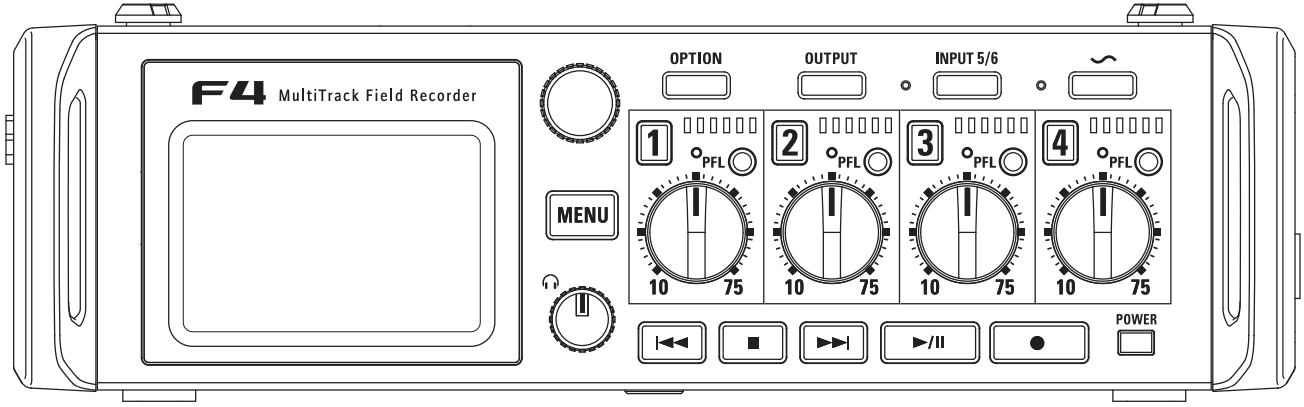
F4 MultiTrack Field Recorder

Operation Manual



Usage and Safety Precautions

Safety Precautions

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

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

Other symbols used

!	An action that is mandatory
⃠	An action that is prohibited

⚠ Warning

Operation with an AC adapter

- ! Never use any AC adapter other than a ZOOM AD-19.

Operation with an external DC power supply

- ! Use a 9V–16V external DC power supply.
- ! Carefully study the warning indications of the external DC power supply before use.

Operation with batteries

- ! Use 8 commercially-available 1.5V AA batteries (alkaline dry cell batteries, nickel metal hydride batteries or lithium dry cell batteries).
- ! Carefully study the warning indications of the batteries before use.
- ! Always keep the battery cover closed during use.

Alterations

- ⃠ Do not open the case or modify the product.

⚠ Caution

Product handling

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

Operating environment

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

AC adapter handling

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

Battery handling

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

Mic handling

- ! Always turn the power switch OFF before connecting a mic. Do not apply unnecessary force when connecting a mic.
- ! Attach the protective cap when no mic is connected for a long time.

Connection cables and input/output jacks

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

Volume

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

Usage Precautions

Interference with other electrical equipment

In consideration of safety, the F4 has been designed to minimize its emission of electromagnetic waves and to suppress interference from external electromagnetic waves. However, equipment that is very susceptible to interference or that emits powerful electromagnetic waves could result in interference if placed nearby. If this occurs, place the F4 and the other device farther apart.

With any type of electronic device that uses digital control, including the F4, electromagnetic interference could cause malfunction, corrupt or destroy data and result in other unexpected trouble. Always use caution.

Cleaning

Use a soft cloth to clean the exterior of the unit if it becomes dirty. If necessary, use a damp cloth that has been wrung out well to wipe it. Never use abrasive cleansers, wax or solvents such as alcohol, benzene or paint thinner.

Breakdown and malfunction

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

Copyrights

Note about the Auto Power Off function

The power will automatically turn off if unused for 10 hours. If you want the power to stay on always, see “Disabling the Auto Power Off function” on P.17 and turn the function OFF.

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

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

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

For EU Countries

CE Declaration of Conformity

Contents

Introduction

Thank you very much for purchasing a ZOOM F4 Multitrack Field Recorder. The F4 has the following features.

• 4 analog input channels with super-high-quality preamps
The two sets of lockable XLR/TRS combo jacks provide high-quality analog input with –127dBu or less EIN, +75dB maximum input gain and support for +4dB input.

• PCM recording at up to 192kHz/24-bit resolution

• Record up to 8 tracks at once
Inputs 1–6 and a stereo mix with left and right tracks can be recorded at the same time for a maximum of 8 total simultaneous recording tracks (even at 192kHz sampling rate).

• Dual channel recording allows a second file to be recorded simultaneously at a lower level (inputs 1–2)
By lowering the input level of dual channel recording, you can create backup recordings to use if unexpected loud noise should cause the regular recordings to distort, for example.

• Limiter with a new design suppresses distortion
10 dB of headroom prevents distortion even more than an ordinary limiter. A threshold can be set to keep the signal below that level.

• Supports SMPTE timecode input and output
The F4 uses a high-precision oscillator that enables the generation of accurate timecode with a discrepancy of less than 0.5 frames per 24 hours.

• Outputs include a powerful 100mW+100mW headphone jack and MAIN OUT 1/2 and SUB OUT 1/2 jacks
MAIN OUT 1/2 are XLR connectors. These outputs allow you to send audio signals to a video camera and other devices while monitoring with headphones.

• Support for return (RTN) input
Monitor the output of a DSLR camera without recording it with the F4.

• With flexible signal routing, mixer use is also possible
Prefader and postfader signals from inputs 1–6 can be routed to outputs freely.

• Phantom power (+24V/+48V) can be supplied
This can be turned on/off for each input separately.

• Two types of DC power supplies can be used
Both AA batteries and 9–16V DC power supplies can be used.

• Two SDXC card slots
Simultaneous recording to 2 SD cards is possible. In addition, SDXC card support enables recording for even longer times than before. Moreover, it can be used as a card reader by connecting to a computer using USB.

• Usable as a USB audio interface with up to 6 ins and 4 outs
The F4 can be used not only as a 2-in/2-out audio interface, but also as an 6-in/4-out audio interface (driver required for Windows).

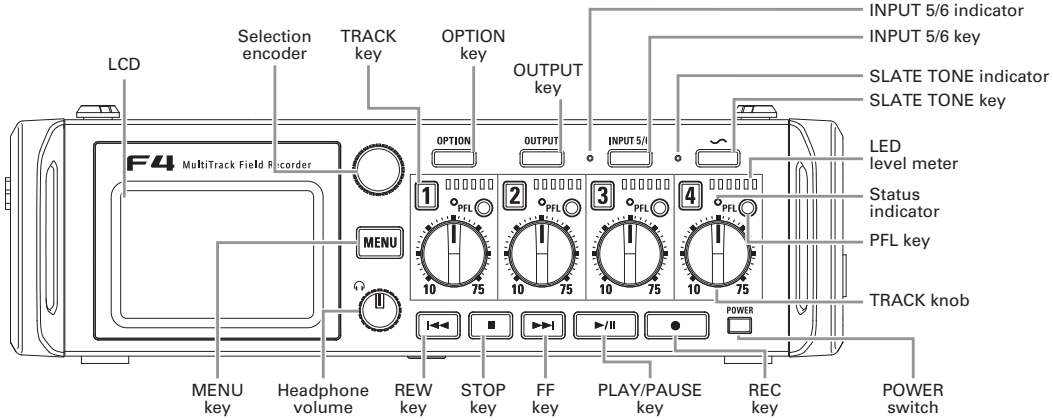
• Useful operation features
Other convenient functions include a slate tone that can be used to confirm a specific level, a delay that can be set for each input separately and pre-recording up to 6 seconds.

• ZOOM mic capsules can be connected
A ZOOM mic capsule can be used for Input 5/6.

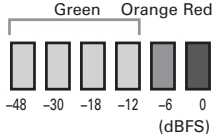
Please read this manual carefully to fully understand the functions of the F4 so that you can make the most of it for many years.
After reading this manual, please keep it with the warranty in a safe place.

Names of parts

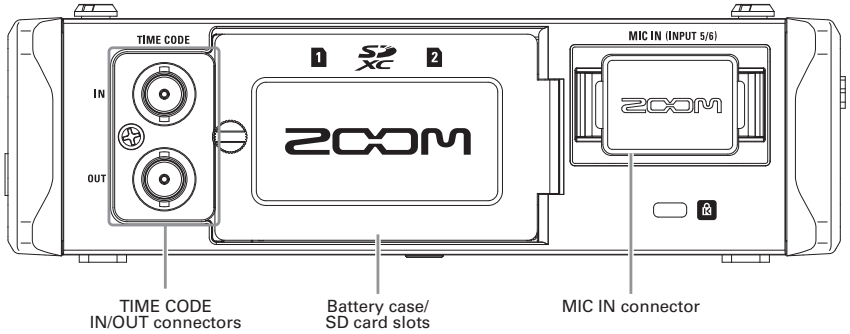
Front



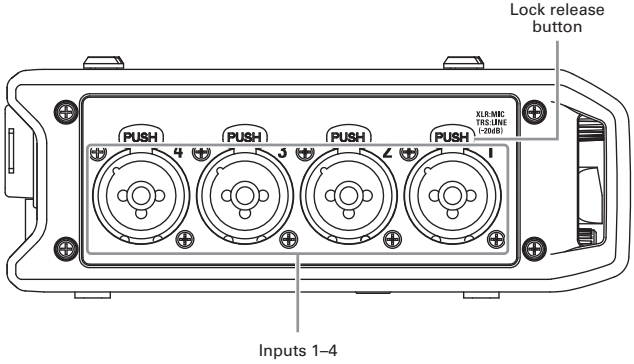
LED level meter



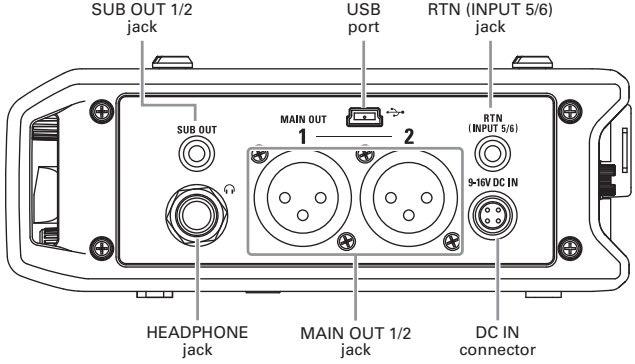
Back



Left side



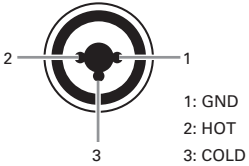
Right side



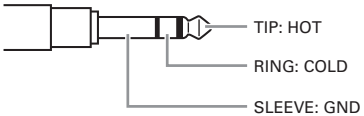
DC IN

HIROSE 4-pin

Inputs 1–4

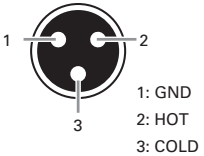


XLR



TRS

MAIN OUT 1/2



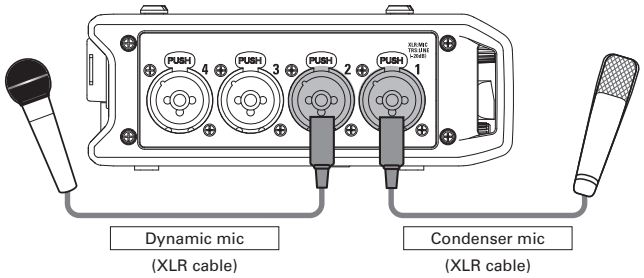
XLR

Connecting mics/other devices to Inputs 1–6

The F4 can record 6 individual tracks that correspond to Inputs 1–6 and a stereo mix of these inputs with left and right tracks for a total of 8 tracks.
You can connect mics, and the outputs of audiovisual equipment, for example, to Inputs 1–6 and record them to tracks 1–6. In addition, Input 5/6 also supports input from a mic capsule connected to the MIC IN connector.

Connecting mics

Connect dynamic and condenser mics with XLR plugs to Inputs 1–4.
Phantom power (+24V/+48V) can be supplied to condenser mics. (→ P.80)

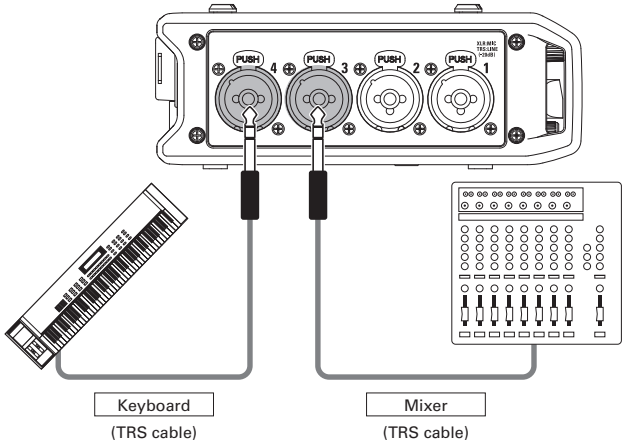


NOTE

When disconnecting a mic, pull the XLR plug while pushing the connector lock release button.

Connecting line level equipment

Connect the TRS plugs of keyboards and mixers directly to Inputs 1–4.
Direct input of passive guitars and basses is not supported. Connect these instruments through a mixer or effects device.



Connecting output from a camera

Use Input 5/6 when connecting output from a camera. Input 5/6 can be used as a return (RTN), enabling camera output to be monitored through the F4 without recording (→ P.88).

Connecting mic capsules

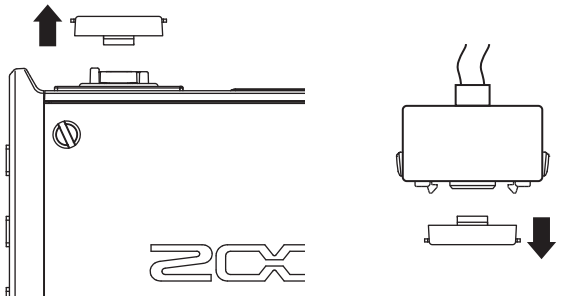
A mic capsule can be connected to the MIC IN connector on the back of the F4.

NOTE

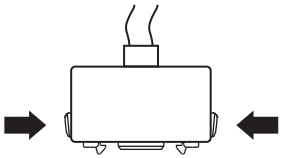
- The mic capsule input is assigned to tracks 5/6.
- When a mic capsule is connected, the RTN (INPUT 5/6) jack cannot be used.

Connecting and disconnecting mic capsules

1. Remove the protective caps from the F4 and the mic capsule or extension cable.



2. While pressing the buttons on the sides of the mic capsule or extension cable, connect it to the main unit, inserting it completely.



3. To disconnect the mic capsule or extension cable, pull it away from the main unit while pressing the buttons on its sides.

NOTE

- Do not use too much force when disconnecting. Doing so could damage the mic capsule or extension cable and the main unit.
- Attach the protective cap when no mic capsule will be connected for a long time.

Stereo input

By enabling the stereo link for tracks 1/2 or 3/4, the corresponding Inputs (1/2 or 3/4) can be handled as a stereo pair. (→ P.26)
When linked, Input 1 or 3 will be the left channel and Input 2 or 4 will be the right channel.

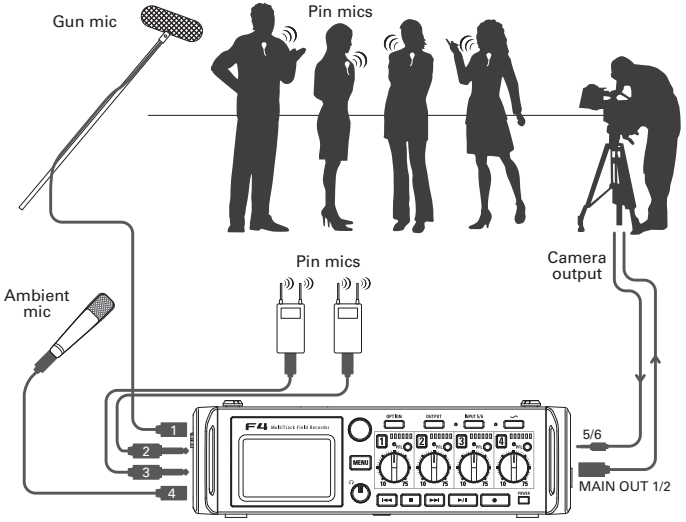
Connecting mics/other devices to Inputs 1–6 (continued)

Connection examples

Recording is possible in a variety of situations like these.

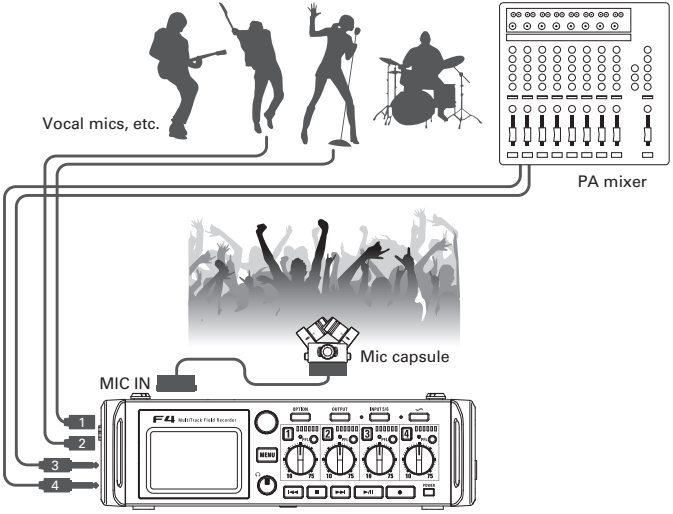
While filming

- Input 1: gun mic for main subject sound (XLR connection)
- Inputs 2–3: lapel mics for performers (TRS connections)
- Input 4: mic for ambient sound (XLR connection)
- RTN (Input 5/6): line input for camera output (stereo mini connection)



Concert recording

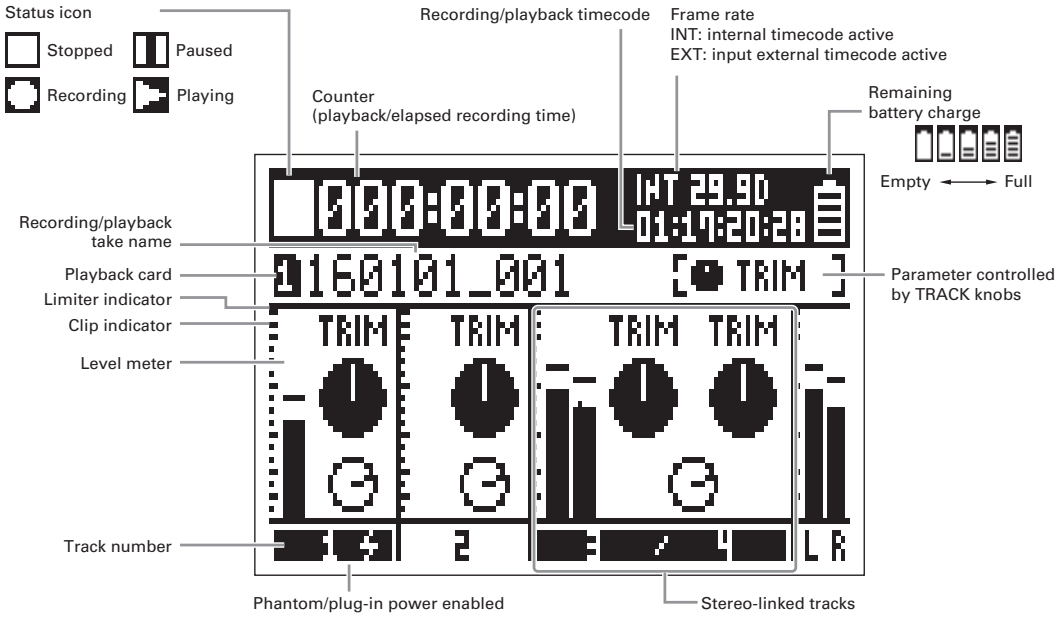
- Inputs 1–2: mics for stage performance (XLR connections)
- Inputs 3–4: Line inputs for outputs from mixer (TRS connections)
- Inputs 5–6: ZOOM mic capsule for audience voices (connected to MIC IN)



LCD display

Home Screen

▪ Mixer

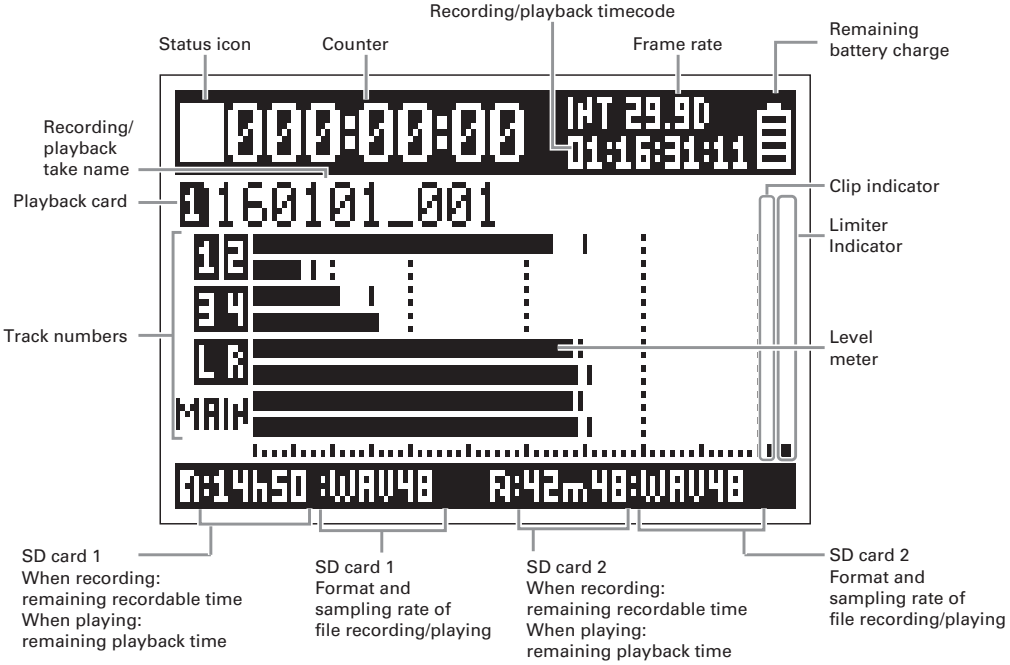


HINT

- Stereo-linked tracks are shown together like "3/4".
- When the Home Screen is not open, press and hold MENU to return to the Home Screen.

LCD display (continued)

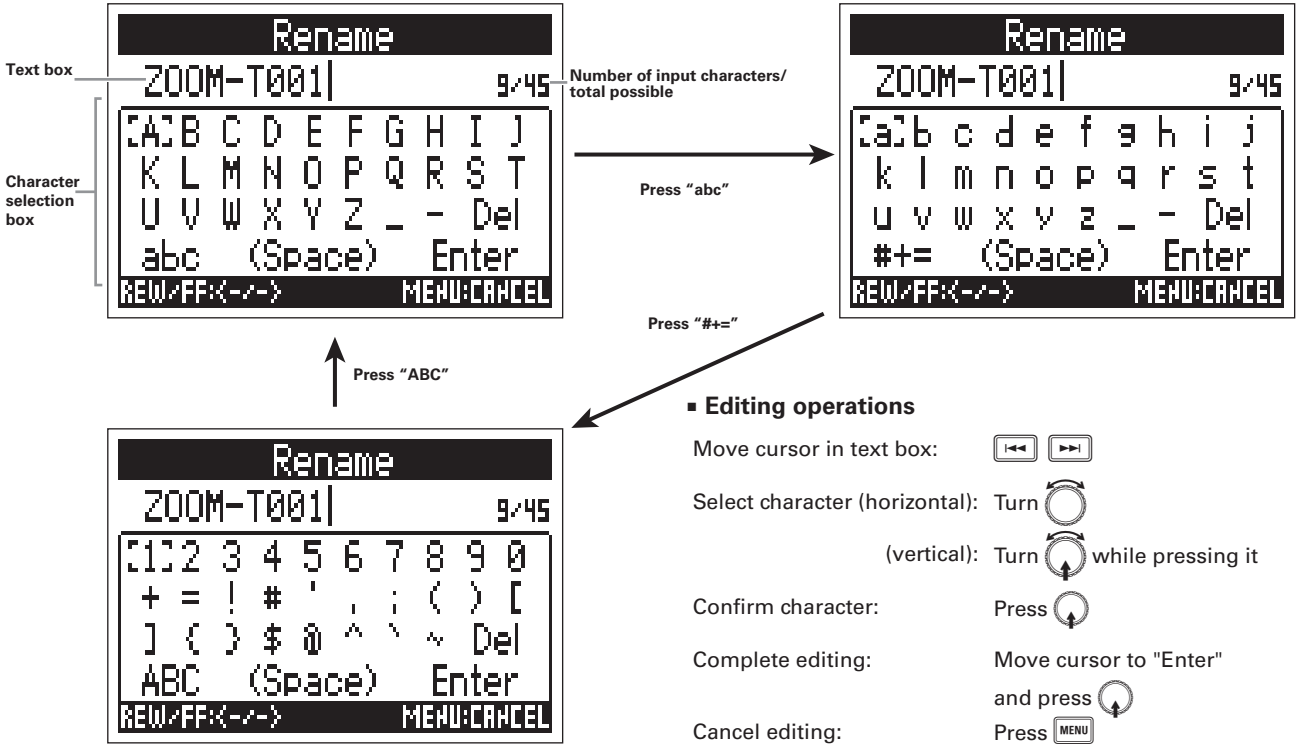
▪ Level meters



NOTE

Turn ◯ to switch between showing the mixer (Tracks 1–4) and a set level meter View 1–4 (→ P.135) on the display..

