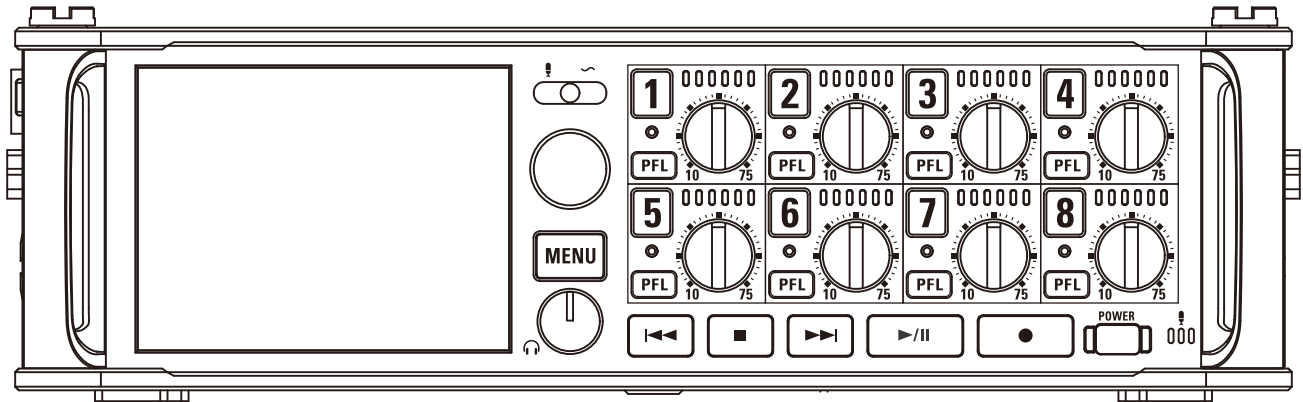


F8

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.



Something that could cause serious injury or death



Something that could cause injury or damage to the equipment

Other symbols used



An action that is mandatory



An action that is prohibited



Warning

Operation using an AC adapter

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

Operation with 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 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 **FB** 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 **FB** and the other device farther apart.

With any type of electronic device that uses digital control, including the **FB**, 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 disconnect the AC adapter, turn the power off and disconnect other cables. Contact the store where you bought the unit or ZOOM service with the following information: product model, serial number and specific symptoms of breakdown or malfunction, along with your name, address and telephone number.

Copyrights

- © Windows®, Windows® 8, Windows® 7 and Windows Vista® are trademarks or registered trademarks of Microsoft® Corporation.
- © Macintosh, Mac OS and iPad are trademarks or registered trademarks of Apple Inc.
- © The SD, SDHC and SDXC logos are trademarks. MPEG Layer-3 audio compression technology is licensed from Fraunhofer IIS and Sixel S.p.A.
- © Bluetooth and the Bluetooth logo are registered trademarks of Bluetooth SIG, Inc. and are used under license by ZOOM CORPORATION.
- © Other product names, registered trademarks and company names in this document are the property of their respective companies.

Note: All trademarks and registered trademarks in this document are for identification purposes only and are not intended to infringe on the copyrights of their respective owners.

Recording from copyrighted sources, including CDs, records, tapes, live performances, video works and broadcasts, without permission of the copyright holder for any purpose other than personal use is prohibited by law. Zoom Corporation will not assume any responsibility related to infringements of 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 Automatic Power Saving function" on P.19 and turn the function off.

Contents

Usage and Safety Precautions.....	02
Contents	03
Introduction.....	04
Names of parts.....	05
Connecting mics/other devices to Inputs 1–8.....	07
LCD display	10
Preparations	
Supplying power	13
Loading an SD card.....	15
Turning the power on and off.....	16
Setting the date and time (Date/Time (RTC)).....	17
Disabling the Automatic Power Saving function (Auto Power Off)	19
Setting the power supply used (Power Source).....	20
Recording	
Recording process	22
Enabling recording on SD cards and setting file formats	23
Selecting inputs and adjusting levels	24
Recording	26
Setting the sampling rate (Sample Rate).....	27
Setting WAV file bit depth (WAV Bit Depth).....	28
Setting MP3 file bit rate (MP3 Bit Rate).....	29
Simultaneously recording tracks at different levels (Dual Channel Rec)	30
Capturing audio before recording starts (Pre Rec)	32
Maximum file size (File Max Size).....	33
Folder and file structure	34
Changing recording take settings (Next Take).....	36
Playback	
Playing recordings.....	40
Mixing takes.....	41
Changing the playback mode (Play Mode).....	42
Take and folder operations	
Take and folder operations (FINDER).....	43
Overview of take metadata stored in files.....	50
Checking and editing take metadata.....	51
Input settings	
Input and output signal flow.....	55
Adjusting the input signal monitoring balance.....	56
Monitoring the input signals of specific tracks (PFL/SOLO)	57
Setting the monitoring volume on the PFL screen (PFL Mode).....	58
Cutting low-frequency noise (HPF)	59
Input limiter.....	60
Inverting the input phase (Phase Invert).....	64
Changing the phantom power settings (Phantom).....	65
Changing the plugin power setting (Plugin Power).....	67
Delaying input signals (Input Delay).....	68
Converting mid-side input to ordinary stereo (Stereo Link Mode)	69
Adjusting the side level of a mid-side mic capsule (Side Mic Level)	71
Output settings	
Setting signals sent to headphones (Headphone Routing)	72
Outputting alerts through headphones (Alert Tone Level)	75
Disabling outputs (Output On/Off)	76
Setting the standard output level (Output Level)	77
Setting the output level.....	78
Applying delays to outputs (Output Delay).....	79
Output Limiter.....	80
Selecting signals sent to the main outputs (MAIN OUT Routing)	84
Selecting signals sent to the sub outputs (SUB OUT Routing)	85
TIMECODE	
Timecode overview	86
Setting timecode.....	88
Setting automatic timecode recording delay (Auto Rec Delay Time)	95
Setting how timecode is initialized at startup (Start Timecode).....	96
Slate mic/slate tone	
Slate mic and slate tone overview	97
Recording with the slate mic (Slate Mic).....	98
Recording a slate tone (Slate Tone).....	101
Using USB functions	
Exchanging data with a computer (SD Card Reader)	105
Using as an audio interface (Audio Interface).....	106
Audio interface block diagrams.....	108
Audio interface settings	110
Various settings	
Setting how timecode is shown (Home Timecode Display Size)	112
Setting level meter appearance (Level Meter) ..	113
Setting the LED brightness (LED Brightness)...	116
Making display settings (LCD).....	117
Adding marks when pausing (PLAY Key Option)	119
Other functions	
Checking SD card information (Information) ...	121
Testing SD card performance (Performance Test)	122
Formatting SD cards (Format)	125
Restoring default setting values (Factory Reset)	126
Checking the firmware version (Firmware Version).....	127
Updating the firmware	128
Appendices	
Troubleshooting.....	129
Detailed product diagrams	130
Metadata list	132
List of shortcuts	136
Specifications.....	137

Introduction

Thank you very much for purchasing a ZOOM **F8** Multitrack Field Recorder. The **F8** has the following features.

• 8 analog input channels with super-high-quality preamps

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

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

• Recording of up to 10 tracks simultaneously

Inputs 1–8 and a stereo mix (left and right) can be recorded at the same time (8 tracks when the sampling rate is 192 kHz).

• Dual channel recording of separate files at lower levels simultaneously with ordinary recording (Inputs 1–4)

Using dual channel recording at a lower input level, you can create backup recordings to use when unexpected loud noise causes regular recordings to distort, for example.

• Limiter with a new design suppresses distortion

With 10 dB of headroom, this limiter prevents distortion even more than ordinary ones. The threshold can also be set to keep the signal below that level.

• Supports SMPTE timecode input and output

The **F8** 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 as well as MAIN OUT 1/2 and SUB OUT 1/2 jacks

This allows you to send the audio signal to a video camera or other device while monitoring with headphones.

• **With flexible signal routing, use as a mixer is also possible**
Prefader and postfader signals from inputs 1–8 can be routed to outputs freely.

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

• **Three possible power supplies—batteries, an AC adapter and an external DC power supply**

In addition to AA batteries and an AC adapter, a 9-16V external DC power supply can also be used.

• **Two SDXC card slots**

Simultaneous recording on 2 SD cards is possible, and support for SDXC cards enables recording for even longer than before. In addition, the **F8** can be used as a card reader by connecting to a computer using USB.

• **USB audio interface capabilities with up to 8 ins and 4 outs**

The **F8** can be used not only as a 2-in/2-out audio interface, but also as an 8-in/4-out audio interface (driver required for Windows).

• **Other useful features**

The built-in slate mic is great for voice memos and the slate tone that can be used to confirm specific levels. Other convenient functions include a delay that can be set for each input separately and pre-recording of up to 6 seconds.

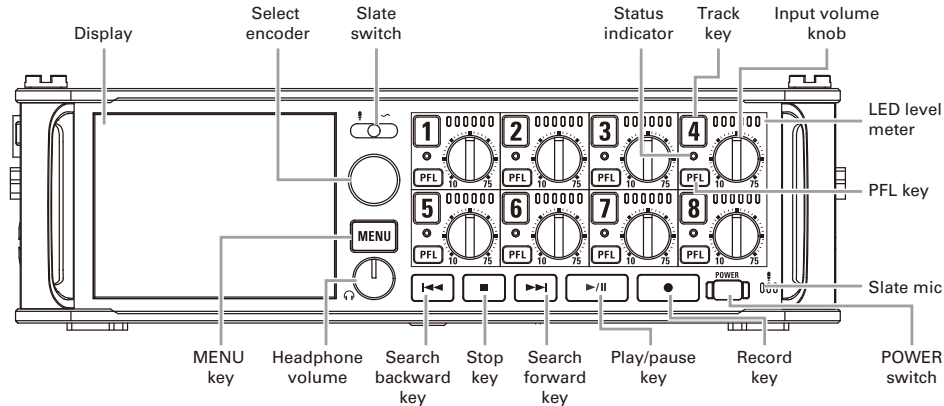
• **ZOOM mic capsules can be connected**

A ZOOM mic capsule can be used instead of inputs 1/2.

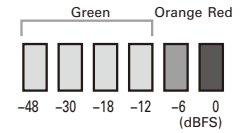
Please read this manual carefully to fully understand the functions of the **F8** so that you can make the most of it for many years. After reading this manual, please keep it with the warranty in a safe place.

Names of parts

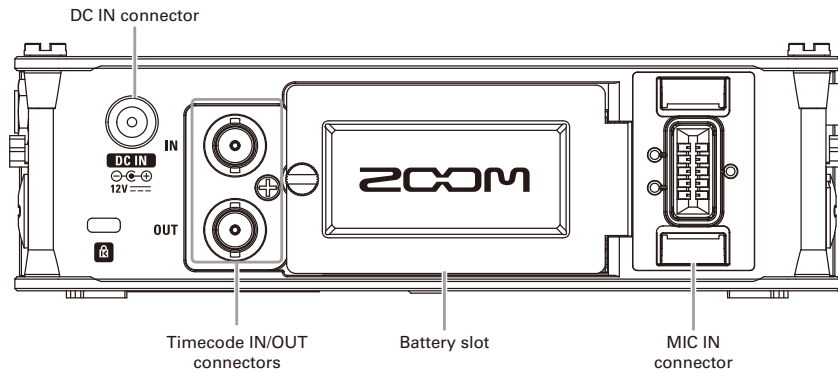
Front



LED level meter

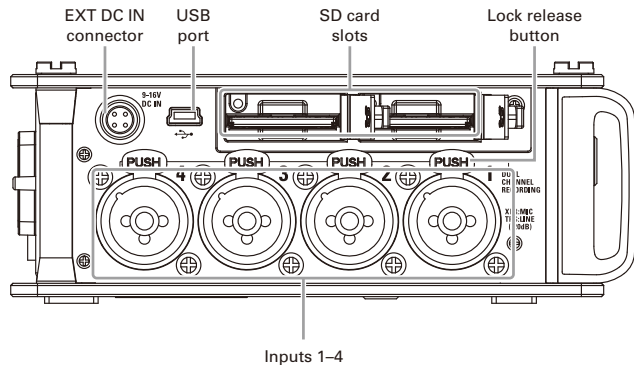


Back

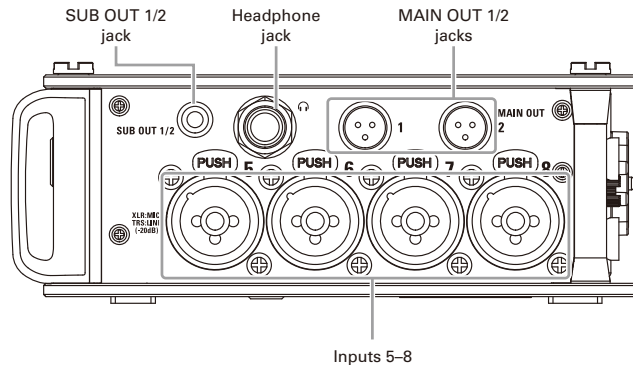


Names of parts (continued)

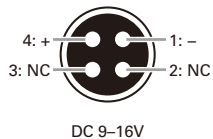
Left side



Right side

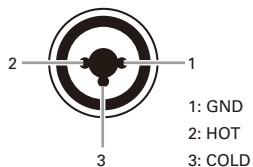


EXT DC IN

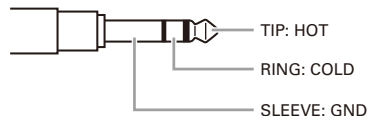


HIROSE 4-pin

Inputs 1-8

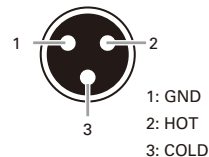


XLR



TRS

MAIN OUT



TA-3

Connecting mics/other devices to Inputs 1–8

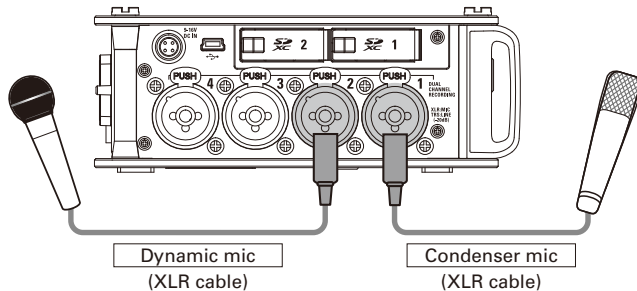
The **F8** can record a total of 10 tracks simultaneously: 8 individual tracks through Inputs 1–8 and a stereo mix of these inputs with left and right tracks.

You can connect mics and the outputs of audiovisual equipment, for example, to Inputs 1–8 and record them to tracks 1–8. In addition, Inputs 1 and 2 also support input from a mic capsule connected to the MIC IN connector.

Connecting mics

Connect dynamic and condenser mics with XLR plugs to Inputs 1–8.

Phantom power (+24V/+48V) can be supplied to condenser mics. (→ P.65)



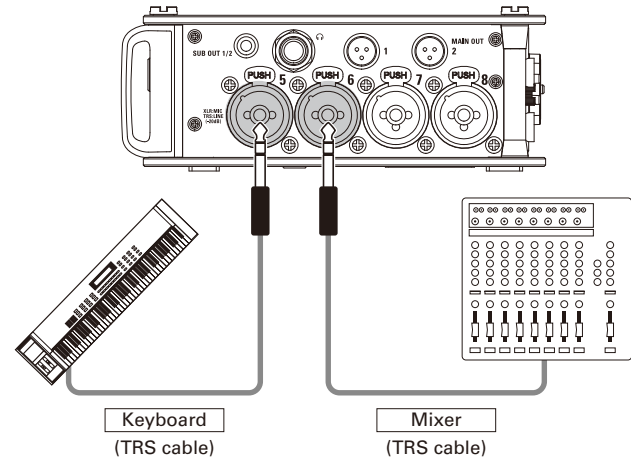
NOTE

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 1–8.

Direct input of passive guitars and basses is not supported. Connect these instruments through a mixer or effects device.



Connecting mics/other devices to Inputs 1-8 (continued)

Connecting mic capsules

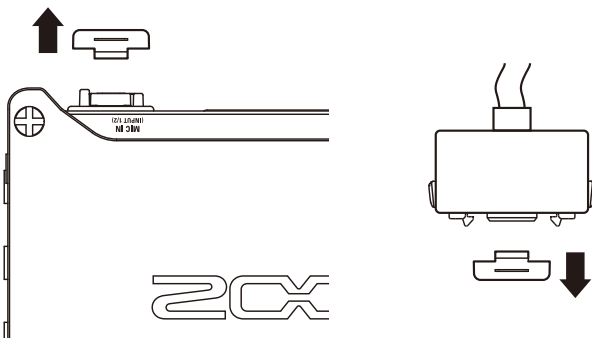
A mic capsule can be connected to the MIC IN connector on the back of the **F8**.

NOTE

- The mic capsule input is assigned to tracks 1/2.
- When a mic capsule is connected, Inputs 1/2 cannot be used.

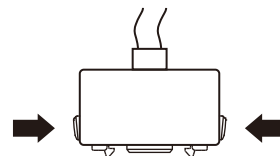
Connecting and disconnecting mic capsules

1. Remove the protective caps from the **F8** and the mic capsule or extension cable.



2. While pressing the side buttons on 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, extension cable or main unit.
- Attach the protective cap if a mic capsule will be connected for a long time.

Stereo input

By enabling the stereo link for tracks 1/2, 3/4, 5/6 or 7/8, the corresponding Inputs (1/2, 3/4, 5/6 or 7/8) can be handled as a stereo pair. (→ P.24)

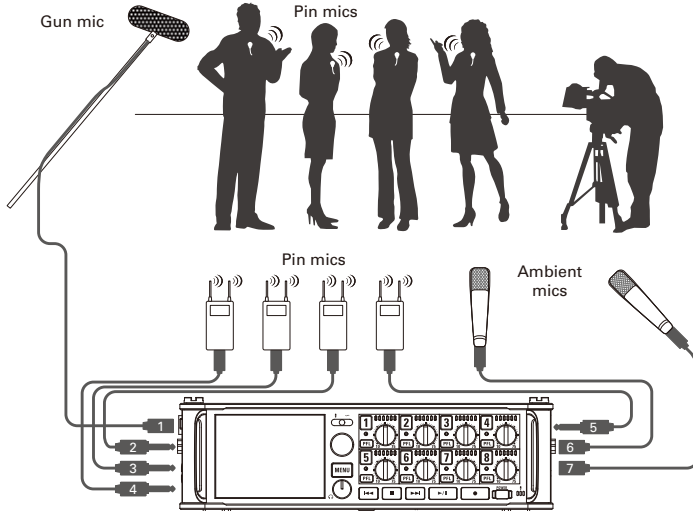
When linked, Input 1, 3, 5 or 7 becomes the left channel and Input 2, 4, 6 or 8 becomes the right channel.

Connection examples

Recording as needed is possible in situations like these.

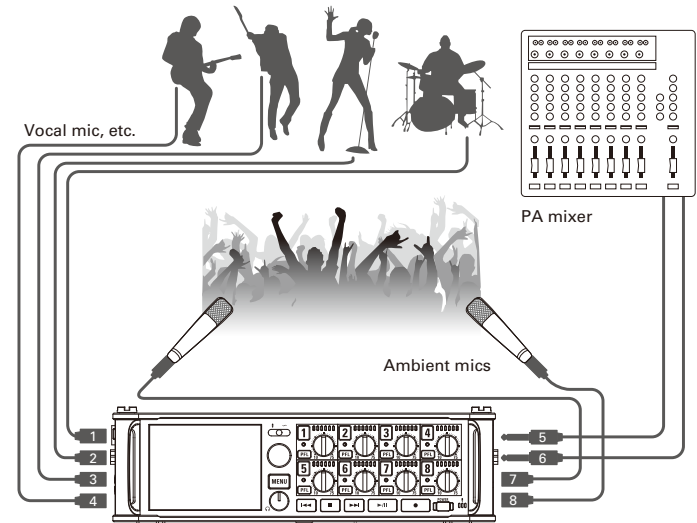
While filming

- Input 1: gun mic for main subject sound (XLR connection)
- Inputs 2–5: pin mics for performers (TRS connections)
- Inputs 6–7: mics for ambient sound (XLR connections)



Concert recording

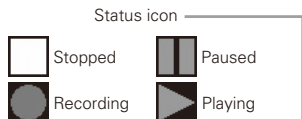
- Inputs 1–4: mics for stage performance (XLR connections)
- Inputs 5–6: line inputs for mixer outputs (TRS connections)
- Inputs 7–8: mics for audience sound (XLR connections)



LCD display

Home Screen

Mixer



Track number
 Red: input enabled
 Green: playback track enabled
 Grey: input disabled

Limiter status
 Grey: disabled
 Red: enabled
 Yellow: functioning

Phantom power status
 Lit: enabled
 Unlit: disabled

Fader

Pan

Recording/playback take name
 Press when stopped to show the name of the next track to be recorded.

