

MR-2000S

1-Bit STUDIO RECORDER

Owner's Manual



KORG

DSD
Direct Stream Digital



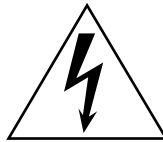
IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Mains powered apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet. (for USA and Canada)
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Turning off the power switch does not completely isolate this product from the power line so remove the plug from the socket if not using it for extended periods of time.
- Install this product near the wall socket and keep the power plug easily accessible.
- WARNING—This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not install this equipment on the far position from wall outlet and/or convenience receptacle.
- Do not install this equipment in a confined space such as a box for the conveyance or similar unit.
- Battery shall not be exposed to excessive heat such as sunshine, fire or the like.
- Excessive sound pressure from earphones and headphones can cause hearing loss.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
AVERTISSEMENT: RISQUE DE CHOC ÉLECTRIQUE—NE PAS OUVRIR.		
注意 感電の恐れあり、キャビネットをあけるな		



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

THE FCC REGULATION WARNING (for USA)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the user’s authority to operate this equipment.

Notice regarding disposal (EU only)

When this “crossed-out wheeled bin” symbol is displayed on the product, owner’s manual, battery, or battery package, it signifies that when you wish to dispose of this product, manual, package or battery you must do so in an approved manner. Do not discard this product, manual, package or battery along with ordinary household waste. Disposing in the correct manner will prevent harm to human health and potential damage to the environment. Since the correct method of disposal will depend on the applicable laws and regulations in your locality, please contact your local administrative body for details. If the battery contains heavy metals in excess of the regulated amount, a chemical symbol is displayed below the “crossed-out wheeled bin” symbol on the battery or battery package.

* All product names and company names are the trademarks or registered trademarks of their respective owners.

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Introduction

Thank you for purchasing the Korg MR-2000S 1-bit studio recorder. In order to take full advantage of your new equipment, please read this manual carefully and use the product as directed. When you've read the manual, keep it safe for future reference.

Features

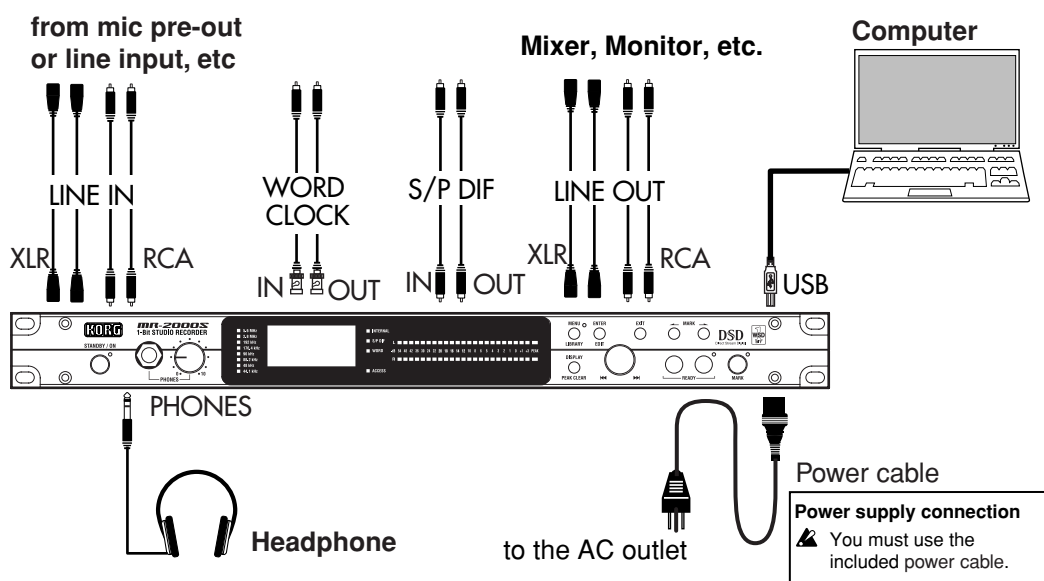
The MR-2000S is an ultra-high-quality recorder that can record and play back in DVD audio format (24-bit/192 kHz), SACD (Super Audio CD) quality format (1-bit/2.8 MHz), and in the even higher-quality 1-bit/5.6 MHz format. In addition, the recorder can also play back in MP3 format which is used in computers and many portable digital audio devices.

To allow extended recording times, the MR-2000S contains a high-capacity hard disk.

The recorded data can be copied to your computer via USB, and data files can be copied from your computer to the MR-2000S for listening.

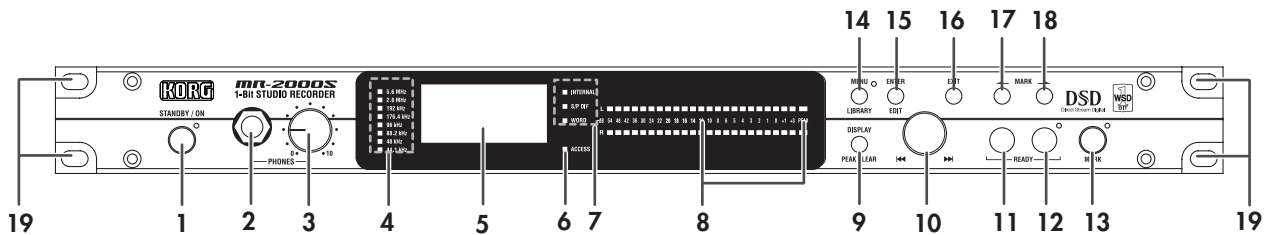
The MR-2000S includes Korg's "AudioGate" format conversion software, so you can use a computer to convert audio files to different file formats.

Connection example



Parts of the MR-2000S

Front panel



1. Power button, power LED

This turns the MR-2000S on or off (standby). The power LED will light-up green when on, and red when off (standby).

note If you disconnect the power cable, the power will be completely off and the power LED will go dark. When you re-connect the power cable, it will take approximately one second for the unit to return to off (standby) condition.

⚠ When you turn this off, the shutdown process will occur automatically; do not disconnect the power cable until the display has gone dark.

2. PHONES jack

You can connect a set of headphones here.

3. PHONES knob

This adjusts the volume of the PHONES jack.

4. Sampling frequency indicator

One of these LEDs will light to indicate the sampling frequency of the currently playing project (→p.10)/ file or the currently-recording project (→p.28).

However if the synchronization clock setting is external (S/P DIF, Word Clock), and the MR-2000S's sampling frequency does not match the external clock, the sampling frequency LED of the external device will blink (→p.29). If synchronization is not achieved during recording, no indicator will light.

5. Display

The display shows the level meters and counter during recording and playback, and can also show information about the project (→p.10) or file, and parameter settings.

6. HDD access indicator

This will light-up when the internal hard disk is being accessed during recording or playback.

⚠ While this indicator is lit, do not power-off the MR-2000S, or subject it to impact or vibration.

7. Clock source indicator

This indicates the current synchronization clock (→p.29). However, the indicator will blink if synchronization is not achieved. When the recording format is set to DSD, this will blink if 44.1 kHz is not detected, and it will be lit if 44.1 kHz is detected.

8. Level meter

This indicates the L/R audio levels during recording (or record-ready) and playback. Adjust the input level so that the PEAK segment of the meter does not light. You can clear the PEAK indication by holding down the display button. The meter gradations also indicate the reference level; the specified value will remain lit.

9. Display button

When the home screen is shown in the display, pressing this button will switch the content shown in the counter display area (→p.17).

10. Dial

Use this dial to select projects (→p.10) or files, to select parameters in various screens, and to specify values. In record-ready mode, this dial adjusts the level.

11. Stop button

This button stops recording or playback

12. Playback/Pause button, Play LED

This button starts recording or playback. During recording or playback, you can press this button to pause (temporarily halt). This LED will light-up during playback, and will blink while paused. While you're selecting a project (→p.10) or file, this LED will blink rapidly.

13. Record button, Record LED

This button puts the MR-2000S in record-ready mode; recording will begin when you then press the play/pause button (record LED lit).

You can press this button during playback or recording to store a Mark (→p.21).

You can also stop recording by pressing this button in record-ready mode or record-pause mode.

14. Menu button, Menu LED

This button accesses the menu list screen, where you can choose the information and parameters shown in the display. At this time the Menu LED will light. The menu screen and home screen will alternate each time you press this button.

When playing or stopped in the home screen, you can press and hold this button to access a project select screen or play list screen, depending on the playback mode (→p.25).

15. Enter button

Use this button to select various parameters, to confirm a value, to execute various operations, and to enter the next screen in the menu list.

From the home screen, you can press and hold this button to move from the home screen to an editing screen for the selected project/file. From the "LIBRARY LIST," "MARK LIST," or "PLAY LIST" screens of the menu, you can press and hold this button to move to an editing screen for the selected item.

16. Exit button

Use this button to cancel execution, or to return from an editing screen in the menu list back to the previous screen.

17. Rewind button

Use this button to rewind, or to move between marks.

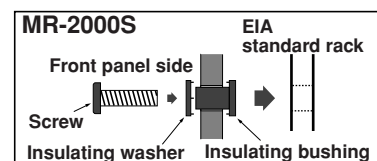
18. Fast-forward button

Use this button to fast-forward, or to move between marks.

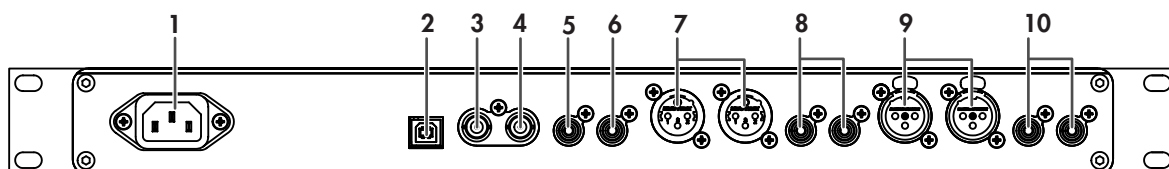
19. Rack attachment holes

As shown in the illustration, you can use the included screws, insulating washers, and insulating bushings to install the MR-2000S in an EIA standard rack.

⚠ When installing the MR-2000S in an EIA standard rack case, make sure to allow sufficient spacing and openings at the back to ensure adequate cooling.



Rear panel



- 1. AC connector**
Connect the power supply cable (included) here.
- 2. USB connector**
This lets you use a USB cable to connect the MR-2000S to your computer.
- 3. WORD CLOCK OUT jack**
This jack outputs the same synchronization word clock as the project (→p.10) or file.
note When operating in 1-bit format, this will output 44.1 kHz.
- 4. WORD CLOCK IN jack**
This jack allows the input of an external synchronization word clock in a range of 44.1 kHz – 192 kHz.
note When operating in 1-bit format and using an external word clock for synchronization, 44.1 kHz must be input in order to operate correctly.
- 5. S/P DIF OUT jack (COAXIAL)**
This is an S/P DIF digital signal (IEC60958) output jack.
If the format of the project (→p.10) or file is WAV, this will output the same audio as the LINE OUT jacks, at that sampling frequency and bit depth.
note For MP3, the bit depth is fixed at 16 bits; for 1-bit, no signal will be output.
- 6. S/P DIF IN jack (COAXIAL)**
This is an S/P DIF digital signal (IEC60958) input jack.
- 7. Balanced output jacks (XLR)**
These are balanced outputs that allow XLR connectors to be used. They output the same audio as the RCA jacks.
- 8. Unbalanced output jacks (RCA)**
These are unbalanced outputs that allow RCA connectors to be used. They output the same audio as the XLR jacks.
- 9. Balanced input jacks (XLR)**
These are balanced inputs that allow XLR connectors to be used.
- 10. Unbalanced input jacks (RCA)**
These are unbalanced inputs that allow RCA connectors to be used.

Screens and operations

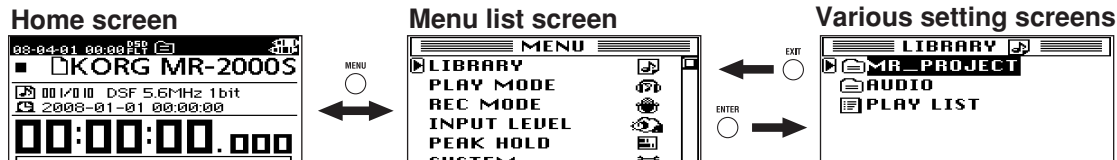
Home screen and menu list (MENU) screen

When you power-on the MR-2000S, the display will show the level meter screen.