Character input screen



▪ Editing operations

Move cursor in text box: ⏮ ⏭

Select character (horizontal): Turn

(vertical): Turn while pressing it

Confirm character: Press

Complete editing: Move cursor to "Enter" and press

Cancel editing: Press MENU

NOTE

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

HINT

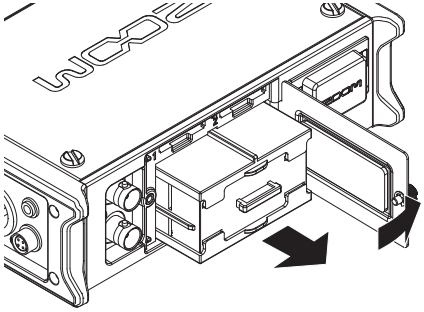
- Press ■ + ⏮ to delete the previous character.
- Press ■ + ⏭ to move the cursor to "Enter".

Supplying power

Using AA batteries

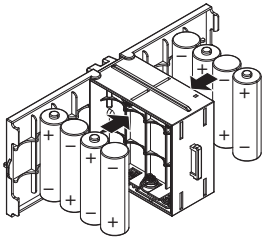
1. **Turn the power off and then loosen the screw to open the battery compartment cover.**

2. **Remove the battery case from the battery slot.**



3. **Open the battery case cover.**

4. **Install the batteries.**



5. **Close the battery case cover.**

6. **Load the battery case.**

NOTE

Load the case so that the side with the protruding rail is up.

7. **Close the battery compartment cover and tighten the screw.**

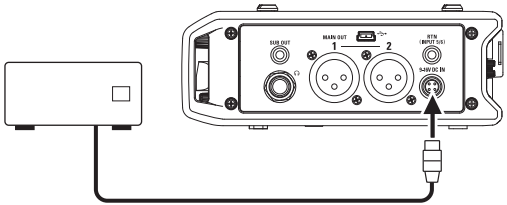
NOTE

- Be careful because the battery case could become loose unexpectedly if the battery compartment cover screw is not tightened firmly.
- Use only one type of batteries (alkaline, NiMH or lithium) at a time.
- After loading batteries, set "Power Source" to the correct type of battery. (→ P.20)
- If the remaining battery power indicator becomes empty, turn the power off immediately and install new batteries.

Using a DC power supply

1. Connect the DC power supply device to the [DC IN] connector.

Connect a 9–16V direct-current power supply.



2. If using an adapter, plug it into an outlet.

NOTE

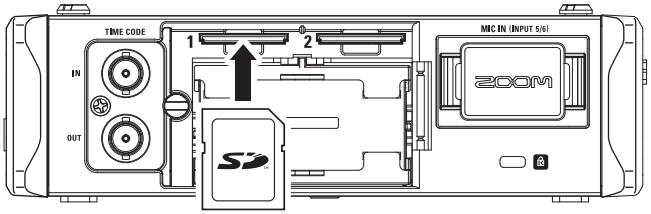
- When connecting a DC power supply, be sure to make the power supply settings. (→ P.20)

Loading SD cards

1. Turn the power off and then open the SD card slot cover.

2. Insert the SD card into SD CARD slot 1 or 2.

To eject an SD card:
Push the card further into the slot and then pull it out.



NOTE

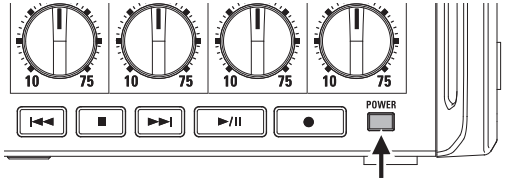
- Always turn the power off before inserting or removing an SD card.
  Inserting or removing a card while the power is on could result in data loss.
- When inserting an SD card, be sure to insert the correct end with the top side up as shown.
- If an SD card is not loaded, recording and playback are not possible.
- To format an SD card, see P.144.

Turning the power on and off

Turning the power on

1. Press and hold POWER briefly.

The POWER LED will light.



NOTE

- The first time you turn the power on after purchase, you must set the date/time (→ P.18). You can also change this setting later.
- If "No Card!" appears on the display, confirm that an SD card is inserted properly.
- If "Protected!" appears on the display, the SD card write-protection is enabled. Slide the lock switch on the SD card to disable write-protection.
- If "Invalid Card!" appears on the display, the card is not formatted correctly . Format the card or use a different card. To format an SD card, see P.144

Turning the power off

1. Press and hold POWER briefly.

NOTE

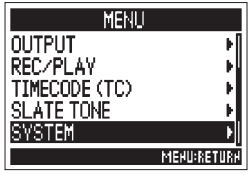
Keep pressing it until the ZOOM logo appears on the LCD.

Disabling the Auto Power Off function

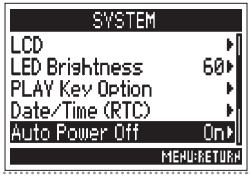
The power will automatically turn off if the F4 is unused for 10 hours. If you want the power to stay on always, disable the automatic power saving function.

1. Press MENU.

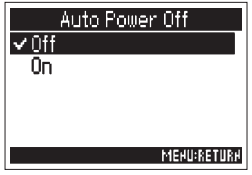
2. Use the dial to select SYSTEM, and press the dial.



3. Use the dial to select Auto Power Off, and press the dial.



4. Use the dial to select Off, and press the dial.

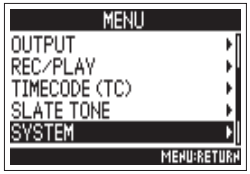


Setting the date and time (Date/Time (RTC))

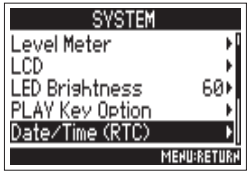
The date and time set on the F4 are used when recording files, for example.
You can set the date format (order of year, month and day).

1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select Date/Time (RTC), and press ◯.**



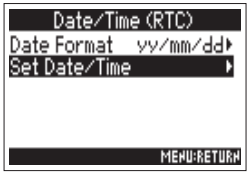
▶ Continue to one of the following procedures.

Setting the date and time P.18
Setting the date format P.19

Note: The first time you turn the power on after purchase, you must set the date/time.

Setting the date and time

4. **Use ◯ to select Set Date/Time, and press ◯.**



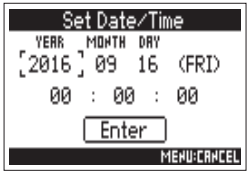
5. **Change the setting.**

▪ Changing settings

Move cursor or change value:

Turn ◯

Select item to change: Press ◯



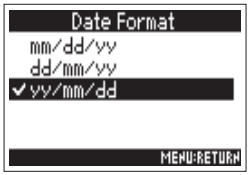
6. **Use to select Enter, and press .**

This completes setting the date and time.

Setting the date format

4. **Use to select Data Format, and press .**

5. **Use to select the format, and press .**



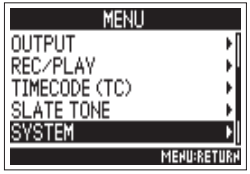
Setting value	Explanation
mm/dd/yy	Month, day, year order
dd/mm/yy	Day, month, year order
yy/mm/dd	Year, month, day order

Setting the power supply used (Power Source)

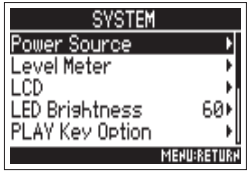
Set the DC power supply shutdown voltage, nominal voltage and type of batteries so that the remaining power supply charge can be shown accurately.
On this menu page, you can check the voltage of each power supply and the remaining battery capacity.

1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select Power Source, and press ◯.**



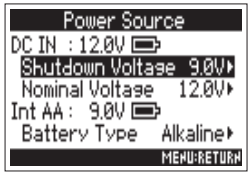
▶ Continue to one of the following procedures.

Setting the DC power supply (DC IN) shutdown voltage P.20
Setting the DC power supply (DC IN) nominal voltage P.21
Setting the type of AA batteries (Int AA) P.21

Setting the DC power supply (DC IN) shutdown voltage

If the voltage becomes less than the value set here when using a DC power supply, the F4 will automatically stop recording and turn off.
If AA batteries (Int AA) are installed, however, the power supply will switch to them and operation will continue.

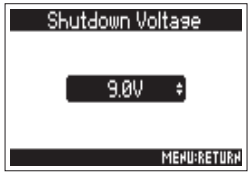
4. **Use ◯ to select Shutdown Voltage, and press ◯.**



HINT

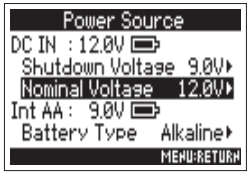
- The shutdown voltage is the voltage level that the external DC power supply runs out and can no longer supply power.
- See the DC power supply manual for the shutdown voltage value.

5. **Use ◯ to select the voltage, and press MENU.**

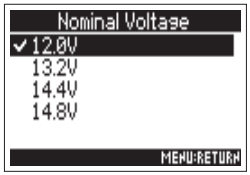


Setting the DC power supply (DC IN) nominal voltage

4. **Use to select Nominal Voltage, and press .**



5. **Use to select the voltage, and press .**

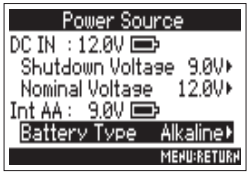


HINT

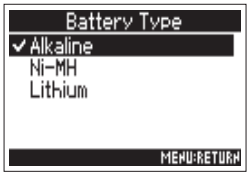
- The nominal voltage is the voltage of the DC power supply under normal conditions. This value should be indicated on the exterior of the DC power supply.

Setting the type of AA batteries (Int AA)

4. **Use to select Battery Type, and press .**



5. **Use to select the type, and press .**

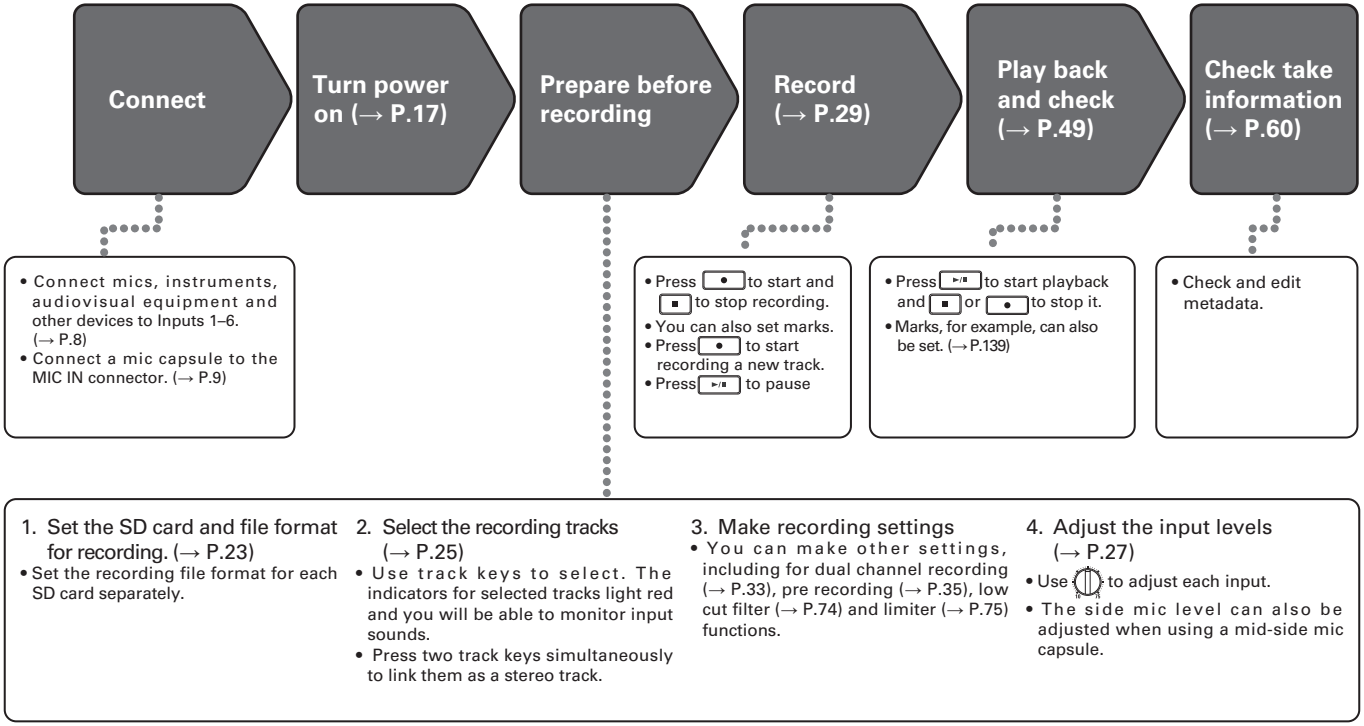


NOTE

- When multiple power supplies are connected, they will be used in the following order of priority.
  1. DC power supply (DC IN)
  2. AA batteries (Int AA)
- The voltages of each power supply are shown on the display.

Recording process

Follow the process below to record with the F4.
The data created for each recording occurrence is called a "take".



Setting the SD card used for recording and recording file format

The recording file format can be set independently for SD card slots 1 and 2.

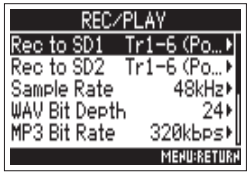
HINT

- By using the same settings for both card slots, recording the same contents to two cards is possible. This function can be used to create a backup in case the sound skips on one card, for example.
- You can also record tracks 1–6 unmixed on one SD card, while recording all tracks mixed together as MP3 data with left and right tracks on the other SD card.

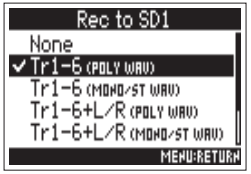
1. **Press MENU.**

2. **Use to select REC/PLAY, and press .**

3. **Use to select Rec to SD1 or Rec to SD2, and press .**



4. **Use to select the file type, and press .**



Setting value	Tracks recorded	Explanation
None	–	Nothing will be recorded on the SD cards.
Tr1-6 (POLY WAV)	Selected tracks 1-6	A single poly file will be created that contains audio for multiple tracks.
Tr1-6 (MONO/ST WAV)		A single mono file is created for each mono track and a single stereo file is created for each stereo track.
Tr1-6 + L/R (POLY WAV)	All selected tracks	A single poly file will be created that contains audio for multiple tracks.
Tr1-6 + L/R (MONO/ST WAV)		A single mono file is created for each mono track and a single stereo file is created for each stereo track.
L/R (STEREO WAV)	L/R tracks	A stereo file is created based on the mix created by the internal mixer.
L/R (STEREO MP3)		

Setting the SD card used for recording and recording file format (continued)

NOTE

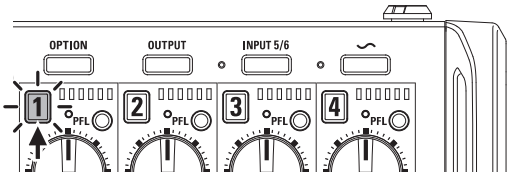
- When recording with a MONO/ST WAV setting, the audio files are saved in a folder that is created. (→ P.37)
- When recording to 2 cards simultaneously, files will be saved in the same folder as the card set for recording and playback. Folders will be created automatically if they do not already exist.
- If recording should stop on one SD card because it runs out of space, for example, recording will continue on the other SD card. At such times, do not remove the card that has stopped recording from the slot. Doing so could damage the card or data.

Selecting inputs

You can select which among Inputs 1–6 to use.
Inputs will be recorded on tracks with the same numbers. For example, Input 1 will be recorded on track 1 and Input 2 will be recorded on track 2.

Selecting inputs

1. **Press the track key with the same number as the input you want to record, making the track indicator light.**



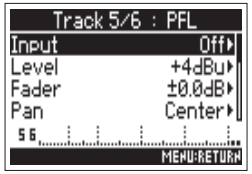
NOTE

The signals from the inputs selected this way will also be sent to the L/R tracks.

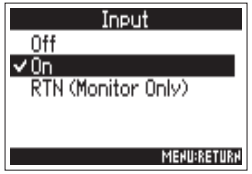
Selecting Input 5/6

1. **Press** INPUT 5/6.

2. **Use** ◯ **to select INPUT, and press** ◯.



3. **Use** ◯ **to select ON, and press** ◯.



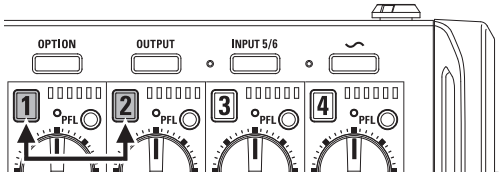
HINT

- INPUT 5/6 can be used as a return (RTN) so you can monitor the input by headphones. (→ P.88)
- You can also press and hold [INPUT 5/6] to turn it On/Off.

Selecting inputs (continued)

Linking inputs as a stereo pair

1. **While pressing track key [1], press track key [2].**



Tracks 1 and 2 will be joined as a stereo track (stereo link).
Repeat the same procedure to disable the stereo link.

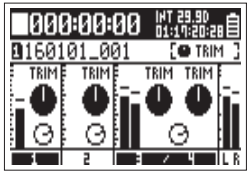
HINT

- The 3/4 track pair can also be stereo linked in the same way.
- When a mic capsule that allows independent L and R input selection is connected, stereo-linking can also be enabled and disabled for their tracks.
- Tracks 5 and 6 are always stereo linked.

Adjusting the input levels and monitoring balance

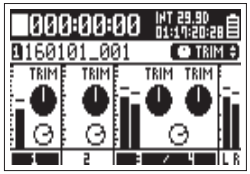
You can adjust the input levels (TRIM) and monitoring levels (FADER) of each track.

1. **Open the mixer on the Home Screen. (→ P.11)**



2. **Press .**

3. **Use to select the parameter you want to adjust, and press .**

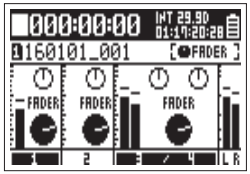


HINT

You can select TRIM or FADER.

4. **Use for the track you want to adjust to change the parameter value.**

The selected parameter value changes in response to the operation of .



HINT

The position of the knob on the display always shows the current setting.

NOTE

After changing the parameter be adjusted, for example, if the positions of and the knob on the display are different, moving will not affect that setting.

In this case, if you adjust to match the position of the knob on the display, the display knob and will be relinked, and you will be able to use it to adjust the setting value again.

Parameter	Setting range	Explanation
TRIM	Input connected using XLR plug (Mic): +10–+75 dB Input connected using TRS plug (Line): –10–+55 dB	This adjusts the input level.
FADER	Mute, –48.0 – +12.0 dB	This adjusts the monitoring level.

NOTE

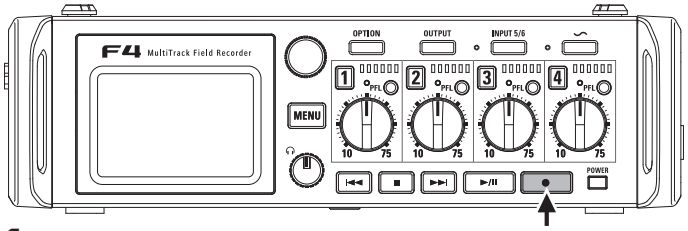
- These monitoring level settings only affect the output signals. They have no effect on recorded data.
- Monitoring level settings are saved separately for each take. They can be changed during playback. (→ P.50)
- Mix settings are not saved with the take when the recorded file format is MP3.

Adjusting the input levels and monitoring balance (continued)

HINT

- If the sound distorts even when you lower the input level, try changing mic positions and adjusting the output levels of connected devices.
- You can set the standard input level for INPUT (5/6) in advance.
- Press OPTION + PFL (Track 1) to disable adjustment of input levels by turning  for all tracks.
- Press OPTION + PFL (Track 1) again to cancel this.
- Set PAN values on the PFL screen.

Recording



1. **Press ●.**

This starts recording.

HINT

If the timecode function is enabled, recording will start from frame 00 (00 or 02 when using drop frame) and the file length will always be a full second value. This makes synchronization easy when editing later.

2. **Press ● to start a new take while recording.**

This will end the current take and start a new take while continuing to record without interruption.

NOTE

Pressing ● during recording only functions after recording for at least a second.

3. **Press ►/II to pause.**

NOTE

- Pausing will actually occur at a whole second increment.
- When recording is paused, a mark is added at that point. Press ►/II to resume recording.
- A maximum of 99 marks can be added to a take.

HINT

- During playback, you can use |◄◄ and ►►| to jump to places where marks have been added.
- You can also add marks without pausing. (→ P.139)

4. **Press ■ to stop.**

NOTE

- If the maximum file size is exceeded during recording (→ P.36), recording will continue in a new take with a number that is one higher. No gap in sound will occur between the two takes when this happens.
- When recording on two SD cards simultaneously, if recording should stop on one because it runs out of space, recording will continue on the other SD card without interruption.

HINT

- Press and hold ■ when the Home Screen is open to check the name and track of the next take recorded.
- Files are automatically saved at regular intervals during recording. Even if the power is interrupted or another problem occurs during recording, an affected file can be restored to normal by playing it with the F4.

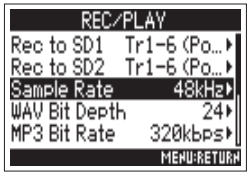
Setting the sampling rate (Sample Rate)

You can set the sampling rate used to record files.

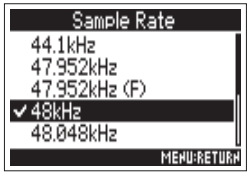
1. **Press MENU.**

2. **Use ◯ to select REC/PLAY, and press ◯.**

3. **Use ◯ to select Sample Rate, and press ◯.**



4. **Use ◯ to select the sampling rate, and press ◯.**



Setting value	Explanation
44.1kHz, 48kHz, 88.2kHz, 96kHz, 192kHz	These are standard sampling rates.
47.952kHz	Select this when recording video at 23.976 frames per second if you want to edit at 24 frames per second later.
48.048kHz	Select this when recording video at 24 frames per second if you want to edit at NTSC 29.97 or 23.98 HD later.
47.952kHz(F), 48.048kHz(F)	These function the same as the two above, but the sampling rate metadata will be recorded as 48kHz for <FILE_SAMPLE_RATE>. This enables playback and editing with devices and software that do not support 47.952kHz and 48.048kHz WAV files. Playback, however, will occur at the ±0.1% speed at which the file was recorded.

NOTE

- When the recording file format is MP3, only 44.1kHz and 48kHz can be selected.
- When 192kHz is selected, Input Delay and Output Delay are disabled.

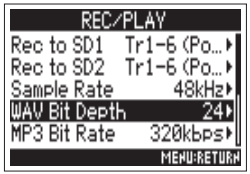
Setting WAV file bit depth (WAV Bit Depth)

You can set the bit depth of WAV files.

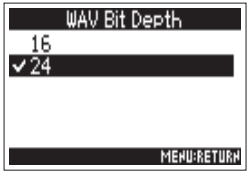
1. **Press MENU.**

2. **Use ◯ to select REC/PLAY, and press ◯.**

3. **Use ◯ to select WAV Bit Depth, and press ◯.**



4. **Use ◯ to select the bit depth, and press ◯.**



HINT

This can be set to 16-bit or 24-bit.

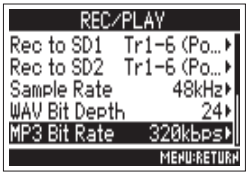
Setting MP3 file bit depth (MP3 Bit Rate)

You can set the bit rate of recorded MP3 files.

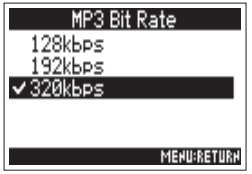
1. **Press MENU.**

2. **Use ◯ to select REC/PLAY, and press ◯.**

3. **Use ◯ to select MP3 Bit Rate, and press ◯.**



4. **Use ◯ to select the bit rate, and press ◯.**



HINT

This can be set to 128 kbps, 192 kbps or 320 kbps.

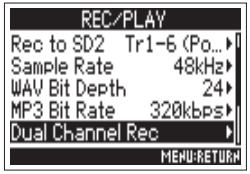
Recording two tracks at different levels (Dual Channel Rec)

In addition to the regular recording, the F4 can record another recording adjusted to a different input level (dual channel recording).
For example, by using dual channel recording to record at an input level 12 dB below the regular recording, you can prepare a replacement if the regular recording distorts because the track level is too high.
Dual channel recording can be used with tracks 1–2.

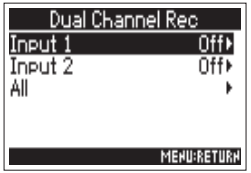
1. **Press MENU.**

2. **Use ◯ to select REC/PLAY, and press ◯.**

3. **Use ◯ to select Dual Channel Rec, and press ◯.**

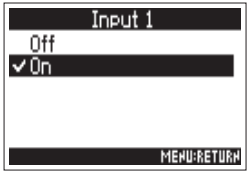


4. **Use ◯ to select the track, and press ◯.**



5. **Use ◯ to select On, and press ◯.**

When dual channel recording is On, the name of the corresponding second track (3 or 4) changes.



