Aero RhythmTrak

AR-96

Version 2.0 Quick Manual

The Operation Manual can be downloaded from the ZOOM website (www.zoom.co.jp)

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**Explanation of terms**

**Pattern**
This is a short musical part of several bars. Patterns are made of sequences (performance information) and kits (sound sets). You can also save parameters controlled by the Ring Controller, quantization and other settings for each pattern separately.
The **AR-96** 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 measure, 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. The **AR-96** has a STEP mode that allows you to record sequences one step at a time and an INST mode that allows you to record 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.

**Kit**
One pattern can use up to 33 instruments. This collection of instruments is called a "kit". A kit created in one pattern can be copied to another pattern.
Names of parts

Base Station

- Top

Names of parts
Names of parts (continued)

- Left side
  - INPUT jack
  - Headphone jack

- Right side
  - OUTPUT jack
  - External power jack
  - USB jack
  - SD card slot
Ring Controller

(Hint)

- You can use the Ring Controller buttons for the same operations as the Base Station buttons.
- The Ring Controller corresponds to the Base Station.
- Press on the Ring Controller to show the remaining battery charge on the Base Station screen.
Using the AR-96

The AR-96 consists of a Base Station and a Ring Controller.

With the Base Station, you can edit tones, create songs and save them, for example. Use the Ring Controller for input when creating songs.

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 wirelessly to a Mac computer or iOS device and use it as a MIDI controller.

The Ring Controller includes an LED matrix with 5 rows of 32 blocks (3 rows with pads and 2 rows for display only). Placing a two-dimensional matrix on the surface of a three-dimensional hoop enables confirmation and operation of all steps in a compact form.
**Ring Controller overview**

The AR-96 Controller surface has 5 ring-shaped areas. The top, side and bottom rings each have 32 pressure-sensitive pads. Using these pads, you can input and edit songs and perform in real-time, for example.

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**Assignment of functions**

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

Example: In STEP mode PAD layout, the rings display 5 different instrument sequences (3 when set to Guideline display), and each pad and indicator corresponds to a step between 1 and 32.

Example: In INST mode PAD layout, each pad controls 1 of 32 instruments with each ring assigned to a different parameter setting.

**HINT**

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

During playback of a pattern or song, for example, the LEDs of the top and bottom inner rings light green at the step currently playing. In addition, in INST mode and during other real-time input, the LEDs light red.

Guideline

In STEP mode, the LEDs of the top and bottom inner rings can be set to light for each beat to assist in step recording. See the Operation Manual for setting instructions.

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. The grip area can be set automatically by holding the Ring Controller after pressing ⬇️ ⬆️.

Turning the Ring Controller over

If you turn the ring controller over and place it so that the side with the power key and the side with the effect keys are reversed, the functions assigned to the rings and the display of LEDs will be reversed top to bottom. Moreover, the direction of movement will also be switched. As a result, when the Ring Controller is viewed from above, movement will always be clockwise and the top ring will always be on top when you use it.

NOTE

If the grip area has been set, turning the ring controller over will not reverse assignments or the direction.
Connecting other devices

- Audio source for capturing recordings
- Mixer, audio system or other playback equipment
- Headphones
- AC adapter
- Computer (USB connection)

Overview
Connecting other devices
Switching modes

With the AR-96, you can create patterns and combine multiple patterns to create songs.

Editing with the AR-96 mainly uses the following four modes. By switching between these modes, you can alternate between creating patterns and creating songs.

The two modes for creating patterns are STEP and INST.
- In STEP mode, you can record instrument sounds one step at a time to create patterns.
- In INST mode, you can record a performance as a pattern by playing the pads in real-time.

Use SONG and LOOPER modes to create songs.
- In SONG mode, create songs by playing and changing patterns in real-time and recording the results.
- In LOOPER mode, use audio data captured from the input of devices connected to the INPUT jacks, patterns and songs, as well as WAV files loaded from SD cards, for example, as materials to build loop sequences and create songs.