While the display is showing the home screen, pressing the menu button will show the menu list (MENU) screen which lets you proceed to various screens related to settings as well as informational screens.

You'll use the dial and enter button from this screen to select your choices.

When the display shows the menu list (MENU) screen, pressing the menu button will take you back to the home screen. Using this method, pressing the menu button will alternate between the menu list (MENU) screen and the home screen.



note By pressing and holding the menu button during playback, you can access a library select screen or the play list screen, depending on the playback mode (→p.25). When you've finished adjusting your settings, press the exit button to return to the previous screen.

note By pressing and holding the enter button from the home screen, you can access the editing screen for the selected program/file. If you're in a menu list such as "LIBRARY LIST," "MARK LIST," or "PLAY LIST," pressing and holding the enter button will take you to the list editing screen.

Selecting parameters and setting values

On the MR-2000S, you can select parameters and set values by turning the dial and pressing the enter button. The item you've selected by turning the dial is indicated on the screen by the movement of the "▣" or "▶" selection icon.

The "▣" selection icon indicates that an additional setting screen will appear when you press the enter button.

To select parameters and set values, you will turn the dial to move this selection icon or modify the value, and then press the enter button to confirm. When you need to perform this sequence of operations on the MR-2000S, we'll simply tell you to "select and confirm" the item you're setting.

Depending on the parameter, selecting and confirming an item may cause an additional setting screen to appear, or it may cause a check mark to appear in a check box.

If you've adjusted a setting in an additional setting screen, you can press the exit button to return to the previous screen.



Basic operation

1. Power and usage

Plug the power cable into an AC outlet.

Connect the power cable to the AC connector on the back of the MR-2000S.

When you connect the power cable, the MR-2000S will enter the Off (Standby) status in approximately one second, and the power LED will light-up red.

⚠ You must use only the included power cable. Using any other power cable may cause malfunctions.

2. Connecting your monitor equipment

Connect your monitor system to the output jacks. You can use either the XLR or RCA jacks.

Connect stereo headphones to the headphone jack. Use the phones knob to adjust the volume.

⚠ Connecting headphones will not cut the sound from the output jacks.

3. Turning the power on/off

The MR-2000S contains an internal hard drive, and should be considered a precision device comparable to a computer.

You must observe the following procedure when turning the MR-2000S on or off.

Turning the power on

Press the power button.

The power LED will turn green, the opening screen will appear, and then the home screen will appear.



Turning the power off

Hold down the power button for at least two seconds. The shutdown screen will appear, the power will automatically turn off several seconds later, and then the power LED will turn red.

⚠ If you disconnect the power cable before the MR-2000S turns off, you may lose data or damage the internal circuitry.

⚠ Before you disconnect the power cable, make sure that the power LED is lit red and the screen has gone blank (power off).

note When you disconnect the power cable, the power will be completely off and the power LED will go dark.



4. Playing back the demo project

The MR-2000S contains a high-quality demo project that was recorded in DFF (DSDIFF) format. Here's how to play back this project.

note When the MR-2000S is shipped from the factory, the clock source (→p.29) is set to Internal.

What is a project?

When you record on the MR-2000S, two files are created; an audio file and a project file (containing protection data and markers, etc.). These two files are collectively called a "project," and they can be used on the MR-2000S as if they were a single audio file. (→p.33 "Hard disk structure and files")

Playing back

When you've turned on the power, make sure that the demo project name is shown in the upper part of the level meter screen, and press the play/pause button.

The demo project recorded on the MR-2000S will play back.



note If something other than the demo project is shown, select the demo file as described in "Selecting the project/file to play" (p.16).

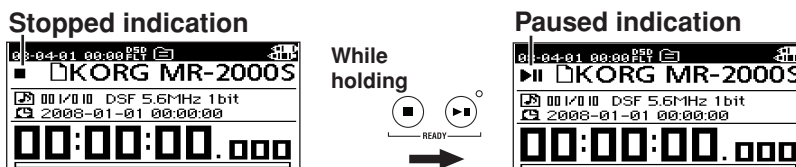
Quick-Play Function

After the Playback/Pause button is pressed, the MR-2000S restores the data and starts playback. Therefore, a time lag occurs from when the button is pressed until when the playback begins.

To start the playback in exact timing with other devices, use the Quick-Play function.

Pressing the Playback/Pause button with the Stop button pressed during stopping will temporarily stop the status indication of the recorder in the home screen and the Play LED will blink.

After that, pressing the Playback/Pause button will immediately start playback from the beginning of the project/file.



Pausing

During playback, press the play/pause button to pause at that location (the Play LED will blink). Press the play/pause button once again to resume playback from that location.

Stopping playback

During playback, press the stop button.

If you then press the play/pause button, playback will start from the beginning of the selected project/file.

Searching for a desired location during playback

If you hold down the rewind button during playback, the Playback Location Indicator will move toward the beginning of the project/file, and playback will resume from the location where you released the button. If you hold down the fast-forward button, the Playback Location Indicator will move toward the end of the project/file, and playback will resume from that location when you release the button.

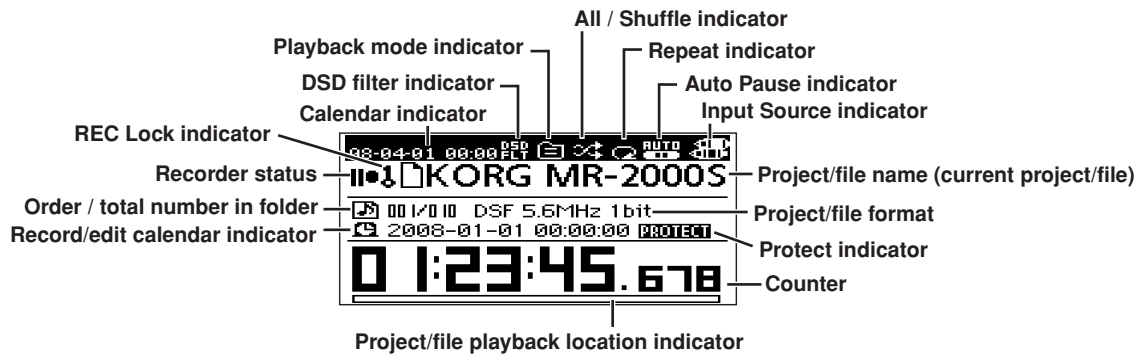
If you hold down the rewind or fast-forward button while stopped or paused, the location will continue moving while you hold down the button, and will stop/pause at that location when you release the button.

note If you assign marks to a project, you'll be able to move quickly to a specified point (→p.21).

5. The home screen

When you turn on the power, the home screen is shown in the display. When the menu list (MENU) screen is shown, you can also access the level meter screen by pressing the menu button.

This screen shows information such as the MR-2000S's operating status and recording/playback format.



Calendar indicator

This shows the current date and time (→p.18).

DSD filter indicator

This will appear if the DSD filter is on (→p.30).

Playback mode indicator

The current playback mode icon (→p.25) will appear.

All/Shuffle indicator

This indicator is shown if you've selected Play All, Shuffle, or Shuffle All. Nothing is shown if these settings are not selected (→p.25).

Repeat indicator

This indicator is shown if you've selected Repeat Play. Nothing is shown if this setting is not selected (→p.25).

Auto Pause indicator

This indicator is shown if you've selected Auto Pause. Nothing is shown if this setting is not selected (→p.25).

Input Source indicator

The icon shows the selected input source (→p.13).

Recorder status

The current status of the recorder is shown using symbols such as record (●), play (▶), or stop (■).

REC Lock indicator

This indicator is shown if the Record Lock function is on.

Nothing is shown if this function is off (→p.15).

Project/file name (current project/file)

This shows the name of the selected project / file, the artist, and title information.

⚠ Artist and title information cannot be entered on the MR-2000S. This will show the information specified by the included AudioGate software or other editing software, or the information entered on a recording device that allows such entry.

Order / total number in folder

This shows the order of the projects/files within the specified folder, as well as the total number of projects/files in that folder.

Project/file format

This shows the format of the selected project/file (→p.28).

Record/edit calendar indicator

This shows the date and time at which the selected project/file was recorded or most recently edited (→p.18).

Protect indicator

A lock symbol is shown if the selected project is protected. Nothing is shown if the protect setting is off (→p.20).

Counter

The counter shows either the current location (as elapsed time since the beginning of the recording), or the remaining amount of time that can be recorded (→p.17).

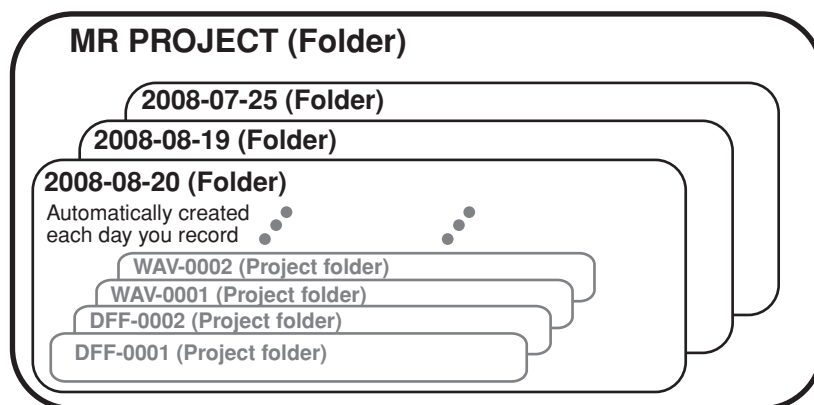
Project/file playback location indicator

This is a graphical indication of the approximate position of the current counter value compared to the overall length of the current project/file.

6. Recording

note If you set the MR-2000S's date and time (→p.17), the correct date and time will automatically be assigned to each project and date folder. However if you leave the power cable disconnected, the internal clock will stop operating after approximately one week. If you've left the power cable disconnected for an extended period of time, you should set the date and time again after reconnecting the power cable.

For convenient management of projects, the MR-2000S automatically creates a date folder for each day that you record. Each time you record, a folder called a "project" will be created, containing an audio file and another file containing the settings for that audio file. A name will be automatically assigned to the project folder (→p.34).



You are free to edit this name after recording (→p.19).

On the MR-2000S, each of these project folders is handled in the same way as an audio file.

Selecting the input source

Here's how to select the input source that you want to use. The audio signal from the input jack that you specify here will be the audio that is input during record-ready mode or while recording.

note With the factory settings, the clock source (→p.29) is set to Internal.

⚠ An error will occur if you attempt to record in 1-bit format while S/P DIF is selected.

1. Press the menu button, use the dial to select "SYSTEM" from the menu list, and press the enter button to confirm.

The SYSTEM setting screen will appear.

2. In the SYSTEM setting screen, use the dial to select "Input Source" and then press the enter button to confirm.

The Input Source setting screen will appear.



3. Use the dial to select the desired input source, and press the enter button to confirm.

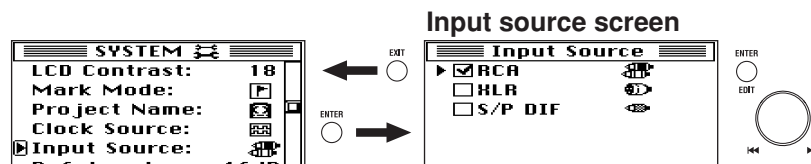
There will be a check mark in the check box for the input jack you've selected and confirmed.

XLR: Balanced analog input

RCA: Unbalanced analog input

S/P DIF: Digital input

⚠ If you select S/P DIF, the clock source (→p.29) will switch to S/P DIF in record-ready mode and during recording regardless of the setting that you specify here, and the clock source indicator will also switch to S/P DIF. However, the clock source that you specified will be preserved, and will return to that specified setting when the MR-2000S is stopped or playing.



4. When you've finished setting the recording mode, press the exit button to return to the menu list screen, and then press the menu button to return to the home screen.