Recording two tracks at different levels (Dual Channel Rec) (continued)

6. Turn  for the dual channel recording track to adjust the input level.

See "Adjusting the input levels and monitoring balance" (→ P.27) for how to adjust input levels.

When Track 1 is selected, use  for Track 3 to adjust.

HINT

Dual channel recording increases the amount of space used on SD cards.

NOTE

- When using dual channel recording, the track that is numbered 2 higher than the original track is used for the second recording. For example, track 3 is used for the dual channel recording of track 1 and track 4 is used for track 2. Dual channel recording tracks cannot be used independently.
- When dual channel recording is enabled, if stereo-linking is enabled or disabled for tracks 1/2, the same setting will be applied to tracks 3/4.
- The limiter, high pass filter and other functions can be set independently for the regular and dual recording tracks.

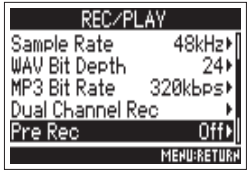
Capturing audio before recording starts (Pre Rec)

The input signal is always buffered for a set amount of time, so it can be captured for up to 6 seconds before [●] is pushed (pre-recording). This is useful when [●] is pressed late, for example.

1. **Press [MENU].**

2. **Use the jog dial to select REC/PLAY, and press the jog dial.**

3. **Use the jog dial to select Pre Rec, and press the jog dial.**



4. **Use the jog dial to select On, and press the jog dial.**

The maximum pre-recording time depends on the file format and sampling rate used.

File format	Sampling rate	Maximum pre-recording time
WAV	44.1kHz	6 seconds
	47.952kHz	6 seconds
	47.952kHz(F)	6 seconds
	48kHz	6 seconds
	48.048kHz	6 seconds
	48.048kHz(F)	6 seconds
	88.2kHz	3 seconds
	96kHz	3 seconds
	192kHz	1 second
MP3	44.1kHz	6 seconds
	48kHz	6 seconds

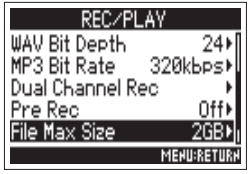
Setting the maximum file size (File Max Size)

The maximum size of recording files can be set. If a recording file exceeds the maximum file size, recording will continue in a new take with a number that is one higher. No gap in sound will occur between the two takes when this happens.

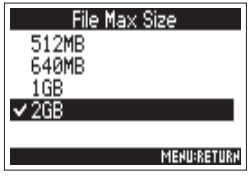
1. **Press MENU.**

2. **Use ◯ to select REC/PLAY, and press ◯.**

3. **Use ◯ to select File Max Size, and press ◯.**



4. **Use ◯ to select the maximum size of recording files, and press ◯.**



HINT

Setting the maximum size to 640MB or 512MB is convenient for backing up to CDs.

Folder and file structure

When recording with the F4, folders and files are created on SD cards in the following manner.
Folders and files on the F4 are used to manage scenes and takes as a rule.

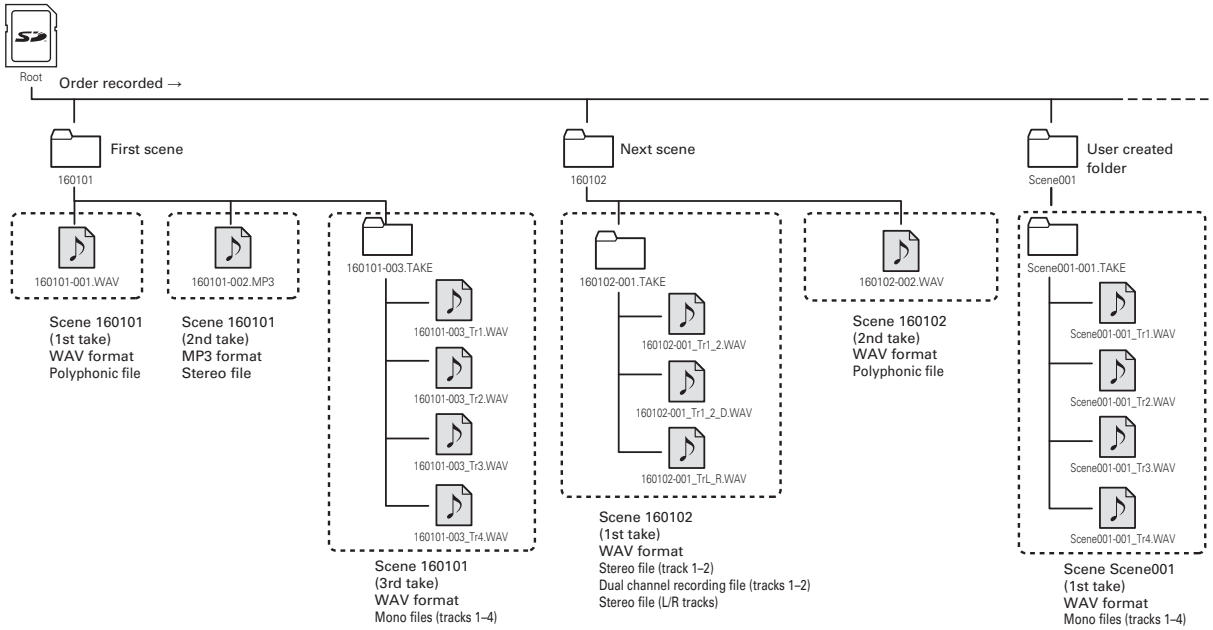
The folder and file structure differs according to the recording file format. In addition, the names of folders and files depend on how scenes are named.

HINT

Take: This is a unit of data created for a single recording.
Scene: This is a unit containing multiple files and takes that comprise a single scene.

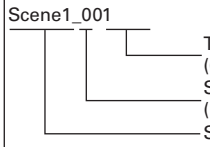
NOTE

- Setting the SD card used for recording and recording file format (→ P.23)
- Setting how scenes are named (mode) (→ P.42)



Folder and file structure (continued)

Take names

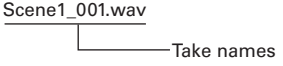
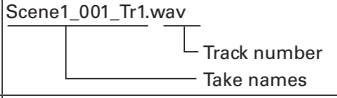
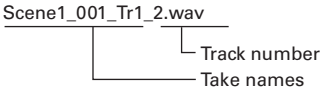
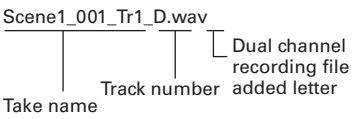
Structure	Explanation
	Scene name: Select none, the folder name, the date or a name input by the user (→ P.42). Scene number: Press ■ + ⏭ to advance the number by one. Take number: This number increases by 1 with each recording made with the same scene name and scene number.

Audio file name

File names given by the F4 differ according to polyphonic, mono and stereo file formats. Track numbers and other data are added to file names.

File names

File names are given according in the following formats.

Type	Structure	Explanation
Poly file		This is a file created by polyphonic recording. Audio for multiple tracks is recorded to a single file.
Mono file		This is a file created by monophonic recording.
Stereo file		This is a file created by stereophonic recording.
Dual channel recording file		This is a file created by dual channel recording.

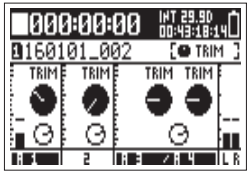
HINT

When recording with a MONO/ST WAV setting, the audio files are saved in a take folder that is created.

Moving the previously recorded take to the FALSE TAKE folder

If the just recorded take was a failure, you can use a shortcut to move the recording to the FALSE TAKE folder.

1. **Open the Home Screen.**



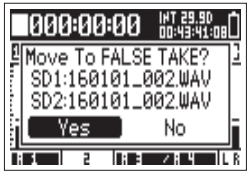
2. **Press and hold** ⏮.

HINT

- Moving a take to the FALSE TAKE folder reduces the take number by one.
- You can move the previously recorded take to the FALSE TAKE folder even during recording.

3. **Use** ◯ **to select "Yes",**

and press ◯.



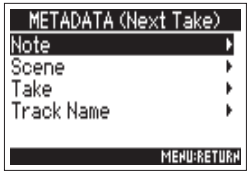
Changing the note for the next take recorded (Note)

You can input characters for a note to use as metadata in the file.

1. **Press MENU.**

2. **Use ◯ to select METADATA (Next Take), and press ◯.**

3. **Use ◯ to select Note, and press ◯.**



▶ Continue to one of the following procedures.

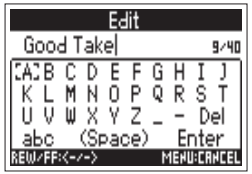
Editing notes P.40
Selecting notes from the history list P.41

Editing notes

4. **Use ◯ to select Edit, and press ◯.**

5. **Edit the note.**

See "Character input screen" (→ P.13) for how to input characters.

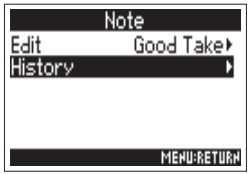


NOTE

This note is written to the <NOTE> metadata.

Selecting notes from the history list

4. **Use to select History, and press .**



5. **Use to select the History item to use, and press .**

NOTE

The history list will be erased if the Factory Reset function is used.

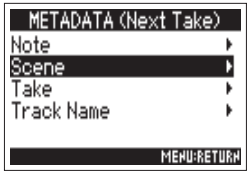
Setting how recorded scenes are named and numbered (Scene)

You can set how scenes are named (name mode), the base scene name and how scene numbers advance.

1. **Press MENU.**

2. **Use ◯ to select METADATA (Next Take), and press ◯.**

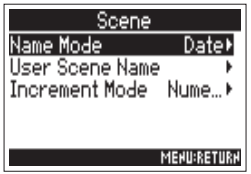
3. **Use ◯ to select Scene, and press ◯.**



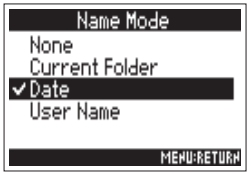
▶ Continue to one of the following procedures.

Setting how scenes are named (mode)

4. **Use ◯ to select Name Mode, and press ◯.**



5. **Use ◯ to select the mode, and press ◯.**

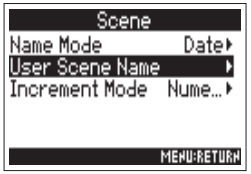


Setting value	Explanation
None	The scene name and number are not used. When recording files are created, they are named only with the take number, such as "001", "002", "003" and so on. [■] + [⏭] cannot be used to advance the scene number by one. Example: 001.wav
Current Folder	The name of the currently selected folder is used as the scene name. [■] + [⏭] can be used to advance the scene number by one. After advancing the scene number by 1, the corresponding folder will be used as the recording destination. If that folder does not already exist, it will be created. Example: Folder001_001.wav
Date	The date is used as the scene name. [■] + [⏭] cannot be used to advance the scene number by one. If recording occurs after the date changes, a scene folder with the date will be created. Example: 20160101_001.wav
User Name	A scene name input by the user is used. [■] + [⏭] can be used to advance the scene number by one. No folder is created in this case. Example: MYSCENE001_001.wav

Editing the scene name

If Scene Name Mode is set to User Name (→ P.42), the scene name edited here is used.

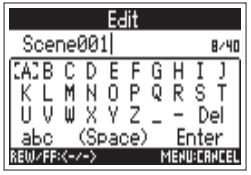
4. **Use to select User Scene Name, and press .**



5. **Use to select Edit, and press .**

6. **Changing scene names**

See "Character input screen" (→ P.13) for how to input characters.



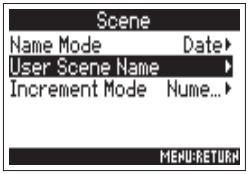
NOTE

The scene name is written to the <SCENE> metadata.
You cannot put a space or an @ mark at the beginning of the name.

Setting how recorded scenes are named and numbered (Scene) (continued)

Selecting a scene name from the history list

4. **Use to select User Scene Name, and press.**



5. **Use to select History, and press.**

6. **Use to select the History item to use, and press.**

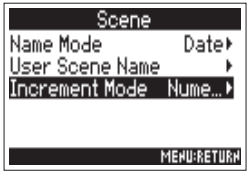
NOTE

The history list will be erased if the Factory Reset function is used.

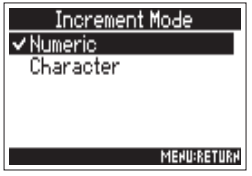
Setting how scene numbers advance (Scene Increment Mode)

On the Home Screen, [■] + [►►|] can be used to advance the scene number by one. Set how this number advances.

4. **Use to select Increment Mode, and press.**



5. **Use to select how scene numbers advance, and press.**



Setting value	Explanation
Numeric	Press [■] + [►►|] on the Home Screen to increase the scene number by one. Example: Scene → Scene1 → Scene2 → ... → Scene9999
Character	Press [■] + [►►|] on the Home Screen to advance the capital letter at the end of the scene name by one. If the scene name does not have a capital letter at its end, one will be added. Example: Scene1 → Scene1A → Scene1B → ... → Scene1Z → Scene1AA → Scene1AB → ...

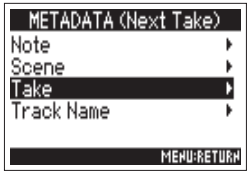
Setting the take reset condition and numbering format (Take)

You can set the take number reset condition and take number format used when recording.

1. **Press MENU.**

2. **Use ◯ to select METADATA (Next Take), and press ◯.**

3. **Use ◯ to select Take, and press ◯.**

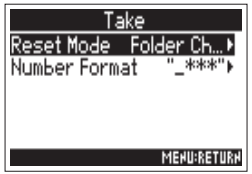


▶ Continue to one of the following procedures.

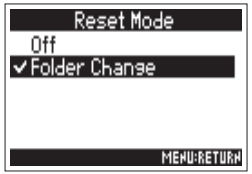
Setting the take number reset condition P.45
Setting the take number format P.46

Setting the take number reset condition

4. **Use ◯ to select Reset Mode, and press ◯.**



5. **Use ◯ to select the reset mode, and press ◯.**



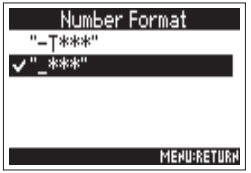
Setting value	Explanation
Off	The take number will not be reset. However, if the folder is changed and that folder contains a number higher than the current take number, the take number will be set to one higher than the highest existing take number.
Folder Change	If the destination folder is changed, the take number will be set to one higher than the highest take number in that folder.

Setting the take reset condition and numbering format (Take) (continued)

Setting the take number format

4. Use to select Number Format, and press .

5. Use to select the format, and press .



Setting value	Take formats
"-T***"	"Scene"-T*** (Take number / Scene name) Example: Scene001-T001
"_***"	"Scene"-T*** (Take number / Scene name) Example: Scene001_001

Changing the track name of the next take recorded (Track Name)

The track name set with the following procedure will be given to the next recorded track.

1. **Press MENU.**

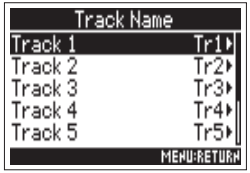
2. **Use ◯ to select METADATA (Next Take), and press ◯.**

3. **Use ◯ to select Track Name, and press ◯.**

HINT

On the Home Screen, ■ + 3 can be used to open the Track Name screen.

4. **Use ◯ to select the track, and press ◯.**



▶ Continue to one of the following procedures.

Editing the track name..... P.48
Selecting a track name from the History list P.48

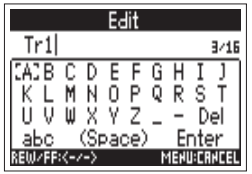
Changing the track name of the next take recorded (Track Name) (continued)

Editing the track name

5. **Use to select Edit, and press .**

6. **Edit the track name.**

See "Character input screen" (→ P.13) for how to input characters.



NOTE

The track name is written to the <TRACK> <NAME> metadata.

Selecting a track name from the history list

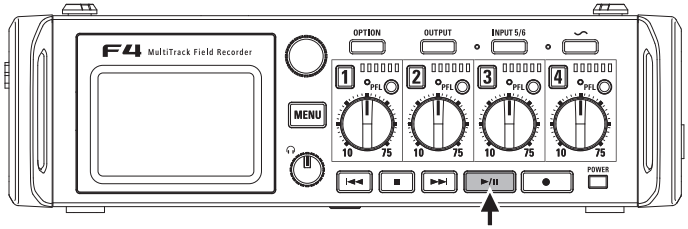
5. **Use to select History, and press .**

6. **Use to select the History item to use, and press .**

NOTE

The history list will be erased if the Factory Reset function is used.

Playing recordings



1. Press ►/II.

▪ Playback operations

Select playback take or jump to mark: Press ⏮ or ⏭

Search backward/forward: Press and hold ⏮/⏭

Pause/resume playback: Press ►/II

NOTE

- If a track has no playback file, no track number is shown for it.
- If 1-6 and L/R have playback tracks, the L/R tracks will not be played.

HINT

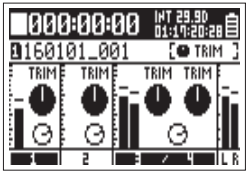
- The longer you press and hold ⏮ or ⏭, the faster the speed of searching backward/forward.
- During playback, press track keys to switch between playing back (lit green) and muted (unlit).
- An "Invalid Take!" message will appear if the selected take is not valid.
- A "No Take!" message will appear if no playable take exists.
- During playback, you can press ►/II to add a mark that can be used for skipping. (→ P.140)

2. Press ■ to return to the Home Screen.

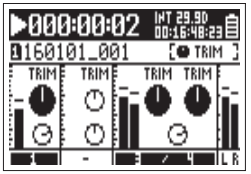
Mixing takes

You can change the volume and panning of each track during playback.

1. **Open the mixer on the Home Screen. (→ P.11)**



2. **Press ►/II to start playback.**



3. **Adjust the parameter settings.**

See "Adjusting the input levels and monitoring balance" (→ P.27) for how to change settings.

NOTE

- Settings are saved separately for each take and are used during playback.
- Mix settings are not saved with the take when the format is MP3.

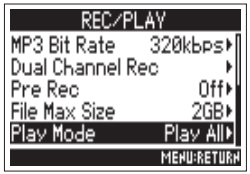
Changing the playback mode (Play Mode)

You can change the playback mode.

1. **Press MENU.**

2. **Use to select REC/PLAY, and press .**

3. **Use to select Play Mode, and press .**



4. **Use to select the play mode, and press .**

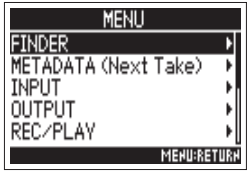
Setting value	Explanation
Play One (single playback)	Only the selected track will be played.
Play All (all playback)	Tracks will be played back continuously from the selected take until the last take.
Repeat One (single repeat playback)	The selected track will be played repeatedly.
Repeat All (all repeat playback)	All takes in the selected folder will be played repeatedly.

Take and folder operations (Finder)

The Finder allows you to view the contents of SD cards, takes and folders and create folders. It also allows you to set and delete recording/playback folders and view their information, for example.

1. **Press MENU.**

2. **Use ◯ to select FINDER, and press ◯.**



3. **Turn ◯ to select the SD card, folder or take that you want to use.**

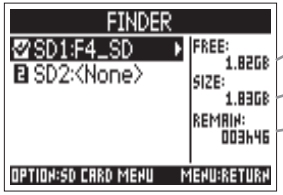
▪ Editing operations

Move cursor: Turn ◯

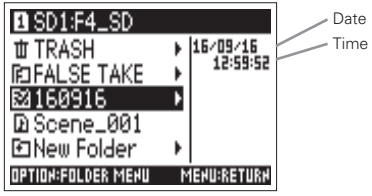
Move down a level: Press ◯

Move up a level: Press MENU

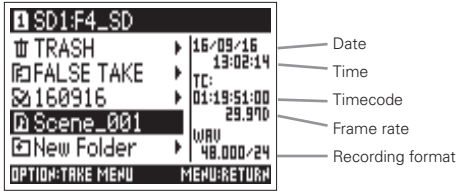
▪ SD card selected



▪ Folder selected



▪ Take selected



NOTE

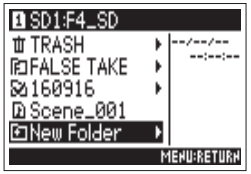
- When the cursor is on a take, you can press ►/II to play the selected take. You can also use ⏮, ⏭ and ■.
- A check mark appears on the playback take and recording/playback folder.

▶ Continue to one of the following procedures.

Creating folders

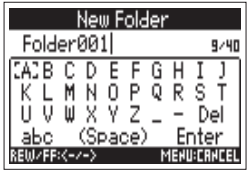
Folders can be created inside the currently selected SD card/folder.

1. Use ◯ to select New Folder, and press ◯.



2. Edit the folder name.

See "Character input screen" (→ P.13) for how to input characters.



NOTE

- The folder created will be set as the recording folder.
- The name of the folder created is written to the <PROJECT> or <SCENE> metadata of the recorded take.
- You cannot put a space or an @ mark at the beginning of the name.

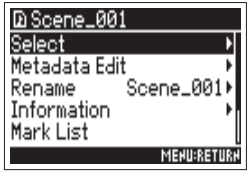
Take and folder operations (Finder) (continued)

Selecting the take recording/playback folder

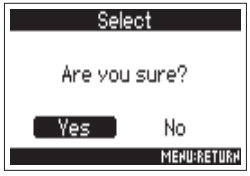
Use this procedure to select the folder that contains the take to be played back or the folder to use for recording takes and return to the Home Screen.

4. **Press OPTION.**

5. **Use to select "Select", and press .**



6. **Use to select "Yes", and press .**



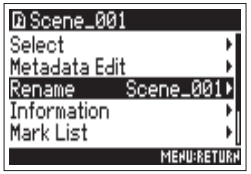
NOTE

The first take inside the selected SD card or folder will be set as the playback take.

Changing folder and take names

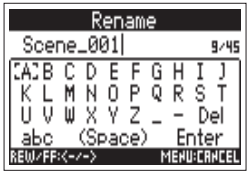
4. **Press OPTION.**

5. **Use to select Rename, and press .**



6. **Change the folder or take name.**

See "Character input screen" (→ P.13) for how to input characters.



NOTE

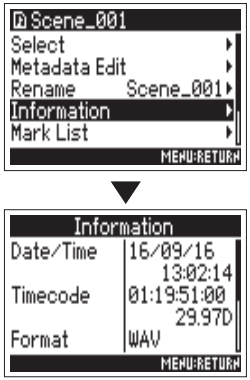
- The edited name of the folder/take is written to the <PROJECT> or <SCENE> metadata.
- You cannot put a space or an @ mark at the beginning of the name.

Checking take information

4. **Press OPTION.**

5. **Use to select Information, and press .**

Use to scroll the screen and show information that is hidden.



Item	Explanation
Date/Time	Date and time created
Timecode	Timecode
Format	Recording format
Length	Length of time
Size	Size
SideMicLevel	Mid-side side mic level

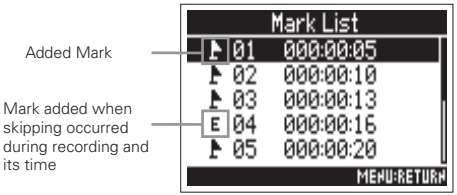
Checking take marks and using them for playback

You can view a list of the marks in a recorded take.

4. **Press OPTION.**

5. **Use to select Mark List, and press .**

6. **Use to select a mark, and press .**



7. **Use to select "Yes", and press .**

The Home Screen will reopen, and playback will start from the mark.

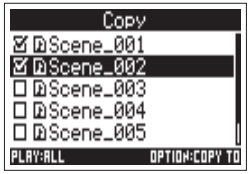
Take and folder operations (Finder) (continued)

Copying takes to other cards and folders

4. Press OPTION.

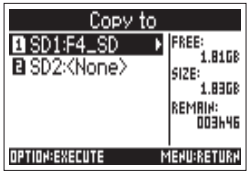
5. Use the jog dial to select Copy, and press the jog dial.

6. Use the jog dial to select the take to copy, and press the jog dial.



7. Press OPTION.

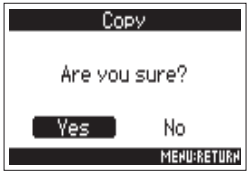
8. Use the jog dial to select the copy destination, and press OPTION.



NOTE

- See "Take and folder operations" for how to select a folder. (→ P.52)

9. Use the jog dial to select "Yes", and press the jog dial.



Deleting folders and takes

4. **Press OPTION.**

5. **Use to select Delete, and press .**

6. **Use to select the folder/take to delete, and press .**

Press MENU to cancel deletion.

NOTE

You can press ►/II to select/deselect all the folders and takes that are currently shown.

7. **Press OPTION.**

8. **Use to select "Yes", and press .**

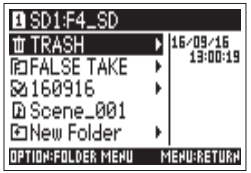
NOTE

- Deleted folders and takes are not immediately erased from the SD card. They are moved to the TRASH folder.
- Deleting the folders and takes in the TRASH folder will completely erase their data.

