AR-3000SD
AUDIO RECORDER

Reference Manual

Before using the AR-3000SD, ensure that its system program is at the most recent version.
For information on available upgrades for the system program, see the Roland website (http://www.roland.com/support/).

Roland

Owner's Manual

Read this first. It explains the basic things you need to know in order to use the AR-3000SD.

PDF Manual (download from the Web)

- **Reference Manual (this document)**
  This describes all parameters of the AR-3000SD.
- **Command Reference Manual**
  This describes control via the RS-232C interface, Telnet, or FTP.
- **ARE-3000 Owner's Manual**
  This is the manual for the computer software (Windows only).

To obtain the PDF manual

1. Enter the following URL in your computer.
   http://www.roland.com/manuals/

   ▼

2. Choose "AR-3000SD" as the product name.

Contents

Modifying Recorded Phrases (Phrase Settings)

Adding Information to Individual Phrases (Phrase Information)

This adds a variety of information to recorded phrases (phrase information).

If you want the phrase information when the card was formatted to remain unchanged, then you don't need to change any settings.

➡ "Settings When a Card Is Formatted" (p. 63)

NOTE

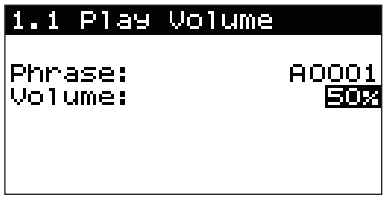
- The items that can be set differ according to the type of phrase (audio phrase, MIDI phrase, command phrase, pattern phrase, or song phrase).
  ➡ "Phrase Information/Phrase Setting Correspondence Table" (p. 17)
- If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Play Volume (%)

This sets the volume level during playback of audio phrases. The volume level at the time of recording is considered to be 100%.

Procedure for setting the play volume

1. **Use the [SELECT] dial to choose the phrase whose setting you want to change.**
2. **Press the [MENU] button.**
   The MENU indicator lights up.
3. **Use the [SELECT] dial to choose "1.1 Play Volume," then press the dial.**
   You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.
4. **Turn the [SELECT] dial to set the Volume (from 10% to 100%), then press the dial.**

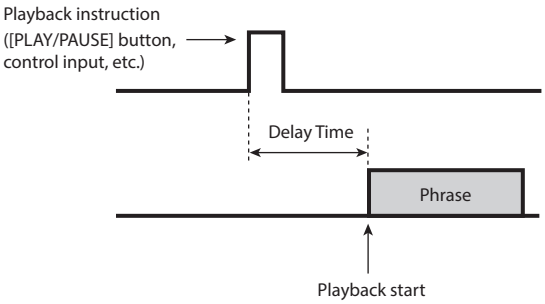


5. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
6. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Delay Time (00s 00f to 59s 29f)

This sets the time until phrase playback starts.

* The frame display varies according to the setting for the MIDI Time Code (MTC) frame rate.



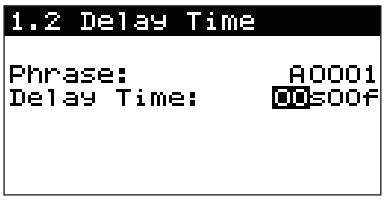
Tip

If you're using Busy Out signals to start an amp or the like, inserting a delay time into the phrase that corresponds to the amp start time (that it, the time until sound is produced) can help prevent drop-out at the beginning of the phrase at the time of playback.

➡ "Starting Another Device (Busy Out)" (p. 36)

Procedure for setting the delay time

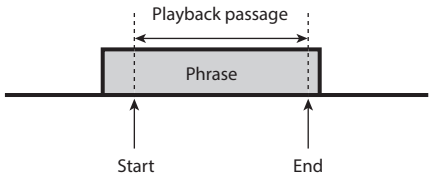
1. **Use the [SELECT] dial to choose the phrase whose setting you want to change.**
2. **Press the [MENU] button.**
   The MENU indicator lights up.
3. **Use the [SELECT] dial to choose "1.2 Delay Time," then press the dial.**
   You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.
4. **Turn the [SELECT] dial to set the Delay Time, then press the dial.**



5. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
6. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Playback Point (Start and End)

These determine where phrase playback is to start and end.



NOTE

You cannot make these settings for MODE2 or MP3 phrases.

Procedure for setting playback point

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

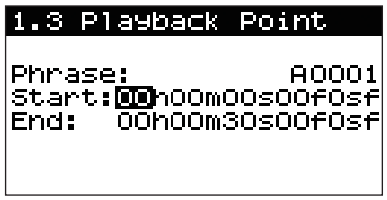
2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.3 Playback Point," then press the dial.

You can reselect the phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to select the start position (time), then press the dial.



Pressing the dial while the cursor (highlighted) is at the "sf" position moves the end position setting.

* Each press of the [BACK] (USER) button moves the cursor (highlighted) in the sequence of sf → f → s → m → h. Pressing the dial while the cursor (highlighted) is at the "sf" position moves the end position setting.
* The frame display varies according to the setting for the MIDI Time Code (MTC) frame rate.

Turn the [SELECT] dial to set the end position (time), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

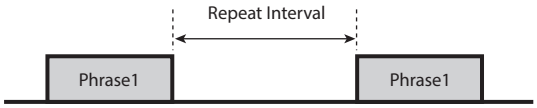
Repeat Play (Repeat, Repeat Interval)

This makes the settings for repeated playback of a phrase.

Repeat playback section is equivalent to the playback point (described earlier).

Repeat: This sets the number of times playback is repeated. (For example, when the number of repetitions is set to five times, the phrase is played back a total of six times.) When the number of repetitions is set to ON, playback repeats endlessly.

Interval: This sets the playback interval as a time value.



Procedure for making repeat play settings

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.4 Repeat Play," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to choose Repeat (OFF/ON/1 to 99), then press the dial.

Turn the [SELECT] dial to set the Repeat Interval (from 00 m 00 s to 59 m 59 s), then press the dial.

* The number of the repeat interval can be valid only when repeat "ON" or "1–99" is selected.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Loop Play (Loop, Loop 1, Loop 2, Crossfade Time)

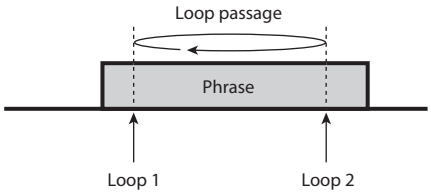
This makes the setting for loop playback of the desired passage of a phrase. Loop Playback starts at the start point (playback point), then after looping the specified number of times, playback ends at the end point (playback point).

Loop: This sets the number of times playback is looped. (For example, when the number of loops is set to five times, the looped phrase is played back a total of six times.) When the number of loops is set to Endless, playback loops endlessly.

Loop 1: This specifies the return point for looping.

Loop 2: This specifies the repeat point for looping.

Crossfade Time: This adjusts the junction during loop playback. Longer times make for progressively greater smoothness.



NOTE

- Loop Play is not possible when in the Dual Mono mode.
- You cannot make these settings for MODE2 or MP3 phrases.

Procedure for making loop play settings

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

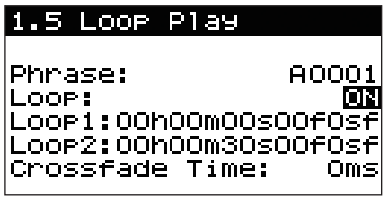
2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.5 Loop Play," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to choose Loop (OFF/ON/1 to 99), then press the dial.



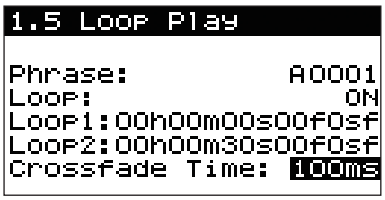
Turn the [SELECT] dial to set the Loop 1 position (time), then press the dial. Pressing the dial while the cursor (highlighted) is at the "sf" position moves the Loop 2 position setting.

* The time that is set is shown as a relative amount of time, with the start position of the playback point taken to be 0.

* Each press of the [BACK] (USER) button moves the cursor (highlighted) in the sequence of sf → f → s → m → h.

5. Turn the [SELECT] dial to set the Loop 2 position (time), then press the dial.

6. Turn the [SELECT] dial, select the Crossfade Time (0 ms to 1000 ms), then press the dial.



7. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

8. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

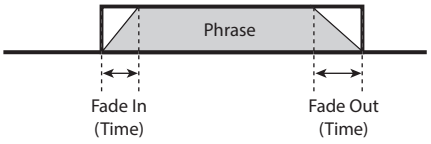
MEMO

If a start or end playback point is set within the looped interval, the start point is set to Loop 1 and the end point is set to Loop 2.

Fade (Fade In and Fade Out)

This makes the settings for starting phrase playback with a Fade In and ending playback with a Fade Out.

This sets the time until the playback level is reached from silence (Fade In) and the time until silence is reached from the playback level (Fade Out).



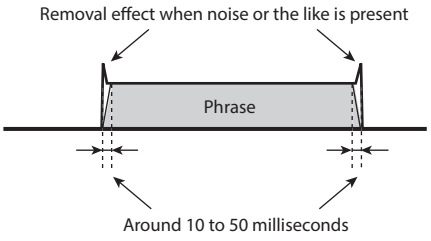
Tip

If there is noise or the like at the beginning or end of a phrase, you can cause the noise component not to be played back simply by setting the Fade In or Fade Out times to Time 1 through Time 3.

Time1: Set at approx. 10 msec.

Time2: Set at approx. 30 msec.

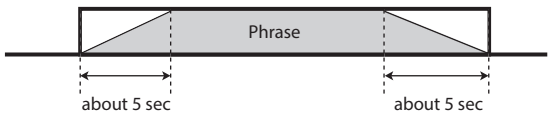
Time3: Set at approx. 50 msec.



Tip

Setting the Fade In or Fade Out time to about 5 seconds is an effective way to produce a normal Fade In (crescendo), or Fade Out (decrescendo) effect.

Fade In (crescendo)
/Fade Out (decrescendo) effect



MEMO

When you use the [STOP] button (or other means) to stop a phrase during playback for which this setting has been made, the phrase stops with a Fade Out. If you don't want a Fade Out, pressing the [STOP] button again stops the phrase immediately.

Procedure for making the settings for fade in or fade out

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

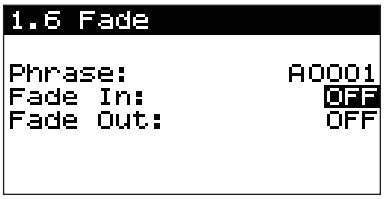
2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.6 Fade," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to make the setting for Fade In (time: OFF, Time 1 to Time 3, or from 00.1 to 59.9 seconds), then press the dial.



Turn the [SELECT] dial to make the setting for Fade Out (time: OFF, Time 1 to Time 3, or from 00.1 to 59.9 seconds), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the setting, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

NOTE

Fade settings may not be properly reflected in situations such as the following:

- When the set fade time is longer than the phrase.
- When fade-in and fade-out settings overlap.
- When loop-interval settings and fade settings overlap.

Control Out

This makes the setting for Control Out operation after phrase playback ends.

➡ "Controlling Another Device (Control Out)" (p. 37).

Procedure for making the control out settings

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

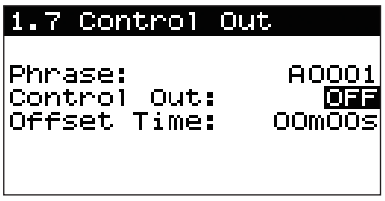
2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.7 Control Out," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to choose Control Out (OFF or ON), then press the dial.



Turn the [SELECT] dial to set the Offset Time (from 00m00s to 59m59s), then press the dial.

* The offset time can be valid only when Control Out "ON" is selected.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Changing the Playback Tempo for MIDI Phrases (MIDI Playback Tempo)

This changes the playback tempo for MIDI phrases.

➡ "Recording and Playing MIDI Data (MIDI Phrases)" (p. 21)

Procedure for setting the MIDI tempo

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.8 MIDI Tempo," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to set the MIDI tempo (from 5 to 260), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Phrase Name

This assigns a name to a phrase. You can enter a phrase name of up to 12 characters. (For a phrase that has already been recorded, the phrase name is the card name plus the phrase number.)

Procedure for setting the phrase name

1. Use the [SELECT] dial to choose the phrase whose setting you want to change.

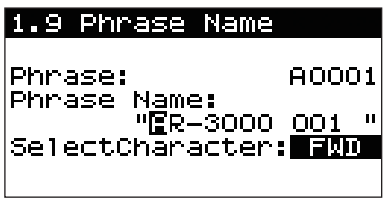
2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.9 Phrase Name," then press the dial.

You can reselect a phrase whose setting you want to change by pressing the [BACK] (USER) button. The entry position (highlighted) moves to the phrase selection, so turn the [SELECT] dial to reselect card and the phrase number, then press the dial.

4. Turn the [SELECT] dial to choose a character. Press the dial to confirm the selected character.



Characters you can use: Letters of the alphabet (upper case) space numerals - ! # $ % & ' ( ) @ ^ _ { }

FWD: This advances the location for entering a character. Pressing the dial advances the entry location by one.

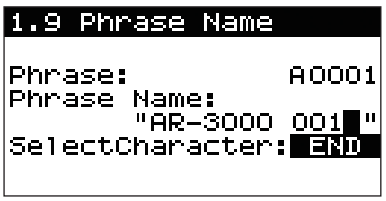
BWD: This moves back the location for entering a character. Pressing the dial moves back the entry location by one.

INS: This inserts a space. Pressing the dial inserts a single space.

DEL: This deletes a character. Pressing the dial deletes a single character.

END: To finish the process.

5. To finish the save process, then in step 4, turn the [SELECT] dial to choose END, then press the dial.



6. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

7. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

MTC Offset Settings for Phrases

On the AR-3000SD, in addition to a global MTC offset setting for the entire system, you can set an MTC offset for each individual phrase. The global system offset and the offsets for each phrase are added together.

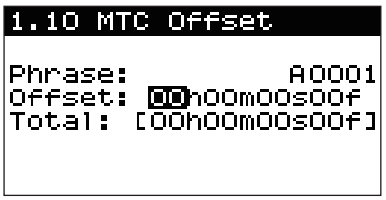
Procedure for setting an MTC offset

1. Turn the [SELECT] dial to select the phrase having the setting to change.

2. Press the [MENU] button.

The MENU indicator lights up.

3. Use the [SELECT] dial to choose "1.10 MTC Offset," then press the dial.



4. Turn the [SELECT] dial to set the value for Offset (time), then press the dial.

MEMO

Successive presses of the [BACK] (USER) button move the cursor (highlighted) in this sequence: f → s → (user) → m → h.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Creating Combinations of Phrases (Phrase Combination)

You can create new phrases by combining a number of phrases already recorded and storing the result as a different phrase. There are two types of methods for creating phrase combinations: pattern phrases and song phrases.

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Combinations of Phrase Units (Pattern Phrases)

You can combine a number of phrases to create a new phrase (pattern phrase). A pattern phrase is a stored combination of phrases that have already been recorded. A pattern phrase is also treated as a single phrase.

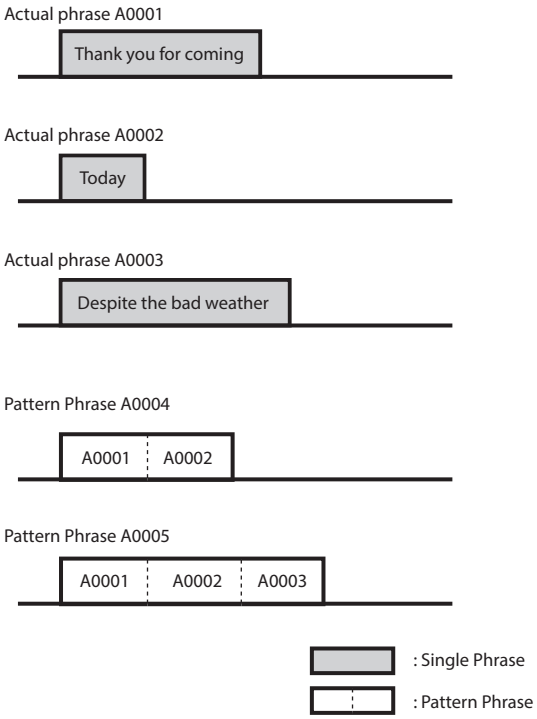
Creating pattern phrases makes it possible to create and start a variety of combined-phrase patterns while saving card memory space.

Specific examples

First, make actual recordings of three phrases like the ones described below.

A0001: "Thank you for coming"
A0002: "Today"
A0003: "Despite the bad weather"

Combine these three to create a pattern phrase.



A0004: "Thank you for coming today" (for sunny days).
A0005: "Thank you for coming today, despite the bad weather" (for rainy days).

Set A0004 or A0005 to start on playback.

Phrases 0001 through 0005 are used, but the phrases actually recorded (the actual phrases) are only 0001, 0002, and 0003.

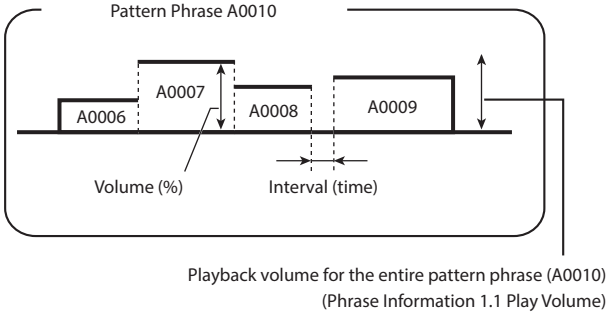
- You can assign up to 100 phrases to a single pattern phrase.
- You can set the phrase playback sequence (pattern phrase mode) to SEQ or to RANDOM 1, 2, or 3.

➡ "About pattern phrase playback methods (pattern phrase modes)" (p. 10)

- The playback volume level for phrases is set at 100% of the volume level when recorded. (The overall volume level for each pattern phrase is set with phrase information 1.1 "Play Volume (%)" (p. 4).)

* Volume-level settings for MIDI phrases and command phrases are ignored.

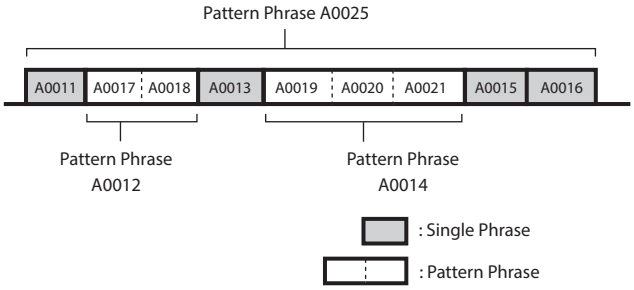
- The interval sets the time between playback of one phrase and the next phrase.



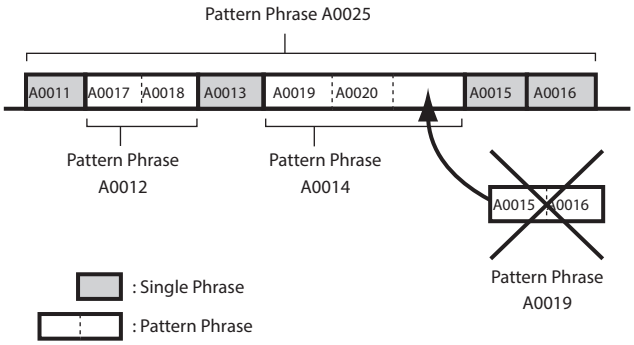
Playback volume for the entire pattern phrase (A0010)
(Phrase Information 1.1 Play Volume)

- You can assign a phrase any number of times to a single pattern phrase, or to more than one pattern phrase.

- You can assign pattern phrases that have already been created to other pattern phrases.



* When a hierarchy of two or more levels of pattern phrases is assigned, playback may not be correct.



- You can also assign MIDI phrases and command phrases to pattern phrases.
- You can assign a mixture of audio phrases, MIDI phrases and command phrases.
- Song phrases that have already been created (p. 12) cannot be assigned to pattern phrases.

NOTE

- Audio phrases whose sampling rate is 96 kHz or whose recording format is WAV-24 or MP3 cannot be assigned to pattern phrases.
- "Playback Volume," "Playback Point" and "Fade settings" included in the phrase information for phrases assigned to a pattern phrase remain in effect, but other phrase information is disregarded.
- To create a pattern phrase, you can choose constituent actual phrases on either inserted card, but note that the pattern phrase will not be played back correctly if the card containing the constituent phrase is not already inserted at the time of playback. (If the constituent phrase does not exist, the next phrase is sought and played back.)

About pattern phrase playback methods (pattern phrase modes)

There are four types of pattern-phrase playback methods (pattern phrase modes), which are described below. Choose the one that matches your usage conditions.

SEQ: This plays back the phrases in the sequence in which they were assigned.

RANDOM1: This plays back the phrases assigned to No. 001 through No. 100 at random.

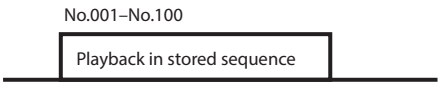
RANDOM2: This plays back the phrases assigned to No. 001 through No. 100 at random, while allowing you to insert another phrase once at a set number of times (interrupt phrase interval of 1 to 25). The interrupt phrase is selected sequentially from phrases No. 101 through 128.

RANDOM3: This plays back the phrases assigned to No. 001 through No. 100 at random, while allowing you to insert another phrase once at a set number of times (interrupt phrase interval of 1 to 25). The interrupt phrase is selected randomly from phrases No. 101 through 128.

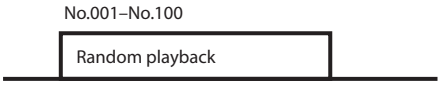
NOTE

Assign only audio phrases to No. 101 through 128.

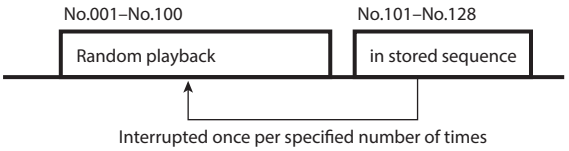
SEQ



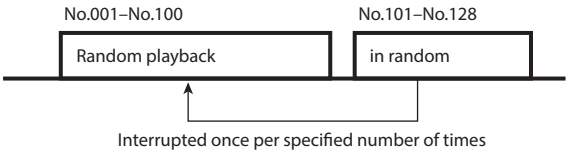
RANDOM1



RANDOM2



RANDOM3



* With random playback, once a phrase has been played back it is not chosen again.

Procedure for creating a pattern phrase

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "2.1 Pattern Phrase," then press the dial.

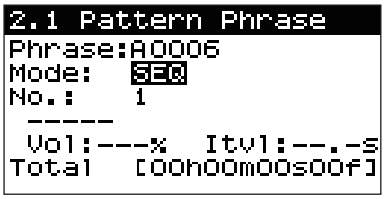
3. Press the [BACK] (USER) button.

4. Turn the [SELECT] dial to choose the card containing an empty phrase for creating a new pattern phrase or the pattern phrase whose settings you want to change, then press the dial.

5. Turn the [SELECT] dial to choose the empty phrase for creating a new pattern phrase or the pattern phrase whose settings you want to change, then press the dial.

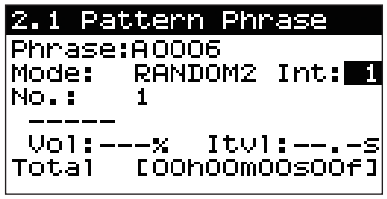
* Only phrases that can be executed are displayed.

6. Turn the [SELECT] dial to choose the pattern phrase mode (SEQ, RANDOM1, RANDOM2, or RANDOM3), then press the dial.



* The interrupt phrase interval described below can be set only when you have selected RANDOM2 or RANDOM3. If you selected SEQ or RANDOM1, proceed to step 8.

7. Turn the [SELECT] dial to set the interrupt phrase interval (from 1 to 25), then press the dial.



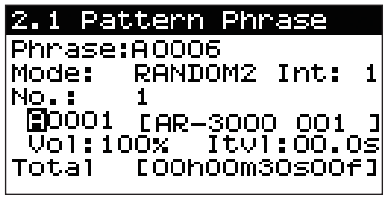
8. Turn the [SELECT] dial to choose the playback sequence, then press the dial.

- If you selected SEQ or RANDOM1, assign phrases in playback order No. 001 through No. 100.
- If you selected RANDOM2 or RANDOM3, assign phrases in playback order No. 001 through No. 100, and also assign interrupt phrases to No. 101 through No. 128.

END: To finish making settings.

CLEAR: To initialize all phrase assignments.

9. Turn the [SELECT] dial to choose the card containing the phrase you want to store, then press the dial.



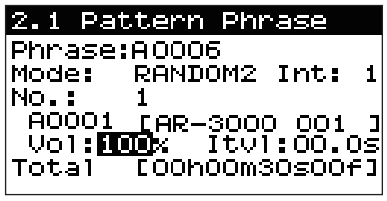
10. Turn the [SELECT] dial to choose the phrase to assign, then press the dial.

* Only assignable phrases are displayed.

* If phrases are assigned in the playback order you selected in step 8, then selecting "-----" cancels the phrase assignment.

11. Turn the [SELECT] dial to set the playback volume for the assigned phrase (from 10% to 100%), then press the dial.

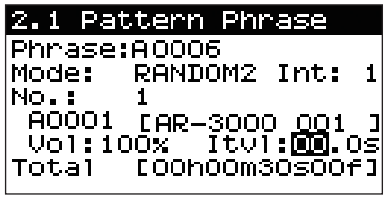
* If the assigned phrase is a MIDI phrase or a command phrase, setting of the playback volume level is ignored.



Turn the [SELECT] dial to set the interval for the assigned phrase (from 00.0 to 59.9 sec), then press the dial.

12. Repeat steps 8 through 10 to assign phrases.

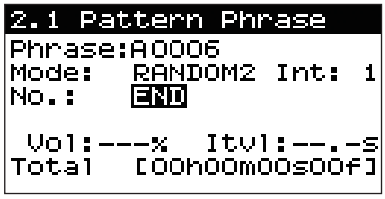
- The screen displays the total time for the pattern phrase.



* If "-----" is assigned at a number, the interval time for the previous assigned phrase is not added to the total time.

* The playback time of MIDI phrases or command phrases is not added to the total time.

13. To cancel the save process, then in step 8, turn the [SELECT] dial to choose END, then press the dial.



14. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

15. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Tip

When Playing Back Narration with Pattern Phrases

With narrations that use pattern phrases, the proper treatment of silent portions is important in order to make the narration sound more natural and easier to understand.

This issue can be addressed as follows:

- Adjust the interval for the pattern phrase.
- Use trigger recording (Owner's Manual: p. 21) to avoid recording silent portions.
- Use the playback point phrase settings (p. 5) to delete silent portions that might be perceived as being odd.

Time-based Combinations (Song Phrases)

You can paste together a number of phrases in temporal (time-flow) order to create a new phrase (song phrase).

A song phrase is a stored combination of phrases that have already been recorded. A song phrase is also treated as a single phrase.

By creating song phrases, you can create time-based phrases, while saving card memory space.

Specific examples

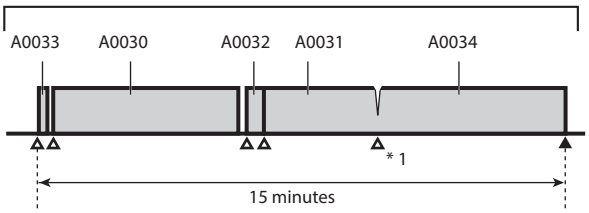
Try setting the time frame for playback at 15 minutes.

