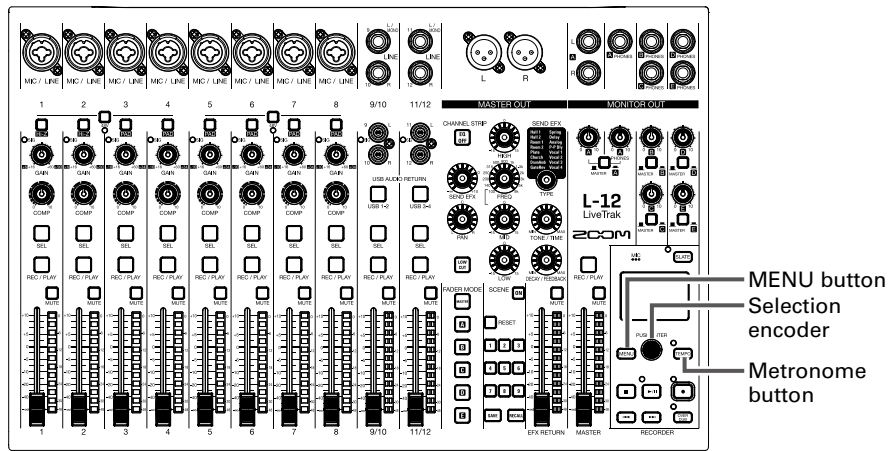



Changing metronome settings



Changing the metronome tempo



- 1. Press **TEMPO**.  
The current tempo is shown on the display.
- 2. Do one of the following to change the tempo.
  - Turn 
  - Press **TEMPO** repeatedly at the tempo you want to set



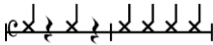
# Setting the precount

A metronome count can be sounded before starting recording/playback.

**1.** Select **MENU** > **METRONOME** > **PRE COUNT**.

**2.** Use  to select the precount behavior, and press .





Setting value	Explanation
OFF	No precount will sound.
1–8	Before recording/playback, the precount will sound for the set number of times (1–8).
SPECIAL	Before recording/playback, the precount will sound as shown below. <div data-bbox="423 844 678 904"></div>

## NOTE

- The precount is enabled even during playback.
- This function cannot be used with the AUTO REC function. When you turn AUTO REC on, PRE COUNT will be disabled.
- This function cannot be used with the PRE REC function. When you turn PRE COUNT on, PRE REC will be disabled.

## Changing the metronome sound

1. Select **MENU** > **METRONOME** > **SOUND**.


2. Use  to select the sound, and press .



### HINT



The options are BELL, CLICK, STICK, COWBELL and HI-Q.

### NOTE

Press  to play the metronome and check the sound.

## Changing the metronome pattern

1. Select **MENU** > **METRONOME** > **PATTERN**.

2. Use  to select the pattern, and press .



### HINT

The options are 1/4–8/4 and 6/8.



### NOTE

Press  to play the metronome and check the pattern.

### Changing the metronome volume

The metronome volume can be adjusted separately for the MASTER OUT and each of the MONITOR OUT A-E outputs.

1. Select **MENU** > **METRONOME** > **LEVEL** > **MASTER** or A-E.

2. Turn  to adjust the volume, and press .



#### HINT

Set from 0 to 100.

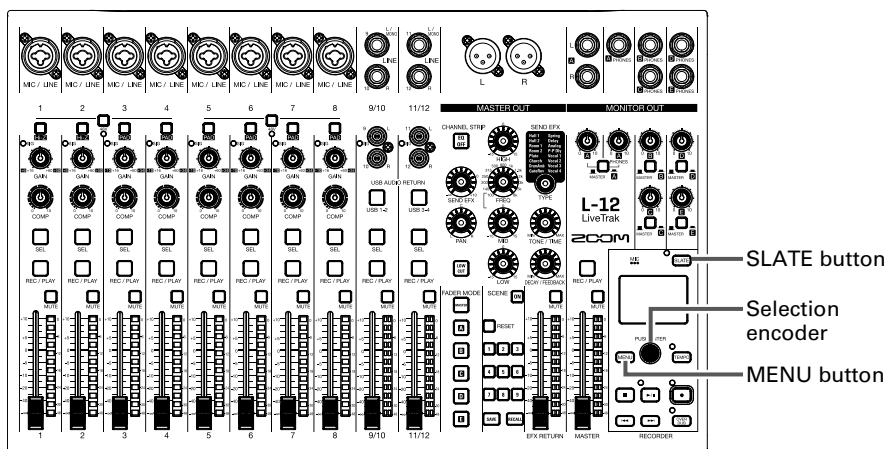
#### NOTE

Press  to play the metronome and check the volume.



# Using the slate mic

The **L-12** has a built-in slate mic that allows comments to be recorded.



## Recording with the slate mic

**1.** Start recording. (→ P.34)

**2.** Press **[SLATE]** to enable the slate mic.

While **[SLATE]** is being pressed, the indicator lights and the slate mic is enabled.



### NOTE



- When the slate mic is in use, signals from input jacks are muted to the channels to which the slate mic is routed.
- None of the channel faders affect the level of the slate mic.

## Changing slate mic settings

### Changing the slate mic volume

---

**1.** Select **MENU** > **SLATE** > **LEVEL**.

**2.** Turn  to adjust the volume, and press .




#### HINT

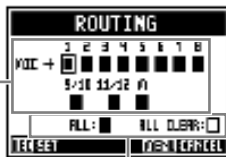
This can be set from 0 to 24 dB.

## Changing the slate mic routing

1. Select **MENU** > **SLATE** > **ROUTING**.

2. Turn  to select a channel for routing.

3. Press  confirm.



☒ ON

☐ OFF


ALL: Set routing to all channels at once

ALL CLEAR: Clear all settings

Channel routing for slate mic input

4. Press .

### HINT

Pressing  toggles it ON/OFF.