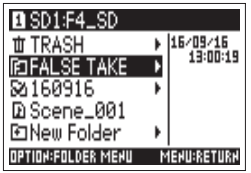
Take and folder operations (Finder) (continued)

Emptying the TRASH/FALSE TAKE folder

4. Use to select TRASH or FALSE TAKE.



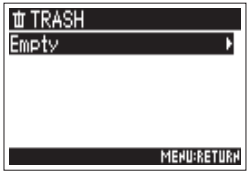
TRASH folder



FALSE TAKE folder

5. Press OPTION.

6. Use to select Empty, and press .



TRASH folder

FALSE TAKE folder

7. Use to select "Yes", and press .

NOTE

- Emptying the TRASH folder will completely erase the data in it.
- Emptying the FALSE TAKE folder does not immediately erase its data from the SD card. The data is moved to the TRASH folder.

Overview of take metadata stored in files

The F4 writes a variety of information (metadata) to files during recording.
When these files are read by an application that supports metadata, you should be able to check and use the saved information.

HINT

- Metadata is data that contains information related to other data. The F4 saves scene names and take numbers, for example, as metadata in audio files.
- A chunk is a unit that contains multiple data in a single block.
- To use BEXT and iXML chunk metadata, an application that supports both data formats is necessary.

WAV file metadata

The metadata saved in files recorded by the F4 in WAV format is collected in BEXT (Broadcast Audio Extension) and iXML chunks.
For details about the metadata saved in these chunks, see "Metadata contained in BEXT chunks in WAV files" (→ P.152), "Metadata contained in iXML chunks in WAV files" (→ P.153).

MP3 file metadata

The metadata saved in files recorded by the F4 in MP3 format is written as ID3v1 tags.
For information about the ID3 fields and formats saved as metadata, see "Metadata and ID3 fields contained in MP3 files" (→ P.155).

HINT

- F4 MP3 files conform to the MPEG-1 Layer III standard.
- MP3 metadata cannot be edited.

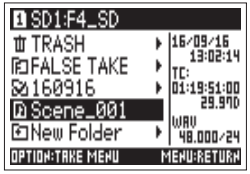
Checking and editing take metadata (Metadata Edit)

1. **Press MENU.**

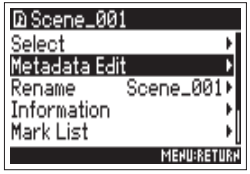
2. **Use the jog dial to select FINDER, and press the jog dial.**

3. **Use the jog dial to select the take, and press OPTION.**

This opens the Option Screen.
See "Take and folder operations" for how to use the Finder. (→ P.52)



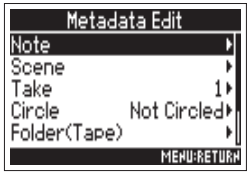
4. **Use the jog dial to select Metadata Edit, and press the jog dial.**



▶ Continue to one of the following procedures.

Checking and editing notes

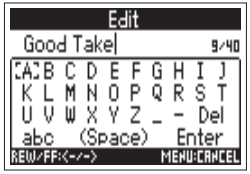
5. **Use ◯ to select Note, and press ◯.**



6. **Use ◯ to select Edit, and press ◯.**

7. **Edit the note.**

See "Character input screen" (→ P.13) for how to input characters.

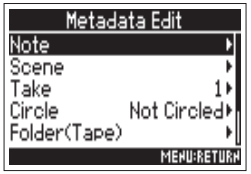


NOTE

The contents of this note is written to the <NOTE> metadata.

Selecting notes from the history list

5. **Use ◯ to select Note, and press ◯.**



6. **Use ◯ to select History, and press ◯.**

7. **Use ◯ to select the History item to use, and press ◯.**

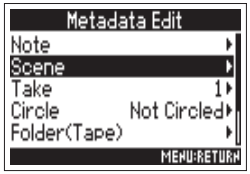
NOTE

The history list will be erased if the Factory Reset function is used.

Checking and editing take metadata (Metadata Edit) (continued)

Checking and editing scene names

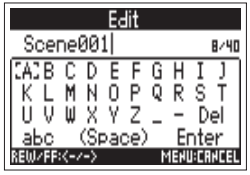
5. Use ◯ to select Scene, and press ◯.



6. Use ◯ to select Edit, and press ◯.

7. **Editing scene names**

See "Character input screen" (→ P.13) for how to input characters.

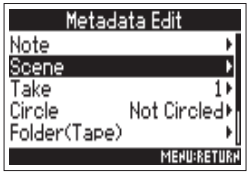


NOTE

The scene name is written to the <SCENE> metadata.

Selecting a scene name from the history list

5. Use ◯ to select Scene, and press ◯.



6. Use ◯ to select History, and press ◯.

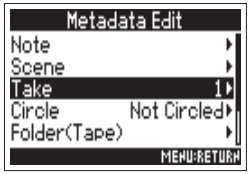
7. Use ◯ to select the History item to use, and press ◯.

NOTE

The history list will be erased if the Factory Reset function is used.

Checking and editing take names

5. **Use to select Take, and press.**



6. **Changing the take number**

▪ Editing operations

Move cursor or change value:

Turn

Select parameter to change:

Press

HINT

This can be set from 1 to 999.

NOTE

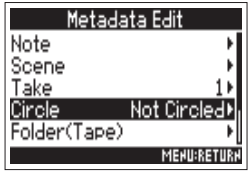
The take number is written to the <TAKE> metadata.

7. **When done editing, use to select Enter, and press.**

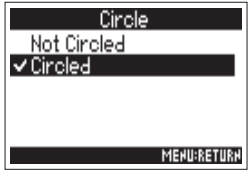
Circling takes

Use this function to add an @ mark to the beginning of the name of the best take to make it stand out. This is called a "circled take".

5. **Use to select Circle, and press.**



6. **Use to select Circled, and press.**



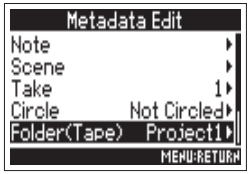
NOTE

- To clear a circle, select Not Circled and press.
- This circled status is written to the <CIRCLE> metadata.

Checking and editing take metadata (Metadata Edit) (continued)

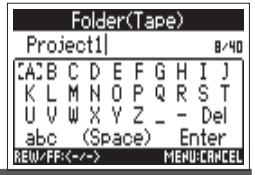
Changing folder (tape) names

5. **Use ◯ to select Folder (Tape) and press ◯.**



6. **Edit the folder (tape) name.**

See "Character input screen" (→ P.13) for how to input characters.

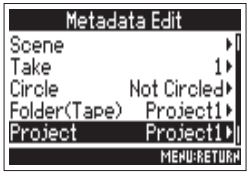


NOTE

- The folder (tape) name is written to the <TAPE> metadata.
- The folder (tape) name used immediately after recording is the name of the folder in which the take was recorded.

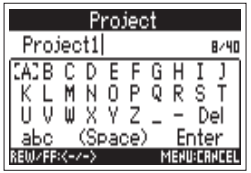
Changing project names

5. **Use ◯ to select Project, and press ◯.**



6. **Change the project name.**

See "Character input screen" (→ P.13) for how to input characters.

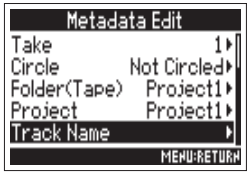


NOTE

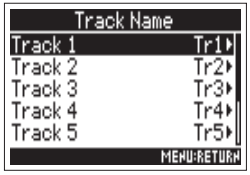
- The project name is written to the <PROJECT> metadata.
- The project name used immediately after recording is the name of the highest level folder (inside the SD card root directory) that contains the folder in which the take was recorded.

Checking and changing track names

5. **Use to select Track Name, and press .**



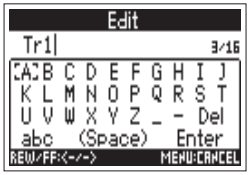
6. **Use to select the track, and press .**



7. **Use to select Edit, and press .**

8. **Editing the track name**

See "Character input screen" (→ P.13) for how to input characters.



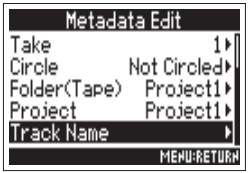
NOTE

The track name is written to the <TRACK> <NAME> metadata.

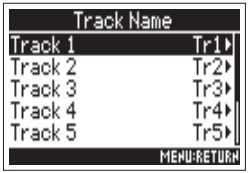
Checking and editing take metadata (Metadata Edit) (continued)

Selecting a track name from the history list

5. Use ◯ to select Track Name, and press ◯.



6. Use ◯ to select the track, and press ◯.



7. Use ◯ to select History, and press ◯.

8. Use ◯ to select the History item to use, and press ◯.

NOTE

The history list will be erased if the Factory Reset function is used.

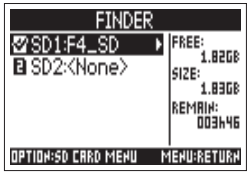
Writing a sound report (Create Sound Report)

A sound report includes information about recording times and takes.
Reports can be written as CSV format files (F4_[folder name].CSV).
You can edit comments written in sound reports.

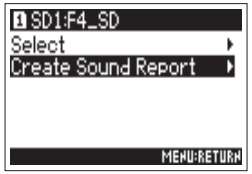
1. **Press MENU.**

2. **Use the jog dial to select FINDER, and press the jog dial.**

3. **Use the jog dial to select the folder or SD card for which you want to create a sound report, and press OPTION.**



4. **Use the jog dial to select Create Sound Report, and press the jog dial.**



▶ Continue to one of the following procedures.

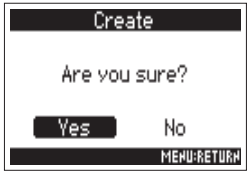
Writing a sound report (Create Sound Report) (continued)

Writing sound reports

5. **Use to select Create, and press .**

6. **Use to select "Yes", and press .**

This writes the sound report inside the selected SD card or folder.



NOTE

- Only information about takes in the folder or SD card is written in the sound report.
- If a sound report file with the same name already exists, it will be overwritten. Please use caution.

Editing comments

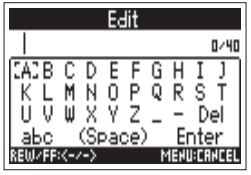
5. **Use to select Info Edit, and press .**

6. **Use to select Comments, and press .**

7. **Use to select Edit, and press .**

8. **Editing comments**

See "Character input screen" (→ P.13) for how to input characters.



Selecting comments from the history list

5. Use to select Info Edit, and press .

6. Use to select Comments, and press .

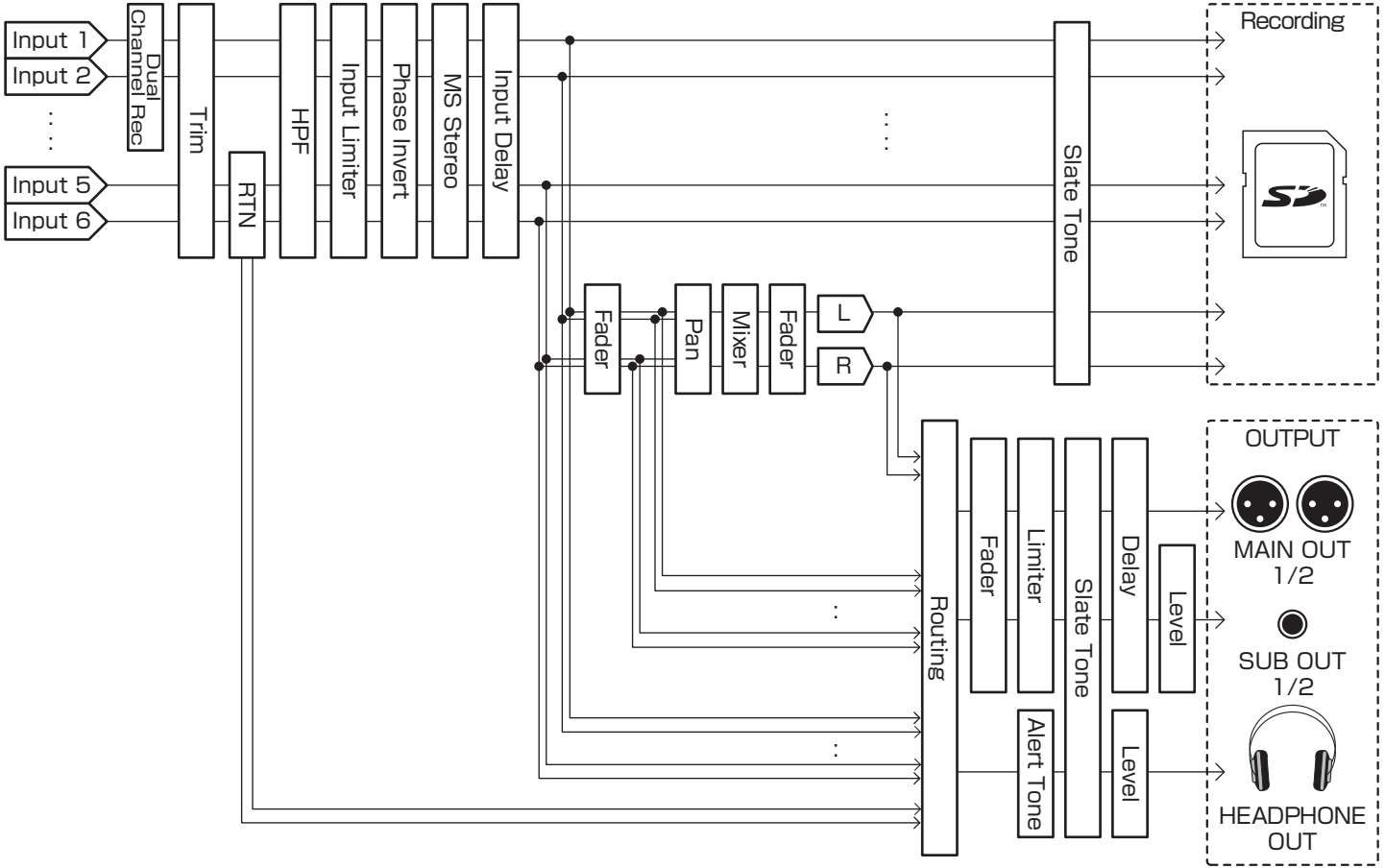
7. Use to select History, and press .

8. Use to select the History item to use, and press .

HINT

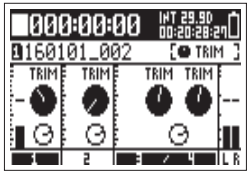
The history list will be erased if the Factory Reset function is used.

Input and output signal flow



Adjusting the L/R track volume

1. **Open the Home Screen.**

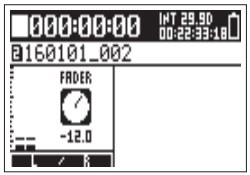


2. **Press OPTION + PFL (Track 3).**

NOTE

Shortcuts are disabled during playback.

3. **Use the dial to adjust the volume.**



NOTE

- Volume settings affect the results of recording.
- If only the L/R track is recorded, the L/R track fader setting for the take will be saved as 0 dB.

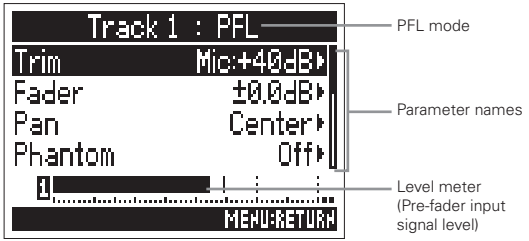
4. **When finished adjusting, press MENU.**

Monitoring the input signals of specified tracks (PFL/SOLO)

You can monitor the input signals of specified tracks. You can also make various settings for selected tracks.

1. Press PFL or INPUT 5/6 for the tracks that you want to monitor.

The selected track keys will light orange, and the PFL screen will open.
"PFL" or "SOLO" appears at the top of the display, and you will be able to monitor the input signal with headphones.



Parameter	Explanation
Input	Turns input On/Off
Level	Sets standard input level for RTN (INPUT 5/6)
Trim	Sets input level
Fader	Sets fader level
Pan	Sets panning
Phantom	Sets phantom power supply
HPF	Sets high pass filter
Input Limiter	Sets limiter
Phase Invert	Sets polarity
Side Mic Level	Sets side mic level of mid-side capsule
Input Delay	Sets input delay
Plugin Power	Sets plugin power
Stereo Link	Sets stereo link
PFL Mode	Sets monitoring volume on the PFL screen

HINT

- Use the jog dial to select parameters and change setting values.
- During playback, you can monitor the playback signals of selected tracks.

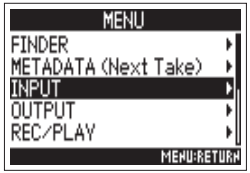
2. Press PFL for the selected track, INPUT 5/6 or MENU.

Setting the monitoring volume on the PFL screen (PFL Mode)

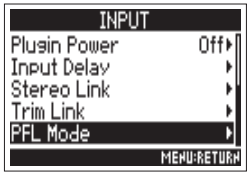
On the PFL screen, you can set the monitoring sound to be either pre-fader listening (PFL) or post-fader solo (SOLO).

1. Press MENU.

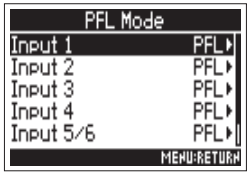
2. Use ◯ to select INPUT, and press ◯.



3. Use ◯ to select PFL Mode, and press ◯.



4. Use ◯ to select the track, and press ◯.



HINT

Select All to set all the tracks at the same time.

5. Use ◯ to select the setting, and press ◯.

Setting value	Explanation
PFL	On the PFL screen, monitor the pre-fader sound.
SOLO	On the PFL screen, monitor the post-fader sound.

NOTE

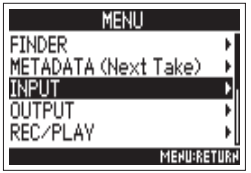
When the PFL screen is open during playback, the monitoring sound will be post-fader (SOLO) regardless of the setting.

Cutting low-frequency noise (HPF)

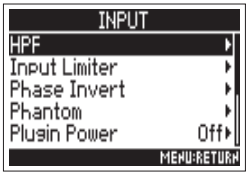
The high pass filter can cut low frequencies to reduce the sound of wind, vocal pops and other noise.

1. **Press MENU.**

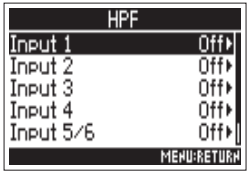
2. **Use ◯ to select INPUT, and press ◯.**



3. **Use ◯ to select HPF, and press ◯.**



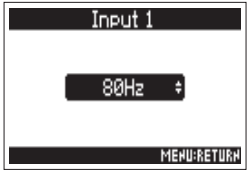
4. **Use ◯ to select the track, and press ◯.**



HINT

Select All to set all the tracks at the same time.

5. **Use ◯ to set the cutoff frequency, and press ◯.**



NOTE

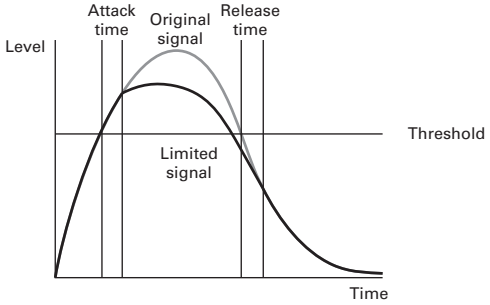
The HPF also affects dual channel recording data.

HINT

This can be set to Off or between 80 and 240 Hz.

Input limiter

The limiter can prevent distortion by controlling input signals that have excessively high levels.



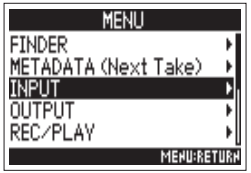
When the limiter is ON, if the input signal level exceeds the set threshold value, the signal level will be suppressed to prevent the sound from distorting.
The attack time is how long after the signal exceeds the threshold until the limiter starts operating. The release time is how long after the signal goes below the threshold until the limiter stops operating. Change these two parameters to adjust the sound quality.

HINT

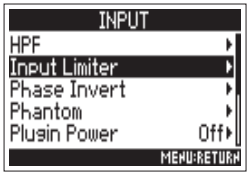
- The F4 uses a newly-designed limiter. This limiter has 10dB of headroom, preventing distortion and allowing it to keep signals below the set threshold even more than ordinary limiters.
- The ratio of the F4 limiter is 20:1.

1. **Press MENU.**

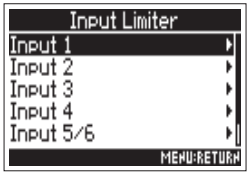
2. **Use ◯ to select INPUT, and press ◯.**



3. **Use ◯ to select Input Limiter, and press ◯.**



4. **Use ◯ to select the track, and press ◯.**



HINT

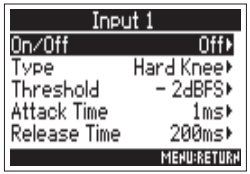
Select All to set all the tracks at the same time.

Input limiter (continued)

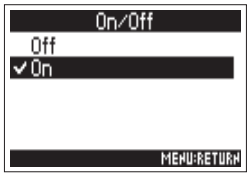
▶ Continue to one of the following procedures.

Using the limiter

5. **Use to select On/Off, and press .**

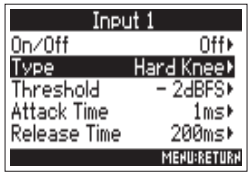


6. **Use to select On, and press .**

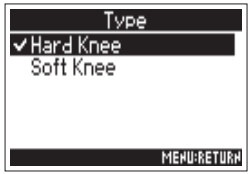


Setting the type

5. **Use to select Type, and press .**



6. **Use to select the type, and press .**

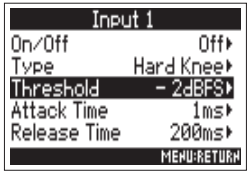


Setting value	Explanation
Hard Knee	Only peaks that exceed the threshold are attenuated. There is no effect below the threshold.
Soft Knee	The limiter gradually affects the signal about 6 dB below the threshold for a gentler effect.

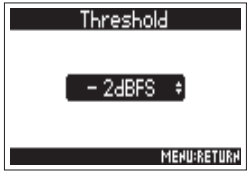
Setting the threshold

This sets the base level from which the limiter operates.

5. **Use to select Threshold and press .**



6. **Use to adjust the setting, and press MENU.**

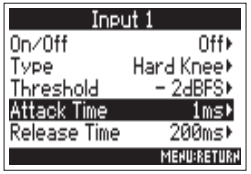


HINT
This can be set from –16 to –2 dBFS.

Setting the attack time

This sets the amount of time until compression starts after the input signal exceeds the threshold.

5. **Use to select Attack Time, and press .**



6. **Use to adjust the time, and press MENU.**

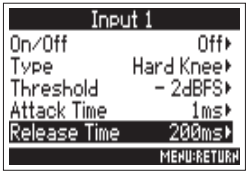
HINT
This can be set from 1 to 4 ms.

Input limiter (continued)

Setting the release time

This sets the amount of time until compression stops after the input signal goes below the threshold.

5. **Use to select Release Time, and press .**



6. **Use to adjust the time, and press [MENU].**

HINT

This can be set from 1 to 500 ms.

NOTE

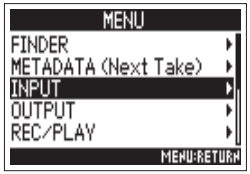
- Limiter operation is linked for tracks that have stereo link or MS stereo link enabled. If the signal for either linked channel reaches the threshold, the limiter will operate on both tracks.
- When the limiter is operating, the end of the level meter and the mixer limiter indicator light on the display.

Inverting the input phase (Phase Invert)

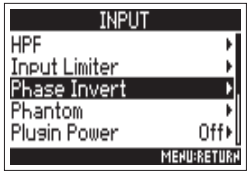
The phase of the input signal can be inverted.
This is useful when sounds cancel each other out due to mic settings.

1. **Press MENU.**

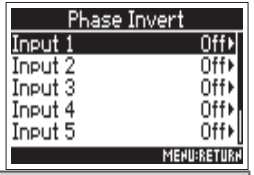
2. **Use ◯ to select INPUT, and press ◯.**



3. **Use ◯ to select Phase Invert, and press ◯.**



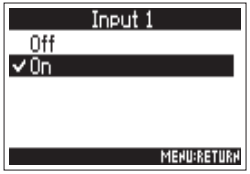
4. **Use ◯ to select the track, and press ◯.**



HINT

Select All to set all the tracks at the same time.

5. **Use ◯ to select On, and press ◯.**



Changing the phantom power settings (Phantom)

The F4 can provide phantom power. The voltage can be set to +24V or +48V and it can be turned on/off for each input separately.

HINT

Phantom power is a function that supplies power to devices that require an external power supply, including some condenser mics. The standard power is +48V, but some devices can operate with lower voltages.

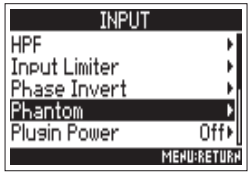
NOTE

Do not use this function with devices that are not compatible with phantom power. Doing so could damage the device.

1. **Press MENU.**

2. **Use the jog dial to select INPUT, and press the jog dial.**

3. **Use the jog dial to select Phantom, and press the jog dial.**

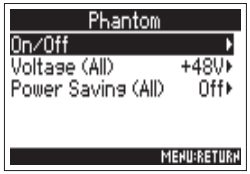


▶ Continue to one of the following procedures.

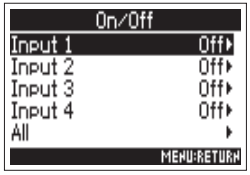
Using phantom power P.81
Setting the voltage..... P.81
Disabling phantom power during playback P.82

Using phantom power

4. Use ◯ to select On/Off, and press ◯.



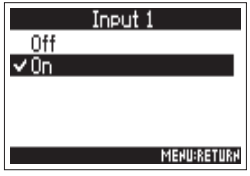
5. Use ◯ to select the track, and press ◯.