Prepare phrases like the ones described below.

A0030: A 5-minute song
A0031: A 3-minute song
A0032: A 30-second announcement
A0033: A 15-second announcement
A0034: A 6-minute song

Paste these phrases on a time axis to create song phrase A0035 having a total time of 15 minutes.

Song Phrase
A0035



△: Start point of phrase (time)

▲: End point of song phrase (time)

*1 If the start point (time) for phrase A0034 is set at a time that overlaps with phrase A0031, playback of A0031 is interrupted and playback of A0034 starts.

- You can assign up to 100 phrases to a single song phrase.
- You can assign a phrase any number of times to a single song phrase, or to more than one song phrase.

NOTE

- Playback points and fade settings included in the phrase information for phrases assigned to a song phrase remain in effect, but other phrase information is disregarded. Note that a phrase is assigned to a song phrase in the same state as when it was just recorded (that is, the state before phrase information settings are made).
- When you are creating a song phrase, you can choose actual phrases from both card A and card B, but note that the pattern phrase is not played back correctly if the card containing the constituent phrase is not inserted at the time of playback. (If a constituent phrase does not exist, silence is heard until the start point [time] for the next phrase is reached.)
- **Conditions for Creating Song Phrases**
  - Song phrases that have already been created cannot be assigned to a song phrase.
  - Pattern phrases that have already been created cannot be assigned to a song phrase.
  - MIDI phrases and command phrases cannot be assigned to a song phrase.
  - Audio phrases whose sampling rate is 96 kHz or whose recording format is WAV-24 or MP3 cannot be assigned to song phrases.

Procedure for creating a song phrase

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "2.2 Song Phrase," then press the dial.

3. Press the [BACK] (USER) button.

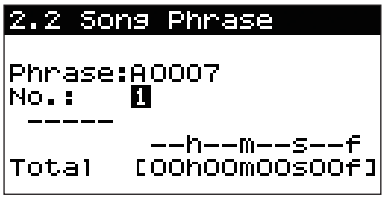
4. Turn the [SELECT] dial to choose the card containing an empty phrase for creating a new song phrase or the song phrase whose settings you want to change, then press the dial.

* If a card is inserted into either slot, the entry location (highlighted) advances to the phrase number.

5. Turn the [SELECT] dial to choose the empty phrase for creating a new song phrase or the song phrase whose settings you want to change, then press the dial.

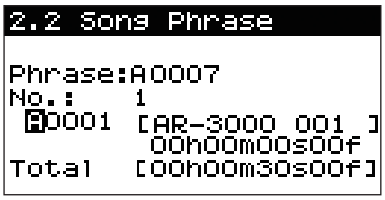
* Only phrases that can be executed are displayed.

6. Turn the [SELECT] dial to choose the assignment number (from No. 001 to No. 100), then press the dial.



END: To finish making settings.
CLEAR: To initialize all phrase assignments.

7. Turn the [SELECT] dial to choose the card containing the phrase you want to store, then press the dial.



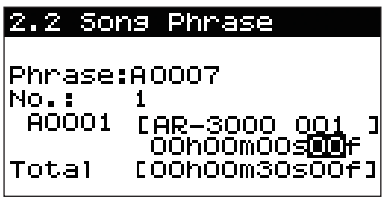
8. Turn the [SELECT] dial to choose the phrase you want to store, then press the dial.

* Only assignable phrases are displayed.

-----: If a phrase is assigned at the assignment number you selected in step 6, then this cancels the phrase assignment. (However, even after the assignment is canceled, point information is retained.)

STOP: Select this when you want to specify an ending point (time) for the song phrase. (In the specific example on p. 12, this is set at 15 minutes in step 8.)

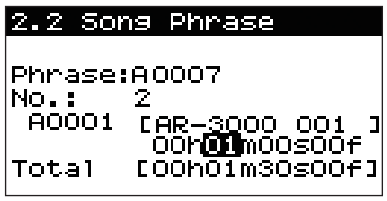
9. Turn the [SELECT] dial to set the point (time) to start the assigned phrase, then press the dial.



* If you selected STOP in step 8, then set the end point (time) for the song phrase and press the dial. (In the specific example on p. 12, this is set at 00 h 15 m 00 s 00 f.)

10. **Repeat steps 6 through 9 to assign phrases.**

- The screen displays the total time for the song phrase.



11. **To cancel the save process, then in step 6, turn the [SELECT] dial to choose END, then press the dial.**

12. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

13. **Press the [MENU] button.**

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Modifying Phrases Themselves (Phrase Edit)

This is used to modify (edit) recorded phrases.

➡ "Settings When a Card Is Formatted" (p. 63)

NOTE

- Items that can be set differ according to the type of phrase (audio phrase, MIDI phrase, command phrase, pattern phrase, or song phrase).
  ➡ "Phrase Information/Phrase Setting Correspondence Table" (p. 17).
- When editing a phrase, you cannot overwrite a phrase itself except by using the phrase delete. Make sure there is enough free space to carry out phrase editing.
- If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Deleting a Phrase (Phrase Delete)

This deletes a phrase. You can also delete a continuous group of phrases in a batch.

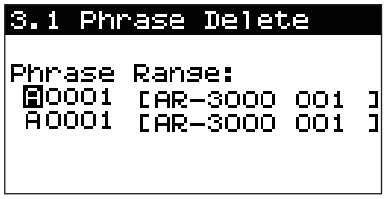
Procedure for deleting a phrase

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

The MENU indicator lights up.

2. **Use the [SELECT] dial to choose "3.1 Phrase Delete," then press the dial.**

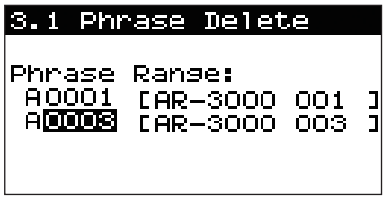
3. **Turn the [SELECT] dial to choose the card containing the beginning phrase you want to delete, then press the dial.**



4. **Turn the [SELECT] dial to choose the beginning phrase to delete, then press the dial.**

* Only phrases that can be executed are displayed.

5. **Turn the [SELECT] dial to choose the final phrase to delete, then press the dial.**



* Only phrases that can be executed are displayed.

* To delete a single phrase, choose the same phrase for the beginning phrase and the final phrase.

6. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

7. **Press the [MENU] button.**

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Copying a Phrase (Phrase Copy)

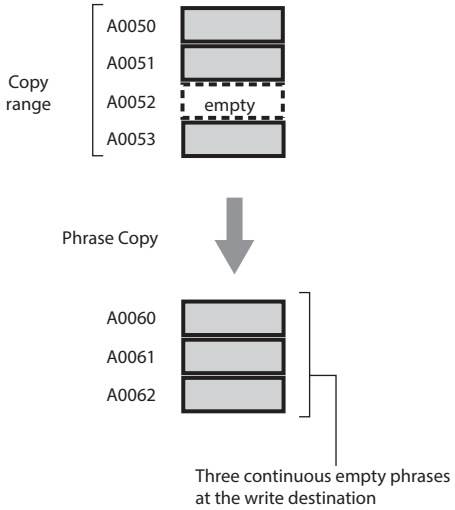
This copies a phrase. You can also copy a continuous group of phrases in a batch.

NOTE

Important Notes About Copying a Continuous Group of Phrases in a Batch

Example: Copying a continuous range of phrases from A0050 to A0053

If A0052 happens to be a used empty phrase, then specify a continuous group of three empty phrases as the beginning. (The system seeks and displays only writable phrases.)



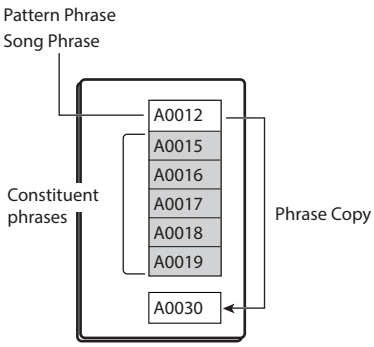
NOTE

Important Notes About Copying Pattern Phrases or Song Phrases

For pattern phrases and song phrases, only the combination information is copied. Note that the actual constituent phrases are not copied.

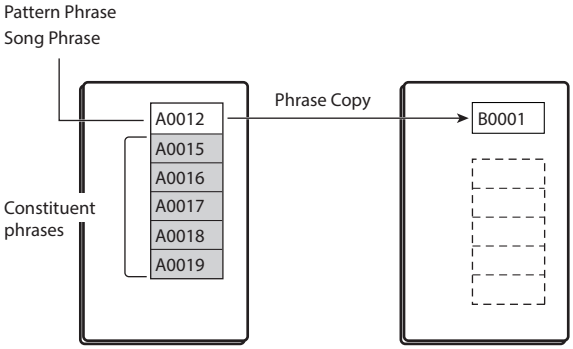
Example: When a pattern phrase or song phrase on the same card is copied

→ The actual constituent phrases exist, so playback is correct.



Example: When a pattern phrase or song phrase is copied between different cards (A → B)

→ Playback is correct while card A is inserted in the CF card slot (and the actual phrases are present), but if card A is removed or card B is inserted into CF card slot, the actual constituent phrases are no longer present, and so playback is not correct. To ensure that a pattern phrase or song pattern copied to a different card (A → B) is played back correctly, copy the actual constituent phrases separately to card B.
In such cases, with regard to the constituent phrases of the pattern phrases and song phrases, the actual phrases should be reregistered after the copying is complete.



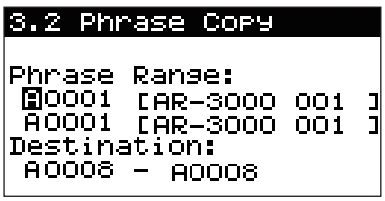
Procedure for copying a phrase

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "3.2 Phrase Copy," then press the dial.

3. Turn the [SELECT] dial to choose the card containing the beginning phrase of the copy source, then press the dial.



4. Turn the [SELECT] dial to choose the beginning phrase at the copy source, then press the dial.

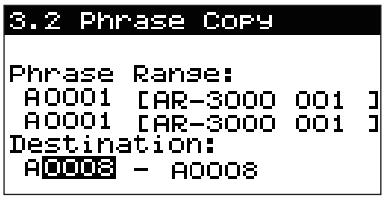
* Only phrases that can be executed are displayed.

5. Turn the [SELECT] dial to choose the final phrase of the copy source, then press the dial.

* Only phrases that can be executed are displayed.

* To copy a single phrase, choose the same phrase for the beginning phrase and the final phrase.

6. Turn the [SELECT] dial to choose the write-destination card, then press the dial.



* Only phrases that can be executed are displayed.

7. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

8. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Moving a Phrase (Phrase Move)

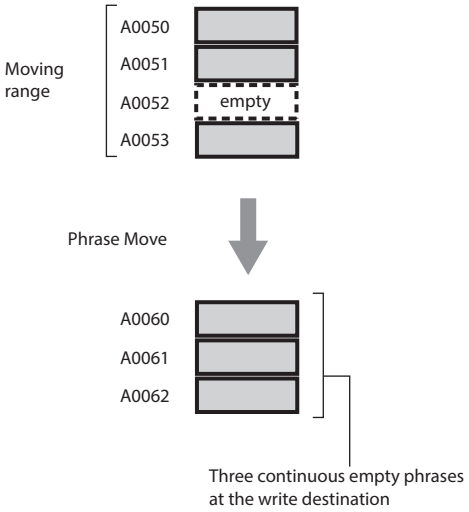
This moves a phrase. You can also move a continuous group of phrases in a batch.

NOTE

Important Notes about Moving a Continuous Group of Phrases in a Batch

Example: Moving a continuous range of phrases from A0050 to A0053

If A0052 happens to be an unused empty phrase, then specify a continuous group of three empty phrases as the beginning. (The system seeks and displays only writable phrases.)



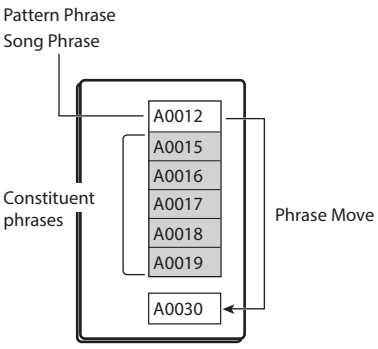
NOTE

Important Notes about Moving Pattern Phrases or Song Phrases

For pattern phrases and song phrases, only the combination information is moved. Note that the actual constituent phrases are not moved.

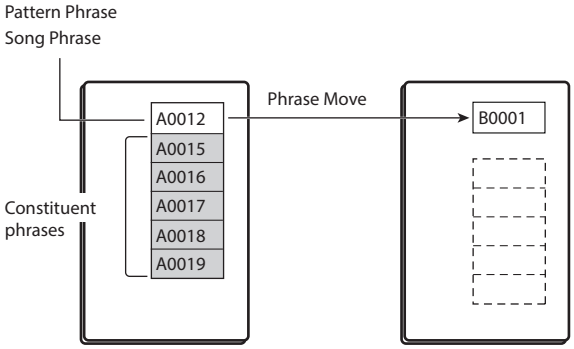
Example: When a pattern phrase or song phrase on the same card is moved

→ The actual constituent phrases exist, so playback is correct.



Example: When a pattern phrase or song phrase is moved between different cards (A → B)

→ Playback is correct while card A is inserted in the CF card slot (and the actual phrases are present), but if card A is removed or card B is inserted into CF card slot, the actual constituent phrases are no longer present, and so playback is not correct. To ensure that a pattern phrase or song pattern moved to a different card (A → B) is played back correctly, move the actual constituent phrases separately to card B. In such cases, with regard to the constituent phrases of the pattern phrases and song phrases, the actual phrases should be reregistered after the moving is complete.



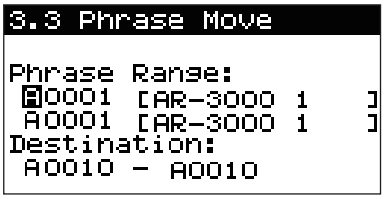
Procedure for moving a phrase

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "3.3 Phrase Move," then press the dial.

3. Turn the [SELECT] dial to choose the card containing the beginning phrase of the move source, then press the dial.



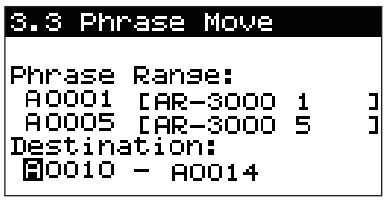
4. Turn the [SELECT] dial to choose the beginning phrase at the move source, then press the dial.

* Only phrases that can be executed are displayed.

5. Turn the [SELECT] dial to choose the final phrase of the move source, then press the dial.

* Only phrases that can be executed are displayed.
* To move a single phrase, choose the same phrase for the beginning phrase and the final phrase.

6. Turn the [SELECT] dial to choose the move-destination card, then press the dial.



* Only phrases that can be executed are displayed.

7. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

8. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Phrase Information/Phrase Setting Correspondence Table

✓ Can be set
- Not set

Phrase Settings	Phrases								Dual Mono Mode (ON)
	RDAC-Mode: MODE1 MODE3 LINEAR H-LINEAR	RDAC-Mode: MODE2	WAV-16 WAV-24	MP3	MIDI	Command	Pattern	Song	
1.1 Play Volume	✓	✓	✓	✓	–	–	✓	✓	✓
1.2 Delay Time	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.3 Playback Point	✓	–	✓	–	–	–	–	–	✓
1.4 Repeat Play	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.5 Loop Play	✓	–	✓	–	–	–	–	–	–
1.6 Fade	✓	✓	✓	✓	–	–	–	–	✓
1.7 Control Out	✓	✓	✓	✓	✓	✓	✓	✓	–
1.8 MIDI Tempo	–	–	–	–	✓	–	–	–	–
1.9 Phrase Name	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.10 MTC Offset	✓	✓	✓	✓	–	–	–	✓	–
3.1 Phrase Delete	✓	✓	✓	✓	✓	✓	✓*1	✓*1	
3.3 Phrase Copy	✓	✓	✓	✓	✓	✓	✓*1	✓*1	
3.3 Phrase Move	✓	✓	✓	✓	✓	✓	✓*1	✓*1	

*1 The actual constituent phrases are not deleted, copied, or moved.

Making Settings and Edits for Individual Cards

You can make batch settings and edits for individual cards.

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Making a Card Usable on the AR-3000SD (Card Format)

When you use a new card or a card used previously on a device other than the unit, you must first format the card.

➡ "Formatting a Card" (Owner's Manual: p. 14).

NOTE

Performing formatting erases all data on the card. Before you format the card, make sure it contains no data you don't want to lose.

Deleting All Phrases on a Card (Card Delete)

This deletes all the phrases on a card.

NOTE

Please be aware that performing a Card Delete operation deletes all phrase data. (This returns the card to the state it was in when freshly formatted.)

Card delete procedure

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.2 Card Delete," then press the dial.

3. Turn the [SELECT] dial to choose the card to delete (CF or SD), then press the dial.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When the operation ends, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Copying a Card (Card Copy)

This copies the contents of a CF card to an SD card, or vice versa.

The copy-source card and destination card don't have to be the same size (capacity), but unless the usable space on the destination card is larger than the space used on the source card, you cannot copy everything on the source card to the destination card.

NOTE

Note that performing a Card Copy operation deletes (overwrites) the data on the destination card. Use ample care.

Card copy procedure

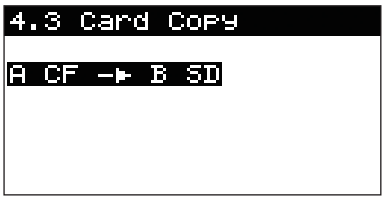
Insert the card to copy from into one slot and the card to copy to into the other slots.

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.3 Card Copy," then press the dial.

3. Turn the [SELECT] dial to choose the copying method, then press the dial.



Command	Explanation
A CF → B SD	This copies the contents of a CF card to an SD card.
B SD → A CF	This copies the contents of an SD card to a CF card.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When the operation ends, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Copying Just the Settings (Setting Copy)

This copies the following setting information stored on a card between a CF card and an SD card.

- Control input settings
- MIDI settings
- RS-232C settings
- System settings

NOTE

You cannot copy settings to a card that has a different format (that is, you cannot copy settings from a card in AR-2000 format to a card in AR-3000 format, or vice versa).

Setting copy procedure

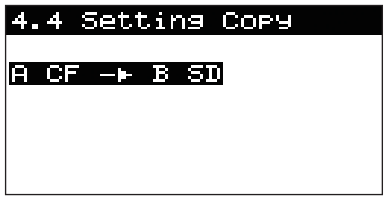
Insert the card to copy from into one slot and the card to copy to into the other slots.

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.4 Setting Copy," then press the dial.

3. Turn the [SELECT] dial to choose the setting copy method, then press the dial.



Command	Explanation
A CF → B SD	This copies the contents of a CF card to an SD card.
B SD → A CF	This copies the contents of an SD card to a CF card.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When the operation ends, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Protecting a Card (Card Protect)

This prohibits such card operations as saving, overwriting, deleting, and editing. (However, playback and copying phrases to another card are still possible.)

Procedure for making the card protect setting

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.5 Card Protect," then press the dial.

3. Turn the [SELECT] dial to choose the card you want to protect (CF or SD), then press the dial.

4. Turn the [SELECT] dial to choose Card Protect (OFF or ON), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Changing the Name of a Card (Card Name)

This changes the name assigned to a card when it was formatted (Owner's Manual: p. 14).

When you record a phrase, this card name is automatically added to the beginning of the phrase name. You can enter a card name of up to eight characters.

Example:

Card name before change: MESSAGE
→ Phrase name: MESSAGE 1

Card name after change: ENTRANCE

If you record a new phrase 0002 after changing the card name, it is given "ENTRANCE 2" as the phrase name.

* The name of phrase 0001, which was recorded before changing the card name, remains unchanged ("MESSAGE 1").
* In a phrase name, the number after the card name indicates the phrase number.

Procedure for changing the card name

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.6 Card Name," then press the dial.

3. Press the [BACK] (USER) button.

4. Turn the [SELECT] dial to choose the card whose name you want to change (CF or SD), then press the dial.

5. Turn the [SELECT] dial to choose a character. Press the dial to confirm the selected character.

Characters you can use: Letters of the alphabet (uppercase) space numerals–! # $ % & ' ( ) @ ^ _ { }

FWD: This advances the location for entering a character. Pressing the dial advances the entry location by one.

BWD: This moves back the location for entering a character. Pressing the dial moves back the entry location by one.

INS: This inserts a space. Pressing the dial inserts a single space.

DEL: This deletes a character. Pressing the dial deletes a single character.

END: This finishes the setting process.

6. To quit saving, turn the [SELECT] dial to choose "END" in step 5, then press the dial.

7. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

8. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.
* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Import/Export

This imports the contents of a USB flash drive into a CF or SD card.

It imports the contents of a "CF" folder in the root directory of a USB flash drive into a CF card.

It imports the contents of a "SD" folder in the root directory of a USB flash drive into an SD card.

Alternatively, it exports the contents of a CF or SD card to a USB flash drive.

The contents of a CF card are exported to a "CF" folder in the root directory of the USB flash drive.

The contents of an SD card are exported to an "SD" folder in the root directory of the USB flash drive.

Import/export procedure

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "4.7 Import/Export," then press the dial.

3. Turn the [SELECT] dial to choose a command, then press the dial.

Command	Explanation
CF → USB	This exports the contents of a CF card to a USB flash drive.
SD → USB	This exports the contents of an SD card to a USB flash drive.
CF/SD → USB	This exports the contents of both a CF and SD card to a USB flash drive.
USB → CF	This imports the contents of a USB flash drive into a CF card.
USB → SD	This imports the contents of a USB flash drive into an SD card.
USB → CF/SD	This imports the contents of a USB flash drive into both a CF and SD card.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Recording and Playing MIDI Data (MIDI Phrases)

What Are MIDI Phrases?

You can record and play back MIDI data with the AR-3000SD.

Sets of MIDI data recorded using the AR are called "MIDI phrases."

MIDI phrases and audio phrases are both treated as phrases in the way.

You can do things like taking MIDI data created on a MIDI sequencer and recording it as a MIDI phrase on the AR-3000SD, then send the played-back data to a sound source module or the like to make broadcast announcements.

The AR-3000SD saves MIDI data as Format 0 Standard MIDI Files (SMF).

The AR-3000SD can only play back Format 0 SMF data.

* Audio phrases and MIDI phrases cannot be recorded, nor can they be played back at the same time.

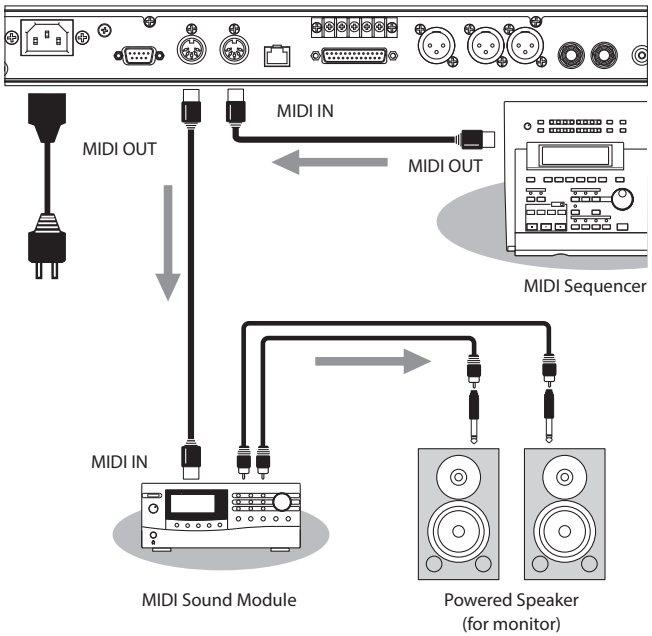
* When recording MIDI phrases, the effective capacity of a card is related not only to the recording time, but also to the density of the MIDI data. Please be aware that when you record MIDI phrases, the possible recording time for any one card will vary depending on the amount of MIDI data that has been generated.

MEMO

Controlling the unit by using MIDI signals is described in another chapter.

➡ "Controlling the AR-3000SD Using MIDI Signals (MIDI Control)" (p. 38).

Connecting Equipment



MEMO

- During recording or recording standby, this automatically becomes MIDI THRU.
  ➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)
- When recording MIDI phrases, setting the MIDI Receive channel is not necessary.

Unit Settings

Putting the Unit in Recording Standby

Make the correct connections, then turn on the power switch.

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

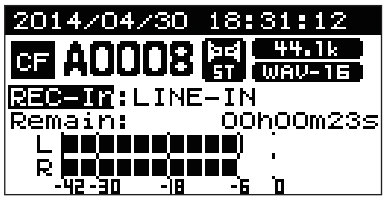
Recording standby

1. Insert a formatted card into one of the slots.

2. Turn the [SELECT] dial to choose the phrase number you want to record. To switch between card slots CF and SD, press the [SELECT] dial.

* You cannot change the phrase number after recording, so be sure to select the phrase number you want to record.

3. Press the [REC] button to go into recording standby.



During recording standby, the REC indicator flashes in red.

- If you try to re-record a phrase that's already been recorded, a prompt message appears. If you choose "YES" and press the [ENTER] button, the recorded data for the phrase is deleted and the unit goes into recording standby. If you choose "NO," the unit returns to the normal display.

* Please be aware that data deleted here cannot be recovered, even if you cancel recording standby without recording anything.

- When "Protecting a Card (Card Protect)" (p. 19) is set to "ON," recorded phrases are protected and recording is not possible (writing, overwriting, deleting, and editing card data is prohibited).

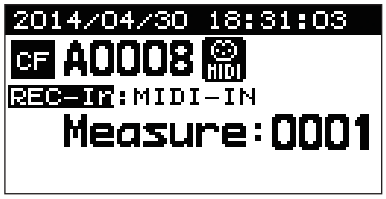
Selecting the Recording Connector

When you're recording MIDI data, choose "MIDI-IN" as the recording connector.

Procedure for selecting the recording connector

1. **Put the unit into recording standby.**
2. **Turn the [SELECT] dial to choose the REC-In, then press the dial.**
3. **Turn the [SELECT] dial to choose the MIDI-IN, then press the [ENTER] button.**

   The screen like the one below appears.



* Please be aware that if you press the [SELECT] dial instead of the [ENTER] button, the setting is not confirmed.

- Next, if you're setting the MIDI time base, go to step 2 of the procedure for setting the MIDI time base.

Setting the MIDI Time Base

The MIDI time base determines the precision with which you can record notes, and differs from one equipment to another.

(On some equipment, this is called "resolution.")

Set the time base for the AR-3000SD to either 192 or 240, to match the time base of the connected MIDI device.

When the time base of the connected MIDI device is:

24, 48, 96, 192, or 384

→ Set the AR-3000SD time base to 192

30, 60, 120, 240, or 480

→ Set the AR-3000SD time base to 240

Procedure for setting the MIDI time base

1. **Put the unit into recording standby.**
2. **Turn the [SELECT] dial to select "Time Base," then press the dial.**

   * You can set the Time Base only when "MIDI-IN" has been selected as the recording connector.
3. **Turn the [SELECT] dial to choose the Time Base (192 or 240), then press the [ENTER] button.**

   * Please be aware that if you press the [SELECT] dial instead of the [ENTER] button, the setting is not confirmed.

