## Usage and safety precautions

### SAFETY PRECAUTIONS

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

- **Warning**: Something that could cause serious injury or death.
- **Caution**: Something that could cause injury or damage to the equipment.

### Product handling

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

### Operating environment

- **Do not use** in extremely high or low temperatures.
- **Do not use** near heaters, stoves and other heat sources.
- **Do not use** in very high humidity or near splashing water.
- **Do not use** in places with excessive vibrations.
- **Do not use** in places with excessive dust or sand.

### AC adapter handling

- When disconnecting the AC adapter from an outlet, always pull the body of the adapter itself.
- During lightning storms or when not using the unit for a long time, disconnect the power plug from the AC outlet.

### Battery handling

- Install the batteries with the correct +/- orientation.
- Use a specified battery type. Do not mix new and old batteries or different brands or types at the same time. When not using the unit for an extended period of time, remove the batteries from the unit.
- If a battery leak should occur, wipe the battery compartment and the battery terminals carefully to remove all battery residue.

### Connecting cables with input and output jacks

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

### Volume

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

### Usage Precautions

#### Interference with other electrical equipment

In consideration of safety, the **H2n** has been designed to minimize the emission of electromagnetic radiation from the device and to minimize external electromagnetic interference. However, equipment that is very susceptible to interference or that emits powerful electromagnetic waves could result in interference if placed nearby. If this occurs, place the **H2n** and the other device farther apart. With any type of electronic device that uses digital control, including the **H2n**, electromagnetic interference could cause malfunction, corrupt or destroy data and result in other unexpected trouble. Always use caution.

#### Cleaning

Use a soft cloth to clean the panels of the unit if they become dirty. Never use abrasive cleansers, wax or solvents, including alcohol, benzene and paint thinner.

#### Malfunction

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

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Introduction

Thank you very much for purchasing a ZOOM H2n Handy Recorder.

The features of the H2n include the following.

• **Four-channel recording captures sound in 360°**
The built-in microphones are divided into mid-side (MS) mics on the rear side and XY mics on the front side. This independent placement allows you to record sound coming from every direction. This unrestricted range means you can record diverse sound sources in all kinds of conditions.

• **New microphone array allows control of stereo width**
The MS mic includes a directional mid mic that covers the front and a bidirectional side mic that covers both sides. By controlling the amount of side mic signal, you can freely adjust the stereo width of recordings.

• **Stereo recording is clear and three-dimensional**
Using the XY mic, you can record three-dimensional stereo recordings that faithfully capture a sense of depth.

• **Uninterrupted long recordings possible at high-quality**
Recording is possible without interruption for very long times. You can even fill an entire 32GB SDHC card in one session!

• **Runs for a long time on standard batteries**
You can record for up to 20 hours (44.1kHz/16bit WAV format) with one set of alkaline batteries. So, even in situations where you must rely on batteries, you can keep recording without worrying about the time.

• **Use as an SD card reader and computer audio interface**
The built-in USB 2.0 high-speed port allows direct connection with a computer. Use the recorder as an SD card reader with a computer to transfer recordings to your computer for use in DAW software or to burn them to CDs. You can even use the recorder as a computer audio interface at USB 1.0 speed.

• **Tuner, metronome and other practice features**
In addition to standard chromatic tuning, the tuner also supports seven-string guitar, five-string bass and alternate tunings. The convenient metronome can even provide a count in and the speed and pitch of playback can be adjusted, making it a useful practice companion.

Please read this manual carefully to fully understand the H2n so that you can maximize your use of its features. After reading the manual once, please keep it with the warranty in a safe place.
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Package contents
Please confirm that the package contains the following items.

- H2n Handy Recorder
- 2 AA batteries (for the testing the unit)
- SD card (2GB)
- Operation manual (this document)
- WaveLab LE Download access code sheet

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**Left side**
- MS stereo mic
- LINE IN jack for mic/line input (can provide plug-in power)
- Volume control
- Remote control jack (Remote control sold separately)
- Headphones /LINE OUT jack
- USB port
- Record button
- XY stereo mic

**Front**
- Record button
- Recording indicator
- Speaker
- MENU button

**Right side**
- PLAY control
  - Press to play/pause (in menu, set item)
  - Shift up/down to search forward/backward (in menu, select item)
- MIC GAIN dial
  - Adjusts mic input gain
- Power \( \ominus \) /HOLD switch

**Top**
- MS mic indicator
  - Lights when the MS mic (rear) is ON.
  - Flashes when the input signal is distorting.
- XY mic indicator
  - Lights when the XY mic (front) is ON.
  - Flashes when the input signal is distorting.
- Battery compartment cover
- SD card slot cover

**Bottom**
- Strap attachment (Use to prevent dropping)
- Tripod mounting socket
Display

**Home (recording) screen**
- **Recording mode**: (File name shown during recording)
- **Recording time**
- **LINE IN jack in use indicator**
- **Recording format**: (WAV example) (MP3 example)
- **Recording level**
- **LO CUT indicator**
- **MS mic recording level**
- **XY mic recording level**
- **Remaining recordable time**
- **Side level adjustment**
- **Remaining battery level indicator**
- **Clipping indicator**
- **AUTO GAIN/AUTO REC indicator**

**Playback screen**
- **Playback time**
- **File name**
- **Playback speed**
- **Key control**
- **Side mic level**
- **Remaining battery level indicator**
- **AB repeat**
- **Mixer**
- **Playback level**
- **COMP/LIMITER indicator**
- **XY mic recording level**
- **MS mic recording level**
- **LO CUT indicator**
**Preparation**

**Powering the recorder**

**Using batteries**

1. Turn the power OFF, and then remove the battery cover.

2. Insert batteries.

3. Close the cover.

**NOTE**

- Use alkaline or nickel-metal hydride batteries.
- If the “Low battery!” warning appears, turn the power OFF soon and put in new batteries.
- Set the type of battery used. (→ P.18)

**Using an AC adapter (sold separately)**

1. Connect the cable to the USB port.

2. Plug the adapter into a power outlet.

**Installing an SD card**

1. After turning the power OFF, open the SD card slot cover.

2. Insert the card into the slot.

   To remove a card, push it further into the slot and then pull it out.

