

5 – Basic recording

Selecting the input source

This unit has 22 inputs (22 line/16 mic inputs) with separate **MIC** and standard jacks.

The **LINE/INST (BAL)** input jacks on channels 1–2 support high impedance input, including direct guitar input.

Turn the **INST** switch on when connecting an electric guitar or similar instrument directly.

ATTENTION

Do not connect to both the **MIC** jack and the standard input jack (**LINE/INST (BAL)**, **LINE (BAL)**, **L/MONO (BAL)** or **R (BAL)**) on a channel at the same time.

TIP

Set the **INST** switch to off when connecting an electric-acoustic guitar with a built-in preamp or an active electric guitar, as well as when an effect is connected between an electric guitar and this unit.

Setting the MODE switch

Using the **MODE** switch settings of each channel to select their input sources individually.

LIVE: Use the signal from the input jack as the input source.

PC: Use a signal from a computer connected to the **USB** port as the input source.

MTR: Use a playback signal from the SD card as an input source.

When a **MODE** switch is set to **MTR**, the signal from the input jack on that channel will be recorded.

This function is useful when recording and playing back repeatedly because the monitored sound is automatically switched according to the recording or playback status.

Sounds on channels when in MTR mode

Transport status	REC button off	REC button on
Stop	Muted	Sound from input jack
Playing back	Playback sound only	Playback sound only + sound from input jack
Recording	Playback sound only	Sound from input jack

Setting phantom power

When connecting a condenser mic that requires phantom power, press the **PHANTOM +48V** switch when the recorder is stopped to turn phantom power on/off.

When phantom power is on, the **PHANTOM +48V** indicator lights, and phantom power is supplied to the **MIC** input jacks (1-12, 13/14-19/20).

ATTENTION

- Before connecting condenser mics, turn this unit and all equipment to be connected off (standby).
- The **PHANTOM +48V** switch turns it on/off for the input channels (1-12, 13/14-19/20) simultaneously. Do not turn the **PHANTOM +48V** switch on when connecting a mic that does not require phantom power.
- Do not connect or disconnect mics when the **PHANTOM +48V** switch is on. Doing so could cause a loud noise and might damage this unit and connected equipment.
- Set the following knobs and faders to their minimum values before changing the **PHANTOM +48V** switch on/off setting. Depending on the connected mics, sudden loud noises from monitoring equipment could occur, and this could damage the equipment or harm hearing.
 - **GAIN** knobs
 - Channel faders
 - **SUB** fader
 - **MON 1/MON 2** faders
 - **MAIN** fader
 - **CONTROL ROOM** knob
 - **PHONES** knob
- Turn the **PHANTOM +48V** switch on only when using a condenser microphone that requires phantom power. Turning the **PHANTOM +48V** switch on when a dynamic mic or other mic that does not require it is connected could damage this unit and connected equipment.
- When using condenser mics that require phantom power and dynamic mics together, be sure to use balanced dynamic mics. Unbalanced dynamic mics cannot be used when phantom power is enabled.
- Supplying phantom power to some ribbon mics could break them. If you are unsure, do not supply phantom power to a ribbon mic.

Monitoring

Monitoring is important when recording and mastering. With this unit, monitoring is possible using an external monitoring system (powered monitor speakers or an amp and speakers) or using stereo headphones.

Use the **CONTROL ROOM** and **PHONES** knobs to adjust the level of the monitoring system.

SIG indicators and level meters

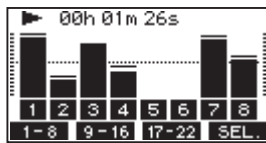
The channel 1-12, 13/14-19/20 **SIG** indicators and level meters shown on the Meter Screen can be used to check the levels of this unit's audio signals.

The level meters are for visually checking signal levels and can also be used to check whether or not signals are being input to this unit. For example, even when you cannot hear anything monitoring, if the Meter Screen level meters are moving, signals are being input to this unit.

The **SIG** indicators light green when signals (of at least -32 dB) are input through their channels.

If a **SIG** indicator lights red, the input source signal is too loud or the **GAIN** knob is turned up too far.

If the **SIG** indicator lights red even when the **GAIN** knob is turned all the way to the left, the input source signal is too loud. Lower its volume.



Track level meters (1-12, 13/14-21/22)

The show track playback signal or truck input signal levels. Channels for which the **MODE** switch is set to **MTR** will show the following signal levels according to the operation status.

REC button	Transport status	Level meter display
Unlit	PLAY	Track playback signal
Blinking (recording standby)	PLAY	Playback signal (automatic monitoring on) Track input + playback signal (automatic monitoring off)
	Stop	Track input signal
Blinking (recording)	Record	Track input signal

NOTE

When the playback signal is shown, the level of the recorded signal on the track is being shown, so the levels of the level meters cannot be changed.

When the input signal is shown, adjusting channel 1-12, 13/14-19/20 **GAIN** knobs will change the levels of the level meters.

MAIN MIX L/R level meters (MAIN)

These show the MAIN MIX L/R bus levels.

Recording

This unit can simultaneously record up to 24 tracks, including 22 channel inputs and the MAIN MIX L/R bus.

The following recording operations assume that mics, guitars and other things to record have been connected to the unit, input signals have been assigned as track recording sources, monitoring equipment has been connected and a song has been loaded.

1. Press the **REC** buttons for tracks to record.
Press the **RECORD** button to start recording standby. It will blink red.
When a **MODE** switch is set to **MTR**, the signal from the input jack on that channel will be recorded.(see "Setting the MODE switch" on page 26)

NOTE

- The MAIN MIX L/R bus does not have a **REC** button, but it is always in recording standby. The signals of the MAIN MIX L/R bus will always be recorded if the record button is pressed.
- When the **REC** buttons of tracks that already have recordings is blinking, press them to make them unlit.

2. Set the recording levels.
Use the **GAIN** knobs of each channel to adjust their input levels. Watch the **SIG** indicators above and to the right of the **GAIN** knobs, and set the levels suitably.
At the same time, check that the sound heard through headphones or a monitoring system is not distorted and that an unintended effect has not been set.

NOTE

If an input is too loud, the **SIG** indicator will light red.
If the **SIG** indicator lights red even when its **GAIN** knob is turned all the way to the left, lower the volume of the input source.

3. Press the ● button.
Recording will start and the ● and ►/|| buttons will light. The **REC** buttons for tracks to record will stop blinking and stay lit.
4. When recording has completed, press the ■ button.
5. Use the ◀◀/▶▶ buttons and ■ button, for example to locate to a position you want to check.

TIP

For details about the locate function, see "Locate functionpage 30.

6. Press the ►/|| button to play the recorded tracks.
Use the channel and **MAIN** faders to adjust the playback levels. Use the volume of the monitoring system to adjust the final monitoring level.
Use the **PAN** knobs of each channel to set the position of each track signal between left and right speakers.

NOTE

- The channel **PAN** knobs and channel faders control the playback output signals of already recorded tracks or the monitoring volume of input signals.They do not control signals to be recorded.
- If you are not satisfied with a recording, repeat the above procedure from the beginning.

5 – Basic recording

Undoing operations

If you make a mistake operating the unit or want to do a recording over, for example, the operation last conducted can be undone. Editing, recording and other operations can be undone. The following types of operations can be undone.

- Recording operations
- Auto punch in/out operations
- Track clearing operations

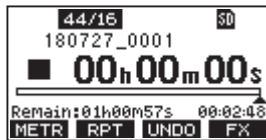
If a song is loaded or the unit is turned off, Information used for undoing and redoing will be lost, so undoing and redoing previous operations will no longer be possible.

