Use the dial in the SOUND area to select Yes, and press the dial.

This erases the selection, turning the oscillator off and restoring the other parameters to their defaults.

Erasing patterns

1. Turn the dial in the SEQUENCE area to select the pattern to erase.

2. Press ERASE.

The pattern to erase appears on the SEQUENCE display.

3. Use the dial in the SEQUENCE area to select Yes, and press the dial.

This erases the pattern, including sequences and pattern names.

Pattern management (continued)

Changing instrument names

1. CONTROLLER Tap the pad for the instrument with the name to change.

2. Press RENAME.

The instrument with the name to change appears on the SOUND display.

3. Use the dial in the SOUND area to select the character to change, and press the dial.

Press RENAME to cancel editing and return to the Home Screen.

4. Use the dial in the SOUND area to change the character, and press the dial.

5. Use the dial in the SOUND area to select OK, and press the dial to confirm the name change.

Changing pattern names

1. Turn the dial in the SEQUENCE area to select the pattern with the name to change.

2. Press RENAME.

The pattern with the name to change appears on the SEQUENCE display.

3. Use the dial in the SEQUENCE area to select the character to change, and press the dial.

Press RENAME to cancel editing and return to the Home Screen.

4. Use the dial in the SEQUENCE area to change the character, and press the dial.

5. Use the dial in the SEQUENCE area to select OK, and press the dial to confirm the name change.

Creating new patterns

1. Press NEW.

The name of a new pattern appears on the SEQUENCE display and can be edited.

2. To change the name, use the dial in the SEQUENCE area to select the character to change, and press the dial.

Press NEW to cancel and return to the Home Screen.

3. Use the dial in the SEQUENCE area to change the character, and press the dial.

4. Use the dial in the SEQUENCE area to select OK, and press the dial.

A new pattern will be created.

NOTE

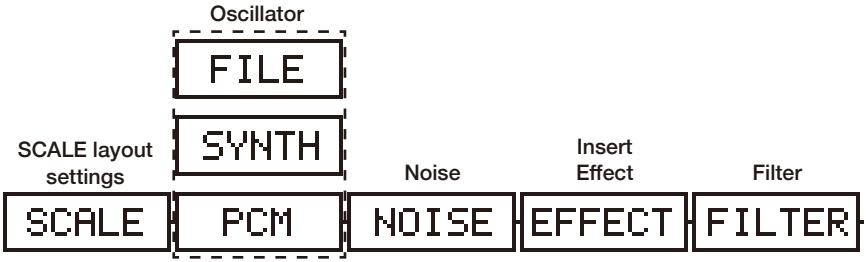
A new pattern cannot be created if no empty patterns are available.

Editing sounds

Sound editing overview

Use , and in the SOUND area to edit instruments and change their sounds.

The instruments are made of the following blocks, which can each be specifically set.



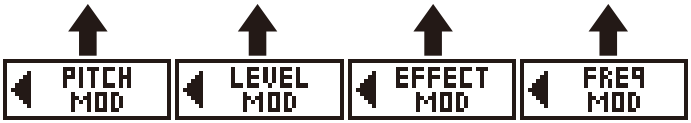
SCALE layout settings
Set the scale and how sound is made when in SCALE layout.

Oscillator
This sets the basic instrument sound. You can select from built-in sound sources, captured recordings and WAV files loaded from the SD card. For information about these sound parameters, see the Oscillator list (→ P. 106).

Noise
Noise can be added to the sound.

Insert Effect
Sounds can be altered with effects.

Filter
Sounds can be altered with filters.



Oscillator pitch modulation
The oscillator pitch can be altered with an envelope or LFO.

Noise level modulation
The noise level can be altered with an envelope or LFO.

Effect parameter modulation
Insert effect parameters can be altered with an envelope or LFO. This cannot be used with some effects.

Filter frequency modulation
The filter frequency can be altered with an envelope or LFO.

Sound editing overview (continued)

Volume envelope

This sets how quickly sound starts when a pad is tapped, the sound level while it is being pressed, and how quickly it becomes silent after the pad is released.

Output mixer

This sets the panning (stereo position) and level.

Effect send amount

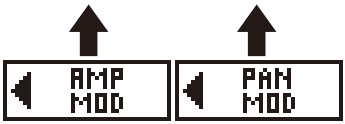
These set the amounts sent to the master effect.

LED settings

This sets the pad color and lighting style.

MIDI settings

Use this to set the MIDI channel used for playing instrument sounds by USB MIDI and for outputting playing sequences from the MIDI OUT.



Volume modulation

The volume can be altered with an envelope or LFO.

Pan modulation

The panning can be altered with an envelope or LFO.

NOTE

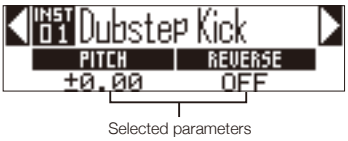
Modulation blocks will not be shown if their modulation destinations are off.

Editing instruments

Common operations

1. CONTROLLER Tap the pad for the instrument to be edited.

The selected parameters are shown on the SOUND display.



2. Press in the SOUND area, and turn to select parameters to edit.

Use 1 and 2 to adjust the parameters shown.

HINT

See "Instrument parameter lists" in the appendix for details about each block. (→ P. 110)

Making SCALE layout settings

You can set, for example, the octave, scale and whether only a single sound (monophonic) or multiple sounds (polyphonic) can be output when the Ring Controller is in SCALE layout.

■ Octave setting (Octave)

You can change the note range that can be played on the Ring Controller. The octave shown will start on pad 1.

■ Changing the scale (Scale)

The layout of notes on the Ring Controller changes according to the scale set.
This allows you to assign only notes from the desired scale to the Ring Controller.
Select from the following scales.
CHROMATC (Chromatic), MAJOR (Ionian), MINOR 1 (Harmonic Minor), MINOR 2 (Melodic Minor), MINOR 3 (Dorian), PHRYGIAN, LYDIAN, MIXOLYDN (Mixolydian), AEOLIAN, LOCRIAN, S-LOCRN (Super Locrian), MajBLUES (Major Blues), MinBLUES (Minor Blues), DIMINISH (Diminished), COM DIM, MajPENTA (Major Pentatonic), MinPENTA (Minor Pentatonic), RAGA 1 (Bhairav), RAGA 2, RAGA 3, ARABIC, SPANISH, GYPSY, MinGYPSY (Minor Gypsy), EGYPTIAN, HAWAIIAN, PELOG, HIROJOSI, IN-SEN, IWATO, KUMOI, MIYAKO, RYUKYU, CHINESE, WHOLE (Whole tone), WHOLE1/2 (Whole half), 5th

■ Polyphony setting (Mono/Poly)

This sets whether only a single sound (monophonic) or multiple sounds (polyphonic) are output when multiple pads are pressed at the same time.
Select Mono or Poly.

■ Setting the glide (Glide)

When a different note is triggered, the pitch can change instantly or gradually over time according to this setting.
This can be set from 0 to 100.
The higher this value is set, the more gradual the change will be.

HINT

Glide is only enabled when the polyphony mode is Mono.

■ Changing the key (Key)

You can change the key when the scale is set to anything other than Chromatic.
You can select from C, C#, D, D#, E, F, F#, G, G#, A, A# and B.

NOTE

The Ring Controller layout also changes according to the key setting.

Oscillator

This sets the basic instrument sound.

- Press in the SOUND area, and use to move to the oscillator block.

- Press .
- Use in the SOUND area to select the oscillator category.
  Use in the SOUND area to select the oscillator.

■ Selecting captured audio and WAV files

WAV files saved in the “Capture” subfolder in the "AR-48" folder on the SD card can be added as oscillators.

- Select FILE as the oscillator category.
- Use in the SOUND area to select the audio file on the SD card, and press .

NOTE

When an audio file is selected as an oscillator, the filter and other parameters will be reset to default values.

Editing instruments (continued)

HINT

- Files that meet the following conditions can be used as oscillators.
  – WAV format files that have been recorded as 16/24-bit PCM audio with 44.1kHz sampling frequency
  – Playback time is 6 minutes (12 minutes if mono) or less
  File name uses only English letters and numbers
- The total length of audio files that can be added as instruments on the **AR-48** is 6 minutes (or 12 minutes if mono). For example, if a one-minute stereo audio file has been added, the total length of additional audio files that can be added as instruments is 5 minutes (or 10 minutes if mono).
- If an audio file is used in multiple patterns, this will not change the remaining time for assigning additional files.

■ Playing audio files

The playback method for audio files can be set.

One Shot: The audio file plays once and stops.

Toggle: Tapping the pad alternately starts and stops playback of the audio file.

Gate: The audio file plays back in a loop while the pad is being pressed. Playback stops when it is released.

Noise

Noise can be added to the sound.

■ Type of noise (Type)

You can change the type of noise.
Select Off, White or Pink.

■ Noise level (Level)

You can change the noise volume.
This can be set from 0 to 100.

Insert effects

Sounds can be altered with effects.

■ Compressor (COMP)

The compressor reduces volume variation.

■ Pumper (PUMPER)

This effect adds a pulsing feeling to the sound.

■ Sub Bass (SUB BASS)

This emphasizes low frequencies.

■ Talk Filter (TALK)

This effect creates a sound like a human voice.

■ 3Band Equalizer (3BAND EQ)

This is a three-band equalizer.

■ Ring Modulator (RING MOD)

This effect creates a metallic sound.

■ Flanger (FLANGER)

This effect adds movement and a strong swelling to the sound.

■ Phaser (PHASER)

This effect adds a bubbly undulation to the sound.

■ Chorus (CHORUS)

This mixes the original sound with the effect sound, which has fluctuating pitch, to add movement and thickness.

■ Distortion (DIST)

This effect distorts the sound.

■ Lo-Fi (LO-FI)

This effect intentionally lowers the fidelity of the sound.

HINT

- See "Instrument parameter lists" in the appendix for details about each insert effect. (→ P. 112)

Editing instruments (continued)

Filter

The frequency and other parameters can be set for the filter.

■ Type (TYPE)

You can change the filter type.

Peaking Filter (Peaking)
This filter emphasizes a specific range.

High-pass filter (HPF)
This filter cuts low frequencies and allows high frequencies to pass through.

Low-pass filter (LPF)
This filter cuts high frequencies and allows low frequencies to pass through.

Band-pass filter (BPF)
This filter only allows a specific range to pass through.

■ Frequency (FREQ)

This changes the filter frequency.

■ Resonance (RESO)

This changes the amount of resonance.

■ Level (LEVEL)

This sets the level after passing through the filter.

Volume envelope (ADSR)

This sets how quickly the sound starts and how quickly it becomes silent, for example.

■ Attack (Attack)

This changes how fast the sound starts.
This can be set from 0 to 100.

■ Decay (Decay)

This changes how long it takes from the attack to reach the sustain level.
This can be set from 0 to 100.

■ Sustain (Sustain)

This changes the sound level while the pad is being pressed.
This can be set from 0 to 100.

■ Release (Release)

This sets how long it takes for the sound to stop after the pad is released.
This can be set from 0 to 100.

Output mixer (OUTPUT)

This sets the panning (stereo position) and level.

■ Panning (Pan)

The left and right output level balance can be changed.
This can be set from R100 to L100.

■ Level (Level)

The output volume can be changed.
This can be set from 0 to 100.

Effect send amount

The amount of sound sent to the master effect can be changed.

■ Send amount (Amount)

The volume sent to the effect can be changed.
This can be set from 0 to 100.
When set to 0, the master effect will not be used.

Editing instruments (continued)

LED settings

You can set the color used by the Ring Controller LEDs, as well as how pads light when a pad is tapped.

■ Color (Color)

You can select from 32 colors. When set to OFF, LEDs will not light.

■ Animation (Animation)

You can select the animation used when pads are played.
The animation can be set to Off, Moire, Firework, Cross, Circulation or Rainbow.

MIDI settings

Use this to set the MIDI channel for playing instrument sounds by USB MIDI and for outputting playing sequences from the MIDI OUT.

■ Channel (Channel)

If the unit receives a MIDI message on this channel by USB, the instrument assigned to the pad will play at the pitch that corresponds to the note number.

In addition, if a sequence is recorded for the selected pad, note numbers will be output on the set MIDI channel during pattern playback.
This can be set to OFF or from 1 to 16.
The **AR-48** can output sounds for note numbers 0–108.