Selecting the recording format

Here's how to select the recording format. Each time you record, a new project will be created in the recording format that you've selected.

note The default setting is DFF, 5.6 MHz.

1. Press the menu button, use the dial to select "REC MODE" from the menu list, and press the enter button to confirm.

Mode (REC MODE) setting screen will appear.

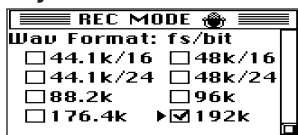


- Use the dial to select the Project Type, and press the enter button to confirm.

A check mark will appear in the check box for the project type you selected and confirmed.

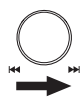
You can choose from WAV (BWF), DFF, DSF, and WSD. For details on each type, please refer to "Project recording format (New Project Type)" (p.28).

If you've selected WAV



OR

If you've selected DFF, WSD, DSF



- If you checked WAV (BWF), use the dial to select the desired Wav Format: fs/bit setting (bit depth and sampling frequency), and press the enter button confirm.

If you check DFF, DSF, or WSD, use the dial to select the sampling frequency in the 1-bit DSD Format: Fs setting, and press the enter button to confirm.

- When you've finished setting, press the exit button to return to the menu list screen, and then press the menu button once again to return to the home screen.

Adjusting the input level

Press the record button (the record LED will blink), and adjust the input level while in record-ready mode.

When using digital input (input source: S/P DIF)

There's no need to adjust the input level.

When using analog input (input source: RCA, XLR)

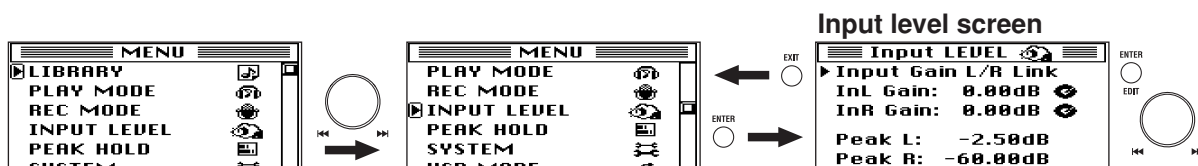
You can adjust the input level in steps of 0.25 dB. The range will depend on the input source and the reference level.

Input source	RCA	XLR				
Reference level	No setting	- 12 dB	- 14 dB	- 16 dB	- 18 dB	- 20 dB
Setting range (dB)	- 60...21	- 60...19	- 60...21	- 60...23	- 60...25	- 60...27

Note If you want to change the nominal level (reference level) of the balanced inputs and outputs, please refer to "Analog reference level setting (Reference Level)" on page 29.

- Press the menu button, use the dial to select "INPUT LEVEL" from the menu list, and press the enter button to confirm.

The Input Level screen will appear.



- Use the dial to select the input level link setting, and press the enter button to confirm.

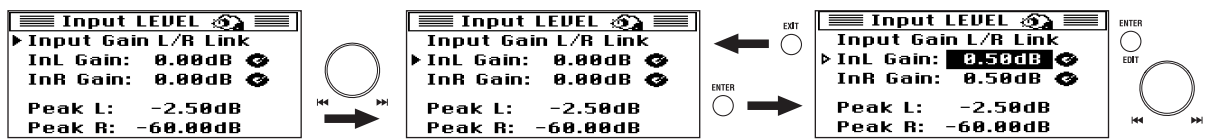
LR Link: Turning the dial will increase or decrease both input levels simultaneously. Use the dial to select a gain value that does not make the level exceed the "0" marking in the level meter, and then press the enter button to confirm.

Indivi.: The level can be adjusted independently for left and right. Proceed to step 3.

- Turn the dial to select InL Gain (or InR Gain), and press the enter button to confirm.

The selection icon will change from "▶" to "▶", and the gain value will be highlighted.

- Use the dial to select the desired gain value, and press the enter button to confirm. The selection icon will change from "▶" to "►". Perform these steps for the left and right channels. Adjust the level so that the signal does not exceed the "0" marking.



When you've finished setting the input volume, press the exit button to return to the menu list screen, and then press the menu button once again to return to the home screen.

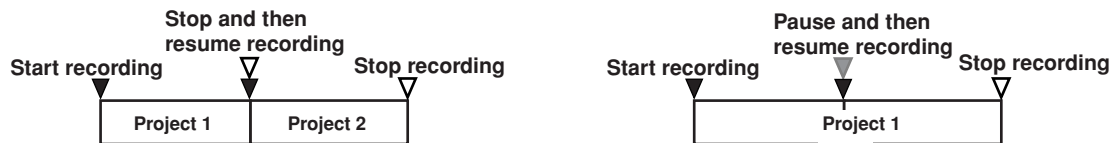
Starting and stopping recording

Each time you record on the MR-2000S, a folder is created containing an audio file and a settings file, collectively called a "project." The folder is named automatically (→p.34).

You can edit this name after you've finished recording (→p.19).

Operations on the MR-2000S will handle the entire project folder just as if it were an audio file.

- To start recording from the record-ready mode, press the play/pause button (the play LED will light-up). The record LED will change from blinking to lit.
- To pause recording, press the play/pause button (the record LED will blink); to resume recording, press the play/pause button once again (the play LED will light-up). A new project is not created if you pause during recording; the recording will still be a single project.



- When you're finished recording, press the stop button. The record LED and play LED will both go dark.

Record operation lock (REC Lock)

When the display shows the home screen and the MR-2000S is in record-ready mode or during recording, you can hold down the enter button for approximately 2 seconds to lock the recording operations.

When lock is enabled, the REC Lock icon (→p.11) will be shown in the upper part of the home screen, and you will be unable to perform the operations "record-pause," "cancel record-ready mode," or "pause during recording."

A message will appear in the screen if you attempt to perform one of these disabled operations.

To defeat the record operation lock function, hold down the enter button once again until the REC Lock icon disappears.

7. Other playback/editing operations

Selecting the project/file to play

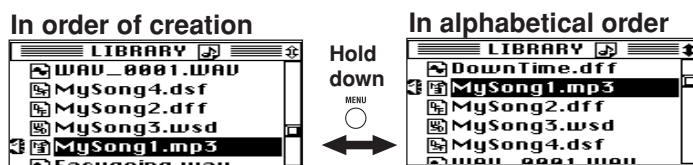
Use the dial to select (or choose from a list) the project/file that you want to play.

note When you turn on the power, the most recently selected project/file will be selected.

The order of the project/files

The order of the projects/files in the folder on the library select screen (LIBRARY) is listed according to the order in which they were created (FAT order), but the folders can be sorted in alphabetical order and displayed that way also.

Each time you hold down the menu button for 2 seconds, the library will toggle between alphabetical order and the order of creation.



Selecting a project/file using the dial

When the display shows the home screen while the MR-2000S is either playing or stopped, you can turn the dial to select a project/file within the selected folder or play list.

When you turn the dial, the project/file name at that location will be displayed; then after approximately two seconds, the MR-2000S will load the displayed project/file that was selected. If you were playing a project/file, the loaded file will play automatically. If the unit was stopped, then the file will load ready to play.

Selecting a project/file from a list

1. Press the menu button, and in the menu list (MENU) screen, use the dial to select "LIBRARY" and then press the enter button to confirm.

The library select (LIBRARY) screen will appear.

MR Project: This library contains projects recorded on the MR-2000S.

Audio: This folder contains audio files recorded on a device other than the MR-2000S.

Play List: This is the play list (→p.25).

2. In the library select (LIBRARY) screen, use the dial to select "MR Project," and press the enter button to confirm.

The date folder select screen will appear, listing the date folders.

note Step 3 is not necessary if you selected and confirmed "Audio" from the library select (LIBRARY) screen.

3. In the date folder select screen, use the dial to select the folder that contains the project you want to select, and press the enter button to confirm.

The project select screen will appear.



- In the project select screen, use the dial to select a project, and press the enter button to confirm. The home screen showing the newly selected project name will appear.



note When the display shows the home screen, you can use a shortcut to access the selection screen for the selected project/file (step 4); simply hold down the menu button for about 2 seconds.

Selecting a project/file to edit

Editing the selected project/file

When the display shows the home screen, hold down the enter button for about 2 seconds to access the project/file edit screen.

Editing a different project/file

- Perform steps 1–3 in "Selecting a project/file from a list" on page 16.
- In the project/file select screen, use the dial to select the project/file that you want to edit, and hold down the enter button for about 2 seconds. The edit screen for the selected project/file will appear.

8. Other general operations

Changing the counter mode in the home screen

From the home screen, press the display button.

Each time you press the button, the counter mode will change as follows.

While playing or stopped	No indication → REMAIN → TOTAL ∏ TOTAL REMAIN → REC REMAIN → No indication → ...
While record-ready or recording	No indication ↔ REC REMAIN

No indication: The absolute time will be displayed, with the beginning of the current project/file as 0.

REMAIN: The remaining playback time of the current project/file will be displayed.

TOTAL: The elapsed time of all projects/files in the current folder or play list will be displayed.

TOTAL REMAIN: The remaining playback time of the current folder or play list will be displayed.

REC REMAIN: The remaining time that can be recorded in the format of the current project will be displayed.

Changing the meter peak hold

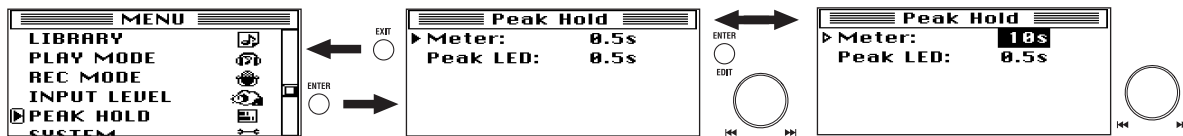
The peak value of the meter and the hold time for the PEAK indication can be set independently.

You can specify a hold time of 0, 0.5, 1, 2, 3, 4, or 10 seconds, or ∞ (stay lit).

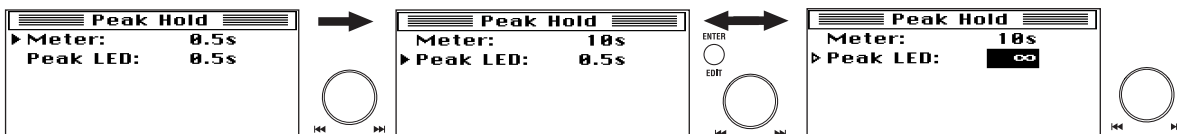
- Press the menu button; in the menu list (MENU) screen use the dial to select "PEAK HOLD" and press the enter button to confirm. The peak hold setting (PEAK HOLD) screen will appear.

note If the level meter's PEAK indication is lit, it will go dark at this time.

Alternatively, you can press the menu button, and use the dial to select "PEAK HOLD" in the menu list (MENU) screen, and then press the enter button to confirm.



- Turn the dial to select "Meter," and press the enter button to confirm.
The selection icon will change from "▶" to "▷," and the hold time will be highlighted.
- Use the dial to select the desired hold time, and press the enter button to confirm.
The selection icon will change from "▷" to "▷."
- Use the dial to select "Peak LED," and press the enter button to confirm.
The selection icon will change from "▶" to "▷."

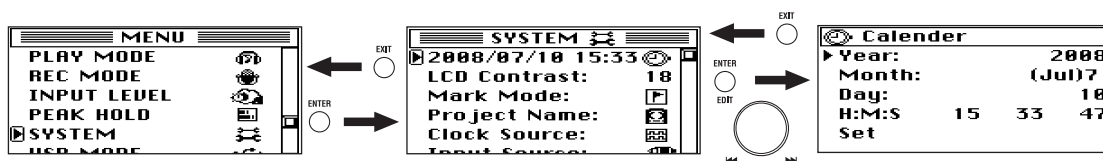


- Use the dial to select the desired hold time, and press the enter button to confirm.
The selection icon will change from "▷" to "▷."
- When you've finished making settings, press the exit button to return to the home screen.

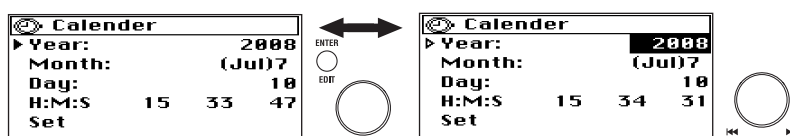
Setting the date and time

Here's how to set the internal clock.