HINT

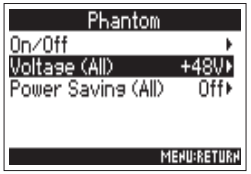
Select All to set all the tracks at the same time.

6. Use ◯ to select On, and press ◯.

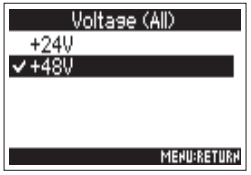


Setting the voltage

4. Use ◯ to select Voltage (All), and press ◯.



5. Use ◯ to select the voltage, and press ◯.



NOTE

This setting affects all tracks.

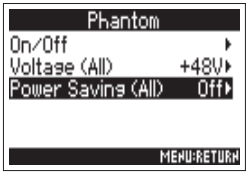
HINT

When using mics and other equipment that can operate with voltages less than +48V, selecting the lower voltage can reduce the F4 power consumption.

Changing the phantom power settings (Phantom) (continued)

Disabling phantom power during playback

4. Use to select Power Saving (All), and press .



5. Use to select On, and press .

Setting value	Explanation
Off	Phantom power is supplied even during playback.
On (During playback)	Phantom power is not supplied during playback. This can reduce the F4 power consumption.

NOTE

This setting affects all tracks.

HINT

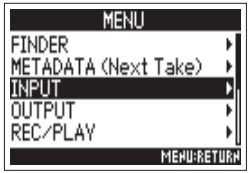
If supplying phantom power to mics is not necessary during playback, disabling it then can reduce F4 power consumption.

Changing the plugin power setting (Plugin Power)

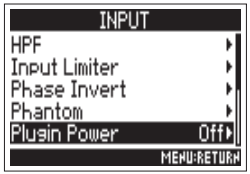
Make this setting when a mic that is compatible with plug-in power is connected to the mic capsule [MIC/LINE] input jack.

1. **Press MENU.**

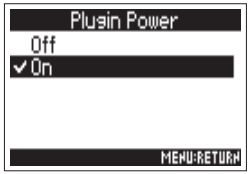
2. **Use to select INPUT, and press .**



3. **Use to select Plugin Power, and press .**



4. **Use to select On, and press .**

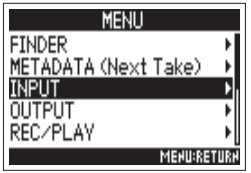


Applying delay to input signals (Input Delay)

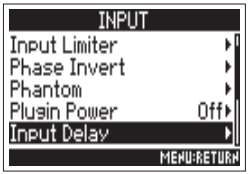
If there are differences in the timing of input sounds, use this function to correct them when recording.

1. **Press MENU.**

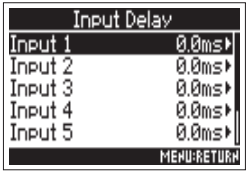
2. **Use ◯ to select INPUT, and press ◯.**



3. **Use ◯ to select Input Delay, and press ◯.**



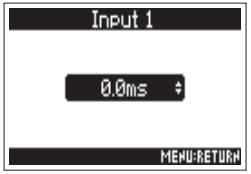
4. **Use ◯ to select the track, and press ◯.**



HINT

Select All to set all the tracks at the same time.

5. **Use ◯ to adjust the delay time, and press MENU.**



HINT

This can be set from 0 to 30.0 ms.

NOTE

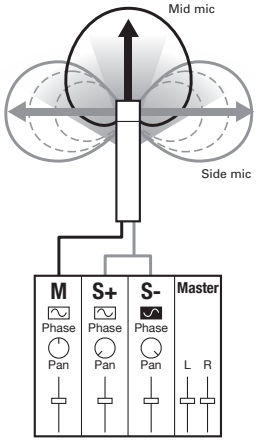
When Sample Rate is set to 192kHz, Input Delay is disabled.

Converting mid-side input to stereo (Stereo Link Mode)

Signals from a mid-side format stereo mic input through stereo-linked tracks are converted to an ordinary stereo signal.
See "Linking inputs as a stereo pair" (→ P.26) for how to use stereo linking.

MS stereo format overview

This technique converts to stereo signals input from a directional mid mic that captures sound in the center and a bidirectional side mic that captures sounds from the left and right.



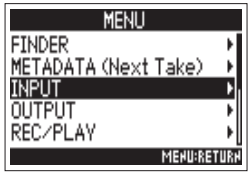
You can change the stereo width as you like by adjusting the side mic level.

Since this technique can capture a wide stereo image, it is ideal for recording wide open spaces with numerous sound sources, including orchestras, live concerts and soundscapes.

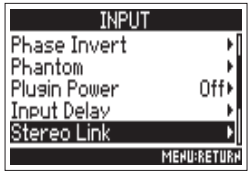
This technique is also extremely effective when you want to adjust room ambience. Since it offers a high degree of freedom, it is used not only in studios but also for a wide range of recording—even of rehearsals and live performances.

1. **Press [MENU].**

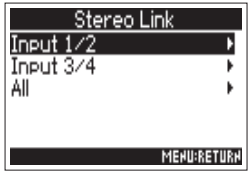
2. **Use ◯ to select INPUT, and press ◯.**



3. **Use ◯ to select Stereo Link, and press ◯.**



4. **Use ◯ to select the track, and press ◯.**

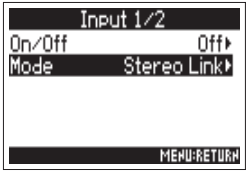


HINT

Select All to set all the tracks at the same time.

Converting mid-side input to stereo (Stereo Link Mode) (continued)

5. **Use to select Mode, and press .**



6. **Use to select MS Stereo Link, and press .**

Setting value	Explanation
Stereo Link	When stereo-linked, inputs are handled normally.
MS Stereo Link	When stereo-linked, signals from a mid-side mic are converted to ordinary stereo.

NOTE

- When MS Stereo Link is selected, odd tracks are handled as mid signals and even tracks as side signals.

HINT

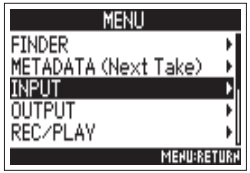
- Use for each track to adjust the mid/side balance.
- You can adjust the side mic level for tracks that have a mid-side mic capsule connected on the PFL screen.

Adjusting multiple track input levels together (Trim Link)

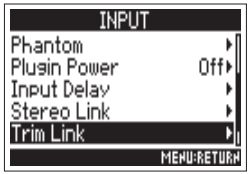
The input levels of multiple tracks can be linked and adjusted at the same time.

1. Press MENU.

2. Use the jog dial to select INPUT, and press.



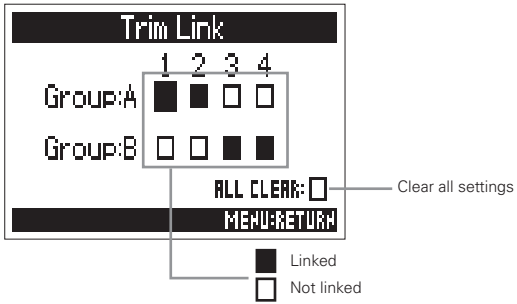
3. Use the jog dial to select Trim Link, and press.



HINT

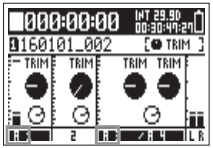
You can also open the Trim Link screen from the Home Screen by pressing 2 while pressing and holding OPTION.

4. Use the jog dial to select a track to link, and press.



HINT

- You can use the jog dial for the first track in a link group to adjust all the input levels within that group at the same time.
- Icons for group names are shown next to linked tracks.



NOTE

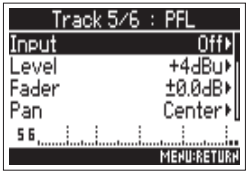
- A track cannot be in more than one group at a time.
- The input levels of tracks set to MS Stereo Link will also be linked if those tracks are put into groups.

Using Input 5/6 as a return (RTN) input

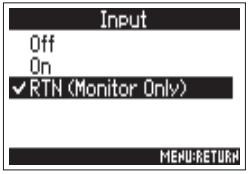
Input 5/6 can be used as a return (RTN) input.
By inputting audio output from a camera through the RTN (INPUT 5/6) jack, you can monitor this signal through headphones without recording it.

1. **Press INPUT 5/6.**

2. **Use to select INPUT, and press .**



3. **Use to select RTN (Monitor Only), and press .**



NOTE

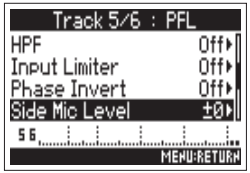
- When Input 5/6 set to RTN, Tracks 5/6 will not be recorded.
- When a mic capsule is connected, RTN (Monitor Only) cannot be selected.
- If you want the RTN signal to always be output, change the routing settings as necessary.
- When this setting is RTN (Monitor Only), Fader, Pan, HPF, Input Limiter, Phase Invert and Input Delay are disabled.

Adjusting the side mic level of a mid-side mic capsule (Side Mic Level)

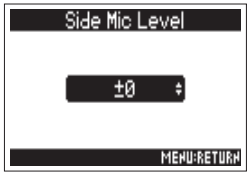
You can adjust the side mic level (stereo width) before recording for tracks that use a mid-side mic capsule

1. **Press INPUT 5/6.**

2. **Use the dial to select Side Mic Level, and press the dial.**



3. **Use the dial to adjust the side mic level, and press MENU.**



HINT

This can be set to Off, RAW or in a range from –24 to +6 dB.

NOTE

- The more the side mic level is increased, the greater the stereo width becomes.
- When set to RAW, recording will occur without stereo encoding. The stereo width of audio in RAW format can be adjusted after recording by using ZOOM MS Decoder or other plug-in software.

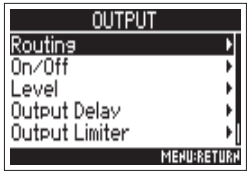
Setting signals sent to the output jacks (Routing)

You can set the type of signal sent to the headphone output, MAIN OUT and SUB OUT to either prefader or postfader for each track.

1. **Press MENU.**

2. **Use ◯ to select OUTPUT, and press ◯.**

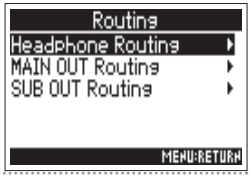
3. **Use ◯ to select Routing, and press ◯.**



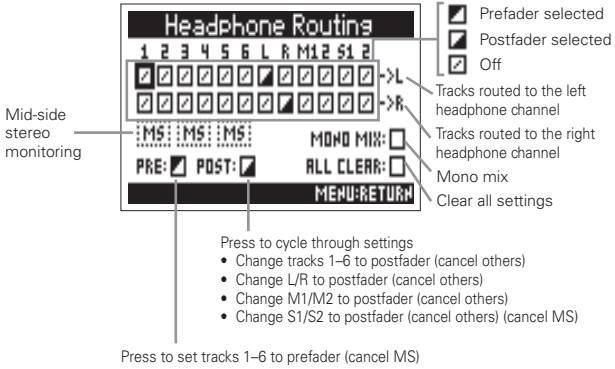
▶ Continue to one of the following procedures.

Setting signals sent to the headphone output

4. **Use ◯ to select Headphone Routing, and press ◯.**



5. **Use ◯ to select the tracks/outputs for routing, and press ◯.**



NOTE

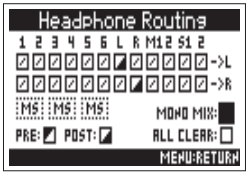
- You cannot set L/R, MAIN OUT 1/2 or SUB OUT 1/2 to prefader.
- You cannot select the 1–6, L/R , MAIN OUT 1/2 and SUB OUT 1/2 tracks at the same time. Selecting one will deselect any other.

HINT

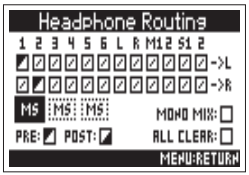
Press to cycle through the options:

Prefader → Postfader → Off.

6. **To make the headphone output mono, use to select MONO MIX, and press .**



7. **To monitor a mid-side stereo signal, use to select MS, and press .**



NOTE

- Mid-side stereo monitoring is disabled for stereo-linked tracks that have Stereo Link Mode set to MS Stereo Link.
- When mid-side stereo monitoring is enabled, the prefader tracks will be routed automatically to the headphone channels, with odd to the left and even to the right. In this case, the routing cannot be changed manually.

HINT

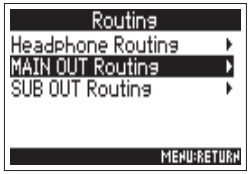
Signals from a mid-side stereo mic can be converted to an ordinary stereo signal for monitoring (MS stereo monitoring).

8. **Press [MENU].**

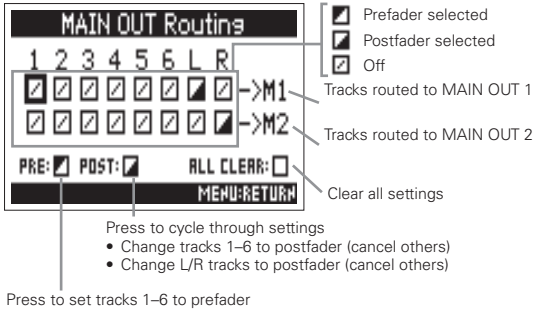
Setting signals sent to the output jacks (Routing) (continued)

Setting signals sent to the MAIN OUT

4. **Use to select MAIN OUT Routing, and press .**



5. **Use to select the track for MAIN OUT 1 or MAIN OUT 2 routing and press .**



HINT

Press to cycle through the options:
Prefader → Postfader → Off.

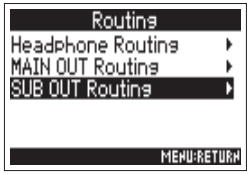
NOTE

- Tracks 1–6 can be set to Prefader or Postfader.
- The L/R tracks can only be set to Postfader.
- Tracks 1–6 and L/R tracks cannot be selected at the same time. Selecting one type will deselect the other.

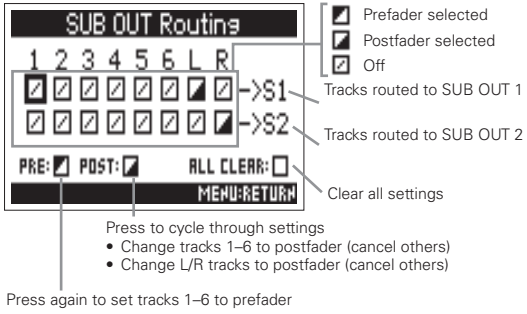
6. **Press [MENU].**

Setting signals sent to the SUB OUT

4. **Use to select SUB OUT Routing, and press .**



5. **Use to select the track for SUB OUT 1 or SUB OUT 2 routing and press .**



HINT

Press to cycle through the options:
Prefader → Postfader → Off.

NOTE

- Tracks 1–6 can be set to Prefader or Postfader.
- The L/R tracks can only be set to Postfader.
- Tracks 1–6 and L/R tracks cannot be selected at the same time. Selecting one type will deselect the other.

6. **Press MENU.**

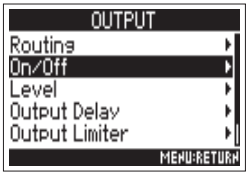
Disabling outputs (Output On/Off)

Disabling unused outputs can reduce power consumption, increasing the length of continuous operation using batteries.

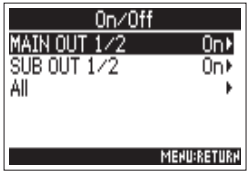
1. **Press MENU.**

2. **Use ◯ to select OUTPUT, and press ◯.**

3. **Use ◯ to select On/Off, and press ◯.**



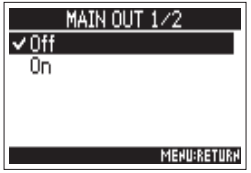
4. **Use ◯ to select the output and press ◯.**



HINT

Select All to set all the outputs at the same time.

5. **Use ◯ to select Off, and press ◯.**



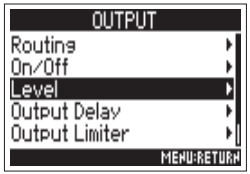
Setting the standard output level (Output Level)

The standard output level can be changed.

1. **Press MENU.**

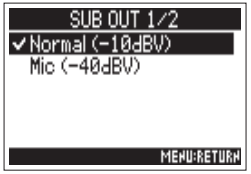
2. **Use ◯ to select OUTPUT, and press ◯.**

3. **Use ◯ to select Level, and press ◯.**



4. **Use ◯ to select the output and press ◯.**

5. **Use ◯ to set the standard output level, and press ◯.**

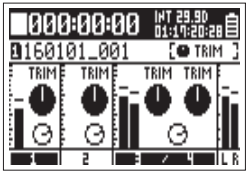


Setting value	Explanation
Normal (–10dBV)	This sets the standard level to –10 dBV.
Mic (–40dBV)	This sets the standard level to –40 dBV.

Setting the output level

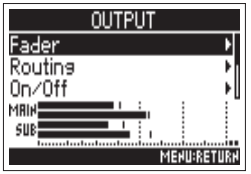
The MAIN OUT 1/2 and SUB OUT 1/2 levels can be changed.

1. **Open the mixer on the Home Screen. (→ P.11)**

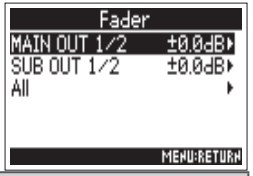


2. **Press OUTPUT.**

3. **Use ◯ to select Fader, and press ◯.**



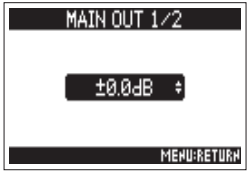
4. **Use ◯ to select the output, and press ◯.**



HINT

Select All to set all the outputs at the same time.

5. **Use ◯ to adjust the output level, and press ◯.**



HINT

This can be set to Mute or from –48.0 to +12.0 dB.

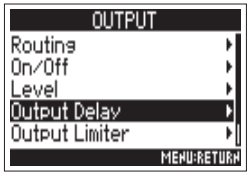
Applying delay to the output (Output Delay)

By delaying output, you can correct timing differences for audio input into another device.

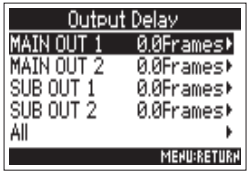
1. **Press MENU.**

2. **Use ◯ to select OUTPUT, and press ◯.**

3. **Use ◯ to select Output Delay, and press ◯.**



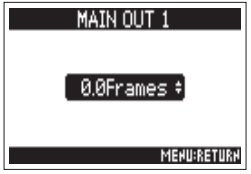
4. **Use ◯ to select the output, and press ◯.**



HINT

Select All to set all the outputs at the same time.

5. **Use ◯ to adjust the delay in frames, and press MENU.**



HINT

This can be set from 0.0 to 10.0 frames.

NOTE

- Delays set in frames differ according to the frame rate of the selected timecode.
- When Sample Rate is set to 192kHz, Output Delay is disabled.

Output Limiter

Using a limiter on the output can protect devices connected to the output jacks.

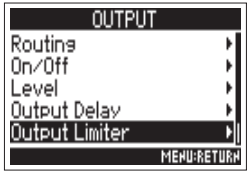
HINT

For details about the limiter, see "Input limiter". (→ P.75)

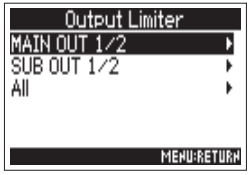
1. **Press MENU.**

2. **Use the jog dial to select OUTPUT, and press the jog dial.**

3. **Use the jog dial to select Output Limiter, and press the jog dial.**



4. **Use the jog dial to select the track, and press the jog dial.**



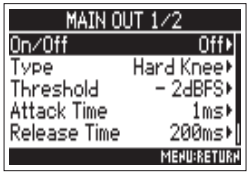
HINT

Select All to set all the outputs at the same time.

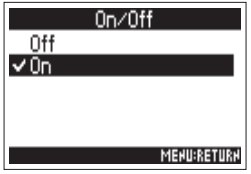
▶ Continue to one of the following procedures.

Using the limiter

5. **Use the jog dial to select On/Off, and press the jog dial.**

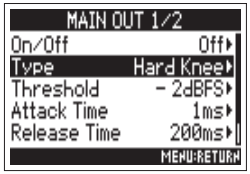


6. **Use the jog dial to select On, and press the jog dial.**

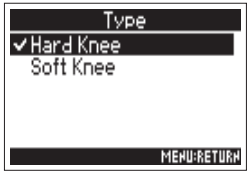


Setting the type

5. **Use to select Type, and press .**



6. **Use to select the type, and press .**

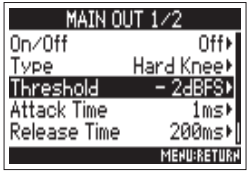


Setting value	Explanation
Hard Knee	Only peaks that exceed the threshold are attenuated. There is no effect below the threshold.
Soft Knee	The limiter gradually affects the signal about 6 dB below the threshold for a gentler effect.

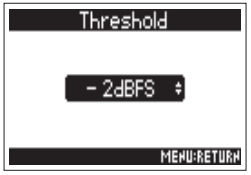
Setting the threshold

This sets the base level from which the limiter operates.

5. **Use to select Threshold, and press .**



6. **Use to adjust the setting, and press [MENU].**



HINT

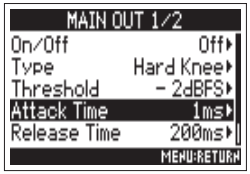
This can be set from –16 to –2 dBFS.

Output Limiter (continued)

Setting the attack time

This sets the amount of time until compression starts after the input signal exceeds the threshold.

5. **Use ◯ to select Attack Time, and press ◯.**



6. **Use ◯ to adjust the time, and press MENU.**

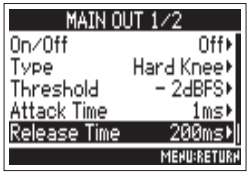
HINT

This can be set from 1 to 4 ms.

Setting the release time

This sets the amount of time until compression stops after the input signal goes below the threshold.

5. **Use ◯ to select Release Time, and press ◯.**



6. **Use ◯ to adjust the time, and press MENU.**

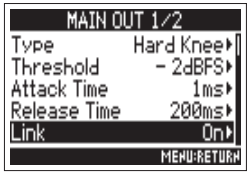
HINT

This can be set from 1 to 500 ms.

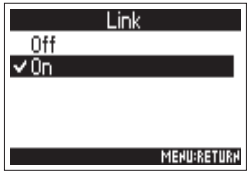
Linking the limiter

The limiter can be linked or applied independently to MAIN OUT 1 and 2, as well as to SUB OUT 1 and 2.

5. **Use to select Link, and press .**



6. **Use to select On, and press .**



Setting value	Explanation
Off	Separate limiter operation.
On	Link limiter operation. If the signal for either linked signal reaches the threshold, the limiter will operate on both channels.

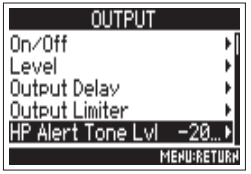
Outputting alerts through headphones (Alert Tone Level)

The volume can be adjusted for alerts output from headphones when, for example, recording starts and stops.

1. **Press MENU.**

2. **Use ◯ to select OUTPUT, and press ◯.**

3. **Use ◯ to select HP Alert Tone Lvl, and press ◯.**



4. **Use ◯ to adjust the volume, and press MENU.**

HINT

- This can be set to Off or between –48 and –12 dBFs.
- When set to Off, no alerts will be output.

When alerts sound	Sound type
Remaining battery low	880Hz tone every 30 seconds 4 times
Recording starts	1000Hz tone 1 time
Recording stops	880Hz tone 2 times
Recording not possible	880Hz tone 3 times

Timecode overview

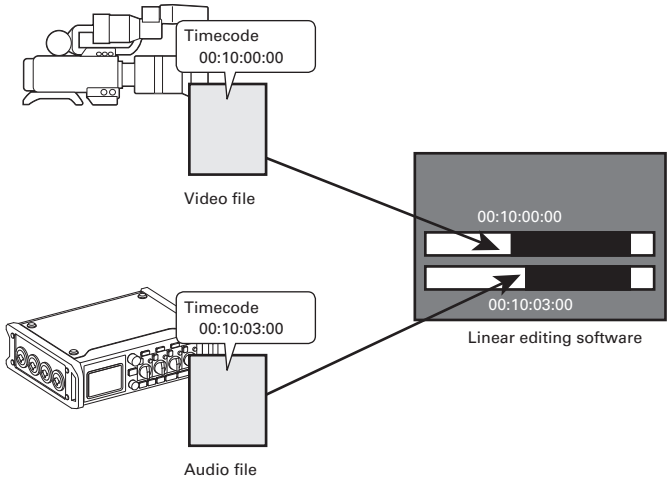
The F4 can input and output SMPTE timecode.
Timecode is time information written to data when recording video and audio. It is used for video editing, control of other devices, and synchronization of audio and video, for example.

Using timecode for editing

If video and audio data both have recorded timecode, aligning them to a timeline and synchronizing them together is easy when using nonlinear editing software for editing.

HINT

The F4 uses a high-precision oscillator that enables the generation of accurate timecode with a discrepancy of less than 0.5 frames per 24 hours.