Starting and Ending Recording

1. **Pressing the [PLAY/PAUSE] button while in recording standby starts recording.**

   During recording, the REC indicator and PLAY/PAUSE indicator light up in red.
2. **Start playback of the MIDI data.**
3. **Press the [STOP] button to end recording.**

NOTE

- Some MIDI sequencers output the setup data for the MIDI sound module (data describing the tones for each part, the volume, effects, etc.) **when the song is selected**, and it may be impossible to record the MIDI information correctly when recording is started on the AR-3000SD after song selection. Should this occur, first start recording on the AR-3000SD, and after that initiate song selection and the start of playback on the MIDI sequencer.
- In MIDI recording on the AR-3000SD, the tempo when recorded is assumed to be 120. (Tempo information is not stored.)
- You can't change a phrase number later, so be sure to choose the phrase number you want to record to, and then record.

* Recording cannot span two cards inserted in the slots. When the free space on one card is used up, recording ends automatically.

Tip

Starting and Stopping Recording Through MIDI Playback

With the AR-3000SD, you can start recording when a start message is received from another MIDI device, and stop recording when a stop message is received during recording.

During recording standby, recording starts when a System Realtime start message (FAH) is received, and stops when a stop message (FCH) is received.

During playback, start (FAH), stop (FCH), and timing clock (F8H) messages are sent.

What is a timing clock?

This is MIDI information used when synchronizing a number of instruments using MIDI. The playback device sends clock messages at intervals that correspond to its own tempo, and the receiving device operates in accordance with those messages.

➡ "MIDI Implementation" (p. 65)

Playback of MIDI Phrases

Selection of MIDI Output (OUT/THRU)

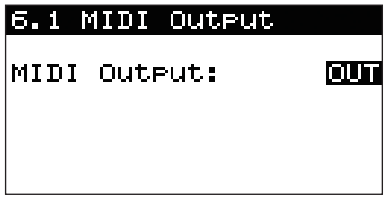
This changes the function of the MIDI OUT/THRU connector. Here, select OUT.

OUT: This sends out MIDI information from the unit. Select this when you want to play back MIDI phrases or send Exclusive (SysEx) messages.

THRU: This takes MIDI information from MIDI IN and sends it out unchanged. MIDI signals from the unit are not output.

Procedure for setting MIDI output

1. **Press the [MENU] button. The MENU indicator lights up.**
2. **Use the [SELECT] dial to choose "6.1 MIDI Output," then press the dial.**
3. **Turn the [SELECT] dial to choose the MIDI Output (OUT), then press the dial.**



4. **When the prompt appears on the screen, press the [ENTER] button to enable the setting. To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.**

   When you're finished making the setting, the display returns to the setting item selection screen.

5. **Press the [MENU] button.**

   This ends the setting process and returns you to the usual screen.

   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES", then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Setting the Playback Tempo

This sets the speed for playback of MIDI phrases in beats per minute (a tempo of from 5 to 260). The setting is made for individual phrases.

* In MIDI recording on the AR-3000SD, the tempo when recorded is assumed to be 120. (Tempo information is not stored.)

  The setting for the MIDI playback tempo is made with a phrase setting.

  ➡ "Changing the Playback Tempo for MIDI Phrases (MIDI Playback Tempo)" (p. 7).

Playback Procedures

Manual playback

1. **Insert a card containing recorded information into a slot.**
2. **Turn the [SELECT] dial to choose the phrase number to play. To switch between card slots CF and SD, press the [SELECT] dial.**
3. **Press the [PLAY/PAUSE] button, and the phrase starts playing back.**

   During playback of the phrase, the PLAY/PAUSE indicator lights up in green.

   - Pressing the [STOP] button ends playback.
   - During playback, you can choose the next song to play (without stopping the phrase being played) by turning the [SELECT] dial.

   * Please be aware that you cannot pause a MIDI phrase.

Playback by control input

You can perform playback by control input and other means, just as you can for audio phrases.

➡ "Controlling the AR-3000SD from an External Device (Control Input Terminals)" (p. 24)

Controlling the AR-3000SD from an External Device (Control Input Terminals)

You can control the unit from an external device by using the input terminals, among the control input and output terminals on the unit's rear panel.

This chapter describes how to connect external equipment and make the settings on the AR-3000SD.

What Is No-Voltage/Make-Contact?

This is a contact that makes starting possible simply by connecting two lines to the control input terminals and shorting their ends. This is a general-use method that lets you create start systems easily using only a switch and without any need for a power source, enabling easy use for a variety of applications.

You can control recording and playback on the AR-3000SD by on and off signals input from an external device through the no-voltage/make-contact or open collector circuit.

The range of situations where you can use the unit can be expanded by connecting infrared sensors, external-start connectors such as switches, relays, and timers, and the like to the unit.

The AR-3000SD can help simplify installation operations by making the starting-side contact hot and sharing the ground as the common (COM) port.

➡ Also refer to "Examples of Usage and Connection for the AR-3000SD" (Owner's Manual: p. 12) for more examples of usage of the control input and output terminals.

➡ For information about the specifications of the control input and output terminals, refer to "Specifications of the Control Input/Output Terminals" (Owner's Manual: p. 27).

Important notes on using the control input and output terminals

* The control input and output terminals cannot be used to switch the power to the AR unit on or off.

* The two common (COM) ports are connected internally, so you can achieve operation by making the connection to either one. At times such as when connecting more than one AR control port to a single make contact, interconnect one COM port from each AR. However, do not intermix this unit with other AR series devices. Doing so may result in unstable operation.

NOTE

When making connections to the ports, be careful not to lose the removed screws. Place the screws out of the reach of small children. If a screw is accidentally swallowed, immediately consult a physician.

Types of Control Input Playback

The varieties of control input playback are direct playback (p. 24), program playback (p. 28), and binary playback (p. 30).

The three playback methods yield the following nine types of operational specifications according to their settings. Choose the one that matches your usage conditions.

- Direct Playback (NORMAL)
- Direct Playback (FIRST-IN)
- Direct Playback (LAST-IN)
- Direct Playback (SEQUENCE)
- Program Playback
- Binary Playback (Level: OFF; Edge: OFF)
- Binary Playback (Level: ON; Edge: OFF)
- Binary Playback (Level: OFF; Edge: ON)
- Binary Playback (Level: ON; Edge: ON)

* Different types of playback cannot be carried out at the same time.

Operational Specifications for Control Input Playback

	When new control signals are input during playback of a phrase	When control signals are input continuously
Direct Play		
Normal	When priority is high, quits and plays back the later-specified phrase. No effect when the priority is low or the number is the same.	Repeated
FIRST-IN	Disabled	Repeated
LAST-IN	Quits and plays back the phrase specified later.	Repeated
SEQUENCE	Stored in memory (cued). After phrase playback finishes, sequential start. Up to 100 can be cued.	Played back once only
Program Play		
	Disabled	Playback in assigned sequence, repeated playback within the program. Exchange advances to the next program.
Binary Play		
Level: OFF **Edge: OFF**	Disabled	Played back once only
Level: ON **Edge: OFF**	Disabled	Repeated
Level: OFF **Edge: ON**	Quits and plays back the phrase specified later.	Played back once only
Level: ON **Edge: ON**	Quits and plays back the phrase specified later.	Repeated

Type of Control Input Recording

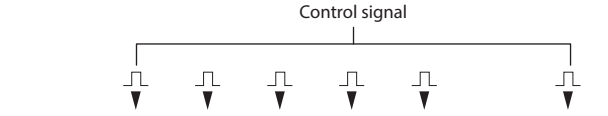
There is one type of control input recording: Binary Recording (p. 33).

Assigning a Phrase to a Port and Playing It Back (Direct Playback)

What Is Direct Playback?/Uses and Applications

By inputting control signals directly to Port No. 1 through 16, you can play back the phrases assigned to the port numbers. You can play back up to 16 phrases. You need to assign the phrases you want to Port No. 1 through 16 ahead of time.

This is handy when you want to directly specify the phrases you want using switches, relays, sensors, and the like.

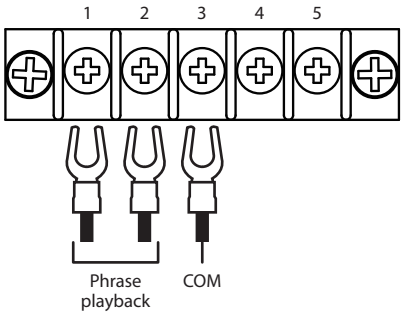


Port No.	1	2	3	4	5		16
Phrase	A0002	A0010	B0008	A0021	B0050	· · ·	A0050

Connecting External Equipment

Ports used for direct play

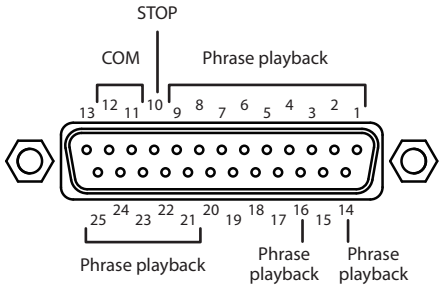
Control input/output terminal A



"1 or 2": Inputting a control signal directly to the port having the number corresponding to the phrase starts playback of the phrase.

Set to "ON" by shorting the above-mentioned port and "COM (common)."

Control input/output terminal B



"1–9, 14, 16, 21–25": Inputting a control signal directly to the port having the number corresponding to the phrase starts playback of the phrase.

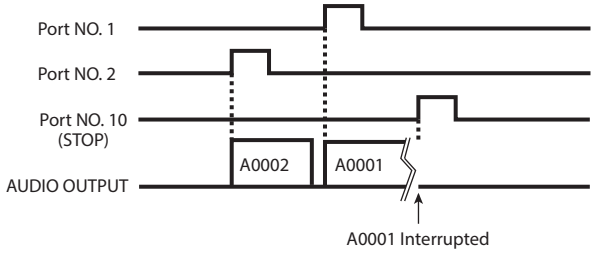
"10" (STOP): This stops phrase playback.

Set to "ON" by shorting the above-mentioned port and "COM (common)."

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

Operational Specifications for Direct Playback

Basic operation of direct playback



START: Input a control signal to a port from 1–9, 14, 16, 21–25.
→ This plays the phrase assigned to the port.

STOP: Input a control signal to the 10 port.
→ This stops phrase playback.

Also, Direct playback includes normal playback, First-In playback, Last-In playback, and sequence playback.

Choose the one that matches your usage conditions.

➡ Also refer to "Operational Specifications for Control Input Playback" (p. 24).

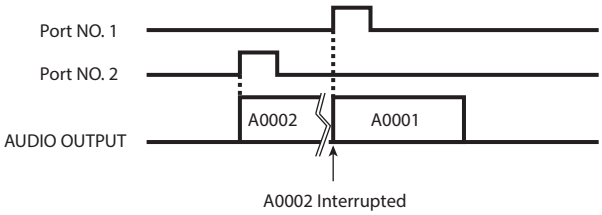
Normal playback

Input made to a port having higher priority takes precedence, and will result in earlier playback.

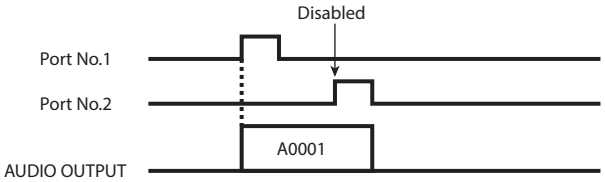
Port No. 1 has the highest priority, with the priority decreasing as the port number increases.

Priority (High) Port No. 1 → 2 → 3 → ... → 16 (Low)

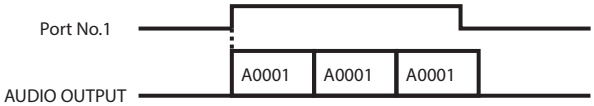
When a control signal is input to a high-priority port during phrase playback, playback of the current phrase is stopped, and playback of the specified phrase then begins.



No action results if a control signal is input to a low-priority port (or the same numbered port) during phrase playback.



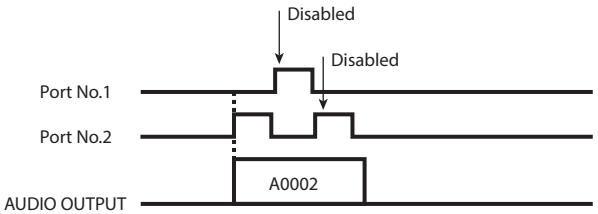
Playback is repeated while the control signal is continuously input.



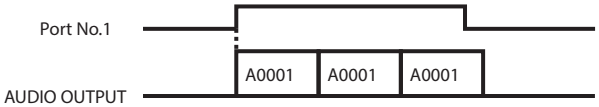
First-in playback

The phrase played back earlier is given precedence in playback.

During phrase playback, even when a new START signal is input, it is disregarded.



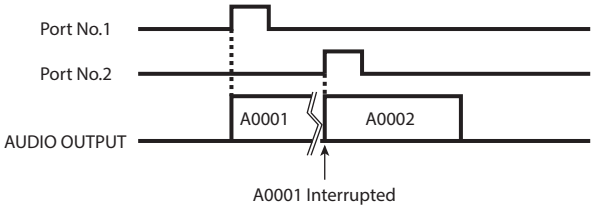
Playback is repeated while the control signal is continuously input.



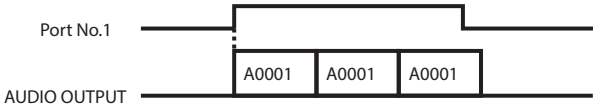
Last-in playback

The control signal that is input later is given precedence in playback.

During phrase playback, when a different START signal is newly input, playback of the current phrase is stopped, and playback of the specified phrase begins.



Playback is repeated while the control signal is continuously input.

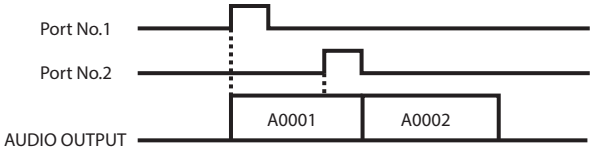


Sequence playback

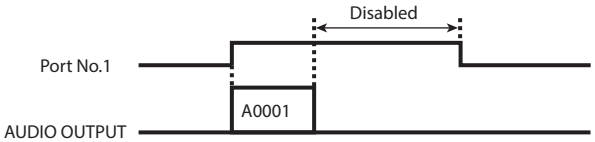
When a new control signal is input during phrase playback, the new phrase is then stored (queued).

When playback of the current phrase is finished, the subsequently specified phrase is played back.

A maximum of 100 phrases can be stored (queued).



Even when control signals are input continuously, playback is conducted one time only and then ends.



AR-3000SD Settings

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Selecting the Control Input Mode

Select "DIRECT PLAY" from the control input modes (DIRECT PLAY/PROGRAM PLAY/BINARY PLAY/BINARY REC).

* You cannot achieve control input playback merely by connecting a device to the port. Be sure to set the control input mode to match the method used for connecting to the ports.

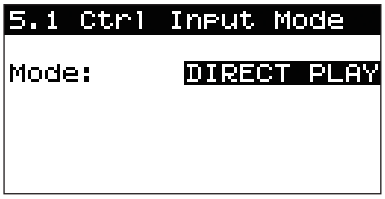
Procedure for setting the control input mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.1 Ctrl Input Mode," then press the dial.

3. Turn the [SELECT] dial to choose "DIRECT PLAY," then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the Direct Playback Method (NORMAL/FIRST-IN/LAST-IN/SEQUENCE)

Select the Direct Playback Method (NORMAL/FIRST-IN/LAST-IN/SEQUENCE) to be used.

➡ "Operational Specifications for Direct Playback" (p. 25)

Procedure for setting the direct playback method

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.2 Direct Play," then press the dial.

3. Turn the [SELECT] dial to choose the Direct Playback system (NORMAL, FIRST-IN, LAST-IN, or SEQUENCE), then press the dial.

- If making the settings in "Assigning Phrases to the Ports" (p. 27), proceed to Step 4 in the procedure for assigning the phrases.
- To quit making settings, press the [ENTER] button.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose YES, then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Assigning Phrases to the Ports

Assign phrases to control input Port Nos. 1–9, 14, 16, 21–25.

If not assigning a phrase to a port, select "-----."

NOTE

Although you can select phrases from either card, note that playback will not work properly if the card inserted when the phrase was registered is not already inserted at the time of playback. (If the phrase is not saved, the playback signal is disregarded.)

Settings when formatting cards

Port No.	1	2	3	4	5	• • •	16
Phrase	A0001	A0002	A0003	A0004	A0005	• • •	A0016

Tip

By assigning "PLAY" instead of a phrase, you can obtain the same functions from that port as you do using the [PLAY/PAUSE] button on the front panel.

<During Direct Playback>

By inputting a control signal to the port to which "PLAY" is assigned, you can play back the phrase indicated in the display. This is convenient when you want to use an external device to start playback of phrases selected with the [SELECT] dial.

You can also stop playback using the STOP port.

<While in Phrase Record Standby>

When recording phrases, you can use the control input terminals to start and stop recording (for more on recording methods, please read "Recording Audio" (Owner's Manual: p. 19) as well).

When in recording standby, if the port to which "PLAY" is assigned is set to "ON," recording will begin. This is convenient when you want to start recording remotely, using an external device.

You can also stop recording using the Stop port.

* Note, however, that the control input connector cannot be used to switch to recording standby.

Procedure for Assigning Phrases

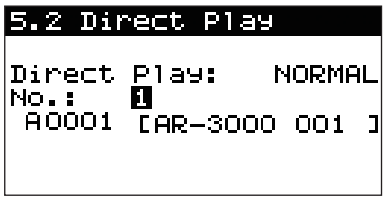
1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.2 Direct Play," then press the dial.

3. Press the [SELECT] dial to advance the input location (highlighted) to "No. 1."

4. Turn the [SELECT] dial to choose the number of the control input port that is to be set, then press the dial.



No. 1-16: Port Nos. 1–9, 14, 16, 21–25

END: This quits making the settings.

RESET: Restores the settings at the time the card was formatted.

CLEAR: Erases all settings.

5. Turn the [SELECT] dial to choose the card containing the phrase you want to assign to the port, then press the dial.

PLAY: Causes this connector to perform the same action as that resulting from pressing the [PLAY/PAUSE] button on the front panel.

-----: Selected when no phrase is set to the control input port.

Turn the [SELECT] dial to choose the phrase to assign to the port, then press the dial.

6. Repeat steps 4 and 5 to assign the rest of the phrases.

7. To quit assigning phrases, turn the [SELECT] dial in step 4 to choose "END," then press the dial.

8. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

9. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Playing Back Phrases in the Order They Are Selected (Program Playback)

What is Program Playback?/Uses and Applications

You can have the group of preset phrases play back in the order they are selected by inputting a control signal to the Port NO. 9 (START).

With program playback, you can register up to a maximum of 100 phrases in each of the five patterns of Programs 1 through 5.

Since the order and duration of the phrases is predetermined, this is a convenient option when you have only one contact, such as a timer or switch, with which to trigger this action.

Program 1

	No.	Phrase
⎍⎍START signal ►	1	A0001
⎍⎍START signal ►	2	A0002
⎍⎍START signal ►	3	A0003
	:	:
⎍⎍START signal ►	100	A0100

EXCHANGE signal

Program 2

	No.	Phrase
⎍⎍START signal ►	1	B0001
⎍⎍START signal ►	2	B0002
⎍⎍START signal ►	3	A0006
	:	:
⎍⎍START signal ►	100	B0088

:

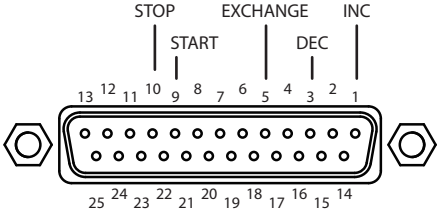
:

Program 5

	No.	Phrase
⎍⎍START signal ►	1	A0020
⎍⎍START signal ►	2	B0010
⎍⎍START signal ►	3	A0021
	:	:
⎍⎍START signal ►	100	B0011

Connecting External Equipment

Ports used in program playback



"1" (INC): Advances through the program playback order.

"3" (DEC): Goes back through the previous phrases in the program playback order.

"5" (EXCHANGE): Advances through the cycle of the Programs 1 through 5 (1-2-3-4-5-1-2...). In this case, playback begins from the first phrase selected in the program to which you have switched.

"9" (START): Plays back phrases in the order set in program playback.

"10" (STOP): This stops phrase playback.

* If no settings are made for Programs 2 through 5, playback begins from the first phrase set in Program 1.

Set to "ON" by shorting the above-mentioned port and "COM (common)."

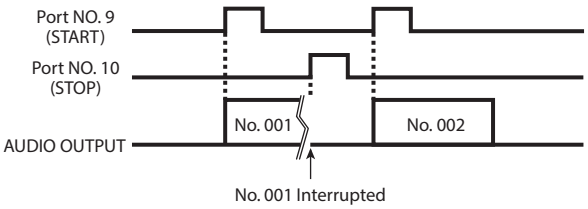
➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

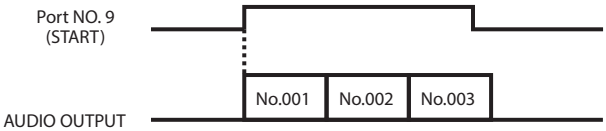
Operational Specifications for Program Playback

When a one-shot control signal is input from a timer or similar device, a single registered phrase is played back.

* If there is no registered phrase saved, the next registered phrase is played back.

When consecutive signals are input, phrases are played back in succession in the order registered in the program.





Playback: Input a control signal to the "9" (START) port.
→ Phrases are played back in accord with the registered program playback order.

Stop: Input a control signal to the "10" (STOP) port.
→ This stops phrase playback.

Advancing in the Playback Sequence: Input a control signal to the "1" (INC) port.
→ This advances through the program playback order one phrase at a time.

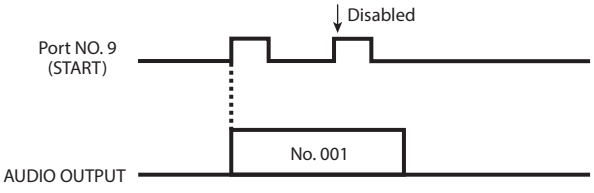
Going Through the Playback Sequence in Reverse Order: Input a control signal to the "3" (DEC) port.
→ This causes the phrases to go back through the program playback order one phrase at a time.

Advancing Through Programs 1 Through 5: Input a control signal to the "5" (EXCHANGE) port.
→ This advances through Programs 1 Through 5 (1-2-3-4-5-1-2-...).

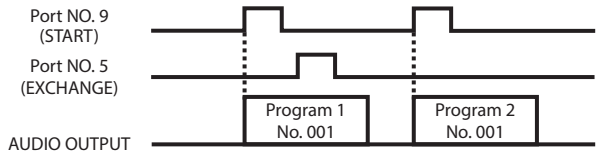
Playback begins from the first phrase selected in the program to which you have switched.

* If no settings are made in Programs 2 through 5, playback begins from the first phrase set in Program 1.

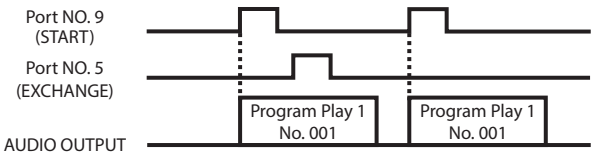
During phrase playback, even when a new START signal is input, it is disregarded.



If input of START signals continues when the end of the last phrase in Program 1 is reached, playback then continues with the first phrase in Program 1. To advance to Program 2, input a control signal to the "EXCHANGE" port.



However, if no settings are made for Programs 2 through 5 when a control signal is input to the "EXCHANGE" port, playback continues after returning to the beginning in Program 1 (Reset operation).

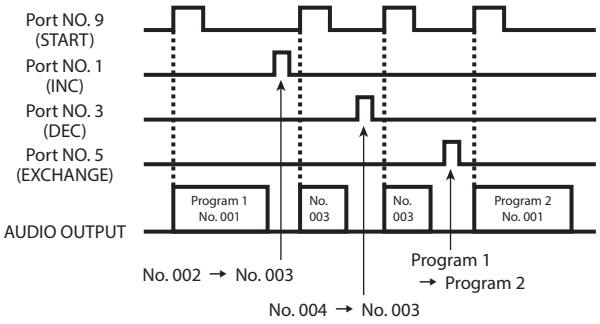


➡ Also refer to "Operational Specifications for Control Input Playback" (p. 24).

NOTE

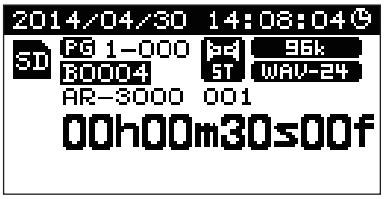
Important Note Regarding Power Outages and Similar Situations

If due to a blackout or other cause the power to the AR-3000SD is cut during program playback, the program playback is reset when the power is restored. In such instances, input control signals to the INC, DEC, and EXCHANGE ports to restore the program playback order.



Display Indications During Program Playback

During program playback, the following appears in the display.



AR-3000SD Settings

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Selecting the control input mode

Select "PROGRAM PLAY" from the control input modes (DIRECT PLAY/PROGRAM PLAY/BINARY PLAY/BINARY REC).

* You cannot achieve control input playback merely by connecting a device to the port. Be sure to set the control input mode to match the method used for connecting to the ports.

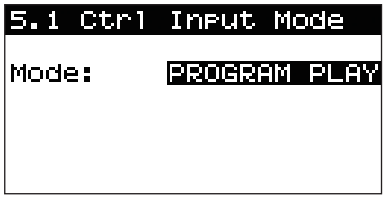
Procedure for setting the control input mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.1 Ctrl Input Mode," then press the dial.

3. Turn the [SELECT] dial to choose "PROGRAM PLAY," then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Registering phrases

Register the phrases in the program playback order. Up to a maximum of 100 phrases can be registered in each of the five patterns of Programs 1 through 5.

NOTE

Although you can select phrases from either card, note that playback will not work properly if the card inserted when the phrase was registered is not already inserted at the time of playback. (If the phrase does not exist, the next phrase is sought and then played back.)

Settings when formatting cards

Program 1

No.	Phrase
1	A0001
2	A0002
3	A0003
:	:
100	A0100

Program 2–5: No setting has been supplied.

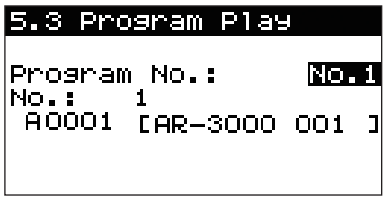
Procedure for registering phrases

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.3 Program Play," then press the dial.

3. Turn the [SELECT] dial to choose the Program No. where you want to make the setting (1 through 5), then press the dial.



4. Turn the [SELECT] dial to choose the playback sequence, then press the dial.

No. 001-100: Playback order

END: Finishes the setting process.

RESET: Restores the settings the card had when formatted.

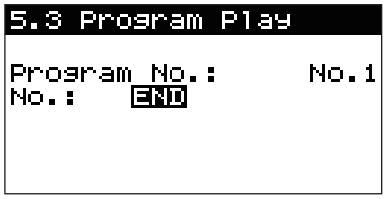
CLEAR: Erases all settings.