**NOTE**

- Always turn the power OFF before inserting or removing an SD card. Doing so when the power is ON could cause data to be lost.
- Be sure to insert the SD card correctly, using the cut-off corner illustration next to the slot as a guide.
- The built-in memory will be used if no SD card is in the recorder.
- Format the SD card if necessary. (→ P.83)

**HINT**

**Built-in memory**

- The built-in memory only keeps the most recent recording.
- The recording format is fixed at 96kbps MP3.
- It cannot be used to record in 4ch surround or MS-RAW modes.
- Recordings saved to the built-in memory cannot be copied to an SD card or a computer.
Turning the power ON and OFF

**Turning the power ON**

- Slide down.

**NOTE**

- If “No SD card!” appears, confirm that an SD card is correctly inserted into the recorder.
- If “Card Protected” appears, SD card write protection is ON. Turn write protection OFF by sliding the “Lock” switch on the card.
- If “Invalid card” appears, the card format is incorrect. Use a different card or format the card. (→ P.83)

**Turning the power OFF**

- Slide down and hold it until “Goodbye see you!” appears on the screen.

**Using the hold function**

In order to prevent accidental operation during recording, the H2n Handy Recorder has a hold function that disables the use of controls other than the MIC GAIN.

**Enabling the hold function**

- Slide up to the HOLD position.

**NOTE**

Even when the hold function is on, the remote control (sold separately) can still be used.

**Disabling the hold function**

- Slide back to the middle.
Connecting an external mic

1. Connect an external mic (sold separately) to the H2n LINE IN jack.

**NOTE**
- An external mic can be used instead of the XY stereo mic.
- An external mic cannot be used with MS Stereo mode.

Using plug-in power

Make the following setting before connecting a mic that requires plug-in power.

1. Press \( \text{MENU} \).
2. Use \( \text{INPUT SETTING} \) to select INPUT, and then press \( \text{MENU} \).
3. Use \( \text{INPUT SETTING} \) to select PLUG-IN POWER, and then press \( \text{MENU} \).
4. Use \( \text{INPUT SETTING} \) to select ON, and then press \( \text{MENU} \).

Setting the date and time

The date and time is added to recording files automatically, so set it correctly whenever the batteries are replaced.

1. Press \( \text{MENU} \).
2. Use \( \text{MENU} \) to select SYSTEM, and then press \( \text{MENU} \).
3. Use \( \text{MENU} \) to select DATE/TIME, and then press \( \text{MENU} \).
4. Adjust the settings.
   - Use \( \text{MENU} \) to move the cursor
   - Press \( \text{MENU} \) to select the item
   - Use \( \text{MENU} \) to change the value
   - Press \( \text{MENU} \) to confirm the setting
5. Use \( \text{MENU} \) to select OK, and then press \( \text{MENU} \).
Setting the battery type

Set the battery type in order to show the remaining battery charge accurately.

1. Press \[\text{SET} \].

2. Use \[\text{SEL} \] to select SYSTEM, and then press \[\text{SET} \].

3. Use \[\text{SEL} \] to select BATTERY TYPE, and then press \[\text{SET} \].

4. Use \[\text{SEL} \] to select the battery type, and then press \[\text{SET} \].
Recording mode overview

The H2n has four recording modes that can be selected according to your purposes.

**Mid-side (MS) stereo mode**

This mode uses a mid mic to capture the sound directly ahead and a bidirectional side mic to capture sound from left and right. The recording level of the side mic (S level) can be adjusted, allowing the stereo width to be changed. If you record with the S level set to MS-RAW, you can also adjust the S level after recording.

MS mics can capture a rich stereo image, so it is ideal for recording sounds in wide and open conditions, including orchestras, live concerts and soundscapes.

**XY stereo mode**

This mode records in stereo with mics at 90° angles. This allows a natural, deep and accurate sound image to be captured, making it optimal for recording sources nearby, including solo performances, chamber music, interviews, live rehearsals and field recordings.

**2ch and 4ch surround modes**

Sound can be captured in all directions using both MS and XY mics. You can select 2ch, which mixes the signals from the MS and XY mics, or 4ch, which records the signals from the MS and XY mics separately.

With 4ch surround, you can adjust the balance between the MS and XY signals after recording. The S level can be adjusted for both 2ch and 4ch recordings.

These modes are suitable for recording live rehearsals, studio sessions, business meetings and soundscapes, for example.
Selecting the recording mode

1. Turn so that the triangle points to the desired mode.

**NOTE**
- The 4ch surround mode can only be used when an SD card is in the unit.
- In 4ch surround mode, only WAV formats (44.1/48kHz, 16/24bit) can be used.
- In 4ch surround mode, two stereo files are created (MS mic recording and XY mic recording).

2. Make settings for the recording mode.

**Adjusting the S level (MS stereo, 2ch/4ch surround modes)**

You can adjust the stereo width (S level) before recording.

- Use to adjust the stereo width.

<table>
<thead>
<tr>
<th>Wide</th>
<th>The graphic changes along with the value</th>
<th>Narrow</th>
</tr>
</thead>
</table>

**NOTE**
Set to OFF, RAW or between -24 and +6 dB.

Using MS-RAW mode (WAV format only)

If you want to adjust the stereo width after recording, record using MS-RAW mode.

- Hold down until RAW appears.