NOTE

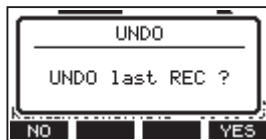
Files used for undoing are saved on the SD card. If you want to delete those files to make more space on the ST card, reload the current song on the **SONG** Screen.

Undoing the previous operation

1. When the Home Screen is open, press the **F3 UNDO** button.



The following confirmation pop-up message will appear.



2. Press the **F4 YES** button to return to the state before the previous operation.

NOTE

To cancel undoing, press the **F1 NO** button.

Redoing an undone operation

1. After undoing, when the **REDO** button appears on the Home Screen, press the **F3 REDO** button. The following confirmation pop-up message will appear.



2. Press the **F4 YES** button to restore the previous operation and return to the state before undoing.

NOTE

To cancel redoing, press the **F1 NO** button.

Using the built-in effects

This unit has built in effects, so you can apply effects without an external effect device.

Channels **1-12** and **13/14-19/20** can have an effect applied. Their signals are sent to the built-in effect by the FX bus.

The return signal is returned to the MAIN MIX L/R and MONITOR OUT 1/2 buses.

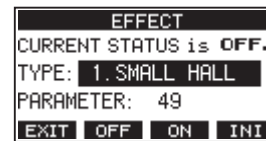
1. Use the **FX** knobs of each channel to adjust the levels of signals sent to the FX bus.
2. Use the **EFFECT** Screen to select the type of effect. (see "Setting the built-in effect" on page 28)
3. Use the **TO MAIN LR** and **TO MON 1/TO MON 2** knobs to adjust the return levels for the MAIN MIX L/R and MONITOR OUT 1/2 buses.
4. When the **AFL** switch is on, use the **CONTROL ROOM/PHONES** knob to adjust the return level.

NOTE

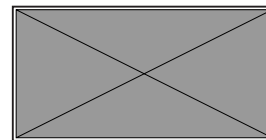
The sound with the effect applied can be monitored from the **CONTROL ROOM L/R** jacks or **PHONES** jack.

Setting the built-in effect

1. Press the **SELECT** button to open the **EFFECT** Screen.



2. Select **TYPE**, and press the **MULTI JOG** dial to open the effect type list pop-up. Set the built in effect type.

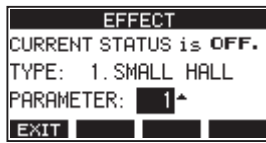


Options:

1. SMALL HALL (default), 2. LARGE HALL,
3. SMALL ROOM, 4. LARGE ROOM, 5. PLATE,
6. STUDIO, 7. LIVE, 8. SHORT DELAY, 9. DELAY,
10. PING PONG, 11. CHORUS, 12. FLANGER,
13. DELAY+SHALL, 14. DELAY+LHALL,
15. CHORUS+SHALL, 16. CHORUS+LHALL

- Select **PARAMETER**, and adjust the amount of the set effect.

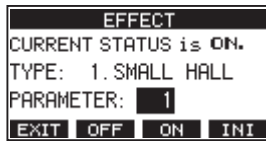
Options: 1 (default), 100



NOTE

Press the **F4 INI** button to set the **CURRENT STATUS**, **TYPE** and **PARAMETER** items to their default values.

- Press the **F3 ON** button to turn the built-in effect on.
The **CURRENT STATUS** will change from **OFF** to **ON**.



NOTE

Press the **F2 OFF** button to turn the built-in effect off.

- Press the **F1 EXIT** button to return to the Home Screen.

6 – Recorder functions

Locate function

When the Home Screen is open, you can use the **MULTI JOG** dial to set the locate point.

On the Home Screen, the current position of the recorder is shown as a time in hours (h), minutes (m) and seconds (s).

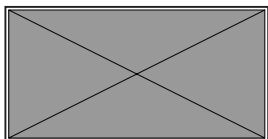
By setting the time in this display area, you can change the current position of the recorder.

Changing the playback position

When the Home Screen is open and the recorder is stopped or playing back, you can use the **MULTI JOG** dial to set the locate point.

Using the direct locate function to locate

1. When the Home Screen is open and the recorder is stopped, press the **MULTI JOG** dial to enable direct locate mode. A cursor will appear at the location to be changed in the recorder counter.



2. Turn the **MULTI JOG** dial to change a value, and press the **MULTI JOG** dial to confirm it and move the cursor to the next item.
3. Change the seconds, minutes and hours in that order to move to that time as the current recorder position.
4. Press the **▶/||** button to start playback or the **●** button to start recording from that position.

Repeat playback function

The repeat playback function can be used to play something over and over.

When the Home Screen is open, press the **F2 RPT** button to set the repeat playback function.

Nothing shown: the current song will keep playing.

S1: The current song will play and then stop.

↺: The current song will play repeatedly.

Punch in/out function

Punching in and out is a technique used to replace parts of already recorded tracks.

You can start playback of recording, switch to recording when it reaches the part to be replaced (punch in), and then switch back to playback (or stop) when the end of that part is reached (punch out).

1. Determine the part you want to replace in advance.
Select a point where the replacement audio can be combined well with the original track audio.
2. Press the **REC** button for the track with the part to be replaced to enter recording standby (REC button blinks).

NOTE

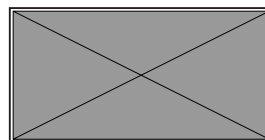
Punch in recording is not possible when the **REC** button is on for eight or more channels.

3. Start playback before the part to be replaced.
4. When the part to be replaced is reached, press the **●** button, and perform the part.
Recording will start (punch in).
5. When the end of the part to be replaced is reached, press the **■** button.
Recording will stop.

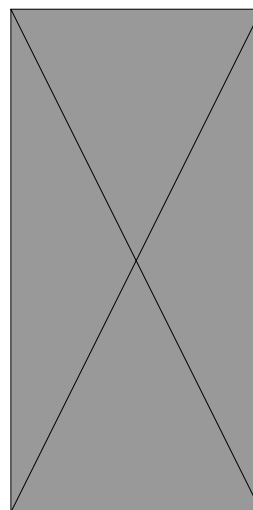
Using the footswitch to punch in/out

By connecting a commercially-available footswitch to the **FOOTSWITCH** jack (TS standard) on the top of the unit, you can use it to punch in/out.

To use a footswitch to punch in/out, you must set the foot switch function assignment to **PUNCH IN/OUT** in advance. (see "Setting up the footswitch" on page 31)



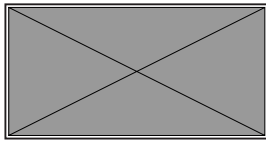
At step 4 above, press the footswitch instead of the **●** button, and at step 5 press it again instead of the **■** button.



Setting up the footswitch

Use the FOOTSW Screen to set the footswitch.

1. Open the FOOTSW Screen when the recorder is stopped.(see “Menu operation procedures” on page 18)



2. Turn the MULTI JOG dial to select the function to assign to the footswitch.

Option	Meaning
PLAY / PAUSE (default)	Press to start playback when paused. Press to stop when in any other state.
PUNCH IN / OUT	Press during playback to punch in. Press when recording to punch out.
FX MUTE	Mute the built-in effect signal.

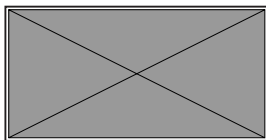
3. Press the MULTI JOG dial to confirm the assigned function.
A * appears next to the selected function.
4. Press the F1 **EXIT** button to return to the MENU Screen.

Setting the footswitch polarity

The setting of this unit can be changed according to the polarity of the footswitch being used.

Select NORMALLY OPEN or NORMALLY CLOSED so that the actual footswitch movement matches that shown by the illustration on the screen.