5. Turn the [SELECT] dial to choose the card containing the phrase you want to store, then press the dial.

6. Turn the [SELECT] dial to choose the phrase you want to store, then press the dial.

7. Repeat steps 4 and 5 to store more phrases.

8. To cancel the save process, then in step 4, turn the [SELECT] dial to choose "END," then press the dial.



9. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

10. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

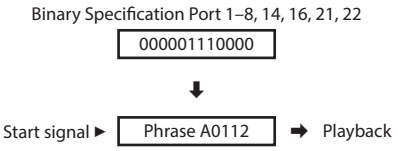
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Specifying Phrase Numbers in Binary Notation (Binary Playback)

What is Binary Playback?/Uses and Applications

In binary playback, phrases are selected by means of binary (Base 2) control signal input to the Port Nos°. 1 –8, 14, 16, 21 and 22, with the selected phrases played back when control signals are input to the Port NO. 9 (START). You can select and play back up to a maximum of 4000 phrases.

This allows all phrases to be specified with control signals (from a switch or other ON/OFF signal device) without the use of computers or other complicated equipment.

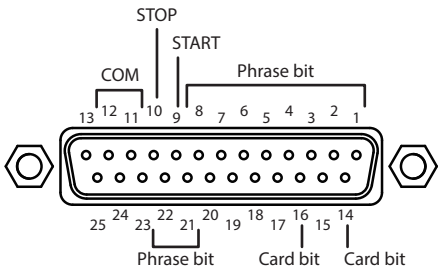


* To conduct binary playback, you will need to obtain a control device capable of generating binary signals.

* Input of binary specifications should be completed in no more than 50 milliseconds.

Connecting External Equipment

Terminals Used in Binary Playback



"1-8, 21, 22": Phrases are specified in binary format using combinations of 0 (OFF) and 1 (ON).

"14, 16": This selects card A, B, C, or D according to the combination of 0 (OFF) and 1 (ON) values.

"9" (START): Plays back phrases.

"10" (STOP): Stops phrase playback.

Set to "ON" by shorting the above-mentioned port and "COM (common)."

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

MEMO

Even without connecting to all ten ports used for making the binary specifications, you can still conduct binary playback.

The number of phrases that can be specified is determined by the formula "two to the nth power minus one" (with "n" being the number of connectors used).

Example:

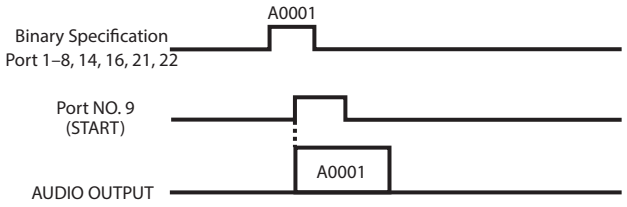
Using three timers or other such devices capable of outputting the necessary signals gives two to the third power minus one (i.e., 8–1 = 7), meaning you can specify the seven phrases 001 through 007.

However, if Port Nos. 14 and 16 are not connected, only "OFF" is enabled, leaving Card A as the only card that may be selected.

Start signals feature other special requirements.

Operational Specifications of Binary Playback

Basic operation of binary playback



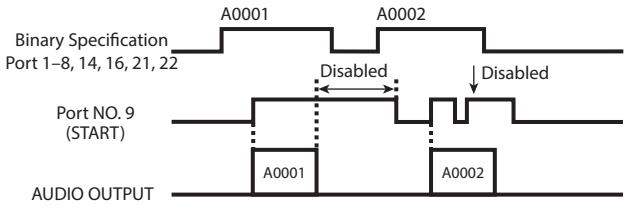
Playback: This specifies a phrase using the combination of 0 (OFF) and 1 (ON) to port Nos. 1–8, 21, 22 and 14, 16, and inputs the port No. 9 (START) control signal.
→ Specified phrase is played back.

Stop: Input a control signal to the "10" (STOP) port.
→ This stops phrase playback.

In addition, in binary playback you can use combinations of playback trigger (Level/Edge) ON and OFF to achieve the four types of playback shown below. Set it to match your usage conditions.

➡ Also refer to "Operational Specifications for Control Input Playback" (p. 24)

Level: OFF, edge: OFF

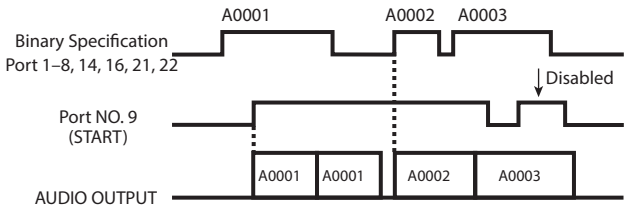


The binary-specified phrase is played back only once.

Newly input START signals during playback of a phrase are disregarded.

Even when START signals are input continuously, the phrase is played back only once and stopped. Since a phrase is played back by the instrument detecting the start when the port switches on from the off status, be sure to make the control signal to the Port NO. 9 (START) OFF after playback of the phrase is finished.

Level: ON, edge: OFF



The binary-specified phrase is played back repeatedly.

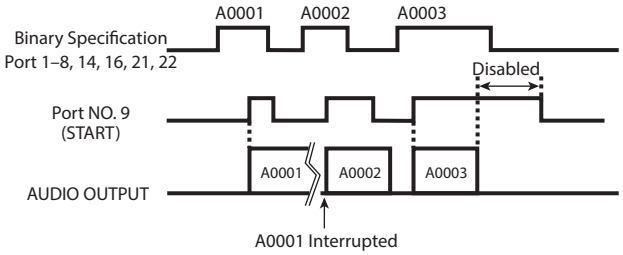
Phrases are played back repeatedly as long as the START signal is input continuously.

With START signals being input continuously, playback of phrases may be started by binary specification.

When the Port NO. 9 (START) control signal is changed to OFF, playback stops after completion of the phrase currently being played.

Newly input START signals during playback of a phrase are disregarded.

Level: OFF, edge: ON

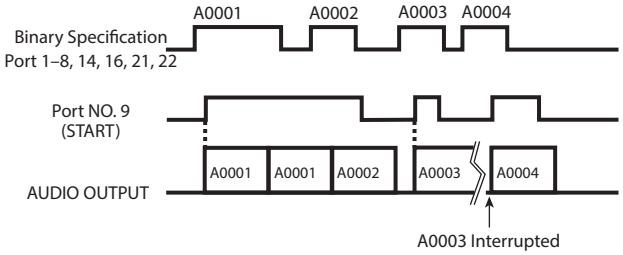


The binary-specified phrase is played back only once.

When a START signal is input again during playback of a phrase, the phrase currently being played back is stopped, and playback of the specified phrase begins.

Even when START signals are input continuously, the phrase is played back only once and then stopped. Since a phrase is played back by the instrument detecting the start when the port switches on from the off status, be sure to make the control signal to the Port NO. 9 (START) OFF after playback of the phrase is finished.

Level: ON, edge: ON



The binary-specified phrase is played back repeatedly.

Phrases are played back repeatedly as long as the START signal is input continuously.

With START signals being input continuously, playback of phrases may be started by binary specification.

When the Port NO. 9 (START) control signal is changed to OFF, playback stops after completion of the phrase currently being played.

When a START signal is input again during playback of a phrase, the phrase currently being played back is stopped, and playback of the specified phrase begins.

AR-3000SD Settings

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Selecting the control input mode

Select "BINARY PLAY" from the control input modes (DIRECT PLAY/ PROGRAM PLAY/BINARY PLAY/BINARY REC).

* You cannot achieve control input playback merely by connecting a device to the port. Be sure to set the control input mode to match the method used for connecting to the ports.

Procedure for setting the control input mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.1 Ctrl Input Mode," then press the dial.

3. Turn the [SELECT] dial to choose "BINARY PLAY," then press the dial.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Playback trigger settings (level/edge)

Use combinations of playback trigger (Level/Edge) ON and OFF to achieve the four types of playback shown below.

- Level: OFF; Edge: OFF
- Level: ON; Edge: OFF
- Level: OFF; Edge: ON
- Level: ON; Edge: ON

➡ "Operational Specifications of Binary Playback" (p. 31)

Procedure for setting the playback triggers

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.4 Binary Play," then press the dial.

3. Turn the [SELECT] dial to choose the playback trigger Level (OFF or ON), then press the [ENTER] button.

4. Turn the [SELECT] dial to choose the playback trigger Edge (OFF or ON), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded

To Specify Phrases With Binary Signals

Example: Specifying Phrase A0015 (Card: A, Phrase #: 0015)

1. Convert the phrase number to a binary number.

The phrase number "0015" becomes the binary number "0000001111."

2. Select card A, B, C, or D with ON or OFF control signals to port No. 14 (card bit 0) and port No. 16 (card bit 1).

Card	Port No. 16	Port No. 14
Card A	0	0
Card B	0	1
Card C	1	0
Card D	1	1

With the above steps, Phrase No. A0015 is converted to:

Port No.		Input signal
1	Phrase bit 0	1
2	Phrase bit 1	1
3	Phrase bit 2	1
4	Phrase bit 3	1
5	Phrase bit 4	0
6	Phrase bit 5	0
7	Phrase bit 6	0
8	Phrase bit 7	0
21	Phrase bit 8	0
22	Phrase bit 9	0
14	Card bit 0	0
16	Card bit 1	0

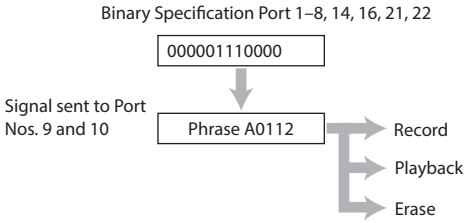
NOTE

- Note that the direction of the phrase numbers (binary) and port numbers are reversed.
- Although you can select phrases from any card, note that playback will not work properly if the card inserted when the phrase was registered is not already inserted at the time of playback.
- Input of binary specifications should be completed in no more than 50 milliseconds.

Controlling Recording with the Control Terminals (Binary Recording)

What is Binary Recording/Uses and Applications

You can specify phrases by inputting binary (base 2) signals to Port Nos. 1–8, 14, 16, 21, 22, and perform record, playback, and erase functions by inputting control signals to Port Nos. 9 and 10. All phrases can be specified with control signals (ON/OFF). This is convenient when you want to control recording from an external control device.

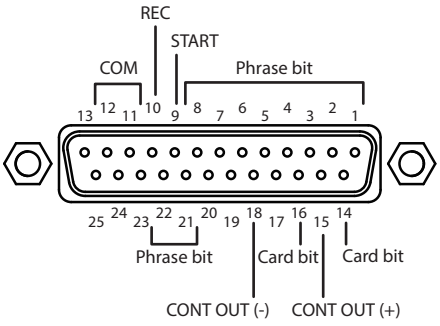


* To conduct binary playback, you will need to obtain a control device capable of generating binary signals.

* Input of binary specifications should be completed in no more than 50 milliseconds.

Connecting Equipment

Ports used in binary recording



"1–8, 21, 22": Phrases are specified in binary format using combinations of 0 (OFF) and 1 (ON).

"14, 16": This selects card A, B, C, or D according to the combination of 0 (OFF) and 1 (ON) values.

"9, 10": Record, erase, and playback are specified using combinations of 0 (OFF) and 1 (ON).

Set to "ON" by shorting the above-mentioned port and "COM (common)."

"15, 18" (CONT OUT): Outputs signals for confirming the presence or absence of phrases.

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

Operational specifications for binary recording

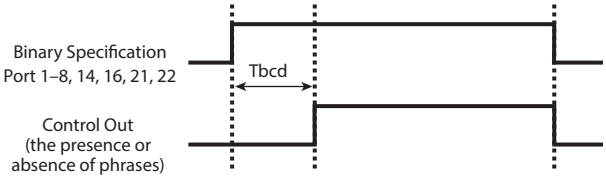
This specifies a phrase using the combination of 0 (OFF) and 1 (ON) to port Nos. 1–8, 21, 22 and 14, 16, and specifies recording, deletion, or playback by a combination of 0 (OFF) and 1 (ON) control signals to port Nos. 9, 10.

Presence or absence of phrases

If there is a binary-specified phrase that has already been recorded, a signal is output from the CONT OUT port. If there is no phrase, no signal is output.

* During Binary Recording, the CONT OUT port functions as a port for signals confirming the presence or absence of phrases. Note that this differs from the normal function of CONT OUT.

Timing Chart (The presence or absence of phrases)



		min	max
Tbcd:	Binary Phrase Output Delay Times	–	250

(msec)

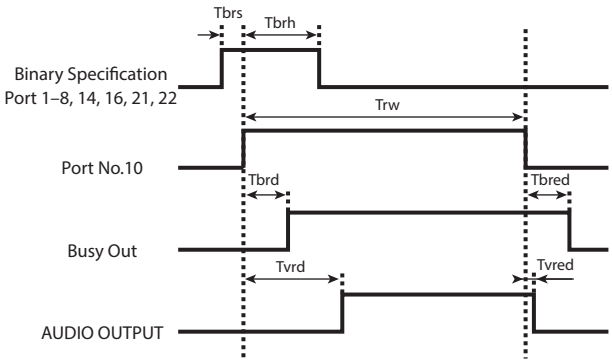
Recording

9: 0 (OFF)

10: 1 (ON)

→ While control signals are being input, the specified phrase is recorded. When input of the control signal stops, recording then ends.

Timing Chart (Rec)



		min	max
Trw	Rec Pulse Width	300	–
Tbrs	Binary Setup Time	200	–
Tbrh	Binary Hold Time	100	–
Tbrd	Busy Delay Time	–	300
Tvrd	Audio Delay Time	–	300
Tbred	End Busy Delay Time	–	100
Tvred	End Audio Delay Time	–	100

(msec)

* Recording does not start if there is a binary-specified phrase that has already been recorded (the recording instruction is disabled). When recording, either specify an empty phrase or delete the existing phrase before recording the new one. Additionally, in Binary Recording, since a make signal is output from the CONT OUT port when a specified phrase has already been recorded, this allows confirmation using a connected external control device.

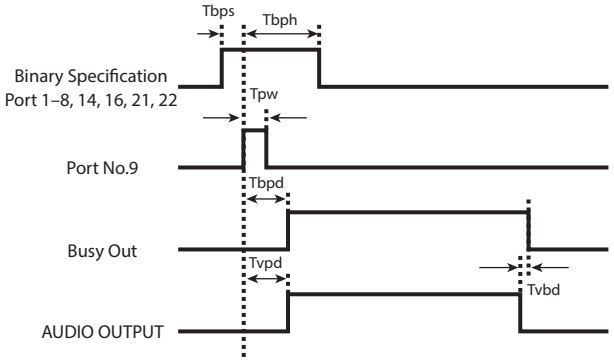
Playback

9: 1 (ON)

10: 0 (OFF)

→ The specified phrase is played back. Even when control signals are input continuously, the phrase is played back one time only and then ends.

Timing Chart (PLAY)



		min	max
Tpw	Play Pulse Width	20	–
Tbps	Binary Setup Time	200	–
Tbph	Binary Hold Time	100	–
Tbpd	Busy Delay Time	–	300
Tvpd	Audio Delay Time	–	300
Tvbd	End Busy Delay Time	–	100

(msec)

* Playback does not begin if the binary-specified phrase is empty (the playback instruction is disabled). When playing back, specify a phrase that has already been recorded.

Erase

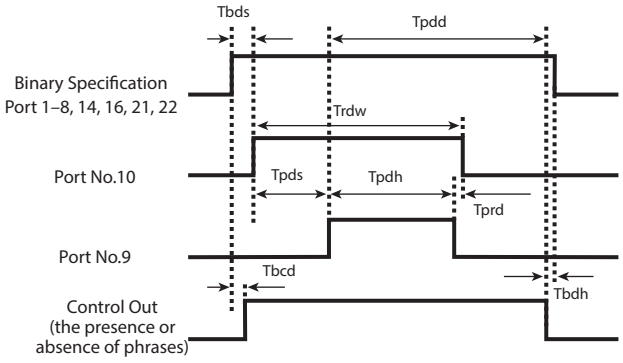
10: 1 (ON)

9: 1 (ON)

→ First, when ON is input to Port No. 10, and then ON is input to Port No. 9, erasure of the specified phrase begins. Erasure ends when the signal from the CONT OUT port confirming the presence or absence of the phrase changes to OFF.

* Erasure does not begin if the binary-specified phrase is empty (the playback instruction is disabled). When erasing, specify a phrase that has already been recorded.

Timing Chart (Delete)



		min	max
Trdw	Delete Rec Pulse Width	100	–
Tpds	Delete Play Setup Time	50	–
Tpdh	Delete Play Hold Time	50	–
Tprd	Delete Play Rec Delay Time	0	–
Tbds	Delete Binary Setup Time	200	–
Tbdh	Delete Binary Hold Time	20	–
Tbcd	Binary Phrase Output Delay Time	–	250
Tpdd	Play Phrase Output Delay Time	–	2500 (typ.)

(msec)

* Tpdd: Play phrase output delay time is dependent on the card used.

AR-3000SD Settings

NOTE

If a card in AR-2000 format is inserted in either slot (or both), the AR-3000SD can be used only for playback, and it is not possible to record phrases or make any settings. Also, if you insert a card in AR-2000 format into either slot (or both) while making settings, the operation will halt with an error message. Thereafter, the operation cannot be resumed until all cards are removed.

Selecting the control input mode

Select "BINARY REC" from the control input modes (DIRECT PLAY/ PROGRAM PLAY/BINARY PLAY/BINARY REC).

* You cannot achieve Binary Recording merely by connecting a device to the port. Be sure to set the control input mode to match the method used for connecting to the ports.

Procedure for setting the control input mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "5.1 Ctrl Input Mode," then press the dial.

3. Turn the [SELECT] dial to choose "BINARY REC," then press the dial.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the phrase specification (BINARY 1/BINARY 2)

Select the method (BINARY 1 or BINARY 2) used for specifying the phrase.

BINARY 1: Binary specification normally used.

BINARY 2: Method by which phrases are specified in sequence from Phrase 0001: Binary 0000000000.

➡ "About binary specification when BINARY 2 is selected" (p. 35)

Procedure for setting the phrase specification

1. Press the [MENU] button.

Press the [MENU] button.

2. Use the [SELECT] dial to choose "5.5 Binary Recording," then press the dial.

3. Turn the [SELECT] dial to choose the Phrase Select (BINARY 1 or BINARY 2), then press the dial.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

To Specify Phrases With Binary Signals

Example: Specifying Phrase A0015 (Card: A, Phrase #: 0015)
(* Phrase Specification: When BINARY 1 is Selected)

1. Convert the phrase number to a binary signal number.

"0" (OFF)
"1" (ON)

The phrase number "0015" becomes the binary signal "0000001111."

2. Select Card A/B/C/D with and ON or OFF control signal to Port Nos. 14, 16.

Card	Port No. 16	Port No. 14
Card A	0	0
Card B	0	1
Card C	1	0
Card D	1	1

* If there is no connection to Port Nos. 14, 16, this is the same as "OFF," and Card A is selected.

With the above steps, Phrase No. A0015 is converted to:

Port No.		Input signal
1	Phrase bit 0	1
2	Phrase bit 1	1
3	Phrase bit 2	1
4	Phrase bit 3	1
5	Phrase bit 4	0
6	Phrase bit 5	0
7	Phrase bit 6	0
8	Phrase bit 7	0
21	Phrase bit 8	0
22	Phrase bit 9	0
14	Card bit 0	0
16	Card bit 1	0

NOTE

- Note that the direction of the phrase numbers (binary) and port numbers are reversed.
- Input of binary specifications should be completed in no more than 50 milliseconds.

About binary specification when BINARY 2 is selected

When phrases are selected with "BINARY 2," Phrase 0001 changes to "0000000000" in the binary specification, with each subsequent specification shifted by one.

No.	22	21	8	7	6	5	4	3	2	1
	0	0	0	0	0	0	0	0	0	0
0001	0	0	0	0	0	0	0	0	0	1
0002	0	0	0	0	0	0	0	0	1	0
0003	0	0	0	0	0	0	0	0	1	1
0004	0	0	0	0	0	0	0	1	0	0
0005	0	0	0	0	0	0	0	1	0	1
0006	0	0	0	0	0	0	0	1	1	0
0007	0	0	0	0	0	0	0	1	1	1
•					•					
•					•					
•					•					
0998	1	1	1	1	1	0	0	1	1	0
0999	1	1	1	1	1	0	0	1	1	1
1000	1	1	1	1	1	0	1	0	0	0

Controlling Another Device with the AR-3000SD (Control Output Terminal)

You can control an external device from the AR-3000SD by using the output connectors among the control input and output terminals on the unit's rear panel.

The AR-3000SD outputs two types of control signals: BUSY OUT and CONTROL OUT.

This chapter describes how to connect external equipment and make the settings on the AR-3000SD.

➡ Also refer to "Examples of Usage and Connection for the AR-3000SD" (Owner's Manual: p. 12) for more examples of usage of the control input and output terminals.

➡ For information about the specifications of the control input and output terminals, refer to "Specifications of the Control Input/Output Terminals" (Owner's Manual: p. 27).

Important Notes on Using the Control Input and Output Terminals

* The control input and output terminals cannot be used to switch the power to the AR-3000SD on or off.

NOTE

When making connections to the ports, be careful not to lose the removed screws. Place the screws out of the reach of small children. If a screw is accidentally swallowed, immediately consult a physician.

Starting Another Device (Busy Out)

What Is a Busy Out Signal?/Equipment Connections

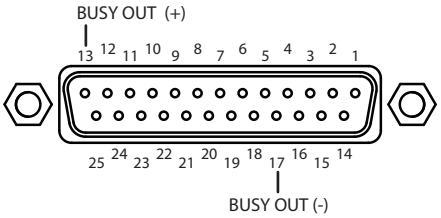
A Busy Out signal is a signal that is continuously output from the BUSY OUT port during playback (and during recording and recording standby) of audio phrases, MIDI phrases, command phrase, pattern phrases, and song phrases.

You can use this signal to start an amp or other external device in sync with phrase playback.

The setting for whether or not the Busy Out signal is to be output is made separately respective to the following three situations:

- During the delay time set in a phrase (p. 4): in Delay Time ON/OFF
- During phrase playback: in Phrase Play ON/OFF
- During the repeat interval set in a phrase (p. 5): in Repeat Int ON/OFF

The setting is made on a system-wide basis (that is, it cannot be made separately for individual phrases).



➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

Busy out signal output during playback of pattern phrases and song phrases

Both pattern phrases and song phrases (p. 9, p. 12) are each handled as single phrases, so during playback the Busy Out signal is output without interruption.

Busy out signal output during dual mono mode playback

During Dual Mono mode playback, the left-channel Busy Out signal is output from the BUSY OUT port, and the right-channel Busy Out signal is output from the CONT OUT port.

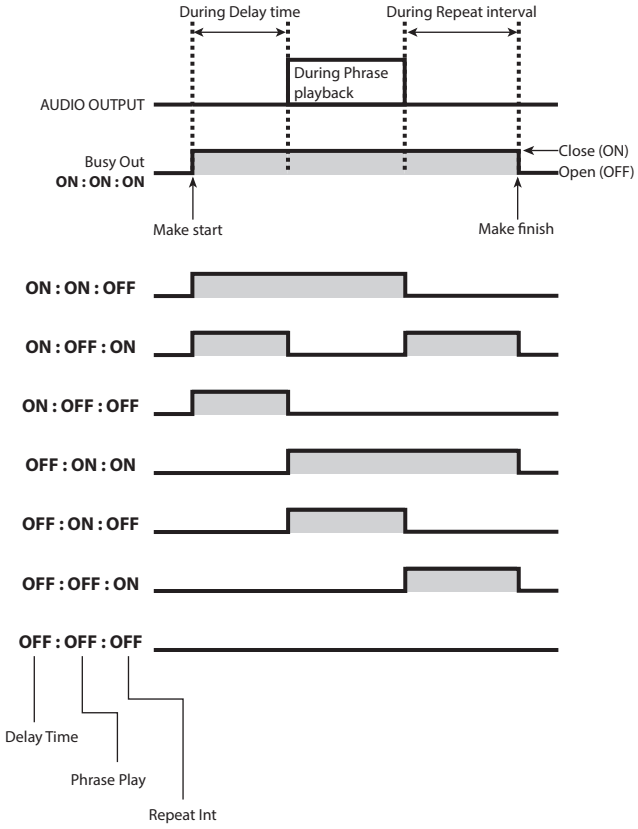
➡ "Playing Two Units' Worth of Data on the Left and Right (Dual Mono Mode)" (p. 51)

AR-3000SD Settings

The setting for the Busy Out signal is a system-wide setting (that is, it is not made separately for individual phrases).

The setting for whether the Busy Out signal is output is made separately in the following three situations. Choose the one that matches your usage conditions.

- In the delay time set in a phrase (p. 4): in Delay Time ON/OFF
- During phrase playback: in Phrase Play ON/OFF
- During the repeat interval set in a phrase (p. 5): in Repeat Int ON/OFF



Tip

Inserting into a phrase a delay time equal to the start time for the amp (the time until sound is played) can help prevent drop-out at the beginning of the phrase during playback.

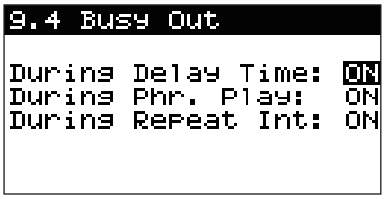
Procedure for making the setting for busy out signal output

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.4 Busy Out," then press the dial.

3. Turn the [SELECT] dial to choose "During Delay Time (OFF or ON)," then press the dial.



4. Turn the [SELECT] dial to choose "During Phr. Play (OFF or ON)," then press the dial.

5. Turn the [SELECT] dial to choose "During Repeat Int (OFF or ON)," then press the dial.

6. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

7. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Controlling Another Device (Control Out)

What Is a Control Out Signal?/Equipment Connections

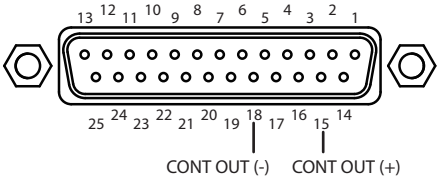
The Control Out signal is a signal that is output from the CONT OUT port for one second after playback of audio phrases, MIDI phrases, command phrase, pattern phrases, and song phrases.

You can use it to control external equipment, using the timing at which phrase playback ends.

You can set the time that is to pass after phrase playback before output is made to anything from 0 seconds to 59 minutes 59 seconds. The setting is made separately for individual phrases.

NOTE

Please be aware that if you cancel phrase playback partway through, no Control Out signal is output.



➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

Control out signal output during playback of pattern phrases and song phrases

Both pattern phrases and song phrases (p. 9, p. 12) are each handled as single phrases, so the Control Out signal is output after phrase playback ends.

Control out signal output during dual mono mode playback (p. 51)

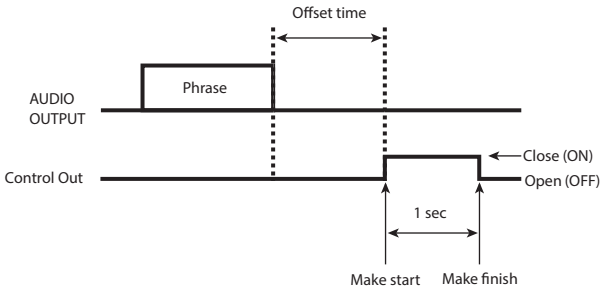
Note that no Control Out signal is output during Dual Mono mode playback (because the Control Out setting (p. 7) is not valid).