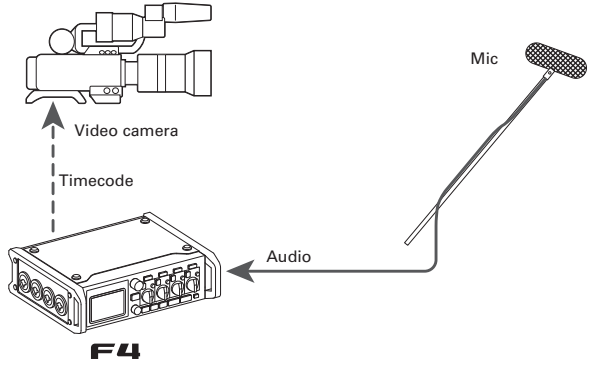
Timecode overview (continued)

Connection examples

According to application, connections like the following are possible.

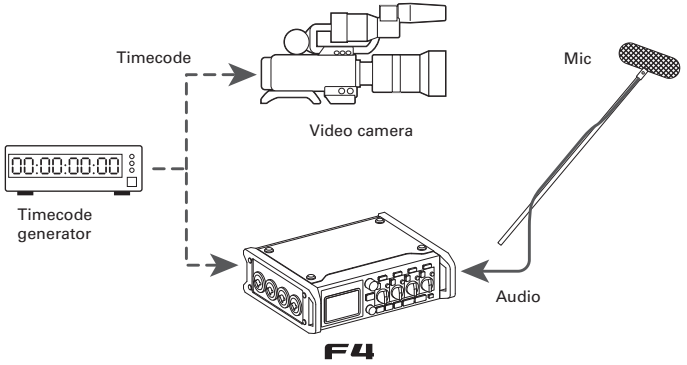
Synchronizing with a video camera

The F4 records with a mic input and transmits timecode. The F4 records the timecode that it generates itself with the audio data. The timecode received by the video camera is recorded with the video data.



Inputting timecode

Timecode is transmitted from a timecode generator.
Both the F4 and the video camera receive timecode and record it with their audio and video data.
The input timecode can also be used to synchronize the audio clock of the F4.



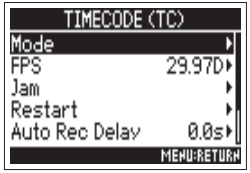
Making timecode settings

Various settings related to timecode can be set. These include whether it is sent or received and whether or not it is free running.

1. **Press MENU.**

2. **Use ◯ to select TIMECODE (TC), and press ◯.**

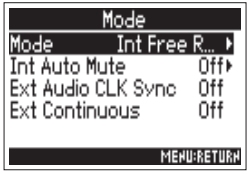
3. **Use ◯ to select Mode, and press ◯.**



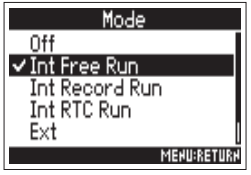
▶ Continue to one of the following procedures.

Setting the mode

4. **Use ◯ to select Mode, and press ◯.**



5. **Use ◯ to select the mode, and press ◯.**



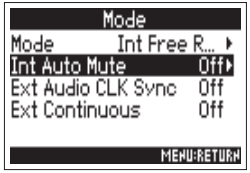
Making timecode settings (continued)

Setting value	Explanation
Off	No timecode will be written to the recording file. Timecode will not be output from the TIMECODE OUT jack.
Int Free Run	Internal timecode will be generated regardless of the recording mode. The internal timecode can be set manually using the following menu items. • MENU >TIMECODE (TC) > Jam • MENU >TIMECODE (TC) > Restart Timecode is always output from the TIMECODE OUT jack.
Int Record Run	Internal timecode will be generated only when recording. The internal timecode can be set manually using the following menu items. • MENU >TIMECODE (TC) > Jam • MENU >TIMECODE (TC) > Restart When switching from another mode, the internal timecode will stop at the last value.
Int RTC Run	Internal timecode will be generated regardless of the recording mode. In the following situations, the internal timecode will be synchronized (jammed) with the RTC (internal clock). • At startup • When Date/Time (RTC) changed (→ P.18) • When switching to this timecode mode Timecode is always output from the TIMECODE OUT jack.
Ext	The internal timecode will chase the external timecode. You can also enable the automatic generation of internal timecode when there is no external timecode. (→ P.108)
Ext Auto Rec	The internal timecode will chase the external timecode. You can also enable the automatic generation of internal timecode when there is no external timecode. (→ P.108) Recording starts automatically when external timecode input is detected. Recording stops automatically when external timecode stops.

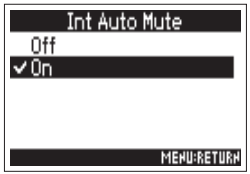
Stopping timecode output when recording is stopped

You can set whether or not timecode is output from the TIMECODE OUT jack when recording is stopped.

4. **Use to select Int Auto Mute, and press.**



5. **Use to select On, and press.**



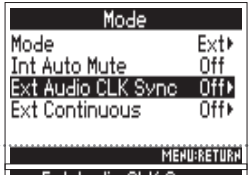
NOTE

- Timecode will continue to be output when recording/playback is paused.
- This cannot be set when Mode is set to Off, Ext or Ext Auto Rec.

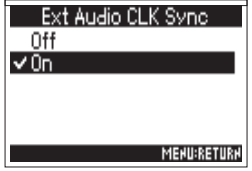
Synchronizing audio clock with external timecode

The audio clock of the F4 can be synchronized to the timecode input through the TIMECODE IN jack.

4. **Use to select Ext Audio Clock Sync, and press.**



5. **Use to select On, and press.**



NOTE

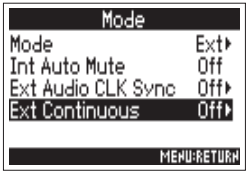
- When there is no external timecode, the internal audio clock is enabled to preserve continuity.
- This cannot be set when Mode is set to Off, Int Free Run, Int Record Run or Int RTC Run.

Making timecode settings (continued)

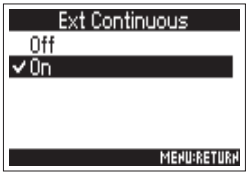
Automatically enabling internal timecode when no external timecode is input

You can enable the automatic generation of internal timecode to preserve continuity when there is no external timecode.

4. **Use to select Ext Continuous, and press .**



5. **Use to select On, and press .**



NOTE

- This cannot be set when Mode is set to Off, Int Free Run, Int Record Run or Int RTC Run.

Setting the frame rate for internal timecode (FPS)

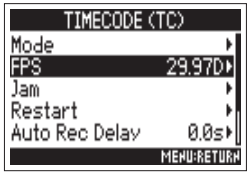
Select the frame rate of the internal timecode. Select the setting most suitable for the video being synchronized and the application.

Setting the frame rate for internal timecode

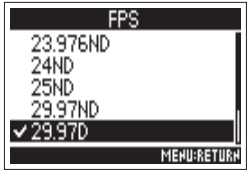
1. Press MENU.

2. Use the dial to select TIMECODE (TC), and press the dial.

3. Use the dial to select FPS, and press the dial.



4. Use the dial to select the frame rate, and press the dial.



Setting value	Explanation
23.976ND	This is the most common frame rate used with HD cameras and other high-definition video recording. The count is slower than the actual time by 0.1%.
24ND	This is the standard frame rate used for recording film. This is also used with HD cameras.
25ND	This is the frame rate for PAL video. This is used for PAL video, which is used in Europe and other regions.
29.97ND	This is a frame rate used for NTSC color video and HD cameras. The count is slower than the actual time by 0.1%. This is used for NTSC video, which is used in Japan, the United States and other countries.
29.97D	This is an adjusted frame rate that uses a drop frame to make NTSC match the actual time. This is used with video for broadcast that requires the actual time frame to be matched.
30ND	This is used to synchronize sound with film that is being transfered to NTSC video. This is the standard frame rate used for black-and-white television in Japan, the United States and other countries.
30D	This rate is used for special applications. This synchronizes at 29.97 fps drop frame with film sound to be transferred to NTSC. The count is faster than the actual time by 0.1%.

NOTE

Frame rates must be set in advance to match on devices used for all video and audio data.

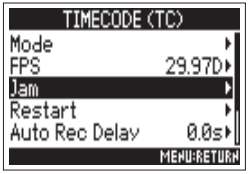
Jamming internal timecode (Jam)

Timecode input through the TIMECODE IN jack is used to set internal timecode

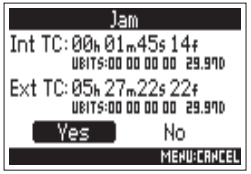
1. **Press MENU.**

2. **Use to select TIMECODE (TC), and press .**

3. **Use to select Jam, and press .**



4. **Use to select "Yes", and press .**



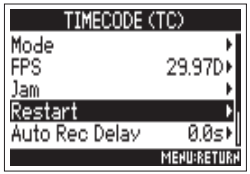
Restarting internal timecode with a specified value (Restart)

You can freely change the internal timecode setting value and restart from that value.

1. **Press MENU.**

2. **Use to select TIMECODE (TC), and press .**

3. **Use to select Restart, and press .**



4. **Change the restart value.**

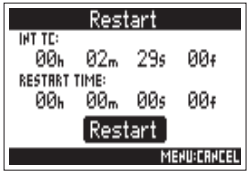
▪ Editing operations

Move cursor or change value:

Turn

Select parameter to change: Press

5. **When done changing the setting, use to select Restart, and press .**



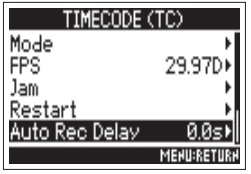
Setting the automatic timecode recording delay (Auto Rec Delay)

If set to record automatically when external timecode is received, unnecessary recording could occur if timecode is received for a brief amount time. In order to prevent this, you can set the amount of time until recording starts after timecode is received.

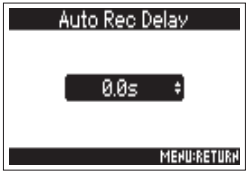
1. Press MENU.

2. Use the dial to select TIMECODE (TC), and press the dial.

3. Use the dial to select Auto Rec Delay, and press the dial.



4. Use the dial to adjust the time, and press MENU.



HINT
This can be set from 0.0 to 8.0 s.

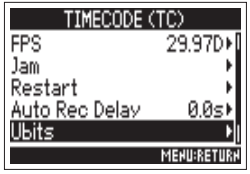
Setting the user bits for internal timecode (Ubits)

User bits are data that you can set to be included in the timecode. Up to 8 numbers (0–9) and letters (A–F) can be included. Recording date information, for example, can be useful when editing later.

1. Press MENU.

2. Use the jog dial to select TIMECODE (TC), and press the jog dial.

3. Use the jog dial to select Ubits, and press the jog dial.



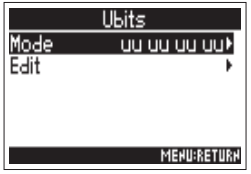
▶ Continue to one of the following procedures.

Setting the user bits (Ubits) mode P.113
Setting the user bits (Ubits) P.114

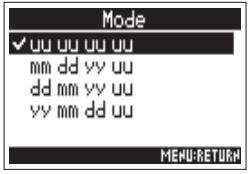
Setting the user bits (Ubits) mode

4. Use the jog dial to select Ubits, and press the jog dial.

5. Use the jog dial to select Mode, and press the jog dial.



6. Use the jog dial to select the mode, and press the jog dial.



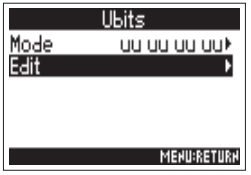
Setting value	Explanation
uu uu uu uu	You can set these values as you like on the Edit screen.
mm dd yy uu	The month, day and year are entered automatically in that order using the RTC setting. You can set the "uu" value as you like on the Edit screen.
dd mm yy uu	The, day, month and year are entered automatically in that order using the RTC setting. You can set the "uu" value as you like on the Edit screen.
yy mm dd uu	The year, month and day are entered automatically in that order using the RTC setting. You can set the "uu" value as you like on the Edit screen.

HINT
Only "uu" items can be changed on the Edit screen.

Setting the user bits for internal timecode (Ubits) (continued)

Setting the user bits (Ubits)

4. **Use to select Edit, and press .**



5. **Change the value.**

▪ Editing operations

Move cursor or change value:

Turn

Select parameter to change: Press

HINT

This can be set using numbers from 0 to 9 and letters from A to F.

6. **When done changing the setting, use to select Enter, and press .**

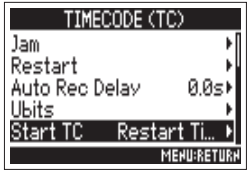
Setting how timecode is initialized at startup (Start Timecode)

When the F4 is turned off, the internal timecode stops, so the timecode is automatically initialized (jammed) during startup. You can set the value that is used for jamming at that time.

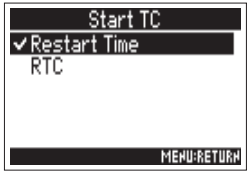
1. **Press MENU.**

2. **Use the jog dial to select TIMECODE (TC), and press the jog dial.**

3. **Use the jog dial to select Start TC, and press the jog dial.**



4. **Use the jog dial to set how timecode is initialized, and press the jog dial.**



Setting value	Explanation
Restart Time	When the F4 starts, the value set by Restart (→ P.111) is used to jam the internal timecode.
RTC	When the F4 starts, its timecode is restored from the timecode when the power was turned off and advanced by the elapsed time using the Date/Time (RTC) setting (→ P.18). Since RTC is less precise than internal timecode, discrepancies will occur.

Using slate tones (Slate Tone)

The F4 can add tones while recording. These are called slate tones.
By adding a slate tone when the recording starts, aligning it to a video file during editing will be easier.
The F4 also has the ability to output slate tones. This function can be used to match the levels of connected equipment.

1. **Press MENU.**

2. **Use the jog dial to select SLATE TONE, and press the jog dial.**

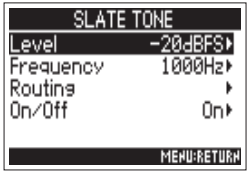
▶ Continue to one of the following procedures.

HINT
A "slate" is a clapperboard used when recording video.

NOTE
The slate tone cannot be used during audio file playback.

Setting the volume

3. **Use the jog dial to select Level, and press the jog dial.**

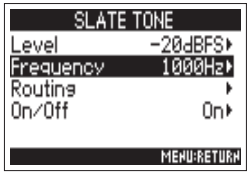


4. **Use the jog dial to adjust the level, and press MENU.**

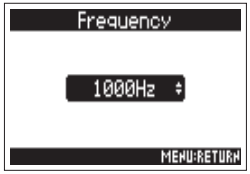
HINT
This can be set from –20 to 0 dBFS.

Setting the frequency

3. **Use to select Frequency, and press .**



4. **Use to adjust the frequency, and press MENU.**



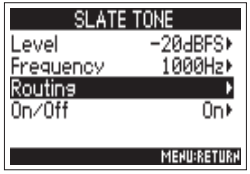
HINT

This can be set from 100 to 10,000 Hz.

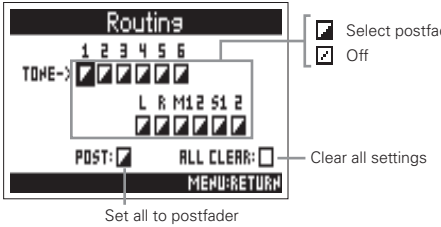
Setting the routing

Set the destination for the slate tone signal.

3. **Use to select Routing, and press .**



4. **Use to select the tracks/outputs for slate tone signal routing, and press .**



NOTE

Routing to tracks 1–6 is not possible when operating as an audio interface (Stereo Mix).

HINT

Press to switch between Postfader and Off.

5. **Press MENU.**

Using slate tones (Slate Tone) (continued)

Recording

3. **Press ● to start recording.**

4. **Press ⌒.**

NOTE

- When the slate tone is sounding, other signals input to tracks that it is routed to are muted.
- The slate signal is output from the headphone L/R channels regardless of routing settings.
- The MAIN OUT 1/2 and SUB OUT 1/2 faders do not affect the level of the slate tone.
- The SLATE TONE indicator lights when the slate tone is sounding.

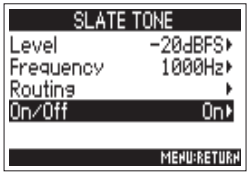
HINT

Press ⌒ for at least one second to enable slate tone input continuously. Press ⌒ again to disable it.

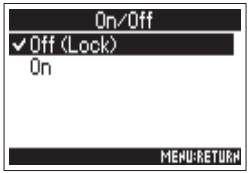
Disabling the slate tone

To prevent accidental recording due to misoperation, you can disable the ⌒ button.

3. **Use ◯ to select On/Off, and press ◯.**



4. **Use ◯ to select Off (Lock), and press ◯.**



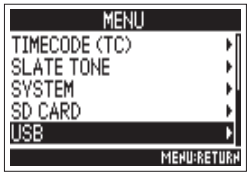
Exchanging data with a computer (SD Card Reader)

By connecting with a computer, you can check and copy data on the cards.

Connecting with a computer

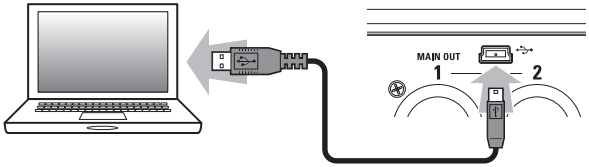
1. **Press MENU.**

2. **Use ◯ to select USB, and press ◯.**



3. **Use ◯ to select SD Card Reader, and press ◯.**

4. **Use a USB cable to connect the F4 and the computer.**



NOTE

- The supported operating systems are as follows.
  Windows: Windows 7 or later
  Mac OS: Mac OS X (10.8 or later)
- The F4 cannot operate on USB bus power. Use AA batteries or a DC power supply.

HINT

When the F4 is connected to a computer, the SD cards loaded in slots 1 and 2 are recognized as separate SD cards.

Disconnecting

1. **Disconnect on the computer.**

Windows:
Select F4 from "Safely Remove Hardware".
Mac OS:
Drag and drop the F4 icon into the Trash.

NOTE

Always conduct computer disconnection procedures before disconnecting the USB cable.

2. **Disconnect the cable from the computer and the F4, and press MENU.**

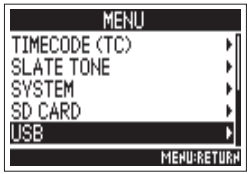
Using as an audio interface (Audio Interface)

F4 input signals can be input directly to a computer or iOS device, and playback signals on a computer or iOS device can be output from the F4.

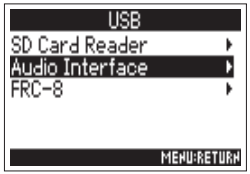
Connecting with a computer or iOS device

1. Press MENU.

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



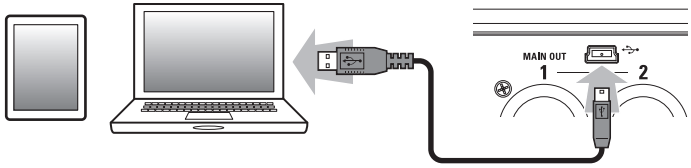
3. Use the dial to select Audio Interface, and press the dial.



4. Use the dial to select the mode and connected device, and press the dial.

Setting value	Explanation
Stereo Mix (PC/Mac)	This is a 2-in/2-out connection mode for Mac/Windows and sends tracks 1–6 as a stereo mix.
Stereo Mix (iOS Devices)	This is a 2-in/2-out connection mode for iOS devices and sends tracks 1–6 as a stereo mix.
Multi Track (PC/Mac)	This is a 6-in/4-out connection mode for Mac/Windows and sends tracks 1–6 as separate signals (cannot be used with iOS devices). A driver is necessary for use with Windows. Download the driver from the ZOOM website (www.zoom.co.jp/).

5. Use a USB cable to connect the F4 and the iOS device.



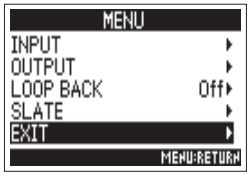
NOTE

- A Lightning to USB Camera Adapter is necessary to connect an iOS device.
- The F4 cannot operate on USB bus power. Use AA batteries or a DC power supply.

Disconnecting

1. **Press MENU.**

2. **Use ◯ to select EXIT, and press ◯.**

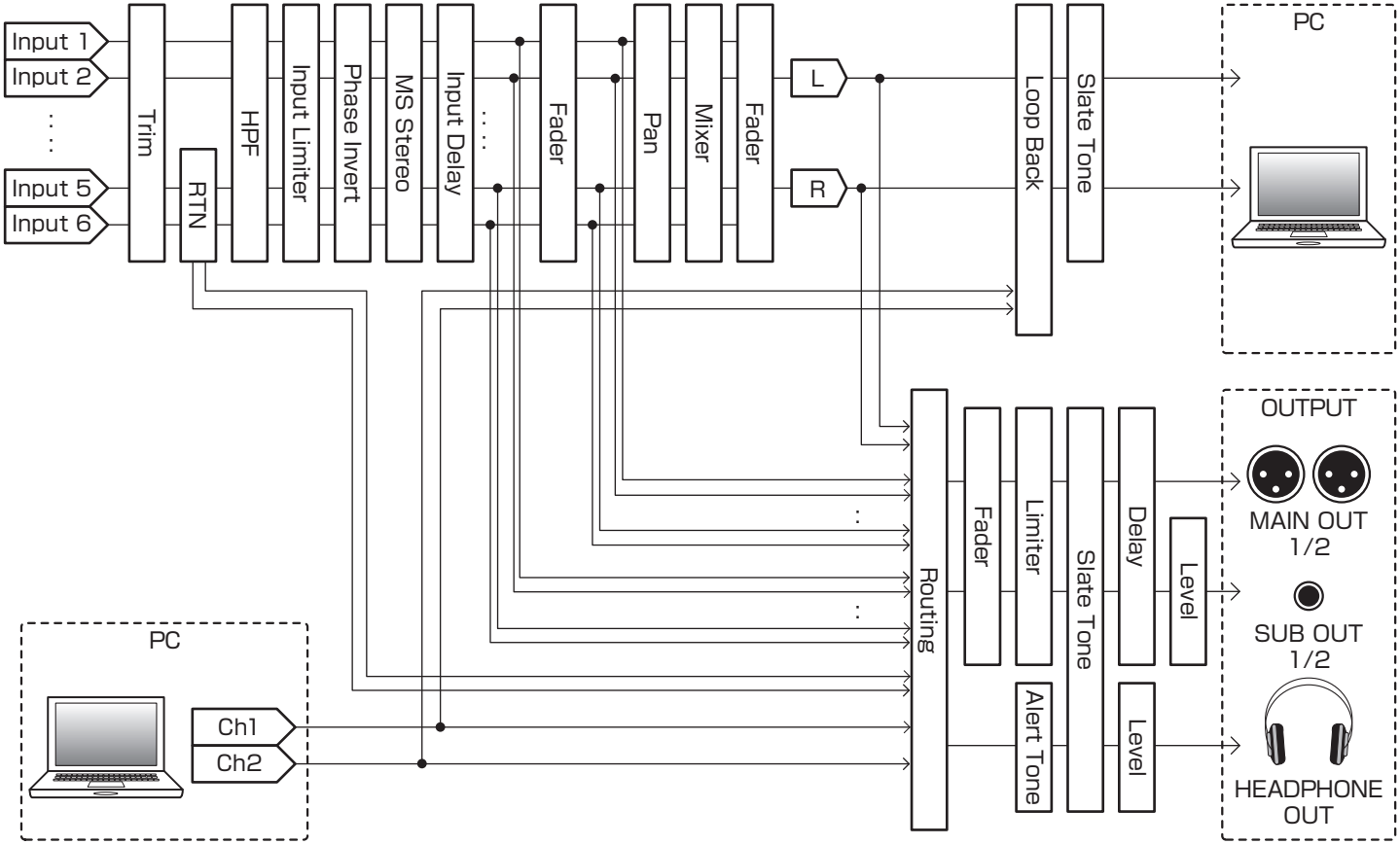


3. **Use ◯ to select "Yes", and press ◯.**

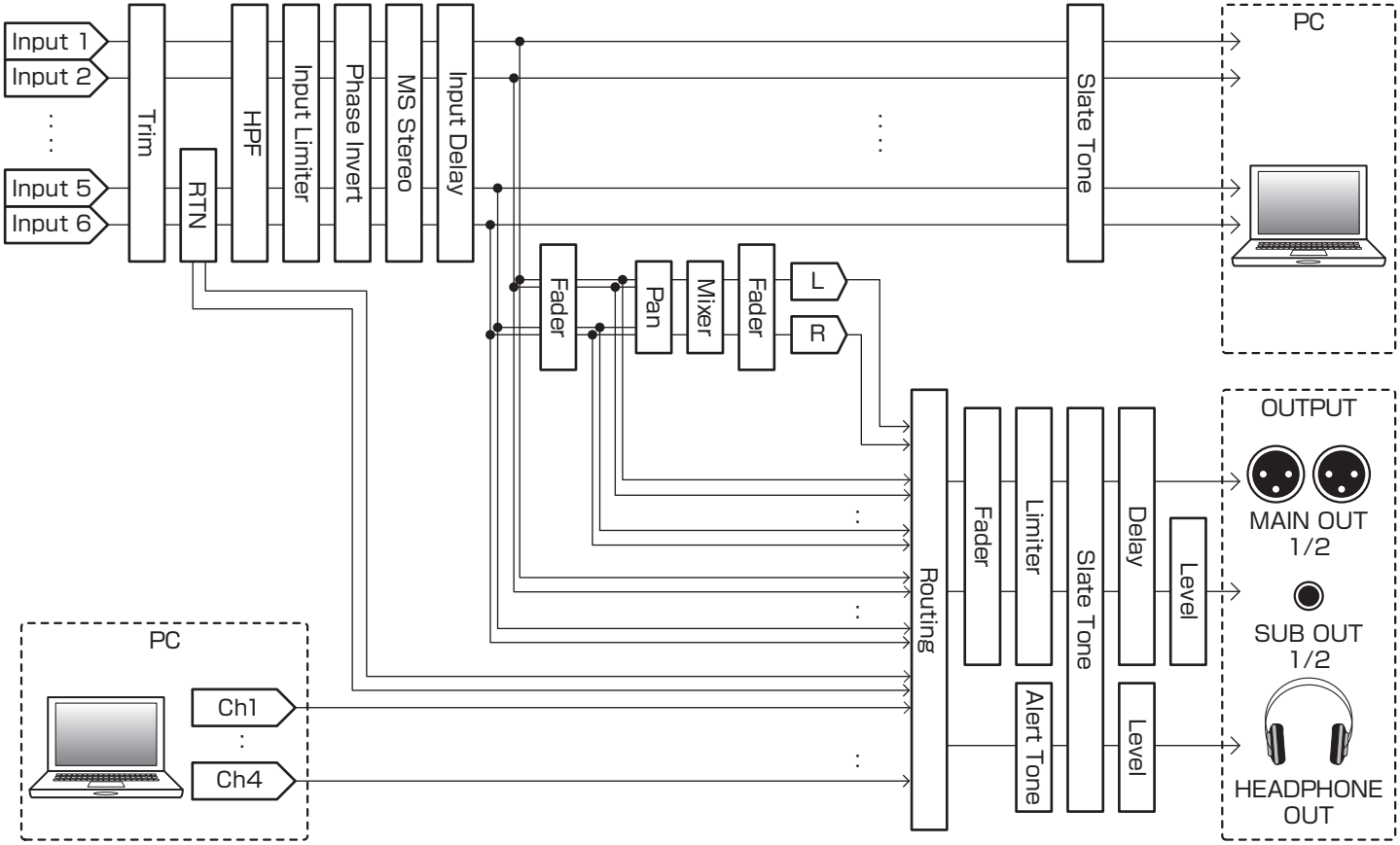
4. **Disconnect the cable from the computer or iOS device and the F4.**

Audio interface block diagrams

Stereo Mix



Multi Track


Input 1
Input 2
Input 5
Input 6
Trim
RTN
HPF
Input Limiter
Phase Invert
MS Stereo
Input Delay
Slate Tone
PC
Fader
Pan
Mixer
Fader
L
R
Routing
Fader
Limiter
Slate Tone
Delay
Level
Alert Tone
Level
OUTPUT
MAIN OUT
1/2
SUB OUT
1/2
HEADPHONE
OUT
PC
Ch1
Ch4

Audio interface settings

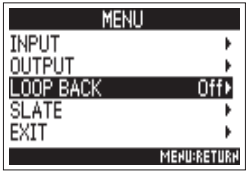
The following settings can be made when using the F4 as an audio interface. See the relevant pages for details about operation.