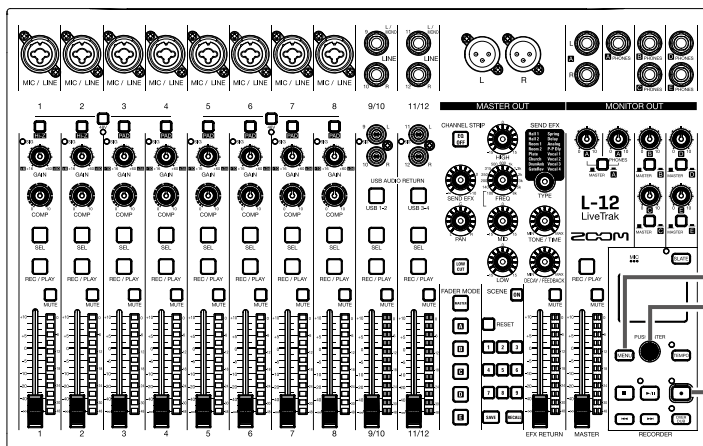
# Projects

The **L-12** manages recording and playback data in units called projects. The following data is saved in projects.

- Audio data
- Mixer settings
- Send return effect settings
- Mark information
- Metronome settings

## Changing project names


The name of the currently loaded project can be changed.



1. Select **MENU** > **PROJECT** > **RENAME**.

# Projects

## 2. Edit the name.

Move cursor or change character: Turn 

Select character to change/confirm change: Press 




### NOTE

- The default project name is the date and time of creation.  
For example, if a project was created at 6:48:20 p.m. on March 14, 2017, the project name would be "170314\_184820" (YYMMDD-HHMMSS).
- Project names have 13 characters.
- The following characters can be used in project and file names.  
(space) ! # \$ % & ' ( ) + , - 0 1 2 3 4 5 6 7 8 9 ; = @ A B C D E F G H I J K L M N O P Q R S  
T U V W X Y Z ^ \_ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { }
- Projects can be ordered by numerical or alphabetical order.
- Project/file names cannot be only spaces.
- The project name is the same as the project folder name on the SD card.

## 3. Press .

### Deleting projects

Projects inside the selected folder can be deleted.

1. Select **MENU** > **PROJECT** > **DELETE**.
2. Use  to select the project you want to delete, and press .
3. Use  to select **YES**, and press .





#### NOTE

Projects cannot be deleted if protection is ON.

### Protecting projects

The currently loaded project can be write-protected, preventing the project from being saved, deleted or having its content changed.

**1.** Select **MENU** > **PROJECT** > **PROTECT**.

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







#### NOTE

- Projects cannot be used for recording if protection is ON. Turn protection OFF to record.
- When protection is OFF for a project, it will always be saved to the SD card when the power is turned off or another project is loaded. We recommend turning protection ON to prevent accidentally saving changes to a musical project after it has been completed.

Checking project information

Various information about the currently loaded projects can be viewed.

- 1. Select MENU > PROJECT.
- 2. Use  to select the project with information you want to check, and press .
- 3. Use  to select INFORMATION, and press .

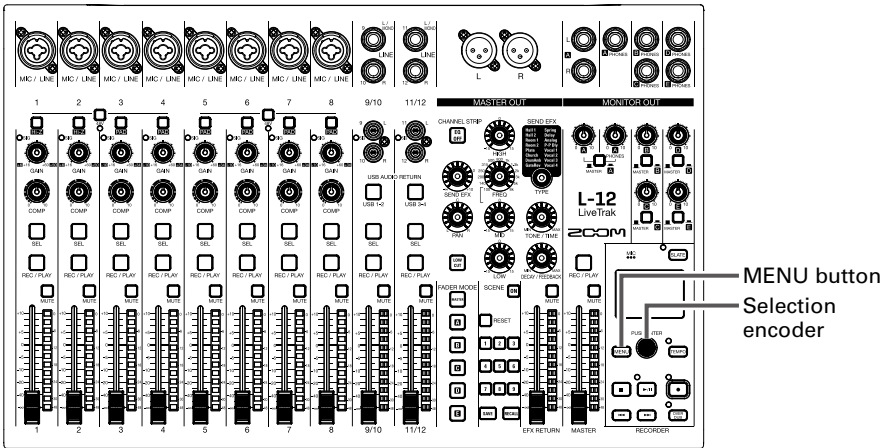
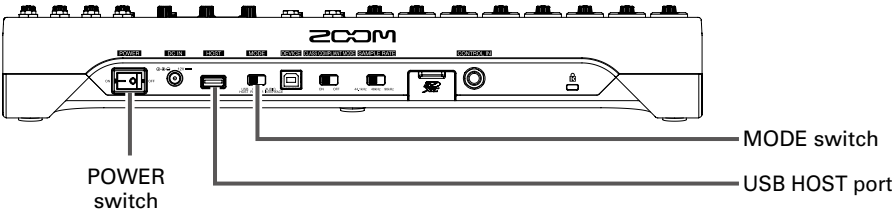


Items shown	Explanation
NAME	Project name
PATH	Location where project saved
DATE	Project creation date and time (YYYY/MM/DD HH:MM:SS)
FORMAT	Recording format
SIZE	Project size
TIME	Project length (HHH: MM: SS)
FILES	Information about tracks and files



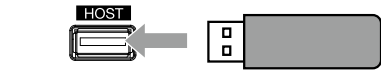
# Saving projects to USB flash drives

A USB flash drive can be connected directly to the **L-12**, and the currently loaded project can be saved to it.