Pattern creation
Create and save patterns

**STEP mode**
Create patterns by inputting one step at a time

**INST mode**
Record patterns by playing in real time

**SONG mode**
Combine patterns that have already been made to create songs

**LOOPER mode**
Create songs using loops from other songs, captured external input and PCM audio files

Song creation
Combine patterns and other sources to create songs
**Instrument overview**

The **AR-96** can use up to 33 sound sources in a single kit. 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 33. In EDIT and STEP modes, you can edit the sound and sequence for the instrument selected by number.

Instrument number 33 is the one used in KEY layout in **AR-96** Version 1.00. It can only be edited in STEP mode.

The **AR-96** Ring Controller has the two following layouts. In STEP or INST mode, press 🎉 to switch between them. Up to 16 sounds can be generated simultaneously in either layout.

| PAD layout | In this performance mode, you can assign different instruments to each of the 32 pads. Instruments 1–32 are assigned individually to pads 1–32. The selected instrument is shown on the display and the corresponding pad lights white. |
| SCALE layout | This performance mode allows you to use a musical scale to play the instrument selected in PAD layout. 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. Unlike in **AR-96** Version 1.00, any of the 1–32 instruments can be switched to SCALE layout. The note (pitch) that sounds when a pad is played in PAD layout is C4. |
Assignments of instruments to the Ring Controller are different for STEP and INST modes as well as for PAD and SCALE layouts.

<table>
<thead>
<tr>
<th>Instrument No.</th>
<th>STEP mode</th>
<th>Instrument No.</th>
<th>INST mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Instrument No.</td>
<td></td>
</tr>
<tr>
<td>PAD layout</td>
<td></td>
<td>Note</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Using chromatic scale)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Same notes assigned to side and bottom rings)</td>
<td></td>
</tr>
</tbody>
</table>
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.

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

**HINT**
When the Ring Controller is asleep and connected to the Base Station, turning the Base Station power ON/OFF will also turn the Ring Controller ON/OFF.

**NOTE**
Use the AC adapter to power the AR-96 even when it is connected to a computer or other device by USB.

Ring Controller power

** ■ Charging the Ring Controller**

1. Place the Ring Controller on the Base Station.

Align their charging connectors before placement.
Charging will start and the Ring Controller [LED] LED will light.

<table>
<thead>
<tr>
<th>Charging (Power off or asleep)</th>
<th>Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging during use</td>
<td>Orange</td>
</tr>
<tr>
<td>Using battery (Remaining battery charge at least 12%)</td>
<td>Green</td>
</tr>
<tr>
<td>Using battery (Remaining battery charge less than 12%)</td>
<td>Blinking green</td>
</tr>
</tbody>
</table>

**HINT**
Even when the Base Station is OFF, if it is connected to a power supply, it can recharge the Ring Controller.
Turning the power on and off (continued)

- Putting the Ring Controller to sleep
When the Ring Controller is charging, the power will not turn OFF. Instead, it will go to sleep.

1. Press and hold to wake it from sleep.

2. Press and hold to turn the power on.

HINT
When asleep, the Ring Controller LED will light red (charging) or blink red (not charging).

- Turn the Ring Controller OFF
To turn the Ring Controller OFF, follow these steps when it is not charging.

1. Press and hold for at least 7 seconds when not charging.

2. Press and hold to turn the power on.

NOTE
- When the power is OFF, the LED becomes unlit.
- Even if the power is OFF, the Ring Controller will automatically enter sleep mode when charging starts.
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-96, 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-96. See the Operation Manual for formatting procedures.
You can tap pads to perform as you like. You can also record performances in real-time to create patterns.

In this mode, each pad around the Ring Controller corresponds to a single instrument (PAD layout) or note (SCALE layout).

**HINT**

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

Different parameter settings are assigned to the side and bottom rings, so they can be used for different tones.
Pattern creation 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.

Pattern creation in SCALE layout

After starting real-time input, tap pads for notes to input them.
Scales can be used to input every instrument numbered 1–32.
**Operation summary**

### Enter INST mode

Press \[\text{INST}\] to enter INST mode.

### Select a pattern

Use \[\text{U}\] to select a pattern number.

### Check the instruments

Play the pads to hear the sounds of the input instruments. When a pad is tapped, it becomes “selected” and lights white. The name and parameters of the instrument are shown on the display.