Selecting where recordings are saved

1. Press .

2. Use to select FOLDER, and then press .

3. Use to select the folder where you want to save files, and then press .

**NOTE**
Select from among 10 folders. There are separate sets of folders for stereo and 4ch recordings.
Recording manually

1. Turn ▼ to adjust the input level.

2. Press ◀ to start recording.

3. Press ▶ to add a mark.

4. Press ▶ to stop recording.

HINT
- Adjust the MIC GAIN so that the peak level stays around -12 dB.
- If an input signal is too strong, the MS/XY indicator on the top will flash immediately.
- The recorder can also adjust mic gain automatically. (→ P.70)
- You can change the recording format beforehand. (→ P.72)
- The mic can also be set to cut wind and other unwanted noise. (→ P.66)

NOTE
- One file can have a maximum of 99 marks.
- The mic can also be set to pause immediately after adding a mark. (→ P.77)
- During recording, if the size of the file exceeds 2 GB, recording will continue in a new file that will be created automatically.
Recording automatically

The mic can be set to start and stop recording automatically in response to changes in the input level.

1. Press \( 	ext{REC} \).

2. Use \( 	ext{REC} \) to select REC, and then press \( 	ext{REC} \).

3. Use \( 	ext{REC} \) to select AUTO REC, and then press \( 	ext{REC} \).

4. Use \( 	ext{REC} \) to select ON/OFF, and then press \( 	ext{REC} \).

5. Use \( 	ext{REC} \) to select ON, and then press \( 	ext{REC} \).

6. After the home screen reopens, press \( 	ext{REC} \) to put the recorder in standby.

   Recording will start automatically when the input signal exceeds the REC START LEVEL.
   Recording will stop automatically when the input signal becomes less than the REC STOP LEVEL.

7. Press \( 	ext{REC} \) to end recording standby and stop recording.

   **NOTE**
   Automatic recording can only be used with an SD card.

   **NOTE**
   Other settings can also be made for automatic recording. (→ P.74)
Pre-recording

When pre-recording is on, this recorder can continuously capture two seconds of sound before recording is started manually. When \( \text{REC} \) is pressed, these two seconds are included at the beginning of the recording. This is useful when, for example, performances start suddenly.

1. Press \( \text{REC} \).
2. Use \( \uparrow \) to select REC, and then press \( \text{REC} \).
3. Use \( \uparrow \) to select PRE REC, and then press \( \text{PRE REC} \).
4. Use \( \uparrow \) to select ON, and then press \( \text{ON} \).
5. Press \( \text{REC} \) after returning to the home screen to start recording.

NOTE
- PRE REC cannot be used at the same time as the metronome PRE COUNT function.
- Pre-recording can only be used with an SD card.

Counting in before recording

The built-in metronome can play a count-in sound before recording starts. This pre-count sound is output through the \( \bullet \) / LINE OUT jack.

1. Press \( \text{REC} \).
2. Use \( \uparrow \) to select TOOL, and then press \( \text{TOOL} \).
3. Use \( \uparrow \) to select METRONOME, and then press \( \text{METRONOME} \).
4. Use \( \uparrow \) to select PRE COUNT, and then press \( \text{PRE COUNT} \).
5. Use \( \uparrow \) to select the pre-count number, and then press \( \text{PRE COUNT} \).
6. Press \( \text{REC} \) after returning to the home screen to start pre-count and recording.

NOTE
- PRE COUNT cannot be used at the same time as PRE REC.
Playing back recordings

You can play files in the current folder. Change the folder to play files in a different folder.

1. Press \( \rightarrow \).

   - Use \( \rightarrow \) to jump between marks and files
   - Hold \( \rightarrow \) to search forward or backward
   - Press \( \rightarrow \) to pause and restart playback
   - Use \( \rightarrow \) to adjust the volume

   **HINT**

   The longer you hold the PLAY control the faster it will search in that direction.

2. Press and hold \( \circ \) to return to the home screen.
Selecting the file to playback from a list

You can select a file in the current folder for playback. Change the folder to select files from a different folder.

1. When the playback screen is open, press \( \text{③} \).

2. Use \( \text{①} \) to select FILE LIST, and then press \( \text{②} \).

3. Use \( \text{①} \) to select a file, and then press \( \text{②} \) to start playback of that file.

**NOTE**
After a file plays once, playback will stop or continue according to the PLAY MODE setting.

4. Press and hold \( \text{③} \) to return to the home screen.

Changing the playback speed

You can change the playback speed to between 50% and 150% of normal speed.

1. When the playback screen is open, press \( \text{③} \).

2. Use \( \text{①} \) to select SPEED, and then press \( \text{②} \).

3. Use \( \text{①} \) to set the playback speed, and then press \( \text{②} \).

Files will be played at the set speed.

**NOTE**
The set value will be saved even when the power is turned OFF.
Loop playback of a set interval (AB REPEAT)

You can loop playback between two set points. Select the file that you want to play back first.

1. When the playback screen is open, press .

2. Use to select AB REPEAT, and then press .

3. Press at the point you want to start playback.

   **NOTE**
   
   Use to search for the starting point quickly.

4. Press at the point you want to stop playback.
   
   Loop playback between the points will start.

5. Press to stop loop playback.

6. Use to select STOP REPEAT, and then press .

7. Press .

**NOTE**

- Use to search for the stopping point quickly.
- If you set the stopping point before the starting point, they will be automatically swapped.
Changing the play mode

1. When the playback screen is open, press \( \text{MODE} \).

2. Use \( \text{UP/DOWN} \) to select PLAY MODE, and then press \( \text{SET} \).

3. Use \( \text{UP/DOWN} \) to set the mode, and then press \( \text{SET} \).

   **NOTE**
   - PLAY ALL: Play all the files in the current folder once.
   - PLAY ONE: Play the current file once.
   - REPEAT ONE: Play the current file repeatedly.
   - REPEAT ALL: Play all the files in the current folder repeatedly.

4. Press \( \text{SET} \) to start playback in the selected mode.
Adjusting the playback pitch (KEY CONTROL)

You can change the pitch without changing the playback speed.

1. When the playback screen is open, press \( \text{L} \) .

2. Use \( \text{L} \) to select KEY CONTROL, and then press \( \text{R} \) .

3. Use \( \text{L} \) to adjust the playback pitch, and then press \( \text{R} \) to start playback at the adjusted pitch.