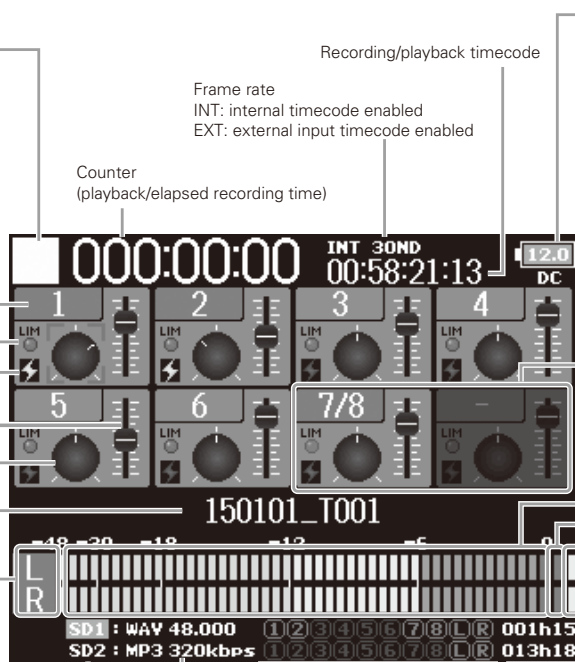
L/R tracks

Playback card
 Green: used for playback
 Grey: no card

Recording/playback file format and sampling rate (by card)

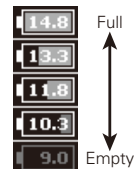
Recording/playback tracks
 Red: recording tracks
 Green: playback tracks
 Grey: disabled tracks (by card)

When recording: remaining recordable time
 When playing: remaining playback time (by card)



Power type and remaining power

DC: AC adapter
 EXT: external DC power supply
 AA: batteries



Stereo-linked inputs

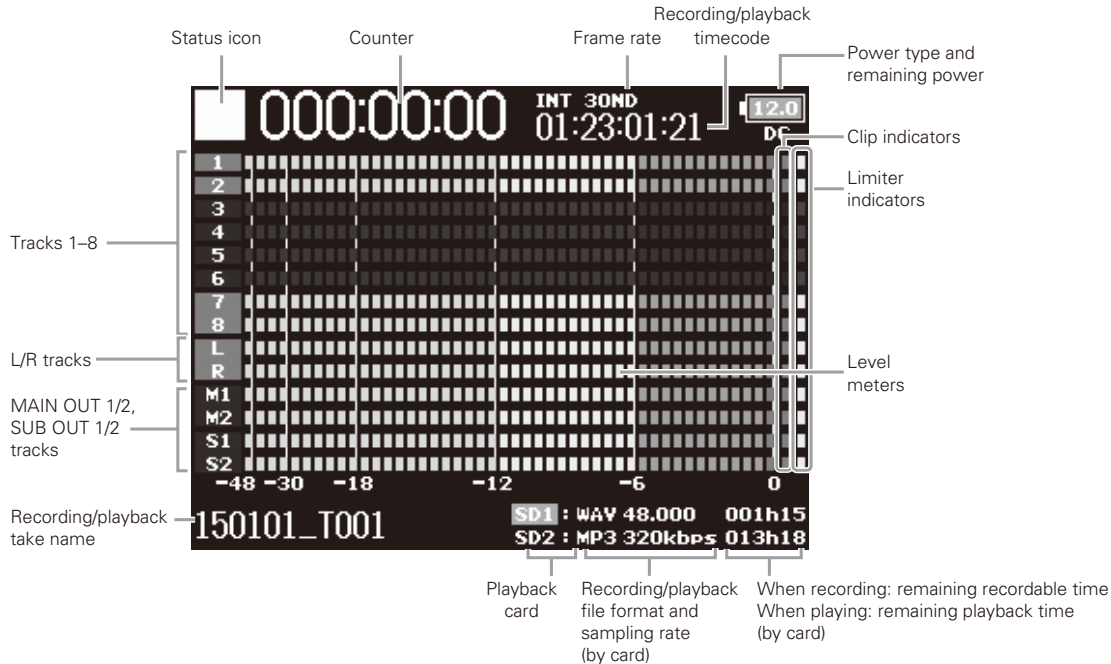
Level meters
 Clip indicators

Limiter indicators
 Yellow: limiter functioning


HINT

- Stereo-linked tracks are shown together like "7/8".
- When the Home Screen is not open, press and hold to return to the Home Screen.

■ Level meters



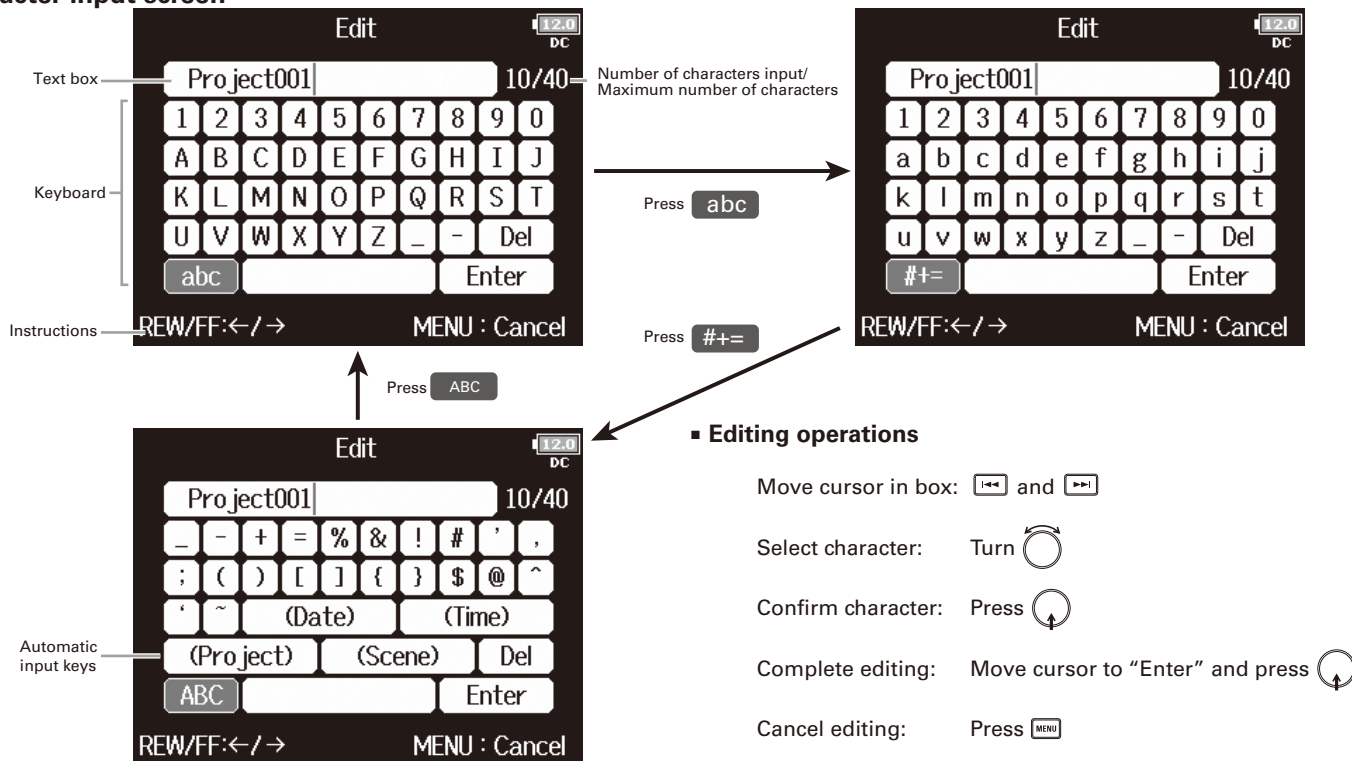
NOTE

Turn  to switch between showing the mixer (Tracks 1-8, MAIN OUT 1/2, SUB OUT 1/2) and level meters (Views 1-4 can be set → P.113) on the display.

LCD display

LCD display (continued)

Character input screen



NOTE

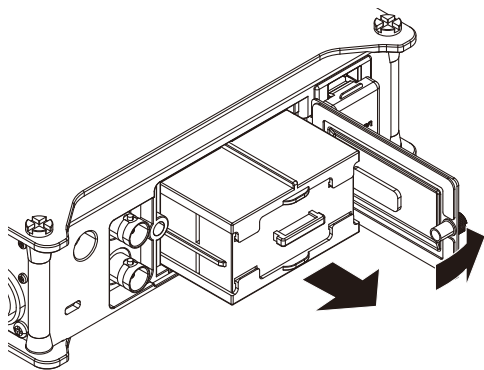
- The following characters can be used in project names.
- (space)!#\$'()+,-0123456789;=@ABCDEFGHIJKLMNQRSTU VWXYZ[]^_`abcdefghijklmnopqrstuvwxyz~

Supplying power

Using AA batteries

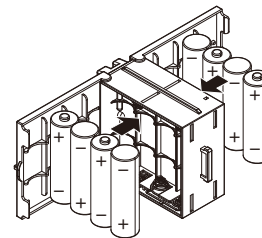
1. Turn the power off and then loosen the screw in the battery cover to open it.

2. Remove the battery case from the battery slot.



3. Open the battery case cover.

4. Install the batteries.



5. Replace 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 cover and tighten the screw.

NOTE

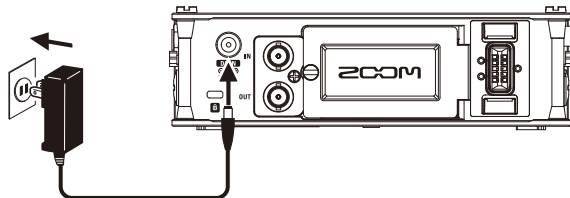
- Be careful because the battery case could become loose unexpectedly if the cover screw is not tightened firmly.
- Use only one type of batteries (alkaline, NiMH or lithium) at a time.
- After loading batteries, set "Power Source" to the correct type of battery. (→ P.20)
- If the remaining battery power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

Supplying power (continued)

Using an AC adapter

1. Connect the dedicated AC adapter to the DC IN connector.

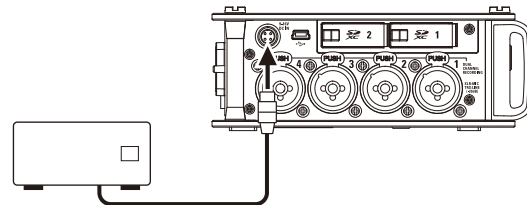
2. Plug the dedicated AC adapter into an outlet.



Using an external DC power supply

1. Connect the external DC power supply equipment to the DC IN connector.

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



2. If there is an adapter, plug the adapter into an outlet.

NOTE

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

Loading an SD card

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

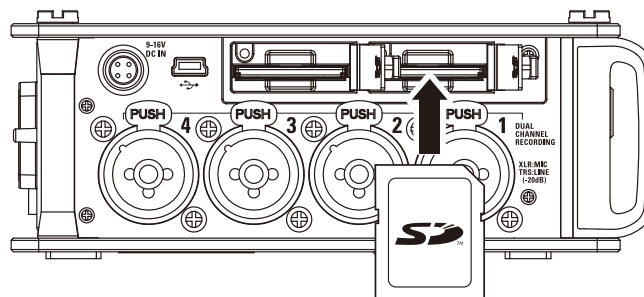
2. Insert the SD card into the SD CARD 1 or 2 slot.

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 will not be possible.
- To format an SD card, see P. 125.

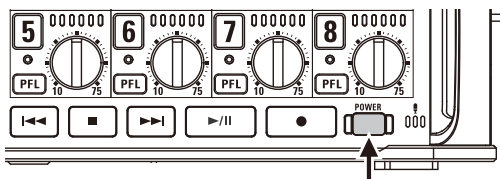


Turning the power on and off

Turning the power on

1. Press and hold  briefly.

The  LED will light.



NOTE

- The first time you turn the power on after purchase, you must set the date/time (→ P. 17). You can also change this setting later.
- If “No SD Card!” appears on the display, confirm that an SD card is inserted properly.
- 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.
- If “Invalid SD 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. 125.

Turning the power off

1. Press and hold  briefly.

NOTE

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



The F8 will automatically turn off if it is unused for 10 hours.

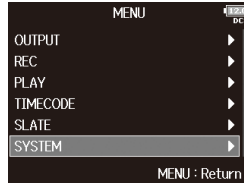
To keep the power on always, see "Disabling the Automatic Power Saving function" on P.19 and set Auto Power OFF to Off.

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

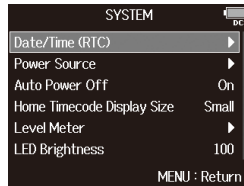
The date and time set on the **F8** are used when recording files, for example. You can also set the date format (order of year, month and day).

1. Press .

2. Use  to select "SYSTEM"; and press .



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





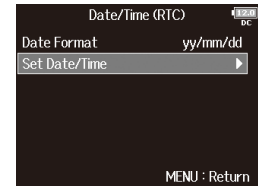
▶ Continue to one of the following procedures.

Setting the date and time	P.17
Setting the date format	P.18

The first time you turn the **F8** on after purchasing it, you must set the date/time.

Setting the date and time

4. Use  to select "Date/ Time"; and press .



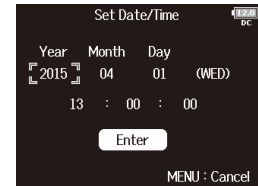
5. Change the setting.

- Changing settings



Move cursor or change value:

turn 

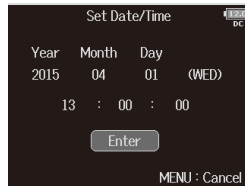
Select item to change: press 



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

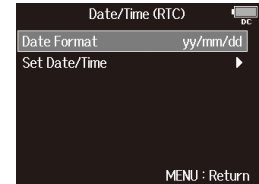
- 6.** Use  to select "Enter",
and press .

This completes setting the date and time.

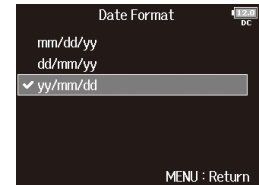


Setting the date format

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



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





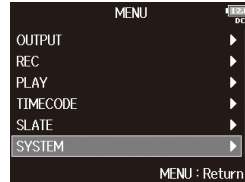
Setting value	Explanation
mm/dd/yy	Month, day, year order
dd/mm/yy	Day, month, year order
yy/mm/dd	Year, month, day order



Disabling the Automatic Power Saving function (Auto Power Off)

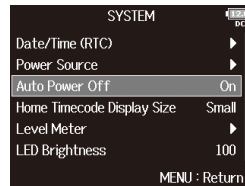
The power will automatically turn off if the **F8** is unused for 10 hours.
If you want the power to stay on always, disable the Automatic Power Saving function.

1. Press .

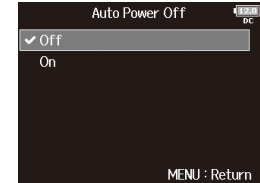
2. Use  to select "SYSTEM",
and press .



3. Use  to select "Auto Power Off", and press .



4. Use  to select "Off", and
press .





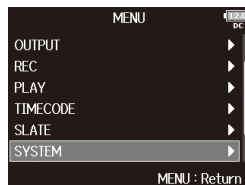
Setting the power supply used (Power Source)



Set the external DC power supply shutdown voltage, nominal voltage and type of batteries so that the remaining power supply charge can be shown accurately.

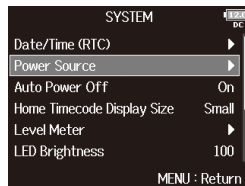
On this menu page, you can also check the voltage of each power supply and the remaining battery capacity.

1. Press .

2. Use  to select "SYSTEM";
and press .



3. Use  to select "Power Source"; and press .





▶ Continue to one of the following procedures.

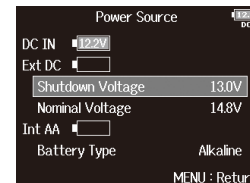
Setting DC power supply (Ext DC) shutdown voltage....	P.20
Setting DC power supply (Ext DC) nominal voltage.....	P.21
Setting the AA battery type (Int AA).....	P.21

Setting DC power supply (Ext DC) shutdown voltage

When an external DC power supply is being used, if the voltage becomes less than the value set here, the **F8** will automatically stop recording and turn off.

If AA batteries (Int AA) are installed, however, the power supply will switch to INT AA and operation will continue.

4. Use  to select "Shutdown Voltage"; and press .





HINT

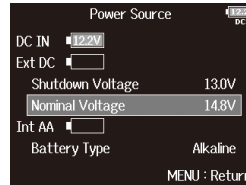
- The shutdown voltage is the voltage when the external DC power supply runs out and can no longer supply power.
- See the manual for the external DC power supply for the shutdown voltage value.

5. Use  to select the
voltage, and press .

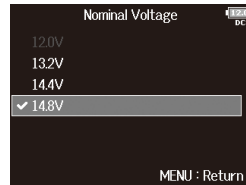


Setting DC power supply (Ext DC) nominal voltage

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



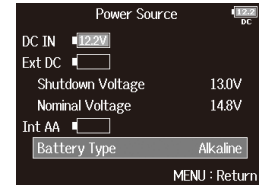
5. Use  to select the voltage, and press .



**HINT**

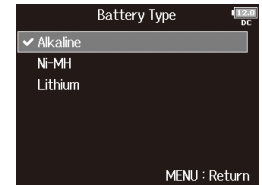
- The nominal voltage is the voltage of the external DC power supply under normal conditions. This value should be indicated on the surface of the external DC power supply.

Setting the AA battery type (Int AA)

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



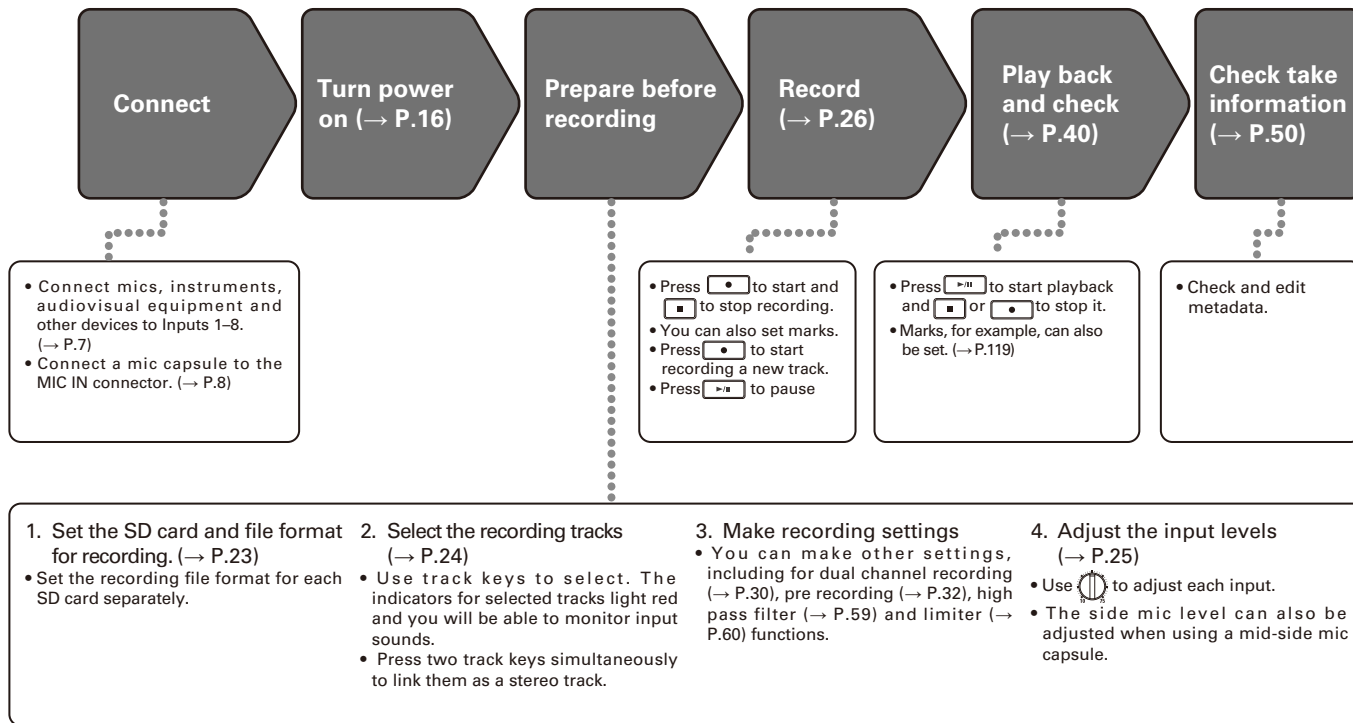
5. Use  to select the type, and press .

**NOTE**

- When multiple power supplies are connected, they will be used in the following order of precedence.
 - Dedicated AC adapter (DC IN)
 - External DC power supply (Ext DC)
 - AA batteries in unit (Int AA)
- The voltages of each power supply are shown on the display.

Recording process

Recording with the **FB** follows the process shown below.
The data created for each recording occurrence is called a "take".



Enabling recording on SD cards and setting file formats

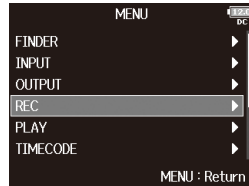
The recording file format can be set independently for SD CARD slots 1 and 2.