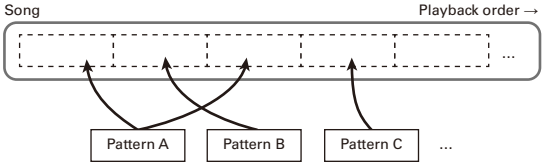
NOTE

The **AR-48** cannot record MIDI messages received by USB as a sequence.

SONG mode

SONG mode overview

In SONG mode, you can combine multiple patterns that you have created into one complete song.

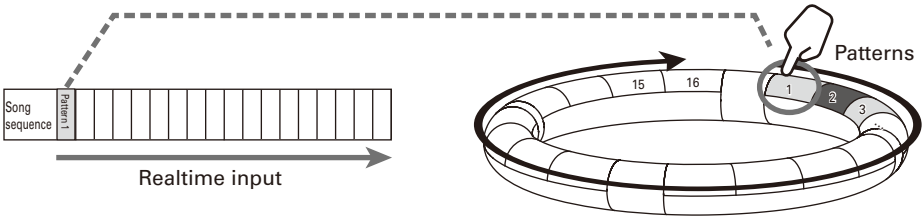


You can create songs in two ways: real-time input and step input.

■ Real-time input

The pads on the Ring Controller are assigned 16 patterns. You can change the patterns assigned to each pad.
Tapping a pad starts playback of its assigned pattern.

After completing preparation, start real-time input and tap pads with assigned patterns to add them to the song.

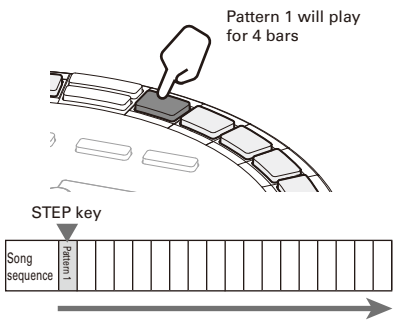


SONG mode overview (continued)

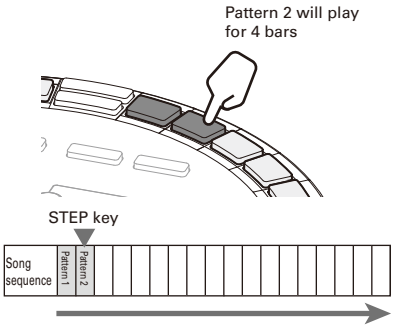
■ Step input

With step input, you can set which patterns to play and how long to play them in order.
Use Base Station ▭ to add patterns for playback in order starting with ▭-1.

Add the first pattern for playback



Add the next pattern for playback



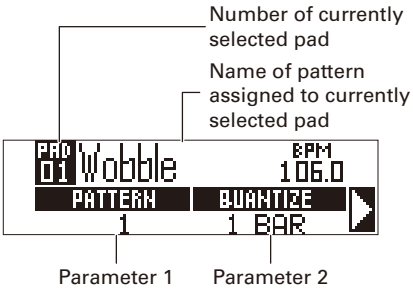
HINT

During playback of a completed song, you can use the Ring Controller to perform with the instruments assigned to the playing patterns. You can also switch between PAD and SCALE layouts at this time.

Screen overview

■ When song playback stopped

SOUND display



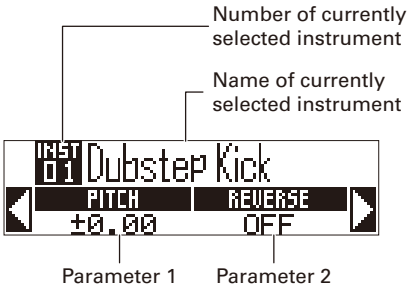
SEQUENCE display

HINT

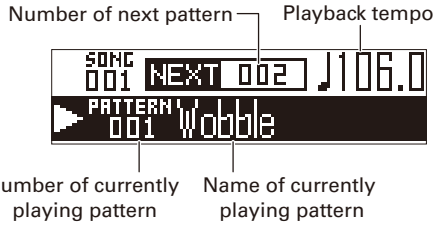
Tempo appears on the SEQUENCE display only when SONG TEMPO is ON. (→ P. 65)

■ When song playing back

SOUND display



SEQUENCE display



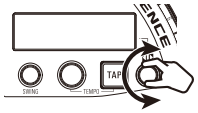
Operation overview

Enter SONG mode

Press SONG to enter SONG mode.

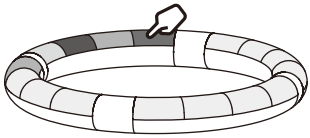
Select a song

Turn the dial in the SEQUENCE area to select a song.



Select a pattern to play back

Tap the pad on the Ring Controller for the pattern to play back, and check it.

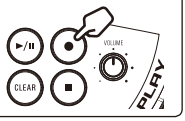


HINT

If the pattern you want to play back has not been assigned to a pad, use the dial in the SOUND area to select the pattern to assign to the pad (→ P. 65).

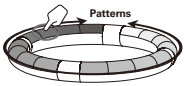
① Start real-time input

Press ● to start real-time input.



Creating songs

Tap pads for patterns to play them and add them to the song in real time.



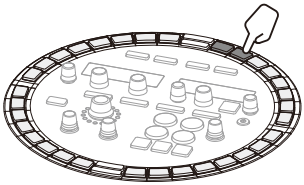
End real-time input

Press ■ to end real-time input.

② Start step input

Press the blinking ▭ to add a new pattern at that step.

Press a lit ▭ to see information about the pattern at that position on the SEQUENCE display. You can edit pattern information, insert a new pattern, or delete this step, for example.



Creating songs

Preparations

■ Enter the mode

1. Press SONG.

■ Selecting songs

Select a song to input.

1. Turn the dial in the SEQUENCE area to select a song.

Press NEW to create a new song immediately.

Assigning patterns to pads

1. CONTROLLER Tap a pad to select it for pattern assignment.

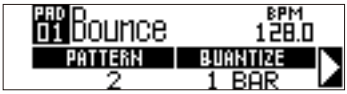
The pattern assigned to the selected pad is shown on the display and starts playing back.

HINT

Tap a pad while pressing SONG to select a pad without playing the pattern.

2. In the SOUND area, press the dial, turn the dial to open the pattern selection screen, and turn dial 1 to change the pattern.

This assigns that pattern to the pad.



Real-time input

1. Press ●.

This starts the count.

2. CONTROLLER Tap a pad to select a pattern to play.

The tapped pad will light according to the pattern animation type setting (→ P. 66).

HINT

- If no animation has been set, the tapped pad will blink.
- If even a single animation has been set, the tapped pad will show the animation, and it will light with the pattern color.

3. CONTROLLER Play other pads to switch patterns.

HINT

- The timing of pattern changes depends on the quantize setting (→ P. 66).
- A maximum of 64 pattern changes can be recorded. Pattern changes over this amount will not be recorded.

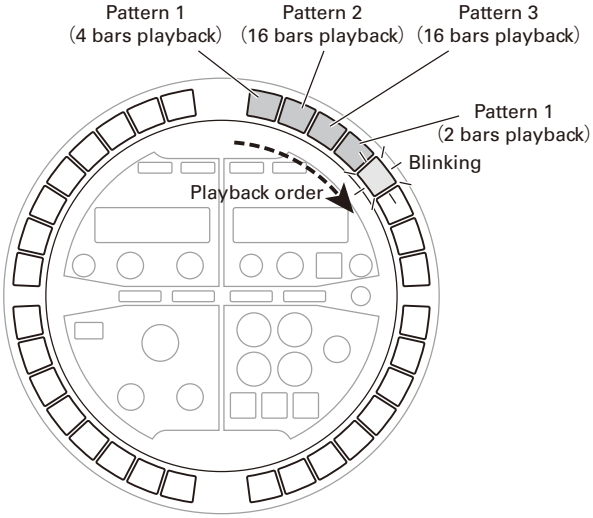
4. Press ■ when done playing all patterns.

This ends song creation.

Creating songs (continued)

Step input

In SONG mode, the timing of pattern changes is handled in step intervals.
For example, if patterns 1–4 are added in order, the song sequence will have four steps, and the patterns will be assigned to ▭-1, 2, 3 and 4.

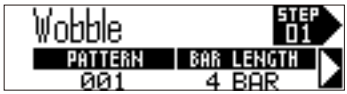


Press the blinking ▭ to add a new pattern at that step.
Press a lit ▭ to see information about the pattern at that position on the SEQUENCE display. You can edit pattern information, insert a new pattern, or delete this step, for example.

1. Press the ▭ that is blinking red.

The SOUND and SEQUENCE displays will appear as follows.

SOUND display



SEQUENCE display

2. While pressing ▭, use ◯, ◯1 and ◯2 in the SOUND area to set the pattern number and playback length to use.

This screen has two pages.

Page 1 ◯1: Select the pattern number

Page 1 ◯2: Set the playback length in bars

Page 2 (1): Set the playback length in beats (BEAT)

Page 2 (2): Set the playback length in ticks (smallest sequence time unit, equal to 1/96 beat)

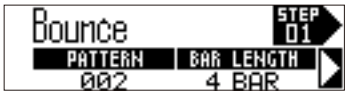
3. To add a pattern, press (dial) in the SEQUENCE area while pressing [ ].

The pattern will be added with the playback length set in the SOUND area.

4. Press a [ ] that is lit red to edit an already added pattern.

The SOUND and SEQUENCE displays will appear as follows.

SOUND display



SEQUENCE display

5. While pressing [ ], use (dial), (1) and (2) in the SOUND area to set the pattern number and playback length to use.

This screen has two pages.

Page 1 (1): Select the pattern number

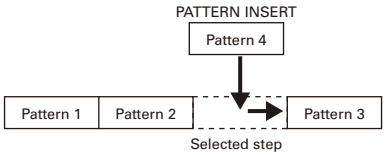
Page 1 (2): Set the playback length in bars

Page 2 (1): Set the playback length in beats (BEAT)

Page 2 (2): Set the playback length in ticks (smallest sequence time unit, equal to 1/96 beat)

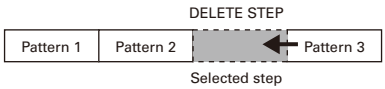
6. To insert a new pattern, while pressing [ ], use (dial) in the SEQUENCE area to select PATTERN INSERT, and press (dial).

The pattern at the current step will be moved to the following step, and a new pattern will be inserted with the playback length set in the SOUND area.



7. To delete the selected step, while pressing [ ], use (dial) in the SEQUENCE area to select DELETE STEP, and press (dial).

The pattern added at the current step will be deleted, and patterns after it will be moved forward.



Creating songs (continued)

Playing back songs

1. Press (▶/II).

This starts song playback.

The ▭ that corresponds to the playing pattern will light green.

2. Press (▶/II) to pause.

(▶/II) will blink.

Press (▶/II) again to resume playback.

3. Press (■) to stop playback.

Playback stops, and the playback position returns to the beginning.

HINT

- Sound parameters changed during playback are not recorded to patterns.
- The ▭ that have patterns assigned will light red. During song playback, pressing a red ▭ will cause the song to play back from that position.
- The song will stop after patterns have played to the end.
- As in PATTERN mode, 16 instruments are assigned to the pads. During song playback, you can use the Ring Controller to perform with the instruments assigned to the playing patterns. You can also switch between PAD and SCALE layouts.

Clearing song sequences

1. Press (■) to stop sequence playback.

2. Press (CLEAR).

A confirmation message appears on the display and (CLEAR) lights.

3. Use (◀▶) in the SEQUENCE area to select Yes, and press (◀▶).

This clears the song sequence that has the order for pattern playback.

Song settings

Setting tempo synchronization

Set whether each pattern uses its own tempo setting or all patterns use the same tempo when playing a song.

1. Press FUNCTION

2. Press -13.

LED lit (SONG TEMPO ON): Patterns in the song will play back at the same tempo. The current tempo will be shown in the SEQUENCE area. You can use TAP and TEMPO to set the tempo.

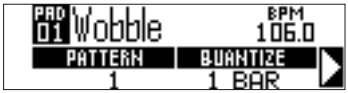
LED unlit (SONG TEMPO OFF): Patterns in the song will play back at their own tempos. With this setting, the tempo cannot be set in SONG mode.

Making settings for patterns assigned to pads

■ Assigning patterns to pads

1. CONTROLLER Tap a pad.

2. Press in the SOUND area, and turn to open the pattern number selection screen.



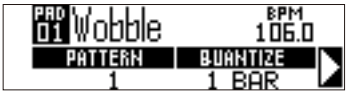
3. Turn in the SOUND area to change the pattern.