NOTE
- The pitch can be adjusted by ±6 semitones.
- The set value will be saved even when the power is turned OFF.
- KEY CONTROL cannot be used with 96kHz WAV files.

Changing the S level  

The S level (stereo width) of files recorded using MS-RAW mode can be changed. Select a file that has been recorded in MS-RAW mode first.

1. When the playback screen is open, press \( \text{L} \) .

2. Use \( \text{L} \) to select MS SIDE MIC LEVEL, and then press \( \text{R} \) .

3. Use \( \text{L} \) to adjust the S level, and then press \( \text{R} \) .

4. Press \( \text{L} \) to start playback with the adjusted S level.

NOTE
Set to OFF or between −24 and +6 dB.
## Mixing a 4ch surround file

You can adjust the levels and panning of the MS and XY recordings made for 4ch surround files.

1. Set the recorder to 4ch surround mode, select the file you want to mix, and then press ` additive`.

2. Press ` additive`.

3. Use ` additive` to select SURROUND MIXER, and then press ` additive`.

4. Change the values of the parameters.
   - Use ` subtractive` to move the cursor and change values
   - Push ` additive` to select a parameter to change

### Parameter setting ranges

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting ranges</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS LEVEL</td>
<td>MUTE, -48 – +12 dB</td>
<td>Adjusts volume</td>
</tr>
<tr>
<td>XY LEVEL</td>
<td>(0.5 dB increments)</td>
<td></td>
</tr>
<tr>
<td>MS PAN</td>
<td>L100 – CENTER – R100</td>
<td>Adjusts left-right balance</td>
</tr>
<tr>
<td>XY PAN</td>
<td>(even values only)</td>
<td></td>
</tr>
</tbody>
</table>

5. Press ` additive` to turn the mixer ON or OFF.

**NOTE**

The mixer setting is only applied to playback. It does not change the recordings.

6. Press ` additive` twice to return to the playback screen.
Checking file information

You can check various types of information about the current file.

1. Press $.

2. Use $ to select FILE, and then press $.

3. Select the file that you want to check, and then press $.

4. Use $ to select INFORMATION, and then press $ to show information about the file.
   Use $ to scroll through the screen to see additional information.

Checking track marks

WAV files only

You can view a list of the marks in a WAV file.

1. Press $.

2. Use $ to select FILE, and then press $.

3. Select the file that you want to check, and then press $.

4. Use $ to select MARK LIST, and then press $ to open the mark list.

Shows an added mark

This mark appears when skipping occurred during recording.
Changing file names

Stereo files only

1. Press \( \text{MENU} \).

2. Use \( \uparrow \) \( \downarrow \) to select FILE, and then press \( \text{INPUT} \).

3. Use \( \uparrow \) \( \downarrow \) to select the file name that you want to change, and then press \( \text{FOLDER} \).

4. Use \( \uparrow \) \( \downarrow \) to select RENAME, and then press \( \text{FILE} \).

5. Edit the name.

6. Use \( \uparrow \) \( \downarrow \) to select OK, and then press \( \text{FILE} \).

NOTE
- The following characters can be used in file names:
  - Q B D F
  - h
  - ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < > ? @ |
  - BCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
- A file name cannot be only spaces.
- If a file with the same name already exists in the same folder, a warning appears and the screen shown in step five automatically reopens.

Use \( \uparrow \) \( \downarrow \) to move the cursor and change characters
Push \( \text{MENU} \) to select a character to change and to confirm a change
Convert WAV files into MP3 files *Stereo files only*

WAV files (other than MS-RAW) that have been recorded in any mode other than 4ch surround can be converted to MP3 files.

1. Press \( \text{}\).

2. Use \( \text{ } \) to select FILE, and then press \( \text{ } \).

3. Use \( \text{ } \) to select the file you want to convert, and then press \( \text{ } \).

4. Use \( \text{ } \) to select MP3 ENCODE, and then press \( \text{ } \).

5. If you want to change the bit rate, use \( \text{ } \) to select BIT RATE, and then press \( \text{ } \).

6. Use \( \text{ } \) to select the bit rate, and then press \( \text{ } \).

7. Use \( \text{ } \) to select EXECUTE, and then press \( \text{ } \) to start encoding.

**NOTE**
- The converted file will be created in the same folder.
- If the SD card lacks open space, the screen shown in step 4 will reopen automatically.
- If a file already exists with the name that will be given to the converted file, the screen at right will appear. Rename the file before conversion.
Normalizing WAV files

If the volume of a recording is lower than desired, you can raise the level of the recording as a whole.

1. Press \( \text{MENU} \).

2. Use \( \text{UP/DOWN} \) to select FILE, and then press \( \text{SELECT/EXECUTE} \).

3. Use \( \text{UP/DOWN} \) to select the file you want to change, and then press \( \text{SELECT/EXECUTE} \).

4. Use \( \text{UP/DOWN} \) to select NORMALIZE, and then press \( \text{SELECT/EXECUTE} \).

5. Use \( \text{UP/DOWN} \) to select YES, and then press \( \text{SELECT/EXECUTE} \) to start normalization.

NOTE
Normalization increases the overall level of the recording so that the maximum level in the file is 0 dB.
Dividing files  

Stereo files only

You can divide a file into two at any point.

1. Press \( \text{MENU} \).

2. Use \( \text{FILE} \) to select FILE, and then press \( \text{EDIT} \).

3. Use \( \text{FILE} \) to select the file you want to divide, and then press \( \text{EDIT} \).

4. Use \( \text{FILE} \) to select DIVIDE, and then press \( \text{EDIT} \).

5. Set the dividing point.
   
   Use \( \text{FILE} \) to move the point
   
   Press \( \text{PLAY} \) to play and pause the file
   
   Press \( \text{DIVIDE} \) to confirm the dividing point

   **HINT**
   
   The longer you hold the PLAY control the faster it will search in that direction.