- Press the menu button; in the menu list (MENU) screen use the dial to select "SYSTEM" and press the enter button to confirm.
The system setting (SYSTEM) screen will appear.
- Use the dial to select the date and time indication in the top line, and press the enter button to confirm.
The date and time setting (Calendar) screen will appear.



- Use the dial to select "Year," and press the enter button to confirm.
The selection icon will change from "▶" to "▷."
- Use the dial to specify the correct year, and press the enter button to confirm.
The selection icon will change from "▷" to "▷."



- In the same way, select, set, and confirm the "Month," "Day," "Hour," "Minute," and "Sec."

- When you've finished making settings, use the dial to select "Set" and press the enter button to confirm.

You will return to the system setting (SYSTEM) screen.

- If the power cable is left disconnected, the internal clock will stop operating after approximately one week. If you've left the power cable disconnected for an extended period of time, you'll need to make the date and time settings again after reconnecting the power cable.

- The time will continue to stay while you're setting it.

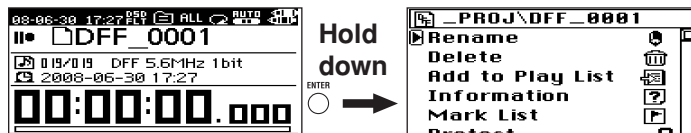
Editing the project/file name

You can specify a name of up to sixteen characters, using uppercase alphabetical characters A–Z, lowercase alphabetical characters a–z, numerals 0–9, and the following symbols.

! # \$ % & ' () + , - ; = [] ^ _ ` { } ~

- You can't edit the name of a project that's protected.

- Select and confirm the project/file that you want to rename. Refer to "Selecting a project/file to edit" on page 17.
- The project/file edit screen will appear, with the selected project/file name shown at the top.



- Use the dial to select "Rename" and press the enter button to confirm.

The name editing screen will appear.

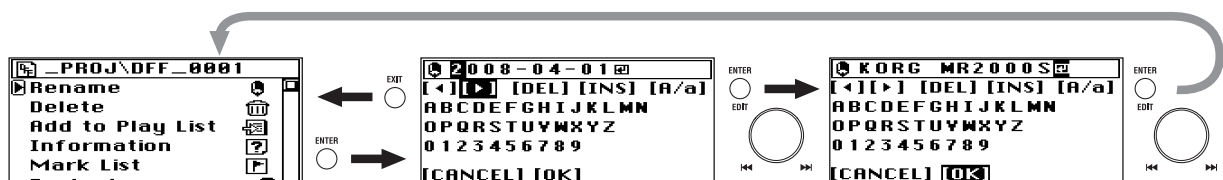
- Use [◀] or [▶] to move to the position of the character you want to edit (highlighted), and use the enter button to confirm.
- The character will be selected and highlighted. Use the dial to select the desired character, and press the enter button to confirm.

[DEL]: Deletes the currently highlighted character and moves the subsequent characters toward the left.

[INS]: Inserts a space at the highlighted location.

[A/a]: Switches between uppercase letters, lowercase letters, and symbols.

Repeat these steps to edit the name.



- When you've finished making settings, use the dial to select (highlight) [OK]. Then press the enter button to confirm and return to the file edit selection screen.

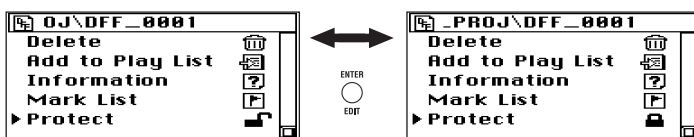
If you use the dial to select (highlight) [CANCEL] and then press the enter button or exit button to return to the project/file edit select screen, the rename operation will be cancelled.

Protecting a project

Here's how to protect a project. If you edit the mark settings of a project that is protected, these settings will revert to their original state when you select another project or turn off the power. A protected project is indicated by a protect icon displayed in the project/file information field (the top line) of the home screen.

 You can't protect an audio file that was recorded by a device other than the MR-2000S (these files will be located in the AUDIO folder).

1. **Select and confirm the project/file whose protect setting you want to change.**
Refer to "Selecting a project/file to edit" on page 17.
2. The project/file edit screen will appear, with the name of the project you just selected shown at the top.
3. Turn the dial to move the selection icon to "Protect."
4. Each time you press the enter button, the project setting will alternate between protected (🔒) and un-protected (🔓).



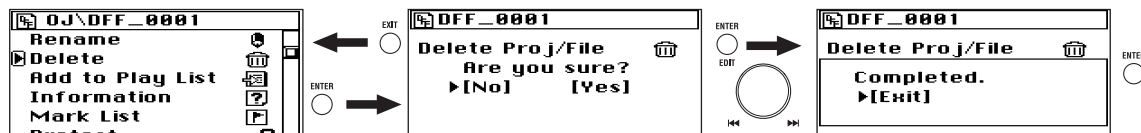
5. When you've finished adjusting the settings, press the menu button to return to the project/file edit screen.

Deleting a project/file

Here's how to delete a file. Once you've deleted a file, it cannot be recovered, so use this operation with care.

 You can't delete a project that's protected.

1. **Select and confirm the project/file that you want to delete.**
Refer to "Selecting a project/file to edit" on page 17.
2. The project/file edit screen will appear, with the name of the selected and confirmed project/file shown at the time.
3. Use the dial to select "Delete" and press the enter button to confirm.
A screen will ask you to confirm the Delete operation.

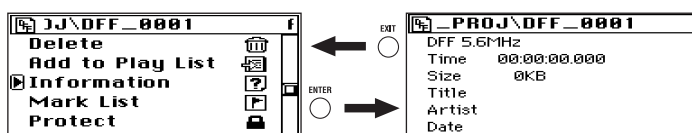


4. Use the dial to select [Yes] and press the enter button to confirm.
If you decide not to delete, use the dial to select [No] and press the enter button to confirm. (or press the exit button), and you'll return to the project/file edit screen.
5. The screen will indicate "Working...", and deletion will begin. When it ends, the screen will indicate "Completed."
6. Press the exit button to return to the project/file edit screen.

Viewing details about the project/file

Here's how you can view detailed information about a project/file. You can view the audio format, song length, artist, title, date and time, and file size.

1. **Select and confirm the project/file whose details you want to view.**
Refer to "Selecting a project/file to edit" on page 17.
2. **The project/file edit screen will appear, with the name of the selected file in the top line.**
3. **Use the dial to select "Information" and press the enter button to confirm.**
Details about the project/file will be displayed.



4. **When you've finished viewing the details, press the exit button to return to the project/file edit screen.**

9. Using marks within a project

If you've made an extended recording, such as a live performance or a practice session, you can quickly navigate between songs or to a desired location by using markers to move while you listen to the program or by fast-forwarding or rewinding according to the counter time.

However, the MR-2000S also lets you add marks to a project during recording or playback, and use the rewind and fast-forward buttons to rapidly move between these marks during playback.

note Even if the file (a WAV or DSDIFF file that can be recognized by the MR-2000S) was recorded and edited by another device, you can still use marks to move through the audio file. However, you will not be able to edit the marks.

Adding a mark

To add a mark, simply press the record button during recording or playback.

You can add up to 100 marks, and edit them later.

You can set the Mark Mode (→p.30) so that the file will be divided at marked locations during recording.

note Markers are automatically added at the beginning of the project, and at locations at which you resume recording after you pause recording. If a divided file was created when the data size exceeded 1 GB during recording (→p.35), a mark will also be added automatically at the beginning of the divided location.

note When you save a project in which marks were added, the mark data will automatically be added to the audio file (WAV, DSDIFF) in the project.

! You can only add marks to a project that was recorded on the MR-2000S.

! You can register marks in any position of the WAV, DEF or WSD project, but for the DSF project, only the 11.6 ms (Fs=2.8 MHz) or larger size mark can be registered by a unit of 5.8 ms (Fs=5.6 MHz).

Viewing the mark list

Here's how to view the list showing the marks in a project in the order of their time location.

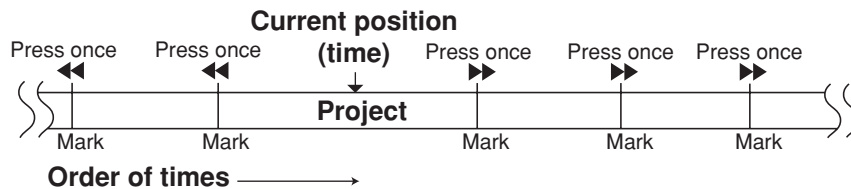
1. **Select and confirm the project/file whose marks you want to view.**
Refer to "Selecting a project/file to edit" on page 17.
2. **The project/file edit screen will appear, with the name of the selected file in the top line.**



3. **Use the dial to select "Mark List" and press the enter button to confirm.**
The mark list (Mark List) screen will appear.
4. **When you've finished viewing the marks, press the exit button to return to the project/file edit screen.**

Using marks to move

1. **Select and confirm a project/file that contains marks.**
Refer to "Selecting a project/file to edit" on page 17.
2. **The project/file edit screen will appear, with the name of the selected file in the top line.**
3. **Regardless of the screen shown in the display, you can press the rewind or fast-forward button during playback to move to the time location of the previous or next mark.**



Alternatively, you can use the dial in the Mark List screen to select the desired destination mark, and then press the enter button to move there. When the move is completed, the display will return to the home screen.

Editing marks

You can edit the time locations of the marks shown on the mark list (Mark List) and delete the unwanted marks.

- ⚠ You can only edit marks of a project that the MR-2000S is able to recognize.
 - ⚠ You can edit the marks even of a project whose Protect setting is on, but they will revert to their unedited state when you select a different project or turn off the power.
1. **In the mark list (Mark List) screen, use the dial to select the mark that you want to edit, and press the enter button to confirm.**
The mark edit select (Mark Edit) screen will appear.
To return to the mark list (Mark List) screen, press the exit button.

- Use the dial to select the item that you want to edit, and press the enter button to confirm.

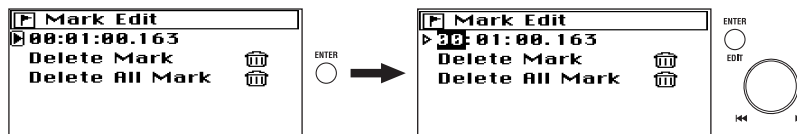


Changing the time locations of the marks

⚠ You can register marks in any position of the WAV, DFF or WSD project, but for the DSF project, only the 11.6 ms ($F_s=2.8$ MHz) or larger size mark can be registered by a unit of 5.8 ms ($F_s=5.6$ MHz). When the time locations are changed, each location is automatically set to the nearest position within its specified region.

- When you use the dial to select the time, the time location of the mark will be changed, and press the enter button to confirm.
The selection icon will change from "▶" to "▷".
- The highlighted place will change each time you press the enter button.
By pressing the enter button when the last place is highlighted, you can exit from changing the time location; to continue changing the time location, simply press the enter button again.
- To change the digits of the highlighted place, turn the dial to specify the value and press the enter button to confirm it.

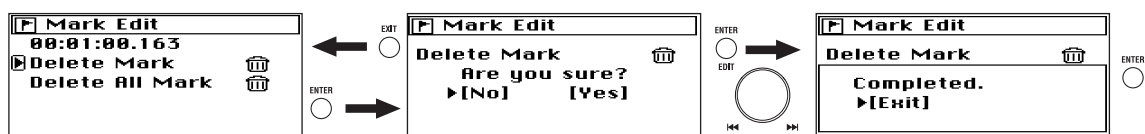
Repeat these steps to specify the time location for the mark.



- When you've finished adjusting these settings, press the exit button to return to the mark edit select screen.

Deleting a mark (Delete Mark)

- When you use the dial to select "Delete Mark" and press the enter button to confirm, a dialog screen will ask you to confirm the deletion.
- Use the dial to select [Yes] and press the enter button to confirm.
If you decide not to delete the mark, use the dial to select [No] and press the enter button to confirm (or press the exit button), and you'll return to the mark edit select (Mark Edit) screen.
- The screen will indicate "Working..." and the mark will be deleted. When deletion is finished, the screen will indicate "Completed."
- Press the exit button (or the enter button) to return to the mark list (Mark List) screen.