Song settings (continued)

■ Setting the pattern switching timing

1. CONTROLLER Tap a pad.

2. Press in the SOUND area, and turn to open the quantize selection screen.



3. Turn 2 in the SOUND area to change the timing.

Select OFF, 1/32, 1/16T, 1/16, 1/8T, 1/8, 1/4, 1/2, 1 BAR or 2 BAR.

If OFF is selected, the pattern will switch as soon as the pad is tapped.

If any other value is selected, the pattern will switch according to that timing.

■ Setting pattern pad colors

1. CONTROLLER Tap a pad.

2. Press in the SOUND area, and turn to open the LED COLOR selection screen.

3. Turn 1 in the SOUND area to change the pad color.

■ Setting the pattern LED animation type

1. CONTROLLER Tap a pad.

2. Press in the SOUND area, and turn to open the LED ANIMATION parameter selection screen.

3. Turn 2 in the SOUND area to change the LED animation.

Managing songs

Copying/swapping patterns assigned to pads

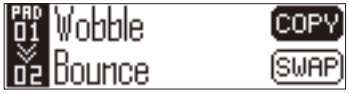
1. CONTROLLER Tap the pad with the pattern to be copied/swapped.

2. Press COPY.

The destination for copying/swapping the pattern appears on the SOUND display.

3. Use the dial in the SOUND area to select the copy/swap destination pad, and press the dial.

This opens copy/swap destination selection on the SOUND display.



4. Use the dial in the SOUND area to select COPY or SWAP, and press the dial.

Press COPY to cancel and return to the previous screen.

HINT

You can also tap a pad to select the copy destination.

Copying/swapping song sequences

1. Turn the dial in the SEQUENCE area to select the song to copy/swap.

2. Press COPY.

The destination for copying/swapping the song appears on the SEQUENCE display.

3. Use the dial in the SEQUENCE area to select the copy/swap destination song, and press the dial.

This opens copy/swap destination selection on the SEQUENCE display.

4. Use the dial in the SEQUENCE area to select COPY or SWAP, and press the dial.

Press COPY to cancel and return to the Home Screen.

Managing songs (continued)

Erasing songs

1. Turn ◯ in the SEQUENCE area to select the song to erase.

2. Press ERASE.

The song to erase appears on the SEQUENCE display.

3. Use ◯ in the SEQUENCE area to select Yes, and press ◯.

Press ERASE to cancel and return to the Home Screen.

Changing song names

1. Turn ◯ in the SEQUENCE area to select the name to change.

2. Press RENAME.

The song with the name to change appears on the SEQUENCE display.

3. Use ◯ in the SEQUENCE area to select the character to change, and press ◯.

Press RENAME to cancel and return to the Home Screen.

4. Use ◯ in the SEQUENCE area to change the character, and press ◯.

5. Use ◯ in the SEQUENCE area to select OK, and press ◯ to confirm the name change.

Creating new songs

1. Press NEW.

The name of a new song appears on the SEQUENCE display and can be edited.

2. To change the name, use the dial in the SEQUENCE area to select the character to change, and press the dial.

3. Use the dial in the SEQUENCE area to change the character, and press the dial.

Press NEW to cancel and return to the Home Screen.

4. Use the dial in the SEQUENCE area to select OK, and press the dial.

A new song will be created with that name.

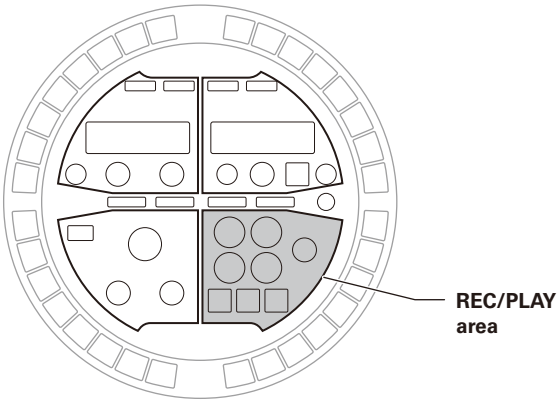
NOTE

A new song cannot be created if no empty songs are available.

REC/PLAY area

REC/PLAY area overview

Use the REC/PLAY area to control sequences, including playback and recording.
The following are the main operations that can be made here.



Clearing

Use CLEAR to clear sequence data, for example.

HINT

The function of this button depends on the selected mode and the statuses of other buttons. For details, see the explanation pages for each operation.

Motion sequences

You can adjust the parameters of instruments and effects while playing back a created pattern and record these changes in real time.
These recorded changes will be saved as a part of the pattern and re-created during playback.
See "Motion Sequences" for detailed information about this function (→ P. 72).

Capturing audio

The **AR-48** can capture (record) as audio data the sound of patterns and songs it plays back as well as sounds input through the AUDIO INPUT jack.

Captured audio data can be used as an instrument.

For details about this function, see "Capturing audio" (→ P. 74).

Automatic saving

Use AUTO SAVE ON OFF to change the automatic saving setting. When AUTO SAVE is ON, changes to patterns are automatically saved.

Turning this function ON can be useful when creating patterns.

On the other hand, turn this OFF when performing with already completed patterns so that changes are not recorded.

For details about this function, see "Automatic saving" (→ P. 78).

Volume

Use VOLUME to adjust the OUTPUT and headphone volume.

NOTE

The OUTPUT and headphone volumes are both adjusted together.

Motion sequences

You can adjust the parameters of instruments and effects and record these changes in sequences.
You can record changes in real time while a pattern is playing as well as record parameter setting values step-by-step.
These recorded changes will be saved as a part of the pattern and re-created during playback.

NOTE

Motion sequences cannot be recorded in SONG mode.

Recording motion sequences in real time

1. Select the pattern for which you want to record a motion sequence.

2. Press [MOTION SEQUENCE].
[MOTION SEQUENCE] blinks, showing that standby has started.

3. Press [▶/II].
[▶/II] lights and pattern playback starts.

4. Adjust the parameters of instruments and effects.
These changes will be recorded as a motion sequence.
· Editing sounds (→ P. 48)

HINT

- Recording starts from the moment that a parameter is operated.
- If a parameter that has already been recorded is operated again, the new data will overwrite the old.

5. Press [MOTION SEQUENCE] or [■] when done recording.

Recording motion sequences step by step

1. Stop or pause pattern playback.

2. Press MOTION SEQUENCE.

3. Press the ▭ for the position where you will change parameters.

4. While pressing ▭, adjust the parameters of instruments and effects.

These operations are recorded at the corresponding ▭ position.

Clearing motion sequences

1. Press ■ to stop pattern playback.

2. Press CLEAR.

The sequence clearing screen appears on the SEQUENCE display.

Press CLEAR again to cancel this operation.

3. Use the dial in the SEQUENCE area to select the sequence you want to clear, and press the dial.

This opens a confirmation screen.

4. Use the dial in the SEQUENCE area to select YES, and press the dial.

This clears the sequence.

Capturing audio

Capturing overview

The **AR-48** can capture (record) audio it is playing back and audio input through its AUDIO INPUT jack in every mode.
Captured audio can be used for instruments.

NOTE

- Captured audio data is saved on the SD card. Be aware that you will not be able to use the captured recordings if you remove the SD card or replace it with a different SD card.
- The maximum length of captured recordings and audio files that can be added as instruments on the **AR-48** is 6 minutes (or 12 minutes if mono).
  For example, when a one-minute stereo audio file has been assigned, the remaining length of audio that can be assigned is 5 minutes if stereo or 10 minutes if mono.
- If a captured recording or an audio file is used in multiple patterns, this will not change the remaining time for assigning files.

Setting the auto stop function

You can set capturing to automatically stop a set time after starting.

1. While pressing FUNCTION, press -14.

2. Turn in the SOUND area to change the AUTO STOP value.

Select Off or 1–32 quarter notes.

SOUND display

Switching between stereo and mono

Captured audio can be saved as stereo or mono.
Audio capture is possible for up to 6 minutes in stereo or 12 minutes in mono.

1. While pressing FUNCTION, press [ ]-14.

2. Use ◯2 in the SOUND area to switch between stereo and mono.

Capturing audio recordings

1. Play the pattern, song or other sound that you want to capture, or connect the instrument or other audio device that you want to use to capture recordings to the Base Station AUDIO INPUT jack.

2. Press AUDIO CAPTURE.
Capturing starts, and the SOUND display shows the remaining capture time.

HINT

- REMAIN (remaining time) shows the following information.
  When AUTO STOP is ON: the time until capturing stops
  When AUTO STOP is OFF: the maximum amount of remaining capture time
- Up to 6 minutes stereo or 12 minutes mono can be captured.
- When capturing, press CLEAR when you want to stop capturing.
- If the input level is too high, AUDIO CAPTURE will flash rapidly. Lower the volume of the connected device or the input level. (→ P. 84)
- Turning effects ON/OFF, changing parameters, playing pads, and changing patterns, for example, will be recorded while capturing.
- If precount is ON, a click sound will play before capturing starts. (→ P.39)
- If the metronome is ON, its sound will play during the capture.

Capturing audio (continued)

3. After the audio has been captured, press AUDIO CAPTURE.

You can adjust the captured recording and save it on the Capture Setting screen that opens. (→ P. 76)

If automatic stopping is on, capturing will stop automatically and the capture setting screen will open.

Adjusting and saving captured audio

After capturing audio completes, the CAPTURE settings screen opens, and the captured recording begins loop playback.
The captured audio can be edited on the screen.

SOUND display

SEQUENCE display

HINT

- Press ►/II to pause and resume playback.
- Press ■ to stop playback and reset the playback position to the beginning of the loop.
- The entire ring of ▭ on the Base Station corresponds to the length between start and end points. During playback, press a ▭ to start loop playback from that position. Press a ▭ when stopped to play only the interval assigned to that position.
- The ▭ that corresponds to the current position lights green, and the other ▭ light red.

1. Use ◯1 and ◯2 in the SOUND area to set the range of the captured audio assigned to the pad.

◯1: Start point

Change starting point of captured audio.

◯2: End point

Change ending point of captured audio.

When setting start and end points, the waveforms around those points are shown magnified.

HINT

- Start and end points can be set after the first 500 ms and before the last 500 ms of the captured recording.
- Pressing SONG , PATTERN or CLEAR will cancel editing of the captured recording and reopen the original screen.

2. Use ◯ in the SEQUENCE area to select "Assign to PAD", and press ◯.

A screen opens where you can select the pad for audio assignment.

SOUND display

SEQUENCE display

HINT

You cannot assign captured audio if it exceeds the length that can be used as an instrument. If you try to do so a message will appear. To make more time available, remove already assigned captured recordings and other audio files, or shorten intervals between start and end points. At this time, it is still possible to just save to the SD card (Only SAVE to SD).

3. Turn in the SOUND area to select the pattern for assignment.

4. CONTROLLER Tap a pad to select it for assignment, turn in the SEQUENCE area to select YES, and press .

This assigns the captured audio to the selected pad.

5. To save the captured audio to the SD card without assigning it to a pad, use in the SEQUENCE area to select "Only SAVE to SD", and press .

This will save the captured audio as a WAV file to the SD card.

HINT

Captured audio data is also saved on the SD card when it is assigned to a pad.

6. If you want to change the name of the captured audio, turn in the SEQUENCE area to select RENAME, and press .

HINT

- The captured audio will be saved inside the “Capture” subfolder in the “AR-48” folder on the SD card.
- The capture name will be used unchanged as the file name.
- Captured audio that has been assigned to a pad can have envelopes, filters and other parameters set in the same way as the built-in instruments.

Automatic saving

You can set whether or not changes made to instruments and effects are saved automatically to patterns.
When AUTO SAVE is set to OFF, the results of changes to instruments and effects will not be saved to patterns. Changes made will be discarded when you switch to SONG mode or select a different pattern. Moreover, you will not be able to save sequences.

1. Press AUTO SAVE ✱ ON ○ OFF.

AUTO SAVE ✱ ON ○ OFF lights and AUTO SAVE is turned ON.

2. Press AUTO SAVE ✱ ON ○ OFF again to turn automatic saving off.

AUTO SAVE ✱ ON ○ OFF becomes unlit and AUTO SAVE is turned OFF.