6. Use \( \text{FILE} \) to select YES, and then press \( \text{EDIT} \).

   **NOTE**
   
   - If a file already exists with the name that will be given to a divided file, rename the file before dividing.
   - When a file is divided, “A” will be added to the end of the name of the file made from the part before the dividing point, and “B” will be added to the end of the name of the file made from the part after the dividing point.
   - The original file is deleted.
Deleting files

You can delete unwanted files.

1. Press <button>.

2. Use <button> to select FILE, and then press <button>.

3. Use <button> to select the file you want to delete, and then press <button>.

4. Use <button> to select DELETE, and then press <button>.

5. Use <button> to select YES, and then press <button>.

Deleting all files in a folder

You can delete all the files in the current folder at once.

1. Press <button>.

2. Use <button> to select FILE, and then press <button>.

3. Use <button> to select one file you want to delete, and then press <button>.

4. Use <button> to select DELETE ALL, and then press <button>.

5. Use <button> to select YES, and then press <button>. 
Converting MS-RAW files into stereo files

You can convert an MS-RAW file into a stereo file. S level (stereo width) adjustments will affect stereo files.

1. Press \( \text{PLAY} \).

2. Use \( \text{SEL} \) to select FILE, and then press \( \text{SET} \).

3. Use \( \text{SEL} \) to select the file you want to change, and then press \( \text{SET} \).

4. Use \( \text{SEL} \) to select MS-RAW TO STEREO, and then press \( \text{SET} \).

5. If you want to adjust the S level, use \( \text{SEL} \) to select MS SIDE MIC LEVEL, and then press \( \text{SET} \).

6. Use \( \text{SEL} \) to adjust the S level, and then press \( \text{SET} \).

7. Use \( \text{SEL} \) to select EXECUTE, and then press \( \text{SET} \) to start conversion.

- If a file already exists with the name that will be given to the converted file, you will have a chance to change the name to be given to the converted file.
- When a file is converted, the S level value will be added to the end of the name of the file.
- The original file is not deleted.

NOTE

Set to OFF or between \(-24\) and \(+6\) dB.
Converting 4ch surround files into stereo files

1. Press £.

2. Use ‹› to select FILE, and then press ▶.

3. Use ‹› to select the file you want to change, and then press ▶.

4. Use ‹› to select STEREO ENCODE, and then press ▶.

5. Use ‹› to select MIXER, and then press ▶.

6. Use ‹› to select ENABLE or DISABLE, and then press ▶.

   NOTE
   For an explanation about how to mix, see P40.

7. Use ‹› to select STORE IN, and then press ▶.

8. Use ‹› to select the folder where you want to save the file, and then press ▶.

9. Use ‹› to select EXECUTE, and then press ▶ to start conversion.

   NOTE
   - If a file already exists with the name that will be given to the converted file, you will be given a chance to change the name to be given to the converted file.
   - When a file is converted, “MIX” will be added to the end of the name of the file.
   - The original file is not deleted.
Using USB

Exchanging files with a computer (Card reader)

You can connect the recorder to a computer to check and copy data on the SD card.

1. After turning the power on, connect the H2n to a computer by a USB cable.

2. Press \[ \boxed{\text{\textbullet}} \].

3. Use \[ \boxed{\text{\textbullet}} \] to select USB, and then press \[ \boxed{\text{\textbullet}} \].

4. Use \[ \boxed{\text{\textbullet}} \] to select SD CARD READER, and then press \[ \boxed{\text{\textbullet}} \].

   The SD card will appear on the computer as a connected drive where you can check the files on it.

5. Unmount the card from the computer before disconnecting the recorder.

   Windows: Use “ Safely Remove Hardware” to select the H2n
   Mac: Drag and drop the H2n icon into the Trash

   NOTE
   Always follow the proper procedures on your computer to unmount the H2n SD card before disconnecting the USB cable.

6. Disconnect the cable from the computer and the H2n, and then press \[ \boxed{\text{\textbullet}} \].
Audio interface use

You can record the signal from the H2n directly to a computer, and output the playback signal from a computer through the H2n.

1. Follow steps 1–3 in “Exchanging files with a computer” on P.58.

2. Use [ ] to select AUDIO I/F, and then press [ ].

3. Use [ ] to select SAMPLING FREQUENCY, and then press [ ].

4. Use [ ] to select the sampling frequency, and then press [ ].

5. Use [ ] to select CONNECT, and then press [ ].

6. To disconnect the recorder, press [ ], use [ ] to select DISCONNECT, and then press [ ].

7. Use [ ] to select YES, and then press [ ].

8. Disconnect the cable from the computer and the H2n.

NOTE
- For information about the menu items that can be used see the following.
  - LO CUT (+F66)  PLUG-IN POWER (+F16)  AUTO GAIN (+F70)
  - COMP/LIMITER (+F68)  MONITOR (+F67)  DISCONNECT
  - MS-RAW MONITOR (+F71)  TUNER (+F62)  INPUT
- If you want to send signals from the recorder to the computer, set INPUT to ON in the USB AUDIO MENU.

NOTE
Make sure that the sampling frequency settings are the same for both the H2n and the software you are using.
Using the tuner

The built-in tuner can help you tune instruments by detecting the pitches of input signals.

1. Press \( \text{Tuner} \).

2. Use \( \text{Tuner} \) to select TOOL, and then press \( \text{Tuner} \).

3. Use \( \text{Tuner} \) to select TUNER, and then press \( \text{Tuner} \).

4. If you want to change the standard pitch, use \( \text{Tuner} \) to select CALIBRATION, and then press \( \text{Tuner} \).

5. Use \( \text{Tuner} \) to select the pitch you want to use, and then press \( \text{Tuner} \).

6. Use \( \text{Tuner} \) to select the tuner type, and then press \( \text{Tuner} \).

7. Tune the instrument.

The available tuner types work as follows.

- Using the chromatic tuner
  The input pitch is automatically detected and the nearest pitch is shown along with the amount of discrepancy.
  The correct pitch is indicated by the middle circle.