HINT

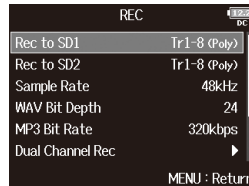
- Recording the same content to two cards is possible by using the same settings for both card slots. This function can be used to create a backup in case the sound skips on one card, for example.
- You can also record tracks 1-8 unmixed on one SD card while recording all tracks mixed together as MP3 data with left and right tracks.

1. Press .

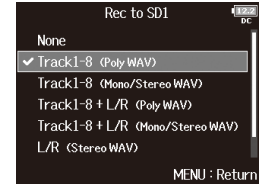
2. Use  to select "REC", and press .



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 is recorded on the SD card.
Track1-8 (Poly WAV)	Selected tracks 1-8	A single poly file is created that contains audio for multiple tracks.
Track1-8 (Mono/Stereo WAV)		A single mono file is created for each mono track and a single stereo file is created for each stereo track.
Track1-8 + L/R (Poly WAV)	All selected tracks	A single poly file is created that contains audio for multiple tracks.
Track1-8 + L/R (Mono/Stereo 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)		

NOTE

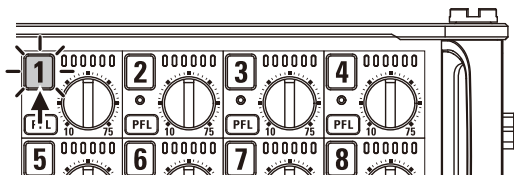
- When recording with a Mono&Stereo setting, the audio files are saved in a take folder that is created. (→ P.34)
- When recording to 2 SD cards simultaneously, files will be saved in take folders with the same name on both cards. Folders will be created automatically if they do not already exist.
- If recording should stop on one SD card because, for example, it runs out of space, 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 and adjusting levels

You can select which among Inputs 1–8 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. Make the track indicator light by pressing the track key for the number of the input to record.



The background color of the track number on the LCD also changes at this time.

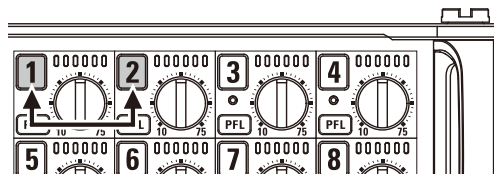
Track indicator	Track number background color	Explanation
Lit red	Red	The input is enabled.
Unlit	Gray	The input is disabled.

NOTE

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

Linking inputs as a stereo pair

1. While pressing track key 1, press track key 2.




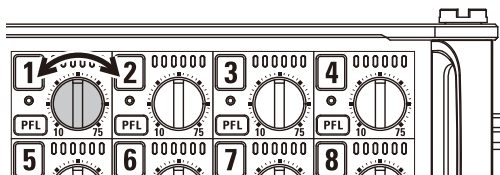
Tracks 1 and 2 will be joined as a stereo track (stereo link). Repeat the same procedure to disable the stereo link.

HINT


- The 3/4, 5/6 and 7/8 track pairs 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.

Adjusting input levels






1. Turn  for the selected track to adjust its input level.



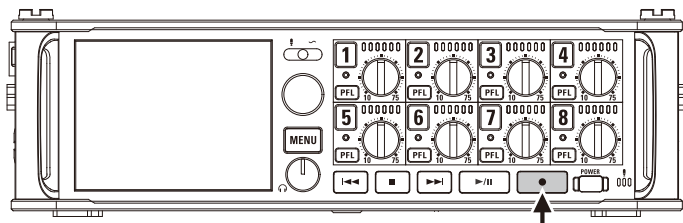
NOTE

When a mic capsule is connected,  for Inputs 1/2 is disabled. Use the level to adjust the mic capsule input volume.

HINT

- Inputs connected with XLR plugs can be set from +10 to +75 dB, and inputs connected with TRS plugs can be set from -10 to +55 dB.
- If the sound distorts even when you lower the input level, try changing mic positions and adjusting the output levels of connected devices.
- Using the limiter (→ P.60)
- Using the high pass filter (→ P.59)
- Press  +  together to disable input adjustment with all track . Press  +  again to reenable operation.

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 files will always end exactly on a second. This makes synchronization easy when editing later.

2. Press to start a new take when recording.


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

NOTE



Pressing  during recording is only possible after recording for at least a second.

3. Press to pause.

NOTE

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

HINT


- During playback, you can press  and  to jump to points where marks have been added.
- You can also add marks without pausing. (→ P. 119)

4. Press to stop.

NOTE

- If the maximum file size is exceeded during recording (→ P.33), 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 2 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

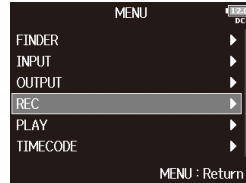
- Files are automatically saved at regular intervals during recording. Even if the power is interrupted or another unexpected problem occurs during recording, an affected file can be restored to normal by playing it with the **FB**.
- Press and hold  when the HOME screen is open to check the name that will be given to the next take recorded.


Setting the sampling rate (Sample Rate)

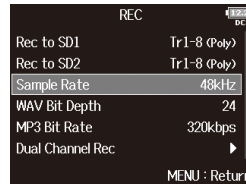
You can set the sampling rate used to record files.

1. Press .

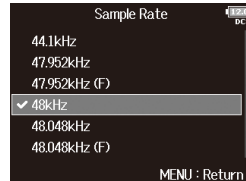
2. Use  to select "REC", and press .



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 $\pm 0.1\%$ the speed at which the file was recorded.


NOTE

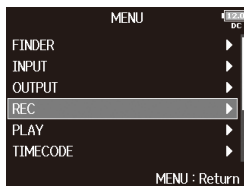
- When the recording file format is MP3, only 44.1kHz and 48kHz can be selected.
- When 192kHz is selected, L/R tracks will not be recorded. The Input Delay and Output Delay are also disabled.

Setting WAV file bit depth (WAV Bit Depth)

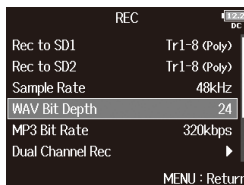
You can set the bit depth of WAV files.



1. Press .

2. Use  to select "REC", and press .



3. Use  to select "WAV Bit Depth", and press .



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



HINT

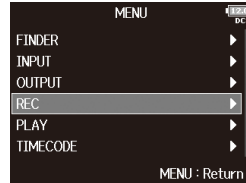
This can be set to 16-bit or 24-bit.

Setting MP3 file bit rate (MP3 Bit Rate)

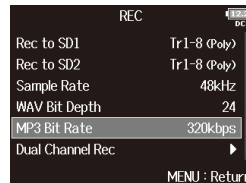
You can set the bit rate of recorded MP3 files.

1. Press .

2. Use  to select "REC", 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.

Simultaneously recording tracks at different levels (Dual Channel Rec)

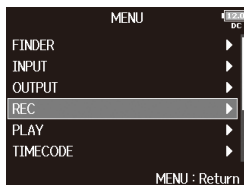
Along with the regular recording, the **FB** can record a second recording adjusted to a different input level (dual channel recording).



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.

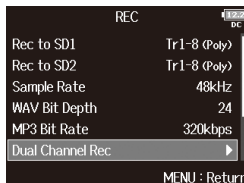
Dual channel recording can be used with tracks 1–4.

1. Press .

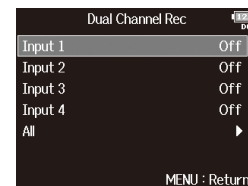
2. Use  to select "REC", and press .





3. Use  to select "Dual Channel Rec", and press .

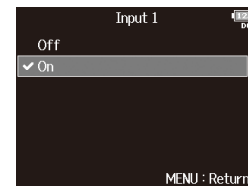


4. Use  to select the track, and press .




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

When dual channel recording is on, the name of the corresponding second track (5–8) changes.



6. Turn for the dual channel recording track to

adjust the input level.

For example, when dual recording is labeled for track 1, adjust  for track 5.



HINT

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

NOTE

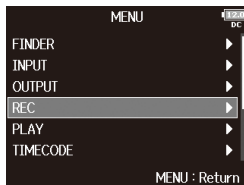
- When using dual channel recording, the track that is numbered 4 higher than the original track is used for the second recording. For example, track 5 is used for the dual channel recording of track 1 and track 6 is used for track 2. Dual channel recording tracks cannot be used independently.
- When dual channel recording is enabled, if stereo-linking is enabled or disabled for tracks 1/2, the same setting will be applied to tracks 5/6. This is the same for tracks 3/4.
- The limiter, high pass filter and other functions can be set independently for the regular and dual recording tracks.
- When a mic capsule is connected, its dual recording track input level is fixed at -12 dB compared to the regular track.

Capturing audio before recording starts (Pre Rec)

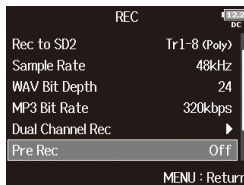
The input signal can be captured for up to 6 seconds before  is pushed (pre-recording). This is useful if, for example,  is pressed too late.



1. Press .

2. Use  to select "REC", and press .



3. Use  to select "Pre Rec", and press .



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



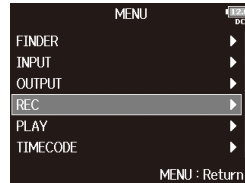
File format	Sampling rate	Maximum pre-recording time
WAV	44.1kHz	6 seconds
	47.952kHz	6 seconds
	47.952kHz(F)	6 seconds
	48kHz	6 seconds
	48.048kHz	6 seconds
	48.048kHz(F)	6 seconds
	88.2kHz	3 seconds
MP3	96kHz	3 seconds
	192kHz	1 second
	44.1kHz	6 seconds
	48kHz	6 seconds

Maximum file size (File Max Size)

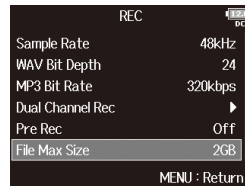
The maximum size of recording files can be set. If a recording file exceeds the maximum file size, recording will continue in a new take with a number that is one higher. No gap will occur in the sound between the two takes when this happens.



1. Press .

2. Use  to select "REC", and press .



3. Use  to select "File Max Size", and press .



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



HINT

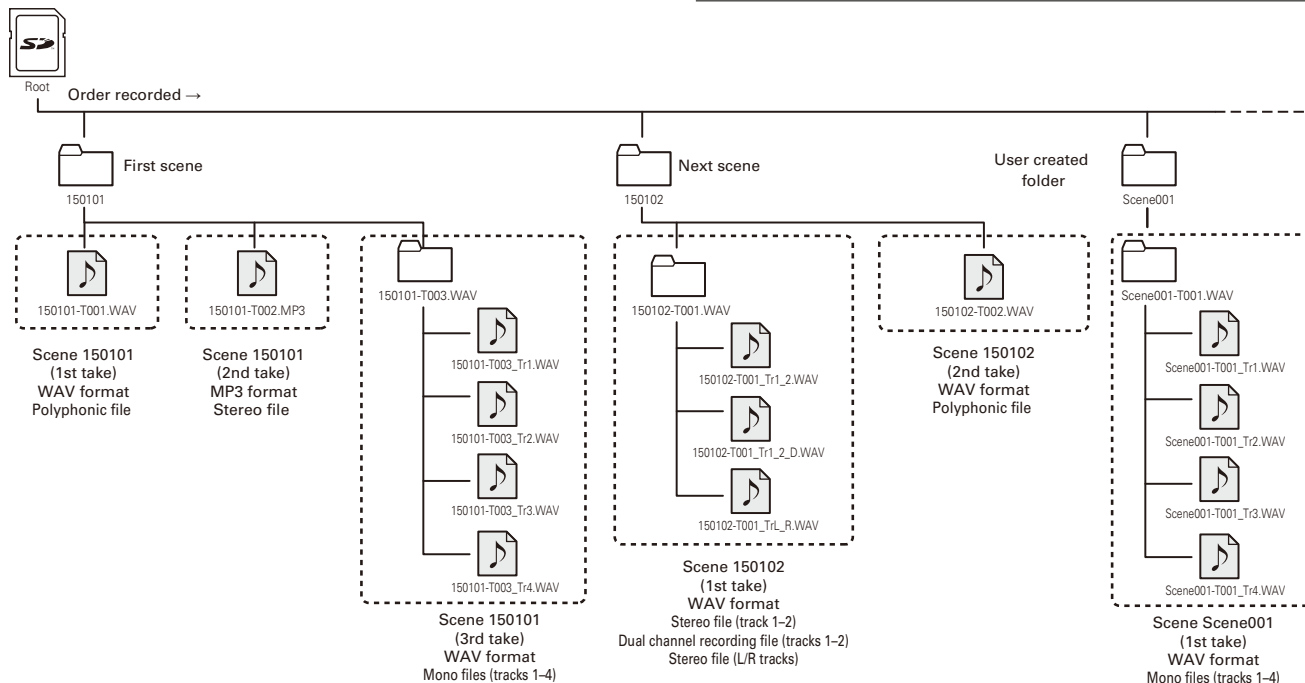
Setting the maximum size to 640MB or 512MB is convenient for backing up to CDs.

Folder and file structure

When recording with the **F8**, folders and files are created on SD cards as shown below.

As a rule, folders and files are used to manage scenes and takes.

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.

Folder and file structure

NOTE

- Enabling recording on SD cards and setting file formats (→ P.23)
- Setting how scenes are named (mode) (→ P.37)

Take names

Structure	Explanation
<p>Scene001-T001</p>	<p>Scene name: Select none, the folder name, the date or a name input by the user (→ P.37).</p> <p>Take number: This number increases by 1 for each recording made with the same scene name and number.</p>

Audio file name

File names are given by the **F8** according to the file format—polyphonic, mono or stereo. Track numbers and other data are added to file names.

File names

File names are given according to the following formats.

Type	Structure	Explanation
Poly file	<p>Scene001-T001.wav</p>	This is a file created by polyphonic recording. Audio for multiple tracks is recorded to a single file.
Mono file	<p>Scene001-T001_Tr1.wav</p>	This is a file created by monophonic recording.
Stereo file	<p>Scene001-T001_Tr1_2.wav</p>	This is a file created by stereophonic recording.
Dual channel recording file	<p>Scene001-T001_Tr1_D.wav</p>	This is a file created by dual channel recording.

HINT

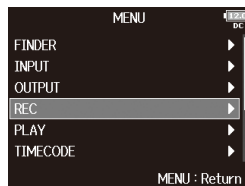
When recording with a Mono&Stereo setting, the audio files are saved in a take folder that is created.



Changing recording take settings (Next Take)

You can change the recording take scene name, for example.

1. Press .

2. Use  to select "REC", and press .



3. Use  to select "Next Take", and press .



▶ Continue to one of the following procedures.

Changing the note for the next take recorded P.36

Selecting notes from the history list..... P.37

Setting how scenes are named (mode)..... P.37



Changing scene names..... P.38

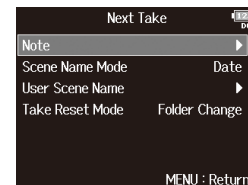
Selecting a scene name from the history list..... P.39



Setting the take number reset condition P.39

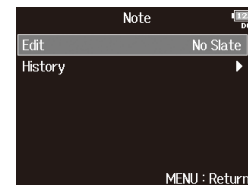
Changing the note for the next take recorded

You can input characters as metadata note in the file.

4. Use  to select "Note", and press .



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



6. Edit the note.



See "Character input screen" (→ P.12) for how to input characters.

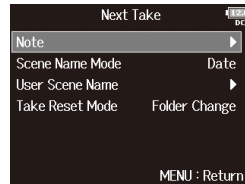


NOTE

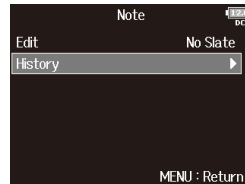
This note is written to the <NOTE> metadata.

Selecting notes from the history list

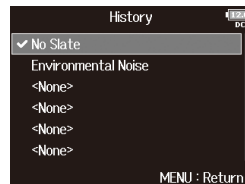
- 4.** Use  to select "Note", and press .



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





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

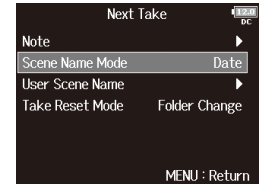


NOTE

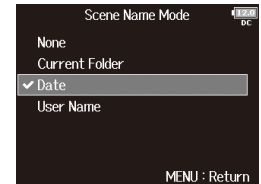
The history list will be erased if the Factory Reset function is used.

Setting how scenes are named (mode)

- 4.** Use  to select "Scene Name Mode", and press .



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



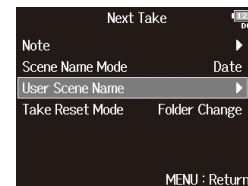
Changing recording take settings (Next Take) (continued)

Setting value	Explanation
None	<p>The scene name and number are not used. When recording files are created, they are named only with the take number: "T001", "T002", "T003", etc.</p> <p> + cannot be used to advance the scene number by 1.</p> <p>Example: T001.wav</p>
Current Folder	<p>The name of the currently selected folder is used as the scene name.</p> <p> + can be used to advance the scene number by 1. 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.</p> <p>Example: FOLDER001-T001.wav</p>
Date	<p>The date is used as the scene name.</p> <p> + cannot be used to advance the scene number by 1.</p> <p>If recording occurs after the date changes, a scene folder with the date will be created.</p> <p>Example: 20150101-T001.wav</p>
User Name	<p>A scene name input by the user is used.</p> <p> + can be used to advance the scene number by 1.</p> <p>No folder is created in this case.</p> <p>Example: MYSCENE001-T001.wav</p>

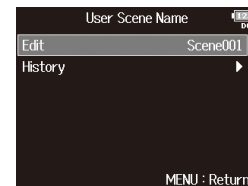
Changing scene names

If Scene Name Mode is set to User Name, set the scene name used like this.

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



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



- 6.** Edit the scene name.



See "Character input screen" (→ P.12) for how to input characters.

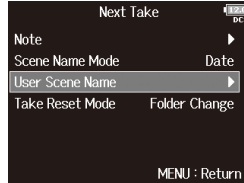




NOTE

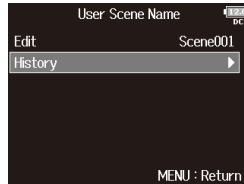
- The scene name is written to the <SCENE> metadata.
- You cannot put a space or an @ mark at the beginning of the name.

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 item to use, and press .

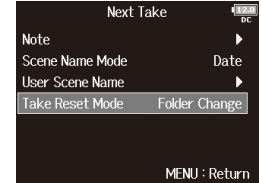


NOTE

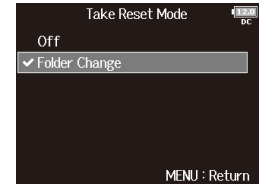
The history list will be erased if the Factory Reset function is used.

Setting the take number reset condition

4. Use  to select "Take Reset Mode", and press .

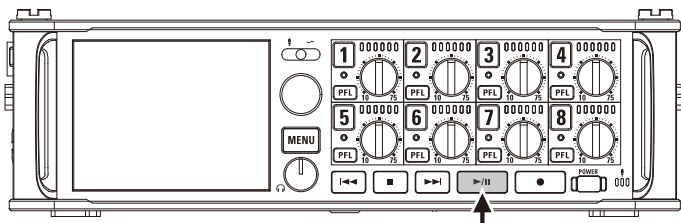


5. Use  to select the reset mode, and press .



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.

Playing recordings



1. Press .

■ Playback operations

Select take or jump to mark: Press  or 

Search backward/forward: Press and hold  / 




Pause/resume playback: Press 

NOTE

Tracks that have no playback files appear gray.



HINT

- The longer you press and hold  / , 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 "NoTake!" message will appear if no playable take exists.
- During playback, you can press  to add a mark that can be used for skipping. (→ P. 119)

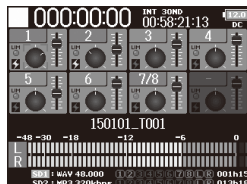
2. Press to return to the Home Screen.

Mixing takes

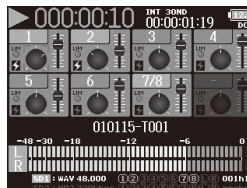
You can change the volume and panning of each track during playback.

1. Open the mixer on the Home

Screen. (→ P.11)




2. Press to start playback.



3. Adjust the parameter settings.



- Editing operations

Move cursor or change value: Turn 

Select parameter to change: Press 

Parameter	Setting range	Explanation
Fader	Mute, -48.0 - +12.0 dB	Adjusts the level of the input signal.
Panning	L100 - Center - R100	Adjusts the stereo balance of the sound.

HINT

- You can turn  to move the cursor, and also adjust the settings of the MAIN OUT 1/2, SUB OUT 1/2 tracks (→ P.78).
- When a fader or pan knob is selected, press and hold  to reset it to its default value. If already set to its default value, selecting a fader mutes the track.