NOTE

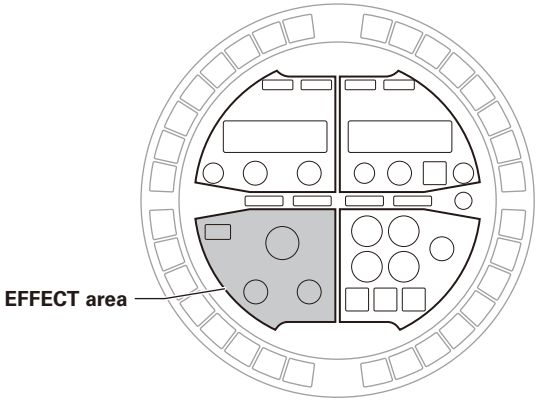
- The automatic saving function cannot be changed when in SONG mode. Setting changes are all saved even when the song is changed.
- When you switch the AUTO SAVE setting from OFF to ON, a screen will appear to confirm whether or not you want to save the current status. If you select "NO", the current settings will not be saved, but future changes will be saved.

SEQUENCE display

EFFECT area

EFFECT area overview

In the EFFECT area, a master effect can be applied to the overall output during the playback of patterns and songs.



Selecting and setting effects

A variety of types of master effects are available.

Changing the effect type

1. Use to change the effect type.

The LED for the selected effect will light.

NOTE

- The effect type cannot be recorded to motion sequences.
- In SONG mode, effect operations are only possible during song sequence playback, The effect operations during song sequence playback, however, are not recorded to patterns.

Turning the effect ON/OFF

1. Press [ON].

[ON] lights when the effect is ON.

The effect stays ON even after [ON] is released.

HINT

- The Ring Controller [EFFECT] is linked to the Base Station [ON].
- LOOPER FX and RELEASE are enabled only while [ON] is being pressed.

2. Press [ON] again to turn the effect OFF.

Changing parameters

The effect parameters can be adjusted.
The parameters that can be set depend on the type of effect.

HINT

See the "Effect list" appendix for details about effect parameters. (→ P. 117)

1. Turn ¹ and ² to adjust the desired parameters.

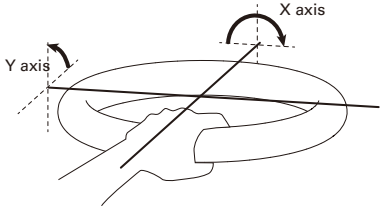
The current setting values are shown on the SOUND display.

If the the knob position does not match the parameter value, turn the knob to the current value once to enable adjustment.

Ring Controller Performance

Controlling parameters with the Ring Controller

Using the Ring Controller accelerometer, you can control arpeggiator timing and the parameters of instruments and effects. Parameters can be changed by the movement and tilt of the Ring Controller.



NOTE

- This can be used when the Ring Controller grip area has been set. (→ P. 98)
- The directions of the X and Y axes are automatically set based on the grip area position.
- Do not hit the Ring Controller with excessive force.

■ Assigning parameters

1. While pressing FUNCTION, press -24.

This opens a screen where X and Y axis parameters can be assigned.

SOUND display

SEQUENCE display

2. Turn in the SEQUENCE area to select the assignment for the parameter.

Up to three parameters each can be assigned to the movement of the X and Y axes.

Controlling parameters with the Ring Controller (continued)

3. Turn in the SOUND area to select the parameter.

You can select from the following parameters.

Parameter	Explanation
None	No parameter assigned
EFFECT Knob1	Parameter 1 of the selected effect
EFFECT Knob2	Parameter 2 of the selected effect
01 SOUND Knob1	Parameter 1 shown on the SOUND display for instrument 01
01 SOUND Knob2	Parameter 2 shown on the SOUND display for instrument 01
02 SOUND Knob1	Parameter 1 shown on the SOUND display for instrument 02
02 SOUND Knob2	Parameter 2 shown on the SOUND display for instrument 02
⋮	⋮
16 SOUND Knob1	Parameter 1 shown on the SOUND display for instrument 16
16 SOUND Knob2	Parameter 2 shown on the SOUND display for instrument 16
ARPEGGIATOR Rate	The speed of the arpeggiator output will change in response to the tilt of the Ring Controller. This is enabled only if the arpeggiator Style is not “Sequence” and the “Pattern” is set to 1/1–1/32.
ARPEGGIATOR Note	The notes output by the arpeggiator will change in response to the tilt of the Ring Controller. The notes will change according to the scales set in the SCALE layout of each instrument. (→ P. 116)

4. Remove the Ring Controller from the Base Station.

If the effect or arpeggiator has a parameter assigned, enable that function.

5. Set the Ring Controller grip area.

Setting the grip area (→ P. 98)

6. Tilt the Ring Controller to control the assigned parameters.

System settings

Changing various settings

Setting the audio input and effect send levels

When a signal is being input through the AUDIO INPUT jack, set the input level and the amount sent to the master effect.

1. While pressing FUNCTION, press [ ]-16.

This opens the input setting screen.

2. Turn (1) in the SOUND area to change the input level.

This can be set from 0 to 100.

3. Turn (2) in the SOUND area to change the send level.

This can be set from 0 to 100.

Setting the clock mode

Set whether the internal clock or an external clock is used when connected to other MIDI devices by USB.

1. While pressing FUNCTION, press [ ]-30.

External clock is selected when [ ]-30 is lit.

NOTE

- When external clock is selected, songs cannot be recorded.
- When the CLOCK MODE is set to INTERNAL, it will function in the following ways.
  - The **AR-48** will constantly output MIDI clock from its USB port.
  - The **AR-48** will send a start message when playback starts and a stop message when it stops.
  - It will send a continue message when playback resumes from a paused state.
  - Start, stop and continue messages will not be output, however, when the **AR-48** does not play back because, for example, it does not have a song sequence.

Setting the display contrast

The display contrast can be adjusted.

1. While pressing FUNCTION,

press □-32.

The SOUND and SEQUENCE displays show their own contrast settings.

2. Turn ◯ in the same area as the display to adjust its contrast.

The display contrast can be set from 1 to 13.

Checking the software version

The Base Station software version is shown on the display when the **AR-48** starts up.

NOTE

The Ring Controller software version can only be checked on the Ring Controller update screen. (→ P. 102)

Changing various settings (continued)

Restoring default settings

The Base Station and the Ring Controller can be restored to their factory default settings.

■ Base Station

NOTE

Restoring settings to their defaults will erase everything you have created including patterns and songs. Save them to an SD card in advance if you do not want to lose them.
Backing up data (→ P. 89)

1. While pressing FUNCTION, press CLEAR.

A confirmation message appears.

2. Use the dial to select Yes, and press the dial.

This will restore the factory default settings.

■ Ring Controller

1. While pressing FUNCTION, press -22.

A confirmation message appears on the SEQUENCE display.

2. Use the dial in the SEQUENCE area to select YES, and press the dial.

This resets the Ring Controller to its factory default settings.

Outputting MIDI messages from the Base Station

The Base Station can send MIDI messages from the USB port and MIDI OUT jack when the Ring Controller pads and Base Station knobs and buttons are used. You can set the MIDI messages output.

The **AR-48** will output the set MIDI messages without change even if the mode is switched.

These MIDI messages can be used to control DAW software, for example.

1. While pressing FUNCTION, press [ ]-31.

This opens the setting screen.

SOUND display

SEQUENCE display

2. Turn the dial in the SEQUENCE area to select the assignment for the parameter.

The Ring Controller pads, Base Station buttons and knobs, and accelerometer X and Y axes can be selected.

3. Turn the dial in the SOUND area to select the message.

The following parameters can be selected

■ PAD 1-16

MIDI Ch	Message Type	Number
1-16	Off	–
	Note	0-127
	CC (control change)	0-127
	Prg Chg (program change)	0-127
	Ch Press (output the same value of aftertouch only on entire MIDI channel)	–
	PolyPress (output aftertouch only on each pad)	0-127 (Note Number)

HINT

If the Message Type is set to CC, the CC number set by "Number" is sent with the strength (velocity) that the pad is tapped. "0" is sent when the pad is released

NOTE

Sequences recorded on the **AR-48** are output independently of the MIDI messages sent when pads are pressed. (→ P. 56)

■ Buttons

MIDI Ch	Message Type	Number
1-16	Off	–
	Note	0-127
	CC (control change)	0-127
	Prg Chg (program change)	0-127

HINT

When Message Type is set to Note, pressing a button will send the note set by "Number" at a velocity of 127. Releasing the button will send it at a velocity of 0. If the Ring Controller is connected to a computer, when the computer sends a message with a velocity other than 0, the corresponding pad will light. The corresponding pad will become unlit when it sends a velocity 0 or a note off message.

When Message Type is set to CC, pressing a button will send the CC number set by "Number" at a value of 127. Releasing the button will send it at a value of 0. If the Ring Controller is connected to a computer, when the computer sends a message other than 0, the corresponding pad will light. The corresponding pad will become unlit when it sends a 0 message.

Outputting MIDI messages from the Base Station (continued)

■ Knobs (selection encoders, sound parameters, SWING, TEMPO, effect type)

MIDI Ch	Type	CC Number	Minimum/Dec Number	Maximum/Inc Number
1-16	Off	0-127	–	–
	Absolute (send the knob rotation position as an absolute value)		0-127 (Minimum)	0-127 (Maximum)
	Relative (when the knob is turned, send the counterclockwise (Dec) or clockwise (Inc) value difference)		0-127 (Dec Number)	0-127 (Inc Number)

HINT

- When Type is set to Absolute, the value of the current knob rotation position is output if it is within the range between Minimum and Maximum. If turned counterclockwise from the Minimum value or turned clockwise from the Maximum value, no message will be output. Beware that even though this can be used with many DAW applications, differences could occur with the values sent by the **AR-48** if the controlled parameters are changed in the DAW.
- When Type is set to Relative, the value set by Dec Number is sent when the knob is turned counterclockwise, and the value set by Inc Number is sent when the knob is turned clockwise.
  Even if parameters have been changed in the DAW, values can be increased or decreased relatively. However, correctly setting the Dec Number and Inc Number might be necessary depending on the DAW.

■ Knobs (effect parameters, volume)

MIDI Ch	CC Number	Min Value
1-16	OFF	–
	0-127	0-127

HINT

Sent values are limited to the range from the set Min Value to 127.

■ Accelerometer X and Y axes

MIDI Ch	CC Number	Min Value
1-16	OFF	–
	0-127	0-127

HINT

Sent values are limited to the range from the set Min Value to 127.

Backing up data

The data for patterns and songs created can be backed up to SD cards.
Moreover, when saving and loading data, you can manage all the data at once or choose only some data.

Backing up data

1. While pressing FUNCTION, press -25.

The backup type selection appears on the SOUND display, and a confirmation message appears on the SEQUENCE display.

SOUND display

SEQUENCE display

2. Turn in the SOUND area to select the type of data to back up.

ALL DATA: This backs up all data.

PATTERN: This only backs up the currently selected pattern.

3. Use in the SEQUENCE area to select YES, and press .

This opens a screen to input the backup file name.

4. Input the backup file name.

HINT

Character input operations (→ P. 23)

5. Use in the SEQUENCE area to select OK, and press .

This backs up the data with the file name set in step 4.

Backing up data (continued)

Loading data

1. While pressing FUNCTION, press [ ]-26.

The backup type to load appears on the SOUND display, and a confirmation message appears on the SEQUENCE display.

SOUND display

SEQUENCE display

2. Turn ◯ in the SOUND area to select the type of data to load.

ALL DATA: This loads all data.

PATTERN: This only loads a pattern.

ALL SONG SEQUENCE: This loads all song data.

3. Use ◯ in the SEQUENCE area to select YES, and press ◯.

This opens a screen to select the backup file.

4. Turn ◯ in the SOUND area to select the backup data to load.

SOUND display

SEQUENCE display

5. Use ◯ in the SEQUENCE area to select Yes, and press ◯.

The data will be loaded.

HINT

If the type of backup to be loaded is a pattern, a screen where you can select the pattern to be loaded to the **AR-48** opens.
Turn ◯ in the SOUND area to select the pattern to load, turn ◯ in the SEQUENCE area to select YES, and press ◯.

NOTE

- When you load data, the contents on the **AR-48** are overwritten.
- If the loaded pattern uses audio files as instrument oscillators, those audio files must be saved in the “Capture” subfolder in the "AR-48" folder on the SD card.
- When loading song data, pattern data used by song sequences will not be loaded. If the current pattern data is different from the data at the time of backup, also load the pattern data used by the sequence.
- In order to load song data later, you must select ALL DATA when backing up.

SD card management

Managing SD card open space

1. While pressing FUNCTION, press [ ]-27.

The SD card space used is shown on the SOUND display.