1. Open the FOOTSW Screen when the recorder is stopped.(see “Menu operation procedures” on page 18)
2. Press the F4 **POL** button to open the POLARITY Screen, and turn the MULTI JOG dial to set the footswitch polarity.



Options: NORMALLY OPEN (default), NORMALLY CLOSED

3. Press the F1 **EXIT** button to return to the FOOTSW Screen.

Automatic punch in/out function

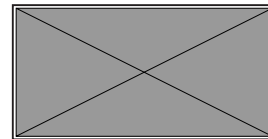
Using the automatic punch in/out function, you can automatically record between punch in and out points set in advance.

To use automatic punch in/out recording, start playback from a pre-roll point before the punch in point where recording will start.

Recording will stop when the punch out point is reached, but playback will continue for two seconds before stopping.

Setting the punch in/out points

1. Open the AUTO PUNCH Screen when the recorder is stopped.(see “Menu operation procedures” on page 18)

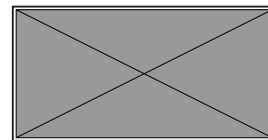


2. Press the ►/|| button to start playback.
3. Press the MULTI JOG dial to set the punch in and out points.
The set points are shown next to the IN and OUT items.

NOTE

- Press the F2 **CLR** button to clear set punch in and out points.
- Press the F3 **I/O** button to select either the punch in or out point.
An * will appear next to the selected item.

4. Press the ■ button to stop playback.
5. Press the F4 **ON** button to turn the automatic punch in/out function on.
The **A.PUNCH** icon appears on the AUTO PUNCH Screen.



6. Press the F1 **EXIT** button to return to the MENU Screen.

TIP

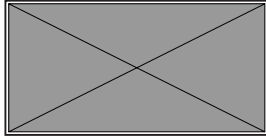
- By setting only the punch in point, you can start recording with automatic punch in and then continue recording until you press the ■ button to stop.
- By setting only the punch out point, you can start recording by pressing the ● button and then stop recording with automatic punch out.

6 – Recorder functions

Setting a pre roll point

When using automatic punch in, the amount of playback time before the punch in point can be set (pre roll point).

1. Select **A. PUNCH PRE ROLL** on the **MENU** screen to open the **A. PUNCH PRE ROLL** screen.(see "Menu operation procedures" on page 18)



2. Set the pre-roll point.

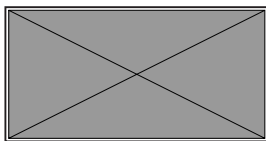
Option	Meaning
OFF	Do not locate to a point before the punch in point.
1sec. – 10sec. (default: 2sec.)	Locate to a pre roll point the set time before the punch in point and start playback.

3. Press the **F1 EXIT** button to return to the **MENU** Screen.

Rehearsing punching in and out

You can rehearse before punch in/out recording. In rehearsal, recording will not occur, but monitoring will be the same as if recording.

1. Press the **MENU** button when the recorder is stopped to open the Home Screen.
Confirm that the **A. PUNCH** icon appears on the Home Screen.



2. Press the **REC** buttons for the tracks you want to record using automatic punch in/out.

NOTE

Punch in recording is not possible when the **REC** button is on for eight or more channels.

3. Press the **▶/||** button.
Auto punch in/out rehearsal starts.
 - The transport starts playback from the pre-roll point. Both track playback and input source signals can be monitored.(see "Setting a pre roll point" on page 32)
 - When the punch in point is reached, only the input source signal will be monitored. The ● button will blink showing that it is rehearsal mode.
 - When the punch out point is reached, both track playback and input source signals will be monitored. The ● button will become unlit.
 - Playback will automatically stop two seconds after the punch out point. The **▶/||** button will blink.

Rehearsal can be repeated.

Using automatic punching in and out

Follow these procedures to punch in and out automatically and record.

1. Confirm that the **A. PUNCH** icon appears on the Home Screen.
2. Press the **REC** buttons for the tracks you want to record using automatic punch in/out.

NOTE

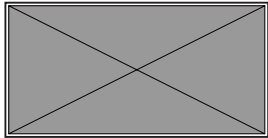
Punch in recording is not possible when the **REC** button is on for eight or more channels.

3. Press the ● button.
 - The transport starts playback from the pre-roll point. Both track playback and input source signals can be monitored.(see "Setting a pre roll point" on page 32)
 - When the punch in point is reached, only the input source signal will be monitored. The ● button will light.
 - When the punch out point is reached, both track playback and input source signals will be monitored. The ● button will become unlit.
 - Playback will automatically stop two seconds after the punch out point. The **▶/||** button will blink.

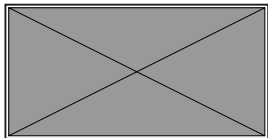
Clearing tracks

The selected track will be cleared.

1. Open the **TRACK CLEAR** Screen when the recorder is stopped.(see "Menu operation procedures" on page 18)

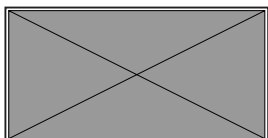


2. Turn the **MULTI JOG** dial to select the track to clear, and press the **MULTI JOG** dial.
A confirmation message will appear.



NOTE

Press the **F2 ALL** button to open a message confirming that you want to clear all tracks.



3. Press the **F4 YES** button to clear the track(s).

NOTE

- To cancel clearing tracks, press the **F1 NO** button.
 - Undoing is possible only for the last cleared track.
4. After clearing tracks completes, the **TRACK CLEAR** Screen will reopen.

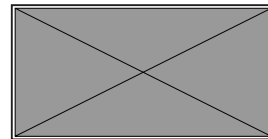
Importing tracks

You can import audio files that you have to tracks in the current song. Files that can be imported to tracks must be WAV format (".WAV" extension).

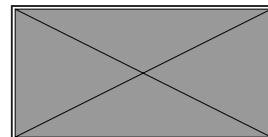
To import an audio file with a different format (.mp3, etc.) to this unit, it must be converted to a WAV file that matches the format of the song it will be imported into beforehand.

1. Connect this unit with a computer.(see "Connecting with a Computer" on page 37)
2. Use the computer to copy WAV files on it to this unit's **MUSIC** folder.
3. Follow the proper disconnection procedures on the computer before disconnecting the USB cable.(see "Disconnecting" on page 37)

4. Open the **TRACK IMPORT** Screen when the recorder is stopped.(see "Menu operation procedures" on page 18)
WAV files in the **MUSIC** folder will be shown.

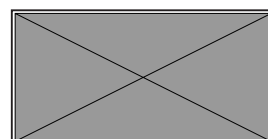


5. Select a WAV file to import.
 - Turn the **MULTI JOG** dial to select a WAV file.
 - Press the **MULTI JOG** dial when a folder is selected to show its contents.
 - Press the **F1 EXIT** button to return to the **MENU** Screen.
 - Press the **F2 <** button to move up one level.
6. Press the **F4 OK** button.
On the **TRACK IMPORT** Screen, the name of the file to be imported and the **TARGET TRACK(S)** item are shown.



NOTE

- To cancel importing a track, press the **F1 NO** button.
 - Importing is not possible under the following conditions.
 - Not enough open space is available
 - There are no empty tracks
 - The characteristics of the WAV file you are trying to import differ from the current song.
Example: Trying to import a 48kHz WAV file when the current song is 44.1kHz
 - If there is no file that can be imported, a **No File** pop-up message will appear.
 - If the imported WAV file is stereo, selection will be of two consecutive tracks.
7. Select the track to import, and press the **F4 YES** button to import it.



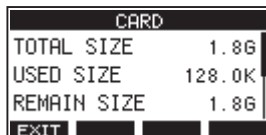
8. When importing completes, the **TRACK IMPORT** Screen reopens.