NOTE

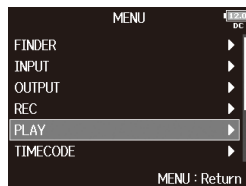
- Settings are saved separately for each take and are used during playback.
- Mix settings are not saved with the take when the format is MP3.



Changing the playback mode (Play Mode)

You can change the playback mode.

1. Press .

2. Use  to select "PLAY", and press .



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



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





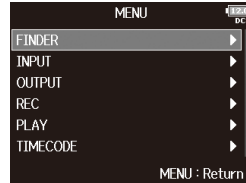
Setting value	Explanation
Play One (single playback)	Only the selected take will be played.
Play All (all playback)	Takes will be played back continuously from the selected one until the last take.
Repeat One (single repeat playback)	The selected take will be played repeatedly.
Repeat All (all repeat 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 project/scene folders. It also allows you to, for example, set and delete recording/playback folders and view their information.

1. Press **MENU**.



2. Use  to select "FINDER",
and press .



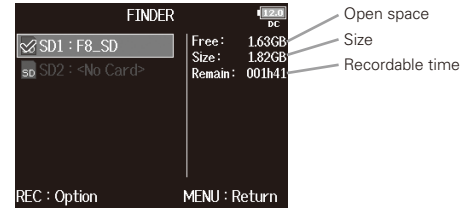
3. Turn  to select the SD card, folder or take that you want to use.



▪ Editing operations

- Move cursor: Turn 
- Move down a level: Press 
- Move up a level: Press **MENU**

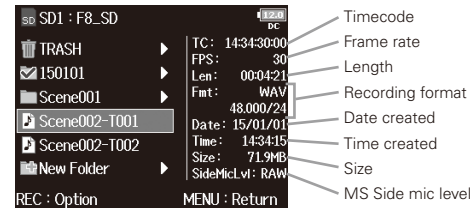
▪ SD card selected



▪ Folder selected







▪ Take selected



Take and folder operations (FINDER) (continued)

NOTE



- When the cursor is on a take, you can press  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	P.44
Selecting the take recording/playback folder	P.45
Checking take marks and using them for playback	P.45
Changing folder and take names	P.46
Copying takes to other cards and folders	P.47
Deleting folders and takes	P.48
Emptying the TRASH folder	P.49

Creating folders

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

- 4.** Use  to select "New Folder", and press .



- 5.** Edit the folder name.

See "Character input screen" (→ P.12) for how to input characters.



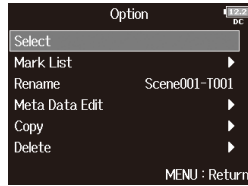
NOTE

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

Selecting the take recording/playback folder

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

4. Press , use  to select "Select"; and press .



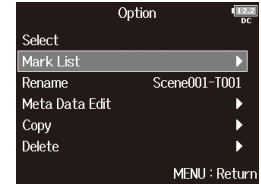
NOTE

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

Checking take marks and using them for playback

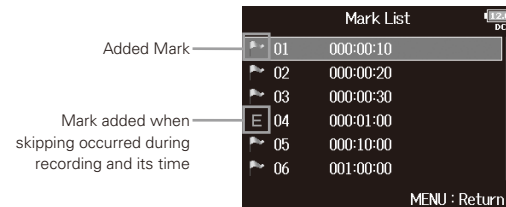
You can view a list of the marks in a recorded take.

4. Press , use  to select "Mark List"; and press .



5. Use  to select a mark, and press .

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



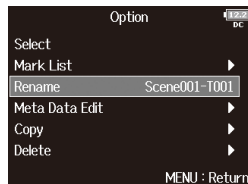
Take and folder operations (FINDER) (continued)

Changing folder and take names

4. Press , use  to

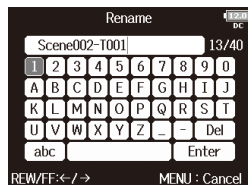
select "Rename"; and

press .



5. Edit the folder/take name.

See "Character input screen" (→ P.12) for how to input characters.

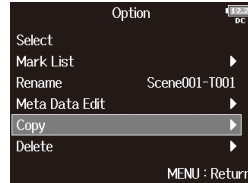




NOTE

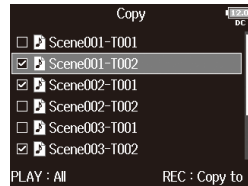
- The edited name of the folder/take is written to the <PROJECT> or <SCENE> metadata.
- You cannot put a space or an @ mark at the beginning of the name.

Copying takes to other cards and folders

4. Press , use  to select "Copy", and press .

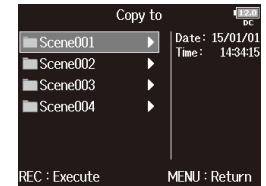


5. Use  to select the take to copy, and press .



6. Press .

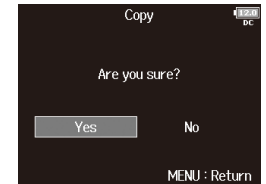
7. Use  to select the copy destination, and press .



NOTE


- See "Take and folder operations" for how to select a folder. (→ P.43)

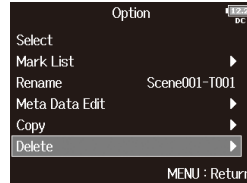
8. Use  to select "Yes", and press .






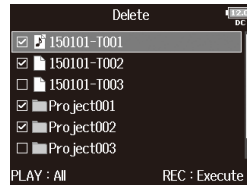
Take and folder operations (FINDER) (continued)

Deleting folders and takes


- 4.** Press , use  to select "Delete", and press .





- 5.** Use  to select the folder/take to delete, and press .
- Press  to cancel deletion.

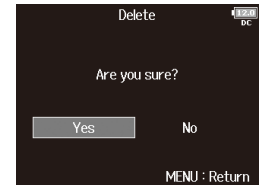


NOTE

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

- 6.** Press .




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

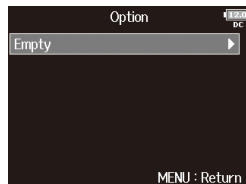


NOTE

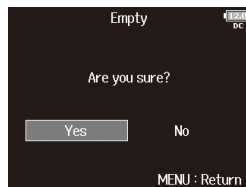
- Deleted folders and takes are not immediately erased from the SD card. They are moved to the TRASH folder.
- Deleting the folders and takes in the TRASH folder will completely erase their data.

Emptying the TRASH folder

- 4.** Press , and open the "TRASH". Then, use  to select "Empty"; and press .



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



NOTE

Emptying the TRASH folder will completely erase the data in it.

Overview of take metadata stored in files

The **FB** 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 **FB** 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 **FB** in WAV format is collected in BEXT (Broadcast Audio Extension) and iXML chunks.

For information about the metadata saved in these chunks, see the "Metadata contained in BEXT chunks in WAV files" (→ P.132), "Metadata contained in iXML chunks in WAV files" (→ P.133).

MP3 file metadata

The metadata saved in files recorded by the **FB** in MP3 format is written as ID3v1 tags.



For information about the ID3 fields and formats for saving metadata, see the "Metadata and ID3 fields contained in MP3 files" (→ P.135).

HINT

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

Checking and editing take metadata

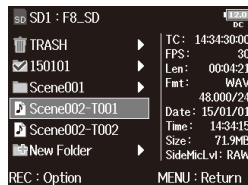
1. Press .

2. Use  to select "FINDER",
and press .

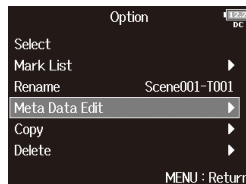


3. Use  to select the take,
and press .

This opens the Option Screen.
See "Take and folder operations"
for how to use the Finder. (→ P.43)



4. Use  to select "Meta Data
Edit", and press .




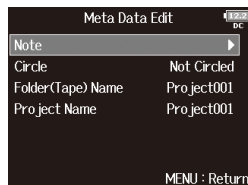
► Continue to one of the following procedures.



Checking and editing notes	P.52
Selecting notes from the history list.....	P.52
Circling takes	P.53
Editing folder (tape) names	P.53
Editing project names	P.54

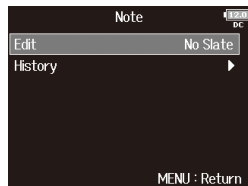
Checking and editing take metadata (continued)

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.12) for how to input characters.

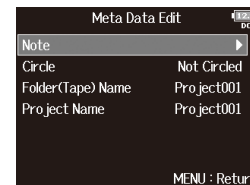



NOTE

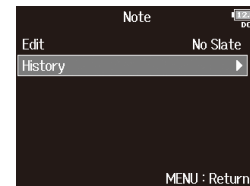
The contents of this note is written to the <NOTE> metadata.



Selecting notes from the history list

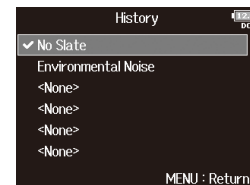
- 5.** Use  to select "Note", and press .



- 6.** Use  to select "History", and press .



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





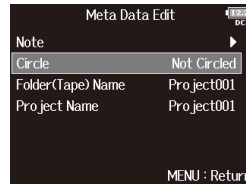
NOTE

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

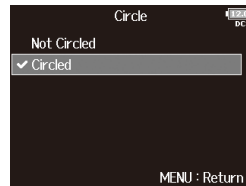
Circling takes

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 .

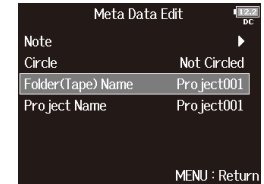


NOTE

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

Editing folder (tape) names

5. Use  to select "Folder (Tape) Name", and press .



6. Edit the folder (take) name.

See "Character input screen" (→ P.12) for how to input characters.



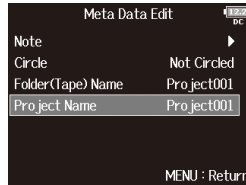
NOTE

- 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.
- You cannot put a space or an @ mark at the beginning of the name.

Checking and editing take metadata (continued)

Editing project names

- 5.** Use  to select "Project Name"; and press .



- 6.** Edit the project name.

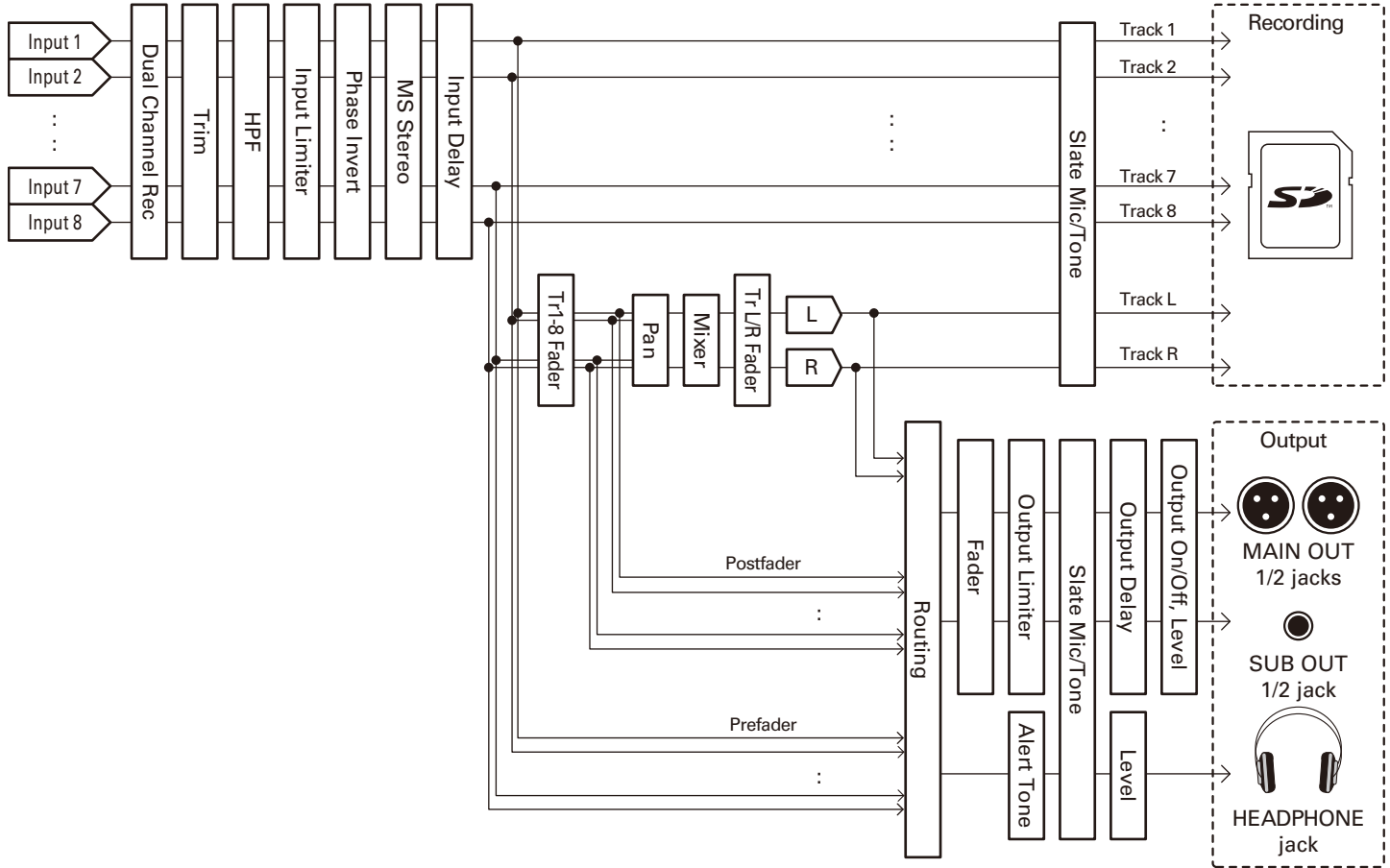
See "Character input screen" (→ P.12) for how to input characters.



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.
- You cannot put a space or an @ mark at the beginning of the name.

Input and output signal flow

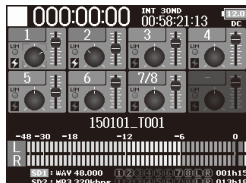


Adjusting the input signal monitoring balance

You can adjust the volume and panning of each input signal when monitoring.


1. Open the mixer on the Home


Screen. (→ P.11)



2. Adjust the parameter settings.



■ Editing operations

Move cursor or change value: Turn 

Select parameter to change: Press 

Parameter	Setting range	Explanation
Fader	Mute, -48.0 – +12.0 dB	Adjusts the level of the input signal.
Panning	L100 – Center – R100	Adjusts the stereo balance of the sound.

HINT

- You can turn  to move the cursor, and also adjust the settings of the MAIN OUT 1/2, SUB OUT 1/2 signals. (→ P.78)
- When a fader or pan knob is selected, press and hold  to reset it to its default value. If already set to its default value, selecting a fader mutes the track.

NOTE

- The MAIN OUT 1/2 and SUB OUT 1/2 faders do not affect the levels of the slate mic and slate tone.
- These volume and pan settings only affect the monitoring signals. They have no effect on recorded data.
- Settings are saved separately for each take that is already recorded and can be changed during playback. (→ P.41)
- Mix settings are not saved with the take when the recorded file format is MP3.

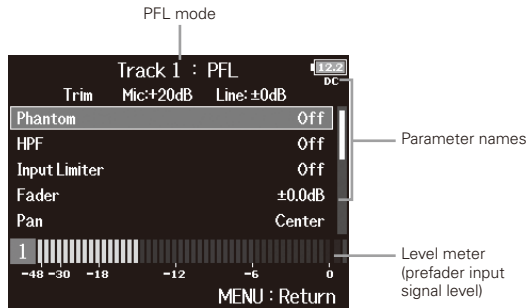
Monitoring the input signals of specific tracks (PFL/SOLO)

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

1. Press **PFL** on 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
Phantom	This sets phantom power supply.
HPF	This sets the high pass filter.
Input Limiter	This sets the limiter.
Fader	This sets the fader level.
Pan	This sets the panning.
Phase Invert	This sets the phase.
Side Mic Level	This sets the side mic level of a mid-side mic capsule.

Parameter	Explanation
Input Delay	This sets the input delay.
Plugin Power	This sets the plugin power.
Stereo Link	This sets the stereo link.
Stereo Link Mode	This sets the stereo link mode.
PFL Mode	This sets the monitoring volume on the PFL screen.

HINT



- Use  to select parameters and change setting values.

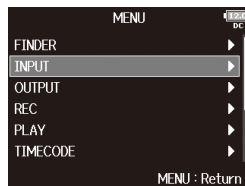
2. Press **PFL** or **MENU**.

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

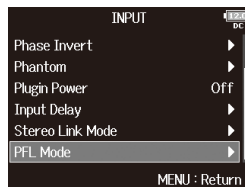
On the PFL screen, you can set the monitoring sound to be either prefader listening (PFL) or postfader solo (SOLO).


1. Press .

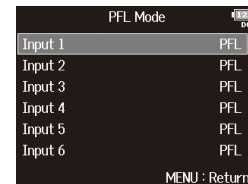
2. Use  to select "INPUT",
and press .



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 mode,
and press .





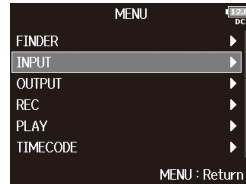
Setting value	Explanation
PFL	On the PFL screen, monitor the prefader sound.
SOLO	On the PFL screen, monitor the postfader sound.

Cutting low-frequency noise (HPF)

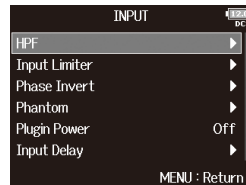
The high pass filter can cut low frequencies to reduce the sound of wind, vocal pops and other noise.



1. Press .

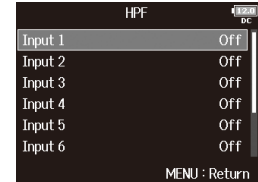
2. Use  to select "INPUT",
and press .



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

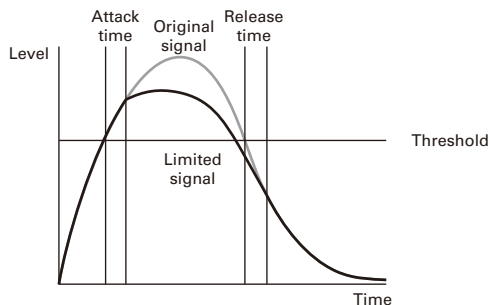
The HPF also affects dual channel recording data.

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.

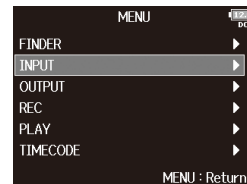
The attack time is how long after the signal exceeds the threshold until the limiters starts operating. The release time is how long after the signal goes below the threshold until the limiters stops operating. You can change these two parameters to adjust the sound quality.

HINT

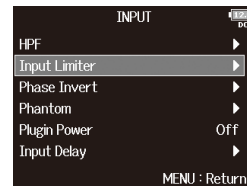
- The **F8** uses a newly-designed limiter. This limiter has 10 dB of headroom, preventing distortion and allowing it to keep signals below the set threshold even more than ordinary limiters.
- The **F8** limiter uses a ratio of 20:1.

1. Press .

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



3. Use to select "Input
Limiter", and press .



4. Use to select the track,
and press .





HINT

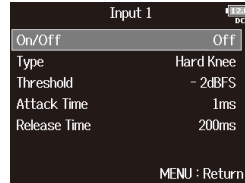
Select "ALL" to set all the tracks at the same time.



► Continue to one of the following procedures.

Using the limiter.....	P.61
Setting the type	P.61
Setting the threshold.....	P.62
Setting the attack time.....	P.62
Setting the release time	P.63

Using the limiter



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

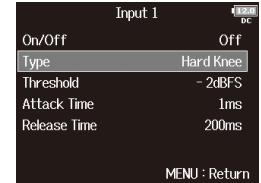




6. Use  to select "On", and press .



Setting the type

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



6. Use  to select the type, and press .





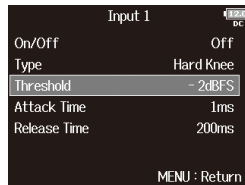
Setting value	Explanation
Hard Knee	Only peaks that exceed the threshold are attenuated. There is no effect below the threshold.
Soft Knee	The limiter gradually affects the signal about 6 dB below the threshold for a gentler effect.

Input limiter (continued)

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 .





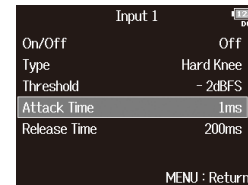
HINT

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 .



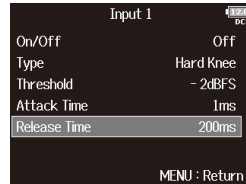
HINT

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 .



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 on the display light yellow.

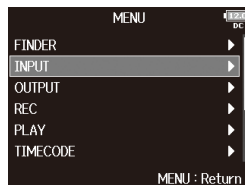
Inverting the input phase (Phase Invert)


The phase of the input signal can be inverted.

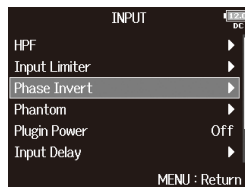
This is useful when sounds cancel each other out due to mic settings.