Deleting all marks (Delete All Mark)

1. When you use the dial to select "Delete All Mark" and press the enter button to confirm, a dialog screen will ask you to confirm the deletion.
2. Use the dial to select [Yes] and press the enter button to confirm.
If you decide not to delete the marks, use the dial to select [No] and press the enter button to confirm (or press the exit button), and you'll return to the mark edit select (Mark Edit) screen.
3. The screen will indicate "Working..." and the marks will be deleted. When deletion is finished, the display will indicate "Completed."
4. Press the exit button (or the enter button) to return to the mark list (Mark List) screen.





5. Verify that all marks have been deleted, and press the exit button to return to the project/file edit screen.

Other functions

Play mode



The MR-2000S provides three play modes, as well as auto pause and repeat play settings. To select these modes, use "PLAY MODE" in the menu list (MENU) screen. The icon for the selected settings will appear in the home screen (p.11).

Single (play only one project/file):

 (folder) /  (play list)

In this mode, only the single project/file you select will play. (See "Selecting the project/file to play" on page 16) When the selected file has finished playing, playback will stop automatically.





All (play all songs in folder / play the play list):

 ALL (folder) /  ALL (play list)

In this mode, the projects/files in the folder (or play list) that contains the selected project/file will be played in the order in which it appears in the library select screen list. When all projects/files in the folder (or play list) have finished playing, playback will stop automatically.

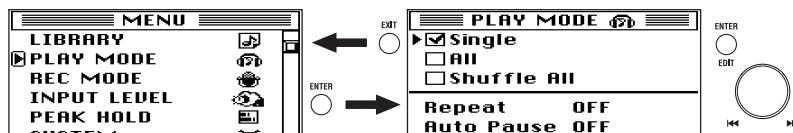
Shuffle All

(shuffle play within folder / shuffle play the play list):

  (folder) /   (play list)

If you select this option, the project/file playback order will be shuffled (randomized).

When playback ends, the order will automatically be shuffled, and then playback will continue. If you press the stop button and then press the play button, playback will continue from the beginning of the same project/file.




Repeat (Repeat play):

Turn this "On" if you want playback to repeat; the icon will appear in the home screen.

This setting is valid for all play modes. Playback according to the selected mode will continue until you press the stop button.

Auto Pause:

When this Auto Pause setting is "On," the icon will appear in the home screen, and when each song finishes playing, the MR-2000S will load the data of the next song and then pause. This setting is valid for all of the play modes (All, Shuffle All, and Repeat).

1. Press the menu button to access the menu list (MENU) screen, use the dial to select "PLAY MODE," and press the enter button to confirm. The play mode select (PLAY MODE) screen will appear.
2. Use the dial to select the desired play mode, and press the enter button to confirm.
3. If you want playback to repeat, turn the "Repeat" setting "On."
 "If "Auto Pause" is turned "On," the repeat playback setting will be ignored.
4. Press the exit button to return to the menu list (MENU) screen.
5. Press the play button to start playback with the selected mode.

Play list (PLAY LIST)

Creating a play list

Here's how to create a play list. By selecting "Play List" in the library select (LIBRARY) screen, you can play projects/files in the order of the play list that you create here.

You can store up to one hundred play lists.

1. Select and confirm the project/file that you want to add to the play list. Refer to "Selecting a project/file to edit" on page 17.
2. The name of the project/file that you selected and confirmed will appear in the project/file edit screen displayed above.
3. Turn the dial to move the selection icon to "Add to Play List."
4. Press the enter button; a message will ask "Add to Play List: Are you sure?"
5. Use the dial to select [Yes] and press the enter button to confirm.

If you decide not to add the project/file, use the dial to select [No] and then press the enter button to confirm (or press the exit button to cancel); you will return to the file edit screen.

6. The screen will indicate "Working...", and when processing is finished it will indicate "Completed." The added project/file will be added to the end of the play list. If you want to change the order, refer to "Editing a play list" (p.26).
7. Press the exit button to return to the project/file edit screen.
8. If you want to add another project/file, press the menu button and repeat steps 1-7.

You can also use this procedure to add a project/file to a play list that you created earlier.

Project / file edit screen



Viewing a play list

Here's how to view the contents of a play list.

1. Press the menu button, then in the menu list (MENU) screen, use the dial to select "LIBRARY" and press the enter button to confirm.

The library select (LIBRARY) screen will appear.

MR Project: This library contains projects recorded on the MR-2000S.

Audio: This folder contains audio files recorded on a device other than the MR-2000S.

Play List: This is the play list (→p.25).

2. In the library select (LIBRARY) screen, use the dial to select "Play List," and press the enter button to confirm. The play list screen will appear.



Editing a play list

In the play list (PLAY LIST) screen (see above), select the file you want to edit and then select the item you want to edit.

Play

Here's how to select a project/file from the list, and start playback. In the play list screen, press the play button to start playback of the project/file indicated by the selection button.

Change Order

Here's how to change the order of a project/file in the list.

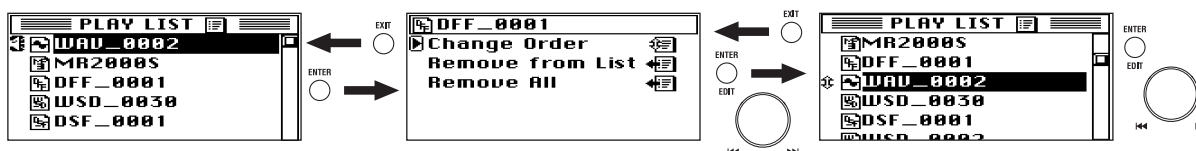
1. In the play list (PLAY LIST) screen, use the dial to select the project/file whose order you want to change, and hold down the enter button for about 2 seconds.
2. The name of the project/file you selected and confirmed will appear in the project/file edit screen displayed above.

3. Use the dial to select "Change Order," and press the enter button to confirm.

The Move icon will appear in the play list (PLAY LIST) screen.

4. Turn the dial to move the project/file to the desired position, and then press the enter button to confirm. The play list (PLAY LIST) screen will show the new order.

NOTE If you press the exit button before you confirm, you will return to the play list edit screen.



Remove from List

Here's how to remove the selected project/file from the play list.

note This will not delete the project/file itself. If you later decide to add the project/file to the play list, you can use the Add to Play List operation to do so.

1. In the play list (PLAY LIST) screen, use the dial to select the project/file that you want to delete, and hold down the enter button for a time.

The name of the project/file you selected and confirmed will appear in the project/file edit screen displayed above.

2. Use the dial to select "Remove from List," and then press the enter button to confirm.

A dialog message of "Remove from List. Are you sure?" will appear in the screen.

3. Use the dial to select [Yes] and then press the enter button to confirm.

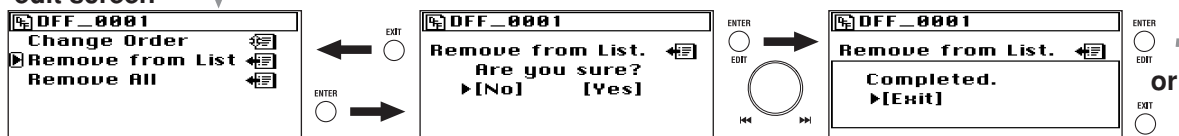
If you decide not to remove the project/file, use the dial to select [No] and then press the enter button to confirm (or press the exit button), and you will return to the play list edit screen.

4. The screen will indicate "Working..", and will then indicate "Completed" when the project/file has been removed.

5. Press the exit button (or the enter button) to return to the play list edit screen.

6. If you want to remove another project/file, press the menu button and repeat steps 1–5.

Playlist edit screen



Remove All

Here's how to remove all projects/files from the play list.

note This will not delete the projects/files themselves.

1. In the play list (PLAY LIST) screen, use the dial to select the project/file a volonte, and hold down the enter button for approximately 2 seconds.

The name of the project/file you selected and confirmed will appear in the project/file edit screen displayed above.

2. Use the dial to select "Remove All," and then press the enter button to confirm.

A dialog message of "Remove from List. Are you sure?" will appear in the screen.

3. Use the dial to select [Yes] and then press the enter button to confirm.

If you decide not to remove the project/file, use the dial to select [No] and then press the enter button to confirm (or press the exit button), and you will return to the play list edit screen.

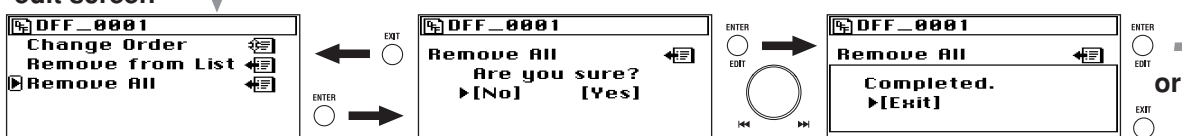
4. The screen will indicate "Working..", and will then indicate "Completed" when the project/file has been removed.

5. Press the exit button (or the enter button) to return to the play list screen

A dialog message of "No File in List" will appear in the screen.

6. Press the menu button to return to the home screen.

Playlist edit screen



Record mode

Here you can adjust various settings related to recording. Press the menu button, and in the menu list (MENU) screen, use the dial to select "REC MODE" and then press the enter button to confirm. You can adjust the following settings from the record mode (REC MODE) screen.

Project recording format (New Project Type)

WAV (BWF)

This is an uncompressed linear PCM multi-bit audio file format. The sampling frequency and bit-depth are selected by the PCM Format settings described below.

The name is an abbreviation of Wave File Format (file extension .wav). This format is compatible with the Broadcast Wave Format (file extension .wav) used for broadcast audio.

A higher sampling rate and bit depth allows higher-quality recording, but will require more hard disk space.

DFF (DSDIFF)

This is a 1-bit audio file format widely used in professional audio devices for SACD (Super Audio CD) production. The name stands for Direct Stream Digital Interchange File Format (file extension .dff).

DSF

This is a 1-bit audio file format used in some "VAIO (A Sound Reality deployment model)" personal computers made by Sony.

The name stands for DSD Stream File (file extension .dsf).

WSD

This is a 1-bit audio file format as defined by the "1-bit Audio Consortium."


The name stands for Wideband Single-bit Data (file extension .wsd).

Settings when WAV (BWF) is selected

If you select WAV (BWF), you can also select the sampling frequency and bit depth. At sampling frequencies of 88.2 kHz and higher, the bit depth will always be 24.

Settings when DFF, DSF, or WSD are selected

If you've selected a 1-bit format, use the 1bit DSD Format: Fs setting to specify the sampling frequency.

 *In order to synchronize with a digital audio device other than the MR-2000S, both devices must be synchronized to the same clock (→p.29).*

Recording time for each format (per 1 Gbyte)

The following table shows the approximate recording time available in each format per 1 Gbyte of hard disk capacity.

WAV Format	Recordable time	1bit Format	Recordable time
44.1kHz/16bit	90 minutes	DFF 2.8MHz	22 minutes
44.1kHz/24bit	60 minutes	DFF 5.6MHz	11 minutes
48kHz/16bit	85 minutes	DSF 2.8MHz	22 minutes
48kHz/24bit	55 minutes	DSF 5.6MHz	11 minutes
88.2kHz/24bit	30 minutes	WSD 2.8MHz	22 minutes
96kHz/24bit	25 minutes	WSD 5.6MHz	11 minutes
176.4kHz/24bit	15 minutes		
192kHz/24bit	13 minutes		

System setting (SYSTEM)

Here you can adjust various system settings for the MR-2000S itself.

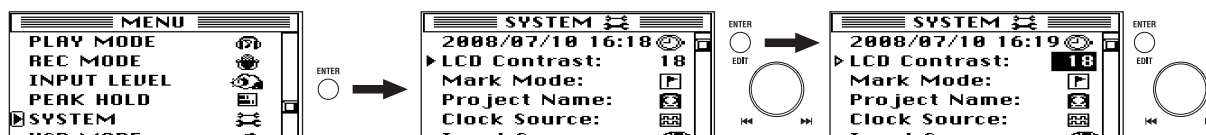
Press the menu button to access the menu list (MENU) screen, use the dial to select "SYSTEM," press the enter button to confirm, and then adjust the settings as described here.