8 – Settings and Information

Viewing information

Use the **INFORMATION** screen to view various types of information about the unit. Follow the procedures below to view the **INFORMATION** screen.

1. On the **SYSTEM** Screen, select **INFORMATION** to open the Information Screen.(see “Menu operation procedures” on page 18)



The Information Screen has 3 pages. The **CARD** page opens first.

2. Turn the **MULTI JOG** dial to cycle through the **CARD**, **SONG** and **FIRMWARE** screens.

CARD Screen

Shows the use status of the currently loaded SD card

SONG Screen

Shows the number of songs on the loaded SD card

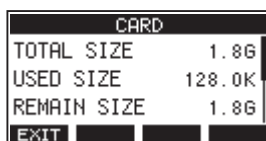
FIRMWARE Screen

Shows the unit’s system firmware version.

3. Press the **F1** **EXIT** button to return to the **MENU** Screen.

CARD Screen

The **CARD** Screen shows the status of the currently loaded SD card.



TOTAL SIZE

Shows the total amount of space on the SD card.

USED SIZE

Shows the amount of space used on the SD card.

REMAIN SIZE

Shows the amount of space unused on the SD card.

SONG Screen

The **SONG** Screen shows the use status of the **MTR** folder.

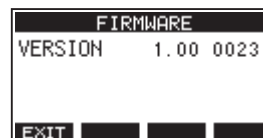


TOTAL SONG

This shows the total number of songs in the **MTR** folder.

FIRMWARE Screen

The **FIRMWARE** Screen shows the firmware version.



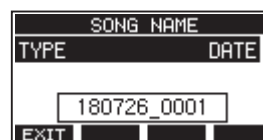
VERSION

This shows the system firmware version of this unit.

Setting the song name format

Set the name format is used by the unit for creative songs.

1. On the **SYSTEM** Screen, select **SONG NAME** to open the **SONG NAME** Screen.(see “Menu operation procedures” on page 18)



2. Set the file name format.

Option	Meaning
DATE (default)	Use the date for the song name. (Example: 180101_0001)
WORD	Use the 6-character song name set on the EDIT screen. (Example: TASCAM_0001)

NOTE

The date is set using the unit’s internal clock. (see “Setting the built-in clock date and time” on page 22)

Setting the WORD item

To set the characters, select **WORD** on the **TYPE** Screen. An **EDIT** item will appear on the **SONG NAME** Screen that can open the **WORD EDIT** Screen.



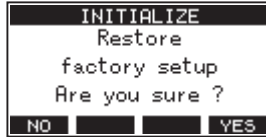
For details about how to set characters, see “Editing textpage 25.

Restoring factory default settings

You can restore the various settings stored in the memory of the unit to their factory default values.

Use the following menu procedures to do so.

1. On the **SYSTEM** Screen, select **INITIALIZE** to open the **INITIALIZE** Screen.(see "Menu operation procedures" on page 18)



2. Press the **F4 YES** button to restore the factory default settings.
3. When the setting completes, the **SYSTEM** Screen will reopen.

NOTE

- Press the **F1 NO** button to cancel execution.
- The date and time setting is not initialized.

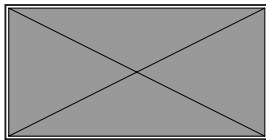
Formatting SD cards

Formatting erases all music files on the SD card and automatically creates new "**MTR**", "**MUSIC**" and "**UTILITY**" folders as well as a "**tascam_m.sys**" file.

ATTENTION

- Formatting an SD card erases all the data on it. This cannot be undone.
- Always use this unit to format media to be used with it. Operation of this unit might be affected when using an SD card that has been formatted by a computer or other device.

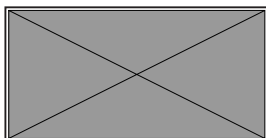
1. On the **SYSTEM** Screen, select **MEDIA FORMAT** to open the **MEDIA FORMAT** Screen.(see "Menu operation procedures" on page 18)



QUICK: Execute quick formatting.

ERASE: Erase and format the card.

2. Select the format method, and press the **MULTI JOG** dial. A confirmation message will appear on the **QUICK** or **ERASE** Screen.



Shown when **QUICK** selected

NOTE

Press the **F1 NO** button to cancel formatting and return to the previous screen.

3. Press the **F4 YES** button to start formatting.
4. When formatting is complete, the **SYSTEM** Screen will reopen.

NOTE

The writing speeds to SD cards and other storage media that use flash memory tend to decrease after writing occurs repeatedly.

If the writing speed decreases, this could have a negative impact on recording.

Using the **ERASE** function of this unit should restore the writing speed of the SD card.*

For this reason, we recommend using the **ERASE** function at the following times.

- Whenever the card has been written to until it became completely full
- On a regular schedule (about once per month)
- Before starting important recordings

*Writing speed might not be restored depending on the SD card condition (including malfunction and age).

8 – Settings and Information

Playing WAV files on SD cards (SD PLAY mode)

The WAV files in the **MUSIC** folder on an SD card can be played back. (see “Loading WAV files from a computer” on page 38)

The following audio file formats can be played back in SD PLAY mode.

WAV: 44.1/48kHz, 16/24-bit

BWF: 44.1/48kHz, 16/24-bit

Playback signal is sent from channels 21 and 22.

1. Set the channel 21/22 **MODE** switch to **MTR**.
2. Set the channel 21/22 **MON 1/MON 2** and **BAL** knobs and the channel fader to their middle positions
3. Open the **SD PLAY** Screen when the recorder is stopped. (see “Menu operation procedures” on page 18)



4. Select a file to play back
 - Turn the **MULTI JOG** dial to select a WAV file.
 - Press the **MULTI JOG** dial when a folder is selected to show its contents.
 - Press the **F1 EXIT** button to return to the **MENU** Screen.
 - Press the **F2 <** button to move up one level.

NOTE

Only WAV files can be played back. MP3 files will not be shown.

5. Press the **F4 PLAY** button or **▶/||** button to start WAV file playback.
The **SD PLAY** Screen will show playback status.



- Press the **F1 EXIT** button to return to the **SD PLAY** Screen.
- Press the **F2 RPT** button to turn the repeat playback function on and select the repeat playback mode.

Display	Meaning
No indicator	The folder that contains the currently playing WAV file will play back, and then playback will stop.
↻1	The currently playing WAV file will play back repeatedly.
↻ALL	The folder that contains the currently playing WAV file will play back repeatedly.

- Press the **F3 (<<)** button to skip to the beginning of the WAV file. Press near the beginning of the WAV file to skip to the beginning of the track before it.
 - Press the **F4 (>>)** button to skip to the beginning of the next WAV file.
6. Press the **F1 EXIT** button twice to return to the **MENU** Screen.

9 –Using a computer to transfer data

By connecting this unit with a computer using a commercially-available USB cable, you can back up song data on the SD card in the unit to the computer, as well restore backed up song data to the unit. You can also export track and stereo master files from songs to the computer and import audio files from the computer.

Backed up data can be restored to other Model 24/Model 20 units. Since this allows you to freely move files between Model 24/Model 20 units, you can easily conduct additional recording or mixing at different locations.

ATTENTION

Always turn the unit's power off (standby) before removing the SD card. You can conduct the same operations by removing the SD card from the unit and connecting it directly to a computer or by using a card reader instead of using USB to connect the unit and the computer.

This unit can transfer the following data to a computer.

Entire songs

This unit can transfer all the data for a song from the **MTR** folder to a computer. This operation is called "backing up". Data backed up to a computer can also be transferred to the **MTR** folder, and restored as a song file. This operation is called "restoring".