1. Press .

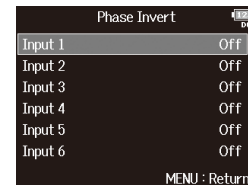
2. Use  to select "INPUT",
and press .



3. Use  to select "Phase
Invert", and press .





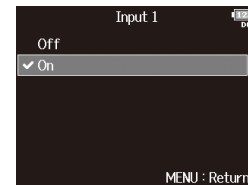
4. Use  to select the track,
and press .



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 **F8** 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

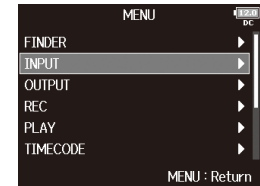
Phantom power is a function that supplies power to devices that require an external power supply, including some condenser mics. The standard power is +48V, but some devices can operate with lower voltages.



NOTE

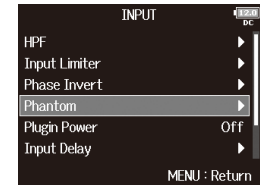
Do not use this function with a device that is not compatible with phantom power. Doing so could damage the device.

1. Press .

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



3. Use  to select "Phantom",
and press .





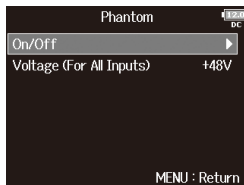
► Continue to one of the following procedures.

Using phantom power	P.66
Setting the voltage	P.66

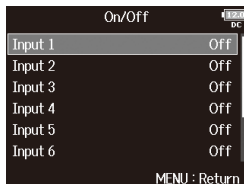
Changing the phantom power settings (Phantom) (continued)

Using phantom power

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




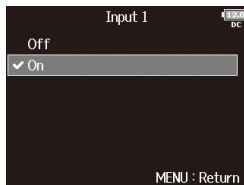
5. Use  to select the track, and press .



HINT

Select "ALL" to set all the tracks at the same time.



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

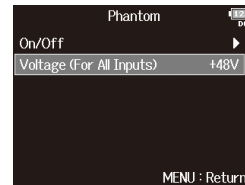


NOTE

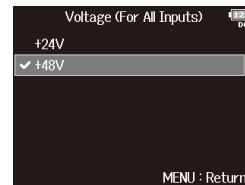
When a mic capsule is connected tracks 1/2 are set to Off.

Setting the voltage

4. Use  to select "Voltage (For All Inputs)", and press .



5. Use  to select the voltage, and press .





HINT

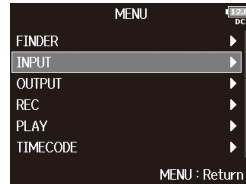
When using mics and other equipment that can operate with voltages less than +48V, selecting the lower voltage can reduce power consumption by the **F8**.



Changing the plugin power setting (Plugin Power)

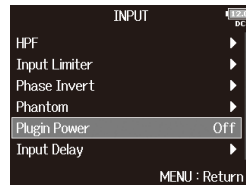
Make this setting when a mic that is compatible with plug-in power is connected to the mic capsule MIC/LINE input jack.



1. Press .

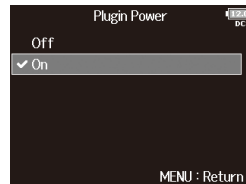
2. Use  to select "INPUT",
and press .



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





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

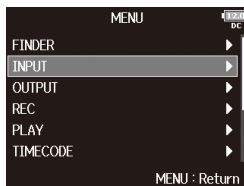




Delaying input signals (Input Delay)

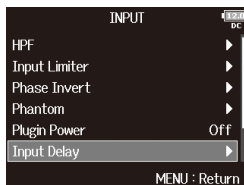
If there are differences in the timing of input sounds, use this function to correct them when recording.

1. Press .

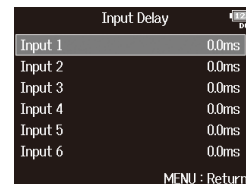
2. Use  to select "INPUT",
and press .



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 .



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 ordinary stereo (Stereo Link Mode)

Signals from a mid-side stereo mic input through stereo-linked tracks can be converted to an ordinary stereo signal. See "Linking inputs as a stereo pair" (→ P.24) for how to use stereo linking.

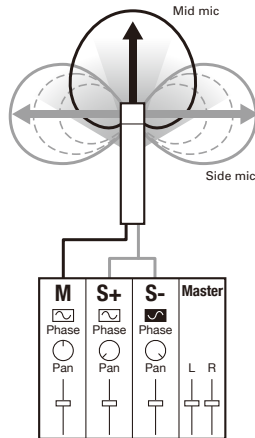
Mid-side stereo format overview

This technique creates a stereo recording from signals input by a directional mid mic that captures sound in the center and a bi-directional side mic that captures sounds from the left and right.

Using this technique, you can change the stereo width as you like by adjusting the side mic level.

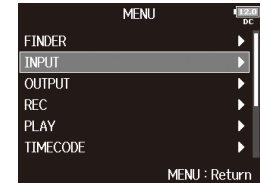
Since this technique can capture a wide stereo image, it is ideal for recording wide open spaces with numerous sound sources, including orchestras, live concerts and soundscapes.

This technique is also extremely effective when you want to adjust room ambience. Since it offers a high degree of flexibility, it is used not only for studio recording but also for recording a wide range of situations including rehearsals and live performances.

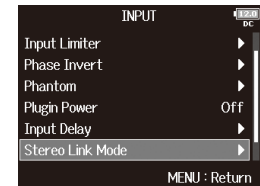


1. Press .

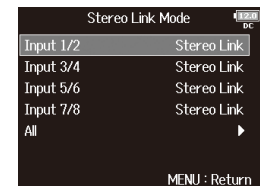
2. Use to select "INPUT",
and press .



3. Use to select "Stereo
Link Mode", and press .



4. Use to select the track,
and press .



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

HINT

Select "ALL" to set all the tracks at the same time.

5. 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.
- The MS Stereo Link setting is disabled if a mic capsule is connected that cannot have L/R inputs set individually to tracks 1/2.



HINT

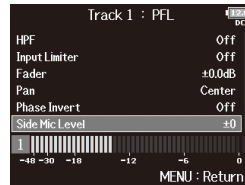
- Use  for each track to adjust the mid/side balance.
- You can adjust the side mic level for tracks that have a mid-side mic capsule connected on the PFL screen.

Adjusting the side 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 **PFL** for track 1 or 2.

2. Use  to select "Side Mic Level", and press .



3. Use  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.



HINT

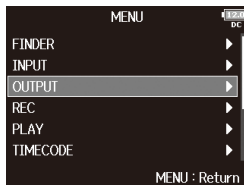
When dual channel recording is on, the side mic level can also be set for tracks 5/6, which correspond to tracks 1/2.

Setting signals sent to headphones (Headphone Routing)

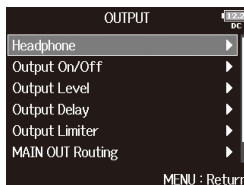
You can set the type of signal sent to the headphone output to either prefader or postfader for each track.

1. Press .

2. Use  to select "OUTPUT", and press .





3. Use  to select "Headphone", and press .

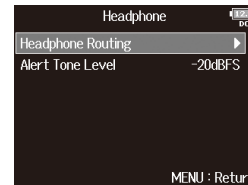




▶ Continue to one of the following procedures.

- Setting the routing P.72
- Using mono headphone output..... P.73
- Monitoring mid-side stereo signals..... P.74

Setting the routing

4. Use  to select "Headphone Routing", and press .



5. Use  to select the tracks/outputs for headphone routing and press .

Mid-side stereo monitoring

Set tracks 1-8 to prefader (deactivates MS)

Cycles options:

- Change tracks 1-8 to postfader (cancels others)
- Change L/R to postfader (cancels others)
- Change M1/M2 to postfader (cancels others)
- Change S1/S2 to postfader (cancels others) (deactivates MS)

A screenshot of the 'Headphone Routing' screen. It features a grid for routing tracks 1-8 to the left (L) and right (R) channels. Below the grid are options for 'All Tracks' (Prefader/Postfader), 'MONO Mix', and 'All Clear'. At the bottom right, it says 'MENU : Return'.

Tracks routed to the left headphone channel


Tracks routed to the right headphone channel

Mono mix

Clear all settings

- Prefader selected
- Postfader selected
- Off

HINT

Press  to cycle through the options: Prefader → Post-fader → Off.

NOTE

- You cannot set L/R , MAIN OUT 1/2 or SUB OUT 1/2 to prefader.
- You cannot select the 1–8, L/R , MAIN OUT 1/2 and SUB OUT 1/2 tracks at the same time. Selecting one type will deselect the other.

6. Press .

Using mono headphone output

4. Use  to select "MONO Mix",
and press .



5. Press .

Setting signals sent to headphones (Headphone Routing) (continued)

Monitoring mid-side stereo signals

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

4. Use  to select "MS", and
press .



5. Press .



NOTE

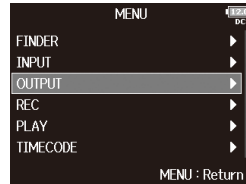
- This is disabled for stereo-linked tracks that have Stereo Link Mode set to MS Stereo Link.
- This is only enabled for tracks that have a mid-side mic capsule connected and the Side Mic Level set to RAW.
- When mid-side stereo monitoring is enabled, the prefader tracks will be routed automatically to the headphone channels, with the odd to the left and even to the right. In this case, the routing cannot be changed manually.

Outputting alerts through headphones (Alert Tone Level)

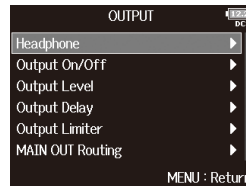
The volume can be adjusted for alerts output from headphones when, for example, recording starts and stops.



1. Press .

2. Use  to select "OUTPUT",
and press .



3. Use  to select
"Headphone", and press .



4. Use  to select "Alert
Tone Level", and press .



5. Use  to adjust the
volume, and press .



HINT



- This can be set to Off or between -60 and -12 dBFS.
- When set to Off, no alerts will be output.

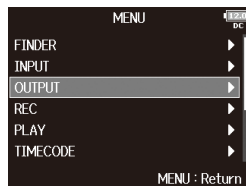
When alerts sound	Sound type
Remaining battery low	880Hz tone 4 times every 30 seconds
Recording starts	1000Hz tone 1 time
Recording stops	880Hz tone 2 times
Recording not possible	880Hz tone 3 times

Disabling outputs (Output On/Off)

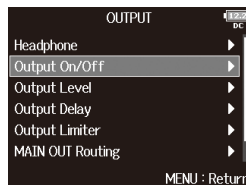
By disabling outputs that you are not using, you can reduce power consumption and increase the length of operation time when using batteries.

1. Press .

2. Use  to select "OUTPUT", and press .





3. Use  to select "Output On/Off", and press .

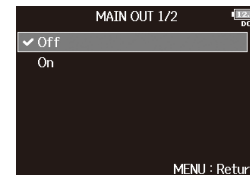


4. Use  to select the output, and press .

HINT

Select All to set all outputs at the same time.



5. Use  to select Off, and press .

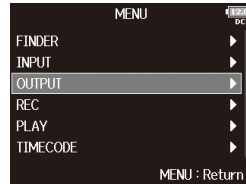




Setting the standard output level (Output Level)

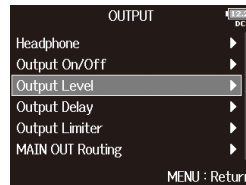
The standard output level can be changed.

1. Press .

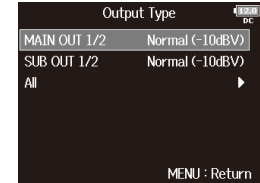
2. Use  to select "OUTPUT",
and press .



3. Use  to select "Output
Level", and press .





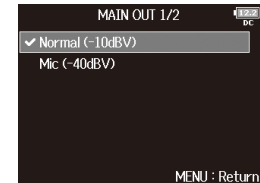
4. Use  to set the output
type, and press .



HINT

Select "ALL" to set all the outputs at the same time.

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

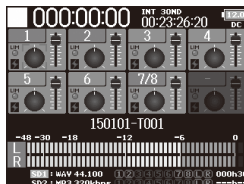


Setting value	Explanation
Normal (-10dBV)	This sets the standard level to -10 dBV.
Mic (-40dBV)	This sets the standard level to -40 dBV.

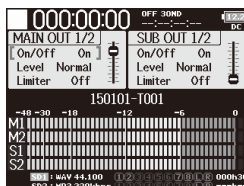
Setting the output level

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

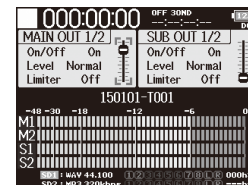
1. Open the mixer on the Home Screen. (→ P.11)



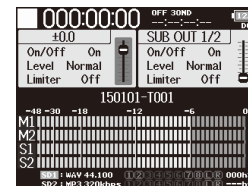
2. Use the Home button to open the MAIN OUT 1/2 and SUB OUT 1/2 settings screen.



3. Use the Home button to select a fader, and press the Enter button.



4. Use the Home button to adjust the output level, and press the Enter button.





HINT

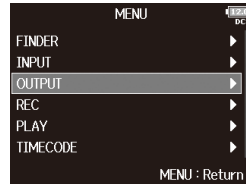
- This can be set to Mute or from -48.0 to $+12.0$ dB.
- You can also check and adjust various output settings on the MAIN OUT and SUB OUT setting screen.



Applying delays to outputs (Output Delay)

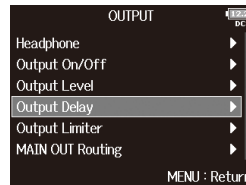
By delaying outputs, you can correct timing differences for audio input to other devices.



1. Press .

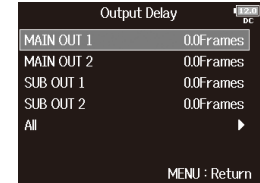
2. Use  to select "OUTPUT",
and press .



3. Use  to select "Output
Delay", and press .





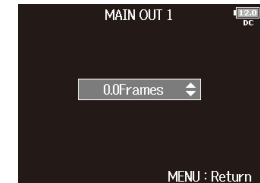
4. Use  to select the
output, and press .



HINT

Select "ALL" to set all the outputs at the same time.

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



HINT

This can be set from 0.0 to 10.0 frames.

NOTE

- The delay in milliseconds depends on the frame rate of the selected timecode.
- When Sample Rate is set to 192kHz, Output Delay is disabled.



Output Limiter

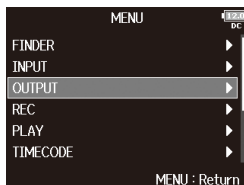
Using a limiter on the output can protect devices connected to the output jacks.



HINT

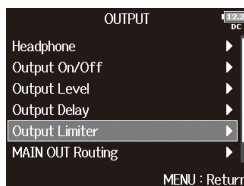
For details about the limiter effect, see "Input limiter". (→ P.60)

1. Press .

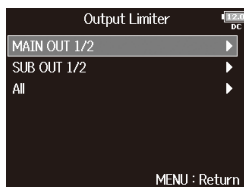
2. Use  to select "OUTPUT",
and press .



3. Use  to select "Output
Limiter", and press .



4. Use  to select the
output, and press .



HINT

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

► Continue to one of the following procedures.

Using the limiter P.80

Setting the type P.81



Setting the threshold P.81

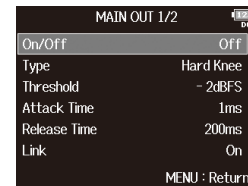
Setting the attack time P.82



Setting the release time P.82

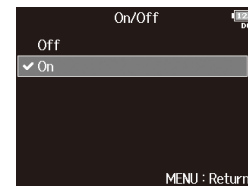
Setting links P.83

Using the limiter



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

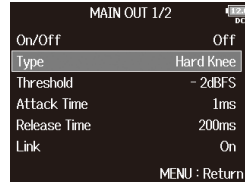


6. Use  to select "On", and
press .

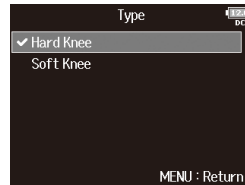


Setting the type

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





6. Use  to select the type, and press .

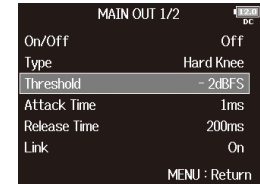


Setting value	Explanation
Hard Knee	Only peaks that exceed the threshold are attenuated. There is no effect below the threshold.
Soft Knee	The limiter gradually affects the output signal about 6 dB below the threshold for a gentler effect.

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 .



HINT

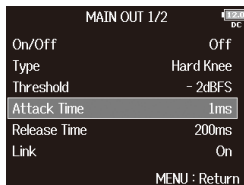
This can be set from -16 to -2 dBFS.

Output Limiter (continued)

Setting the attack time

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

- 5.** Use  to select "Attack Time"; and press .



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



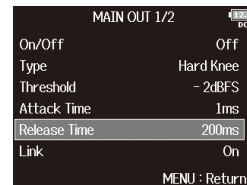
HINT

This can be set from 1 to 4 ms.

Setting the release time

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

- 5.** Use  to select "Release Time"; and press .



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





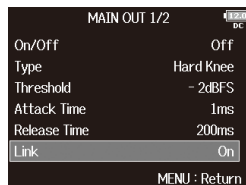
HINT


This can be set from 1 to 500 ms.

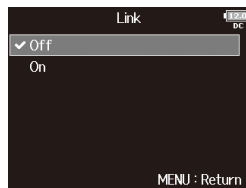
Setting links

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

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



- 6.** Use  to select "Off", and press .





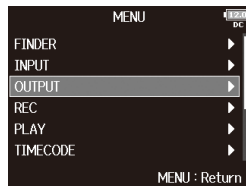
Setting value	Explanation
Off	Separates limiter operation.
On	Links limiter operation. If the signal for either linked signal reaches the threshold, the limiter will operate on both channels.



Selecting signals sent to the main outputs (MAIN OUT Routing)

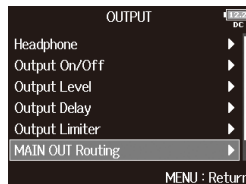
You can send either prefader or postfader signals for each track to the main outputs.

1. Press .

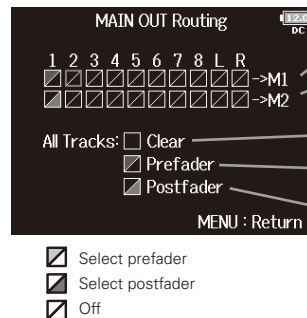
2. Use  to select "OUTPUT",
and press .



3. Use  to select "MAIN OUT Routing", and press .



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



Tracks routed to MAIN OUT 1

Tracks routed to MAIN OUT 2


Clear all settings

Set tracks 1–8 to prefader

Switches option:

- Change tracks 1–8 to postfader
- Change L/R tracks to postfader

HINT

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

NOTE



- Tracks 1–8 can be set to Prefader or Postfader.
- The L/R tracks can only be set to Postfader.
- Tracks 1–8 and L/R tracks cannot be set at the same time. Selecting one type will deselect the other.

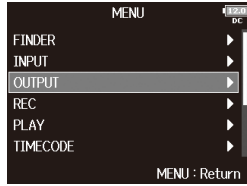
5. Press .



Selecting signals sent to the sub outputs (SUB OUT Routing)

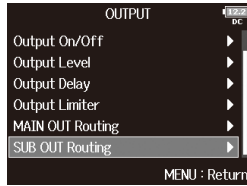
You send either prefader or postfader signals for each track to the sub outputs.


1. Press .

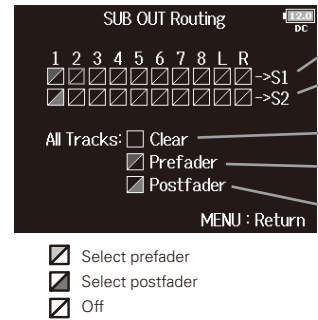
2. Use  to select "OUTPUT", and press .




3. Use  to select "SUB OUT Routing", and press .



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



Tracks routed to SUB OUT 1
 Tracks routed to SUB OUT 2
 Clear all settings
 Set tracks 1-8 to prefader
 Switch options:
 • Change tracks 1-8 to postfader
 • Change L/R tracks to postfader

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

NOTE

- Tracks 1-8 can be set to Prefader or Postfader.
- The L/R tracks can only be set to Postfader.
- Tracks 1-8 and L/R tracks cannot be set at the same time. Selecting one type will deselect the other.

5. Press .

Timecode overview

The **FB** can input and output SMPTE timecode.