Setting loop back (Stereo Mix only)

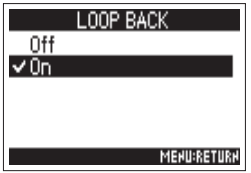
This function allows the playback sound from the computer or iOS device and the F4 inputs to be mixed and sent back to the computer or iOS device (loop back).
You can use this function to add narration to music played back from the computer and record the mix or stream it on the computer, for example.

1. **Press MENU.**

2. **Use ◯ to select LOOP BACK, and press ◯.**



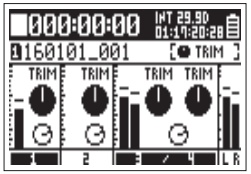
3. **Use ◯ to select On, and press ◯.**



Mixing inputs

You can adjust the mix balance of the inputs. Input signals will be sent to the computer or iOS device using the balance settings made here. When using a Stereo Mix setting, the mixed stereo signal will be sent.

1. **Open the mixer on the Home Screen. (→ P.11)**



2. **Adjust the parameter settings.**

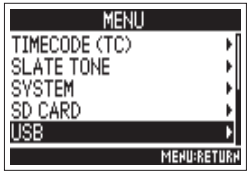
See "Adjusting the input levels and monitoring balance" (→ P.27) for how to change settings.

Using an FRC-8 as a controller (Connect)

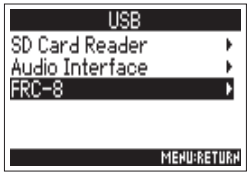
By connecting the FRC-8 to the F4, you can use it to adjust trim, fader and pan settings, for example.

1. Press MENU.

2. Use ◯ to select USB, and press ◯.



3. Use ◯ to select FRC-8, and press ◯.

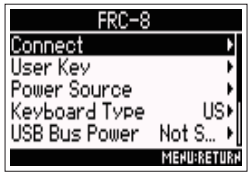


▶ Continue to one of the following procedures.

Connecting P.125
Disconnecting P.125

Connecting

4. Use ◯ to select Connect, and press ◯.



5. Use ◯ to select "Yes", and press ◯.

6. Use a USB cable to connect the F4 and the FRC-8.

7. Turn the FRC-8 power ON.

NOTE

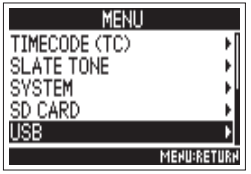
When disconnecting the FRC-8, select “Disconnect” before unplugging the USB cable

Setting the FRC-8 connected keyboard type (Keyboard type)

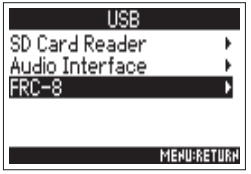
A computer keyboard can be connected to the FRC-8 and used to input characters.
Set the type of computer keyboard connected to use it.

1. **Press MENU.**

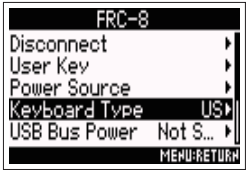
2. **Use ◯ to select USB, and press ◯.**



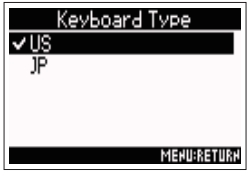
3. **Use ◯ to select FRC-8, and press ◯.**



4. **Use ◯ to select Keyboard Type, and press ◯.**



5. **Use ◯ to select the type, and press ◯.**



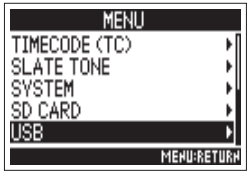
Setting value	Explanation
US	Use for an English-language keyboard.
JP	Use for a Japanese-language keyboard.

Setting user keys for the FRC-8 (User Key)

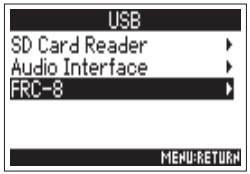
You can assign functions to the FRC-8 user keys.

1. **Press MENU.**

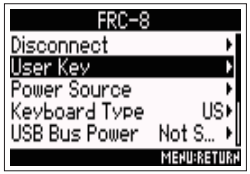
2. **Use ◯ to select USB, and press ◯.**



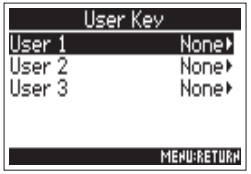
3. **Use ◯ to select FRC-8, and press ◯.**



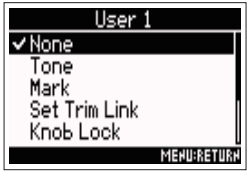
4. **Use ◯ to select User Key, and press ◯.**



5. **Use ◯ to select the key to which to assign a function, and press ◯.**



6. **Use ◯ to select the function to assign, and press ◯.**



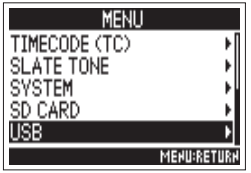
Function	Explanation
None	No function is assigned.
Tone	Generate and stops slate tones.
Mark	Add marks to WAV format takes during recording and playback.
Set Trim Link	Open the MENU > INPUT > Trim Link screen.
Knob Lock	Disable adjustments using ◯.
Clear Clip Indicator	Clear the level meter clipping indicators.
Circled	Circle the currently selected take.
Option	Function as the F4 OPTION button.

Setting the power supply used by the FRC-8 (Power Source)

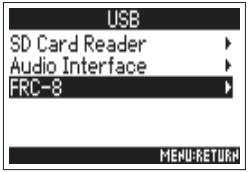
Set the DC power supply shutdown voltage, nominal voltage and type of batteries so that the remaining power supply charge can be shown accurately.
On this menu page, you can check the voltage of each power supply and the remaining battery capacity.

1. **Press MENU.**

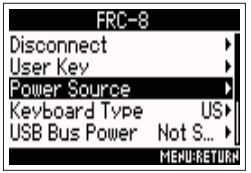
2. **Use the dial to select USB, and press the dial.**



3. **Use the dial to select FRC-8, and press the dial.**



4. **Use the dial to select Power Source, and press the dial.**



Setting the power source for the FRC-8 is the same as for the F4. See "Setting the power supply used (Power Source)" (→ P.20).

▶ Continue to one of the following procedures.

NOTE

When multiple power supplies are connected, they will be used in the following order of precedence.
1. DC power supply (Ext DC)
2. USB bus power (supplied by F4)
3. AA batteries (Int AA)

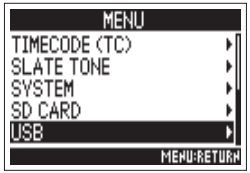
The voltages of each power supply are shown on the display.

Powering the FRC-8 with USB bus power (USB Bus Power)

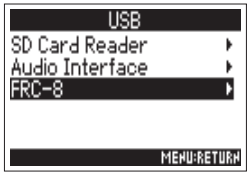
The F4 can supply USB bus power to the FRC-8.

1. Press MENU.

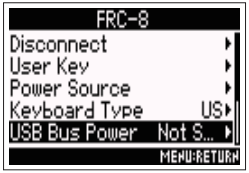
2. Use to select USB, and press .



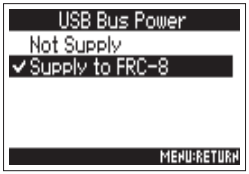
3. Use to select FRC-8, and press .



4. Use to select USB Bus Power, and press .



5. Use to select Supply to FRC-8, and press .



NOTE

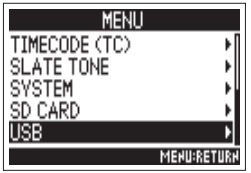
When the F4 is supplying bus power, do not connect any device other than an FRC-8 to the USB port.
Doing so could damage the F4 and the connected device.

Setting the FRC-8 LED brightness (LED Brightness)

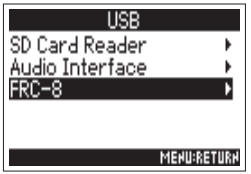
You can adjust the brightness of the LEDs on the FRC-8.

1. **Press MENU.**

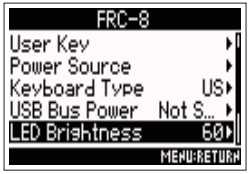
2. **Use ◯ to select USB, and press ◯.**



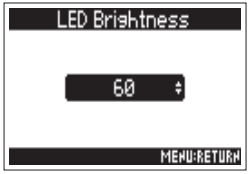
3. **Use ◯ to select FRC-8, and press ◯.**



4. **Use ◯ to select LED Brightness, and press ◯.**



5. **Use ◯ to adjust the brightness, and press MENU.**



Updating the FRC-8 firmware

You can check the FRC-8 firmware version and update it to the latest version.
An update file for the latest version can be downloaded from the ZOOM website (www.zoom.co.jp).

1. **Connect the F4 and the FRC-8, referring to "Using an FRC-8 as a controller (Connect)" (→ P.125).**

NOTE
Updating the firmware is not possible if the remaining battery or DC power supply charge is low. In this case, replace the batteries with new ones or use a charged DC power supply.

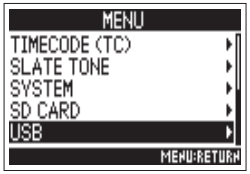
2. **Copy the file for updating the firmware to the root directory on an SD card.**

3. **Load the SD card into the SD CARD 1 slot.**

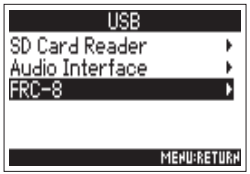
NOTE
If an SD card is loaded in the SD CARD 2 slot, eject it.

4. **Press [MENU].**

5. **Use the jog wheel to select USB, and press the jog wheel.**



6. **Use the jog wheel to select FRC-8, and press the jog wheel.**



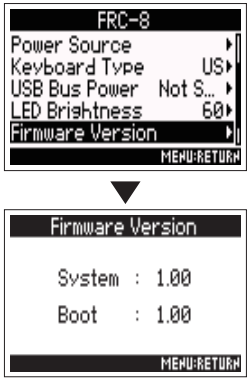
▶ Continue to one of the following procedures.

Checking the firmware version P.132
Updating the firmware P.132

Updating the FRC-8 firmware (continued)

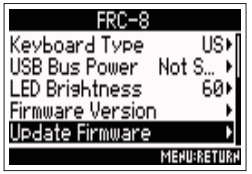
Checking the firmware version

7. **Use the dial to select Firmware Version, and press the dial.**



Updating the firmware

7. **Use the dial to select Update Firmware, and press the dial.**



8. **Use the dial to select "Yes", and press the dial.**

NOTE

Do not turn the power off, remove an SD card or disconnect the USB cable during a firmware update. Doing so could cause the FRC-8 to become unstartable.

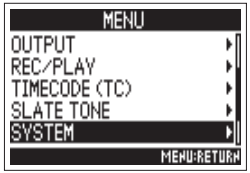
9. **After the firmware update completes, turn the FRC-8 power off.**

Setting the level meter display (Level Meter)

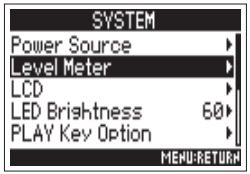
You can set how the level meters appear on the display.

1. **Press MENU.**

2. **Use to select SYSTEM, and press .**



3. **Use to select Level Meter, and press .**



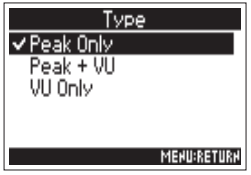
▶ Continue to one of the following procedures.

Setting the type

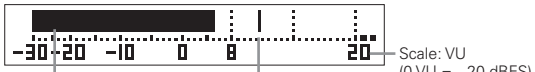
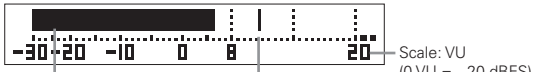
You can set whether the level meters use VU or Peak style.

4. **Use to select Type, and press .**

5. **Use to select the type, and press .**

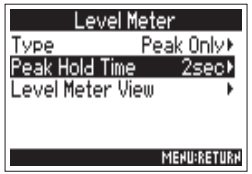


Setting the level meter display (Level Meter) (continued)

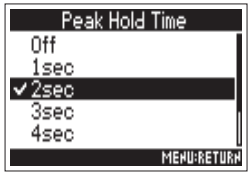
Setting value	Explanation
Peak Only	 The actual peak level of the signal (dBFS) is shown.
VU + Peak	 Both VU and peak level are shown simultaneously. In this mode, the bars show VU and the dots above the VU show the peak.
VU Only	 This display style is close to human hearing.

Setting the peak hold time

4. **Use to select Peak Hold Time, and press .**



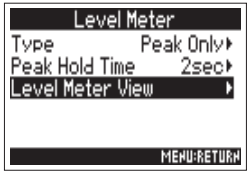
5. **Use to adjust the peak hold time, and press .**



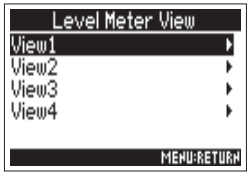
Setting the track level meters shown on the Home Screen

You can change which tracks are shown on the Home Screen.

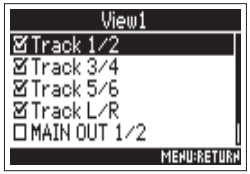
4. **Use to select Level Meter View, and press .**



5. **Use to select View 1–4, and press .**



6. **Use to select the tracks to show, and press .**



NOTE

A maximum of four can be selected

HINT

- Multiple tracks can be shown. Not showing any tracks is also possible.
- If none of the check boxes are checked, no track level meters will appear on the Home Screen.

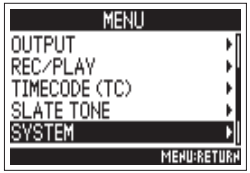
7. **Press [MENU].**

Making display settings (LCD)

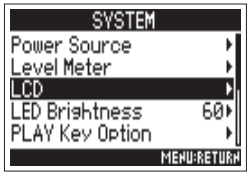
You can make settings related to the display.

1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select LCD, and press ◯.**



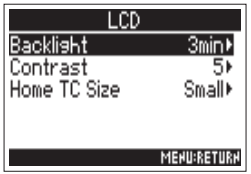
▶ Continue to one of the following procedures.

Changing the display backlight setting P.136
Adjusting the display contrast P.137
Changing the Home Screen timecode display P.137

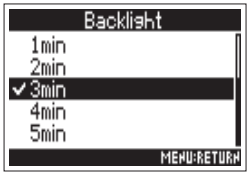
Changing the display backlight setting

You can set the display backlight to turn off after a set amount of time without use.

4. **Use ◯ to select Backlight, and press ◯.**



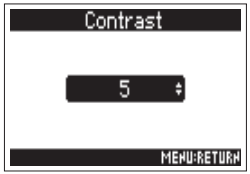
5. **Use ◯ to select the setting, and press ◯.**



Adjusting the display contrast

4. **Use ◯ to select Contrast, and press ◯.**

5. **Use ◯ to adjust the contrast, and press MENU.**



HINT
This can be set from 1 to 10.

Changing the Home Screen timecode display

You can change the size of the timecode shown on the Home Screen.

4. **Use ◯ to select Home TC Size, and press ◯.**

5. **Use ◯ to select the size, and press ◯.**

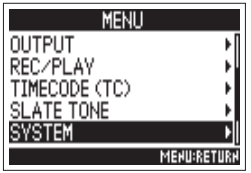
Setting value	Explanation
Small	 The timecode is small and the time counter is large.
Big	 The timecode is large and the time counter is small.

Setting the LED brightness (LED Brightness)

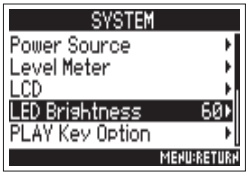
You can adjust the brightness of the LEDs on the front of the F4.

1. Press MENU.

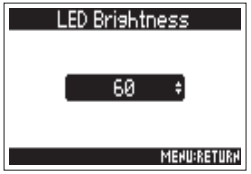
2. Use the jog dial to select SYSTEM, and press the jog dial.



3. Use the jog dial to select LED Brightness, and press the jog dial.



4. Use the jog dial to adjust the brightness, and press MENU.



HINT

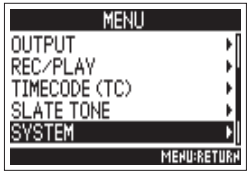
This can be set from 5 to 100.

Setting how marks are added manually (PLAY Key Option)

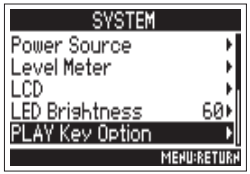
You can set how marks are added when [►/II] is pressed while recording or playing back a WAV format file.

1. **Press [MENU].**

2. **Use [dial] to select SYSTEM, and press [dial].**



3. **Use [dial] to select PLAY Key Option, and press [dial].**

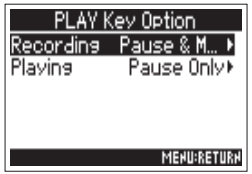


▶ Continue to one of the following procedures.

Setting how marks are added when recording P.139
Setting how marks are added when playing..... P.140

Setting how marks are added when recording

4. **Use [dial] to select Recording, and press [dial].**



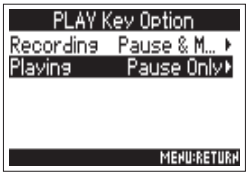
5. **Use [dial] to select how marks are added, and press [dial].**

Setting value	Explanation
Pause Only	Pressing [►/II] will pause without adding a mark.
Pause & Mark	Pressing [►/II] will pause and add a mark.
Mark Only	Pressing [►/II] will add a mark without pausing.

Setting how marks are added manually (PLAY Key Option) (continued)

Setting how marks are added when playing

4. **Use to select Playing, and press .**



5. **Use to select how marks are added, and press .**

Setting value	Explanation
Pause Only	Pressing ►/II will pause without adding a mark.
Pause & Mark	Pressing ►/II will pause and add a mark.
Mark Only	Pressing ►/II will add a mark without pausing.

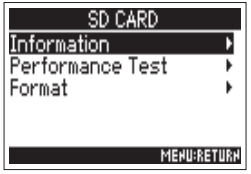
Checking SD card information (Information)

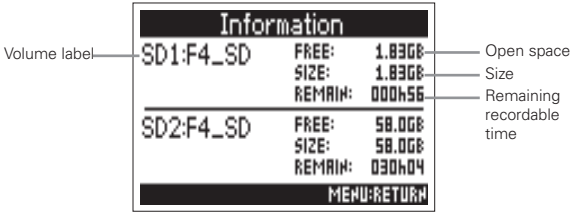
You can check the size and open space of SD cards.

1. **Press MENU.**

2. **Use ◯ to select SD CARD, and press ◯.**

3. **Use ◯ to select Information, and press ◯.**





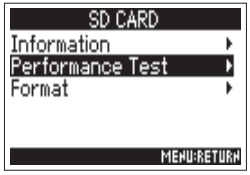
Testing SD card performance (Performance Test)

You can test whether an SD card can be used with the F4. A basic test can be done quickly, while a full test examines the entire SD card.

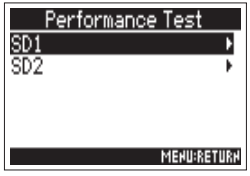
1. Press MENU.

2. Use the jog dial to select SD CARD, and press the jog dial.

3. Use the jog dial to select Performance Test, and press the jog dial.



4. Use the jog dial to select the SD card to test, and press the jog dial.



▶ Continue to one of the following procedures.

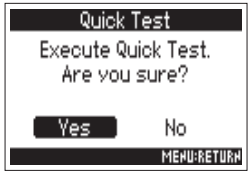
Conducting a quick test P.142
Conducting a full test P.143

Conducting a quick test

5. Use the jog dial to select Quick Test, and press the jog dial.

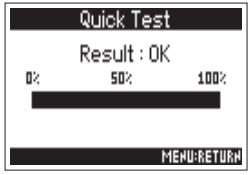
6. Use the jog dial to select "Yes", and press the jog dial.

The card performance test will start. The tests should take about 30 seconds.



7. The test completes.

The result of the evaluation will be shown.



8. Press MENU to cancel the test.

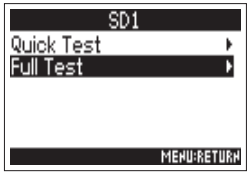
NOTE

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

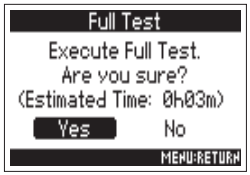
Conducting a full test

5. **Use to select Full Test, and press .**

The amount of time required for the full test will be shown.

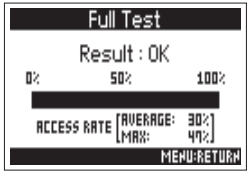


6. **Use to select "Yes", and press .**



7. **The test completes.**

The result of the evaluation will be shown. If the access rate MAX reaches 100%, the card will fail (NG).



8. **Press [MENU] to cancel the test.**

NOTE

- You can press [►/II] to pause and resume the test.
- Even if a performance test result is "OK", there is no guarantee that writing errors will not occur. This information is just to provide guidance.

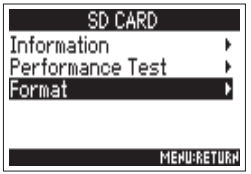
Formatting SD cards (Format)

Format SD cards for use with the F4.

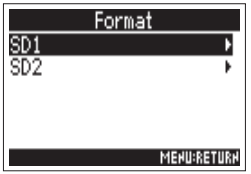
1. **Press MENU.**

2. **Use ◯ to select SD CARD, and press ◯.**

3. **Use ◯ to select Format, and press ◯.**



4. **Use ◯ to select the card to format, and press ◯.**



5. **Use ◯ to select "Yes", and press ◯.**

NOTE

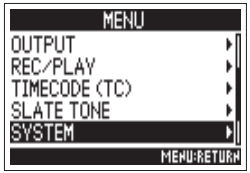
- Before using SD cards that have just been purchased or that have been formatted on a computer, they must be formatted by the F4.
- Be aware that all data previously saved on the SD card will be deleted when it is formatted.

Checking the F4 shortcut list (Shortcut List)

The F4 has a shortcut feature that allows quick access to various functions.
See the "List of shortcuts" (→ P.156) to check the shortcut functions.