**1.** Set ON  OFF to OFF.

**2.** Connect the USB flash drive to the USB HOST port.




## Projects

---

**3.** Set  to USB HOST.

---


**4.** Set ON  OFF to ON.

---

**5.** Select **MENU** > **PROJECT** > **PROJECT EXPORT**.

---

**6.** Edit the name.

Move cursor or change character: Turn 

Select character to change/confirm change: Press 





### NOTE

- The default project name is the date and time of creation.  
For example, if a project was created at 6:48:20 p.m. on March 14, 2017, the project name would be "170314\_184820" (YYMMDD-HHMMSS).
- Project names have 13 characters.
- The following characters can be used in project and file names.  
(space) ! # \$ % & ' ( ) + , - 0 1 2 3 4 5 6 7 8 9 ; = @ A B C D E F G H I J K L M N O P Q R S  
T U V W X Y Z ^ \_ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { }
- Projects can be ordered by numerical or alphabetical order.
- Project/file names cannot only be spaces.
- The project name is same as the project folder name on the SD card.

**7.** Press .

---

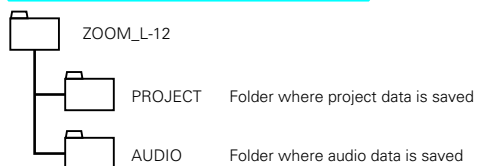
8. Use  to select YES, and press .



### NOTE

- The folder structure on USB flash drives is as follows.

このフォルダ構成は、絶対に変更しないでください。



- Projects will be saved on the USB flash drive in the "PROJECT" subfolder of the "ZOOM\_L-12" folder.
- Never disconnect a USB flash drive when "Saving" or "Loading" appears on the display.

# Importing projects from USB flash drives

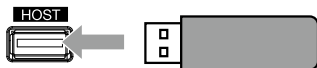
Projects saved on USB flash drives can be copied to SD cards.


### NOTE


Use a computer to create "ZOOM\_L-12" and "PROJECT" folders on the USB flash drive in advance (→ P. 60). Only projects inside the "PROJECT" folder can be imported.

1. Set  OFF to OFF.



2. Connect the USB flash drive to the USB HOST port.



3. Set  to USB HOST.

4. Set  OFF to ON.


5. Select **MENU** > **PROJECT** > **PROJECT IMPORT**.

6. Use  to select the project you want to load from the USB flash drive, and press .



## Projects

### 7. Edit the name.

Move cursor or change character: Turn 

Select character to change/confirm change: Press 



#### NOTE

- The default project name is the date and time of creation.  
For example, if a project was created at 6:48:20 p.m. on March 14, 2017, the project name would be "170314\_184820" (YYMMDD-HHMMSS).
- Project names have 13 characters.
- The following characters can be used in project and file names.  
(space) ! # \$ % & ' ( ) + , - 0 1 2 3 4 5 6 7 8 9 ; = @ A B C D E F G H I J K L M N O P Q R S  
T U V W X Y Z ^ \_ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { }
- Projects can be ordered by numerical or alphabetical order.
- Project/file names cannot only be spaces.
- The project name is the same as the project folder name on the SD card.

### 8. Press .

### 9. Use to select YES, and press .

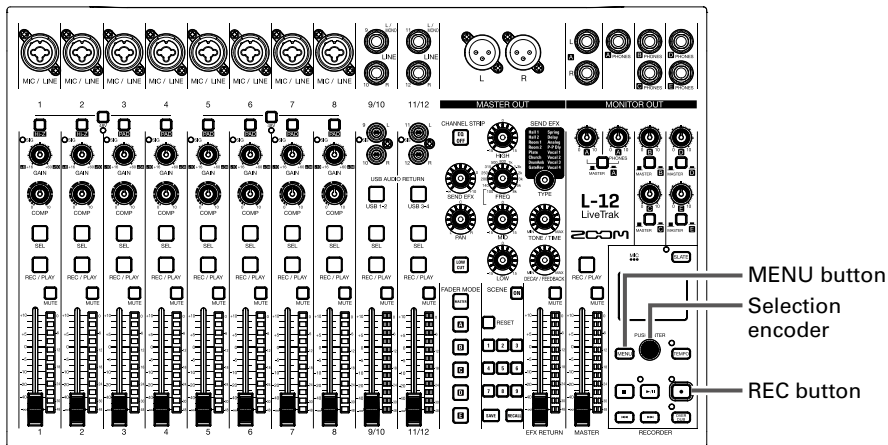


#### NOTE

- Imported projects are saved in the currently selected folder.
- Never disconnect a USB flash drive when "Saving" or "Loading" appears on the display.

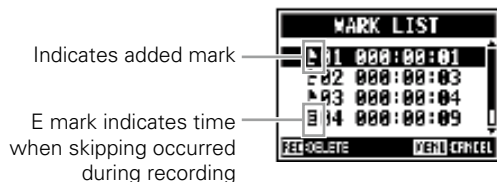
## Managing marks

A list of marks in the currently loaded project can be opened, allowing them to be checked, played and deleted.





### 1. Select **MENU** > **PROJECT** > **MARK LIST**.

A list of marks appears.



### 2. Use to select a mark, and play or delete it.

Press  to play back from the mark position.

Press  to delete the mark.

# Audio files

The **L-12** creates the following types of audio files according to the recording channel.

- Channels 1–8: mono WAV files
- Channels 9/10, 11/12 and MASTER: stereo WAV files

The file format depends on the sampling rate (→ P.86) and quantization bit depth (→ P.76) used by the unit.

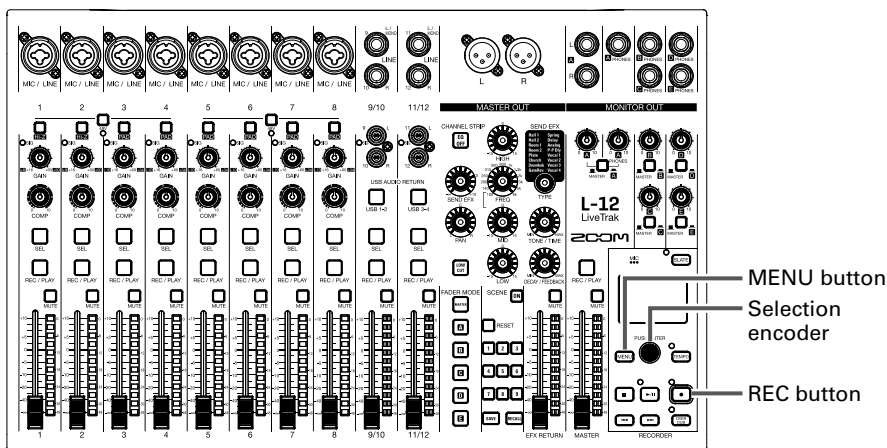
The **L-12** can also play back audio files created using DAW software (→ P.70).