At this time, if the Busy Out setting has been made, the left-channel Busy Out signal is output from the BUSY OUT port, and the right-channel Busy Out signal is output from the CONT OUT port.

AR-3000SD Settings

The setting for the Control Out signal is made separately for individual phrases.

When you make the Control Out setting, in addition to making the setting for whether the signal is output, you can also set the time until output after phrase playback (the offset time) to anything from 0 seconds to 59 minutes 59 seconds.



➡ The setting for Control Out is made with Phrase Settings. Refer to "Control Out" (p. 7).

NOTE

During the offset time, when phrase playback ends due to the next playback instruction, operation will proceed according to the setting information for the phrase played back afterwards. Note that the settings for the first phrase are deactivated.

Controlling the AR-3000SD Using MIDI Signals (MIDI Control)

What Is MIDI Control?/What You Can Do with MIDI Control

MIDI stands for "Musical Instrument Digital Interface," and is a unified worldwide standard allowing the exchange of performance information and the like between electronic instruments and computers. You can connect any device conforming to the MIDI standard with a MIDI cable, and then transmit performance data and control the device's operation and settings.

With the AR-3000SD, you can do things like those described below using MIDI signals.

- You can record and play back MIDI signals from an external MIDI device in the same manner as with audio phrases.
  ➡ For more about recording and playing back MIDI signals, refer to "Recording and Playing MIDI Data (MIDI Phrases)" (p. 21).
- You can use MIDI signals from an external MIDI device as control signals for controlling playback of audio and MIDI phrases.
- You can use MMC and MTC signals from an external MIDI device for remote control and synchronized operation.
  - You can use received MMC signals to start and stop recording and playback of audio phrases (p. 42).
    ➡ "What Is MMC?/Remote Control from Another Device" (p. 42)
  - By using MMC and MTC signals in combination, you can synchronize playback of audio phrases to video equipment or the like.
    ➡ "What Is MTC?/Synchronized Playback with Video Equipment and Other Devices" (p. 44)

Also see "MIDI Implementation" (p. 65), which allows confirmation of the MIDI messages that the unit can send and receive.

Glossary of Selected MIDI Terms

MIDI messages: These are messages conveyed by MIDI signals. These messages are necessary for playing performances on an external MIDI sound generating device. They include note messages for playing and stopping notes, as well as Control Change and System Exclusive (SysEx) messages, which can modify and enhance the expressive capabilities of performances.

Note number: This is a number assigned to each key (note) on the keyboard of an electronic musical instrument. Numbers are assigned in semitone steps, with middle C (C4) set at 60 and the numbers from 0 to 127 indicating the positions of the keys on the keyboard. On the AR-3000SD these are used to specify phrases.

Note On: This is a message that provides information on when the keyboard of a MIDI instrument is fingered.

Note On Velocity: The strength when the keys of a MIDI instrument are pressed.

Note Off: This is a message that provides information on when the keys of a MIDI instrument are released.

Program Change: This is a message that provides information for switching sounds on an electronic instrument. On the AR-3000SD, this is used to switch phrase sets in groups of 100.

Control Change: MIDI instrument performances use a variety of controllers, not just for the keyboard. The MIDI message that conveys such controller action is the Control Change. The AR-3000SD receives and acts upon Panpot and Expression messages.

Playback of Phrases Using MIDI Signals

This plays back audio and MIDI phrases using MIDI signals from an external MIDI device as control signals.

Phrase playback can be controlled by the different types of MIDI messages, including Note On/Off, Note On Velocity, Panpot, and Expression.

* Note that simultaneous recording and simultaneous playback of audio phrases and MIDI phrases is not possible.

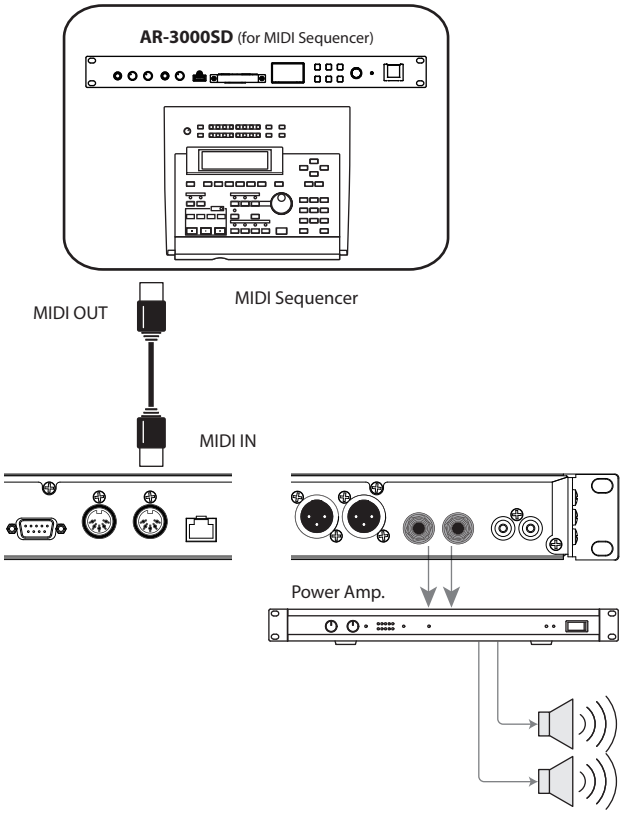
* Phrases for which RDAC-Mode is set to MODE2 or MP3 cannot be synchronized with MTC.

MEMO

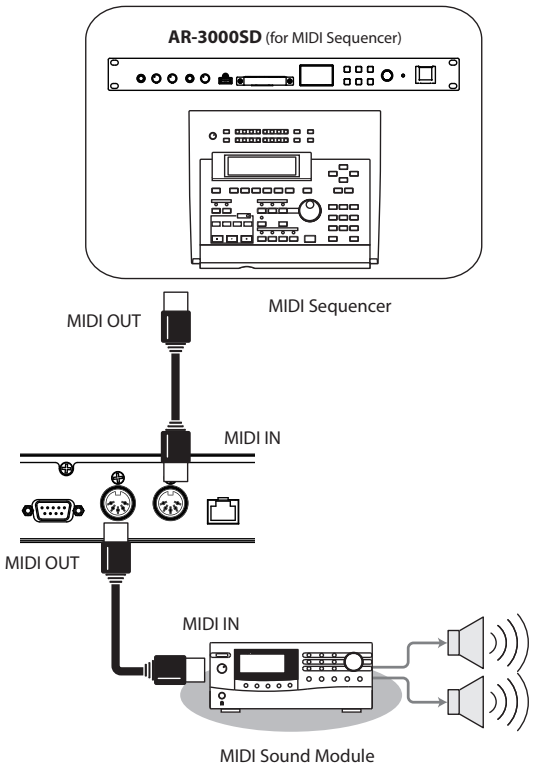
In addition to these, you can use Exclusive (SysEx) messages to control starting and stopping for recording and playback, make settings for recording, and specify phrases. For more information, refer to "MIDI Implementation" (p. 65).

Connecting External Equipment

When playing back audio phrases using MIDI signals



When playing back MIDI phrases using MIDI signals



➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

AR-3000SD Settings

Selection of MIDI output (MIDI OUT or MIDI THRU)

This changes the function of the MIDI OUT/THRU connector.

OUT: This sends MIDI information from the unit. Select this when you want to play back MIDI phrases or send Exclusive (SysEx) messages.

THRU: This takes MIDI information from MIDI IN and sends it out unchanged. MIDI signals from the unit are not output.

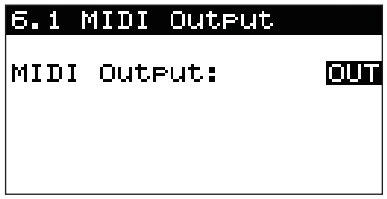
Procedure for setting MIDI output (MIDI OUT or MIDI THRU)

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.1 MIDI Output," then press the dial.

3. Turn the [SELECT] dial to choose the MIDI output (OUT or THRU), then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Note number phrase assignments (MIDI note map)

A Note On message causes the phrase with the corresponding note number to be played back. You can choose all phrases by changing the phrases sets in groups of 100 using Program Change messages.

You can freely assign phrases to the Program Change 1 note numbers (128 numbers).

NOTE

Although you can select phrases from either card, note that playback will not work properly if the card inserted when the phrase was registered is not already inserted at the time of playback. (If the phrase does not exist, the playback signal is ignored.)

Settings when formatting cards

Program Change 1

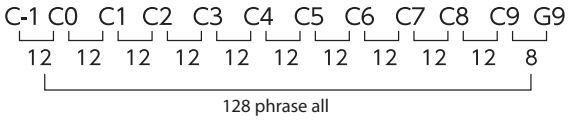
Note Number	Phrase
C-1	A0001
C#-1	A0002
D-1	A0003
:	:
G9	A0128

MIDI note map (phrase assignments from program changes and note numbers)

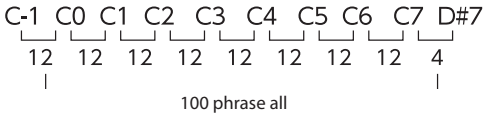
Program Change	Note No.	Phrase No.
1	C-1–G9	You can assign 128 phrases however you like.
2	C-1–D#7	A0001–A0100
3	C-1–D#7	A0101–A0200
4	C-1–D#7	A0201–A0300
5	C-1–D#7	A0301–A0400
6	C-1–D#7	A0401–A0500
7	C-1–D#7	B0001–B0100
8	C-1–D#7	B0101–B0200
9	C-1–D#7	B0201–B0300
10	C-1–D#7	B0301–B0400
11	C-1–D#7	B0401–B0500
21	C-1–D#7	A0001–A0100
22	C-1–D#7	A0101–A0200
23	C-1–D#7	A0201–A0300
24	C-1–D#7	A0301–A0400
25	C-1–D#7	A0401–A0500
26	C-1–D#7	A0501–A0600
27	C-1–D#7	A0601–A0700
28	C-1–D#7	A0701–A0800
29	C-1–D#7	A0801–A0900
30	C-1–D#7	A0901–A1000

71	C-1–D#7	B0001–B0100
72	C-1–D#7	B0101–B0200
73	C-1–D#7	B0201–B0300
74	C-1–D#7	B0301–B0400
75	C-1–D#7	B0401–B0500
76	C-1–D#7	B0501–B0600
77	C-1–D#7	B0601–B0700
78	C-1–D#7	B0701–B0800
79	C-1–D#7	B0801–B0900
80	C-1–D#7	B0901–B1000
81	C-1–D#7	C0001–C0100
82	C-1–D#7	C0101–C0200
83	C-1–D#7	C0201–C0300
84	C-1–D#7	C0301–C0400
85	C-1–D#7	C0401–C0500
86	C-1–D#7	C0501–C0600
87	C-1–D#7	C0601–C0700
88	C-1–D#7	C0701–C0800
89	C-1–D#7	C0801–C0900
90	C-1–D#7	C0901–C1000
91	C-1–D#7	D0001–D0100
92	C-1–D#7	D0101–D0200
93	C-1–D#7	D0201–D0300
94	C-1–D#7	D0301–D0400
95	C-1–D#7	D0401–D0500
96	C-1–D#7	D0501–D0600
97	C-1–D#7	D0601–D0700
98	C-1–D#7	D0701–D0800
99	C-1–D#7	D0801–D0900
100	C-1–D#7	D0901–D1000
128	C-1–G9	The phrase being played back is stopped.

Program Change 1



Program Change 21–30, 71–80, 2–11



* The 1,000 phrases on card A are assigned to Program Changes 21 through 30, and the phrase assignments cannot be changed.

* The 1,000 phrases on card B are assigned to Program Changes 71 through 80, and the phrase assignments cannot be changed.

* For compatibility with the AR-2000 format, 500 phrases on card A and 500 phrases on card B are assigned to Program Changes 2 through 6, and 7 through 11, and the phrase assignments cannot be changed.

* With Program Change 128, playback of the phrase in progress is stopped by switching any note number on.

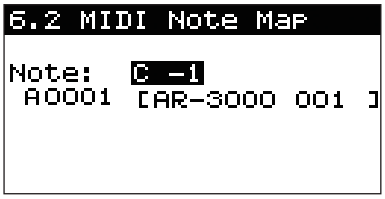
Procedure for making the MIDI note map settings

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.2 MIDI Note Map," then press the dial.

3. Turn the [SELECT] dial to choose the note number you want to set, then press the dial.



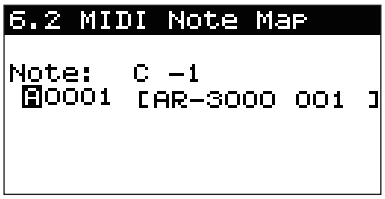
C-1 through G9: Note number

END: To finish making settings.

RESET: This restores the settings at the time the card was formatted.

CLEAR: This erases all settings.

4. Turn the [SELECT] dial to choose the card containing the phrase you want to store, then press the dial.

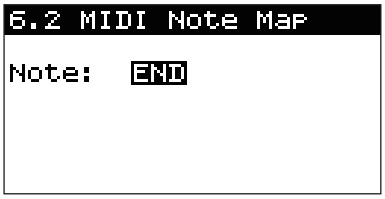


* To store no phrase, choose "-----."

5. Turn the [SELECT] dial to choose the phrase you want to store, then press the dial.

6. Repeat steps 3 through 5 to assign phrases.

7. To cancel the save process, then in step 3, turn the [SELECT] dial to choose "END," then press the dial.



8. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

9. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

MIDI receive channel (MIDI channel) setting

This sets the MIDI receive channel. With MIDI, you can send different information to a number of MIDI instruments on a single MIDI cable. For example, when the MIDI channel for the sending device is set to "1," then unless the MIDI channel of the receiving device (here, the AR-3000SD) is also set to "1," the MIDI message is not transmitted.

OFF: There is no phrase playback using MIDI signals.

1 through 16 ch: MIDI signals are received and played back only on the selected channel.

ALL: Phrases are played back regardless of the MIDI channel.

MEMO

When recording MIDI phrases, setting the MIDI Receive channel is not necessary.

Procedure for making the MIDI receive channel settings

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.4 MIDI Channel," then press the dial.**
3. **Turn the [SELECT] dial to choose the MIDI Channel (OFF, 1 through 16 CH, or ALL), then press the dial.**

4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
5. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Handling of note off signals (note trigger)

This sets how Note Off signals are handled during phrase playback through MIDI.

Trigger: Note Off signals are ignored.

Gate: Phrase playback stops when an off signal is received.

With Program Change 128, playback of the phrase in progress is stopped by switching any note number on.

Procedure for making the note trigger setting

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.5 MIDI Note Trg.," then press the dial.**
3. **Turn the [SELECT] dial to choose the Note Trigger (TRIGGER or GATE), then press the dial.**

4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
5. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

MIDI control signals that the AR-3000SD can receive (receive messages)

The AR-3000SD can receive the MIDI messages described below.

Note On Velocity: Volume level when a phrase starts

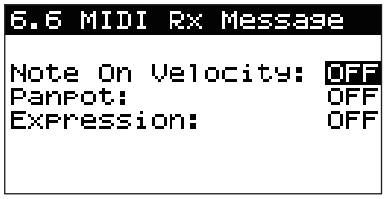
Panpot (CC10): Change in stereo position on the left and right channels

Expression (CC11): Change in master volume

➡ "MIDI Implementation" (p. 65)

Procedure for making the receive message setting

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.6 MIDI RX Message," then press the dial.**
3. **Turn the [SELECT] dial to choose the Note On Velocity (OFF or ON), then press the dial.**



4. **Turn the [SELECT] dial to choose the Panpot (OFF or ON), then press the dial.**
5. **Turn the [SELECT] dial to choose the Expression (OFF or ON), then press the dial.**
6. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the setting, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
7. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Operation procedures

When you have finished making the settings, send MIDI signals from the external MIDI instrument. When messages are received, the unit starts playing back the phrases.

MIDI note out

If MIDI Note Out is set to "ON," then when an audio phrase is played back, the MIDI Note Number On/Off signals set in the MIDI Note Map (p. 39) are output from the MIDI OUT connector.

It's possible to use this signal to control a number of AR-3000SD units.

* If multiple note numbers are selected for the playback phrase, only the on or off signal for the lowest note number is output.

NOTE

Output is on the MIDI channel set with the MIDI receive channel (p. 41).

If the MIDI receive channel is set to:

- **OFF:** There is no output.
- **1 through 16:** Only the MIDI signals received on the selected channel are output.
- **ALL:** Output is on channel 1.

When you are controlling a number of AR-3000SD units using note Numbers, set the MIDI note trigger (p. 41) for the controlled AR-3000SD to Trigger.

* Even when MIDI phrases are played back, note number on/off signals are not output.

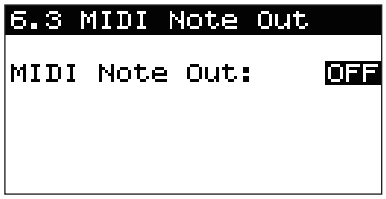
Procedure for making the MIDI note out channel settings

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.3 MIDI Note Out," then press the dial.

3. Turn the [SELECT] dial to choose the MIDI Note Out (ON or OFF), then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Synchronizing Operation to an External MIDI Instrument 1 (MMC)

What Is MMC?/Remote Control from Another Device

What is MMC (MIDI machine control)?

MMC refers to MIDI messages that were devised in accord with certain agreements as to how to facilitate the centralized control of a multiple number of recording devices using one device. In addition to playback, stopping, and fast forwarding of songs, you can also select tracks for recording and carry out other operations merely by operating the one device which functions as the master. Use of MMC signals requires that the other devices be capable of remote operation using MMC signals.

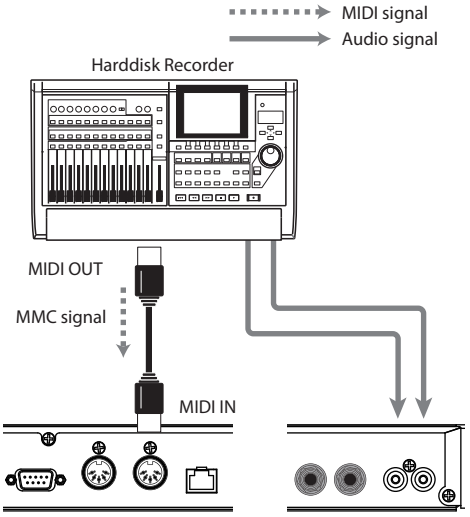
The AR-3000SD can work as a remote-control device, starting and stopping recording and playback of audio phrases when MMC signals are received from a hard-disk recorder or the like.

➡ "MIDI Implementation" (p. 65)

Connecting External Equipment

You can use the AR-3000SD either as an MMC master or an MMC slave.

In this connection example, the unit is used as a slave.



In situations such as when you carry out recording and editing with a hard-disk recorder and record the finished results on the AR-3000SD, you can control AR-3000SD from the hard-disk recorder.

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

AR-3000SD Settings

Selection of MIDI output (MIDI OUT or MIDI THRU)

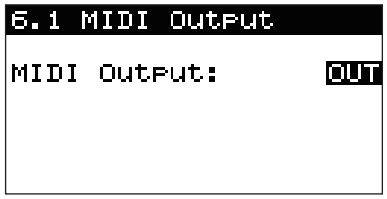
This switches the functioning of the MIDI OUT/THRU connector.

OUT: MIDI information from the AR-3000SD is sent. Select this when you want to play back MIDI phrases or send Exclusive (SysEx) messages.

THRU: This takes MIDI information from MIDI IN and sends it out unchanged. MIDI information from the AR-3000SD itself is not output.

Procedure for setting MIDI output (MIDI OUT or MIDI THRU)

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.1 MIDI Output," then press the dial.**
3. **Turn the [SELECT] dial to choose the MIDI Output (OUT or THRU), then press the dial.**



4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
5. **Press the [MENU] button.**
   * This ends the setting process and returns you to the usual screen. If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Device-specific ID (MIDI device ID) settings

This sets the MIDI device ID (from 1 through 32).
When you are controlling the unit using MMC, you need to set both devices to matching device ID numbers. Check the device ID of the connected external MIDI instrument, then set the unit to the same device ID.

Procedure for setting the MIDI device ID

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.7 MIDI Device ID," then press the dial.**
3. **Turn the [SELECT] dial to choose the MIDI Device ID (from 1 to 32), then press the dial.**

4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
5. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

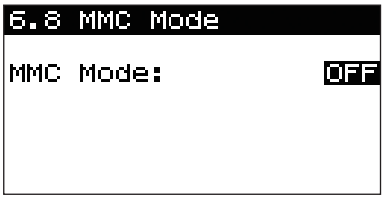
MMC mode (OFF/MASTER/SLAVE)

This selects master or slave for MMC synchronization.

OFF:	MMC information is not sent or received.
MASTER:	MMC information is sent. The unit becomes the master of the external MIDI instrument.
SLAVE:	MMC information is received. The unit becomes the slave of the external MIDI instrument.

Procedure for setting the MMC mode

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.8 MMC Mode," then press the dial.**
3. **Turn the [SELECT] dial to choose the MMC Mode (OFF, MASTER, or SLAVE), then press the dial.**



4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
5. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.
   * If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the sync source (INTERNAL or MTC)

This sets the Sync Source. For MMC synchronization, set this to "INTERNAL."

INTERNAL:	The slave device operates according to the AR-3000SD's internal clock.
MTC:	The unit operates according to MIDI time code information from the master device.

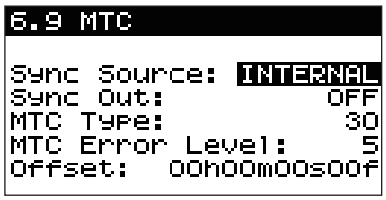
NOTE

Note that when Sync Source is set to MTC, there is no operation unless MTC information is input from the external MIDI instrument.

Procedure for setting the sync source

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.9 MTC," then press the dial.**

3. Turn the [SELECT] dial to set Sync Source to "INTERNAL," then press the dial.



- If you are continuing by making the setting for "Sync Out," proceed to step 4 of the procedure for setting sync out (p. 48).

To finish making the setting, press the [ENTER] button.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Operation procedures

MMC slave

When you have finished making the settings, operate the connected master device. You can control the unit remotely.

MMC master

When you have finished making the settings, operate the unit. You can control the connected slave device remotely.

Synchronizing Operation to an External MIDI Instrument 2 (MMC and MTC)

What Is MTC?/Synchronized Playback with Video Equipment and Other Devices

What is MTC (MIDI time code)?

This comprises MIDI messages developed to allow MIDI devices to be synchronized with precision. It differs from MIDI Clock in that it displays the absolute time. The master device transmits the current absolute time (in hours/minutes/seconds/frames from the start), and the time of the slave device is advanced to conform with it. Use of MTC signals requires that the other device is capable of synchronization using MTC.

With the AR-3000SD, you can combine MMC and MTC signals to synchronize playback of audio phrases with a digital mixer, video equipment, or other devices.

Types of MTC (frame rate)

The MTC types (frame rates) you can select with the AR-3000SD are shown below. When you are synchronizing operation using MTC, you need to set both devices to matching frame rates.

Check the specifications of the connected external MIDI instrument, then make the settings.

30: This is 30 frames per second, non-drop format. It is used for audio equipment such as analog tape recorders, and NTSC-format black and white video.

29N: This is 29.97 frames per second, non-drop format. It is used for NTSC-format color video.

29D: This is 29.97 frames per second, drop format. It is used for NTSC-format color video for broadcast use.

25: This is 25 frames per second. It is used for SECAM- and PAL-format video and audio equipment, and for motion pictures.

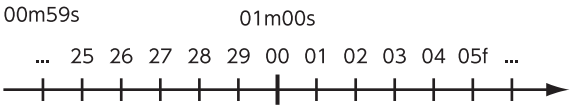
24: This is 24 frames per second. It is used for video and audio equipment in the U.S.A., and for motion pictures.

➡ "Selecting the MTC type (30/29N/29D/25/24)" (p. 46)

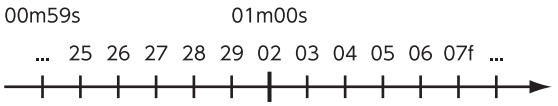
Drop frame and non-drop frame

There are two types of time codes used by NTSC-format video-cassette recorders: drop frame, in which time codes are not continuous, and non-drop frame, in which time codes are continuous. To achieve compatibility with the NTSC color video standard, drop frame drops the first two frames of every minute except the 10th, 20th, 30th, 40th, and 50th minutes.

Non-Drop Frame (29N)



Drop Frame (29D)



Because continuous frames are easier to work with, non-drop frame is used in general video and music production.

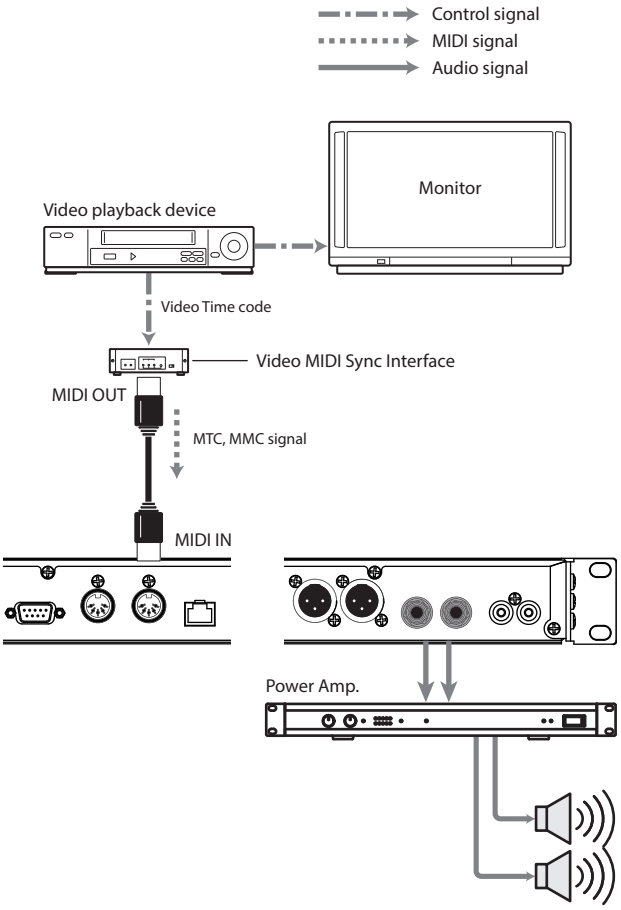
Conversely, drop frame is used in television stations and the like, where time codes must match actual clock times.

NOTE

- Synchronization by means of MTC is not possible when the Dual Mono mode on the AR-3000SD is set to "ON."
- MTC synchronization may not be correct when Loop Play for a phrase is set to "ON." In such cases, use with Loop Play set to "OFF."
- Synchronization with MTC is not possible for phrases for which MODE2 or MP3 are set to RDAC-MODE.

Connecting External Equipment

You can use the AR-3000SD as an MTC master or as an MTC slave. In this connection example, the unit is used as a slave.



You can play back audio phrases in sync with video. Fast forwarding, rewinding, and playback from whatever position you want is also supported.

➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

AR-3000SD Settings (When the AR-3000SD Is the Slave)

Selection of MIDI output (MIDI OUT or MIDI THRU)

This switches the functioning of the MIDI OUT/THRU connector.

OUT: This sends MIDI information from the unit. Select this when you want to play back MIDI phrases or send Exclusive (SysEx) messages.

THRU: This takes MIDI information from MIDI IN and sends it out unchanged. MIDI information from the AR-3000SD itself is not output.

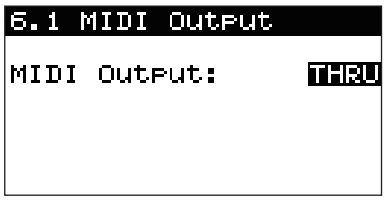
Procedure for setting MIDI output

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.1 MIDI Output," then press the dial.

3. Turn the [SELECT] dial to set MIDI Output to "THRU," then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Device-specific ID (MIDI Device ID) settings

This sets the MIDI device ID (from 1 through 32).

When you are controlling the unit using MMC and MTC, you need to set both devices to matching device ID numbers. Check the device ID of the connected external MIDI instrument, then set the unit to the same device ID.

Procedure for setting the MIDI device ID

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.6 MIDI Device ID," then press the dial.

3. Turn the [SELECT] dial to choose the MIDI Device ID (from 1 to 32), then press the dial.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

MMC mode (OFF/MASTER/SLAVE)

This sets the MMC mode to "SLAVE."

OFF: MMC information is not sent or received.

MASTER: MMC information is sent. The unit becomes the master of the external MIDI instrument.

SLAVE: MMC information is received. The unit becomes the slave of the external MIDI instrument.

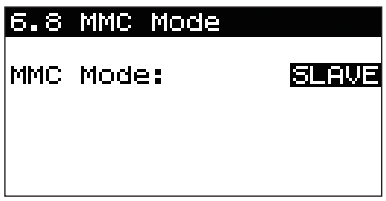
Procedure for setting the MMC mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.7 MMC Mode," then press the dial.

3. Turn the [SELECT] dial to set the MMC Mode to "SLAVE," then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the sync source (INTERNAL or MTC)

This sets the Sync Source to "MTC."

INTERNAL: The slave device operates according to the AR-3000SD's internal clock. Select this to make the unit the master.

MTC: The unit operates according to MIDI time code information from the master device. Select this to make the unit the slave.

NOTE

Note that when Sync Source is set to MTC, there is no operation unless MTC information is input from the external MIDI instrument.

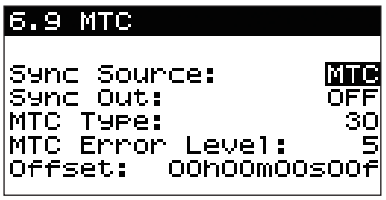
Procedure for setting the sync source

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.9 MTC," then press the dial.

3. Turn the [SELECT] dial to set the Sync Source to "MTC," then press the dial.



- If you are continuing by making the setting for "Sync Out," proceed to step 4 of the procedure for setting Sync Out (p. 48).

To finish making the setting, press the [ENTER] button.

4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the MTC type (30/29N/29D/25/24)

This selects the MTC type (frame rate).

Check the specifications of the connected external MIDI instrument, then make the settings.

➡ Types of MTC (Frame Rates) (p. 44)

Procedure for setting the MTC type

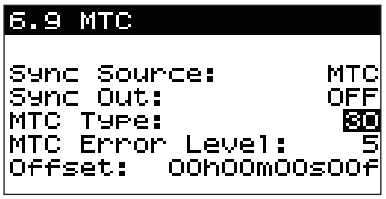
1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.9 MTC," then press the dial.

3. Press the [SELECT] dial to advance the input location (highlighted) to "MTC Type."

4. Turn the [SELECT] dial to choose the MTC type (30, 29N, 29D, 25, or 24), then press the dial.



- If you are continuing by making the setting for "MTC Error Level," proceed to step 4 of the procedure for setting the MTC Error Level (p. 47).

To finish making the setting, press the [ENTER] button.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the MTC error level (0 to 10)

This sets the interval at which the MTC reception status is checked (from 0 to 10). When you are conducting synchronization with the unit as the slave, this constantly checks whether the unit is correctly sending MIDI time codes. When MIDI time codes are not sent continuously, it is determined that there is a problem with MTC synchronization, and synchronized operation stops.

The MTC error level sets the reference standard for this determination. Larger values increase the degree of error tolerance, making slave playback possible even when there are minor problems in receiving MIDI time codes.

Procedure for setting the MTC error level

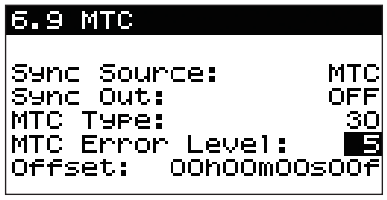
1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "6.9 MTC," then press the dial.

3. Press the [SELECT] dial to advance the input location (highlighted) to "MTC Error Level."

4. Turn the [SELECT] dial to choose the MTC Error Level (from 0 to 10), then press the dial.



5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

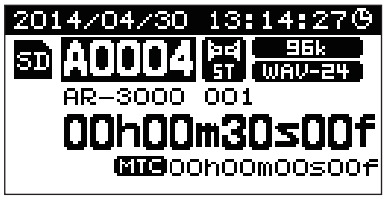
* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Operation procedures

When you have finished making the settings, carry out playback on the connected master device. Phrase playback in sync with received MIDI time codes starts.

- Playback is paused when MTC (Full messages; "MIDI Time Code" (p. 66)) is received, or the [PLAY/PAUSE] button is pressed.
- To enter recording standby under the control of MTC, press the [REC] button, then press the [PLAY/PAUSE] button again.

A screen like the following appears during playback.



NOTE

Note that there is no operation unless MIDI time codes are input from the external MIDI instrument.

MTC offset setting

This adjusts the timing when you are using MTC to synchronize operation of the unit and an external MIDI instrument.

When you're operating the unit on receiving the MIDI Time Code from an external MIDI instrument, you can effect playback on the unit at any time you want.

For instance, if you want to play back a phrase when the MTC time from the external MIDI instrument is "01h00m00s00f," set the offset to "01h00m00s00f."

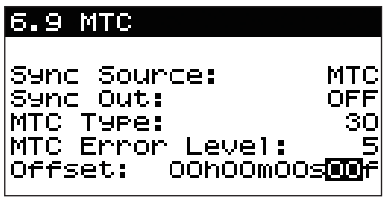
Procedure for setting the MTC offset

1. Press the [MENU] button.

2. Use the [SELECT] dial to choose "6.9 MTC," then press the dial.

3. Press the [SELECT] dial and advance the entry location (highlighted) to "Offset."

4. Turn the [SELECT] dial to set the offset (time), then press the dial.



Tip

Each press of the [BACK] (USER) button moves the cursor (highlighted) in the sequence of f → s → m → h.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been successfully modified, you're returned to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry location (highlighted) by pressing the [BACK] (USER) button.
* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

AR-3000SD Settings (When the AR-3000SD Is the Master)

Selection of MIDI output (MIDI OUT or MIDI THRU)

This switches the functioning of the MIDI OUT/THRU connector.

Here, select "OUT."

OUT: This sends MIDI information from the unit. Select this when you want to play back MIDI phrases, send Exclusive (SysEx) messages, or make the AR-3000SD the master during synchronization using MIDI signals.

THRU: This takes MIDI information from MIDI IN and sends it out unchanged. MIDI information from the AR-3000SD itself is not output.

Procedure for setting MIDI output (MIDI OUT or MIDI THRU)

➡ For setting procedure, refer to p. 42.

Device-specific ID (MIDI Device ID) settings

This sets the MIDI device ID (from 1 through 32). When you are controlling an external MIDI instrument using MMC and MTC, you need to set both devices to matching device ID numbers. Check the device ID of the connected external MIDI instrument, then set the unit to the same device ID.

Procedure for setting the MIDI device ID

➡ For setting procedure, refer to p. 43.

MMC mode (OFF/MASTER/SLAVE)

This sets the MMC Mode to "MASTER."

OFF: MMC information is not sent or received.

MASTER: MMC information is sent. The unit becomes the master of the external MIDI instrument.

SLAVE: MMC information is received. The unit becomes the slave of the external MIDI instrument.

Procedure for setting the MMC mode

➡ For setting procedure, refer to p. 43.

Selecting the sync source (INTERNAL or MTC)

This sets the Sync Source to "INTERNAL."

INTERNAL: The slave device operates according to the AR-3000SD's internal time control. Select this to make the unit the master.

MTC: The unit operates according to MIDI time code information from the master device. Select this to make the unit the slave.

NOTE

Note that when Sync Source is set to "MTC," there is no operation unless MTC information is input from the external MIDI instrument.

Procedure for setting the sync source

➡ For setting procedure, refer to p. 43.

Selecting sync out (OFF or MTC)

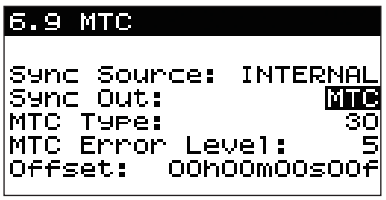
This sets Sync Out to "MTC."

OFF: MIDI time codes are not sent.

MTC: MIDI time codes are sent. Select this when you are operating a slave device using the unit's MTC.

Procedure for setting sync out

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "6.9 MTC," then press the dial.**
3. **Press the [SELECT] dial to advance the input location (highlighted) to "Sync Out."**
4. **Turn the [SELECT] dial to set Sync Out to "MTC," then press the dial.**



If you are continuing by making the setting for "MTC Type," proceed to step 4 of the procedure for setting the MTC Type (p. 46).

To finish making the setting, press the [ENTER] button.

5. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
   Once the settings have been successfully modified, you're returned to the setting item selection screen.
6. **Press the [MENU] button.**
   This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

Selecting the MTC type (30/29N/29D/25/24)

This selects the MTC type (frame rate).

Check the specifications of the connected external MIDI instrument, then make the settings.

➡ Types of MTC (Frame Rates) (p. 44)

Procedure for setting the MTC type

For setting procedure, refer to p. 46.

Operation procedures

When you have finished making the settings, play back a phrase on the unit. The connected slave device carries out synchronized playback.

MTC offset setting

When you're operating an external instrument on receiving the MIDI Time Code from the unit, you can effect playback on the external instrument at any time you want.

For instance, if you want to play back a phrase on the unit, then after the elapse of "00h00m10s00f" effect playback on the external MIDI instrument, set the offset to "23h59m50s00f."

"00h00m00s00f" - "00h00m10s00f" = "23h59m50s00f" When the calculated time value it negative, add "24h00m00s00f."

Procedure for setting the MTC offset

For information on the procedure, refer to p. 47.

Controlling the AR Using the RS-232C Connector

What's the RS-232C Connector?/What You Can Do with the RS-232C Connector

The RS-232C connector is a connector used to connect to a computer to other peripheral equipment. The AR-3000SD is equipped with a D-sub 9-pin type RS-232C connector. With the AR-3000SD, you can control the AR-3000SD from an external control device such as a computer or touch panel by means of an RS-232C cable connection.

NOTE

Depending on the cable used to make the connection, a conversion connector may be required.

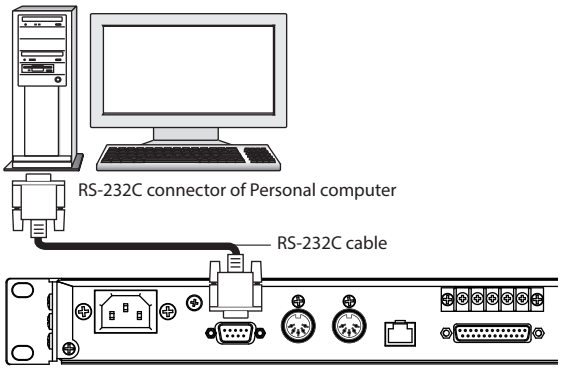
➡ For more information about examples of using the RS-232C connector, also see "Using the RS-232C Connector" (Owner's Manual: p. 13).

Controlling the AR-3000SD using a computer

You can do things like controlling starting and stopping of recording or playback (for audio recording only), make settings during recording, specify phrases, and copy and delete phrases and cards.

➡ For more about the specifications of the RS-232C connector, see "Terminals" (Owner's Manual: p. 28).

Connecting Equipment



➡ "Turning the Unit On and Off" (Owner's Manual: p. 11)

Baud Rate Setting

Set the RS-232C communication speed (baud rate). The available baud rates are 4800, 9600, 14400, 19200, 31250, 38400, 57600 or 115200 bps.

Choose one that matches the usage conditions.

* Be sure to check the baud rate of the computer you're using before making the setting.

* The setting for 38400 bps is for compatibility with legacy models (the AR-3000/ 2000). However, it is a value for the communication speed that is not defined by the RS-232C standards.

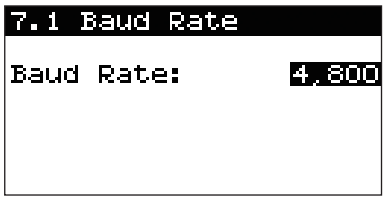
Procedure for setting the baud rate

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "7.1 Baud Rate," then press the dial.

3. Turn the [SELECT] dial to choose the Baud Rate (4800, 9600, 14400, 19200, 31250, 38400, 57600 or 115200), then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the setting.

To quit, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Available Documentation for the RS-232C

In addition to the owner's manual, "Command Reference Manual" are available as reference materials that cover RS-232C connector control. The PDF file can be downloaded free of charge from the following URL.

- The Command Reference Manual covers the following topics:
  - Setup
  - Overviews, detailed descriptions, and lists of commands
  - Examples of usage algorithms

Roland website address
http://www.rolandsystemsgroup.net/

RS-232C Mode

This sets sending and receiving via RS-232C on and off, and sets AR-2000-compatible control flow.

Rx Command (receive command)	When this is set to OFF, nothing is received via RS-232C. When Rx Command is set to OFF, the AR-3000SD can ignore replies from an external device when controlling the external device using RS-232C command phrases. The default setting is ON.
Tx Command (transmit command)	When this is set to OFF, no commands are sent via RS-232C at times such as on card insertion or when phrase playback is stopped. When Tx Command is set to OFF, commands unsupported by an external device are not sent when controlling the external device using RS-232C command phrases. The default setting is ON.
AR-2000 Mode	The AR-2000 and the AR-3000SD differ in handshaking (flow control) specifications and in the operation of some commands. When this is set to ON, the behavior of these specifications and commands is the same as on the AR-2000. The default setting is OFF.

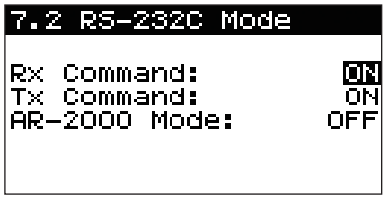
Procedure for setting the RS-232C mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "7.2 RS-232C Mode," then press the dial.

3. Turn the [SELECT] dial to choose Rx Command (ON or OFF), then press the dial.



4. Turn the [SELECT] dial to choose Tx Command (ON or OFF), then press the dial.

5. Turn the [SELECT] dial to choose AR-2000 Mode (ON or OFF), then press the dial.

6. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

Once the settings have been made successfully, you're returned to the setting item selection screen.

7. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

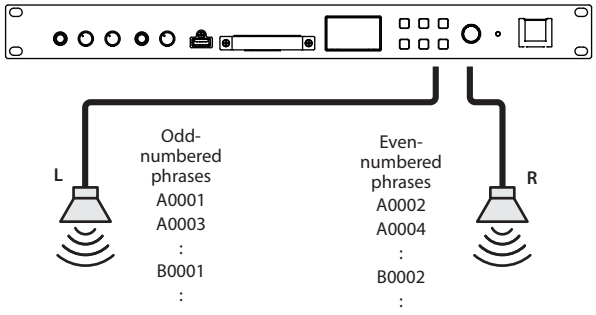
Playing Two Units' Worth of Data on the Left and Right (Dual Mono Mode)

What Is the Dual Mono Mode?/Equipment Connections

The Dual Mono mode is a feature for playing different mono audio phrases independently on the left and right channels.

By playing odd-numbered phrases (A0001, A0003,... or B0001, B0003,...) from the left channel and even-numbered phrases (A0002, A0004,... or B0002, B0004,...) from the right channel, you can play back two units' worth of data on a single unit.

You can also play back separate phrases on the left and right channels either simultaneously, or shifted.



Note that the Dual Mono mode is subject to various conditions that you should be aware of before you use the mode.

MEMO

On the AR-2000/100 (legacy models), this Dual Mono mode is named the "Channel Playback mode." As you use it, keep in mind that it is the same feature.

Conditions for simultaneous playback in dual mono mode

- Phrases whose recording type is mono
- Phrases whose recording format is WAV-16, LINEAR, MODE1–3, or HI-LINEAR
- When the sampling rate is 32 kHz, 44.1 kHz, or 48 kHz

Specifying phrases like the following result in dual mono mode playback that may not be correct

- MIDI phrases or song phrases, or audio phrases whose recording format is WAV-24 or MP3
  → These are treated as empty phrases.
- Pattern phrases containing MIDI phrases
  → These are treated as empty phrases, and the unit searches for and plays back the next phrase.
- Phrases whose recording type is stereo
  → Dual Mono playback is canceled, and the specified phrase is output in stereo (L/R).

If a phrase unsuited to Dual Mono playback is specified on either the left or right channel in the course of sequential phrase playback, it results in incorrect Dual Mono playback. To ensure reliable Dual Mono playback, specify the playback phrases with care.

The following phrase information has no effect during playback.

- 1.5 Loop Play

Control output during dual mono mode playback

During Dual Mono mode playback, the left-channel Busy Out signal is output from the BUSY OUT control port, and the right-channel Busy Out signal is output from the CONT OUT control port.

* Note that no Control Out signal is output (because the Control Out setting (p. 7) is not valid).

AR-3000SD Settings

Set the Dual Mono Mode to "ON (MONO 2ch)."

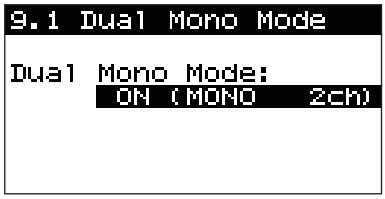
Procedure for setting the dual mono mode

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.1 Dual Mono Mode," then press the dial.

3. Turn the [SELECT] dial to choose Dual Mono Mode (ON (MONO 2ch)), then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

* If you press the [MENU] button while making settings, a message asking you to confirm that you want to exit the setting process appears. Note that if you choose "YES," then press the [ENTER] button, you are returned to the usual screen, and all setting changes you've made up to that point will be discarded.

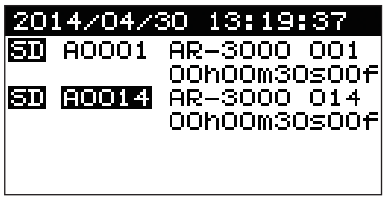
Operation Procedures

Dual mono playback through manual operation

You can perform manual playback, in the same way as for ordinary stereo playback.

1. Insert a card containing recorded information into a slot.

2. Turn the [SELECT] dial to choose the phrase number to play.



* To switch between card slots CF and SD, press the [SELECT] dial.

* To switch between L (left) and R (right), press the [ENTER] button.

3. Pressing the [PLAY/PAUSE] button plays back a phrase.

During playback of the phrase, the PLAY/PAUSE indicator lights up in green.

* The phrase whose phrase number is highlighted is played back.

- Pressing the [STOP] button ends playback.
- During playback, you can choose the next song to play (without stopping the phrase being played) by turning the [SELECT] dial.

NOTE

Please be aware that you cannot pause Dual Mono playback.

Dual mono playback through control input

You can perform playback through control input, in the same way as for ordinary stereo playback.

The settings for control-input playback basically act independently for each channel.

➡ For more information about the operation of playback with control input terminals, see also "Controlling the AR-3000SD from an External Device (Control Input Terminals)" (p. 24).

During direct playback

Odd-numbered phrases are output by direct playback from output L (left), and even-numbered phrases are output by direct playback from output R (right). The order of priority of the control input connectors may vary depending on how phrases are assigned to the control input terminals. To facilitate understanding, the explanations in this section assume that the assigned phrase numbers correspond to the port numbers.

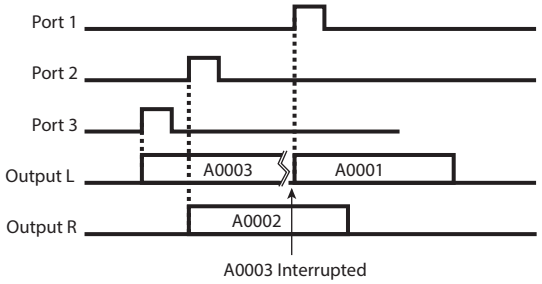
Port No.	1	2	3	4	5	• • •	16
Phrase	A0001	A0002	A0003	A0004	A0005	• • •	A0016
Output jack	L	R	L	R	L	• • •	R

When you send a Stop input signal, playback stops simultaneously for the L and R channels.

* Input a trigger signal to the control signal.

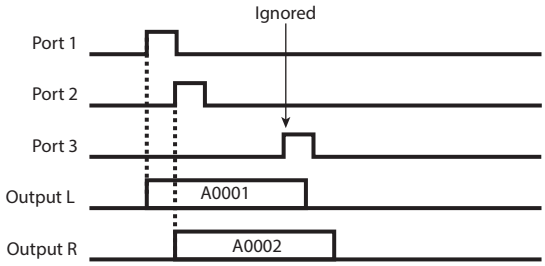
* Do not simultaneously input more than one control input allocated to the same output.

Normal playback



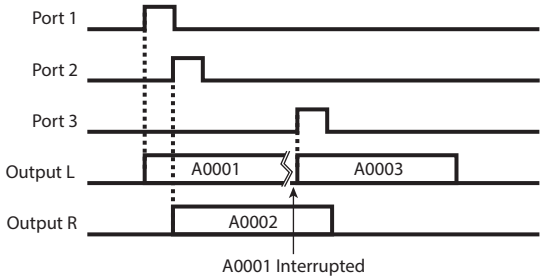
- Because port Nos. 1 and 3 are allocated to output L, depending on the port priority, playback of A0003 is halted and A0001 is played.
- Because port No. 2 is allocated to output R, A0002 continues to be played back even during playback of A0003 or A0001.

First-in playback



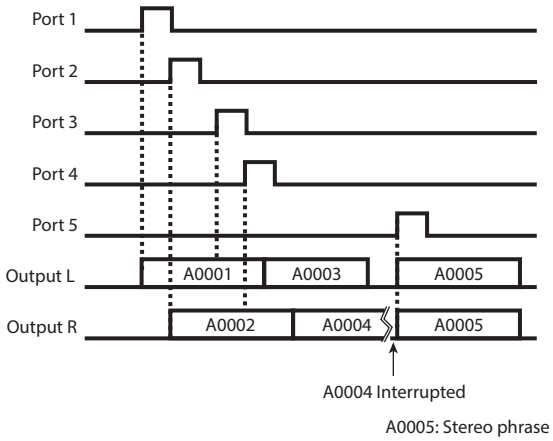
- Because port Nos. 1 and 3 are allocated to output L, depending on the port priority, signals input to 3 are not valid.
- Because port No. 2 is allocated to output R, A0002 is played back even during playback of A0001.

Last-in playback



- Because port Nos. 1 and 3 are allocated to output L, depending on the port priority, playback of A0001 is halted and A0003 is played back.
- Because port No. 2 is allocated to output R, A0002 continues to be played back even during playback of A0003 or A0001.

Sequence playback



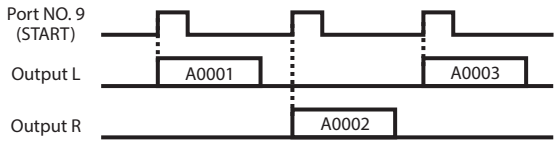
- The control signals for port Nos. 3 and 4 are stored in memory (reserved), and after playback of A0001 and A0002 ends, A0003 and A0004 are played.
- Because A0005 is a stereo phrase, playback of A0004 is stopped, and the specified phrase is played back in stereo (left and right).

During program playback

Odd-numbered phrases are output by program playback from output L (left), and even-numbered phrases are output by program playback from output R (right).

* Because Start signals are ignored during playback of one phrase, simultaneous playback of output L and R is not possible.

When you send a Stop input signal, playback stops simultaneously for the L and R channels.

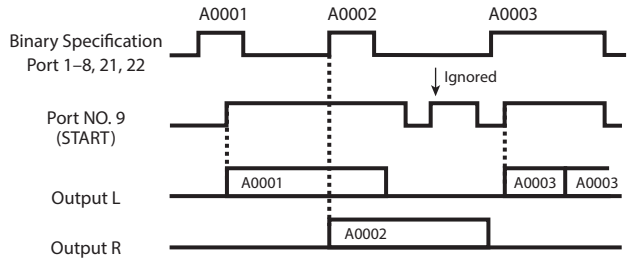


During binary playback

Odd-numbered phrases are output by binary playback from output L (left), and even-numbered phrases are output by binary playback from output R (right).

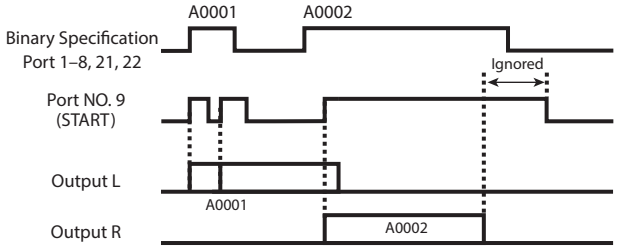
When you send a Stop input signal, playback stops simultaneously for the L and R channels.

When level is set to "ON" and edge is set to "OFF"



- Any new Start signal input during A0002 playback is not valid.
- Playback is repeated while binary is specified for A0003 and the Start signal is continuously input.

When level is set to "OFF" and edge is set to "ON"



- A0001 is played back only once.
- A0002 is played back only once, then ends, even when binary is specified for A0002 and the Start signal is continuously input.

Dual mono playback through MIDI signals

You can perform playback through MIDI signals, in the same way as for ordinary stereo playback. Playback starts when a MIDI Note On message is received. Odd-numbered phrases are played back from the L (left) channel, and even-numbered phrases are played back from the R (right) channel.

* Because playback is performed in reverse priority, the last-receive Note On message takes priority.

* Setting Note Trigger to "Gate" makes it possible to send stop instructions independently to the left and right channels.

Dual mono playback through the RS-232C connector

In a manner similar to ordinary stereo playback, you can also obtain playback through the RS-232C connector. Phrase playback-sequence information is allocated to the corresponding dedicated buffer according to whether the phrase number is odd or even, and playback on the left and right channels starts simultaneously according to the respective playback sequence.

* Sending a playback-stop instruction stops playback simultaneously on the left and right channels.