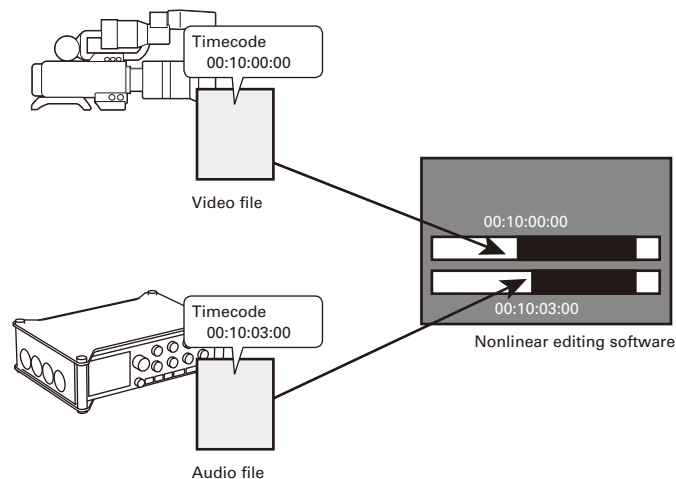
Timecode is time information written to data when recording video and audio. It is used for video editing, control of other devices, and synchronization of audio and video, for example.

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

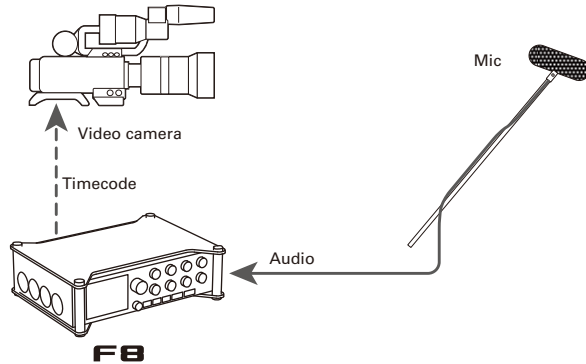


Connection examples

Connections like the following are possible depending on the application.

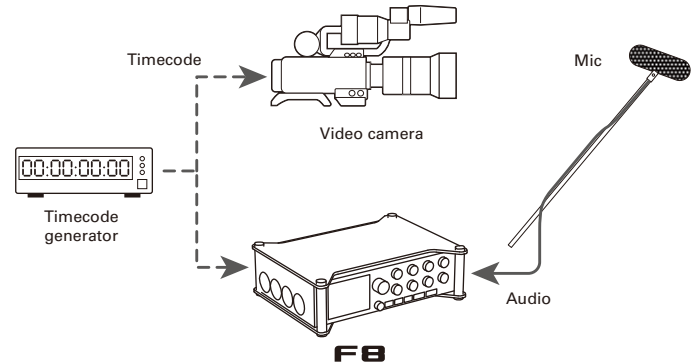
Synchronizing with a video camera

The **F8** records with a mic input and transmits timecode. The **F8** saves 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

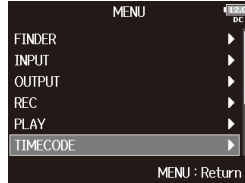
Timecode is transmitted from a timecode generator. Both the **F8** and the video camera receive timecode and record it with their audio and video data. The input timecode can also be used to synchronize the audio clock of the **F8**.



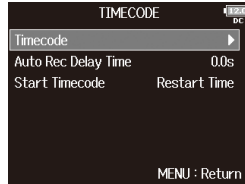
Setting timecode

1. Press .

2. Use  to select "TIMECODE";
and press .



3. Use  to select "Timecode";
and press .



A detailed screenshot of the Timecode settings screen. On the left, labels point to various settings: Timecode mode (Int Free Run), Internal timecode (Int TC: 00:01:21:24), Internal user bits (Ubits: 01 01 15 00), External timecode (Ext TC: 00:03:34:29), External user bits (Ubits: 00 00 00 00), and Jam button (Jam). On the right, labels point to: Internal timecode frame rate (FPS: 30ND), External timecode frame rate (FPS: 30ND), and Internal timecode restart button (Restart). At the bottom right, it says "MENU : Return".



► Continue to one of the following procedures.

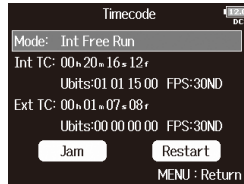
Setting the mode	P.89
Stopping timecode output when recording is stopped .	P.90
Synchronizing audio clock with external timecode	P.90
Automatically enabling internal timecode when no external timecode is input	P.91
Setting the user bits for internal timecode.....	P.91
Setting the frame rate for internal timecode.....	P.93
Jamming internal timecode	P.94
Restarting internal timecode with a specified value	P.94



Setting the mode

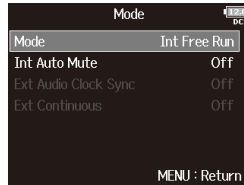
Make the following settings.


- Whether the **F8** generates timecode or receives external timecode
- Whether timecode continues running or not when not recording

4. Use  to select "Mode", and press .



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



6. Use  to select the mode, and press .





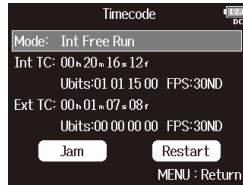
Setting value	Explanation
Off	No timecode will be written to the recording file. Timecode will not be output from the TIMECODE OUT jack.
Int Free Run	Internal timecode will be generated regardless of the recording mode. The internal timecode can be set manually using the following menu items. <ul style="list-style-type: none"> • MENU > TIMECODE > Timecode > Jam • MENU > TIMECODE > Timecode > Restart Timecode will always be 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. <ul style="list-style-type: none"> • MENU > TIMECODE > Timecode > Jam • MENU > TIMECODE > Timecode > 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). <ul style="list-style-type: none"> • At startup • When Date/Time (RTC) changed (→ P.17) • When switching to this timecode mode Timecode will always be 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.91)
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.91) Recording starts automatically when external timecode input is detected. Recording stops automatically when external timecode stops.

Setting timecode (continued)

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 "Mode", and press .



5. Use  to select "Int Auto Mute", and press .




6. 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

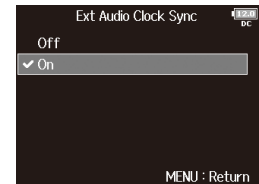
4. Use  to select "Mode", and press .



5. Use  to select "Ext Audio Clock Sync", and press .



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





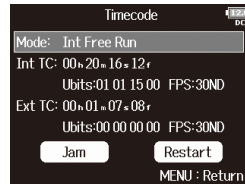
NOTE



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

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.

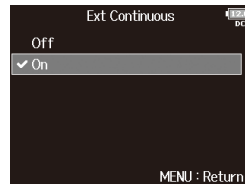
4. Use  to select "Mode", and press .



5. Use  to select "Ext Continuous", and press .



6. 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 user bits for internal timecode

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.

Setting the user bits (Ubits) mode

4. Use  to select "Ubits", and press .



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

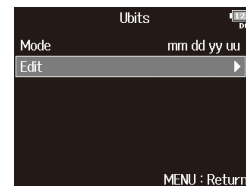


Setting timecode (continued)

- 6.** Use  to select the mode, and press .



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



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.

Setting the user bits (Ubits)


- 4.** Use  to select "Ubits", and press .

- 6.** Edit the value.

- Editing operations

Move cursor or change value:



turn .

Select parameter to change: press .



HINT

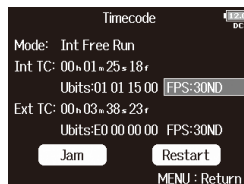
This can be set using numbers from 0 to 9 and letters from A to F.

- 7.** When done changing the setting, use  to select "Enter", and press .

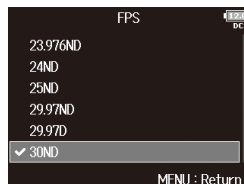


Setting the frame rate for internal timecode

4. Use  to select "FPS", and press .



5. Use  to select the frame rate, and press .



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 0.1% slower than the actual time.
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 0.1% slower than the actual time. 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 drop frames 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 transferred 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 with film sound to be transferred to NTSC using 29.97fps drop frame. The count is 0.1% faster than the actual time.

NOTE

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

Setting timecode (continued)

Jamming internal timecode

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

4. Use  to select "Jam", and press .



Restarting internal timecode with a specified value

4. Use  to select "Restart", and press .




5. Set the restart value.


- Editing operations

Move cursor or change value:



Select parameter to change: press 





6. Use  to select "Restart", and press .

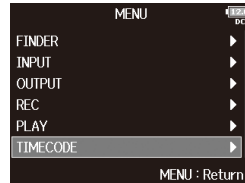




Setting automatic timecode recording delay (Auto Rec Delay Time)

If set to record automatically when external timecode is received, unnecessary recording could occur when 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 .

2. Use  to select "TIMECODE",
and press .



3. Use  to select "Auto Rec Delay Time", and press .



4. Use  to adjust the time,
and press .





HINT

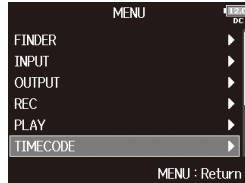
This can be set from 0.0 to 8.0 s.



Setting how timecode is initialized at startup (Start Timecode)

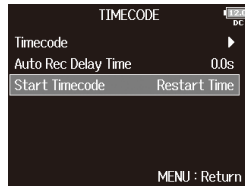
Since internal timecode stops when the **FB** is turned off, the timecode is automatically initialized (jammed) during startup. You can set the value that is used for jamming at that time.



1. Press .

2. Use  to select "TIMECODE";
and press .



3. Use  to select "Start Timecode", and press .



4. Use  to set how
timecode is initialized, and
press .



Setting value	Explanation
Restart Time	When the FB starts, the value set by Restart (→ P.94) is used to jam the internal timecode.
RTC	When the FB 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.17). Since RTC is less precise than internal timecode, discrepancies will occur.

Slate mic and slate tone overview

When recording audio with the **F8**, you can add audio comments to, for example, explain the scene being filmed and cuts. You can also record slate tone signals that can be used to synchronize with video.

The **F8** has a built-in slate mic for recording comments and the ability to output a tone signal.

HINT

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



NOTE

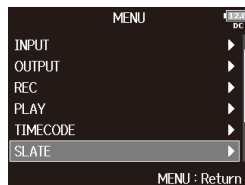
- The slate mic and slate tone cannot be used at the same time. You can use one or the other.
- The slate mic and slate tone cannot be used during audio file playback.

Recording with the slate mic (Slate Mic)

You can use the built-in slate mic to record comments and use it to keep notes about recorded takes.

1. Press .

2. Use  to select "SLATE",
and press .



3. Use  to select "Slate
Mic", and press .



▶ Continue to one of the following procedures.

Setting the volume	P.98
Setting the routing	P.98
Recording	P.99
Disabling the slate mic.....	P.100

Setting the volume

4. Use  to select "Level",
and press .



5. Use  to adjust the level,
and press .




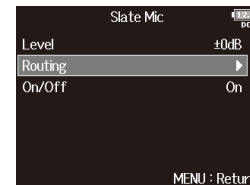
HINT

This can be set from 0 to 24 dB.

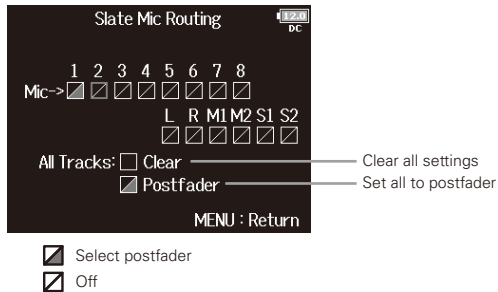
Setting the routing

Set the destination for the slate mic signal.

4. Use  to select "Routing",
and press .



- 5.** Use  to select the tracks/outputs for slate mic signal routing and press .

**HINT**

Press  to switch between Postfader and Off.

NOTE


Routing to tracks 1–8 is not possible when operating as an audio interface (Stereo Mix).

- 6.** Press .

Recording

- 4.** Press  to start recording.


- 5.** Push  toward the mic and release.

- 6.** To disable the slate mic, push  toward the mic again and release.

NOTE


- When the slate mic is in use, other signals input to the 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 levels of the slate mic and slate tone.



HINT

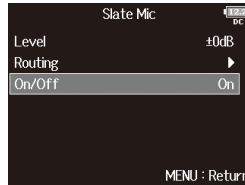
If you push and hold  toward the mic for two or more seconds, the slate mic input will be enabled until you release the switch.



Recording with the slate mic (Slate Mic)

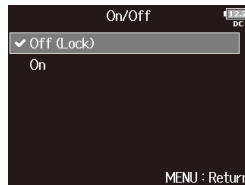
Disabling the slate mic

You can set it so that the slate mic will not be enabled if  is accidentally pushed to the MIC side.

- 4.** Use  to select "On/Off",
and press .





- 5.** Use  to select "Off
(Lock)", and press .



Recording a slate tone (Slate Tone)

By adding a slate tone when the recording starts, aligning it to a video file during editing will be easier. You can also use this to coordinate levels with connected equipment.

1. Press **MENU**.



2. Use  to select "SLATE",
and press .

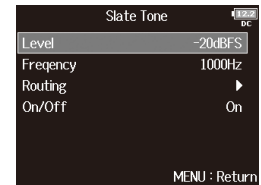


3. Use  to select "Slate
Tone", and press .



Setting the volume

4. Use  to select "Level",
and press .



5. Use  to adjust the level,
and press **MENU**.



HINT



This can be set from -20 to 0 dBFS.

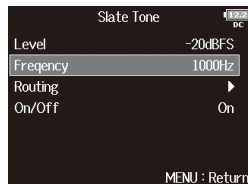
► Continue to one of the following procedures.



Setting the volume	P.101
Setting the frequency	P.102
Setting the routing	P.102
Recording	P.103
Disabling the slate tone	P.104

Recording a slate tone (Slate Tone) (continued)

Setting the frequency

4. Use  to select "Frequency", and press .



5. Use  to adjust the frequency, and press .



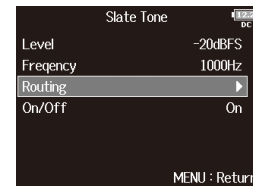
HINT

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

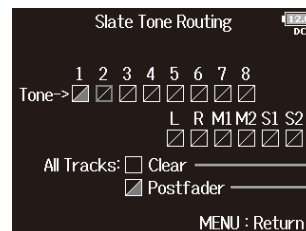
Setting the routing

Set the destination for the slate tone signal.

4. Use  to select "Routing", and press .



5. Use  to select the tracks/outputs for slate tone signal routing and press .



Clear — Clear all settings
 Postfader — Set all to postfader

Select postfader
 Off

HINT

Press  to switch between Postfader and Off.

NOTE

Routing to tracks 1–8 is not possible when operating as an audio interface (Stereo Mix).

6. Press .

Recording


4. Press  to start recording.

5. Push  toward the tone side and release.

NOTE


- When the slate tone is in use, other signals input to the 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 levels of the slate mic and slate tone.



HINT

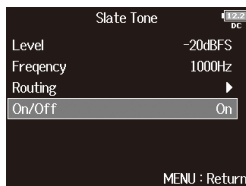
If you push and hold  toward the tone side for one or more seconds, slate tone input will be enabled until you push the switch toward TONE again.



Recording a slate tone (Slate Tone) (continued)

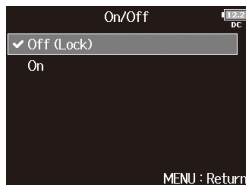
Disabling the slate tone

You can set it so that it will not be enabled if  is accidentally pushed to the TONE side.

- 4.** Use  to select "On/Off",
and press .



- 5.** Use  to select "Off
(Lock)", and press .



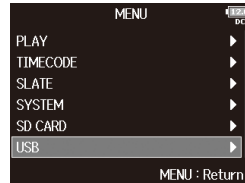
Exchanging data with a computer (SD Card Reader)



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

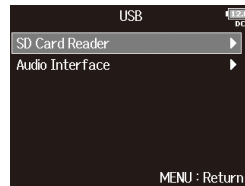
Connecting with a computer

1. Press .

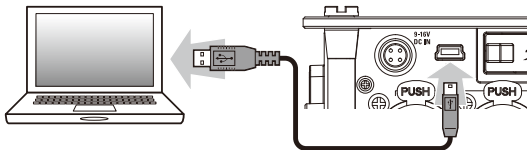
2. Use  to select "USB", and press .



3. Use  to select "SD Card Reader", and press .



4. Connect the **F8** and computer with a USB cable.



NOTE

- The supported operating systems are as follows.
Windows: Windows Vista or later
Mac OS: Mac OS X (10.6 or later)
- The **F8** cannot operate on USB bus power. Use the internal batteries, the dedicated AC adapter or an external DC power supply to power it.

HINT

When the **F8** 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 **F8** from "Safely Remove Hardware".

Mac OS: Drag and drop the **F8** icon to the Trash.

NOTE

Always conduct computer disconnection procedures before removing the USB cable.

2. Disconnect the cable from the computer and the

F8, and press .

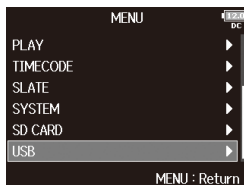
Using as an audio interface (Audio Interface)



F8 input signals can be input directly to a computer or iPad, and playback signals on a computer or iPad can be output from the **F8**.

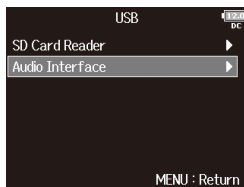
Connecting with a computer or iPad



1. Press .

2. Use  to select "USB", and press .



3. Use  to select "Audio Interface", and press .

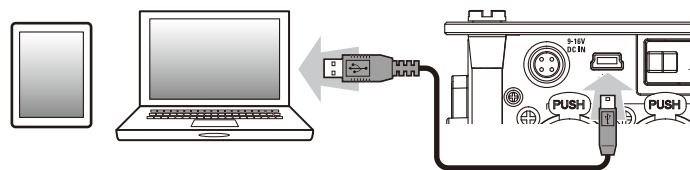


4. Use  to select the mode and connected device, and press .



Setting value	Explanation
Stereo Mix (PC/Mac)	This is a 2-in/2-out connection mode for Mac/Windows and sends tracks 1–8 as a stereo mix.
Stereo Mix (iPad)	This is a 2-in/2-out connection mode for iPad and sends tracks 1–8 as a stereo mix.
Multi Track (PC/Mac)	This is a 8-in/4-out connection mode for Mac/Windows and sends tracks 1–8 as separate signals (cannot be used with iPad). 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 **F8** and the computer or iPad.





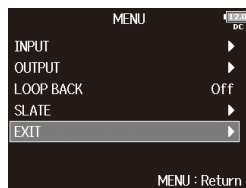
NOTE

- An Lightning to USB Camera Adapter is necessary to connect an iPad.
- The **F8** cannot operate on USB bus power. Use the internal batteries, the dedicated AC adapter or an external DC power supply to power it.

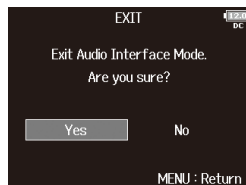
Disconnecting

1. Press .

2. Use  to select "Exit", and press .



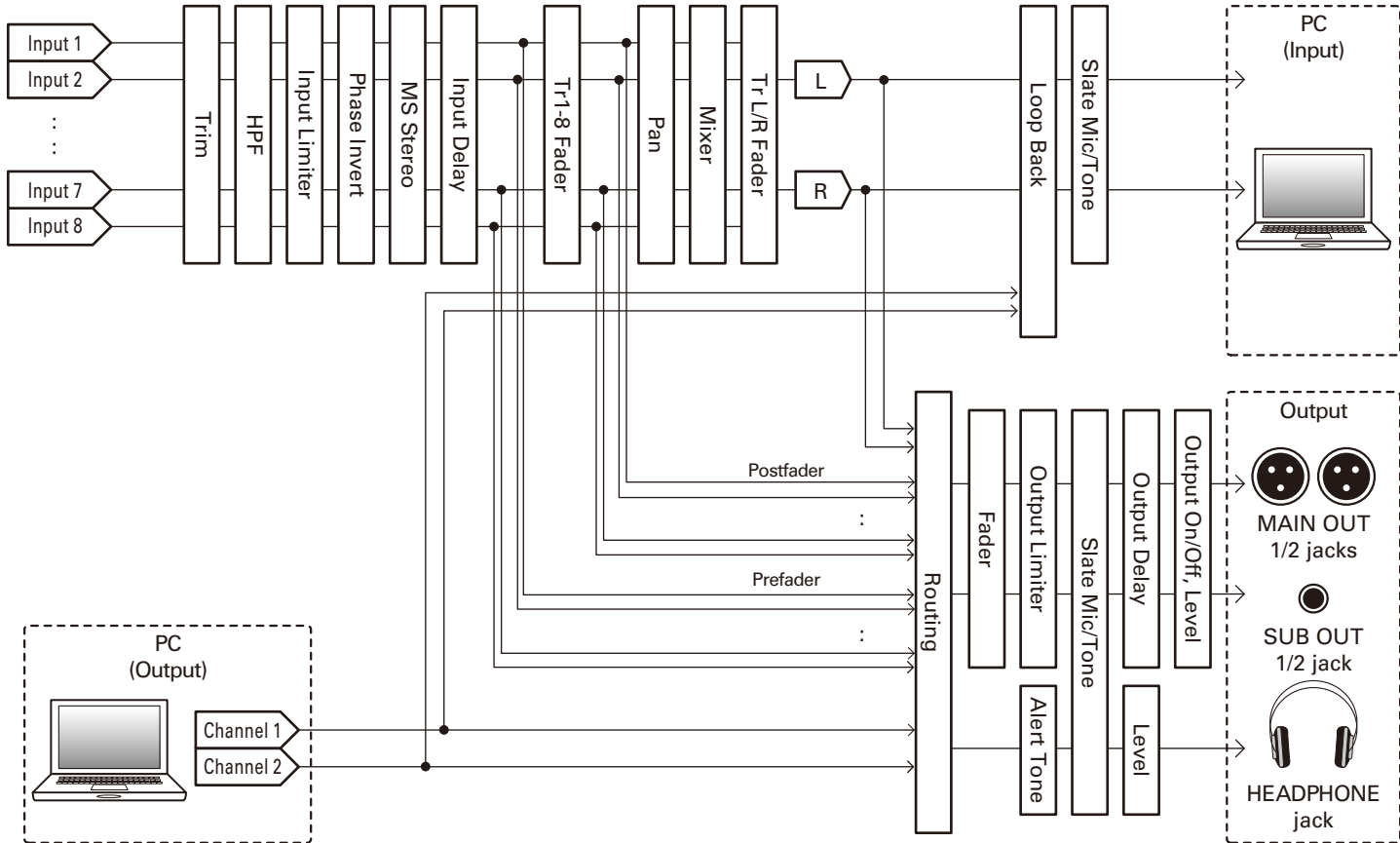
3. Use  to select "Yes", and press .