## NOTE

- The names given to audio files depend on their channels.  
Channels 1–8: TRACK01–TRACK08  
Channels 9/10, 11/12: TRACK09\_10, TRACK11\_12  
MASTER: MASTER
- If the file size exceeds 2GB during recording, a new file will be created automatically in the same project and recording will continue without pause. When this happens, numbers will be added to the ends of the file names: “-01”, “-02” and so on.

## Deleting audio files



Audio files that are not needed can be deleted.



1. Select **MENU > FILE DELETE**.

## Audio files

---



2. Use  to select the file you want to delete, and press .



### NOTE

Press  to select/deselect all files.

3. Press .

4. Use  to select YES, and press .



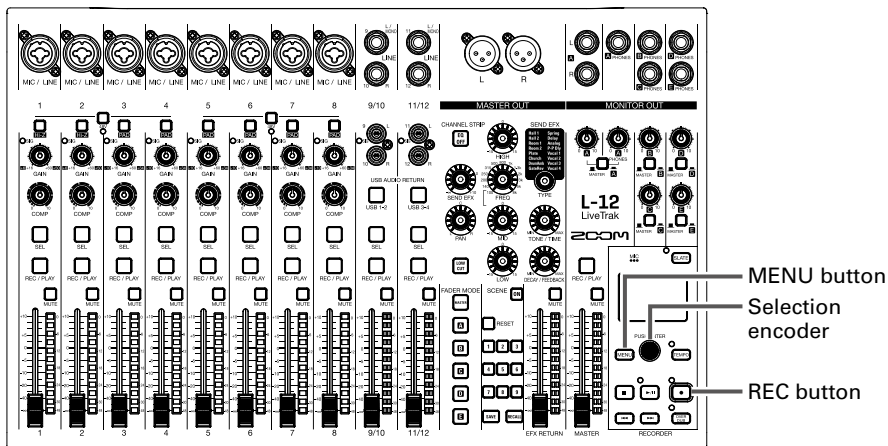
### NOTE

Audio files cannot be deleted if protection is ON for their projects.



# Exporting audio files to USB flash drives

The desired audio files can be exported from projects to USB flash drives. Exported audio files will be saved on the USB flash drive in the "AUDIO" sub-folder of the "ZOOM\_L-12" folder.



1. Set **POWER** to OFF.

2. Connect the USB flash drive to the USB HOST port.





3. Set **USB CARD AUDIO HOST INTERFACE** to USB HOST.

4. Set **POWER** to ON.

5. Select **MENU** > **PROJECT** > **FILE EXPORT**.

## Audio files

6. Use  to select the file you want to export, and press .



7. Edit the name.

Move cursor or change character: Turn 



Select character to change/confirm change: Press 



### NOTE

- Audio file names have 24 characters.
- The following characters can be used in project and file names.  
(space) ! # \$ % & ' ( ) + , - 0 1 2 3 4 5 6 7 8 9 ; = @ A B C D E F G H I J K L M N O P Q R S  
T U V W X Y Z ^ \_ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { }
- Project/file names cannot only be spaces.

8. Press .

9. Use  to select YES, and press .



### NOTE

- Never disconnect a USB flash drive when "Saving" or "Loading" appears on the display.
- Audio files will be saved on the USB flash drive in the "AUDIO" subfolder of the "ZOOM\_L-12" folder.

### Importing audio files from USB flash drives

The desired audio files can be imported from USB flash drives to existing projects and assigned to channels.


#### NOTE


Use a computer to create "ZOOM\_L-12" and "AUDIO" folders on the USB flash drive in advance (→ P.62). Only audio files inside the "AUDIO" folder can be imported.

1. Set  OFF to OFF.



2. Connect the USB flash drive to the USB HOST port.





3. Set  to USB HOST.

4. Set  OFF to ON.

5. Select **MENU** > **PROJECT** > **FILE IMPORT**.

6. Use  to select the file you want to import, and press .



7. Use  to select the channel where you want to assign the file, and press .

## Audio files

---



### NOTE

- Mono WAV files can be assigned to mono channels and stereo WAV files can be assigned to stereo channels.
- Files cannot be imported to channels that already have files assigned to them.
- When files are imported, their file names will automatically be changed according to their import channels.

8. Use  to select YES, and press .



### NOTE

Never disconnect a USB flash drive when "Saving" or "Loading" appears on the display.

# Using audio interface functions

---

The **L-12** can be used as a 14-in/4-out USB audio interface. After applying its compressor, each input channel always outputs its signal to the corresponding USB audio channel. Channels 1–12 and the stereo signal output from the master fader are sent to the computer (14 channels total).

## Installing the driver

1. Download the "ZOOM MR-12 Driver" from <http://www.zoom.co.jp/downloads/> to the computer.

### NOTE

- You can download the latest "ZOOM MR-12 Driver" from the above website.
- Download the driver for the operating system that you are using.

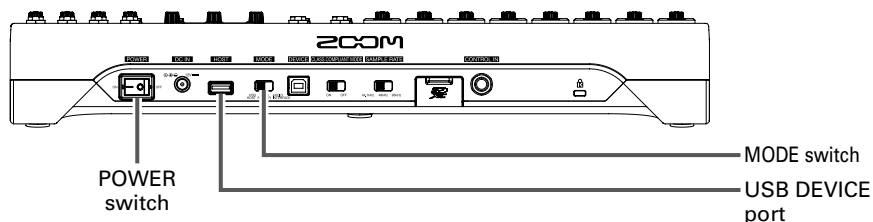
- 
2. Launch the installer and install the driver.