Formatting SD cards

1. While pressing FUNCTION, press [ ]-27.

A confirmation message appears on the SEQUENCE display.

2. Use the dial in the SEQUENCE area to select Yes, and press ENTER.

This formats the SD card.

NOTE

- Before using SD cards that have just been purchased or that have been formatted on a computer, they must be formatted by the **AR-48**.
- Be aware that all data previously saved on the SD card will be deleted when it is formatted.

SD card management (continued)

Testing SD card performance

You can test whether an SD card can be used with the **AR-48**. A basic test can be done quickly, while a full test examines the entire SD card.

1. While pressing FUNCTION, press -28.

A test method selection message appears on the SOUND display.

QUICK: This conducts a quick test.

FULL: This conducts a full test.

HINT

When FULL is selected, the estimated execution time will appear on the SOUND display.

■ Quick testing

- Turn in the SOUND area to select QUICK.
- Use in the SEQUENCE area to select YES, and press .

This will start the quick SD card test.
The result of the test will be shown when it completes.

■ Full testing

- Turn in the SOUND area to select FULL.
- Use in the SEQUENCE area to select YES, and press .

This will start the full SD card test.
The result of the test will be shown when it completes.

SOUND display

SEQUENCE display

HINT

You can press FUNCTION to cancel a test while it is being executed.

NOTE

Even if a performance test result is "OK", there is no guarantee that writing errors will not occur. This information is just to provide guidance.

Exchanging data with computers

By connecting the **AR-48** with a computer, you can check and copy data on the SD card loaded in it.

■ Connecting

1. While pressing FUNCTION, press -29.

This puts the **AR-48** into card reader mode.

2. Use a USB cable to connect the **AR-48** and the computer.

NOTE

- The supported operating systems are as follows.
  Windows: Windows 7 or later
  Mac: OS X 10.8 or later and macOS
- The **AR-48** cannot operate on USB bus power. Use the AC adapter to supply power.

■ Disconnecting

1. Disconnect on the computer.

Windows:

Select **AR-48** from "Safely Remove Hardware".

Mac OS:

Drag the **AR-48** icon to the Trash and drop it.

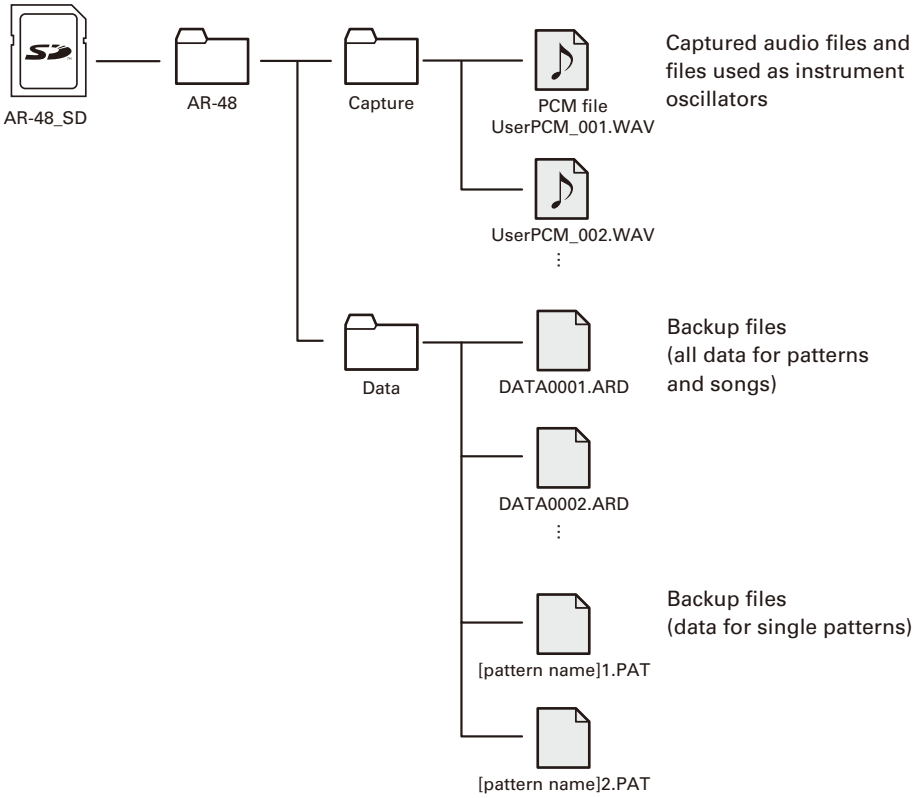
NOTE

Always conduct computer disconnection procedures before removing the USB cable.

2. Disconnect the USB cable from the computer and the **AR-48**, and press FUNCTION.

SD card management (continued)

SD card folder structure



Ring Controller settings

Ring Controller and Base Station connection and disconnection

■ Connection methods

The Base Station and a Ring Controller use a USB connection to communicate.

If BTA-1 (sold separately) units have been installed in the Base Station and Ring Controller, wireless transmission using Bluetooth LE is also possible.

NOTE

If a Ring Controller and Base Station are connected by USB, they will communicate via the USB cable even if they both have BTA-1 units installed.

Likewise, USB will be used for communication if a Ring Controller with a BTA-1 installed is connected to a computer by USB.

■ Connecting by USB

1. Use a USB cable to connect the Base Station and Ring Controller.

This automatically turns the Ring Controller on.

■ Connecting by Bluetooth LE

Pairing beforehand is necessary to connect using Bluetooth LE.

1. Turn off both the Base Station and the Ring Controller, and Install BTA-1 units (sold separately) into both of them.

2. Install 2 AA batteries in the Ring Controller (→ P. 21), and turn on both the Base Station and Ring Controller.

After the Ring Controller starts up, an LED animation will appear and it will be in connection standby mode.

A list of devices that can be connected will appear on the Base Station SEQUENCE display.

Press FUNCTION to return to the original screen.

You can press FUNCTION and -23 to show this screen again.

3. Turn in the Base Station SEQUENCE area to select the Ring Controller you want to connect, and press .

The selected Ring Controller will be connected to the Base Station, and all its pads will flash blue.

A check mark will appear next to the connected Ring Controller.

NOTE

- After doing this once, connection will be automatic in the future.
- Connecting a Base Station and Ring Controller that have BTA-1 units installed by USB will automatically pair them.

Ring Controller settings (continued)

■ Disconnecting a Ring Controller and Base Station

1. Press FUNCTION

2. Press -23.

This opens a list of devices that can be connected on the SOUND display.

A check mark will appear next to the currently connected Ring Controller.

3. Use in the SOUND area to select the Ring Controller to disconnect, and press .

This disconnects it.

Connecting a Ring Controller to a computer by USB.

The Ring Controller can be used as a MIDI controller.

■ Connecting to a computer by USB

1. Use a USB cable to connect the Ring Controller to a computer.

This automatically turns the Ring Controller on.

NOTE

- The Ring Controller will operate on USB bus power from the computer.
- MIDI messages output when the Ring Controller is connected to a computer or other device (→ P. 87)
- When the Ring Controller is connected to a computer, the pads will light white. When pressed, they will light blue. You can changed the colors that the pads light by sending MIDI messages from the computer. (→ P. 120)

Connecting the Ring Controller to a Mac or iOS device using Bluetooth LE

You can connect the Ring Controller directly to a Mac or iOS device by Bluetooth LE using a BTA-1 (sold separately), and use it as a MIDI controller.

HINT

When waiting to be connected, the Ring Controller pad LEDs show an animation, and the BTA-1 BLE LED blinks.

NOTE

- Install the BTA-1 before turning the Ring Controller on.
- The supported computers and operating systems are as follows.
  MacBook, iMac and Mac Pro computers that support Bluetooth LE and run Mac OS X 10.10.5 or later or macOS
  iOS device running iOS 8.0 or later
- The BLE LED will light when connected.
- If a Ring Controller and computer are connected by USB, they will communicate via the USB cable even if a BTA-1 unit is installed.

■ Connecting to a Mac using Bluetooth LE

1. Install 2 AA batteries in the Ring Controller. (→ P. 21)

2. Turn the Ring Controller on.

This puts the Ring Controller into connection standby.

3. Open the Audio MIDI Setup application on the Mac

4. Select "Window" in the menu bar, and then "Show MIDI Window".

This opens the MIDI Studio window.

5. Double-click the Bluetooth icon.

This opens the Bluetooth Configuration screen.

6. Click "Connect" for the Ring Controller shown in the list.

When connection succeeds, all of the pads will blink blue on the Ring Controller.

NOTE

If connection fails, open the System Preferences and click the × next to the Ring Controller in the list of Bluetooth devices before trying again.

Ring Controller settings (continued)

■ Connecting to an iOS device using Bluetooth LE

1. Install 2 AA batteries in the Ring Controller. (→ P. 21)

2. Turn the Ring Controller on.

This puts the Ring Controller into connection standby.

3. Launch an app that supports MIDI over Bluetooth LE on the iOS device.

4. On the app Settings screen, conduct Bluetooth connection.

When connection succeeds, all of the pads will blink blue on the Ring Controller.

HINT

- For app setting procedures, see the manual for that app.
- MIDI messages output when the Ring Controller is connected to a computer or other device (→ P. 87)
- When the Ring Controller is connected to a computer or other device, the pads will light white. When pressed, they will light blue.
- You can changed the colors that the pads light by sending MIDI messages from the computer. (→ P. 120)

Grip area

You can set a grip area that does not respond to touch in order to prevent pads from being pressed unintentionally when using the Ring Controller separately from the Base Station.

■ Setting the grip area

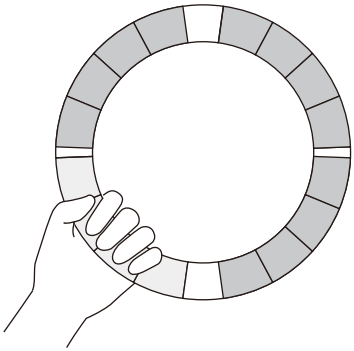
1. CONTROLLER Press .

All the Ring Controller pads will light blue.

2. CONTROLLER Grasp the area to set as the grip area.

The pads in the grasped range light white and the grip area is set.

Pads outside the grip area can be used as normal.



HINT

If a grip is not detected for 30 seconds, detection will automatically be canceled.

After the grip area is set, the LED lighting of the Ring Controller returns to its previous state, except the LEDs in the grip area become unlit showing that they will not respond to use.

HINT

- If a grip is detected and 1 second passes, it will be set automatically.
- When the grip area is set, the LED will light.

■ Disabling the grip area setting

1. CONTROLLER Press .

All the Ring Controller pads will light blue.

2. CONTROLLER Press .

This disables the grip area setting, making all pads usable again.

Ring Controller settings (continued)

Ring Controller function settings

1. While pressing FUNCTION, press -22.

This opens the Ring Controller Setting screen.

SOUND display

SEQUENCE display

2. Turn in the SOUND area to select items to set, and use 1 and 2 to change the parameters.

■ Velocity

This sets the pad sensitivity.

Setting	Function
MAX	Velocity is always maximum regardless of playing strength
HIGH	High sensitivity (playing strength greatly affects velocity)
MID	Standard
LOW	Low sensitivity (playing strength affects velocity little)

■ LED

This sets the brightness of pads when they light.

Setting	Function
BRIGHT	Pads will light brightly
DARK	Pads will light dimly (reduces power consumption)

■ Aftertouch

This aftertouch sensitivity of pads when they are pressed.

Setting	Function
ON (HIGH)	High sensitivity (reacts easily to changes in pad pressure)
ON (MID)	Standard
ON (LOW)	Low sensitivity (does not react easily to changes in pad pressure)
OFF	Disables the aftertouch function

■ Accelerometer sensitivity (X/Y AXIS SENS)

This sets the sensitivity of the Ring Controller accelerometer.

Setting	Function
HIGH	High sensitivity (responds even to slight tilting)
MID	Standard
LOW	Low sensitivity (less response to tilting)

■ Battery type (BATTERY)

This sets the type of batteries used.

Setting	Function
ALKALINE	Alkaline batteries (default)
Ni-MH	Nickel-metal hydride batteries

NOTE

- Use alkaline batteries or rechargeable NiMH batteries.
- This setting cannot be changed during recording or playback.

■ Automatic powering off (AUTO OFF)

You can set the Ring Controller to turn off automatically.

Setting	Function
2min	When using batteries, automatically turn off when not operated for 2 minutes
OFF	Do not turn off automatically

■ Setting the master compressor

In addition to the master effect, there is a master compressor that can be used to increase sound pressure.