LCD Contrast

Here you can set the LCD contrast. Higher settings will make the black portions of the display darker. Adjust the value for best visibility.

Note To automatically revert the LCD contrast to the factory default, press and hold the exit button for approximately 3 seconds while on the home screen, and the display will revert to LCD contrast "8".

1. In the system setting (SYSTEM) screen, use the dial to select "LCD Contrast," and then press the enter button to confirm.



The selection icon will change from "▶" to "▷", and the value will be highlighted.

2. Turn the dial, and the contrast will change along with the value.
3. When you've adjusted the contrast for best visibility, press the enter button to complete the setting. The selection icon will change from "▷" to "▶".

Synchronization clock setting (Clock Source)

Here you can make synchronization clock settings. The synchronization clock source is shown at all times by the clock source indicator. If the clock source indicator is blinking during recording, this indicates that synchronization is not achieved, or that an external clock of 44.1 kHz cannot be detected when using DSD format.

INTERNAL: Operating with the internal clock

S/P DIF: Synchronize to the clock supplied to the S/P DIF IN jack

WORD: Synchronize to the clock supplied to the WORD CLOCK IN jack

Note If you choose "WORD" as the clock source when using 1-bit format, you must input 44.1 kHz. The MR-2000S will not operate correctly if anything other than 44.1 kHz is being input.

Note If the input source (→p.13) is set to "S/P DIF," the clock source will temporarily be changed to "S/P DIF" while in record-ready mode and during recording, and this will be shown by the clock source indicator. When recording ends, the clock source will automatically return to its original setting.

1. In the system setting (SYSTEM) screen, use the dial to select "Clock Source" and press the enter button to confirm. The synchronization clock (Clock) setting screen will appear.
2. Use the dial to select the desired clock source, and press the enter button to confirm. A check mark will appear in the check box for the clock source you selected and confirmed.
3. When you've finished making settings, press the exit button to return to the system setting (SYSTEM) screen.



Analog reference level setting (Reference Level)

Here you can specify the analog reference level in units of dB below the digital clipping point.

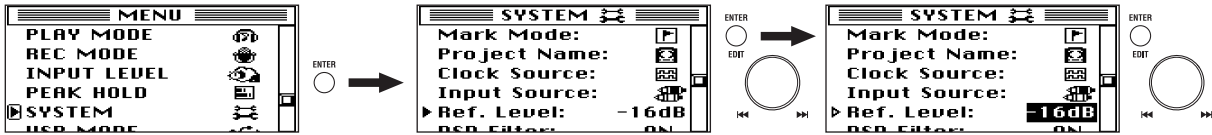
You can set this in a range of five steps: -12 dB, -14 dB, -18 dB, and -20 dB. To remind you of the setting, the corresponding segment of the level meter will light to indicate the specified level.

Note This setting is ignored for the headphone jack and the unbalanced (RCA) jacks.

1. In the system setting (SYSTEM) screen, use the dial to select "REFLEVEL" and press the enter button to confirm. The selection icon will change from "▶" to "▷," and the value will be highlighted.

- Turn the dial to select the desired value, and press the enter button to complete the setting.

The selection icon will change from "▶" to "▶".



Mark mode setting (Mark Mode)

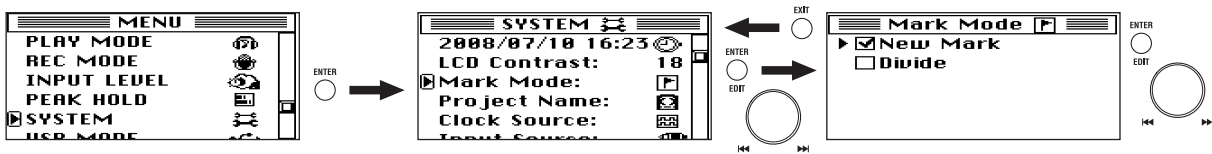
Here you can specify the mark mode that will be used during recording. This setting does not affect the marks that you register during playback.

- New Mark:** Marks will be added in the conventional way
- Divide:** The file will be divided where each mark is added (→p.35)

- In the system setting (SYSTEM) screen, use the dial to select "Mark Mode" and then press the enter button to confirm.

The mark mode (Mark List) setting screen will appear.

- Use the dial to select the desired mode, and press the enter button to confirm. A check mark will appear in the check box for the mark mode you selected and confirmed.
- When you've finished adjusting the settings, press the exit button to return to the system setting (SYSTEM) screen.



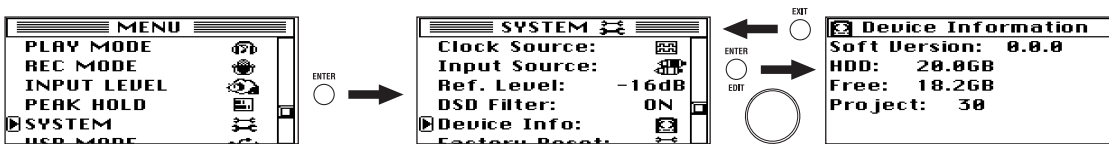
Device information (Device Info)

Here you can view the version of the MR-2000S's system software, the total capacity of the hard disk, the free capacity, and the number of recorded projects/files.

- In the system setting (SYSTEM) screen, use the dial to select "Device Info" and press the enter button to confirm.

The information (Device Information) screen will appear.

- When you've finished viewing the information, press the enter button to return to the system setting (SYSTEM) screen.



DSD output filter settings (DSD Filter)

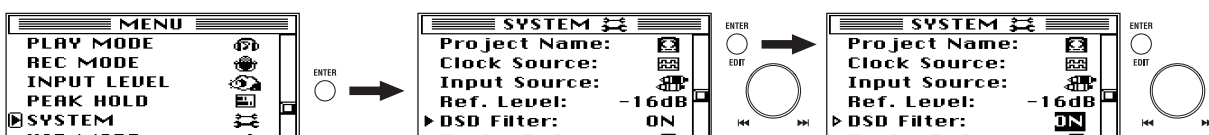
If you turn this setting on, a 1-bit project/file will pass through the signal processing filter during playback. By default, this is "ON". The icon for the settings will appear in the home screen (p.11).

- ON (DSD):** Playback will pass through the DSD filter (-3.0 dB at the pass frequency of 50 kHz).
- OFF:** The 1-bit signal will play back directly without going through the DSD filter.

This setting can be made only while the unit is stopped.

Noise or extraneous sound may occur if you connect your MR-2000S to a device that does not support wideband audio input. Before turning this setting off, you must check the owner's manual of the connected device.

- In the system setting (SYSTEM) screen, use the dial to select "DSD Filter" and press the enter button to confirm. The selection icon will change from "▶" to "▶", and the value will be highlighted.
- Press the enter button to complete the setting. The selection icon will change from "▶" to "▶".



Project name setting (Project Name)

Here's how to assign the name for the project folder that is automatically created each time you record.

Default Name:

The name will be "file type (p.34)_0001--9999."

Examples: DFF_0001, WAV_0001, etc.

UserName:

The name will be UserName0001--9999.

You can use up to eight characters to specify this "User-Name" portion as desired.

Examples: UserName0001, Select0002

1. In the system setting (SYSTEM) screen, use the dial to select "Project Name" and press the enter button to confirm.

The project name (Project Name) setting screen will appear.

2. Use the dial to select "User Name Setting," and press the enter button.

The name edit screen will appear.

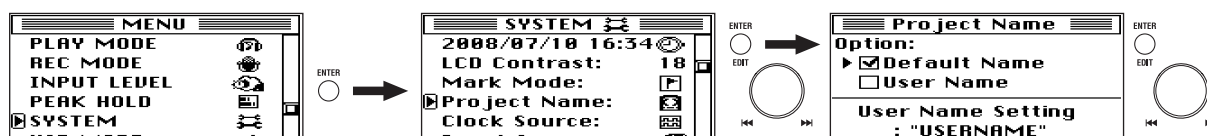
3. Edit the name.

Refer to steps 4–6 in "Editing the project/file name" (p.19).

4. To make the edited name the name for the project folder, use the dial to select "User Name" and press the enter button to confirm.

If you want to return this to the file type name, select and confirm "Default Name."

5. When you've finished making settings, press the exit button to return to the system setting (SYSTEM) screen.



Resetting the system setting (Factory Reset)

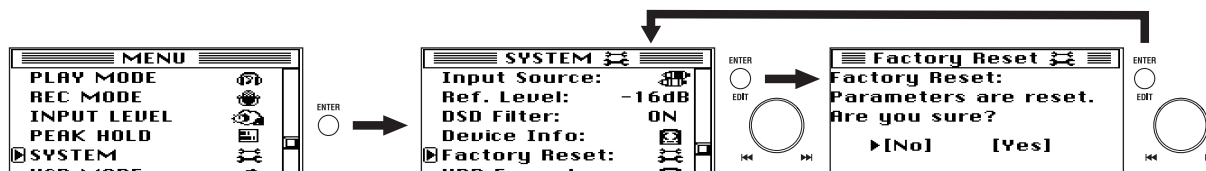
To return the MR-2000S to the factory settings.

1. In the system setting (SYSTEM) screen, use the dial to select "Factory Reset" and press the enter button to confirm.
2. The message "Factory Reset. Are you sure?" appears in the screen.

3. Use the dial to select [Yes] and then press the enter button to confirm.

If you decide not reset the settings, use the dial to select [No] and then press the enter button to confirm (or press the exit button to exit); you will return to the system setting (SYSTEM) screen.

4. When the reset is finished, the screen will return to the system setting (SYSTEM).



Formatting the hard disk (HDD Format)

Here's how to format the MR-2000S's hard disk.

You should only perform this operation if you want to erase all of the data saved on the hard disk, or if the message "Drive Error." appears frequently.

When the hard disk is formatted, MR_PROJ other than the system setting in the hard disk, the project / file and the LST-0001.m3u in the AUDIO folder will completely be deleted (p.33 "Hard disk structure and files").

Before formatting the hard disk, be sure to check the data and back-up the necessary data (p.33 "Using the MR-2000S with your computer").

⚠ If a power failure or similar accident occurs during formatting, the MR-2000S may become inoperable. If this occurs, please contact Korg distributor.

1. Press the menu button, and in the menu list (MENU) screen, use the dial to select "SYSTEM" and press the enter button to confirm.

The system setting (SYSTEM) screen will appear.

2. Use the dial to select "HDD Format" and press the enter button to confirm.

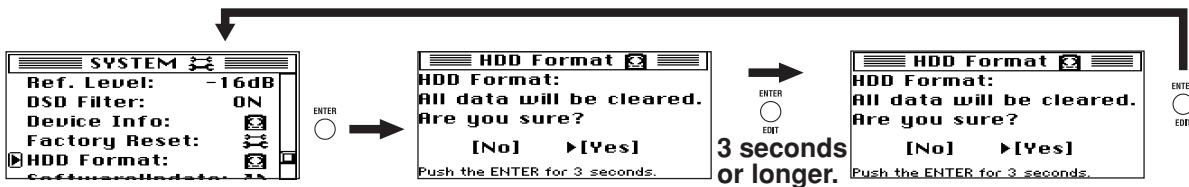
3. A dialog message of "HDD Format: All data will be cleared. Are you sure?" will appear in the screen.

4. Use the dial to select [Yes], and continue holding it for three seconds or longer.

If you decide not to format the hard disk, use the dial to select [No] and then press the enter button to confirm (or press the exit button); you will return to the system setting (SYSTEM) screen.

5. The screen will indicate "Working...", and when formatting is finished the indication will change to "Completed."

6. Press the exit button to return to the system setting (SYSTEM) screen.



Updating the software (SoftwareUpdate)

You can download the latest version of the software update system files from the Korg website (www.korg.com). For details on the procedure, refer to the Korg website.

Preparing for the update

Use a USB cable to connect the MR-2000S to your computer (see "Using the MR-2000S with your computer" on page 33), and copy the downloaded system file to the root folder of MR-2000S's hard disk.