- Using the guitar and bass tuners
  The input pitch is automatically detected and the nearest string and pitch are shown along with the amount of discrepancy.
  The correct pitch is indicated by the middle circle.

### Tuner type

<table>
<thead>
<tr>
<th>String number/pitch</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUITAR</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td>BASS</td>
<td>G</td>
<td>D</td>
</tr>
<tr>
<td>OPEN A</td>
<td>E</td>
<td>C#</td>
</tr>
<tr>
<td>OPEN D</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>OPEN E</td>
<td>E</td>
<td>B</td>
</tr>
<tr>
<td>DADGAD</td>
<td>D</td>
<td>A</td>
</tr>
</tbody>
</table>
Using the metronome

You can use the metronome to count in before recording and to provide a guide tempo.

1. Press \[ \text{F1} \].

2. Use \[ \uparrow \downarrow \] to select TOOL, and then press \[ \text{F2} \].

3. Use \[ \uparrow \downarrow \] to select METRONOME, and then press \[ \text{F2} \].

4. Use \[ \uparrow \downarrow \] to select the desired menu item, and then press \[ \text{F2} \].

- **Setting the CLICK**
  Use \[ \uparrow \downarrow \] to select when the click should sound, and then press \[ \text{F2} \].

- **Setting the TEMPO**
  Use \[ \uparrow \downarrow \] to adjust the metronome tempo (BPM), and then press \[ \text{F2} \].

- **Setting the SOUND**
  Use \[ \uparrow \downarrow \] to select the metronome sound, and then press \[ \text{F2} \].

- **Setting the PATTERN**
  Use \[ \uparrow \downarrow \] to select the metronome pattern, and then press \[ \text{F2} \].

- **Setting the LEVEL**
  Use \[ \uparrow \downarrow \] to adjust the metronome volume, and then press \[ \text{F2} \].

- **Setting the PRE COUNT** (→P.29)
Reducing noise (LO CUT)

The recorder can be set to reduce the sound of wind, vocal pops and other noise.

1. Press \( \text{MENU} \).

2. Use \( \text{INPUT} \) to select INPUT, and then press \( \text{LO CUT} \).

3. Use \( \text{INPUT} \) to select LO CUT, and then press \( \text{ON} \).

4. Use \( \text{INPUT} \) to select ON, and then press \( \text{OK} \).

Monitoring the input signal

You can listen to the input signal level through headphones.

1. Press \( \text{OK} \).

2. Use \( \text{INPUT} \) to select INPUT, and then press \( \text{OK} \).

3. Use \( \text{INPUT} \) to select MONITOR, and then press \( \text{OK} \).

4. Use \( \text{INPUT} \) to select when monitoring is enabled, and then press \( \text{OK} \).

<table>
<thead>
<tr>
<th>Setting</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOME AND REC</td>
<td>Monitoring enabled when home screen open and when recording</td>
</tr>
<tr>
<td>ALWAYS ON</td>
<td>Monitoring always enabled</td>
</tr>
<tr>
<td>ALWAYS OFF</td>
<td>Monitoring disabled</td>
</tr>
</tbody>
</table>
Compressing/limiting the input signal

The recorder can be set to automatically increase the level of input signals that are too weak and decrease the level of input signals that are too strong for each input.

1. Press \( \text{REC} \).

2. Use \( \uparrow \) to select INPUT, and then press \( \rightarrow \).

3. Use \( \uparrow \) to select COMP/LIMITER, and then press \( \rightarrow \).

4. Use \( \uparrow \) to select the setting you want to use, and then press \( \rightarrow \).

### Setting & Explanation

<table>
<thead>
<tr>
<th>Setting</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Compressor/limiter disabled</td>
</tr>
<tr>
<td>COMP1(GENERAL)</td>
<td>Standard compressor</td>
</tr>
<tr>
<td>COMP2(VOCAL)</td>
<td>Compressor for vocals</td>
</tr>
<tr>
<td>COMP3(DRUM)</td>
<td>Compressor for drums and percussion</td>
</tr>
<tr>
<td>LIMIT1(GENERAL)</td>
<td>Standard limiter</td>
</tr>
<tr>
<td>LIMIT2(CONCERT)</td>
<td>Limiter for live performances</td>
</tr>
<tr>
<td>LIMIT3(STUDIO)</td>
<td>Limiter for studio recording</td>
</tr>
</tbody>
</table>

**NOTE**

This cannot be used at the same time as the AUTO GAIN function.
**Automatically adjusting the input gain**

The recorder can automatically adjust the amount of gain used on signals input through the built-in microphones and the LINE IN input in order to avoid distortion.

1. Press [REC].

2. Use [INPUT] to select INPUT, and then press [AUTO GAIN].

3. Use [INPUT] to select AUTO GAIN, and then press [AUTO GAIN].

4. Use [INPUT] to select the setting you want to use, and then press [AUTO GAIN].

<table>
<thead>
<tr>
<th>Setting</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>AUTO GAIN disabled</td>
</tr>
<tr>
<td>CONCERT</td>
<td>For concerts and other loud sound sources</td>
</tr>
<tr>
<td>SOLO</td>
<td>For acoustic guitars and other solo performances</td>
</tr>
<tr>
<td>MEETING</td>
<td>For meetings and other quiet sound sources</td>
</tr>
</tbody>
</table>

**NOTE**

- When AUTO GAIN is ON, the MIC GAIN dial setting has no effect.
- This cannot be used at the same time as the automatic recording function.

---

**Monitoring MS-RAW signals**

When recording in MS-RAW mode, you can monitor the MID input signal on the left output channel and the SIDE input signal on the right output channel.

1. Press [REC].

2. Use [INPUT] to select INPUT, and then press [INPUT].

3. Use [INPUT] to select MS-RAW MONITOR, and then press [INPUT].

4. Use [RAW] to select RAW, and then press [RAW].

**NOTE**

If you want to monitor an ordinary stereo mix of the signals, select STEREO.
Setting the recording format

You can set the recording format according to your sound quality and file size needs.