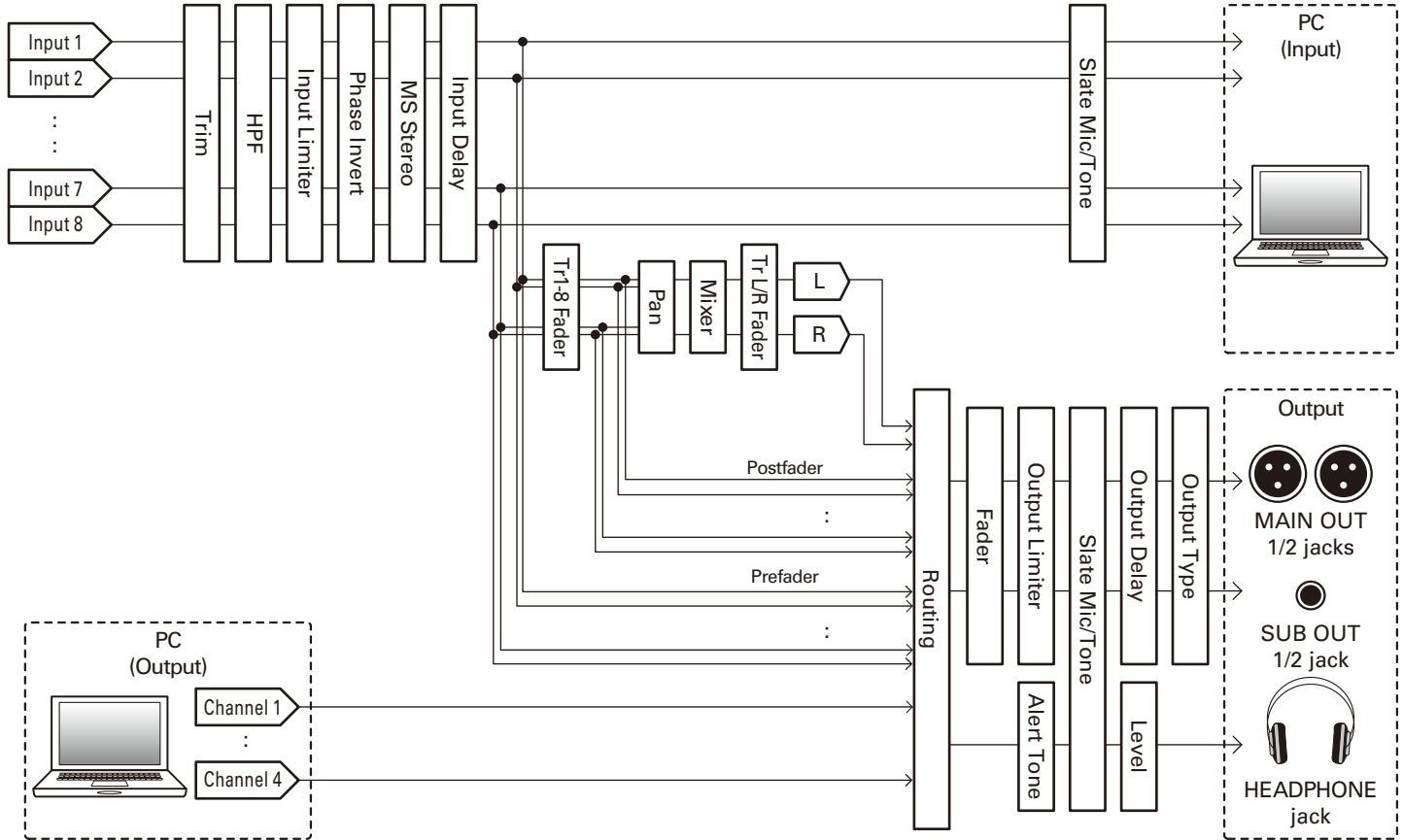
4. Disconnect the cable from the computer or iPad and the **F8**.

Audio interface block diagrams

Stereo Mix



Multi Track



Audio interface settings

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

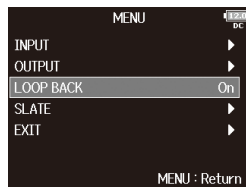
Setting loop back (Stereo Mix only)



This function allows the playback sound from the computer or iPad and the **FB** inputs to be mixed and sent back to the computer or iPad (loop back).

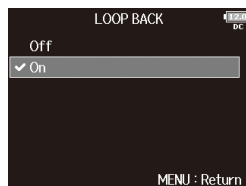
You can use this function to add narration to music played back from the computer and record the mix or stream it on the computer, for example.

1. Press .

2. Use  to select "LOOP BACK", and press .



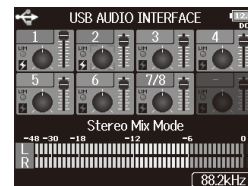
3. Use  to select "On", and press .



Mixing inputs

You can adjust the mix balance of the inputs. Input signals will be sent to the computer or iPad using this 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. (→ P11)



2. Adjust the parameter settings.




▪ Editing operations

Move cursor or change value: turn 

Select parameter to change: press 

Parameter	Setting range	Explanation
Fader	Mute, -48.0 - +12.0 dB	Adjusts the level of the input signal.
Panning	L100 - Center - R100	Adjusts the stereo balance.



HINT

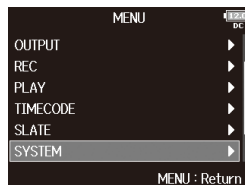
- You can turn  to move the cursor, and also adjust the settings of the MAIN OUT 1/2, SUB OUT 1/2 tracks.
- You can also change L/R track setting values by moving the cursor to the L/R track and pressing .
- When a fader or pan knob is selected, press and hold  to reset it to its default value. If already set to its default value, selecting a fader mutes the track.



Setting how timecode is shown (Home Timecode Display Size)

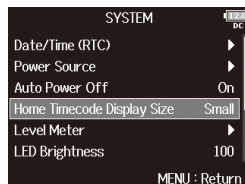
You can change the size of the timecode shown on the Home Screen.



1. Press .

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





3. Use  to select "Home
Timecode Display Size", and
press .



4. Use  to select the size,
and press .





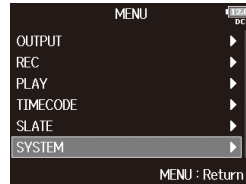
Setting value	Explanation
Small	The timecode is small and the time counter is large. 
Big	The timecode is large and the time counter is small. 



Setting level meter appearance (Level Meter)

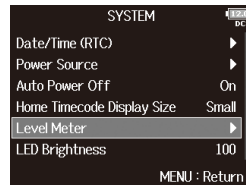
You can set how the level meters appear on the display.

1. Press .

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



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





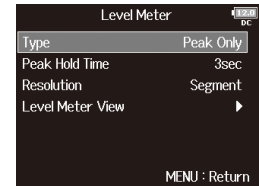
► Continue to one of the following procedures.



Setting the type	P.113
Setting the peak hold time.....	P.114
Setting the level meter resolution.....	P.115
Setting which track level meters are shown on the Home Screen	P.115

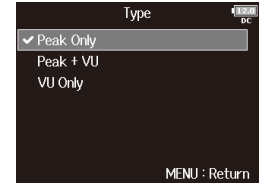
Setting the type

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 .

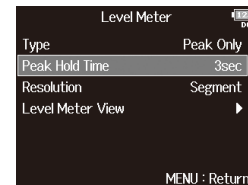




Setting level meter appearance (Level Meter) (continued)

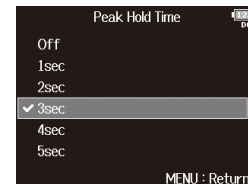
Setting value	Explanation
Peak Only	 <p>The actual peak level of the signal (dBFS) is shown.</p>
VU + Peak	 <p>Both VU and peak level are shown simultaneously. In this mode, the bars function as a VU meter except for the right-most bar, which shows the peak level.</p>
VU Only	 <p>This display style is close to human hearing.</p>

Setting the peak hold time



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

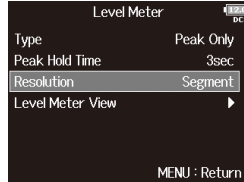




5. Use  to adjust the peak hold time, and press .

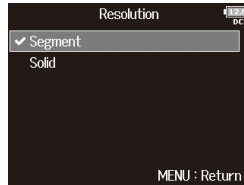




Setting the level meter resolution

- 4.** Use  to select "Resolution"; and press .





- 5.** Use  to select the resolution, and press .

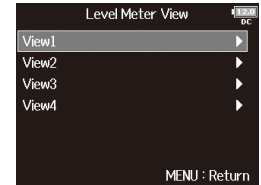


Setting value	Explanation
Segment	 (Shown when set to VU Only)
Solid	 (Shown when set to VU Only)

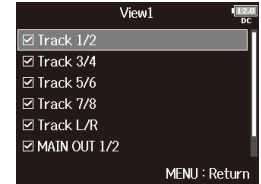
Setting which track level meters are shown on the Home Screen

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

- 4.** Use  to select "Level Meter View", then "View1" – "View4"; and press .



- 5.** Use  to select tracks to show, and press .



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.

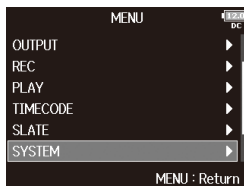
- 6.** Press .



Setting the LED brightness (LED Brightness)

You can adjust the brightness of the LEDs on the front of the **F8**.

1. Press .

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



3. Use  to select "LED
Brightness", and press .



4. Use  to adjust the
brightness, and press .





HINT

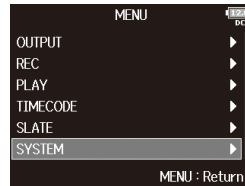
This can be set from 5 to 100.

Making display settings (LCD)

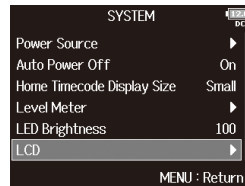
You can make settings related to the display.

1. Press .

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



3. Use  to select "LCD", and
press .





► Continue to one of the following procedures.

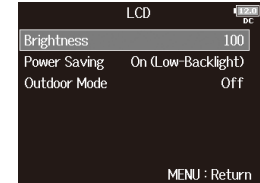
Setting the display brightness..... P.117

Changing the display backlight setting..... P.118

Making the display easier to read under bright light P.118

Setting the display brightness

4. Use  to select
"Brightness", and press .



5. Use  to adjust the
brightness, and press .





HINT

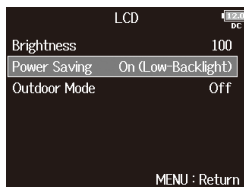
This can be set from 5 to 100.

Making display settings (LCD)

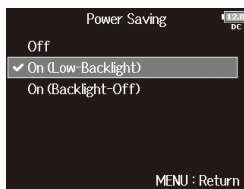
Changing the display backlight setting

You can set the display backlight to dim after 30 seconds without use.

- 4.** Use  to select "Power Saving", and press .



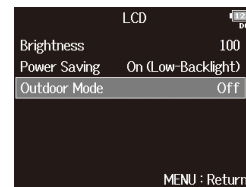
- 5.** Use  to select the setting, and press .





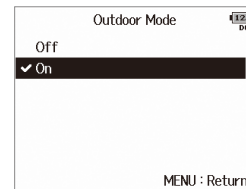
Making the display easier to read under bright light

The display can be set to be easier to read in bright environments including in sunlight.

- 4.** Use  to select "Outdoor Mode", and press .



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





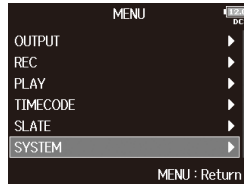
Setting value	Explanation
Off	The backlight brightness does not change even after time passes without use.
On (Low-Backlight)	The backlight dims after time without use.
On (Backlight-Off)	The backlight turns off after time without use.



Adding marks when pausing (PLAY Key Option)

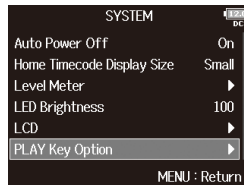
You can set how marks are added when  is pressed while recording or playing back a WAV format file.

1. Press .

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



3. Use  to select "PLAY Key Option", and press .





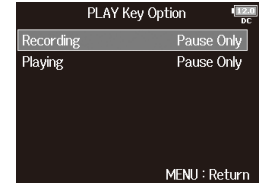
► Continue to one of the following procedures.



Setting how marks are added when recording..... P.119

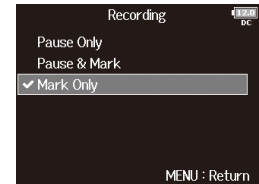
Setting how marks are added when playing P.120




Setting how marks are added when recording

4. Use  to select "Recording", and press .



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

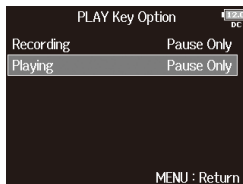



Setting value	Explanation
Pause Only	Pressing  will pause without adding a mark.
Pause & Mark	Pressing  will pause and add a mark.
Mark Only	Pressing  will add a mark without pausing.

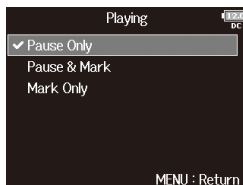
Adding marks when pausing (PLAY Key Option) (continued)




Setting how marks are added when playing

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



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



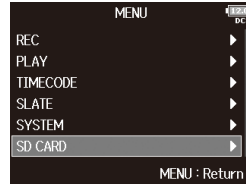
Setting value	Explanation
Pause Only	Pressing  will pause without adding a mark.
Pause & Mark	Pressing  will pause and add a mark.
Mark Only	Pressing  will add a mark without pausing.



Checking SD card information (Information)

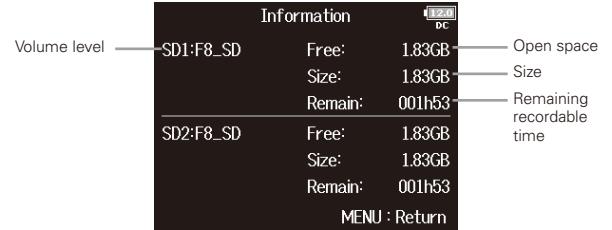
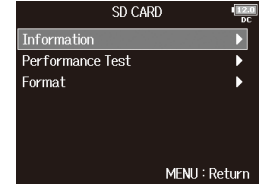
You can check the size and open space of SD cards.

1. Press .

2. Use  to select "SD CARD",
and press .



3. Use  to select
"Information", and press .

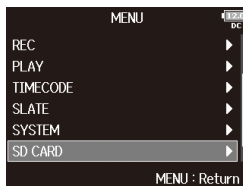




Testing SD card performance (Performance Test)

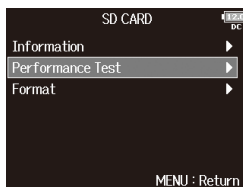
You can test whether an SD card can be used with the **FB**. The QuickTest is basic, and the FullTest checks the entire SD card.



1. Press .

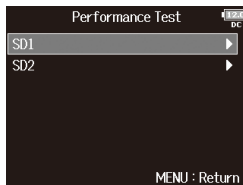
2. Use  to select "SD CARD", and press .



3. Use  to select "Performance Test", and press .



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





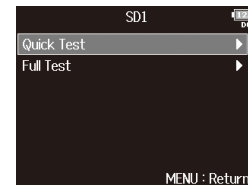
► Continue to one of the following procedures.

Conducting a quick test.....P.122

Conducting a full testP.123

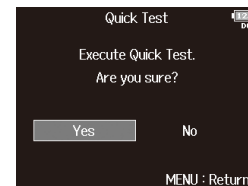
Conducting a quick test

5. Use  to select "Quick Test", and press .



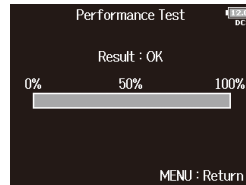
6. Use  to select "Yes", and press .

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



7. The test completes.

The result of the evaluation will be shown.



8. Press **MENU** to stop the test.

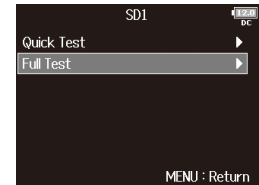
NOTE

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.

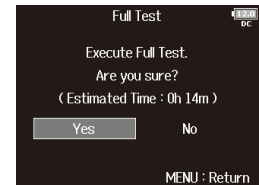
Conducting a full test

5. Use to select "Full Test"; and press .

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



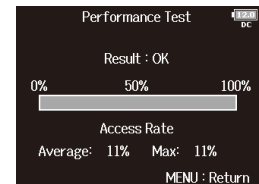
6. Use to select "Yes"; and press .



7. The test completes.

The result of the evaluation will be shown.


If the access rate MAX reaches 100%, the card will fail (NG).



Testing SD card performance (Performance Test)

8. Press  to stop the test.

NOTE

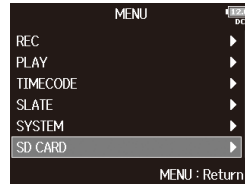
- You can press  to pause and resume the test.
- Even if a performance test result is "OK", there is no guarantee that writing errors will not occur. This information is just to provide guidance.



Formatting SD cards (Format)

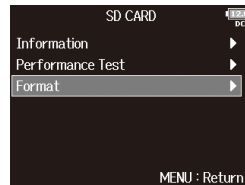
SD cards must be formatted for use with the **F8**.



1. Press .

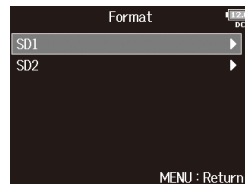
2. Use  to select "SD CARD",
and press .





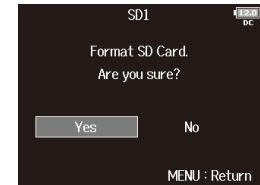
3. Use  to select "Format",
and press .



4. Use  to select the card to
initialize, and press .



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





NOTE

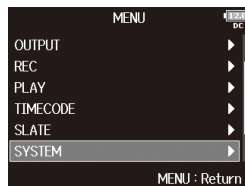
- Before using SD cards that have just been purchased or that have been formatted by a computer, they must be formatted by the **F8**.
- Be aware that all data previously saved on an SD card will be deleted when it is formatted.



Restoring default setting values (Factory Reset)

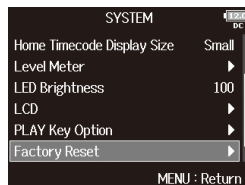
You can restore the factory default settings.

1. Press .

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.





NOTE

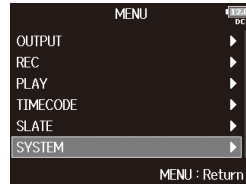
Input level settings will not be reset.



Checking the firmware version (Firmware Version)

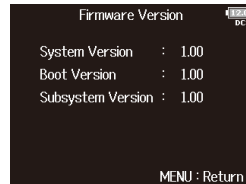
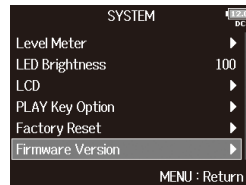
You can check the firmware version.

1. Press .

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



3. Use  to select "Firmware Version", and press .



Updating the firmware

The **FB** firmware can be updated to the latest version.


When an update is available, the file for the latest version can be downloaded from the ZOOM website (www.zoom.co.jp).

1. Install new batteries in the **FB** or connect the dedicated AC adapter to the DC IN connector.

NOTE

- Upgrading the firmware version is not possible if the remaining battery power is low. In this case, replace the batteries with new ones or use the adapter.

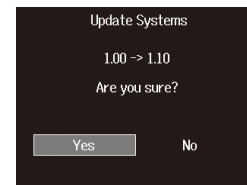
2. Copy the file for updating the firmware to the root directory on an SD card.