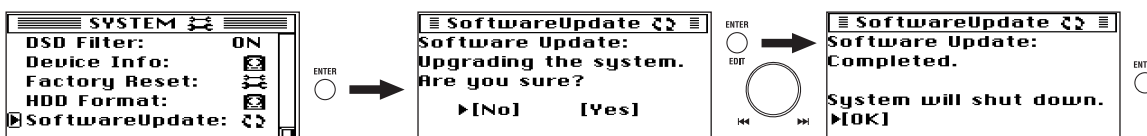
Update procedure

⚠ If a power failure or similar accident occurs while updating the system, the MR-2000S may become inoperable. If this occurs, please contact your local Korg distributor.

1. Press the menu button, and in the menu list (MENU) screen, use the dial to select "SYSTEM" and press the enter button to confirm.
The system setting (SYSTEM) screen will appear.

2. Use the dial to select "SoftwareUpdate" and press the enter button to confirm.
3. A dialog message of "Software Update: Upgrading the system. Are you sure?" will appear in the screen.
4. Use the dial to select [Yes] and then press the enter button to confirm.
The screen will indicate "SoftwareUpdate: Working..." and the system will be loaded.
5. When the system has finished updating, "System will shut down. [OK]" will appear.
6. Press the enter button; the MR-2000S will shut down and the power will turn off.
7. Press and hold down the power button to turn on the power; the MR-2000S will start up with the newly loaded system.

⚠ If the update fails, a message will appear. Make a note of the contents, and take the appropriate action (p.37 "Various messages").



Using the MR-2000S with your computer

You can use the MR-2000S as a USB 2.0 mass storage class device.

This lets you copy files from the MR-2000S to your computer, or copy files (WAV, DSDIFF, etc.) from your computer into the MR-2000S

USB mode

In this mode, the MR-2000S will be detected by your computer as an external hard disk. The MR-2000S won't operate as a recorder while it is in USB mode.

Entering USB mode

1. **Connect the MR-2000S to your computer.**

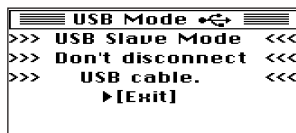
Windows users (Windows 2000 or later)

Use a USB cable to connect the MR-2000S's USB connector to your computer's USB connector. Make sure that the connector is oriented correctly, and insert it all the way. Press the menu button, and from the menu list (MENU) screen, use the dial to select "USB MODE." and press the enter button to confirm.

Macintosh users (Mac OS X 10.3.9 or later)

With the MR-2000S powered-off, connect the USB cable to the Macintosh. Make sure that the connector is oriented correctly, and insert it all the way. When you power-on the MR-2000S, it will automatically enter USB mode.

2. **The USB mode (USB MODE) screen will appear.**



⚠ While this screen is displayed, you must not disconnect the USB cable or turn the power of your computer on or off.

3. **A drive named "MR-2000S" will be added to your computer.**

When you connect the MR-2000S to your computer for the first time, the device driver will be installed automatically.
4. **Save data on your computer.**

When you open the "MR-2000S" that appeared on your computer in step 3, the contents of the MR-2000S's hard disk will be displayed. Copy the desired data onto your computer. You can also copy data from your computer into the MR-2000S's hard disk.

Hard disk structure and files

Supported audio files

Stereo files are used for all recording formats that can be selected on the MR-2000S (p.28).

⚠ There are limitations on the audio files that the MR-2000S can recognize (p.33).

⚠ Don't disconnect the USB cable while a file is being transferred.

Exiting USB mode

1. **To disconnect the MR-2000S from your computer:**

Windows users (Windows 2000 or later)

Left-click the icon shown in the right side of your computer's taskbar. In the menu that appears, left-click "Safely remove USB mass storage device (drive name)." Verify that a message indicating "You may safely remove the USB mass storage device" is displayed. In Windows

Macintosh users (Mac OS X 10.3.9 or later)

Drag the drive from the desktop into the "Trash," or choose "Trash" from the "File" menu.

2. **Press the enter button to return to the menu list (MENU) screen**

After returning to the menu list (MENU) screen, disconnect the USB cable.

Transferring files

The files you record on the MR-2000S are saved in automatically-created date folders for each recording format (WAV, DFF, DSF, WSD) within the MR_PROJ folder. You can back-up your files by copying these folders to your computer. These folders contain the following two files.

- Audio data files (.wav/.dff/.dsf/.wsd): These files contain the recorded audio
- Project data files (.prj): These files contain information such as project settings and marks

⚠ Do not change the names of these two files. Doing so may make them unplayable on the MR-2000S.

To restore data that you previously backed-up, copy the files into the folder for the appropriate recording format.

If you want to transfer audio data (.mp3/.wav/.dff/.dsf/.wsd) created on your computer or other device, copy it into the AUDIO folder.

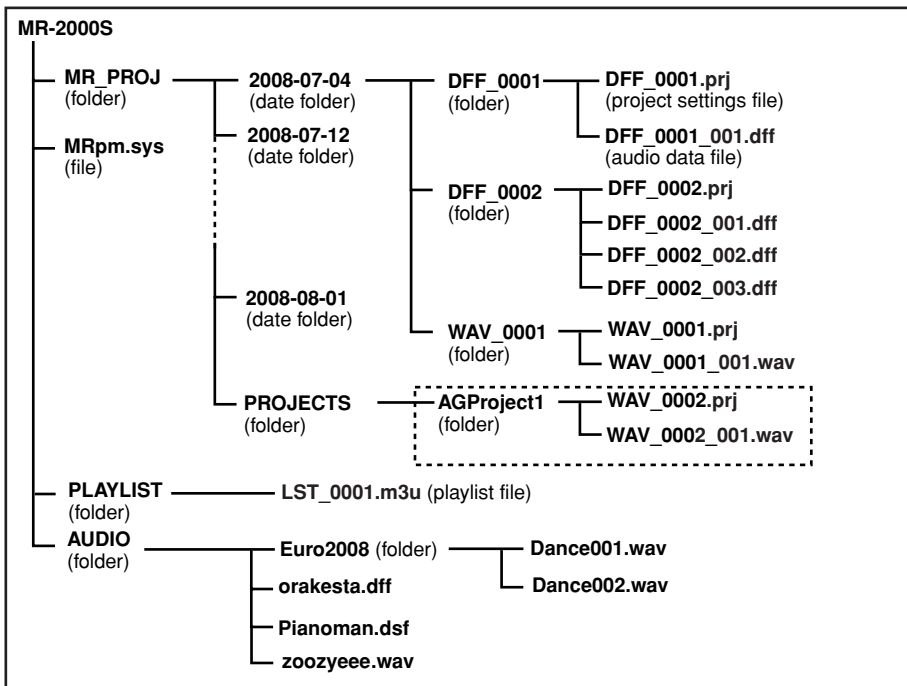
The following files are also supported for playback only.

- MP3 files of sampling frequency 44.1 kHz or 48 kHz, at bit rates of 32–320 kbps.

Supported folders and file names

FAT32 file system format. Long file names are supported, double-byte characters (e.g., Japanese) are not supported.

Folder/file structure



MR_PROJ folder

This folder contains folders recorded on the MR-2000S, organized by date.

Don't use your computer to delete or rename the MR_PROJ folder. If you do so, the MR-2000S will no longer recognize the files you created.

Date folders (year-month-date: e.g., 2008-07-04, etc.)

A maximum of approximately 400 project folders can be created here, organized by date.

The MR-2000S is only able to edit recorded files that are inside these folders.

Up to 400 date folders can be recognized. If there are more than 400 project folders, they can be recognized by connecting a computer in USB mode.

Up to 400 project folders can be recognized within a date folder. If there are more than 400 project folders, they can be recognized by connecting a computer in USB mode.

The maximum number of project folders that can be created will be limited by the space remaining on the hard disk.

Don't use your computer to delete or rename folders. This may make it impossible to recognize the projects you created.

Audio data you created on your computer or other device will not be recognized if you place it in these project folders.

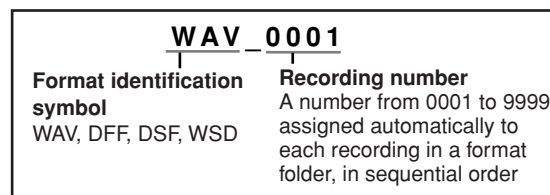
The PROJECTS folder contains projects created by the included "AudioGate" software, or projects that were backed up to an external device.

MRpm.sys

This file contains settings used by the system. There must be one and only one such file. Do not move or delete it.

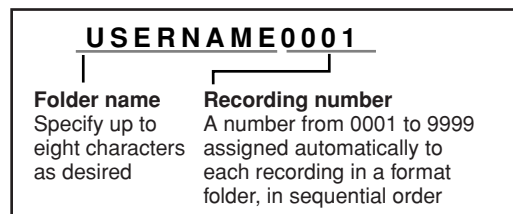
Never delete or rename this file.

DFF_0001 folder (project folder)



This folder is created for each project you record. The numerical portion of the folder name will be incremented, starting with 0001. The first three alphabetical characters will depend on the recording format.

If you choose User Name as the project name setting, the "DFF_" portion can be freely changed, so the file name will have the following structure.



Operations on the MR-2000S apply to the project recorded in this project folder. Renaming the project will rename the project folder, and the name of the project setting file within the folder will also be renamed automatically.

If you use your computer to rename a project folder, you must also use the same name for the project setting file (*.prj) within that folder.

Files inside the DFF_0001 folder (project folder)

DFF_0001.prj (project settings file)

This is a file specific to the MR-2000S, containing information (protect setting, mark data, etc.) for each recorded project. Only one file with this extension (.prj) can exist in each project folder.

DFF_0001_001.dff (audio data file: dff)

These are stereo audio data files. The extension (.wav) will depend on the recording format.

When the file is recorded, the file name and the extension will be as follows.

DFF_0001_001.dff	
Project name (This will not be updated even if you rename.)	Recording format extension
	WAV(BWF)--- .wav
	DSDIFF----- .dff
	DSF----- .dsf
	WSD----- .wsd

The file is divided (into a maximum of ninety nine files), with this area being "1" if the file size is 1 GB or less, and "1", "2" ... etc. if the size is greater than 1 GB. Even if the file size is less than 1 GB, the file will be divided if you pause or store a "Divide" mark during recording.

note If you choose User Name as the project name setting, the name will be as follows.

Files in the USERNAME0001 folder
USERNEME0001.prj
USERNEME0001-001dff

PLAYLIST folder

This folder contains play list files.


LST_0001.m3u


This file contains a play list.

AUDIO folder

This folder is used to hold audio data that was created on your computer or another device.

You cannot edit these files on the MR-2000S, but you can add them to a play list and play them. You can create up to four levels within a folder, but the MR-2000S is able to recognize only up to a total of four hundred folders and files within this folder.

 You must not rename this folder.

 Only the supported audio files can be recognized.

Using the AudioGate software

The audio files of a project recorded on the MR-2000S can be copied to your computer. Then you can use the "AudioGate" audio format conversion application on the included CD to convert the audio file format; as well as edit, divide, or join audio files.

For details, install the software from the included CD and refer to the AudioGate operating manual (PDF).

Installing AudioGate

Contents of the Install CD

The included Install CD contains the following items.

- "AudioGate" format conversion application
- AudioGate operating manual (PDF)
- Software license agreement (PDF)

Please read before use

- All copyrights to this software are the property of Korg Inc..
- A license agreement for the software of this product is included separately. You must read this software license agreement before you install the software. Your installation of this software will be taken to indicate your acceptance of this agreement.

Operating requirements

Windows

Supported operating systems

Microsoft Windows XP Home Edition/Professional Edition Service Pack 1 or later, Microsoft Windows Vista

Supported computers

CPU: Intel Pentium III /1 GHz or better
RAM: 256 MB or more
A USB port that meets the operating requirements of Microsoft Windows XP/Vista

Mac OS X


Supported operating system

Mac OS X 10.3.9 or later

Supported computers

CPU: Apple G4/800 MHz or better, Intel Mac is supported
RAM: 256 MB or more
A USB port that meets the operating requirements of Mac OS X

Windows users

 In order to install or uninstall software in Windows, you must have Administrator privileges. For details, consult your system administrator.