1. Press \[ \text{MAN} \].
2. Use \[ \downarrow \] to select REC, and then press \[ \right \].
3. Use \[ \uparrow, \downarrow \] to select REC FORMAT, and then press \[ \right \].
4. Use \[ \uparrow, \downarrow \] to select the recording format, and then press \[ \right \].

**NOTE**
- Use WAV formats for higher audio quality.
- Use MP3 formats, which are compressed and have much smaller file sizes, to save space on the SD card. Beware, however, that MP3 compression reduces audio quality.
Changing automatic recording settings

You can change settings related to the input level threshold that causes recording to start and stop automatically, as well as the amount of delay before automatic stopping.

1. Press \( \text{REC} \).
2. Use \( \uparrow \) to select REC, and then press \( \text{REC} \).
3. Use \( \uparrow \) to select AUTO REC, and then press \( \text{REC} \).
4. If you want to adjust the recording start threshold, use \( \uparrow \) to select REC START LEVEL, and then press \( \text{REC} \).
5. Use \( \uparrow \) to adjust the recording start threshold, and then press \( \text{REC} \).
6. If you want to set the recording stop threshold, use \( \uparrow \) to select REC STOP LEVEL, and then press \( \text{REC} \).
7. Use \( \uparrow \) to set the recording stop threshold, and then press \( \text{REC} \).
8. If you want to set the delay before recording stops, use \( \uparrow \) to select AUTO STOP, and then press \( \text{REC} \).
9. Use \( \uparrow \) to set the time, and then press \( \text{REC} \).

**NOTE**
The AUTO REC STOP time is the delay until recording stops after the input level drops below the REC STOP LEVEL.
Setting how files are named  

**Stereo files only**

You can change how stereo files are automatically named.

1. Press \[\text{REC}\].

2. Use \[\text{FILE}\] to select REC, and then press \[\text{FILE}\].

3. Use \[\text{FILE}\] to select FILE NAME, and then press \[\text{FILE}\].

4. Use \[\text{FILE}\] to select, and then press \[\text{FILE}\].

**NOTE**
- File names are assigned in the following manner.
  - DEFAULT: ZOOM0001(MS).wav/mp3  
  - ZOOM9999(MS).wav/mp3
  - DATE: YYMMDD-HHMMSS(MS).wav/mp3
- If a file already exists with the same name in the folder, the new file will have a number added to the end of its name. Numbers will be added sequentially in the case of multiple duplicates.

Pausing recording when adding marks  

**WAV format only**

You can set the unit to pause when you add a mark during recording.

1. Press \[\text{REC}\].

2. Use \[\text{FILE}\] to select REC, and then press \[\text{REC}\].

3. Use \[\text{FILE}\] to select PLAY KEY FUNCTION, and then press \[\text{FILE}\].

4. Use \[\text{FILE}\] to select PAUSE AND MARK, and then press \[\text{FILE}\].

**NOTE**
- Marks cannot be added to MP3 files, so this setting has no effect when recording MP3 files.
Changing the display backlight time

You can set the amount of time that the display backlight stays lit.

1. Press \( \text{SET} \).
2. Use \( \uparrow \) to select SYSTEM, and then press \( \text{SET} \).
3. Use \( \uparrow \) to select BACK LIGHT, and then press \( \text{SET} \).
4. Use \( \uparrow \) to select the amount of time, and then press \( \text{SET} \).

<table>
<thead>
<tr>
<th>Setting</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>The backlight stays unlit.</td>
</tr>
<tr>
<td>ON</td>
<td>The backlight stays lit when the unit is on.</td>
</tr>
<tr>
<td>15sec</td>
<td>The backlight stays lit for 15 seconds after the last time that a control (besides MIC GAIN) was used.</td>
</tr>
<tr>
<td>30sec</td>
<td>The backlight stays lit for 30 seconds after the last time that a control (besides MIC GAIN) was used.</td>
</tr>
</tbody>
</table>

Adjusting the display contrast

1. Press \( \text{SET} \).
2. Use \( \uparrow \) to select SYSTEM, and then press \( \text{SET} \).
3. Use \( \uparrow \) to select DISPLAY CONTRAST, and then press \( \text{SET} \).
4. Use \( \uparrow \) to adjust the contrast, and then press \( \text{SET} \).

**NOTE**
- The contrast can be set to a value from 1–8.
- The higher the number, the greater the contrast.
Checking the software versions

1. Press \( \text{EXIT} \).

2. Use \( \uparrow \downarrow \) to select SYSTEM, and then press \( \text{EXIT} \).

3. Use \( \uparrow \downarrow \) to select SOFTWARE VERSION, and then press \( \text{EXIT} \) to show the software versions in use.

   ![System software version](image)

   *System software version:*

   - System: 1.00
   - BGM: 1.00
   - S/W Type: 1.00

   Press \( \text{EXIT} \). 

Restoring the unit to its factory settings

1. Press \( \text{EXIT} \).

2. Use \( \uparrow \downarrow \) to select SYSTEM, and then press \( \text{EXIT} \).

3. Use \( \uparrow \downarrow \) to select FACTORY RESET, and then press \( \text{EXIT} \).

4. Use \( \uparrow \downarrow \) to select YES, and then press \( \text{EXIT} \).

   ![FACTORY RESET](image)

   *FACTORY RESET Are you sure?*

   \( \text{YES} \) \( \text{NO} \) \( \text{CANCEL} \)

**NOTE**

- The date and time, recording mode and input gain settings are not reset by this.
- This also erases any recording in the built-in memory.
Various settings

Checking the open capacity of the SD card

1. Press \text{\textsuperscript{\textregistered}}.
2. Use \uparrow to select SD CARD, and then press \downarrow.
3. Use \uparrow to select REMAIN, and then press \downarrow to show the open space on the card.