1. While pressing FUNCTION,

press [ ]-15.

When [ ]-15 is lit, the master compressor is enabled.

NOTE

The master compressor setting is saved separately for each pattern.

Updating the firmware

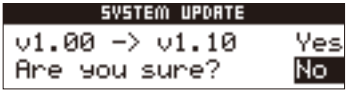
The product firmware can be updated to the latest versions.
Update files for the latest versions can be downloaded from the ZOOM website (www.zoom.co.jp).

Updating the Base Station

1. Copy the file for updating to the root directory on an SD card.

2. Insert the SD card into the card slot. Then, while pressing ▶/II, press and hold ⏻ POWER.

This opens an update confirmation screen on the SEQUENCE display.



3. Use ◀◀ ▶▶ in the SEQUENCE area to select Yes, and press ◀◀.

NOTE

Do not turn the power off or remove the SD card during the update. Doing so could cause the **AR-48** to become unstartable.

4. After the update completes, press and hold ⏻ POWER to turn the power off.

Updating the Ring Controller

If you connect a Ring Controller that is using old firmware to a Base Station, an update alert will appear on its display.
If this occurs, follow the procedures below to update the Ring Controller.

■ Updating the Ring Controller when requested

1. Use a USB cable to connect the Ring Controller and the Base Station.

The version numbers appear on the SOUND display, and the execution screen appears on the SEQUENCE display.

SOUND display

SEQUENCE display

NOTE

- A Ring Controller cannot be used with old firmware. Always execute the update when requested.
- These screens will appear even when connected by Bluetooth LE, but connection using a USB cable is necessary to update.

2. Press ◀◀ in the SEQUENCE area.

This will start the update.

3. After the update completes, press in the SEQUENCE area.

The Ring Controller will automatically restart and operate with the new firmware.

■ Updating the Ring Controller manually

Manually updating is possible if an update notification does not appear.

1. Use a USB cable to connect the Ring Controller and the Base Station.

2. While pressing FUNCTION, press -22.

This opens the Ring Controller Setting screen.

3. Use in the SOUND area to select FIRMWARE UPDATE, and press .

4. Use in the SEQUENCE area to select YES, and press .

This will start the update.

SOUND display

SEQUENCE display

5. After the update completes, press in the SEQUENCE area.

The Ring Controller will automatically restart and operate with the new firmware.

Troubleshooting

If you think that the **AR-48** is operating strangely, check the following items first.

■ **There is no sound or it is very quiet**

- Confirm that the power is ON.
- Check the connections
- Adjust the levels of the instruments
- Confirm that it is not muted.
- Check the volume level.

■ **There is a lot of noise**

- Confirm that nothing is wrong with the audio cables.
- Use a genuine ZOOM AC adapter.

■ **Effects are not working**

- Confirm that the effect send levels of instruments are set correctly.

■ **The Ring Controller does not work well**

- Confirm that the power is ON.
- Confirm its connection with the Base Station.
- Adjust the pad sensitivity.
- Confirm the grip setting.
- If using it as a MIDI controller, check the Mac or iOS device settings.

Product specifications

Base Station

Input	AUDIO INPUT	Connector type	Stereo mini jack (unbalanced)
		Input gain	+10 to –65 dB
		Input impedance	10 kΩ
Outputs	OUTPUT L/R	Connector type	Standard mono phone jacks (unbalanced)
		Output impedance	100 Ω
	PHONES	Connector type	Stereo mini jack (20mW × 2 into 32Ω load)
		Output impedance	10 Ω
Dynamic range			ANALOG IN (AD): 92 dB typ (IHF-A) PHONE OUT (DA): 102 dB typ (IHF-A) MAIN OUT (DA): 106 dB typ (IHF-A)
Recording media			16MB–2GB SD cards, 4GB–32GB SDHC cards, 64GB–512GB SDXC cards
MIDI IN/OUT			MIDI OUT (5-pin DIN jack) and USB MIDI
Power			5V 1A AC adapter (AD-14)
Power consumption			Base Station: 2 W maximum When powering Ring Controller: 3 W maximum
External dimensions			259.0 mm (D) × 257.6 mm (W) × 63.0 mm (H)
Weight (main unit only)			1123 g
Displays			128×32 dot-matrix LCD × 2
Interface	Type B USB 2.0 MIDI class/ mass storage class operation	Supported operating systems	Windows 7 (SP1 or later), Windows 8 (including 8.1) or later, Windows 10 Mac OS X 10.8 or later
		Minimum specifications	Chipset that includes USB 2.0 as standard, Intel Core i3 or faster CPU
	Type A USB 2.0 MIDI class operation		For Ring Controller connection

Ring Controller

Sensors			PAD pressure sensors, 3-axis accelerometer
Power			USB bus power
Batteries			2 AA alkaline or rechargeable nickel-metal hydride (NiMH) batteries
Battery operation time			About 8 hours (when BTA-1 installed)
Power consumption			1W maximum
External dimensions			280.2 mm (D) × 278.8 mm (W) × 29.7 mm (H)
Weight (main unit only)			416 g
Touchpads		Number of pads	16
		Velocity curves	4 types
Interface	Type B USB 2.0 MIDI class/ mass storage class operation	Supported operating systems	Windows 7 (SP1 or later), Windows 8 (including 8.1) or later, Windows 10 Mac OS X 10.8 or later
		Minimum specifications	Chipset that includes USB 2.0 as standard, Intel Core i3 or faster CPU
	MIDI over BLE (when BTA-1 installed)	Supported iOS devices	Devices using iOS 8.0 or later
		Supported Macs	MacBook, iMac and Mac pro series computers that use Mac OS X 10.10.5 Yosemite or later (including macOS) and support BLE transmission

Appendix

Oscillator list

Category	Instrument name	LOOP
KICK Instrument color: 1	2Step Kick	O
	BigBeat Kick	O
	Blubber Kick	O
	BreakBeat Kick	X
	Breaks Kick	X
	Classic Kick	O
	Cyber Kick	O
	DeepDark Kick	X
	DeepHouse Kick	O
	Disco Kick	X
	D&B Kick	X
	Dubstep Kick	X
	EDM Kick	O
	Electro Kick	O
	EuroBeat Kick	O
	EuroDance Kick	O
	EuroTrance Kick	O
	FrenchHouse Kick	O
	Funk Kick	X
	Hardcore Kick	X
	HardHouse Kick	O
	HardTechno Kick	X
	HipHop Kick 1	O
	HipHop Kick 2	O
	Oldschool Kick	O
	HR&HM Kick	X
	Jazz Kick	X
	Jungle Kick	X
	Kicker Kick	O
	Berlin Kick	O
	D Kick	O
	Muted Kick	O
	Lounge Kick	X
	MainRoom Kick	X
	Minimal Kick	O
	NuDisco Kick	X
	ProgHouse Kick	O
	R&B Kick	O
	Reggae Kick	O
	Reggaeton Kick	X
	Rock Kick	X
	Sub Kick	O
	Synth Kick	O
	Techno Kick	O
	TechHouse Kick	O
	Kit707 Kick	X
	Kit808 Kick	O
	Kit909 Kick	O
	Trap Kick	O
	TrapMe Kick	O
	TribalHouse Kick	O

Category	Instrument name	LOOP
SNARE Instrument color: 31	2Step RS	X
	2Step Snare	
	BigBeat RS	
	BigBeat Snare	
	Breaks RS	
	Breaks Snare	
	Chicago Snare	
	DeepHouse Snare	
	DeepHouse RS	
	D&B RS	
	D&B Snare	
	Dubstep RS	
	Dubstep Snare 1	
	Dubstep Snare 2	
	EDM Snare	
	EDM RS	
	Electro RS	
	Electro Snare	
	EuroBeat RS	
	EuroBeat Snare	
	EuroDance RS	
	EuroDance Snare	
	EuroTrance RS	
	EuroTranceSnare	
	FlashBulb Snare	
	Future Snare	
	Garage Snare	
	Hardcore RS	
	Hardcore Snare	
	HardHouse RS	
	HardHouse Snare	
	HardTechnoRS	
	HardTechnoSnare	
	HH Snare	
	HipHop RS	
	HipHop Snare	
	HR&HM RS	
	HR&HM Snare	
	Jazz RS	
	Jazz Snare	
	Jazz Brush	
	Jungle RS	
	Jungle Snare	
	MainRoom Snare	
	Minimal RS	
	Minimal Snare	
	NuDisco RS	
	NuDisco Snare	
	ProgHouse RS	
	ProgHouse Snare	
	R&B RS	
	R&B Snare	
	Reggae RS	
	Reggae Snare	
	Reggaeton RS	
	Reggaeton Snare	
	Rock RS	
	Rock Snare	

Oscillator list (continued)

Category	Instrument name	LOOP
SNARE Instrument color: 31	Gangsta Snare	X
	South Snare	
	TechHouse RS	
	TechHouse Snare	
	Kit707 Snare	
	Kit808 Snare	
	Kit808 RS	
	Kit909 Snare	
	Kit909 RS	
	Trap RS	
	Trap Snare	
	TribalHouse RS	
	TribalHouseSnare	
	UK Snare	
	Vintage Snare	
CLAP Instrument color: 31	Building Clap	X
	ClasRave Clap	
	Dance Clap	
	Disco Clap	
	D&B Clap	
	Breaks Clap	
	Electro Clap	
	Techno Clap 1	
	HipHop Clap	
	House Clap 1	
	Minimal Clap	
	House Clap 2	
	NY Clap	
	Reggae Clap	
	Short Clap	
	SlapVerb Clap	
	Step Clap	
	Techno Clap 2	
	Thug Clap	
	Kit707 Clap	
	Kit808 Clap	
	Kit909 Clap	
	Trance Clap	
	Trap Clap	
HI HAT Instrument color: 30	Berlin CloseHH	X
	Berlin OpenHH	
	Chicago Hi-Hat	
	ComputerNoise	
	DeadLeaser Hat	
	Disco CloseHH	
	Disco OpenHH	
	Dance CloseHH	
	Dance OpenHH	
	D&B CloseHH	
	D&B OpenHH	
	Breaks CloseHH	
	Breaks OpenHH	
	Electro CloseHH	
	Electro OpenHH	
	Techno CloseHH	
	Techno OpenHH	
	Feedback Hat	
	Garage Hat	
	GlitchTick Hat	
	HardHouse Hat	
	Standard OpenHH	
	HipHop CloseHH	
	HipHop OpenHH	
	House CloseHH	
	House OpenHH	
	Minimal CloseHH	

Category	Instrument name	LOOP
HI HAT Instrument color: 30	Minimal OpenHH	X
	HR&HM CloseHH	
	HR&HM OpenHH	
	Jazz CloseHH	
	Jazz OpenHH	
	London Hat	
	Milano Hat	
	NY Hat	
	Paris Hat	
	R&B CloseHH	
	R&B OpenHH	
	Reggae CloseHH	
	Reggae OpenHH	
	Rock CloseHH	
	Rock OpenHH	
	Short Hi-Hat	
	Kit707 CloseHH	
	Kit707 OpenHH	
	Kit808 CloseHH	
	Kit808 OpenHH	
	Kit909 CloseHH	
	Kit909 OpenHH	
	Trance CloseHH 1	
	Trance OpenHH 1	
	Trance CloseHH 2	
	Trance OpenHH 2	
CYMBAL Instrument color: 30	Short Crash	X
	Long Crash	
	Splash Cymbal	
	Disco Crash	
	Disco Ride	
	Dance Crash	
	Dance Ride	
	D&B Crash	
	D&B Ride	
	Breaks Crash	
	Breaks Ride	
	Electro Crash	
	Electro Ride	
	Techno Crash	
	Techno Ride	
	HipHop Crash	
	HipHop Ride	
	House Crash	
	House Ride	
	Minimal Crash	
	Minimal Ride	
	HR&HM Crash	
	HR&HM Ride	
	Jazz Crash	
	Jazz Ride	
	R&B Crash	
	R&B Ride	
	Reggae Crash	
	Reggae Ride	
	Standard Ride	
	Rock Crash	
	Rock Ride	
	Kit707 Crash	
	Kit707 Ride	
	Kit808 Crash	
	Kit909 Crash	
	Kit909 Ride	
	Trance Crash	
	Trance Ride	

Oscillator list (continued)