Follow the instructions that appear on screen to install the ZOOM MR-12 Driver.

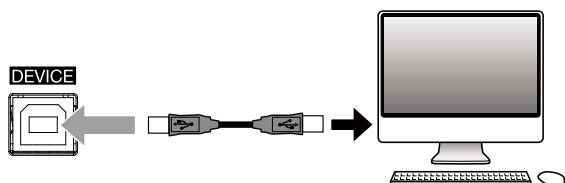
### NOTE

See the Installation Guide included in the driver package for detailed installation procedures.


### Connecting to a computer




1. Use a USB cable to connect the USB DEVICE port to the computer.



2. Set the  switch to AUDIO INTERFACE.

3. Set ON  OFF to ON.

#### NOTE

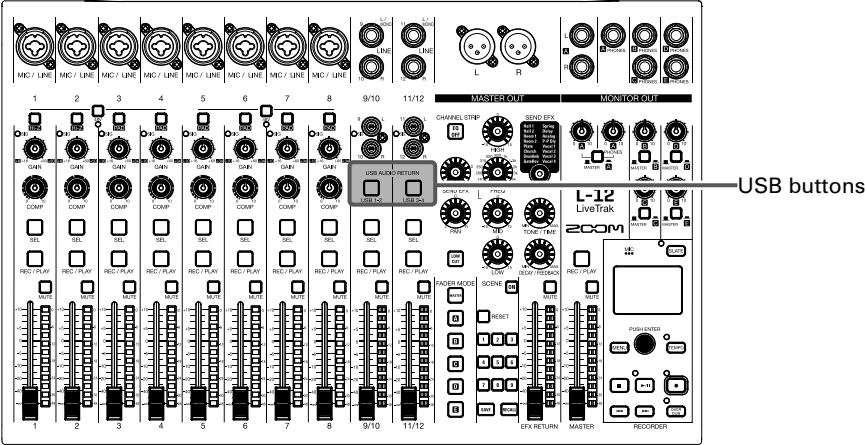
- Set  to ON when connected to an iOS device.
- When connecting to an iOS device, use a Lightning to USB camera adapter (or Lightning to USB 3 camera adapter).

4. Set the **L-12** as the computer sound device.

#### NOTE

- See the Installation Guide included in the driver package for procedures to set the sound device in different operating systems.
- Audio interface functions cannot be used when the sampling rate is set to 96 kHz.

Inputting return signals from the computer to a stereo channel

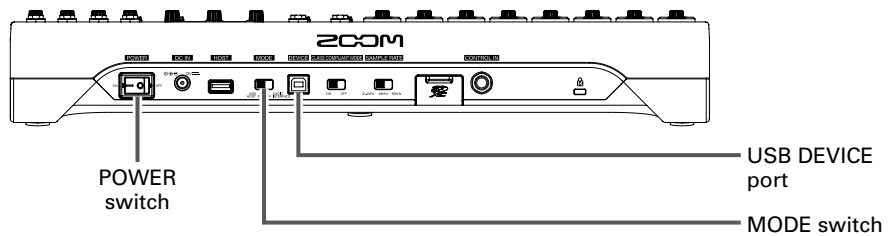


1. Turn the ☐, ☐ button channel ON for the stereo channel to use for input.

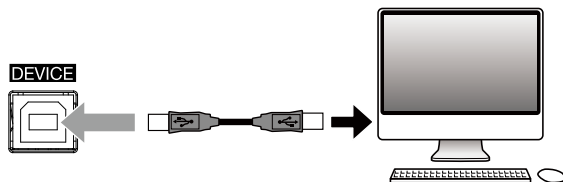
The signal controlled by the channel is switched to the USB audio channel signal (before EQ).

# Using card reader functions

When connected to a computer, data on the SD card can be checked and copied.



- 1.** Use a USB cable to connect the USB DEVICE port to the computer.



- 2.** Set  to CARD READER.

- 3.** Set  OFF to ON.

## NOTE

When operating as a CARD READER, other functions and buttons cannot be used.





# Recording and playback settings

## Changing the recording format

The recording format can be changed in consideration of audio quality and file size.

**1.** Open **MENU** > **REC/PLAY** > **REC FORMAT**.

**2.** Use  to change the format, and press .



### HINT



When overwriting a recording, recording will occur at the bit depth of the original file. For example, a file recorded at 16-bit cannot be overwritten with 24-bit recording.

### Changing automatic recording settings

The conditions for automatically starting and stopping recording can be set.

#### Setting the automatic recording start level

**1.** Open **MENU** > **REC/PLAY** > **AUTO REC** > **REC START LEVEL**.

**2.** Use  to change the start level, and press .




Recording will start automatically when the level of the MASTER fader output signal exceeds the set level.

#### HINT

This can be set from -48 to 0 dB.

## Setting automatic stopping

**1.** Open **MENU** > **REC/PLAY** > **AUTO REC** > **AUTO STOP**.



**2.** Use  to select the automatic stop time, and press .



### HINT

This can be set to OFF or between 0 and 5 seconds.

**3.** Open **MENU** > **REC/PLAY** > **AUTO REC** > **REC STOP LEVEL**.

**4.** Use  to set the stop level, and press .



Recording will stop automatically when the level of the MASTER fader output stays below the set level for the amount of time set in step 2.


### NOTE

If you start recording after setting automatic recording starting and stopping, the level set in step 4 will be shown on the MASTER level meters.

### Showing recording levels on level meters

The signals of levels recorded to the recorder or recorded to a computer when using the audio interface function can be shown on the level meters of each channel.

1. Open **MENU** > **REC/PLAY** > **REC LEVEL METER**.

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





If recorded signal levels are higher than post fader levels, the recorded signal levels are shown lit dimly on the level meters.

### Enabling latency adjustment



When overdubbing, adjustment can be made for the delay caused by analog-to-digital conversion, signal processing and digital-to-analog conversion.