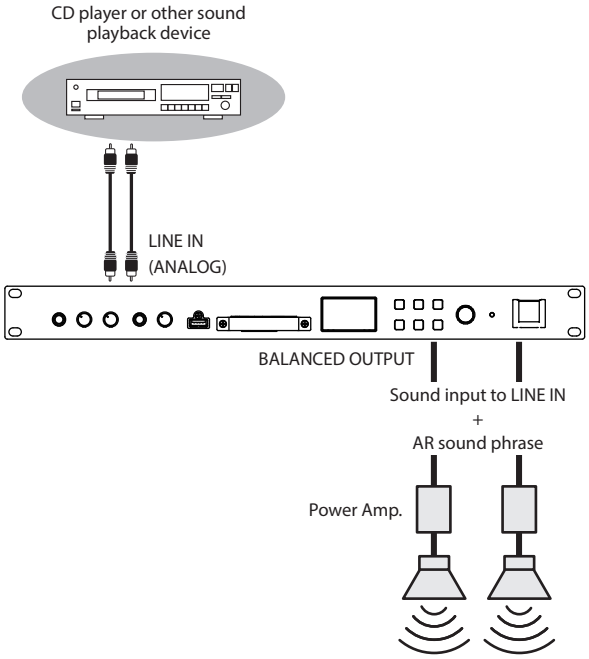
Other Useful Functions During Phrase Playback

This section highlights some other functions that can be useful when you play phrases. Use them to match the situation.

Line Out (Thru) Setting During Phrase Playback

Handy Uses of Line Thru

With the AR-3000SD, you can take audio from LINE IN, mix it during phrase playback, and output it from Line Out (or Line Thru).



This is useful when you want to do things like taking music from LINE IN as background music and layering it with narration.

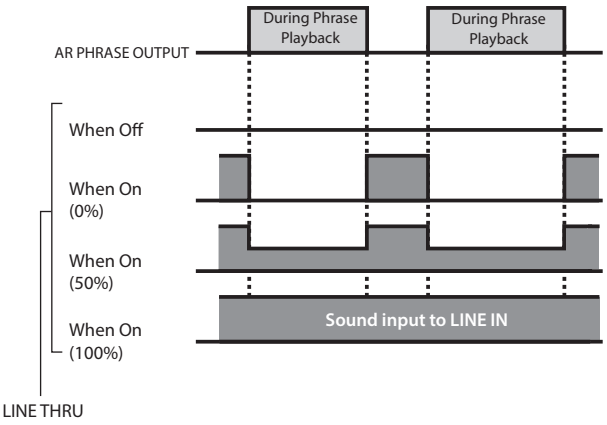
You can also make the LINE IN sound fade out or in.

NOTE

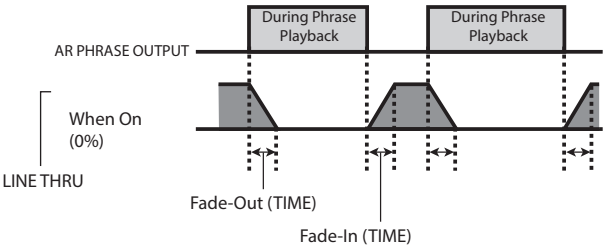
Line Thru Output is available only for signals connected to the LINE IN jacks.

Line thru output specifications

The following output specifications apply, depending on the Line Thru settings.



When fade-out or fade-in settings have been made



NOTE

When Using Microphone Input

Audio from the Mic jack is sent to Line Out only during recording or recording standby.

You cannot output audio from the Mic jack during phrase playback or while stopped, even when "ON" is selected for Line Thru.

Line Thru Settings

➡ Also refer to "Line thru output specifications."

Thru Volume: Set the Line Thru output volume level during phrase playback within the range of 0 to 100%. The line thru volume level output when phrase playback is stopped is 100%. When you set the volume level to 0%, nothing is output to Line Thru during phrase playback.

Fade Out: This makes the Line Thru input fade out when phrase playback starts.

Fade In: This makes the Line Thru input fade in when phrase playback ends.

* You can make the setting for Thru Volume, Fade Out, or Fade In only when Line Thru is set to "ON."

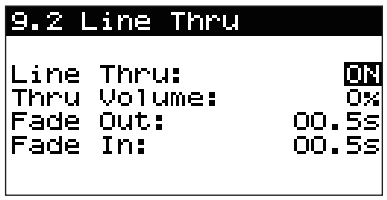
Procedure for making line thru settings

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.2 Line Thru," then press the dial.

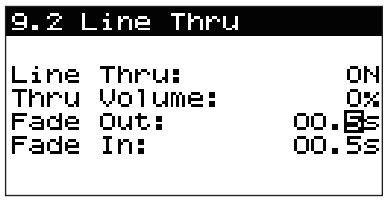
3. **Turn the [SELECT] dial to choose Line Thru (OFF or ON), then press the dial.**



4. **Turn the [SELECT] dial to set the Thru Volume (0 to 100%), then press the dial.**

* You can make the setting for Thru Volume only when you have selected Line Thru "ON."

5. **Turn the [SELECT] dial to make the setting for Fade Out (time: 00.5 sec to 59.9 sec), then press the dial.**



6. **Turn the [SELECT] dial to make the setting for Fade In (time: 00.5 sec to 59.9 sec), then press the dial.**

* You can make the setting for Fade Out only when you have selected Line Thru "ON."

7. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

To quit without making the settings, use the [SELECT] dial to choose "No," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

8. **Press the [MENU] button.**

This ends the setting process and returns you to the usual screen.

* While making the settings, you can go back to the previous entry position (highlighted) by using the [BACK] (USER) button.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Keeping the Output Volume Unchanged (Output Volume Thru)

This deactivates the OUTPUT VOLUME knob and keeps the output volume level unchanged to prevent accidental operation.

* The OUTPUT VOLUME knob can still be used to adjust the headphones volume and MONO OUT ("Control Input/Output Terminals" Owner's Manual: p. 27) even when Volume Thru is set to "ON."

OFF: The Output Volume control is effective.

ON: The Output Volume control is deactivated.

MEMO

When Volume Thru is set to "ON," the volume is fixed at the level obtained when the control is centered (that is, when positioned at 12 o'clock).

Procedure for making the output volume thru setting

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

The MENU indicator lights up.

2. **Use the [SELECT] dial to choose "9.3 Output Vol. Thru," then press the dial.**

3. **Turn the [SELECT] dial to choose Volume Thru (OFF or ON), then press the dial.**

4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

5. **Press the [MENU] button.**

This ends the setting process and returns you to the usual screen.

* Pressing the [MENU] button while making the setting displays a prompt asking you whether you want to quit making the setting. Note that choosing "YES" and pressing the [ENTER] button returns you to the usual screen, discarding any settings made up to that point.

Interlinking Multiple AR-3000SD Units (MIDI LINK Mode)

This uses MIDI System Exclusive (SysEx) messages and MIDI Machine Control (MMC) to interlink recording and playback on multiple AR-3000SD units.

When the MIDI Link Mode is set to MASTER, AR-3000SD automatically set the MIDI Output as OUT and MMC Mode as MASTER. The respective parameter settings are ignored.

When the MIDI Link Mode is set to SLAVE, AR-3000SD automatically set the MIDI Output as THRU and MMC Mode as SLAVE. The respective parameter settings are ignored.

Also, use the same value for the MIDI device IDs of AR-3000SD units interlinked via MIDI LINK.

System Settings

Sampling Rate

Sampling rate

You select from among 32 kHz, 44.1 kHz, 48 kHz, and 96 kHz as the system's sampling rate.

When 96 kHz is selected, the following procedures are not possible.

- Recording in MP3 recording format
- Playback in Dual Mono mode

SRC

This selects whether sampling-rate conversion is carried out during audio-phrase playback.

When OFF is selected, audio phrases whose sampling rates differ from the system sampling rate cannot be played back.

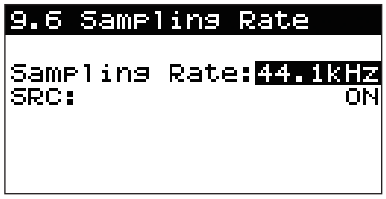
Procedure for setting the sampling rate

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.6 Sampling Rate," then press the dial.

3. Turn the [SELECT] dial to choose Sampling Rate (32kHz/44.1kHz/48kHz/96kHz), then press the dial.



4. Turn the [SELECT] dial to choose SRC (ON/OFF), then press the dial.

5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

USB Key Map

This plays back corresponding phrases with the USB key map by triggering a USB keyboard or USB numeric keypad connected to the USB port.

Procedure for setting the USB key map

1. Press the [MENU] button.

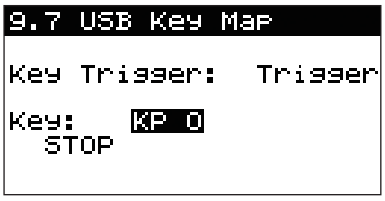
The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.7 USB Key Map," then press the dial.

3. Turn the [SELECT] dial to choose Key Trigger (Trigger/Gate), then press the dial.

Trigger: Key-off operations are ignored.
Gate: Key-off operations stop phrase playback.

4. Turn the [SELECT] dial to choose the key to set, then press the dial.



KP 0–KP Enter: Keys on the numeric keypad
Esc–Down: Keys not on the numeric keypad
END: This quits making settings.
RESET: This return settings to their values after card formatting.
CLEAR: This deletes all settings.

5. Turn the [SELECT] dial to choose the card containing the phrase to assign, then press the dial.

STOP: This makes the key operate in the same way as the [STOP] button on the front panel.
PLAY: This makes the key operate in the same way as the [PLAY] button on the front panel.
----: Select this when assigning no phrase to the key.

6. Turn the [SELECT] dial to choose the phrase to assign, then press the dial.

7. Repeat steps 4 through 6 to assign phrases.

8. To quit assigning, then in step 4, turn the [SELECT] dial to choose "END," then press the dial.

9. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

10. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Programmable Timer

Using the programmable timer lets you perform the following kinds of control, such as starting and stopping phrase playback, at a pre-specified time.

- Phrase playback
- Phrase recording
- Stopping phrase playback or recording
- Adjusting phrase volume level
- BUSY OUT signal output
- CONTROL OUT signal output
- Time adjustment using an NTP time server
- Other AR-3000SD control commands (For details, refer to the "AR-3000SD Command Reference.")

You can create a single-day schedule containing a combination of up to 50 events at specified times of your choosing. You can create up to 14 single-day schedules.

You can specify different single-day schedules for each day of the week to create a weekly schedule.

You can create a yearly schedule by specifying special single-day schedules for the dates you want. You can specify up to 200 days in a yearly schedule.

Tip

Programmable timer settings are read in from the system card.

NOTE

- You make the settings for programmable-timer schedules using either a web browser or ARE-3000.
- Operating the programmable timer requires setting the current time on the AR-3000SD (Owner's Manual: "Setting the Date and Time" (p. 11)).

Timer

This sets the programmable timer mode and makes the settings for the "Every Day" schedule.

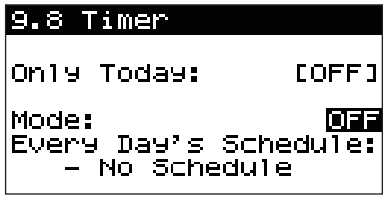
Only Today:		Indicates whether "Only Today" is on or off
Mode:	OFF	Programmable timer stopped
	Normal	Operation according to a weekly schedule or yearly schedule
	Every Day	Operation according to the same schedule every day
Every Day's Schedule:		The schedule when the mode is "Every Day"

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.8 Timer," then press the dial.

3. Turn the [SELECT] dial to choose the mode (OFF, NORMAL, or Every Day).



To finish making the setting, press the [ENTER] button to advance to step 6.

4. Press the [SELECT] dial.

5. Turn the [SELECT] dial to choose Every Day's Schedule, then press the dial.

6. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

7. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Timer Only Today

This operates the programmable timer according to a schedule that differs from the schedules set using "Normal" or "Every Day."

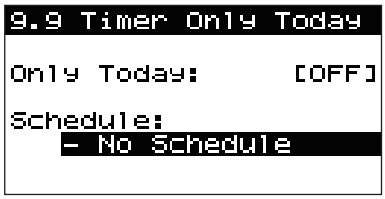
Only Today:	Indicates whether "Only Today" is on or off
Schedule:	"Only Today" schedule

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.9 Timer Only Today," then press the dial.

3. Turn the [SELECT] dial to choose the schedule set to "Only Today," then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Attenuation

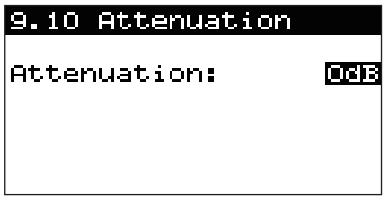
When you want to lower the output level of audio phrase, set Attenuation within a range of -24dB to 0dB.

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "9.10 Attenuation," then press the dial.

3. Turn the [SELECT] dial to choose Attenuation (-24dB to 0dB), then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Network Settings

Network Address

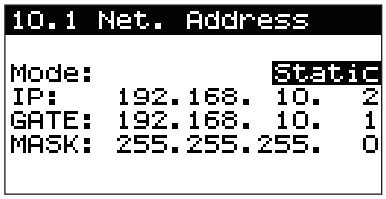
Procedure for setting the network address

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "10.1 Net. Address," then press the dial.

3. Turn the [SELECT] dial to choose Mode (Static/DHCP Client/DHCP Server), then press the dial.



Static: This makes static network settings.

DHCP Client: This obtains the network settings automatically from a DHCP server. Any values set for IP, GATE, or MASK are ignored.

DHCP Server: This makes the AR-3000SD function as a DHCP server. The IP address of the AR-3000SD is set to 192.168.10.1. Any values set for IP, GATE, or MASK are ignored.

4. Turn the [SELECT] dial to choose the value to set, then press the dial.

5. Repeat the procedure in step 4, and when you have finished inputting the setting items, press the [ENTER] button.

6. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you have finished making the settings, the "Please reboot to enable the settings." screen appears.

Network Password

Procedure for setting a network password

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "10.2 Net. Password," then press the dial.

3. Turn the [SELECT] dial to choose "ON," then press the dial.

4. Turn the [SELECT] dial to choose the password characters (letters of the alphabet or numerals), then press the dial.

5. Repeat the procedure in step 4, and when you have finished inputting the password (5 to 8 characters), press the [ENTER] button.

A prompt confirming the write operation appears.

6. To write the settings to the unit, press the [ENTER] button.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you have finished making the settings, the "Please reboot to enable the settings." screen appears.

NTP Server

The AR-3000SD is provided with NTP-client functionality, and can query an NTP server and adjust its time setting. You can use the method described below to adjust the time.

At startup

- "11.5 Time Adjust" MENU item executed manually
- Set event using programmable timer
- Executed by RS-232C or TELNET command

Descriptions of the setting items

Adjust at Startup: When this is set to ON, the unit queries an NTP server and adjusts the time at powerup.

NTP Server: This specifies the IP address of the NTP server.

UTC Offset: The time obtainable from an NTP server is UTC (Coordinated Universal Time). The standard times for respective regions are indicated as offsets from UTC.

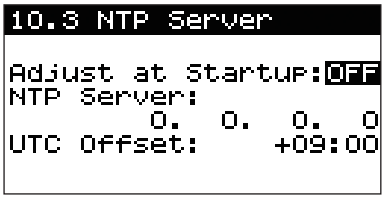
Procedure for specifying the NTP server

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "10.3 NTP Server," then press the dial.

3. Turn the [SELECT] dial to choose Adjust at Startup (ON/OFF), then press the dial.



4. **Turn the [SELECT] dial to choose the setting value, then press the dial.**
5. **Repeat the operation in step 4 to enter the IP address for the NTP server.**
6. **Turn the [SELECT] dial to choose the setting value, then press the dial.**
7. **Repeat the operation in step 6 to input the UTC offset.**
8. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

   When you have finished making the settings, the "Please reboot to enable the settings." screen appears.

FTP setting

You can mount the card for FTP when the unit is powered-on with the card already inserted in the card slot.

Descriptions of the setting item

Mount at Startup: If this is ON, and the unit is powered-on while the card is already inserted in the card slot, the card is mounted for FTP.

* The default setting is OFF.

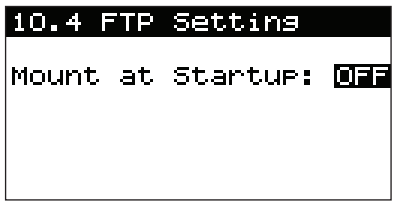
NOTE

If Mount at Startup is ON, it will take longer from when you turn on the power until operations such as phrase playback become possible.

Procedure for specifying the FTP setting

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

   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "10.4 FTP Setting," then press the dial.**
3. **Turn the [SELECT] dial to choose Mount at Startup (ON/OFF), then press the dial.**



4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

   When you have finished making the settings, the "Please reboot to enable the settings." screen appears.

Setting Up the AR-3000SD

Making the Power Automatically Turn Off After a Time (Auto Off)

The power to this unit will be turned off automatically after a predetermined amount of time has passed since it was last used for playing back, or its buttons or controls were operated (Auto Off function). If you do not want the power to be turned off automatically, disengage the Auto Off function.

NOTE

- If the auto-off function turns the power off, the settings that you had been editing will be lost. Be sure that you've saved any settings that you want to keep.
- To restore power, turn on the power again.

MEMO

The Auto Off function is disabled when a card slot contains an inserted card.

Disabling the Auto Off function

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

   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "11.1 Auto Off," then press the dial.**
3. **Turn the [SELECT] dial to choose Auto Off (OFF), then press the dial.**

4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**

   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

   When you're finished making the setting, the display returns to the setting item selection screen.
5. **Press the [MENU] button.**

   This ends the setting process and returns you to the usual screen.

Panel Lock

At recording/playback screens, the following panel operations are locked.

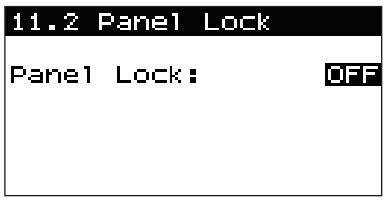
- Phrase changes using the [SELECT] dial
- Record, play, and stop operations using the [STOP], [PLAY], [REC], and [USER] switches

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "11.2 Panel Lock," then press the dial.

3. Turn the [SELECT] dial to choose ON or OFF, then press the dial.



4. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Setting the Clock

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "11.4 Date/Time," then press the dial.

"HOUR" is selected.

3. Turn the [SELECT] dial to choose the value for "HOUR."

Pressing the [SELECT] dial: Moves the HOUR/MIN/SEC or YEAR/MONTH/DATE selection ahead.

Pressing the [BACK] button: Moves the YEAR/MONTH/DATE or HOUR/MIN/SEC selection back.

[SELECT] dial: Changes the selected value.

4. To apply the time and date settings, press the [ENTER] button.

Pressing the [MENU] button without pressing the [ENTER] button makes a confirmation screen appear.

5. To apply the settings, press the [ENTER] button.

To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

When you're finished making the setting, the display returns to the setting item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

Time Adjust

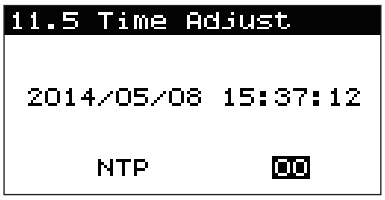
When performing the procedure manually

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "11.5 Time Adjust," then press the dial.

"00" is selected.



3. Pressing [ENTER] stops the clock at 0 seconds for the current minute if the current second count is between 0 and 29 seconds, or at 0 seconds for the following minute if the second count is between 30 and 59 seconds.

Releasing [ENTER] in time with a time announcement or the like starts the clock.

4. Pressing the [MENU] button returns the display to the setting-item selection screen.

5. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

When querying an NTP server

1. Press the [MENU] button.

The MENU indicator lights up.

2. Use the [SELECT] dial to choose "11.5 Time Adjust.," then press the dial.

"00" is selected.

3. Press the [BACK] (USER) button to choose "NTP."

4. Press the [ENTER] button to execute the time adjust with NTP server.

5. Pressing the [MENU] button returns the display to the setting-item selection screen.

6. Press the [MENU] button.

This ends the setting process and returns you to the usual screen.

NOTE

The IP address of the NTP server and the UTC offset must be set at "10.3 NTP Server."

Card Setting

Selecting a system card

This selects either a CF card or an SD card as the system card.

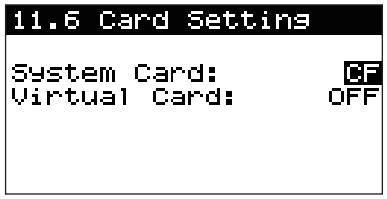
The card selected as the system card becomes slot A or slot A/B.

Virtual card slots

Setting virtual card slot to ON lets you split a single card for use in two slots (A/B or C/D).

CF	SD	System card			
		Virtual Slot: Off		Virtual Slot: On	
		CF: A SD: B	CF: B SD: A	CF: A/B SD: C/D	CF: C/D SD: A/B
Yes	Yes	CF: A	SD: A	CF: A	SD: A
Yes	No	CF: A	CF: B	CF: A	CF: C
No	Yes	SD: B	SD: A	SD: C	SD: A

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "11.6 Card Setting," then press the dial.**
3. **Turn the [SELECT] dial to choose the system card selection (CF or SD), then press the dial.**

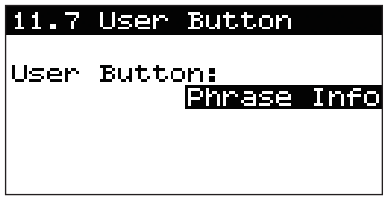


4. **Turn the [SELECT] dial to choose the virtual card slot (ON or OFF), then press the dial.**
5. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
6. **When you have finished making the settings, the "Please reboot to enable the settings." screen appears.**

User Button

This specifies the function assigned to the [USER] button at the playback screen.

OFF:	No function assigned
Phrase Info:	Displays the Phrase Info screen
Date/Time:	Displays the "11.4 Date/Time" screen
Time Adjust:	Displays the "11.5 Time Adjust" screen
Timer:	Displays the "9.8 Timer" screen
Timer Only Today:	Displays the "9.9 Timer Only Today" screen

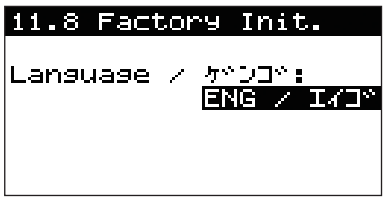


Restoring the Factory Settings (Factory Initialize)

Here's how to return this unit to its factory-set state.

Factory initialize procedure

1. **Press the [MENU] button.**
   The MENU indicator lights up.
2. **Use the [SELECT] dial to choose "11.8 Factory Init.," then press the dial.**
3. **Turn the [SELECT] dial to choose Language/ゲンゴ (ENG/エイゴ, JPN/ニホンゴ), then press the dial.**



4. **When the prompt appears on the screen, press the [ENTER] button to enable the settings.**
   To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.
5. **When initialization has finished, the message "Please reboot to enable the settings." is displayed. Turn off the power.**

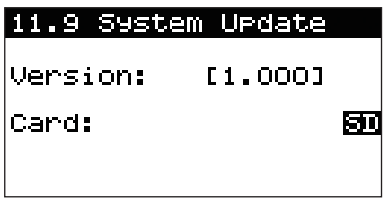
System Update

Procedure for creating a system-update card

1. **Format a CF card or SD card on the unit.**
2. **Load the CF card or SD card into a computer card reader or similar device.**
3. **Copy the "AR3KSD.PRG" update file to the root directory of the CF card or SD card.**

System update procedure

1. **Insert the system-update card into the unit.**
2. **Press the [MENU] button.**
   The MENU indicator lights up.
3. **Use the [SELECT] dial to choose "11.9 System Update," then press the dial.**
4. **Turn the [SELECT] dial to choose the card (CF or SD), then press the [ENTER] button.**



5. When the prompt appears on the screen, press the [ENTER] button to enable the settings.

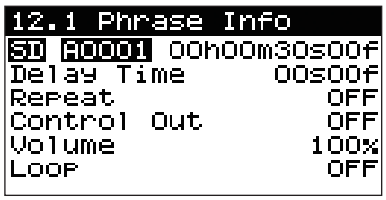
To quit without making the settings, use the [SELECT] dial to choose "NO," then press the [ENTER] button.

6. When the system update ends, the message "Completed. You may turn off." is displayed. Turn off the power.

Information

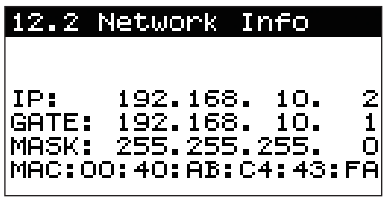
Phrase Info

This displays the delay time, repeat, Control Out, volume level, and loop information for the currently selected phrase.



Network Info

This displays information for the IP address, default gateway, subnet mask, and MAC address currently set.



Settings When a Card Is Formatted

When a card is formatted, the values of various settings will be as shown below.

Recording settings

REC-IN: LINE-IN
Sampling Rate: 44.1kHz
Recording Format: WAV16
REC Type: STEREO
Trig Level: OFF
MIDI Time Base: 192

Phrase messages

1.1 Playback Volume: 100 %
1.2 Delay Time: 00s00f
1.3 Playback Point:
- Start: 00h00m00s00f0sf
- End: The actual time of the phrase

1.4 Repeat Play: OFF
1.5 Loop Play: OFF
1.6 Fade:
- Fade In: OFF
- Fade Out: OFF

1.7 Control Out: OFF
1.8 MIDI Tempo: 120
1.9 Phrase Name: AR-3000 1 (Card Name + Phrase No.)
1.10 MTC Offset: 00h00m00s00f

Card editing

4.5 Card Protect: OFF
4.6 Card Name: AR-3000

Control input settings

5.1 Control Input Mode: DIRECT PLAY
5.2 Direct Play: NORMAL
- Phrase assignment

Port No.	Phrase
1	A0001
2	A0002
3	A0003
4	A0004
5	A0005
6	A0006
7	A0007
8	A0008
9	A0009
10	A0010
11	A0011
12	A0012
13	A0013
14	A0014
15	A0015
16	A0016

5.3 Program Play:
- Programs 1 played back in order
  No.1: A0001
  ↓
  No.100: A0100
- Programs 2 through 5 played back in order
  No.1: No phrase setting
  ↓
  No.100: No phrase setting

5.4 Binary Play:
- Level: ON
- Edge: OFF

5.5 Binary Rec:
- Phrase Select: BINARY1

MIDI settings

6.1 MIDI Output (OUT or THRU): OUT
6.2 MIDI Note Map:
- Program Change 1
  C-1: A0001
  ↓
  G9: A0128

6.3 MIDI Note Out: OFF
6.4 MIDI Channel: OFF
6.5 MIDI Note Trigger: TRIGGER
6.6 MIDI Rx Message:
- Note On Velocity: OFF
- Panpot: OFF
- Expression: OFF

6.7 MIDI Device ID: 1
6.8 MMC Mode: OFF
6.9 MTC:
- Sync Source: INTERNAL
- Sync Out: OFF
- MTC Type: 30
- MTC Error Level: 5
- Offset: 00h00m00s00f

RS-232C settings

7.1 Baud Rate: 9600 bps
7.2 RS-232C Mode:
- Rx Command: ON
- Tx Command: ON
- AR-2000 Mode: OFF

MIDI LINK

8.1 MIDI LINK Mode: OFF

System settings

9.1 Dual Mono Mode: OFF (STEREO 1ch)
9.2 Line Thru:
- Line Thru: ON
- Thru Volume: 0 %
- Fade Out: 0.5 s
- Fade In: 0.5 s

9.3 Output Vol. Thru: OFF
9.4 Busy Out:
- Delay Time: ON
- Phrase Play: ON
- Repeat Int: ON

9.5 Display Sleep: OFF
9.6 Sampling Rate: 44.1kHz
9.7 USB Key Map:
- Key Trigger: Trigger
- Map:

KP 0:	STOP
KP 1:	A0001
↓	
KP 9:	A0009
1:	A0001
↓	
9:	A0009
0:	STOP

9.8 Timer:
- Mode: OFF
- Every Day's Schedule: No schedule

9.9 Timer Only Today:
- Schedule: No schedule

9.10 Attenuation:
- Attenuation: 0dB

Recorded Phrase Data

When a piece of Phrase data recorded by the AR-3000SD, the settings of data on the card will be as follows.