ATTENTION

Do not change names, delete or otherwise alter individual files inside the **MTR** folder. Doing so could prevent loading data as a song and make proper recording and playback operations impossible.

WAV files

By placing WAV files from the computer into the **MUSIC** folder, you can import them to song tracks. Moreover, WAV files in the **MUSIC** folder can be played back in SD PLAY mode.

Connecting with a Computer

You cannot use this unit's recording, playback and other recorder functions when it is connected to a computer by USB.

To connect with a computer, use a Type-A to Type-B USB2.0 cable to connect the **USB** port on the back of this unit to a USB port on the computer.

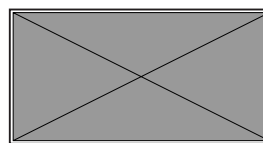
The USB cable can be connected either before or after turning this unit on.

1. Use a USB cable (Type-A to Type-B) to connect the computer to this unit's USB port.

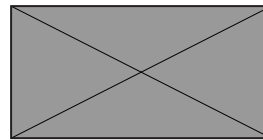
ATTENTION

The unit should be connected directly with the computer instead of via a USB hub.

2. On the **MENU** Screen, select **STORAGE** to open the **STORAGE** Screen.(see "Menu operation procedures" on page 18)



3. To connect with the computer, press the **F4 YES** button. The unit enters USB storage mode and connects with the computer.



Make sure that the SD card is inserted properly.

4. This unit appears on the computer as an external drive named "**TASCAM_M**" (if the card was formatted by this unit). Click the "**TASCAM_M**" drive on the computer to show the "**MTR**", "**MUSIC**" and "**UTILITY**" folders.

ATTENTION

- This unit receives power through its power cord. It cannot be powered by USB.
- Do not disconnect the power cord or turn off the power during data transfer. Data will be lost if the power is interrupted during transfer. Lost data cannot be restored.
- Do not change the names of folders in "**TASCAM_M**".

NOTE

- Do not change names, delete or otherwise alter individual files inside the **MTR** folder.
- The **UTILITY** folder is used when updating the unit system, for example.

5. Press the **F1 EXIT** button to return to the Meter Screen.

Disconnecting

Before disconnecting the USB cable, use the proper procedures for your computer to unmount the unit (as an external drive).

See the computer's operation manual for instructions about how to unmount an external volume.

Press the **F1 EXIT** button to disconnect from the computer and return to the Home Screen.

9 –Using a computer to transfer data

Loading WAV files from a computer

1. Use a USB cable (Type-A to Type-B) to connect the computer to this unit's USB port.(see "Connecting with a Computer" on page 37)
2. Click the "**Model 24**" drive on the computer to show the "**MTR**", "**MUSIC**" and "**UTILITY**" folders.
3. Drag and drop files on the computer that you want to transfer to the unit to the **MUSIC** folder.

ATTENTION

- The "**UTILITY**" folder is used when updating the unit system, for example.
- Do not change names, delete or otherwise alter individual files inside the "**MTR**" folder. Doing so could prevent loading data as a song and make proper recording and playback operations impossible.

TIP

- You can manage the content of "**MTR**" or "**MUSIC**" folders from the computer.
- You can create subfolders in the "**MUSIC**" folder up to the second level for use with this unit. The DR-44WL cannot recognize sub-folders and files located at the third layer level or below. The unit cannot recognize subfolders and audio files on the third level or below.

Installing the dedicated software (Windows only)

To use this unit as a USB audio interface with a Windows computer, dedicated software must be installed on the computer.

Download the latest software for the operating system you are using from the TEAC Global Site (<http://teac-global.com>).

Installing the dedicated software will install a Windows driver and a Windows Settings Panel application.

ATTENTION

- Before starting to install software, quit other applications.
- With a Mac, the standard OS driver will be used, so there is no need to install any software.

Installing the Windows dedicated software

Follow the procedures below to install the Windows dedicated software.

ATTENTION

- Complete installation of the Windows dedicated software on the computer before connecting the unit to it with the USB cable.
- If you connected the unit to the computer using the USB cable before installing the Windows dedicated software and the "Found New Hardware Wizard" launched, close the Wizard and disconnect the USB cable.

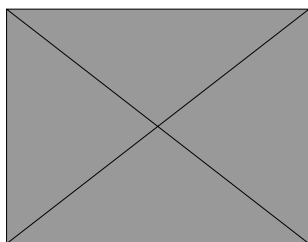
Windows dedicated software installation procedures

1. Download the latest Windows dedicated software for the operating system you are using from the TEAC Global Site (<http://teac-global.com/>) and save it on the computer to be used with the unit.
2. Uncompress the saved software (zip file) on the computer desktop or another location.
3. Double-click the "TASCAM_ModelSeries_Installer_x.xx.exe" file in the folder that appears after uncompression to launch the installation software.

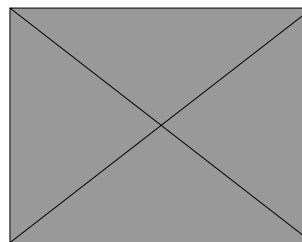
ATTENTION

If you open a zip file without decompressing it and double-click the "TASCAM_US-2x2_4x4_Mixer_x.xx.exe" file in the folder that opens, installation will not start. Right-click the zip file and select "Extract All", for example, to decompress it and then try again.

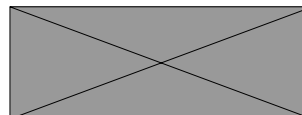
4. When a **Security Warning** or **User Account Control** screen appears, click the "Yes" button.
5. Read the contents of the User License Agreement, and select "I accept the agreement" if you agree to the terms. Then, click the "Next (N)" button.



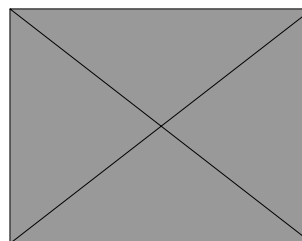
6. Next, click the "Install" button.



7. Next, click the "Install" button to start installation. (Windows 7 only)



8. The following screen appears when installation has completed. The following screen appears when installation has completed. Click the "Finish (F)" button.



The installer will quit and the Windows Settings Panel will launch.

NOTE

The first time you connect the unit by USB to the computer after installing the software, installation of the device driver will be executed. Some time might be necessary before the unit is recognized because Windows Update will be automatically searched at this time. If the unit is still not recognized after a while, open the software installation screen from the notification area at the bottom right of the computer display, and click "Skip obtaining driver software from Windows Update" to stop the search.

10 – USB audio interface functions

Uninstalling the Windows dedicated software


Uninstalling from the Programs and Features Control Panel

NOTE

Normally, there is no need to uninstall the dedicated software. Follow these procedures if a problem occurs or you no longer intend to use the unit with the computer.

1. From the **Start menu**, open the **Control Panel** and launch **Programs and Features**.

NOTE

- In Windows 10, right-click the Start button and click Control Panel when it appears.
 - In Windows 8.1, click the button  that appears at the bottom left of the Start screen to open the Apps screen, and click Control Panel.
2. If “**View by:**” is set to “**Category**”, click “**Uninstall a program**” under the “**Program**” item.
If “**View by:**” is set to “**Large icons**” or “**Small icons**”, click “**Programs and Features**”.
 3. Select “**TASCAM ModelSeries x.xx**” from the list, and double-click it.
 4. Then, follow the instructions that appear on the screen.

Opening the Settings Panel (Windows only)

Open the Settings Panel in the following manner.


Windows 10

- Click the Windows Start button and select **All Programs** → **TASCAM** → **Model Series Settings Panel**.

Windows 8.1

- Right-click the Windows Start button and select Control Panel.