1. Open **MENU** > **REC/PLAY** > **LATENCY ADJUST**.

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



Changing the playback mode

- 1. Open MENU > REC/PLAY > PLAY MODE.
- 2. Use  to select the play mode, and press .



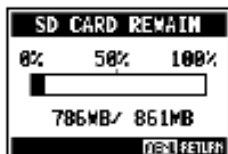
Setting value	Explanation
OFF	Only the selected project plays back. Playback continues even when the end of a file is reached.
PLAY ONE →1 (single song playback)	Only the selected project plays back. Playback stops when the end of a file is reached.
PLAY ALL →ALL (all song playback)	Every project from the selected one to the last one will be played back.
REPEAT ONE ↺1 (single song repeat playback)	The selected project will be played repeatedly.
REPEAT ALL ↺ALL (all song repeat playback)	All projects in the selected folder will be played repeatedly.

# SD card settings

## Checking the open space on SD cards

1. Open MENU > SD CARD > REMAIN.

This shows the open space on the card.





### NOTE

The **L-12** shows less than the actual open space in order to maintain space to prevent SD card writing performance from degrading.

## Formatting SD cards

Format SD cards for use with the **L-12**.

1. Open MENU > SD CARD > FORMAT.
2. Use  to select YES, and press .



### NOTE



- Before using SD cards that have just been purchased or that have been formatted on a computer, they must be formatted by the **L-12**
- Be aware that all data previously saved on the SD card will be deleted when it is formatted.
- Format an SD card before recording to it at 96kHz.


### Testing SD card performance

You can test whether SD cards can be used with the **L-12**.  
A basic test can be done quickly, while a full test examines the entire SD card.

#### Conducting a quick test

**1.** Open **MENU** > **SD CARD** > **PERFORMANCE TEST**.

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

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

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



The result of the test will be shown when it completes.





**4.** Press  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

1. Open **MENU** > **SD CARD** > **PERFORMANCE TEST**.

2. Use  to select **FULL TEST**, and press .

The amount of time required will be shown.



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




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



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

### HINT

You can press  to pause and resume a test.

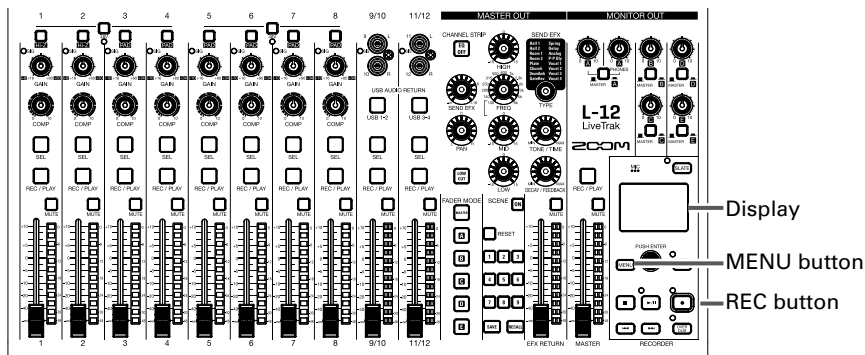
### NOTE

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.




# Various settings


## Setting the date and time



**1.** Select **MENU** > **SYSTEM** > **DATE/TIME**.

**2.** Set the date and time.

Move cursor or change value: Turn 

Select item/confirm change: Press 




**3.** Press .

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



# Setting the footswitch

If a footswitch (ZOOM FS01) is connected to the CONTROL IN jack, you can start/stop recorder playback punch in/out or mute/unmute the send effect by foot.

1. Open MENU > SYSTEM > CONTROL IN.

2. Use  to change the value.



Setting value	Explanation
PLAY	Press the footswitch to start/stop playback (equivalent to 
Punch I/O	Use to control punching in/out (equivalent to 
MUTE	Mute/unmute the send effect

### Changing the sampling rate

The file format used when recording to the recorder depends on this setting. Before changing the sampling rate, **L-12** must be set to OFF.

1. Confirm that  is set to off.

2. Change the  position.

#### HINT

The options are 44.1kHz, 48kHz and 96kHz.

#### NOTE

- When 96kHz is selected, some unit operations are limited. The limited functions are as follows.
  - Recordable tracks: tracks 1–12 only
  - SEND EFX: disabled
  - EQ: disabled
  - OVER DUB: disabled
  - Audio interface: disabled
  - MONITOR OUT: output signal same as MASTER only
- Format an SD card before recording to it at 96kHz.



3. Set  to ON.



#### NOTE

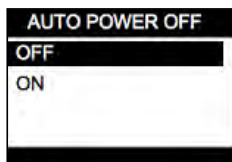
- The sampling rate cannot be changed during operation.
- If a project is loaded that has a different sampling rate than the unit setting, recording and playback will not be possible.

### Disabling the automatic power saving function

The power will automatically turn off if the **L-12** is unused for 10 hours. If you want the power to stay on always, disable the automatic power saving function

1. While pressing and holding , set  to ON.

2. Use  to select OFF, and press .




#### NOTE

This setting is saved in the unit.

### Adjusting the display contrast

1. Open **MENU** > **SYSTEM** > **DISPLAY CONTRAST**.

2. Use  to change the value.

#### HINT

This can be set from 1 to 10.

### Restoring settings to factory defaults

You can restore **L-12** to their factory default settings.

1. Open **MENU** > **SYSTEM** > **FACTORY RESET**.

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



#### NOTE

This does not reset mixer settings. (→ P.29)

### Checking the firmware versions.

The **L-12** firmware versions can be viewed.

1. Open **MENU** > **SYSTEM** > **FIRMWARE VERSION**.

This shows the firmware versions.

FIRMWARE VERSION	
SYSTEM	: 1.00
BOOT	: 1.00
SUBSYSTEM	: 1.00
MENU:RETURN	

### Updating the firmware



The **L-12** firmware can be updated to the latest versions.