1. **Insert the included Install CD into the CD-ROM drive of your computer.**
Normally, the "AudioGate Application Installer" will start up automatically.
If your computer is set so that the installer will not start up automatically, double-click "KorgSetup.exe" in the Install CD.
2. **Follow the on-screen instructions to proceed with the installation.**
3. **When you've finished installing AudioGate, exit the installer.**

Mac OS X users

1. **Insert the included Install CD into the CD-ROM drive of your computer.**
2. **In the Install CD, double-click the AudioGate installer (.pkg) to start up the installer.**
3. **Follow the on-screen instructions to proceed with the installation.**
4. **When you've finished installing AudioGate, exit the installer**

Appendix

Troubleshooting

Power does not turn on

- Is the power cable correctly connected?
- Is the power LED lit green?
→If the power LED is lit red, the MR-2000S is in standby mode. Press the power button to turn it on (→p.9).

Nothing appears in the display

- Is the contrast adjusted correctly? (→p.29)

No sound

- Is the MR-2000S and the connected equipment powered-on? (→p.4)
- Are the amp or headphone connections incorrect?
- Is the headphone volume set to "0"?

Can't hear the audio input

- Are the recording settings correct?
- Does the input source match the input device? (→p.13)
- Is the recording level raised?
- Make sure that audio is being input.
→Verify that the level meters are moving.

Playback will not start immediately after selecting a song

- When you select a project/file located in a folder other than the current project/file, the MR-2000S is designed to calculate the total playback time of files in the folder, and therefore may take some time before playback can start.
To avoid this situation, we recommend that you store the desired songs in a play list, or use your computer to move the desired songs into the same folder.

USB

Your computer does not detect the MR-2000S

- Is the USB cable connected correctly? (→p.33)
→Re-connect the cable.

Can't release the MR-2000S from your computer

- The procedure will depend on the operating system of your computer. (→p.33)

Sampling frequency indicator blinks

- The sampling frequency of your playback or recording device does not match the S/P DIF or word clock.
→Match the sampling frequency. If you're using 1-bit format, you must input 44.1 kHz.

Clock source indicator blinks

- The clock source is not set to "S/P DIF" or "WORD."
→Set the clock source setting to match the input jack you're using.

Can't record

- Does the input source match the input device? (→p.13)
- Are the input level lowered?
- Is there sufficient hard disk space remaining?
→Set the counter display to "REC REMAIN" and check the remaining time available for recording. (→p.17)

The recording is interrupted

- Could the MR-2000S have been bumped while recording?
- Could the MR-2000S have been in a location subject to continuous vibration (such as near a motor or a bass amp) while recording?

When you connect the MR-2000S, you are asked to install software or a device driver

- Does the MR-2000S support the version of the operating system your computer is running? (→p.35)

Various messages

The message dialog box will disappear when you press the enter button or the exit button.

Execution message

Completed

- The operation has been successfully completed.

Working...

- The operation is being carried out. Please wait until this message disappears.

Error messages

Check Sum Error.

- The software update has failed.
→Try the operation once again from the beginning. If this message appears again, please contact your local Korg distributor.

Disk too busy.

- Repeated actions of recording, writing, and deleting will gradually decrease the amount of contiguous free space on the hard disk, causing files to be saved in a fragmented state during recording. This message will appear when access to the drive has slowed down due to such problems.
→Back up your important files, format the hard disk, and then restore your files back onto the hard disk. Alternatively, delete unneeded files to increase the amount of free space, and then connect the MR-2000S to your computer in USB mode and optimize the drive. It is effective to use software of a type that optimizes the free space.

Drive Error.

- An error occurred while accessing the drive.
→Use USB mode to connect the MR-2000S to your computer and execute the Check Drive command. If this error message appears even after you've executed Check Drive, format the drive.

Drive Full.

- There is insufficient remaining capacity on the drive.
→Delete unneeded projects/files.

Failed to write System File.

- The system update has failed.
→It is possible that the MR-2000S has malfunctioned. Please contact your local Korg distributor.

Memory Full.

- You attempted to register more than 100 marks. No further marks can be registered.
→Delete unneeded marks before registering other marks.

Not supported file.

- This file format is not supported.
→Check the audio file formats that are supported.

Operation is forbidden while recorder is running.

- This operation cannot be performed at this time.

Play List Full.

- A maximum of 100 projects/files can be stored in a play list.

Please enter name.

- There is no project name (the name consists only of spaces).
→Please enter a valid project name (one or more alphabetical character, numeral, or symbol).

Protected Project.

- The operation cannot be executed because the project is protected.
→Turn off the project protect setting.

Project Name Error. Delete illegal folder.

- An identically named project/file already exists.
→Rename the project/file. Alternatively, use USB mode to delete the project/file and the directory of the same name.

Recorder Info: Cannot record at 1-bit via S/P DIF.

- If the input source is S/P DIF, you can't record in 1-bit format.

S/P DIF. Error: No Audio.

- An audio signal was detected when receiving S/P DIF.
→Transmit an S/P DIF audio signal.

S/P DIF. Error: Non PCM.

- When receiving S/P DIF, a non-linear PCM audio signal was detected.
→Transmit a non-linear PCM audio S/P DIF signal.

S/P DIF. Error: Parity.

- A parity error occurred while receiving S/P DIF.
→Make sure that the external device is correctly connected to the MR-2000S.
Make sure that the coaxial digital cable is not faulty.

S/P DIF Error: Unlock.

- Lock was lost when synchronized to S/P DIF.
→Make sure that the external device is correctly connected to the MR-2000S.
Make sure that the coaxial digital cable is not faulty.

S/P DIF Info: Sample Rate Changed.

- The sampling frequency was changed when synchronized to S/P DIF.

System File Error.

- The system file required for "SoftwareUpdate" does not exist, or the length of the file does not match.
→Check the system file and re-save it.

Warning: Rec Time Limit.

- The maximum continuous recording time is 6 hours. No further continuous recording is possible.

Warning: Bad fragmentation. Should be optimized.

- This message will appear when you enter record-ready mode if there is a possibility that the "Disk too busy." error might occur during recording because of insufficient contiguous free space on the hard disk.

Normally, a minimum of ten minutes of contiguous free space will be allocated if there is ten minutes or more free capacity; if there is less than ten minutes of free capacity, as much as exists will be allocated. It is not necessarily the case that the "Disk too busy." error will always occur if this warning appears, but we recommend that you take the following actions.

- Back up your important files, format the hard disk, and then restore your files back onto the hard disk. Alternatively, delete unneeded files to increase the amount of free space, and then connect the MR-2000S to your computer in USB mode and optimize the drive. It is effective to use software of a type that optimizes the free space.

Word Error: Unlock.

- Lock was lost when synchronized to S/P DIF.
 - Make sure that the external device is correctly connected to the MR-2000S.
 - Make sure that the coaxial digital cable is not faulty.

Word Info: Sample Rate Changed.

- The sampling frequency was changed when synchronized to S/P DIF.

Specifications

Operating conditions:+5 to +35 degrees Celsius or
41 to 95 degrees Fahrenheit

Main sections

Recorder section

- Number of tracks : 2 tracks
 - : 2 tracks simultaneous playback/
2 tracks simultaneous recording
- Recording formats: PCM audio format
 - BWF (extension .wav)
 - 44.1 kHz @ 16/24 bit,
 - 48 kHz @ 16/24 bit
 - 88.2 kHz @ 24 bit, 96 kHz @ 24 bit
 - 176.4 kHz @ 24 bit, 192 kHz @ 24 bit
 - : 1-bit audio format
 - 2.8 MHz @ 1-bit, 5.6 MHz @ 1-bit
 - DSDIFF format (extension .dff),
 - DSF (extension .dsf),
 - WSD (extension .wsd)
- Recording : Maximum approximately
120 hours at 44.1 kHz/16 bit –
approximately 14.5 hours at 5.6 MHz/
1- bit (for 80 Gbyte hard disk)

Confirmation messages

Info: #####

- This will appear if there is information to be conveyed to the user.
 - Press the enter button or the exit button to continue operations.

Warning: #####

- This will appear when there is a warning for the user.
 - Press the enter button or exit button, and remove the cause of the error.

Serious error messages

Fatal: #####

- This will appear if the MR-2000S itself has a problem or malfunction.
 - If this type of message appears, make a note of the text in "#####" and contact your local Korg distributor.

- Number : Maximum continuous recording 6 hours
- Number of projects : Recognizes a maximum of four hundred projects of each format
- Mark points : 100 points per project*No mark names
- USB functionality : Connect to computer via USB 2.0, usable as FAT32 USB external drive
- Project editing : Rename, Delete, Protect

General

- Display : 160 x 104 pixel, LCD with backlight
- Level meter : – 54 dB...+ 3 dB, L and R each provide 23-step LED + peak LED
- Power supply : AC100... 240 V
- Power consumption: 7 W
- Dimensions/Weight:
 - 482mm (W) x 220mm (D) x 45mm (H)
 - 16.6" (W) x 8.7" (D) x 1.8" (H)
 - 2.8kg/6.2 lbs (Including protrusions)

Main specifications

Frequency response: 10 Hz ... 20 kHz \pm 1 dB
 @ Fs 44.1 kHz / 48 kHz
 10 Hz ... 40 kHz \pm 1 dB
 @ Fs 88.2 kHz / 96 kHz /
 176.4 kHz / 192 kHz
 10 Hz ... 100 kHz (1-bit)

S/N : 103 dB (typical) @ IHF-A

THD+N : 0.005% (typical), 20 Hz ... 20 kHz

A/D conversion : 2.8224 MHz / 5.6448 MHz (1-bit),
24bit (PCM)

D/A conversion : 2.8224 MHz / 5.6448 MHz (1-bit),
24bit (PCM)

LINE IN L/R

XLR

Connector : XLR-3-31 type (balanced)

Input impedance : 22 k Ω

Nominal level : + 4 dBu (REC LEVEL=0dB)

Maximum level : + 24 dBu

RCA

Connector : RCA (Unbalanced)

Input impedance : 50k Ω

Nominal level (- 12 dBFS - 12 dB-SACD)
: - 6 dBV (REC LEVEL = 0 dB)

Maximum level : + 10 dBV

LINE OUT L/R

XLR

Connector : XLR-3-32 type (balanced)

Load impedance : 600 Ω or greater

Nominal level : + 4dBu

Included items:

AC power cable,
owner's manual (this document)
Install CD ("AudioGate" audio file
conversion application)

Demo Project

All Most Blues

The Wind and the Wheat performed by Phil Keaggy
copyright Phil Keaggy 2006
www.philkeaggy.com

Maximum level (0dBFS 0dB-SACD)

: - 16 dBu (Nominal level= -12dBFS)
- 18 dBu (Nominal level= -14dBFS)
- 20 dBu (Nominal level= -16dBFS)
- 22 dBu (Nominal level= -18dBFS)
- 24 dBu (Nominal level= -20dBFS)

RCA

Connector : RCA (Unbalanced)

Load impedance : 47 k Ω or greater /

Nominal level (- 12 dBFS - 12 dB-SACD)
: - 6 dBV

Maximum level (0 dBFS 0 dB-SACD)
: + 6dBV

PHONES

Connector : 1/4" stereo phone jack

Load impedance : 16 Ω or greater

Maximum level : 170 mW + 170 mW @ 32 Ω

S/P DIF IN/OUT (coaxial)

Connector : RCA pin

Format : IEC60958

WORD CLOCK IN/OUT

Connector : BNC receptacle, 75 Ω

USB

Connector : Type B

Format : USB 2.0 compliant,
USB mass storage class

Supported operating systems:

Windows 2000, or later Mac OS X
10.3.9 or later

* Appearance and specifications are subject to change without notice

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IMPORTANT NOTICE TO CONSUMERS

This product has been manufactured according to strict specifications and voltage requirements that are applicable in the country in which it is intended that this product should be used. If you have purchased this product via the internet, through mail order, and/or via a telephone sale, you must verify that this product is intended to be used in the country in which you reside.

WARNING: Use of this product in any country other than that for which it is intended could be dangerous and could invalidate the manufacturer's or distributor's warranty.

Please also retain your receipt as proof of purchase otherwise your product may be disqualified from the manufacturer's or distributor's warranty.

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