Phrase settings

Playback Volume: 100%
Delay Time: 00s00f
Playback Point:
- Start: 00h00m00s00f0sf
- End: The actual time of the phrase

Repeat Play: OFF
Loop Play: OFF
Fade:
- Fade In: OFF
- Fade Out: OFF

Control Out: OFF
MIDI Tempo: 120
Phrase Name: AR-3000 1 (AR-3000 + Phrase No.)

Factory-default Settings (Settings Stored in the Unit)

RS-232C settings

7.2 RS-232C Mode:
- Rx Command: ON
- Tx Command: ON
- AR-2000 Mode: OFF

Network settings

10.1 Net. Address:
- Mode: Static
- IP: 196.168.10.2
- GATE: 196.168.10.1
- MASK: 255.255.255.0

10.2 Network Password: OFF
10.3 NTP Server:
- Adjust at Startup: OFF
- NTP Server: 0.0.0.0
- UTC Offset: +09:00

10.4 FTP Setting:
- Mount at Startup: OFF

Unit settings

11.1 Auto Off: ON
11.2 Panel Lock: OFF
11.3 Contrast: 0
11.6 Card Setting:
- System Card: CF
- Virtual Card: OFF

11.7 User Button: OFF

MIDI Implementation

Model: AR-3000SD (Audio Recorder)
Date: May. 30, 2014
Version: 1.00

1.Receive data (Media Player Section)

■ Channel Voice Message

●Note Off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)
vv = Velocity :		00H–7FH (1–127)

* This stops playback of the phrase for the corresponding note number (For more on the corresponding phrases, refer to the Note On parameter).
* This is ignored when "Trigger" is selected for MIDI Trigger Mode.
* The Note Off Velocity value is ignored.
* Data is not received if the MIDI Receive channel setting is OFF. When set to 1-16, data is received only on the selected channel. When set to ALL, data is received on all channels.

●Note On

Status	Second	Third
9nH	kkH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)
vv = Velocity :		01H–7FH (1–127)

* This plays back the phrase for the corresponding note number.
* With Program Change 1 (normally turning the power on), all note numbers (128 numbers) are received. Corresponding phrase numbers may be selected freely.
* With Program Changes 21–30, only Note Numbers 00H–63H (0–99) are received. The phrase numbers correspond to 1–1000 on Card A. Phrase assignments cannot be changed.
* With Program Changes 71 through 80, only Note Numbers 00H through 63H (0 through 99) are received. The phrase numbers correspond to 1 through 1000 on Card B. Phrase assignments cannot be changed.
* With Program Changes 2–6 and 7–11, only Note Numbers 00H-63H (0–99) are received. The phrase numbers correspond to 1–500 on Card A and 1–500 on Card B respectively. Phrase assignments (AR-2000 compatible) cannot be changed.
* With Program Changes 81 through 90, only Note Numbers 00H through 63H (0 through 99) are received. The phrase numbers correspond to 1 through 1000 on Card C. Phrase assignments cannot be changed.
* With Program 128, playback of the phrase in progress is stopped, regardless of the note number.
* Data is not received if the MIDI Receive channel setting is "OFF." When set to 1–16, data is received only on the selected channel. When set to ALL, data is received on all channels.
* The Note On Velocity value changes the playback master volume.
* The Note On Velocity value is ignored in Dual Mono mode and MIDI playback.
* The Note On Velocity value is ignored when Note On Velocity is set to "Off."

●Control Change

○ Panpot (Controller number 10)

Status	Second	Third
BnH	0AH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
vv = Panpot :		00H–7FH (0–127)
		(0–64–127)
		default value = 40H(64)

* This is adjustable in 127 steps, with 0 being full left, 64 center, and 127 full right.
* When Panpot is off, this is not received.
* When MIDI playback is conducted in Dual Mono mode, this is not received.
* Data is not received if the MIDI Receive channel setting is "OFF." When set to 1-16, data is received only on the selected channel. When set to ALL, data is received on all channels.

○ Expression (Controller number 11)

Status	Second	Third
BnH	0BH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
vv = Expression :		00H–7FH (0–127)
		default value = 7FH (127)

* This changes the volume level during playback of a phrase.
* When Expression is off, this is not received.
* When MIDI playback is conducted in Dual Mono mode, this is not received.
* Data is not received if the MIDI Receive channel setting is "OFF." When set to 1–16, data is received only on the selected channel. When set to ALL, data is received on all channels.

●Program Change

Status	Second	
CnH	ppH	
n = MIDI Channel No.:		0H–FH (ch.1–ch.16)
pp = Program number:		00H–05H (prog.1–prog.6)
		06H–0AH (prog.7–prog.11)
		14H–1DH (prog.21–prog.30)
		46H–4FH (prog.71–prog.80)
		50H–59H (prog.81–prog.90)
		5AH–63H (prog.91–prog.100)
		7FH (prog.128)

* This switches the MIDI note map used for the phrase assignments.
* The change goes into effect with the first new Note On after the Program Change is received. This has no effect on phrases being played before the Program Change is received.
* Data is not received if the MIDI Receive channel setting is OFF. When set to 1–16, data is received only on the selected channel. When set to ALL, data is received on all channels.

■ System Common Message

●Quarter Frame Messages

* Data is received when Sync Source is set to "MTC." When the Quarter Frame message is received, operation proceeds with the start of the song synchronized to "00h00m00s00f00" with "MTC Offset" and the "Delay Time" added.
* This acts upon the currently selected audio phrase.
* This is ignored when MIDI phrase, pattern phrase, or Dual Mono mode is selected.

Status	Second	
F1H	mmH (=0nnndddd)	
nnn = Message type:		0 = Frame count LS nibble
		1 = Frame count MS nibble
		2 = Seconds count LS nibble
		3 = Seconds count MS nibble
		4 = Minutes count LS nibble
		5 = Minutes count MS nibble
		6 = Hours count LS nibble
		7 = Hours count MS nibble
dddd = 4 bit nibble data :		0h–FH (0–15)

Bit Field is assigned as follws.

Frame Count	xxxyyyyy
	xxx Reserved (000)
	yyyyy Frame No.(0–29)
Seconds Count	xxyyyyyy
	xx Reserved (00)
	yyyyyy Seconds (0–59)
Minutes Count	xxyyyyyy
	xx Reserved (00)
	yyyyyy Minutes (0–59)
Hours Count	xyyzzzzz
	x Reserved (0)
	yy Time Code type
	0 = 24 Frames / Sec
	1 = 25 Frames / Sec
	2 = 30 Frames / Sec (Drop Frame)
	3 = 30 Frames / Sec (Non Drop Frame)
	zzzzz Hours (0–23)

■ System Exclusive Message

Status	Data Bytes	Status
F0H	iiH, ddH, .., eeH	F7H

F0H: System Exclusive Message status

iiH ID Number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H.
ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-Real time Messages (7EH) and Universal Real time Messages (7FH).

: :

dd,.., ee = Data: 00H–7FH (0–127)

F7H: EOX (End of Exclusive Message)

The system Exclusive Messages received by the AR-3000SD are; Data Set (DT1).
Regarding the Data Set (DT1), please refer to "Exclusive Communication."

●MIDI Time Code

○ Full Messages

* Data is received when Sync Source is set to "MTC." When the Quarter Frame message is received, operation proceeds with the start of the song synchronized to "00h00m00s00f00" with "MTC Offset" and the "Delay Time" added.
* This acts upon the currently selected audio phrase.
* This is ignored when MIDI phrase, command phrase, pattern phrase, or Dual Mono mode is selected.
* This is used for user-selected time specifications (including fast-forward and rewind).

Status	Data Bytes	Status
F0H	7FH, dev, 01H, 01H, hrH, mnH, scH, frH	F7H

Byte	Description	
F0H	Status of Exclusive Message	
7FH	Universal System Exclusive Message Real time Header	
dev	device ID (or 7FH)	
01H	sub-ID#1 (MIDI Time Cord)	
01H	sub-ID#1 (Full Messages)	
hrH	Hours Count	xyyzzzzz x Reserved (0) yy Time Code type 0 = 24 Frames / Sec 1 = 25 Frames / Sec 2 = 30 Frames / Sec (Drop Frame) 3 = 30 Frames / Sec (Non Drop Frame) zzzzz Hours (0–23)
mnH	Minutes Count	xxyyyyyy xx Reserved (00) yyyyyy Minutes (0–59)
scH	Seconds Count	xxyyyyyy xx Reserved (00) yyyyyy Seconds (0–59)
frH	Frame Count	xxxyyyyy xxx Reserved (000) xxx Reserved (000)
F7H	EOX (End of Exclusive)	

●MIDI Machine Control (MMC)

* This is received when the MMC mode is set to "SLAVE."
* This acts upon the currently selected phrase.

○ STOP (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 01H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
01H	STOP (MCS)
F7H	EOX (End of Exclusive Message)

* Playback is stopped immediately when this command is received if the device ID matches, or if 7FH is received.

○ PLAY (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 02H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
02H	PLAY (MCS)
F7H	EOX (End of Exclusive Message)

* Playback is started immediately when this command is received if the device ID matches, or if 7FH is received.

○ DEFERRED PLAY (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 03H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
03H	DEFERRED PLAY (MCS)
F7H	EOX (End of Exclusive Message)

* Playback is started immediately when this command is received if the device ID matches, or if 7FH is received.

○ RECORD STROBE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 06H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
06H	RECORD STROBE (MCS)
F7H	EOX (End of Exclusive Message)

* Recording of the phrase begins when this command is received if the device ID matches, or if 7FH is received.
* If MIDI signal recording is in effect, this command is ignored (MIDI cannot be recorded with MMC).

○ RECORD EXIT (MCS)

Status	Data Bytes	Status
F0H	7FH,dev,06H,07H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
07H	RECORD EXIT (MCS)
F7H	EOX (End of Exclusive Message)

* Recording is stopped immediately when this command is received if the device ID matches, or if 7FH is received.
* If MIDI signal recording is in effect, this command is ignored (MIDI cannot be recorded with MMC).

○ RECORD PAUSE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 08H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
08H	RECORD PAUSE (MCS)
F7H	EOX (End of Exclusive Message)

* Recording is paused if the device IDs match, or if a command is received when at 7FH.
* This command is ignored when MIDI signal recording is on. (MIDI recording with MMC is not possible.)

○ PAUSE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 09H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
09H	PAUSE (MCS)
F7H	EOX (End of Exclusive Message)

* Playback is paused if the device IDs match, or if a command is received when at 7FH.
* This command is ignored during MIDI phrase playback.

○ LOCATE (MCP)

Format 2 - LOCATE [TARGET]

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 44H, 06H, 01H, hrH, mnH, scH, frH, ffH	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (or 7FH)
06H	MMC Command Message
44H	LOCATE(MCP)
06H	Number of Bytes
01H	[TARGET] sub command
hrH	Standard time with Sub Frame
mnH	
scH	
frH	
ffH	
F7H	EOX (End of Exclusive Message)

* If the device ID matches, or if 7FH is received, then when this command is received, the location of the time code specified in the command data is located.
* This is ignored when MIDI phrase, command phrase, pattern phrase, or Dual Mono mode is selected.

2.Transmitted data (Media Player Section)

2.1 Transmitted messages while a phrase is being played back

The stored MIDI message are transmitted When the MIDI phrase will playback after OUT is set in the MIDI OUT.
In this case, AR-3000SD is not transmitted MIDI messages which are received.

2.2 Transmitted message which are received

When THRU is set in the MIDI OUT, AR-3000SD transmits message which are received.

2.3 Transmitted message which are produced

When OUT is set in the MIDI OUT, AR-3000SD transmits the following produced messages.

■ Channel Voice Message

●Note Off

Status	Second	Third
8nH	kkH	40H
n = MIDI Channel No.:		0H–FH (ch.1–ch.16)
kk = Note No.:		00H–7FH (0–127)

* After the MIDI Phrase is stopped, AR-3000SD produces Note off message for received notes remains on.
* When Note On is sent at the start of an audio performance, the same note number as that of the Note On is transmitted. For more information about sending notes, refer to the Note On section.

●Note ON

Status	Second	Third
9nH	kkH	7FH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)

* At the start of the audio phrase performance, the note number defined in the MIDI note map is sent. In this instance, if multiple note numbers are selected in the phrase, only the lowest note number is transmitted.
* There is no transmission when the Note Send setting is set to "OFF."
* Data is not output if the MIDI Receive channel setting is "OFF." When set to 1–16, data is transmitted only on the selected channel. When set to ALL, data is transmitted on Channel 1.
* There is no transmission during playback of MIDI phrases.

●Control Change

○ Hold1 OFF

Status	Second	Third
BnH	40H	00H
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)

* After the MIDI Phrase is stopped, AR-3000SD produces Note off message for received notes remains on.

■ Channel Mode Message

●All Notes Off (Controller No. 1 2 3)

Status	Second	Third
BnH	7BH	00H
n = MIDI channel No. :		0H–FH (ch.1–ch.16)

* When the MIDI phrase playback is stopped, the message is transmitted to the all channels (1–16).

2.4 Recognized message for sync

■ System Realtime Message

●Timing Clock

status
F8H

* Transmitted message while a phrase is being played back.

●Start

status
FAH

●Stop

status
FCH

■ System Common Message

●Quarter Frame

* This is transmitted when Sync Out is set to "MTC." The time count transmitted is the time with the start of the song set to "00h00m00s00f00" with "MTC Offset" and the "Delay Time" added.
* This is not transmitted when MIDI phrase, command phrase, pattern phrase, or Dual Mono mode is selected.

Status	second
F1H	mmH (= 0nnndddd)

Regarding the Quarter Frame, please refer to "Receive data (Media Player Section) ~Quarter Frame~".

■ System Exclusive Message

●MIDI Time Cord

○ Full Message

* This is transmitted when Sync Out is set to "MTC" and the location of the phrase is moved. The time count transmitted is the time with the start of the song set to "00h00m00s00f00" with "MTC Offset" and the "Delay Time" added.
* This is not transmitted when MIDI phrase, pattern phrase, or Dual Mono mode is selected.
* Device ID = 7FH

Status	Data Bytes	Status
F0H	7FH, dev, 01H, 01H, hrH, mnH, scH, frH	F7H

* Regarding the MIDI Time Cord, please refer to "Receive data (Media Player Section) ~MIDI Time Cord~".

●MIDI Machine Control (MMC)

* Data is transmitted when MMC mode is set to "MASTER."

○ STOP (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 01H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
01H	STOP (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when playing of a phrase is stopped.

○ DEFERRED PLAY (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 03H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
03H	DEFERRED PLAY (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when "PLAY/PAUSE" is pressed.

○ RECORD STROBE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 06H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
06H	RECORD STROBE (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when recording of a phrase begins.

○ RECORD EXIT (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 07H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
07H	RECORD EXIT (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when recording of a phrase is stopped.

○ RECORD PAUSE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 08H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
08H	RECORD PAUSE (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when phrase recording is paused.

○ PAUSE (MCS)

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 09H	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
09H	PAUSE (MCS)
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when phrase playback is paused.

○ LOCATE (MCP)

format2 - LOCATE [TARGET]

Status	Data Bytes	Status
F0H	7FH, dev, 06H, 44H, 06H, 01H, hrH, mnH, scH, frH, ffH	F7H

Byte	Description
F0H	Status of Exclusive Message
7FH	Universal System Exclusive Message Real time Header
dev	device ID (7FH)
06H	MMC Command Message
44H	LOCATE (MCP)
06H	Number of byte
01H	[TARGET] sub command
hrH	Standard time with Sub Frame
mnH	
scH	
frH	
ffH	
F7H	EOX (End of Exclusive Message)

* 7FH is sent as the device ID when the location is moved.
* This is not transmitted when MIDI phrase, command phrase, pattern phrase, or Dual Mono mode is selected.

3.Receive data (MIDI Recorder Section)

3.1 Message memorized during recording

■ Channel Voice Message

●Note Off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)
vv = Velocity :		00H–7FH (1–127)

●Note On

Status	Second	Third
9nH	kkH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)
vv = Velocity :		01H–7FH (1–127)

●Polyphonic Key Pressure

Status	Second	Third
AnH	kkH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Note No. :		00H–7FH (0–127)
vv = value :		00H–7FH (0–127)

●Control Change

Status	Second	Third
BnH	kkH	vvH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
kk = Controller No. :		00H–77H (0–119)
vv = value :		00H–7FH (0–127)

●Program Change

Status	Second	
CnH	ppH	
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
pp = Program No. :		00H–7FH (1–128)

●Channel Pressure

Status	Second	
DnH	vvH	
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
vv = value :		00H–7FH (0–127)

●Pitch Bend Change

Status	Second	Third
EnH	llH	mmH
n = MIDI Channel No. :		0H–FH (ch.1–ch.16)
mm, ll = value :		00H, 00H–7FH, 7FH (-8192–+8191)

■Channel Mode Messages

●All Sounds Off

Status	Second	Third
BnH	78H	00H
n = MIDI channel No. :		0H–FH (ch.1–ch 16)

●Reset All Controllers

Status	Second	Third
BnH	79H	00H
n = MIDI channel No. :		0H -FH (ch.1–ch 16)

●Local On/Off

Status	Second	Third
BnH	7AH	vvH
n = MIDI channel No. :		0H–FH (ch.1–ch 16)
vv = value :		00H, 7FH (OFF, ON)

●MONO

Status	Second	Third
BnH	7EH	mmH
n = MIDI channnel No. :		0H–FH (ch.1–ch 16)
mm = mono number :		00H–10H (0–16)

* The same processing will be carried out as when All Notes Off is received.

●POLY

Status	Second	Third
BnH	7FH	00H

n = MIDI channel No. : 0H–FH (ch.1–ch 16)

* The same processing will be carried out as when All Notes Off is received.

■System Exclusive Message

Status	Data Bytes	Status
F0H	iiH, ddH, .., eeH	F7H

F0H: System Exclusive Message status

iiH ID Number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-real time Messages (7EH) and Universal Real time Messages (7FH).

dd,.., ee = Data: 00H–7FH (0–127)

F7H: EOX (End of Exclusive Message)

3.2 Message not memorized during recording

■Channel Mode Messages

●All Notes Off

Status	Second	Third
BnH	7BH	00H
n = MIDI channel No. :		0H–FH (ch.1–ch16)

* Note Off is generated for any note not set to OFF, and this note off is stored.

●OMNI OFF

Status	Second	Third
BnH	7CH	00H
n = MIDI channel No. :		0H–FH (ch.1–ch 16)

* The same processing will be carried out as when All Notes Off is received.

●OMNI ON

Status	Second	Third
BnH	7DH	00H
n = MIDI channel No. :		0H–FH (ch.1–ch 16)

* The same processing will be carried out as when All Notes Off is received.

3.3 Recognized message for remote control

■System Real time Message

●Start

status

FAH

* Not received when recording mode is not "Standby".

●Continue

status

FBH

* Not received when recording mode is not "Standby".

* The same processing will be carried out as when Start is received.

●Stop

status

FCH

* Not received when recording mode is not "record".

3.4 Messages received for detecting trouble in MIDI connection

■ System Realtime Message

●Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 400 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

4.Transmit Data (MIDI Recorder Section)

When AR-3000SD is in MIDI Recorder mode, MIDI Messages is not transmitted.

5.Exclusive Communication

The AR-3000SD uses Roland one-way System Exclusive messages, and lets you transmit data between devices.
Exclusive message model IDs that can be used on the AR-3000SD are 00H, 00H, and 37H (AR-3000SD). The Device ID can be set to 00H to 1FH.
Only received when AR-3000SD is in Media Player Section.

●Data Set 1 DT1 (12H)

Byte	Description
F0H	Status of Exclusive Message
41H	Manufacturer ID (Roland)
dev	device ID (dev : 00H–1FH)
mdl	Model ID (mdl : 00H, 37H) AR-3000SD
12H	Command ID (DT1)
aaH	address MSB
:	:
ccH	Address LSB
ddH	Data
:	:
kkH	Data
sum	Check Sum
F7H	EOX (End of Exclusive Message)

5.1 Parameter Address Map

This map indicates address,size, data (range), parameter, description,and default value of parameters which can be transferred using "Data Set1(DT1)."
All the numbers of address, size, data, and default value are indicated in 7-bit Hexadecimal-form.
(AR-3000SD Model ID=00H,37H)

■ Address Block Map

An outlined address map of the Exclusive Communication is as follows;

○ Exclusive Address Table for recording setting

Address (H)	SIZE (H)	DATA (H)	Parameter	Description
00 00 10	00 00 08	00-1F	Phrase Number	upper 5bits
11#		00-7F	Phrase Number	lower 7bits
12#		00-05	Grade	3: 32kHz 4: 44.1kHz 5: 48kHz 6: 96kHz
13#		00-05	R-DAC mode	0: Linear 1: Mode1 2: Mode2 3: Mode3 4: H-LINEAR 5: WAV16 6: WAV24 7: MP3 64/128 kbps 8: MP3 96/192 kbps 9: MP3 160/320 kbps
14#		00-01	REC type	0: MONO 1: STEREO
15#		00-03	REC Trigger Level	0: OFF 1: LOW 2: MID 3: HIGH
16#		00-03	REC Source	0: LINE-IN 1: LINE+MIC-IN 3: MIDI-IN
17#		00-01	TimeBase	0: 192 1: 240

Phrase number	DATA (H)
A0001–A1000	00 00–07 67
B0001–B1000	07 68–0F 4F
C0001–C1000	0F 50–17 37
D0001–D1000	17 38–1F 1F

* Only received packet data.
* When reception of this packet is completed, the AR-3000SD goes into REC PAUSE mode. However, if a phrase has already been saved, the AR-3000SD ignores this SysEx message.

○ Exclusive Address Table Recording setting (Replacement Recording)

Address (H)	SIZE (H)	DATA (H)	Parameter	Description
00 01 10	00 00 08	00-1F	Phrase Number	upper 5bits
11#		00-7F	Phrase Number	lower 7bits
12#		00-05	Grade	3: 32kHz 4: 44.1kHz 5: 48kHz 6: 96kHz
13#		00-05	R-DAC mode	0: Linear 1: Mode1 2: Mode2 3: Mode3 4: H-Linear 5: WAV16 6: WAV24 7: MP3 64/128 kbps 8: MP3 96/192 kbps 9: MP3 160/320 kbps
14#		00-01	REC type	0: MONO 1: STEREO
15#		00-03	REC Trigger Level	0: OFF 1: LOW 2: MID 3: HIGH
16#		00-03	REC Source	0: LINE-IN 1: LINE+MIC-IN 3: MIDI-IN
17#		00-01	TimeBase	0: 192 1: 240

Phrase number	DATA (H)
A0001–A1000	00 00–07 67
B0001–B1000	07 68–0F 4F
C0001–C1000	0F 50–17 37
D0001–D1000	17 38–1F 1F

* Only received packet data.
* When reception of this packet is completed, the AR-3000SD goes into REC PAUSE mode. However, if a phrase has already been saved, the AR-3000SD deletes that phrase and goes into REC PAUSE mode.

○ Exclusive Address Table Phrase Select

Address (H)	SIZE (H)	DATA (H)	Parameter	Description
01 00 10	00 00 02	00-1F	Phrase Number	upper 5bits
11#		00-7F	Phrase Number	lower 7bits

Phrase number	DATA (H)
A0001–A1000	00 00–07 67
B0001–B1000	07 68–0F 4F
C0001–C1000	0F 50–17 37
D0001–D1000	17 38–1F 1F

* Only received packet data.
* When reception of this packet is completed, the AR-3000SD changes the current (currently displayed) phrase number.

○ Exclusive Address Table Recording Settings (Replacement Recording)

Address (H)	SIZE (H)	DATA (H)	Parameter	Description
01 00 10	00 00 03	00-1F	Phrase Number	upper 5bits
11#		00-7F	Phrase Number	lower 7bits
12#		00-03	REC Source	0: LINE-IN 1: LINE+MIC-IN 2: DIGITAL-IN 3: MIDI-IN

Phrase number	DATA (H)
A0001–A1000	00 00–07 67
B0001–B1000	07 68–0F 4F
C0001–C1000	0F 50–17 37
D0001–D1000	17 38–1F 1F

* Only received packet data.
* When reception of this packet is completed, the AR-3000SD goes into REC PAUSE mode. However, if a phrase has already been saved, the AR-3000SD deletes that phrase and goes into REC PAUSE mode.

AUDIO RECORDER
Model AR-3000SD
Media Player Section

MIDI Implementation Chart

Date: May. 30, 2014
Version: 1.00

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	All channels *1	×	Memorized
	Changed	x	1–16	
Mode	Default	×	×	
	Message	×	×	
	Altered	**********		
Note Number		0–127	× *2	
	: True Voice	**********	× *2	
Velocity	Note ON	o *1	× *2	
	Note OFF	o *1	×	
After Touch	Key's	o *1	×	
	Ch's	o *1	×	
Pitch Bend		o *1	×	
Control Change	10	o *1	× *2	Panpot
	11	o *1	× *2	Expression
	0–119	o *1	×	Messages other than the above
Program Change		o *1	× *2	
	: True #	**********	1-11, 21-30, 71-80	
System Exclusive		o	o	
System Common	: Quarter Frame	× *3	× *4	
	: Song Pos	×	×	
	: Song Sel	×	×	
	: Tune	×	×	
System Real Time	: Clock	o *1	×	
	: Commands	o	×	
Aux Messages	: All Sounds OFF	o *1	×	
	: Reset All Controllers	o *1	×	
	: Local ON/OFF	×	×	
	: All Notes OFF	o *1	×	
	: Active Sensing	×	×	
	: System Reset	×	×	
Notes		*1 Transmitted only during MIDI phrase playback *2 o x is selectable. *3 Transmitted when Sync Out is at MTC. *4 Received when Sync Source is at MTC.		

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

AUDIO RECORDER
Model AR-3000SD
MIDI Recorder Section

MIDI Implementation Chart

Date: May. 30, 2014
Version: 1.00

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	× ×	All channels ×	Not Basic Channel
Mode	Default Message Altered	× × **********	× ×	
Note Number	: True Voice	× **********	0–127 0–127	
Velocity	Note ON Note OFF	× ×	o o	
After Touch	Key's Ch's	× ×	o o	
Pitch Bend		×	o	
Control Change	0–119	×	o	
Program Change	: True #	× **********	o 0–127	
System Exclusive		×	o	
System Common	: Quarter Frame : Song Pos : Song Sel : Tune	× × × ×	× × × ×	
System Real Time	: Clock : Commands	× ×	*1 ×	× o	
Aux Messages	: All Sounds OFF : Reset All Controllers : Local ON/OFF : All Notes OFF : Active Sensing : System Reset	× × × × × ×	o o × o (123–127) *1 o ×	
Notes		*1 Mode messages (123–127) are stored after All Notes Off processing is performed.		

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

o : Yes
x : No