To select an instrument without making a sound press and hold \[\text{INST}\] while tapping the pad.

To use SCALE layout to input the selected instrument, press \[\text{SELECT}\] to change the layout.

You can also use \[\text{SELECT}\] to check the instruments.

### Start input

Press \[\text{R}\] to enter standby, and press \[\text{P}\] to start real-time input.
**Start real-time input**

**In PAD layout**
Tap instrument pads to input them in time with the looping pattern that is playing back.

**In SCALE layout**
Tap the pads of notes to input them in time with the looping pattern that is playing back.

**End input**

Press to end real-time input.
In STEP mode, you can create patterns by inputting them one step at a time. In this mode, each pad around the Ring Controller corresponds to a single sequential step.

Since the Ring Controller rings are divided into 32 steps, you can input up to two musical bars (①) at a time (when the smallest step is a 16th note).

If the pattern is longer than two bars, the Ring Controller display will switch every two bars (in cases when the smallest step is a 16th note).
STEP mode overview (continued)

In PAD layout

The 5 rings (3 when set to Guideline display) on the Ring Controller each show a different instrument. You can use \( \text{SELECT} \) to change which instruments are shown by which rings.

Since multiple instruments can be shown by the Ring Controller, you can check instruments that have already been input as you input the next instrument.

In SCALE layout

You can use \( \text{SELECT} \) to select the note input.
Operation summary

Select a pattern

Use \( \text{\textbullet} \) to select a pattern number.

Enter STEP mode

Press \( \text{\textbullet} \) \( \text{STEP} \) to enter STEP mode.

Select the instrument to input

Use \( \text{\textbullet} \) \( \text{SELECT} \) to select the instrument to use for input from the 32 instruments. That instrument moves to the top ring of the Ring Controller.

1. Use \( \text{\textbullet} \) \( \text{SELECT} \) to select the input instrument

2. The instrument color shown on the ring moves

To use SCALE layout for input, press \( \text{\textbullet} \) \( \text{SELECT} \) to change the mode.

Step input

Tap pads to input the sound at those points.

SONG mode

SONG mode overview

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

The pads on the Ring Controller are assigned 32 patterns.
The same patterns are assigned to the top, side and bottom rings.
You can change the patterns assigned to each pad.
SONG mode also has A–L pad banks.
By changing banks, you can assign 32 different patterns to the Ring Controller.

After completing preparation, start real-time input and tap pads to play their patterns.
Enter SONG mode
Press **SONG** to enter SONG mode.

Select a song
Press **MENU** and use **SELECT** to open the Song Sequence List. Then, use **SELECT** and **SELECT** to select a song sequence.

Select a pattern to play
Use **0** to change the pad bank as necessary.

Start input
Press **0** to start real-time input.

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

End input
Press **0** to end song input.
Capturing audio (recording)

Capture overview

The AR-96 can capture (record) audio it is playing back and audio input through its INPUT jacks in every mode.
You can use captured audio as instruments and in LOOPER mode.
WAV files saved on SD cards can also be used in the same way as captured audio.

HINT

• In LOOPER mode, up to 96 captured recordings can be assigned to pads and used to perform.
• The total time of captured audio that can be used for instruments is 6 minutes (or 12 minutes if mono).

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.
Operation summary

Play the material to capture

• Play a pattern or song, for example, that you want to use as a captured recording.
• Input from the sound source connected to the INPUT jacks.

Start capturing

Press \( \text{C} \) to start capturing.

Stop capturing

Press \( \text{C} \) again to stop capturing.

On the setting screen that appears after capturing stops, you can assign it to pads and set the range that is sounded, for example.

Save

You can select and save captured audio to use as an instrument or in LOOPER mode.

Captured audio can also be saved to an SD card without changing its name or using it as an instrument or in LOOPER mode.
In LOOPER mode, you can combine patterns and songs that have already been created, input from the INPUT jacks, WAV files and other captured audio into a single song as a looper sequence.

32 captured recordings are assigned to the Ring Controller pads. The captured recordings assigned to the pads can be changed. The same captured recordings are assigned to the top, side and bottom rings.

LOOPER mode has A, B and C pad banks. By changing banks, you can assign 32 different captured recordings to the Ring Controller.