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

#### NOTE

An update file for the latest version can be downloaded from the ZOOM website ([www.zoom.co.jp](http://www.zoom.co.jp)).

2. Insert the SD card into the **L-12**.


3. While pressing and holding , set  to ON.

4. press .



#### NOTE

Do not turn the power off or remove the SD card during a firmware update. Doing so could cause the **L-12** to become unstartable.

5. After the firmware update completes, turn the  OFF.






# Troubleshooting

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## General



### There is no sound or output is very quiet

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- Check the speaker connections and volume settings on the speakers.
- Check instrument and mic connections
- When using a condenser mic, turn  on.
- Confirm that the SIG indicators are lit green.
- Confirm that  is unlit.
- Raise all the channel faders and the master fader, and confirm that the level meters are lit.
- Confirm that the MASTER  is unlit and is lit red.


### Recorded audio is too loud, too quiet or silent

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- Adjust input gains and confirm that SIG indicators are lit green.
- When using a condenser mic, turn  on.
- When recording to an SD card, confirm that  is lit red.


### Recording not possible

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- When recording to an SD card, confirm that  is lit red.
- Confirm that the SD card has open space.
- When recording to an SD card, confirm that the project is not protected (to prevent overwriting).


### Playback sound cannot be heard or is quiet

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- When playing data from an SD card, confirm that  is lit green.
- Raise the faders on the playback channels, and confirm that the level meters are lit.


### The sounds of devices connected to input jacks are distorted

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- Confirm that SIG indicators are not lighting red. If they are lighting, lower their input gains. You can also turn  on.
- Confirm that level meters are not lighting to their highest levels. If a level meter is lighting to its highest level, lower its fader.

### The send effect is not working

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- Confirm that the EFX RETURN  is unlit.
- Raise the EFX RETURN fader, and confirm that the EFX RETURN level meters are lit.
- Confirm the send amounts of the channels on which you want to use the effect.

### There is no sound or output is very quiet from MONITOR OUT A–E

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- Confirm the mixes of each output.
- Confirm that the output volume of each output is raised (MONITOR OUT A PHONES and MONITOR OUT A–E knobs).
- Confirm the settings of the MONITOR OUT A–E switches.



### Audio interface

#### Cannot select or use the L-12 device

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- Confirm that the **L-12** is connected to the computer correctly.
- Confirm that  is set to OFF on the **L-12**.
- Quit all the software that is using the **L-12**, and turn the **L-12** off and on again.
- Reinstall the driver.
- Connect the **L-12** directly to a USB port on the computer. Do not connect it through a USB hub.


#### Sound skips during playback or recording

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- If you can adjust the audio buffer size of the software that you are using, increase the buffer size.
- Connect the **L-12** directly to a USB port on the computer. Do not connect it through a USB hub.
- Turn the automatic sleep function and other computer power saving settings off.

#### Cannot play or record

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- Confirm that the **L-12** is connected to the computer correctly.
- Confirm that the Sound setting of the computer you are using is set to "ZOOM L-12".
- Confirm that **L-12** is set for input and output in the software that you are using.
- Confirm that the  is lit red and the level meters are lit for channels 9/10 or 11/12.
- Quit all the software that is using the **L-12**, and disconnect and reconnect the USB cable connected to the **L-12**.

# Specifications

Number of in-put and output channels	Inputs	Mono (MIC/LINE)	8	
		Stereo (LINE)	2	
	Outputs	MASTER OUT	1	
		MONITOR OUT	5	
Inputs	Mono (MIC/LINE)	Type	XLR/TRS combo jacks (XLR: 2 HOT, TRS: TIP HOT)	
		Input gain	PAD OFF: +16 – +60 dB PAD ON: –10 – +34 dB Hi-Z ON: +6 – +50 dB	
		Input impedance	XLR: 3 kΩ TRS: 10 kΩ/1 MΩ (when Hi-Z ON)	
		Maximum input level	PAD OFF: 0 dBu (at 0 dBFS) PAD ON: +26 dBu (at 0 dBFS)	
		Phantom power	+48 V	
		Stereo (LINE)	Type	TRS phone/RCA pin (unbalanced) jacks
	Maximum input level		+16 dBu	
	Outputs	MASTER OUT	Type	XLR jacks (balanced)
			Maximum output level	+14.5 dBu
			Output impedance	100 Ω
		MONITOR OUT A (TRS)	Type	TRS phone jacks (balanced)
			Maximum output level	+14.5 dBu
Output impedance			100 Ω	
MONITOR OUT A–E (PHONES)	Type	Standard stereo phone jacks		
	Maximum output level	42 mW + 42 mW at 60 Ω		
	Output impedance	100 Ω		
Buses		MASTER	1	
		MONITOR	5	
		SEND EFX	1	
Channel strip		COMP		
		LOW CUT	75 Hz, 12 dB/OCT	
		EQ	HIGH: 10 kHz, ±15 dB, shelving MID: 100 Hz–8 kHz, ±15 dB, peaking LOW: 100 Hz, ±15 dB, shelving	
Level meters			12 segments	
Send effects			16 types	
Recorder		Maximum simultaneous recording tracks	14 at 44.1/48 kHz 12 at 96 kHz	
		Maximum simultaneous playback tracks	12	
		Recording format	WAV 44.1/48/96 kHz, 16/24-bit, mono/stereo WAV format	
		Recording media	16MB–2GB SD cards, 4GB–32GB SDHC cards, 64GB–512GB SDXC cards	
Audio interface	44.1/48kHz		Recording: 14 channels Playback: 4 channels	
	Bit depth		24-bit	
	Interface		USB 2.0	
Card reader	Class		Mass storage USB 2.0 High Speed	
USB HOST	Class		USB 2.0 High Speed	
Sampling rate			44.1/48/96 kHz	
Frequency characteristics			Frequency characteristics (44.1 kHz): -1.0 dB: 20 Hz – 20 kHz Frequency characteristics (96 kHz): -3.0 dB: 20 Hz – 40 kHz	
Equivalent input noise			Actual measurements: 128dB EIN (IHF-A) with +60dB/150Ω input	
Display			LCD with backlight (128×64 resolution)	
Power supply			AD-19 AC adapter (DC12V/2A)	
External dimensions			445 mm (W)×282 mm (D)×70.5 mm (H)	
Weight (main unit only)			2.53 kg	