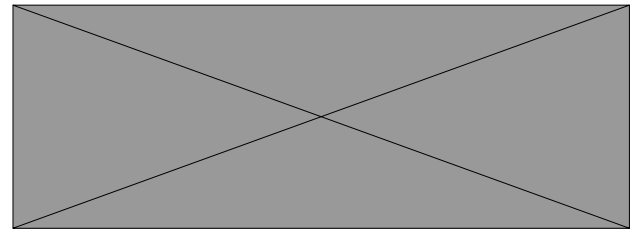
NOTE

You can also left-click the Start button to open the Start Screen. Click the  button to open the **Apps** screen, and select **Model Series Settings Panel** under **TASCAM**.

Windows 7

- Click the Windows Start button and select **All Programs** → **TASCAM** → **Model Series Settings Panel**.

Windows Settings Panel overview



① Status display area

This shows the current status of the software.

Item displayed	Meaning
Software Ver	This is the software version.
Firmware Ver	This is the firmware version used by the connected unit.
Device	This is the name of the connected unit. (“No Device” is shown when no device is connected.)
Sample Rate	This shows the sampling frequency of the current song. If an SD card is not loaded, this shows the sampling frequency set by the computer.

② Buffer Size

You can adjust the size of the buffer used to handle the audio input and output signals transferred to and from the computer. Smaller buffer sizes result in less audio signal delay (latency), but require high-speed processing by the computer. If the processing cannot keep up, for example, due to other system operations, clicking and popping noises might occur and the audio signal might even drop out. Increasing the buffer size will stabilize operation and suppress negative effects on audio signals, but the delay in audio signals sent to the computer will increase.

You can use the slider on the panel to adjust the buffer size for this unit according to the use conditions.

Options

64, 128, 256, 512, 1024, 2048

The following is a list of messages that appear in pop-up windows.

Refer to this list if one of these pop-up messages appears on the Model 24 and you want to check the meaning or determine a proper response.

Message	Meaning and response
Card Error	The SD card cannot be recognized properly. Replace the card.
Card Full	The SD card has no remaining capacity. Erase unnecessary files or transfer them to a computer.
Dup File Name	A file with the same name already exists. Change the file name.
File Not Found	The file cannot be found or the file may be damaged. Check the relevant file.
No sys file Make sys file	The system file is missing. This unit requires a system file for operation. When this message appears, press the MULTI JOG dial to create a system file.
Song Protected	This operation is not possible because the song is protected. Remove protection.
Invalid Card Change Card	Something might be wrong with the SD card. Change the SD card.
I/O Too Short	The time between the punch in and out points is too short. Set them with at least 1 second between them.
MBR error Init card	The SD card is not formatted properly or the card is broken. Change the SD card or press the MULTI JOG button while this message is being shown to format the card. Formatting will erase all the data on the SD card.
No Card	A SD card is not set. Insert a recordable SD card.
Non-supported	The file format is not supported. Please see Playing WAV files on SD cards (SD PLAY mode)page 36 for file formats that this unit can use.
Card Protected	The SD card is write-protected. Disable SD card write-protection.
USB Fs mismatch	The sampling rate of the current song and the USB audio interface are not the same. Change the sampling rate of one so that they are the same.
Current Song	The current song cannot be deleted. To delete the current song, load another song first.
Invalid I/O point	The punch in/out point settings on the AUTO PUNCH Screen are not set correctly. Automatic punching in/out occurred at an invalid position for the punch in or out point. Start the automatic punch operation from a valid point.
Write error REC continue	Writing to the SD card timed out. This has caused audio to be interrupted and noise to occur. A BOF mark is added at the point when audio was interrupted.
Card slow Check BOF MARK	SD card writing performance has become worse. A BOF mark has been added at the point when audio was interrupted because writing to the SD card timed out. Check the audio around the BOF mark. Execute the erase format function or change the SD card.
Need to set I/O point.	A punch in/out point is not set for the automatic punch in/out function. Set the punch in/out points.
Sample rate Unmatch	The sampling frequency of the WAV file to be imported does not match the current song.
Bit length Unmatch	The bit rate of the WAV file to be imported does not match the current song.
Remain time is not enough	The SD card does not have enough open space, so importing is not possible. Erase unnecessary files or transfer them to a computer.
8 track punch in limit	The maximum number of tracks for punch in recording is eight. Press REC buttons to reduce the number of recording tracks to eight or less.
Song is not loaded	No song is loaded. Create a new song or load a song.
Song number full	The maximum number of songs that can be created on an SD card is 100. Erase unnecessary songs or transfer them to a computer.
SD PLAY: cannot record	SD PLAY mode is for playback only. Recording is not possible.
UNDO not available	UNDO is not possible in the current state.
SD CARD cluster size error	Recording is not possible because the SD card cluster size is not right. Back up the contents of the SD card on a computer and then format it with this unit. Then, restore the data from the computer.
Import error. no track	Importing is not possible because there are no open tracks. Use TRACK CLEAR to clear a track.(see "Clearing tracks" on page 33)
Already protected	The selected song is already protected.
Already unprotected	The selected song is already unprotected.

11 – Messages

Message	Meaning and response
Can't Save Data	If any of these errors occurs, turn the unit off and restart it. If these error messages continue to appear frequently, please contact the store where you purchased this unit or TASCAM customer support.
Device Error	
File Error	
Not Continued	
Player Error	
Writing Failed	
Sys Rom Err	
System Err XX (XX is a number.)	

If you are having trouble with the operation of this unit, please try the following before seeking repair.

If these measures do not solve the problem, please contact the store where you purchased this unit or TASCAM customer support service.

The unit will not turn on.

- Confirm that the power plug and other connectors are inserted completely.

The SD card is not recognized.

- Confirm that the SD card is inserted completely.

The unit is playing back but no sound is output

- Are that channel faders raised to suitable levels?
- Is the **MAIN** fader raised to a suitable level?
- Is a monitoring system correctly connected to the **PHONES** jack or **CONTROL ROOM L/R** jacks?
Is the monitoring system set up correctly?
- Is the **PHONES** knob or **CONTROL ROOM** knob place to a suitable level?

The sound I want to record is distorted

- Are the channel **GAIN** knobs set too high?
Are the input source levels to high?
- Is the EQ set too high?
- Are any channel faders or the **MAIN** fader raised too high?
- Is the monitoring level too high, causing the monitoring system to distort?

Noise occurs when a passive guitar or bass is connected directly

- Connecting another device to the unit's **SUB OUTPUT** jacks (stereo output) could reduce noise.
- It could be affected by interference noise from another device, for example. If a power amplifier or other device with a large transformer, or a fluorescent light, for example, is nearby, changing the distance or orientation of such devices could reduce noise.

Playback is not possible.

- If you are trying to play a WAV file, confirm that it uses a sampling frequency (44.1/48 kHz) and a bit depth (16-bit) that are supported by this unit.

There is noise.

- Confirm that the connection cables do not have contact issues.

Sound breaks up or is noisy.

- Are there any wireless LAN devices, other Bluetooth devices, microwave ovens or similar equipment nearby?
Keep such devices as far away as possible during use.
- Try reducing the distance between this unit and the other Bluetooth device. Try changing the positions of this unit and the other Bluetooth device.
- The operation of apps other than for music playback on the smart-phone could cause the sound to break up. In this case, stop operation of apps other than the one used for music playback.

Cannot connect or communication is interrupted.

- Confirm that the other Bluetooth device power is on and that its Bluetooth function is on.
- Confirm that the other Bluetooth device is not too far away.
Are there walls or other obstacles, for example, between this unit and the other Bluetooth device?
The body of this unit itself could interrupt transmission if the other Bluetooth device is behind it.
Try changing the positions of this unit and the other Bluetooth device.
- Turn OFF and restart the DR-44WL.
- Remove the "Model 24" pairing record from the other Bluetooth device, and try pairing the unit with that Bluetooth device again.