Formatting an SD card

You can format an SD card for use with the H2n:

1. Press \text{\textsuperscript{\textregistered}}.
2. Use \uparrow to select SD CARD, and then press \downarrow.
3. Use \uparrow to select FORMAT, and then press \downarrow.
4. Use \uparrow to select YES, and then press \text{\textsuperscript{\textregistered}}.

\textbf{NOTE}
- You must format an SD card after purchase or if it has been formatted by a computer or other device before using it with the H2n.
- Be aware that when you format an SD card, all data saved on it will be erased.
### Updating the system software

You can update the system software used by your H2n to the latest version.

1. Copy the updater file to the root directory of the SD card.

   **NOTE**
   Download the latest system software at the ZOOM website (http://www.zoom.co.jp).

2. With the SD card in the H2n, turn the power ON while pressing and holding [播放 / 播放停止].

3. Use [播放 / 播放停止] to select OK, and then press [确认].

4. After updating completes, turn the power OFF.

   **NOTE**
   You cannot update the system software if the battery charge is low. In such a case, install new batteries or use an AC adapter (sold separately).

### Using SD cards from older H series recorders

This recorder can read SD cards that have been used in older H series recorders and copy their files into folders for use by the H2n.

1. With the SD card inserted, turn the power ON.

2. Use [播放 / 播放停止] to select YES, and then press [确认].

   **NOTE**
   A file must be renamed before moving if another file with the same name already exists in the H2n folder.
Using a remote control

By using a remote control (sold separately) you can operate the H2n from a distance.

- Connect the remote control to the REMOTE jack on the H2n.

The functions of the buttons on the remote are as follows.

Troubleshooting

If you think that the H2n is not operating properly, please check the following first.

Recording/playback trouble

- There is no sound or output is very quiet
  - Check the connections to your monitoring system and its volume setting.
  - Confirm that the volume of the H2n is not too low.

- The recorded sound cannot be heard or is very quiet
  - If you are using built-in mics, confirm that the active mics are oriented correctly and that the recording mode is suitable. (→ P20)
  - Check the MIC GAIN setting. (→ P.24, 70)
  - If you are recording from a CD player or other device connected to the LINE IN jack, raise the output level of the connected device.

- Recording is not possible
  - Confirm that the SD card has open space. (→ P82)
  - If “Hold” appears on the display, the hold function is enabled. Disable the hold function. (→ P15)

Other trouble

- The recorder is not recognized by a computer when connected by USB
  - Check that the OS of the computer is compatible. (→ P58)
  - The H2n operation mode must be selected on the recorder before it will be recognized by a computer. (→ P58)
Specifications

Recording media: 16MB–2GB SD cards, 4GB–32GB SDHC cards
(Cards that can be used with this recorder are to be verified individually)

Built-in memory: Can be used to record up to 1 minute in 96 kbps MP3 format (recording to this memory overwrites any previous recording in it)

Recording
- Mic arrangements: MS stereo with adjustable side mic level
- Modes: MS, XY, MS+XY (stereo) and MS+XY (4ch)

Microphones
- Types: Directional (XY, MS, mid-mics) and Bidirectional (MS side mic)
- Maximum sound pressure input: 120 dB SPL (directional), 122 dB SPL (bidirectional)

File formats
- Uncompressed PCM (16/24bit WAV, 88.2/96kHz)
- Compressed MP3
  - Recording: 44.1kHz, 48/56/64/80/96/112/128/192/224/256/320kbps
  - playback: 44.1/48kHz, 44.1/32kHz, 32/44.1/48kHz
- Uncompressed PCM
  - Stereo: 44.1/48kHz, 16/24bit WAV (BWF)
  - 4ch: Two stereo files for each recording

Digital processing
- A/D conversion: 24-bit 128x oversampling
- D/A conversion: 24-bit 128x oversampling
- Signal processing: 32-bit

Recording time
- 2GB card example:
  - 3:08:00 (44.1kHz/16bit WAV)
  - 34:43:00 (128kbps MP3)

Features
- LO CUT
- COMPLIMITER
- AUTO GAIN
- PRE REC
- AUTO REC
- TUNER
- METRONOME
- SPEED: Playback speed adjustable between 50–150%

Features
- KEY CONTROL: Playback pitch adjustable ±6 semitones (cannot be used with 96kHz files)
- AB REPEAT: Repeats playback between selected points in a file
- FILE DIVIDE: Divides a file into two
- FILE NORMALIZE: Maximizes file volume (cannot be used with MP3s)
- FILE MP3 ENCODE: WAV files can be converted to MP3 formats at fixed bit rates
- MARK: Up to 99 marks can be added as desired when recording WAV files
- SURROUND MIXER: Mix balance can be adjusted when playing back 4ch surround recordings

Display: Graphic LCD (128×64 pixels) with backlight

Input jack: Line/mic stereo mini jack or can supply plug-in power

Output jack: Line/headphone stereo mini jack

Headphones: 20 mW + 20 mW (into 32 kΩ)

Built-in speaker: 40mW, 8Ω, mono

USB: Mini-B type

Card reader operation supported

USB 2.0 High Speed
Audio interface operation

USB 1.0 Full Speed
Supports 44.1/48kHz sampling rates and 16-bit rate

Bus power operation supported

Power: AD-17 USB to AC adapter (DC 5V 1A), operates using two AA batteries

Continuous operation of 20 or more hours when recording 44.1kHz/16bit WAV files using alkaline batteries

Physical features: Tripod mounting socket, strap attachment

Dimensions (mm): 676 (W) × 113.85 (H) × 42.7 (D)
Weight: 130 g (without batteries)

Included accessories: Operation manual, SD card (2GB), 2 AA batteries, WaveLab LE Download access code sheet

* Recording concerts and public performances, for example, without permission from rights holders is prohibited by law.
* Product specifications and appearance might be changed for the purpose of improvement without warning.
* 0 dBm = 0.775 Vrms
FCC regulation warning (for U.S.A.)

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

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

For EU Countries

CE Declaration of Conformity