After completing preparation, start real-time input and tap pads to play their captured recordings. Up to 16 captured mono recordings can be played back at the same time.

**HINT**
See "Captured recordings" (→ P. 26) for how to create captured recordings.
Operation summary

Enter LOOPER mode
Press \textit{LOOPER} to enter LOOPER mode.

Select the looper sequence
Press \textit{M} and use \textit{SEL} to open the Looper Sequence List.
Use \textit{SEL} and \textit{SEL} to select a loop sequence from the list.

Select captured audio for playback
Tap a pad or use \textit{C} to change the pad bank as necessary.

Start input
Press \textit{S} to start real-time input.

Create a looper sequence
Tap pads for captured recordings to play them and add them to the sequence in real time.

End input
Press \textit{S} to end looper sequence input.
Editing sounds

Press \( \text{EDIT} \) to edit sounds by changing settings related to oscillator and noise types, insert effects, level, pan, send effects, LFOs and envelopes, for example. You can also set Ring Controller display settings in SONG mode and capture settings in LOOPER mode.

Effects

Press \( \text{FILTER} \), \( \text{DELAY} \), \( \text{REVERB} \) or \( \text{MASTER} \) to apply the filter, delay, reverb or master effect to a pattern, song or looper sequence.

Mixer

Press \( \text{MIXER} \) when creating or playing a pattern, song or loop to adjust the mix of the instruments, as well as to mute, solo and use other settings.

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.

HINT

See the Operation Manual for detailed information about all the functions.
# Product specifications

## Base Station

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Connectors</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT L/R</td>
<td>Connector type</td>
<td>Standard mono phone jacks (unbalanced)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Input gain</td>
<td>+10 to −65 dB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Input impedance</td>
<td>50 kΩ</td>
<td></td>
</tr>
</tbody>
</table>

## Outputs

<table>
<thead>
<tr>
<th>Connectors</th>
<th>Connector type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT L/R</td>
<td>Connector type</td>
<td>Standard mono phone jacks (unbalanced)</td>
</tr>
<tr>
<td></td>
<td>Output impedance</td>
<td>200 Ω</td>
</tr>
<tr>
<td>PHONES</td>
<td>Connector type</td>
<td>Standard stereo phone jacks 20mW × 2 (into 32Ω load)</td>
</tr>
<tr>
<td></td>
<td>Output impedance</td>
<td>10 Ω</td>
</tr>
</tbody>
</table>

### 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–128GB SDXC cards

### Power

- BASE STATION: 1.25 W maximum
- When powering Ring Controller: 4.5 W maximum (including charging current)

### External dimensions

- 260.0 mm (D) × 260.0 mm (W) × 64.0 mm (H)

### Weight (main unit only)

- 990 g

### Display

- 2.0” full-color LCD (320×240)

### Interface

- USB 2.0 (standard USB MIDI)
- 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 IN/OUT

- USB MIDI or MIDI over Bluetooth LE

## Ring Controller

### MIDI IN/OUT

- MIDI over Bluetooth LE

### Sensors

- PAD pressure sensors, 3-axis accelerometer

### Power

- Lithium polymer rechargeable battery (DC4.2V maximum voltage, 3.7V nominal voltage, 450mAh 3.7V capacity), direct supply from Base Station

### Power consumption

- When using battery: 2 W maximum

### Recharging time

- About 2.5 hours

### Battery operation time

- About 4.5 hours when LED brightness is Low
- About 2.5 hours when LED brightness is High (differs according to use conditions)

### External dimensions

- 280.5 mm (D) × 280.5 mm (W) × 33.5 mm (H)

### Weight (main unit only)

- 540 g

### Trigger pads

- Number of pads: 96
- Velocity curves: 4 types

### Interface

- MIDI over Bluetooth LE
- Supported iOS devices: iPad devices running iOS 8.0 or later
- Supported Macs: Mac OS X 10.10.5 Yosemite or later, MacBook, iMac and Mac pro series computers that support BLE transmission
- Transmission speed: 31.25 kbps (±1%) maximum
- Latency (with Ring Controller): 5–12.5 ms
- Latency (iOS and Mac OS): 16.25–20 ms