Cannot pair with another device.

- Confirm that the other Bluetooth device supports A2DP.
- Confirm that the other Bluetooth device is in a state that allows transmission. For details, check the operation manual of that Bluetooth device.
- Turn the power off for both this unit and the other Bluetooth device once, turn them both on again and try pairing them.
- Turn off Bluetooth devices other than the one that you are trying to pair with.
- Remove the "Model 24" pairing record from the other Bluetooth device, and try pairing the unit with that Bluetooth device again.

13 – Specifications

General

Supported media

SD cards (512MB–2GB)
SDHC cards (4GB–32GB)
SDXC cards (64GB–128GB)

Recording file formats

WAV: 44.1/48kHz, 16/24-bit

Playback file formats

WAV, MP3

Inputs and outputs

Analog audio input and output ratings

MIC input jacks (1-12)

Connectors: XLR-3-31 (1: GND, 2: HOT, 3: COLD)
Input impedance: 3.3 k Ω
Nominal input level (**GAIN** knob at maximum): –66 dBu
Nominal input level (**GAIN** knob at minimum): +2 dBu

LINE/INST (BAL) input jacks (1-2)

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Input impedance: 1 M Ω
Nominal input level (**GAIN** knob at maximum): –65 dBu
Nominal input level (**GAIN** knob at minimum): +4 dBu

LINE (BAL) input jacks (3-12)

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Input impedance: 10 k Ω
Nominal input level (**GAIN** knob at maximum): –46 dBu
Nominal input level (**GAIN** knob at minimum): +2 dBu

L/MONO (BAL)/R (BAL) input jacks (13/14-19/20)

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Input impedance: 10 k Ω
Nominal input level (**GAIN** knob at maximum): –50 dBu
Nominal input level (**GAIN** knob at minimum): +4 dBu

–10dBu input jacks (21/22)

Connectors: RCA pin jacks
Input impedance: 47 k Ω
Nominal input level: –10 dBV
Maximum input level: +10 dBV

STEREO input jack (21/22)

Connector: 3.5mm (1/8") stereo mini jack
Input impedance: 22 k Ω
Maximum input level: +6 dBV

MAIN OUTPUT connectors

Connectors: XLR-3-32 (1: GND, 2: HOT, 3: COLD)
Rated output level: +4 dBu
Maximum output level: 22dBu
Output impedance: 100 Ω

SUB OUTPUT connectors

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Rated output level: +4 dBu (1.228 Vrms)
Maximum output level: +24 dBu (12.277 Vrms)
Output impedance: 100 Ω

MON 1/MON 2 AUX OUTPUT jacks

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Rated output level: +4 dBu (1.228 Vrms)
Maximum output level: +22 dBu (9.757 Vrms)
Output impedance: 100 Ω

FX AUX OUTPUT jack

Connector: 6.3mm (1/4") standard TS jacks (Tip: HOT, Sleeve: GND)
Rated output level: +4 dBu (1.228 Vrms)
Maximum output level: +22 dBu (9.757 Vrms)
Output impedance: 100 Ω

CONTROL ROOM jacks

Connectors: 6.3mm (1/4") standard TRS jacks (Tip: HOT, Ring: COLD, Sleeve: GND)
Rated output level: +4 dBu (1.228 Vrms)
Maximum output level: +22 dBu (9.757 Vrms)
Output impedance: 100 Ω

Phones jack

Connector: 6.3mm (1/4") standard stereo jack
Maximum output: 100mW + 100mW (32 Ω load)

Control input/output

USB port

Connector: 4-pin USB B-type
Protocol: USB 2.0 HIGH SPEED (480 Mbps)

Computer system requirements

Check the TEAC Global Site (<http://teac-global.com/>) for the latest information about supported operating systems.

Windows

Supported operating systems

Windows 10 32-bit
 Windows 10 64-bit
 Windows 8.1 32-bit
 Windows 8.1 64-bit
 Windows 7 32-bit SP1 or later
 Windows 7 64-bit SP1 or later
 (Windows 8, Windows Vista and Windows XP are not supported)

Computer hardware requirements

Windows computer with a USB 2.0 port

CPU/processor speed

2 GHz or faster dual core processor (x86)

Memory

2 GB or more

ATTENTION

Operation of this unit was confirmed using standard computers that meet the above requirements. This does not guarantee operation with all computers that meet the above requirements. Even computers that meet the same system requirements might have processing capabilities that differ according to their settings and other operating conditions.

Mac

Supported operating systems

macOS High Sierra (10.13 or later)
 macOS Sierra (10.12 or later)
 OS X El Capitan (10.11 or later)

Computer hardware requirements

Mac with a USB 2.0 port

CPU/processor speed

2 GHz or faster dual core processor

Memory

2 GB or more

Supported audio drivers

Windows

ASIO2.0, WDM

Mac

Core Audio

Audio performance

Frequency response

20 Hz – 30 kHz

Distortion

0.01% or less

S/N ratio

108 dB

Bluetooth

Bluetooth version: 4.0

Output class: 2 (about 10m* unobstructed transmission distance)

Supported profile: A2DP

Supported A2DP codecs: SBC, AAC

Supported A2DP content protection: SCMS-T

The transmission distance is only an estimate and might vary depending on the surrounding environment and radio wave conditions.

Other

Power

AC100V, 50-60 Hz

Power consumption

52W

Dimensions

With side panels

576 × 513 × 112.5 mm (W × H × D, including protrusions)

Without side panels

540 × 503 × 112.5 mm (W × H × D, including protrusions)