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

NOTE

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

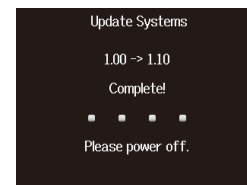
4. Use  to select "Yes", and press .



NOTE

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

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



Troubleshooting

If you think that the **F8** 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 **F8** is not too low.
- ◆ No sound from connected equipment or inputs or it is very quiet
 - If you are using a mic capsule, confirm that it is oriented correctly.
 - Check the input level settings. (→ P.25)
 - 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.56)
 - Check the phantom power and plug-in power settings. (→ P.65, P.67)
 - Check the headphone, MAIN OUT 1/2 and SUB OUT 1/2 routing settings. (→ P.72, P.84, P.85)
- ◆ Recording is not possible
 - Confirm that track keys are lit red.
 - Confirm that the SD card has open space. (→ P.121)
 - 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.41)
 - Confirm that the track keys are lit green during playback.

Other trouble

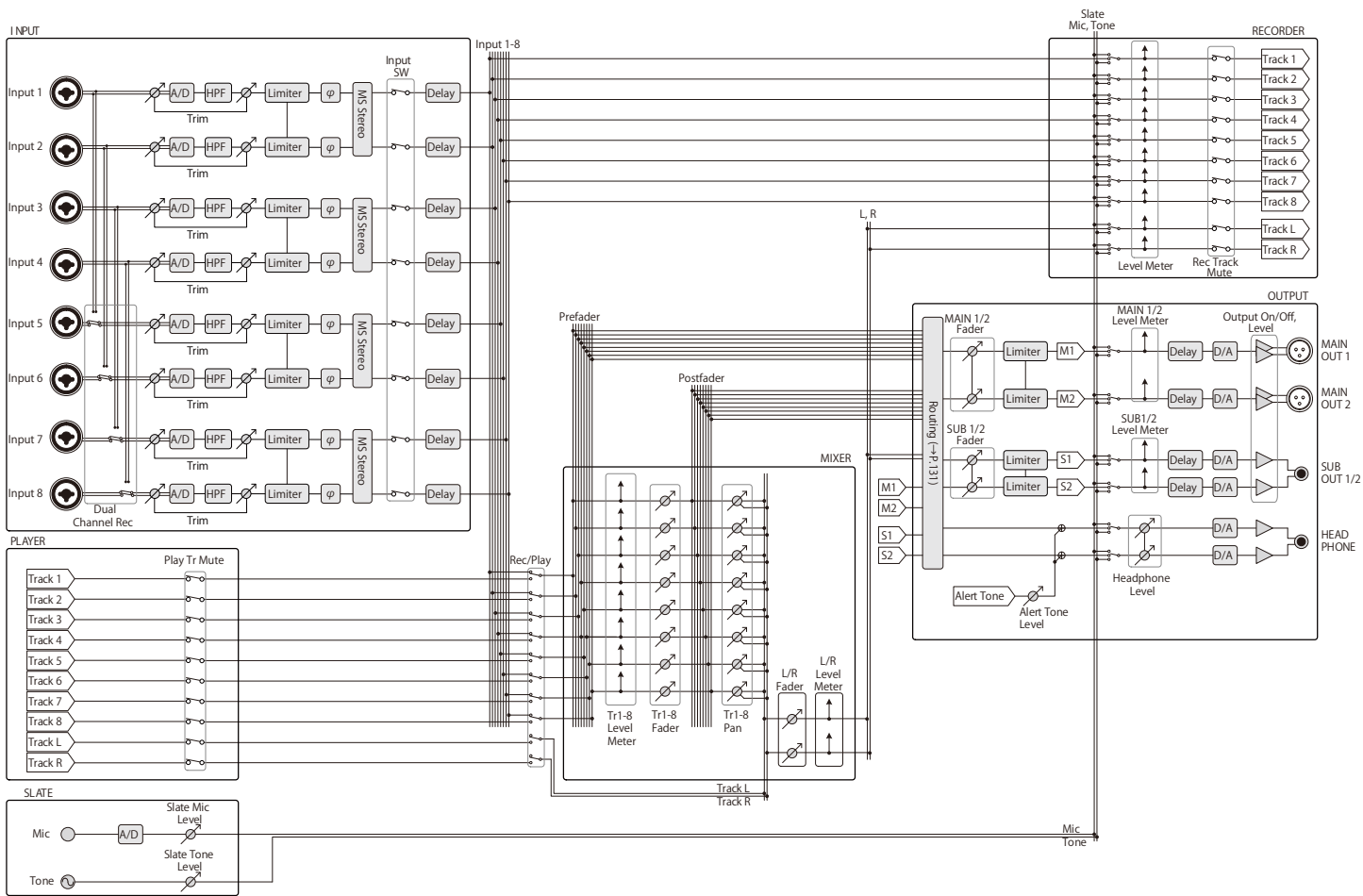
- ◆ Computer does not recognize it even though it is connected to the USB port
 - Confirm that the operating system is compatible. (→ P.105)
 - The operation mode must be set on the **F8** to allow the computer to recognize the **F8**. (→ P.106)

◆ Battery operation time is short

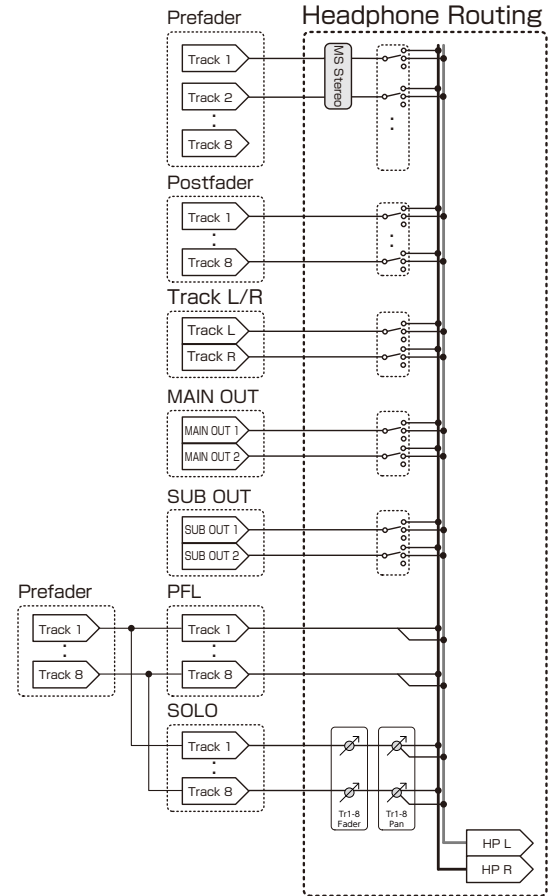
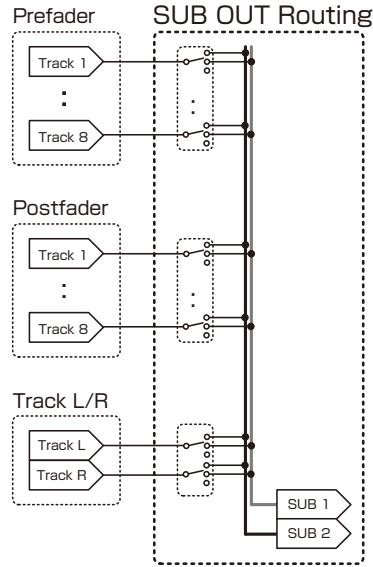
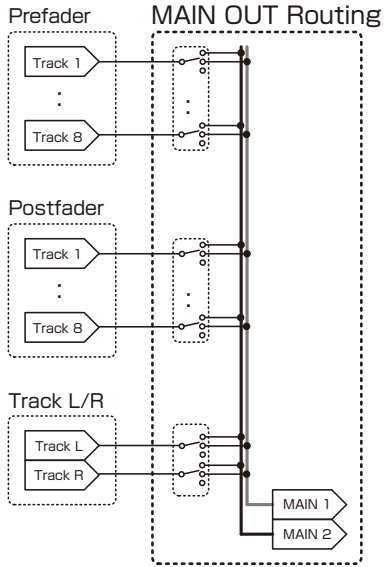
Making the following settings could increase the battery operation time.

- Set the power supply used correctly. (→ P.20)
- Turn unnecessary tracks off. (→ P.24)
- Turn unnecessary outputs off. (→ P.76)
- Set the phantom power voltage to 24V. (→ P.65)
- Turn timecode off if not using it. (→ P.89)
- Reduce the LED brightness. (→ P.116)
- Reduce the display brightness. (→ P.117)
- Set the display to dim when not used for some time. (→ P.118)
- Reduce the sampling rate used to record files. (→ P.27)
- Due to their characteristics, using nickel metal hydride batteries (especially high-capacity ones) or lithium batteries should enable longer use than alkaline batteries.

Detailed product diagrams



Routing



Metadata list

Metadata contained in BEXT chunks in WAV files

Tag	Explanation	Remarks
SPEED=	Frame rate	MENU > TIMECODE > Timecode > FPS
TAKE=	Take number	
UBITS=	User bits	MENU > TIMECODE > Timecode > Ubits
SCENE=	Scene name	MENU > REC > Next Take > Scene Name Mode MENU > REC > Next Take > User Scene Name MENU > FINDER > Option > Rename
TAPE=	Name of recording destination folder	MENU > FINDER (Recording destination folder name) MENU > FINDER > Option > Meta Data Edit > Folder (Tape) Name
CIRCLED=	Circled take	MENU > FINDER > Option > Meta Data Edit > Circle
TR1=	Track 1 name	<p>Track names are written as follows.</p> <p>TR1 = track 1, TR2 = track 2... TR8 = track 8, TRL = left track, TRR = right track</p> <p>During dual channel recording, tracks 1-4 are written to tracks 5-8.</p>
TR2=	Track 2 name	
TR3=	Track 3 name	
TR4=	Track 4 name	
TR5=	Track 5 name	
TR6=	Track 6 name	
TR7=	Track 7 name	
TR8=	Track 8 name	
TRL=	Left track name	
TRR=	Right track name	
NOTE=	Take note	MENU > REC > Next Take > Note MENU > FINDER > Option > Meta Data Edit > Note

Metadata contained in iXML chunks in WAV files

iXML master tag	iXML sub tag	Written	Read	Remarks
<PROJECT>		○	○	MENU > FINDER (SD card root folder) MENU > FINDER > Option > Meta Data Edit > Project Name
<SCENE>		○	×	MENU > REC > NextTake > Scene Name Mode MENU > REC > NextTake > User Scene Name MENU > FINDER > Option > Rename
<TAKE>		○	×	
<TAPE>		○	○	MENU > FINDER (recording destination folder name) MENU > FINDER > Option > Meta Data Edit > Folder (Tape) Name
<CIRCLED>		○	○	MENU > FINDER > Option > Meta Data Edit > Circle
<WILDTRACK>		×	×	
<FALSE START>		×	×	
<NO GOOD>		×	×	
<FILE_UID>		○	×	
<UBITS>		○	×	MENU > TIMECODE > Timecode > Ubits
<NOTE>		○	○	MENU > REC > NextTake > Note MENU > FINDER > Option > Meta Data Edit > Note
<BEXT>		×	×	
<USER>		×	×	

Metadata list (continued)

iXML master tag	iXML sub tag	Written	Read	Remarks
<SPEED>				
<SPEED>	<NOTE>	o	x	
<SPEED>	<MASTER_SPEED>	o	x	MENU > TIMECODE > Timecode > FPS
<SPEED>	<CURRENT_SPEED>	o	o	MENU > TIMECODE > Timecode > FPS
<SPEED>	<TIMECODE_RATE>	o	x	MENU > TIMECODE > Timecode > FPS
<SPEED>	<TIMECODE_FLAG>	o	x	MENU > TIMECODE > Timecode > FPS
<SPEED>	<FILE_SAMPLE_RATE>	o	x	MENU > REC > Sample Rate
<SPEED>	<AUDIO_BIT_DEPTH>	o	x	MENU > REC > WAV Bit Depth
<SPEED>	<DIGITIZER_SAMPLE_RATE>	o	x	MENU > REC > Sample Rate
<SPEED>	<TIMESTAMP_SAMPLES_SINCE_MIDNIGHT_HI>	o	x	
<SPEED>	<TIMESTAMP_SAMPLES_SINCE_MIDNIGHT_LO>	o	x	
<SPEED>	<TIMESTAMP_SAMPLE_RATE>	o	x	MENU > REC > Sample Rate

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

iXML master tag	iXML sub tag	Written	Read	Remarks
<HISTORY>				
<HISTORY>	<ORIGINAL_FILENAME>	o	x	
<HISTORY>	<PARENT_FILENAME>	x	x	
<HISTORY>	<PARENT_UID>	x	x	

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

iXML master tag	iXML sub tag	Written	Read	Remarks
<TRACK_LIST>				
<TRACK_LIST>	<TRACK_COUNT>	o	x	
<TRACK>	<CHANNEL_INDEX>	o	x	
<TRACK>	<INTERLEAVE_INDEX>	o	x	
<TRACK>	<NAME>	o	x	The same track names as in BEXT chunk metadata are written (tracks 1–8, L, R).
<TRACK>	<FUNCTION>	x	x	






o = YES x = 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 that will be given to the next take recorded. This can only be used when stopped. Example: Scene001-T001
 + 	Advance the scene number by 1. This can only be used when stopped.
 + 	Disable the operation of all input trim knobs.

MIXER screen

Shortcut	Explanation
Press and hold 	Reset the selected Pan/Fader to the default value. If the selected fader is already set to its default value, set it to Mute.

Specifications

Recording media		Dual SD card slots support 16MB–2GB SD cards, 4GB–32GB SDHC cards and 64GB–512GB SDXC cards		
Inputs	INPUT 1–8	Connectors	XLR/TRS combo jacks (XLR: 2 hot, TRS: TIP hot)	
	XLR inputs (MIC)	Input gain	+10 – +75 dB	
		Input impedance	3.3 k Ω	
		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 – +55 dB	
		Input impedance	28 k Ω	
		Maximum input level	+34 dBu (at 0 dBFS, limiter ON)	
	Equivalent input noise	–127 dBu or less (A-weighted, +75dB input gain, 150 Ω input)		
	Frequency characteristics	10 Hz – 80 kHz +0.5dB/–1dB (192kHz sampling rate)		
A/D dynamic range	120 dB typ (–60dBFS input, A-weighted)			
Crosstalk	–90 dB or less (between adjacent channels, 1kHz)			
MIC IN	ZOOM mic capsule input (use disables Inputs 1/2)			
SLATE MIC	Built-in mic for voice memos can be assigned to tracks freely			
Outputs	MAIN OUT 1/2	Connectors	TA-3 connectors, balanced output (2: hot)	
		Output impedance	150 Ω or less	
		Reference output level	–10 dBV (Normal Output Level), –40 dBV (Mic Output Level), 1 kHz, 600 Ω load	
		Maximum output level	+10 dBV (Normal Output Level), –20 dBV (Mic Output Level), 1 kHz, 600 Ω load	
	SUB OUT 1/2	Connector	3.5mm stereo mini unbalanced output jack	
		Output impedance	100 Ω or less	
		Reference output level	–10 dBV (Normal Output Level), –40 dBV (Mic Output Level), 1 kHz, 10k Ω load	
		Maximum output level	+10 dBV (Normal Output Level), –20 dBV (Mic Output Level), 1 kHz, 10k Ω load	
	HEADPHONE	Connector	1/4" unbalanced stereo output jack	
		Output impedance	15 Ω or less	
Maximum output level		100mW + 100mW (32 Ω 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//2-10ch poly, BWF and iXML
	Maximum simultaneous recording tracks	10 (8 inputs + stereo mix) 8 (with 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 rates	23.976ND, 24ND, 25ND, 29.97ND, 29.97D, 30ND, 30D
	Precision	±0.2 ppm
	Supported input levels	0.2 – 5.0 Vpp
	Input impedance	4.6 kΩ
	Output level	3.3 Vpp
Output impedance	50 Ω or less	
Power supplies	Batteries: 8 AA	
	AC adapter: AD-19 DC12V 2A (center plus)	
	External DC power supply : HIROSE HR10A-7R-4S 4-pin connector (1 pin: -, 4 pin: +), 9–16 V	

Continuous recording time	When recording 2 channels at 48kHz/16-bit to SD1 with MAIN/SUB OUT OFF, TIME CODE OFF, LED/LCD Brightness 5, 32Ω headphones, PHANTOM OFF		
	Alkaline batteries	8.5 hours or more	
	NiMH (2450mAh)	10 hours or more	
	Lithium batteries	12.5 hours or more	
	When recording 8 channels at 48kHz/24-bit to SD1 with MAIN/SUB OUT OFF, TIME CODE OFF, LED/LCD Brightness 5, 32Ω headphones, PHANTOM OFF		
	Alkaline batteries	4.5 hours or more	
	NiMH (2450mAh)	6 hours or more	
	Lithium batteries	8.5 hours or more	
	When recording 8 channels at 192kHz/24-bit to SD1 with MAIN/SUB OUT ON, TIME CODE Int Free Run, LED/LCD Brightness 60, 32Ω headphones, PHANTOM 48V		
	Alkaline batteries	1 hour or more	
	NiMH (2450mAh)	2 hours or more	
	Lithium batteries	3 hours or more	
Display	2.4" full-color LCD (320x240)		
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, 8 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: iPad audio interface operation supported (stereo mode only)		
	Power consumption	12 W	
	External dimensions	Main unit: 178.2 mm (W) × 140.3 mm (D) × 54.3 mm (H)	
	Weight (main unit only)	960 g	

For U.S.A.

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to 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.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

For EU Countries



Declaration of Conformity:
This product complies with the requirements of
Low Voltage Directive 2014/35/EU and
Radio Equipment Directive 2014/53/EU and
ErP Directive 2009/125/EC and
RoHS Directive 2011/65/EU

For U.S.A. and CANADA

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment has very low levels of RF energy that are deemed to comply without testing of specific absorption ratio (SAR).

For CANADA

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement émet une énergie RF très faible qui est considérée conforme sans évaluation du débit d'absorption spécifique (DAS).

Label is located at the bottom of the unit.

ZOOM

ZOOM CORPORATION

4-4-3 Surugadai, Kanda, Chiyoda-ku, Tokyo 101-0062 Japan

<http://www.zoom.co.jp>

Control the **F8** remotely with an iOS device

By connecting an iOS device to the **F8** as a remote control, you can operate it from a distance (up to 10 m) to, for example, start and stop recording, change mixer settings, input metadata text and set the time (by transferring the iOS device time).

This function cannot be used with the **F8** when first shipped from the factory. To use this function, a software extension file must be downloaded from the ZOOM website (www.zoom.co.jp) and installed in the unit.

NOTE

- The free "F8 Control" app is necessary to control the **F8** remotely with an iOS device. Download it from the App Store.
- Resetting the **F8** settings to their defaults (Factory Reset) will disable the extension. In this case install the software extension file again.

Installing the software extension file



1. Install new batteries in the **F8** or connect the dedicated AC adapter to the DC IN connector.

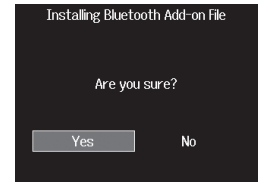
NOTE

- If the remaining battery charge is low, the software extension cannot be installed. In this case, replace the batteries with new ones or use an adapter.

2. Copy the software extension file 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 and holding **MENU** until the unit starts and the install screen opens.

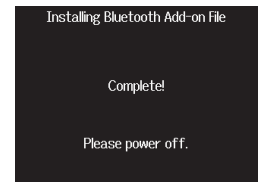
4. Use  to select Yes, and press .



NOTE



- Do not turn the power off or remove the SD card during file installation.

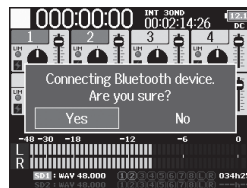
5. After file installation completes, restart the unit.



Pairing with the iOS device

1. When the HOME screen is open, press and hold **MENU**.

2. Use  to select Yes, and press .



A password will appear that is used to identify the corresponding Bluetooth device.

3. Launch the "F8 Control" app on the iOS device and input the password.

When pairing completes, "Connected" appears and **MENU** lights.

HINT



- Entering a password is not necessary after the first time the app is launched.
- Use the **F8** and the iOS device as close together as possible to make communication more reliable.

NOTE

- Refer to the "F8 Control" reference guide for instructions about how to use the remote control app on the iOS device.
- Do not place obstacles between the iOS device and the unit.
- If the battery charge becomes low, communication with the iOS device will become impossible.
- If Bluetooth music or audio devices, including headphones, headsets and speakers, are used at the same time, the music or audio might be interrupted.
- While using the "F8 Control" app, items that the app can set cannot be changed using the unit itself.

Disconnecting with the iOS device

1. When the HOME screen is open, press and hold **MENU**.

2. Use  to select Yes, and press .

The **F8** has received radio law certification in Japan, the USA, Canada and Europe (EU).

This function may not be used in other countries and regions. Be aware that using it in countries where certification has not been received could result in legal penalties.