Category	Instrument name	LOOP
TOM Instrument color: 2	80's Tom	X
	Acoustic Tom 1	X
	Acoustic Tom 2	X
	DoubleElectroTom	O
	FrenchHouseTom	X
	Ind. Tribe Tom	X
	Industry Tom	X
	Long Tom	X
	NewWave Tom	X
	Noise Tom	X
	Synth Tom	O
	Kit707 Tom	X
	Kit808 Tom	X
	Kit909 Tom	X
	Vintage Tom	X
PERCUSSION Instrument color: 2	BellTree	X
	Bottle	X
	BrightData	X
	Cabasa Hit	X
	Cabasa Shake	X
	Castanets	X
	CementClick	X
	Clave	X
	Conga Open	X
	Conga Close	X
	Conga Slap	X
	Cowbell	X
	Darbuka	X
	Davul Chember	X
	Davul Dum	X
	Davul Kasnak	X
	Davul Tek	X
	Djembe	X
	Droplet	X
	GlitchClave	X
	Hi-Bongo	X
	Hi-Timbales	X
	Hi-Agogo	X
	IDM Prec.	X
	Lo-Bongo	X
	Lo-Timbales	X
	LongGuiro	X
	LongWhistle	O
	Lo-Agogo	X
	Maracas	X
	MouthPop	X
	MuteCuica	X
	MuteSurdo	X
	MuteTriangle	X
	OpenCuica	X
	OpenSurdo	X
	OpenTriangle	X
	OrganicPrec.	X
	Lo-Pop	O
	PlasticLid	X
	Hi-Pop	X
	Quijada	X
	Quijada Hit	X
	RimPercussion	X
	Riq Doum	X

Category	Instrument name	LOOP
PERCUSSION Instrument color: 2	Riq Pa	X
	Riq Tak	X
	Shaker 1	X
	Shaker 2	X
	Shaker Hit	X
	ShortData	X
	ShortGuiro	X
	ShortPercussion	X
	ShortWhistle	X
	Snap	X
	SquishyZap	X
	Sticks	X
	SynthPercussion	O
	Tabla Ge	X
	Tabla Ke	X
	Tabla Na	X
	Tabla Te	X
	Jingle	X
	Tambourine	X
	Timpani	X
	Kit808 Cowbell	O
	Vibraslap	O
	WindChime	X
	WoodBlock	X
VOICE Instrument color: 14	Ai-Low House	X
	Hey Trap	
	Female Oh	
	Male Oh	
	Oh Garage	
	Technologic Vox	
	U DeepHouse	
	VocalStab	
	Yah Dubstep	
	Male Ahaa	
	Male Ahaaw	
	AncientWisdom	
	Male Baaa	
	Male Che	
	Male ComeOn	
	Male Doh	
	Male Doo	
	Female Aan	
	Female Ah	
	Female Am	
	Female Haa	
	Female Ho	
	Female On	
	Female So	
	Female Yo	
	Female Your	
	Ghostly	
	Male Haa	
	Male Hey 1	
	Male Hey 2	
	Male Nahh	
	Male Ohooo	
	Male Paa	
	Male Wao	
	Male Whoo	

Category	Instrument name	LOOP
PCM SYNTH Instrument color: 14	AngerBass	O
	DeepBass	O
	DubstepDirtBass	X
	FlatRicBass	X
	GarageFatBass	X
	ParisBass	O
	PulseButtomBass	X
	SubspenseBass	O
	VoiceBass	X
	WarmSawBass	O
	AirCloud	O
	Alarm	O
	AlienWarning	X
	Arpness	X
	BeatBang	X
	BlackStar	X
	BottleVox	X
	Closer	X
	CompBlip	O
	DangerZone	X
	ElectricSwipe	X
	EpicAir	X
	ForcedAir	X
	Lazer 1	X
	Lazer 2	X
	Lazer 3	X
	LazerGun	X
	MarsInvaders	X
	MazG	X
	NoiseFloor	X
	Revange	X
	SawDown	X
	Shreakback	X
	SirenFX	X
	Spacer	O
	StarGate	X
	TrapBounce	X
	TunyPluck	X
	Twister	X
	U Tone	O
	WideFive	O
	X Scape	X
	1980sAnalog5ths	O
	ClubChord	X
	DecadeChord	X
	DubstepStab	X
	EdgeOfStab	O
	EDM MinorChord	X
	EDM Stab	X
	FadeChord	X
	FatMash	O
	FatPad	X
	FluteSpaceLead	X
	FutureSax	X
	LeadChord	X
	LeadChordRave	X
	LeadDirt	X
	LeadDrop	X
	LegacyChord	X

Category	Instrument name	LOOP
PCM SYNTH Instrument color: 14	LowTech	O
	MetalicPad	O
	PartyChord	X
	PlasticTube	O
	PumpChord	X
	RaggaTone	O
	RaveLead	O
	RaveStabLead	X
	SimpleChord	X
	StringBreath	X
	SubyChord	X
	SyncLift	X
	TechChord	X
	TightAnalog5ths	O
INSTRUMENTS Instrument color: 14	AltoSax	O
	AcousticBass	O
	AcousticGuitar	O
	Bell	X
	BrassEnsemble	X
	Clav	O
	ElectricPiano	O
	E.Bass Finger	O
	E.Bass Pick	O
	E.Bass Slap	O
	ElectricGuitar	O
	DistGuitar	O
	GuitarFeedback	X
	Kalimba	X
	MajorPartials	X
	MetalBell	X
	MinorPartials	O
	MutedStab	X
	OldMovieMinor	X
	Organ 1	O
	Organ 2	O
	Piano	O
	StringsEnsemble	X
	TenorSax	O
INSTRUMENTS Instrument color: 14	Brass Hit 1	X
	Brass Hit 2	
	Cluster	
	E.Guitar 1	
	E.Guitar 2	
	Hammond	
	Orchestra Hit	
	Piano Hit	
	PianoJazz Hit	
	Pulse	
	SlideOrgan	
	Strings Hit	
SYNTH Instrument color: 14	SYNTH	O
AUDIO FILE Instrument color: 23	File Name (first 16 characters)	X
OFF	Oscillator Off	X

Instrument and parameter lists

■ SCALE layout block

Page	Parameter 1	Parameter 2
1	OCTAVE	SCALE
	-1 – 7	Scale name list (→ P. 116)
2	MONO/POLY	GLIDE*
	MONO, POLY	0 – 100
3	KEY*	—
	C, C#, D, D#, E, F, F#, G, G#, A, A#, B	—

*This is not shown in some parameter combinations.

■ Oscillator (OSC) block

Page	Parameter 1	Parameter 2
1	—	
	Oscillator list (→ P. 106)	

PCM

Page	Parameter 1	Parameter 2
2	PITCH	REVERSE**
	-24.00 – +24.00	ON, OFF

**Cannot be set for instruments in the Oscillator list that are marked O for LOOP.

Audio File

Page	Parameter 1	Parameter 2
2	PITCH	REVERSE
	–24.00 – +24.00	ON, OFF
3	LAUNCH	—
	ONE SHOT, GATE, TOGGLE	—

Synth

Page	Parameter 1	Parameter 2
2	OSC1 TYPE	OSC1 PITCH
	SAW, SQUARE, PULSE, SINE, TRI	-24.00 – +24.00
3	OSC1 LEVEL	PULSE WIDTH*
	0 – 100	1 – 99%
4	OSC2 TYPE	OSC2 PITCH
	OFF, SAW, SQUARE, PULSE, SINE, TRI	-24.00 – +24.00
5	OSC2 LEVEL	PULSE WIDTH*
	0 – 100	1 – 99%
6	OSC3 TYPE	OSC3 PITCH
	OFF, SAW, SQUARE, PULSE, SINE, TRI, RING SRC, FM SRC, SYNC SRC	-24.00 – +24.00
7	OSC3 LEVEL	PULSE WIDTH*
	0 – 100	1 – 99%

*This is not shown in some parameter combinations.

■ Oscillator pitch modulation (OSC PITCH MOD) block

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*This is not shown in some parameter combinations.

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

■ NOISE block

Page	Parameter 1	Parameter 2
1	TYPE	LEVEL*
	OFF, WHITE, PINK	0 – 100

*This is not shown in some parameter combinations.

■ Noise level modulation (NOISE LEVEL MOD) block

(This is shown when the NOISE block TYPE is not set to OFF.)

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*This is not shown in some parameter combinations.

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

Instrument and parameter lists (continued)

■ Insert effect (EFFECT) block

Type name	Page 1 Parameter 2	Page 2 Parameter 1	Page 2 Parameter 2
OFF	—	—	—
	—	—	—
COMP	SENSE	ATTACK	TONE
	0 – 10	SLOW, FAST	0 – 10
PUMPER	DEPTH	RATE	—
	0 – 100	♪ (Type 3)	—
SUB BASS	FREQ	MIX	—
	30 Hz – 250 Hz (10Hz steps)	0 – 100	—
TALK	DECAY*	TYPE	BALANCE
	0 – 100	iA, UE, UA, oA	0 – 100
3BAND EQ	LOW	MID	HI
	-12 – +12	-12 – +12	-12 – +12
RING MOD	FREQ*	TONE	BALANCE
	1 – 50	0 – 10	0 – 100
FLANGER	DEPTH	RATE*	MIX
	1 – 50	0 – 50, ♪ (Type 1)	0 – 100
PHASER	RATE	COLOR	MIX
	0 – 50, ♪ (Type 1)	4STG, 8STG, inv 4, inv 8	0 – 100
CHORUS	DEPTH	RATE*	MIX
	0 – 100	1 – 50	0 – 100
DIST	GAIN*	TONE	LEVEL
	0 – 100	0 – 100	0 – 100
LO-FI	BIT	SAMPLE*	BALANCE
	4 – 16	0 – 50	0 – 100

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*These parameters can be controlled by the EFFECT MOD block.

■Effect parameter modulation (EFFECT MOD) block

(This is shown when the EFFECT block TYPE is not set to OFF.)

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*This is not shown in some parameter combinations.

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

■ FILTER block

Page	Parameter 1	Parameter 2
1	TYPE	FREQ
	OFF, PEAKING, 24dB HPF, 12dB HPF, 24dB BPF, 12dB BPF, 24dB LPF, 12dB LPF	20Hz – 20000Hz
2	RESO	LEVEL
	0 – 100	0 – 100

■ Filter frequency modulation (FILTER FREQ MOD) block

(This is shown when the FILTER block TYPE is not set to OFF.)

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

■ Volume envelope (ADSR) block

Page	Parameter 1	Parameter 2
1	ATTACK	DECAY
	0 – 100	0 – 100
2	SUSTAIN	RELEASE
	0 – 100	0 – 100

Instrument and parameter lists (continued)

■ Volume modulation (AMP MOD) block

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*This is not shown in some parameter combinations.

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

■ Output mixer (OUTPUT) block

Page	Parameter 1	Parameter 2
1	PAN	LEVEL
	L100 – R100	0 – 100

■ Pan modulation (PAN MOD) block

Page	Parameter 1	Parameter 2
1	SOURCE	DEPTH*
	OFF, LFO1, LFO2, ADSR, PRESS	-100 – +100

*This is not shown in some parameter combinations.

LFO

Page	Parameter 1	Parameter 2
2	TYPE	RATE
	SAW, SQUARE, PULSE, SINE, TRI, RANDOM	1 – 100, ♪ (Type 1)
3	PULSE WIDTH*	—
	1 – 99%	—

Note: See Tempo sync parameters for details about ♪ setting values. (→ P. 117)
*This is not shown in some parameter combinations.