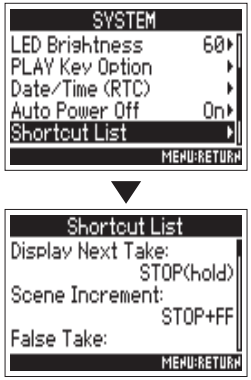
1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select Shortcut List, and press ◯.**

Use ◯ to scroll the screen and show information that is hidden.

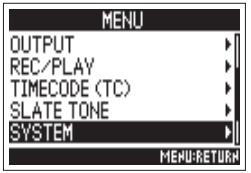


Restoring default setting values (Factory Reset)

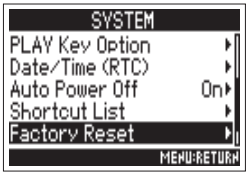
You can restore the factory default settings.

1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select Factory Reset, and press ◯.**



4. **Use ◯ to select "Yes", and press ◯.**

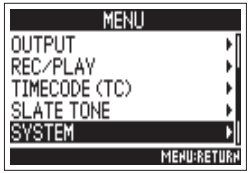
The settings will be reset and the power will automatically turn off.

Checking the firmware version (Firmware Version)

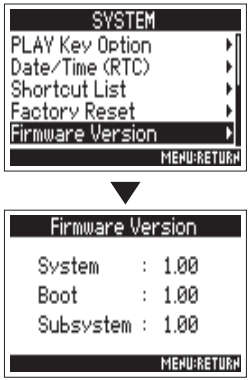
You can check the firmware version.

1. **Press MENU.**

2. **Use ◯ to select SYSTEM, and press ◯.**



3. **Use ◯ to select Firmware Version, and press ◯.**



Updating the firmware

The F4 firmware can be updated to the latest version.
An update file for the latest version can be downloaded from the ZOOM website (www.zoom.co.jp).

1. **Install new batteries in the F4 or connect a charged DC power supply to the DC IN connector.**

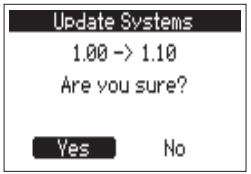
NOTE
Updating the firmware is not possible if the remaining battery or DC power supply charge is low. In this case, replace the batteries with new ones or use a charged DC power supply.

2. **Copy the file for updating the firmware to the root directory on an SD card.**

3. **Load the SD card into the SD CARD 1 slot, and turn the power on while pressing ►/II.**

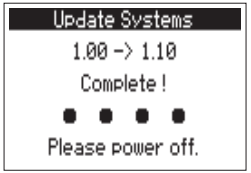
NOTE
If an SD card is loaded in the SD CARD 2 slot, eject it.

4. **Use the dial to select "Yes", and press the dial.**



NOTE
Do not turn the power off or remove the SD card during a firmware update. Doing so could cause the F4 to become unstartable.

5. **After the firmware update completes, turn the power off.**



Troubleshooting

If you think that the F4 is operating strangely, check the following items first.

Recording/playback trouble

◆ There is no sound or output is very quiet
·Check the connections to your monitoring system and its volume setting.
·Confirm that the volume of the F4 is not too low.

◆ Sound from connected equipment or inputs cannot be heard or is very quiet
·If you are using a mic capsule, confirm that it is oriented correctly.
·Check the input level settings. (→ P.27)
·If a CD player or other device is connected to an input jack, raise the output level of that device.
·Check the input signal monitoring settings. (→ P.27)
·Check the phantom power and plug-in power settings. (→ P.80, P.83)
·Check the headphones, MAIN OUT 1/2 and SUB OUT 1/2 routing settings. (→ P.90)

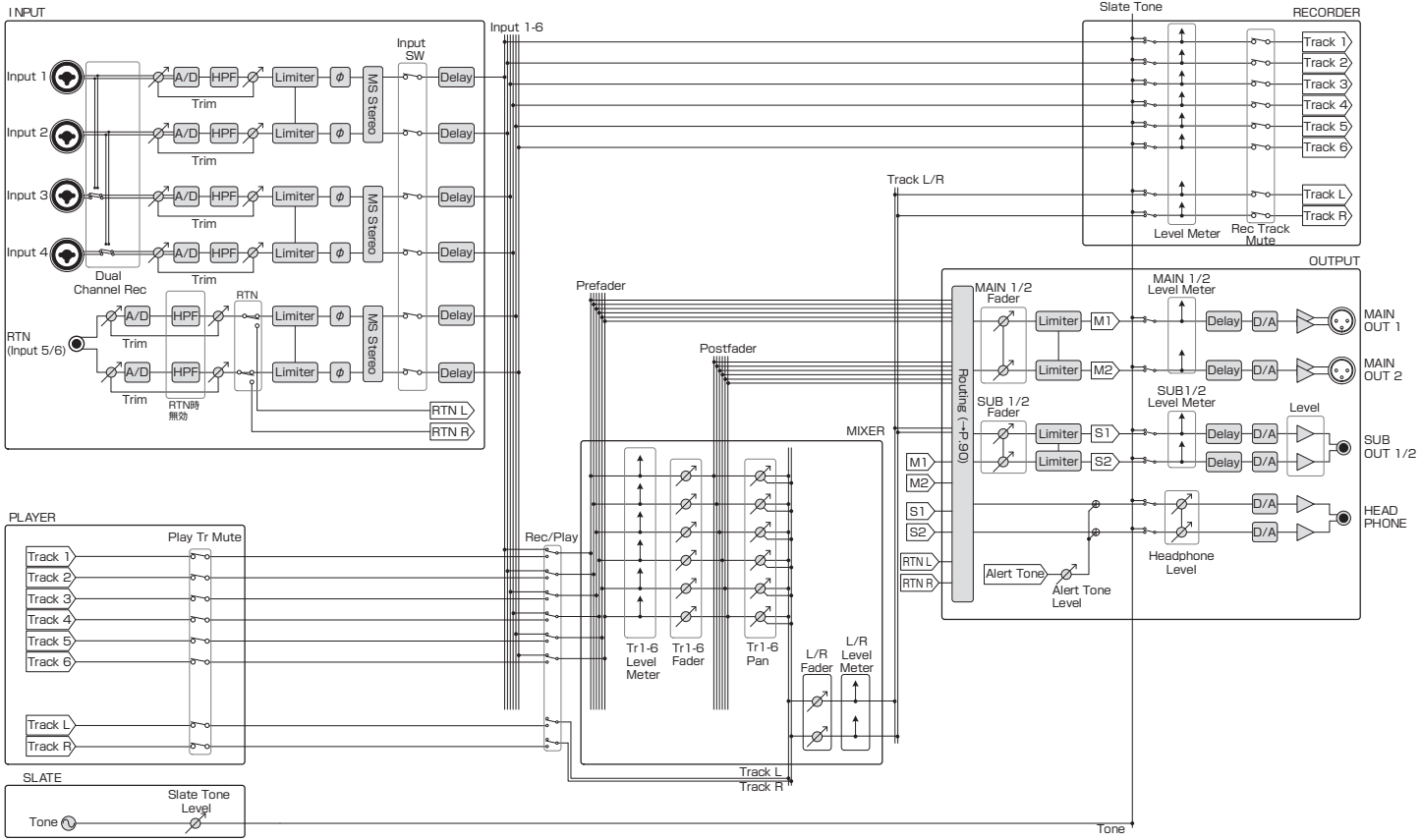
◆ Recording is not possible
·Confirm that the track keys are lit red.
·Confirm that the SD card has open space. (→ P.141)
·Confirm that an SD card is loaded properly in a card slot.
·If "Card Protected!" appears on the display, the SD card write-protection is enabled. Slide the lock switch on the SD card to disable write-protection.

◆ The recorded sound cannot be heard or is very quiet
·Confirm that the volume levels of the tracks are not too low. (→ P.50)
·Confirm that the track keys are lit green during playback.

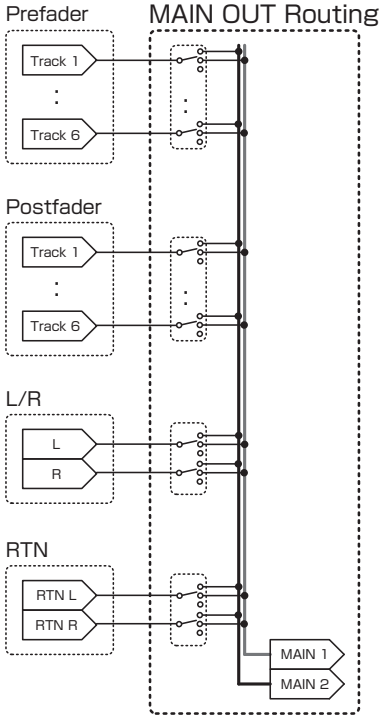
Other trouble
◆ Computer does not recognize it even though it is connected to the USB port.
·Confirm that the operating system is compatible. (→ P.119)
·The operation mode must be set on the F4 to allow the computer to recognize the F4. (→ P.119)

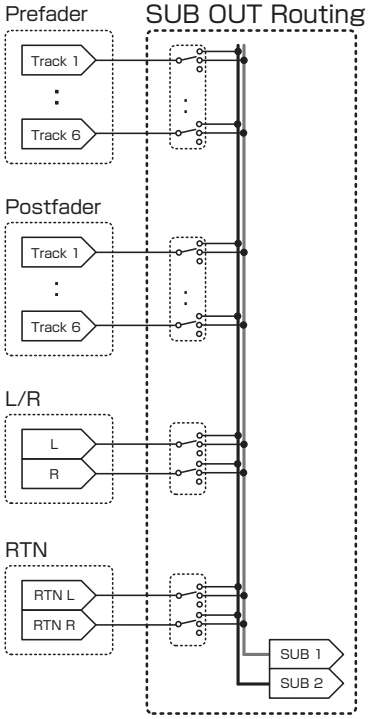
◆ Battery operation time is short
Making the following settings could increase the battery operation time.
·Set the power supply used correctly. (→ P.20)
·Turn unnecessary tracks off. (→ P.25)
·Turn unnecessary outputs off. (→ P.94)
·Set the phantom power voltage to 24V. (→ P.80)
·Disable phantom power during playback. (→ P.82)
·Turn timecode off if not using it. (→ P.105)
·Reduce the LED brightness.(→ P.138)
·Turn the display backlight off. (→ P.136)
·Reduce the sampling rate used to record files. (→ P.30)
·Due to their characteristics, using nickel metal hydride batteries (especially high-capacity ones) or lithium batteries should enable longer use than alkaline batteries when power consumption is high.

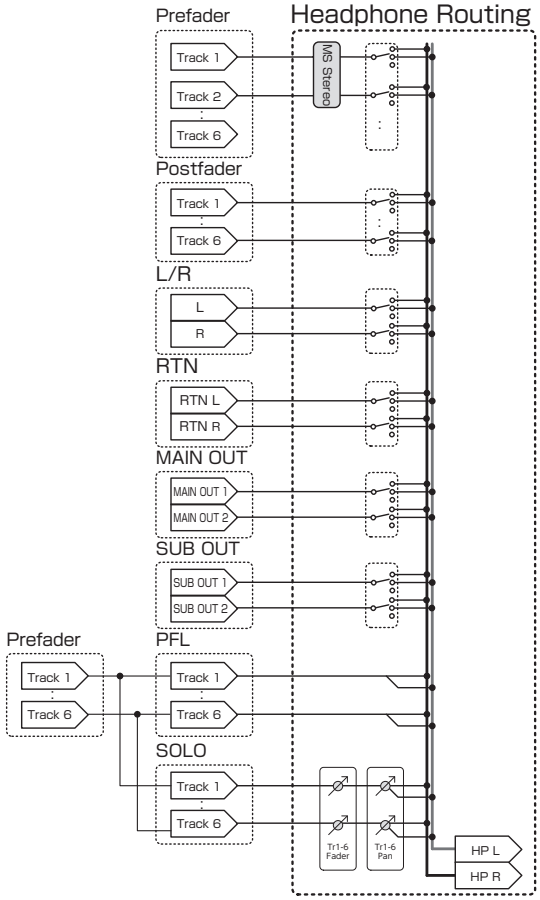
Detailed product diagrams



Routing


Prefader
MAIN OUT Routing
Track 1
Track 6
Postfader
Track 1
Track 6
L/R
L
R
RTN
RTN L
RTN R
MAIN 1
MAIN 2


Prefader
SUB OUT Routing
Track 1
Track 6
Postfader
Track 1
Track 6
L/R
L
R
RTN
RTN L
RTN R
SUB 1
SUB 2


Prefader
Headphone Routing
Track 1
Track 2
Track 6
MS Stereo
Postfader
Track 1
Track 6
L/R
L
R
RTN
RTN L
RTN R
MAIN OUT
MAIN OUT 1
MAIN OUT 2
SUB OUT
SUB OUT 1
SUB OUT 2
Prefader
Track 1
Track 6
PFL
Track 1
Track 6
SOLO
Track 1
Track 6
Tr1-6 Fader
Tr1-6 Pan
HP L
HP R

Metadata list

Metadata contained in BEXT chunks in WAV files

Tag	Explanation	Remarks
SPEED=	Frame rate	MENU >TIMECODE (TC) > FPS
TAKE=	Take number	
UBITS=	User bits	MENU >TIMECODE (TC) > Ubits
SCENE=	Scene name	MENU > METADATA (NextTake) > Scene > Name Mode MENU > METADATA (NextTake) > Scene > User Scene Name MENU > FINDER >TAKE MENU > Metadata Edit > Scene
TAPE=	Name of recording destination folder	MENU > FINDER MENU > FINDER >TAKE MENU > Metadata Edit > Folder (Tape)
CIRCLED=	Circled take	MENU > FINDER >TAKE MENU > Metadata Edit > Circle
TR1=	Track 1 name	Track names are written as follows. TR1 =Tr1, TR2 =Tr2... TRL =TrL, TRR =TrR During dual channel recording, TR3 =Tr1, TR4 =Tr2.
TR2=	Track 2 name	
TR3=	Track 3 name	
TR4=	Track 4 name	
TR5=	Track 5 name	
TR6=	Track 6 name	
TRL=	Left track name	
TRR=	Right track name	
NOTE=	Take note	MENU > METADATA (NextTake) > Note > Edit MENU > FINDER >TAKE MENU > Metadata Edit > Note > Edit

Metadata contained in iXML chunks in WAV files

iXML master tag	iXML sub tag	Written	Read	Remarks
<PROJECT>		○	○	MENU > FINDER (folder name at top SD card level) MENU > FINDER >TAKE MENU > Metadata Edit > Project
<SCENE>		○	×	MENU > METADATA (Next Take) > Scene > Name Mode MENU > METADATA (Next Take) > User Scene Name MENU > FINDER >TAKE MENU > Rename
<TAKE>		○	×	
<TAPE>		○	○	MENU > FINDER (recording destination folder name) MENU > FINDER >TAKE MENU > Metadata Edit > Folder (Tape)
<CIRCLED>		○	○	MENU > FINDER >TAKE MENU > Metadata Edit > Circle
<WILD TRACK>		×	×	
<FALSE START>		×	×	
<NO GOOD>		×	×	
<FILE_UID>		○	×	
<UBITS>		○	×	MENU >TIMECODE (TC) > Ubits
<NOTE>		○	○	MENU > REC > Next Take > Note MENU > FINDER >TAKE MENU > Metadata Edit > Note
<BEXT>		×	×	
<USER>		×	×	

Metadata list (continued)

iXML master tag	iXML sub tag	Written	Read	Remarks
<SPEED>				
<SPEED>	<NOTE>	○	×	
<SPEED>	<MASTER_SPEED>	○	○	MENU >TIMECODE (TC) > FPS
<SPEED>	<CURRENT_SPEED>	○	×	MENU >TIMECODE (TC) > FPS
<SPEED>	<TIMECODE_RATE>	○	×	MENU >TIMECODE (TC) > FPS
<SPEED>	<TIMECODE_FLAG>	○	×	MENU >TIMECODE (TC) > FPS
<SPEED>	<FILE_SAMPLE_RATE>	○	×	MENU > REC/PLAY > Sample Rate
<SPEED>	<AUDIO_BIT_DEPTH>	○	×	MENU > REC/PLAY > WAV Bit Depth
<SPEED>	<DIGITIZER_SAMPLE_RATE>	○	×	MENU > REC/PLAY > Sample Rate
<SPEED>	<TIMESTAMP_SAMPLES_SINCE_MIDNIGHT_HI>	○	×	
<SPEED>	<TIMESTAMP_SAMPLES_SINCE_MIDNIGHT_LO>	○	×	
<SPEED>	<TIMESTAMP_SAMPLE_RATE>	○	×	MENU > REC/PLAY > Sample Rate

iXML master tag	iXML sub tag	Written	Read	Remarks
<SYNC_POINT_LIST>				
<SYNC_POINT>	<SYNC_POINT_TYPE>	×	×	
<SYNC_POINT>	<SYNC_POINT_FUNCTION>	×	×	
<SYNC_POINT>	<SYNC_POINT_COMMENT>	×	×	
<SYNC_POINT>	<SYNC_POINT_LOW>	×	×	
<SYNC_POINT>	<SYNC_POINT_HIGH>	×	×	
<SYNC_POINT>	<SYNC_POINT_EVENT_DURATION>	×	×	

iXML master tag	iXML sub tag	Written	Read	Remarks
<HISTORY>				
<HISTORY>	<ORIGINAL_FILENAME>	○	×	
<HISTORY>	<PARENT_FILENAME>	×	×	
<HISTORY>	<PARENT_UID>	×	×	

iXML master tag	iXML sub tag	Written	Read	Remarks
<FILE_SET>				
<FILE_SET>	<TOTAL_FILES>	○	×	
<FILE_SET>	<FAMILY_UID>	○	×	
<FILE_SET>	<FAMILY_NAME>	×	×	
<FILE_SET>	<FILE_SET_START_TIME_HI>	×	×	
<FILE_SET>	<FILE_SET_START_TIME_LO>	×	×	
<FILE_SET>	<FILE_SET_INDEX>	○	×	

iXML master tag	iXML sub tag	Written	Read	Remarks
<TRACK_LIST>				
<TRACK_LIST>	<TRACK_COUNT>	○	×	
<TRACK>	<CHANNEL_INDEX>	○	×	
<TRACK>	<INTERLEAVE_INDEX>	○	×	
<TRACK>	<NAME>	○	×	
<TRACK>	<FUNCTION>	×	×	

○ = YES × = NO

Metadata and ID3 fields contained in MP3 files

Metadata	ID3 field	Format
Timecode	Artist Name	TC=[HH:MM:SS:FF]
Scene name, take number	Track Title	SC=[scene name] TK=[take number]
Frame rate, file length (time)	Album Title	FR=[frame rate] D=[file length (time)]

List of shortcuts

Home Screen

Shortcut	Explanation
Press and hold ■	Show the name and track used for the next take recorded. Example: Scene1_002
■ + ►►|	Advance the scene number by 1 (when the Home Screen is open).
Press and hold |◄◄	Move the previously recorded take to the FALSE TAKE folder (when the Home Screen is open).
OPTION + 1	Open MENU > TIMECODE (TC) > Jam screen.
OPTION + 2	Open the MENU > INPUT > Trim Link screen.
OPTION + PFL (Track 1)	Disable operations using the knob.
OPTION + PFL (Track 2)	Clear the level meter clipping indicators.
OPTION + PFL (Track 3)	Open the L/R track fader settings screen.
■ + 1	Open the MENU > METADATA (Next Take) > Scene > Scene Note screen.
■ + 2	Open the MENU > METADATA (Next Take) > Scene > User Scene Name screen.
■ + 3	Open the MENU > METADATA (Next Take) > Track Name screen.
■ + 4	Circle the currently selected take.

Menu Screen

Shortcut	Explanation
Press and hold MENU	Cancel the setting and return to the Home Screen.

Character input screen

Shortcut	Explanation
Press and turn	Move the cursor vertically on a character input screen keyboard.
■ + |◄◄	Delete a character on a character input screen.
■ + ►►|	Move the cursor to "Enter" on a character input screen keyboard.

Routing screen

Shortcut	Explanation
Press and turn	Move the cursor vertically

Specifications

Recording media		Dual SD card slots support 16MB–2GB SD cards, 4GB–32GB SDHC cards, 64GB–512GB SDXC cards	
Inputs	**INPUT 1–4**	Connector	XLR/TRS combo jacks (XLR: 2 hot, TRS: TIP hot)
	XLR inputs (MIC)	Input gain	+10 to +75 dB
		Input impedance	3 kΩ or more
		Maximum input level	+14 dBu (at 0 dBFS, limiter ON)
		Phantom power	+24/+48V 10mA maximum for each channel
	TRS inputs (LINE)	Input gain	–10 to +55 dB
		Input impedance	22 kΩ or more
		Maximum input level	+24 dBu (at 0 dBFS, limiter ON)
	Equivalent input noise	–127 dBu or less (A-weighted, +75dB input gain, 150Ω input)	
	Frequency characteristics	10 Hz – 80 kHz +0.5dB/–1.5dB (192kHz sampling rate)	
	A/D dynamic range	120 dB typ (–60dBFS input, A-weighted)	
	Crosstalk	–90 dB or less (between adjacent channels, 1kHz)	
	RTN (INPUT 5/6)	Connector	3.5mm stereo mini
		Nominal input gain	–10 dBV/+4 dBu
		Input impedance	10 kΩ or more
		Maximum input level	+10 dBV (Level: –10 dBV), +24 dBu (Level: +4 dBu)
	MIC IN (INPUT 5/6)	ZOOM mic capsule input (disables RTN (INPUT 5/6) when used)	
Outputs	**MAIN OUT 1/2**	Connectors	XLR balanced output (2: hot)
		Output impedance	150 Ω or less
		Reference output level	–10 dBV, 1 kHz, 600Ω load
		Maximum output level	+10 dBV, 1 kHz, 600Ω load
	SUB OUT 1/2	Connector	3.5mm stereo mini unbalanced output jack
		Output impedance	1 kΩ or less
		Reference output level	–10 dBV (Output Type: Normal), –40 dBV (Output Type: Mic), 1kHz, 10kΩ load
		Maximum output level	+10 dBV (Output Type: Normal), –20 dBV (Output Type: Mic), 1kHz, 10kΩ load
	HEADPHONE	Connector	1/4" stereo unbalanced output jack
		Output impedance	15 Ω or less
		Maximum output level	100mW + 100mW (32Ω load)
	D/A dynamic range	106 dB typ (–60dBFS input, A-weighted)	

Specifications (continued)

Recording formats	When WAV selected	
	Supported formats:	44.1/47.952/48/48.048/88.2/96/192kHz, 16/24-bit, mono/stereo//2-8ch poly, BWF and iXML
	Maximum simultaneous recording tracks	8 (6 Inputs + LR MIX recording at 192kHz sampling rate)
	When MP3 selected	
	Supported formats:	128/192/320kbps, 44.1/48kHz, ID3v1 tags
	Maximum simultaneous recording tracks	2
Recording time	Using a 32GB card	
	30:51:00 (48kHz/24-bit stereo WAV)	
	7:42:00 (192kHz/24-bit stereo WAV)	
Timecode	Connector	BNC
	Modes	Off, Int Free Run, Int Record Run, Int RTC Run, Ext, Ext Auto Rec (audio clock can be synchronized to timecode)
	Frame rate	23.976ND, 24ND, 25ND, 29.97ND, 29.97D, 30ND, 30D
	Precision	±0.2 ppm
	Allowed input level	0.2 – 5.0 Vpp
	Input impedance	4.3 kΩ or more
	Output level	3.0 Vpp ±10%
	Output impedance	50 Ω or less
Power	Batteries: 8 AA	
	External DC power supply: HIROSE HR10A-7R-4S 4-pin connector (1 pin: –, 4 pin: +), 9–16 V	
Continuous recording time	48kHz/16-bit 2ch recording to SD1 (MAIN/SUB OUT OFF, TIME CODE OFF, LED Brightness 5, 32Ω load headphones, PHANTOM OFF)	
	Alkaline batteries	9.5 hours or more
	NiMH (2450mAh)	11.5 hours or more
	Lithium batteries	17.5 hours or more
	48kHz/24-bit 4ch recording to SD1 (MAIN/SUB OUT OFF, TIME CODE OFF, LED Brightness 5, 32Ω load headphones, PHANTOM OFF)	
	Alkaline batteries	9 hours or more
	NiMH (2450mAh)	10.5 hours or more
	Lithium batteries	16.5 hours or more

Continuous recording time	192kHz/24-bit 4ch recording to SD1/SD2 (MAIN/SUB OUT ON, TIME CODE set to Int Free Run, LED Brightness 60, 32Ω load headphones, PHANTOM set to 48V)	
	Alkaline batteries	2 hours or more
	NiMH (2450mAh)	3.5 hours or more
	Lithium batteries	6 hours or more
Display	128×64 LCD with backlight	
USB	Mass storage operation	
	Class:	USB 2.0 High Speed
	Multi Track audio interface operation (driver required for Windows, not required for Mac)	
	Class:	USB 2.0 High Speed
	Specifications:	44.1/48/96kHz sampling rate, 16/24-bit bit rate, 6 in/4 out
	Stereo Mix audio interface operation (no driver required)	
	Class:	USB 2.0 Full Speed
	Specifications:	44.1/48kHz sampling rate, 16-bit bit rate, 2 in/2 out
	Note: iOS device audio interface operation supported (stereo mode only)	
Power consumption	12 W	
External dimensions	Main unit: 177.8 mm (W) × 141.1 mm (D) × 54.3 mm (H)	
Weight (main unit only)	1030 g	

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