Weight

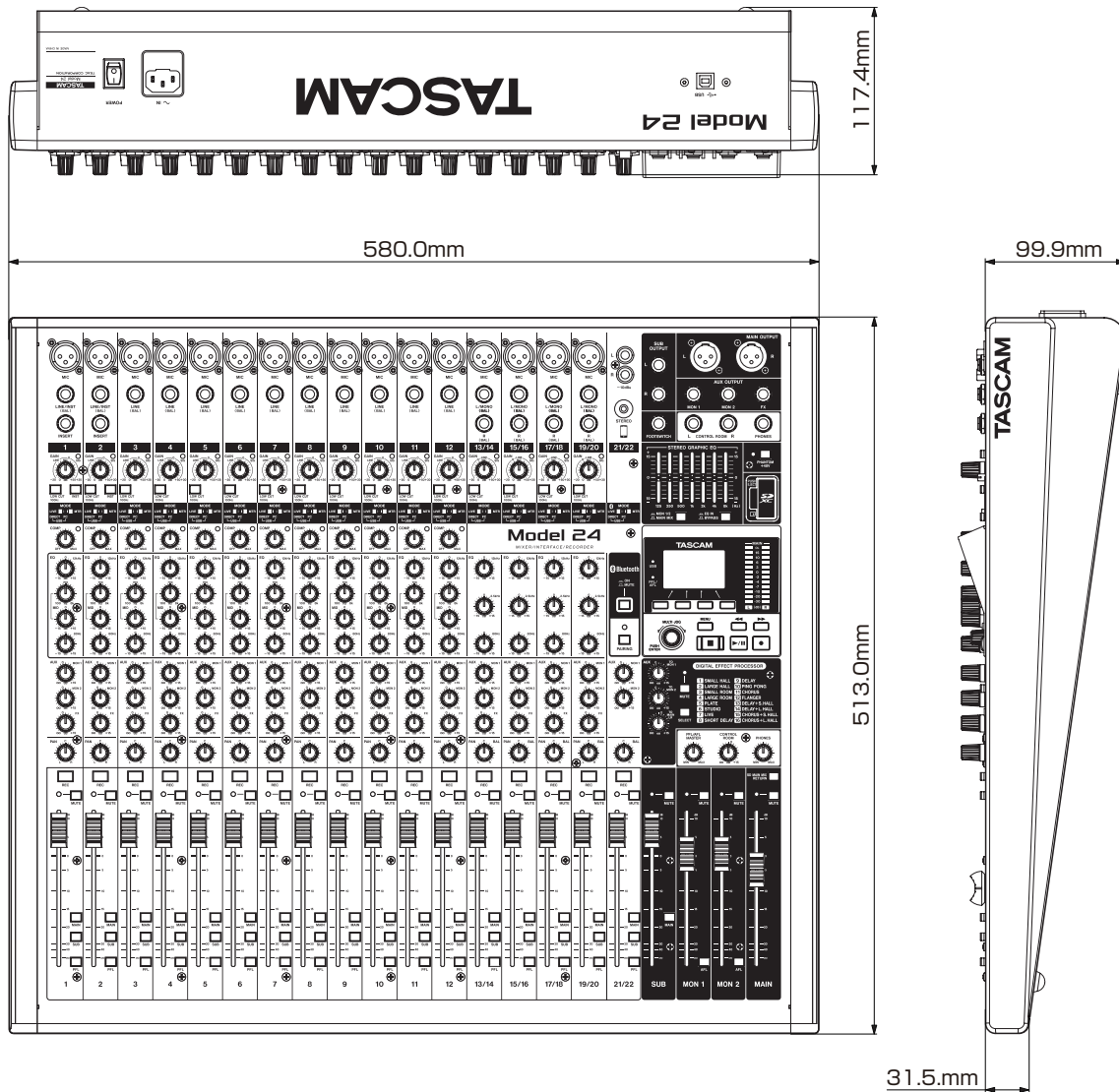
10 kg

Operating temperature range

5°C – 35°C

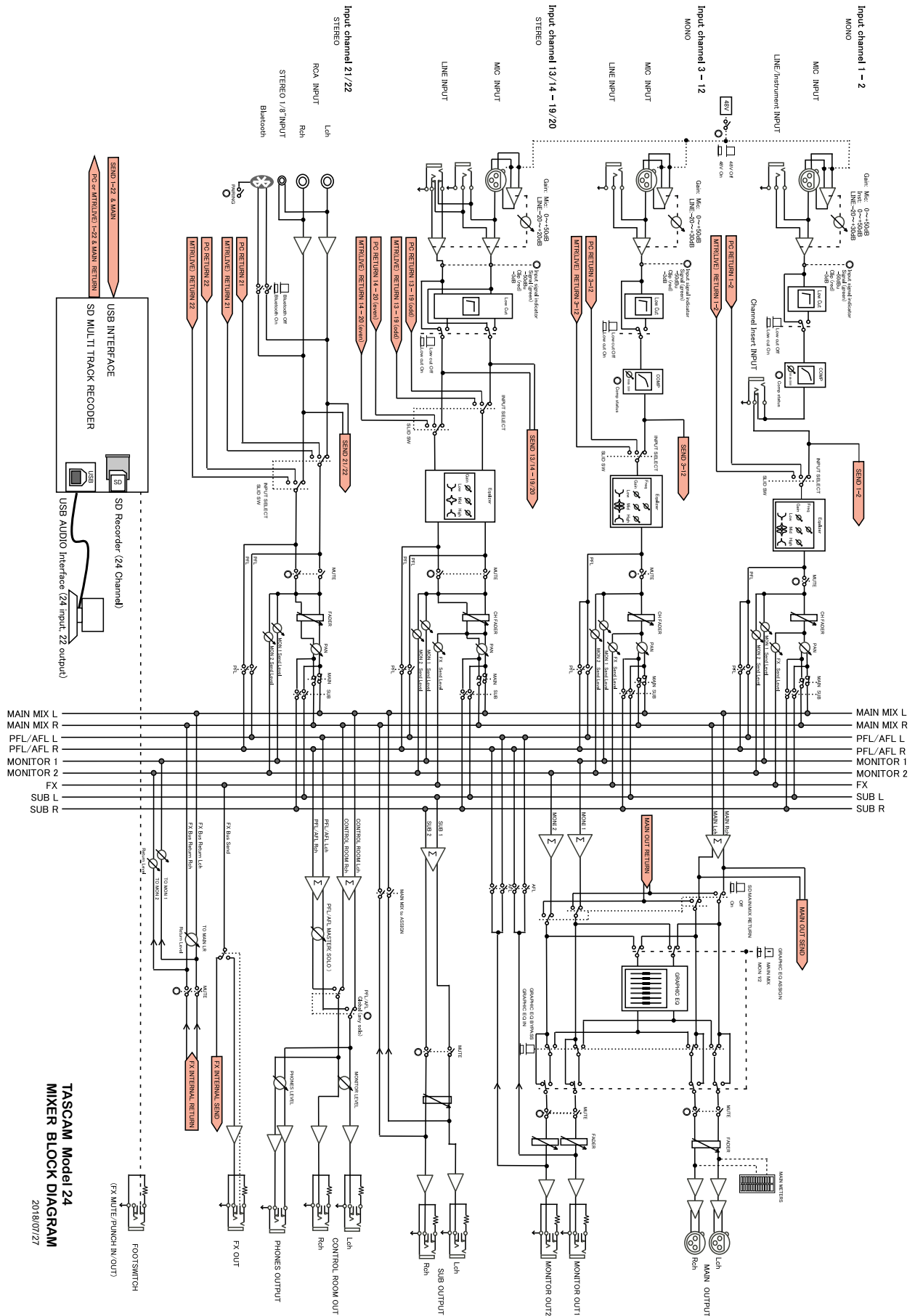
13 – Specifications

Dimensional drawings



- Illustrations in this manual might differ in part from the actual product.
- Specifications and external appearance might be changed without notification to improve the product.

Block diagram



TASCAM Model 24
MIXER BLOCK DIAGRAM
2018/07/27

Level diagram



無料修理規定（持ち込み修理）

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 - (4) 接続しているほかの機器に起因する故障および損傷
 - (5) 業務上の長時間使用など、特に苛酷な条件下において使用された場合の故障および損傷

(6) メンテナンス

(7) 本書の提示がない場合

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ティアック株式会社

〒206-8530 東京都多摩市落合1-47

この製品の取り扱いなどに関するお問い合わせは

タスカム カスタマーサポート 〒206-8530 東京都多摩市落合1-47



0570-000-809

● 携帯電話、またはナビダイヤルがご利用いただけない場合

電話：042-356-9137 / FAX：042-356-9185

受付時間は、10:00～12:00 / 13:00～17:00です。(土・日・祝日・弊社指定休日を除く)

故障・修理や保守についてのお問い合わせは

ティアック修理センター 〒358-0026 埼玉県入間市小谷田858



0570-000-501

● 携帯電話、またはナビダイヤルがご利用いただけない場合

電話：04-2901-1033 / FAX：04-2901-1036

受付時間は、9:30～17:00です。(土・日・祝日・弊社指定休日を除く)

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Printed in China

0718.MA-????A

保証書

品名 および 形名	Model 24	
機番		
保証期間	本体	1年

お買い上げ日	年	月	日
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販売店	
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ティアック修理センター

〒358-0026 埼玉県入間市小谷田858

電話：0570-000-501 / 04-2901-1033

FCC Caution:

This device complies with part 15 of the FCC Rules. 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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

IC Caution:

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

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.

L'appareil a été évalué pour répondre aux exigences générales d'exposition RF. L'appareil peut être utilisé dans des conditions d'exposition portables sans restriction.