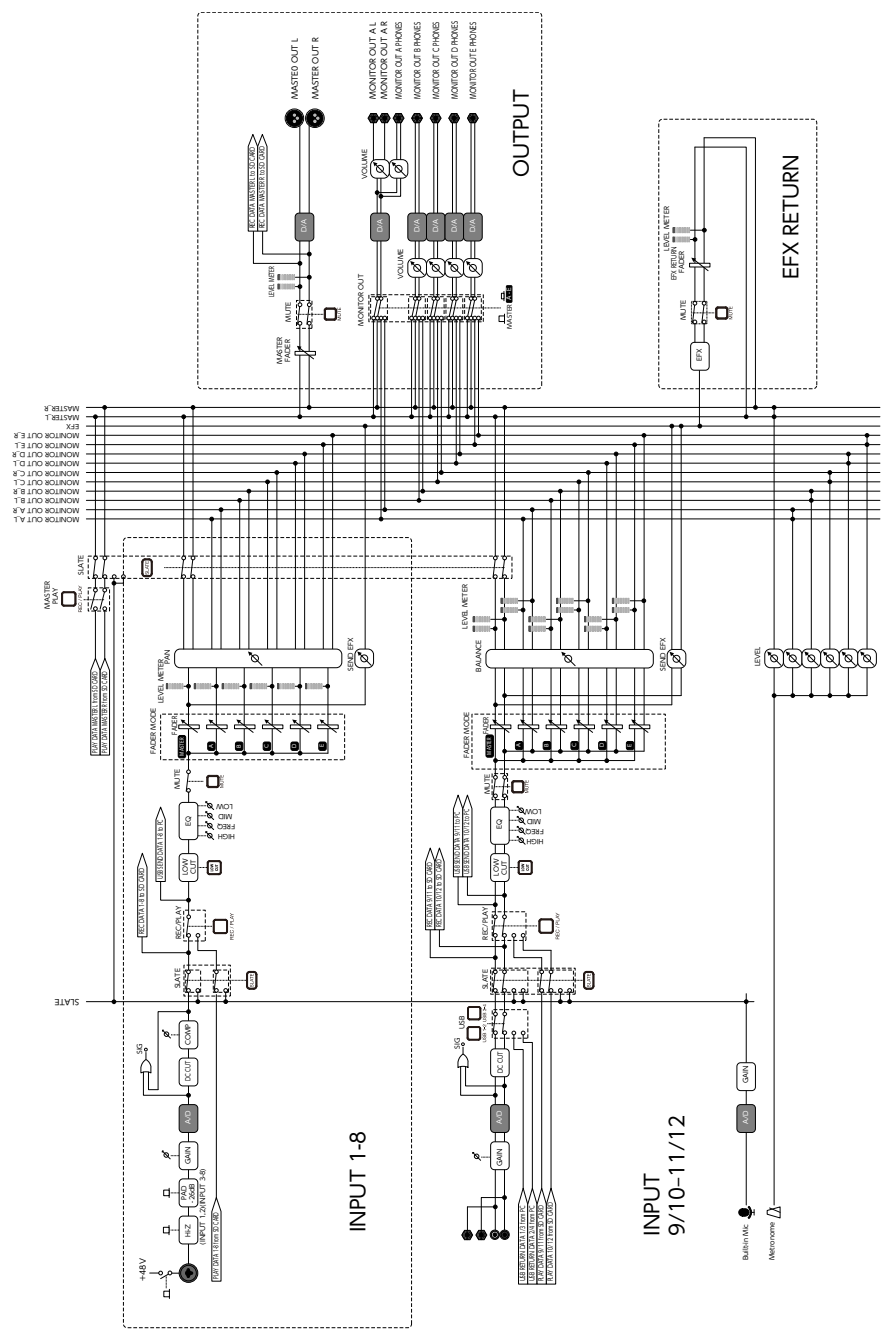
# Send effects specifications

No	Type	Explanation	Parameters 1	Parameters 2	tempo synchronization
1	Hall 1	Hall reverb with a bright tone	TONE	DECAY	
2	Hall 2	Hall reverb with a long time for early reflections	TONE	DECAY	
3	Room 1	Room reverb with coarse reflections	TONE	DECAY	
4	Room 2	Dense room reverb	TONE	DECAY	
5	Plate	Plate reverb simulation	TONE	DECAY	
6	Church	Reverb that simulates the sound of a church	TONE	DECAY	
7	DrumAmb	Reverb that adds a natural ambience (air sound) to drums	TONE	DECAY	
8	GateRev	Special reverb suited to percussive performances	TONE	DECAY	
9	Spring	Spring reverb simulation	TONE	DECAY	
10	Delay	Digital delay with a clear tone	TIME	FEEDBACK	●
11	Analog	Warm analog delay simulation	TIME	FEEDBACK	●
12	P-P Dly	Effect that outputs delay sound alternately left and right	TIME	FEEDBACK	●
13	Vocal 1	Very useful effect that combines delay with hall reverb	TIME	DECAY	
14	Vocal 2	Effect that combines delay with mono output reverb	TIME	DECAY	
15	Vocal 3	Effect that combines delay suitable for ballads with plate reverb	TIME	DECAY	
16	Vocal 4	Effect that combines delay suitable for rock with room reverb	TIME	DECAY	

Note: Delay effects that are tempo synchronized can be synchronized to the project tempo.

To synchronize them, press the TEMPO button and set the tempo. Quarter notes will be synchronized to the tempo.

# Mixer block diagram





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