ADSR

Page	Parameter 1	Parameter 2
2	ATTACK	DECAY
	0 – 100	0 – 100
3	SUSTAIN	RELEASE
	0 – 100	0 – 100

■ Effect send amount (FX SEND) block

Page	Parameter 1	Parameter 2
1	AMOUNT	—
	0 – 100	—

■ LED setting block

Page	Parameter 1	Parameter 2
1	COLOR	ANIMATION
	OFF, 1 – 32	OFF, MOIRE, FIREWORK, CROSS, CIRCUIT, RAINBOW

■ MIDI setting block

Page	Parameter 1	Parameter 2
1	CHANNEL	—
	OFF, 1 – 16	—

Instrument and parameter lists (continued)

■ Scale name list

Display name	Scale
CHROMATC	Chromatic
MAJOR	Major (Ionian)
MINOR 1	Harmonic Minor
MINOR 2	Melodic Minor
MINOR 3	Dorian
PHRYGIAN	Phrygian
LYDIAN	Lydian
MIXOLYDN	Mixolydian
AEOLIAN	Aeolian
LOCRIAN	Locrian
S-LOCRN	Super Locrian
MajBLUES	Major Blues
MinBLUES	Minor Blues
DIMINISH	Diminished
COM DIM	Com Dim
MajPENTA	Major Pentatonic
MinPENTA	Minor Pentatonic
RAGA 1	Raga 1 (Bhairav)
RAGA 2	Raga 2

Display name	Scale
RAGA 3	Raga 3
ARABIC	Arabic
SPANISH	Spanish
GYPSY	Gypsy
MinGYPSY	Minor Gypsy (Hungarian Minor)
EGYPTIAN	Egyptian
HAWAIIAN	Hawaiian
PELOG	Pelog
HIROJOSI	Hirojoshi
IN-SEN	In-Sen
IWATO	Iwato
KUMOI	Kumoi
MIYAKO	Miyakobushi
RYUKYU	Ryukyu
CHINESE	Chinese
WHOLE	Whole tone
WHOLE1/2	Whole half
5th	5th Interval

Effects lists

■ Master effects

Category	Type name	Parameter 1		Parameter 2	
		Parameter name	Setting values	Parameter name	Setting values
Filter	LPF	FREQUENCY	20 – 20000	RESONANCE	0 – 100
	HPF	FREQUENCY	20 – 20000	RESONANCE	0 – 100
	ISOLATOR	LOW	0 – 100	HI	0 – 100
	LPF + REVERB	FREQUENCY	20 – 20000	REVERB MIX	0 – 100
	HPF + REVERB	FREQUENCY	20 – 20000	REVERB MIX	0 – 100
Modulation	RELEASE	TYPE	Brake, Back Spin	SPEED	0 – 100
	PHASER	RATE	♪ (Type 1)	RESONANCE	0 – 100
	FLANGER	RATE	♪ (Type 1)	DEPTH	0 – 100
Distortion	DISTORTION	GAIN	0 – 100	TONE	0 – 100
	BIT CRUSH	BIT	4 – 16	SAMPLE	0 – 50
Loop/Slicer	LOOPER FX	LOOP LENGTH	♪ (Type 4)	MIX	0 – 100
	GLITTER	COMPLEX	1 – 8	MIX	0 – 100
Delay/Reverb	REVERSE	TIME	♪ (Type 2)	FEEDBACK	0 – 100
	STEREO DELAY	TIME	♪ (Type 2)	FEEDBACK	0 – 100
	REVERB	DECAY	1 – 100	MIX	0 – 100
	DELAY + REVERB	DELAY MIX	0 – 100	REVERB MIX	0 – 100

Note: See Tempo sync parameters for details about ♪ setting values.

■ Tempo sync parameters

When ♪ appears for a parameter or effect, it is a value that can be synchronized to the tempo.

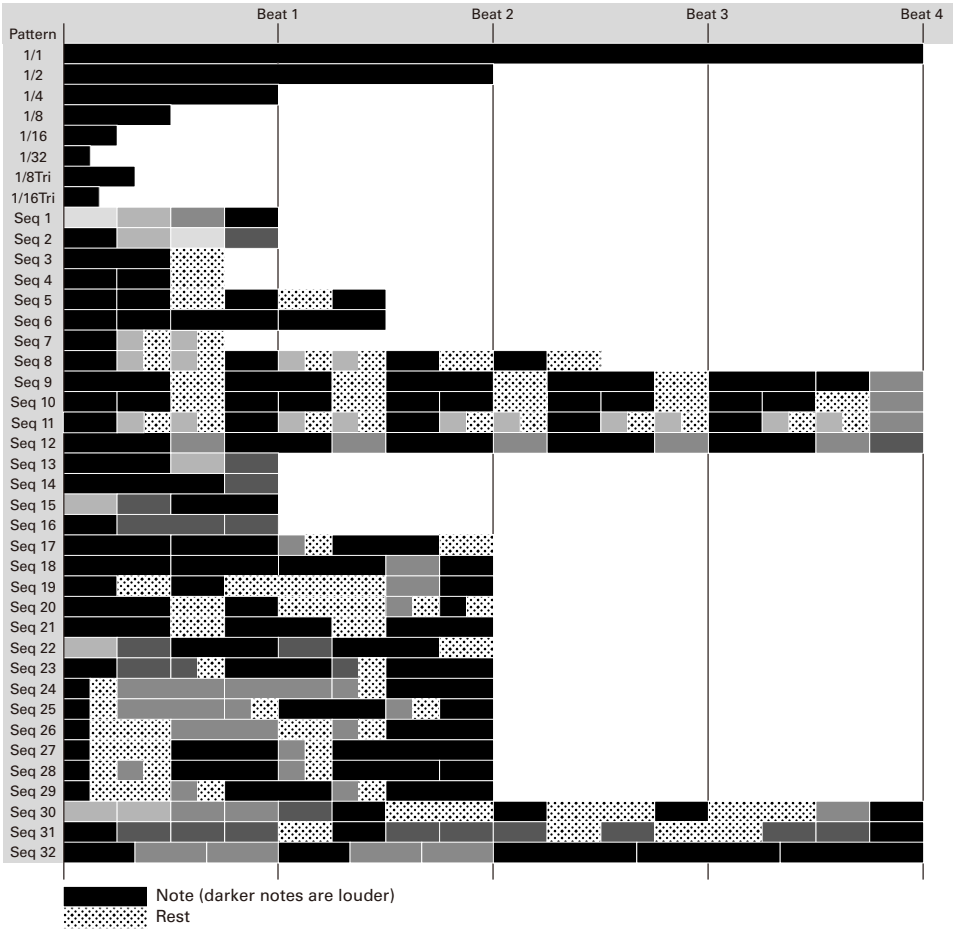
Type 1	Type 2	Type 3	Type 4
32nd note	16th note	32nd note	32nd note
16th note	Quarter note triplet	16th note	16th note
Quarter note triplet	Dotted 16th note	Quarter note triplet	8th note
Dotted 16th note	8th note	Dotted 16th note	Quarter note
8th note	Half note triplet	8th note	Half note
Half note triplet	Dotted 8th note	Half note triplet	4 quarter notes
Dotted 8th note	Quarter note	Dotted 8th note	8 quarter notes
Quarter note	Dotted quarter note	Quarter note	
Dotted quarter note	Half note	Dotted quarter note	
Half note	3 quarter notes	Half note	
3 quarter notes	4 quarter notes	3 quarter notes	
4 quarter notes	…	4 quarter notes	
…	8 quarter notes		
19 quarter notes			
20 quarter notes			

Arpeggiator parameter lists

■ NOTE

Number of note		Pad note	+5th	+1 Oct	+1 Oct + 5th	+2 Oct	+2 Oct + 5th	+3 Oct	+3 Oct + 5th
1		•							
2	Up	•	•						
2	Down								
2	UpDown								
2	Random								
3	Up	•	•	•					
3	Down								
3	UpDown								
3	Random								
4	Up	•	•	•	•				
4	Down								
4	UpDown								
4	Random								
5	Up	•	•	•	•	•			
5	Down								
5	UpDown								
5	Random								
6	Up	•	•	•	•	•	•		
6	Down								
6	UpDown								
6	Random								
7	Up	•	•	•	•	•	•	•	
7	Down								
7	UpDown								
7	Random								
8	Up	•	•	•	•	•	•	•	•
8	Down								
8	UpDown								
8	Random								

■ Pattern


Beat 1
Beat 2
Beat 3
Beat 4
Pattern
1/1
1/2
1/4
1/8
1/16
1/32
1/8Tri
1/16Tri
Seq 1
Seq 2
Seq 3
Seq 4
Seq 5
Seq 6
Seq 7
Seq 8
Seq 9
Seq 10
Seq 11
Seq 12
Seq 13
Seq 14
Seq 15
Seq 16
Seq 17
Seq 18
Seq 19
Seq 20
Seq 21
Seq 22
Seq 23
Seq 24
Seq 25
Seq 26
Seq 27
Seq 28
Seq 29
Seq 30
Seq 31
Seq 32
Note (darker notes are louder)
Rest

Setting pad LED colors from a computer

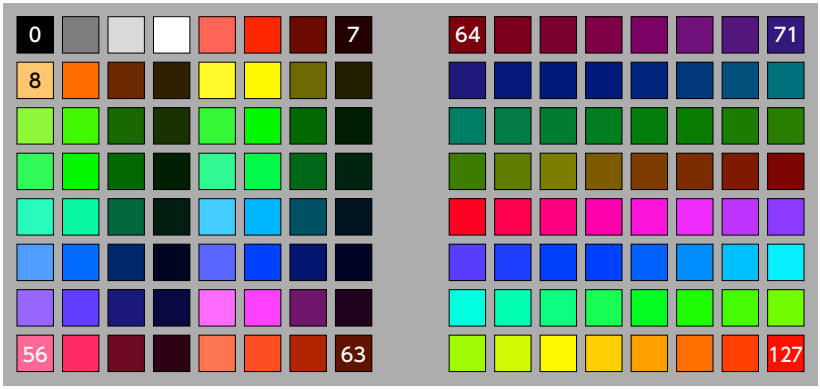
■ How to specify pad LED colors when the Ring Controller is connected to a computer or other device

Pad colors can be specified by sending MIDI messages to the Ring Controller when it is connected to a computer or other device.

MIDI messages

1st byte	2nd byte	3rd byte
Status	Note number	Velocity
MIDI CH16 note ON message	To specify PAD 1: 36	Specify color (see tables below)
	To specify PAD 2: 37	
	…	
	To specify PAD 15: 50	
	To specify PAD 16: 51	

Color tables



For example, if “9Fh" (note on, MIDI CH16), “24h" (note number 36, specifying PAD 1), and “7Fh" (velocity 127, specifying red) are sent to the Ring Controller, pad 1 will light red.

NOTE

- If the LED color is not specified, the pad will light white normally, and light blue while being pressed.
- If the LED color is specified, the pad will light white while being pressed.
- See P. 87 for how to set the MIDI messages sent from the Ring Controller when its pads are pressed.

MIDI implementation charts

■ Base Station

[Aero RhythmTrak]
Model: AR-48 Base Station
MIDI Implementation Chart

Date: 12 May 2017
Version: 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 - 16 *1	1 - 16	
	Changed	1 - 16 *1 *2	1 - 16	
Mode	Default	x	x	
	Messages	x	x	
	Altered	**********		
Note Number		0 - 127 *1 *2	0 - 108	
	True voice	**********	0 - 108	
Velocity	Note ON	o *1 *2	o	
	Note OFF	o *1 *2	o	
After Touch	Key's	o *2	o	
	Ch's	o *2	x	
Pitch Bend		x	x	
Control Change	0 - 127	o *2	x	
Prog Change		o *2	x	
	True#	0 - 127		
System Exclusive		x	x	
System Common	Song pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System Realtime	Clock	o *3	o *4	
	Command	o *3	o *4	
Aux Messages	Local ON/OFF	o *2	x	
	All Notes OFF	o *2	x	
	Active Sense	x	x	
	Reset	x	x	
Notes		*1 Transmitted by Internal Note. *2 Values sent by USB MIDI Output can be changed using the "MIDI OUT MESSAGE" setting. *3 Enabled when Clock Mode is "Internal". *4 Enabled when Clock Mode is "External".		

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO o: Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO x: No

MIDI implementation charts (continued)

■ Ring Controller

[Aero RhythmTrak]
Model: AR-48 Ring Controller
MIDI Implementation Chart

Date: 12 May 2017
Version: 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1, 16	
	Changed	1 - 16 *1	1 - 16	
Mode	Default	x	x	
	Messages	x	x	
	Altered	**********	**********	
Note Number		0 - 127 *1	0 - 127	
	True voice	**********	**********	
Velocity	Note ON	o *1	o	
	Note OFF	o *1	o	
After Touch	Key's	o *1	x	
	Ch's	o *1	x	
Pitch Bend		x	x	
Control Change	0 - 127	o *1	o	
Prog Change		o *1	x	
	True#	0 - 127		
System Exclusive		x	x	
System Common	Song pos	x	x	
	Song Sel	x	x	
	Tune	x	x	
System Realtime	Clock	x	x	
	Command	x	x	
Aux Messages	Local ON/OFF	o *1	x	
	All Notes OFF	o *1	x	
	Active Sense	x	x	
	Reset	x	x	
Notes		*1 Values can be changed using the "MIDI OUT MESSAGE" setting.		

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

o: Yes
x: No

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