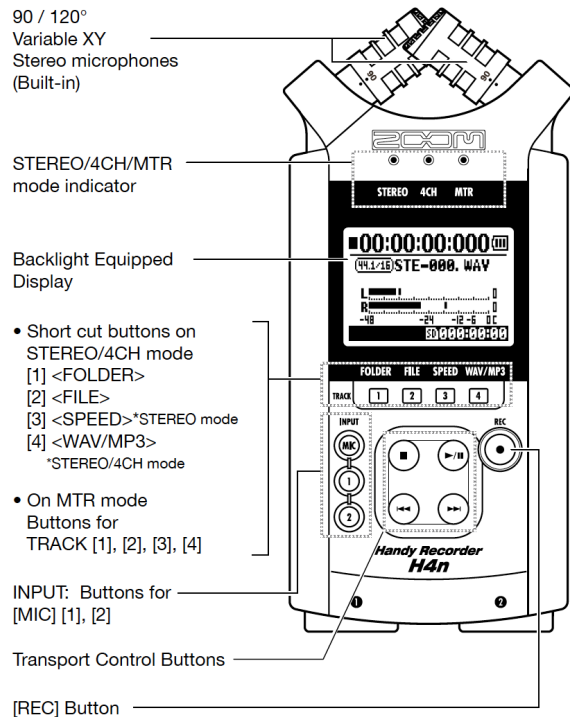# Getting started with the Zoom H4n sound recorder

Thrown together by David Tamés, d.tames@neu.edu (Version 4.2, September 29, 2020)

This handout walks you through using the Zoom H4n recorder for the first time for sound recording using the built-in stereo microphone. It also covers additional steps when using external mics.

Warning: The Zoom is a treacherous sound recorder with a confusing menu structure and indicator system, and as a result, it's easy to do things like record mono when you want stereo (and the recorder stereo light is on!). The steps in this handout are designed to help you actually recording stereo when you want to be recording stereo!

The Zoom H4n Manual (PDF) should be consulted for more details about operation, here we will stick to the basics, which is probably all you will need, however, this handout is not intended as a substitute for the manual, which will help you discover all of the relevant secrets that this recorder hides from you until the magic moment when something goes wrong and you have to figure out how to resolve the problem (e.g. recording mono when you thought you were recording in stereo).

90 / 120°
Variable XY
Stereo microphones
(Built-in)

STEREO/4CH/MTR
mode indicator

Backlight Equipped
Display

- Short cut buttons on
  STEREO/4CH mode
  [1] <FOLDER>
  [2] <FILE>
  [3] <SPEED>*STEREO mode
  [4] <WAV/MP3>
      *STEREO/4CH mode

- On MTR mode
  Buttons for
  TRACK [1], [2], [3], [4]

INPUT: Buttons for
[MIC] [1], [2]

Transport Control Buttons

[REC] Button

Kit inventory

- Zoom H4n sound recorder
- Headphones for monitoring
- Carrying bag for H4n and accessories
- SD card
- AC adapter
- USB cable
- Handle
- Four AA batteries (uses two, always carry spares)
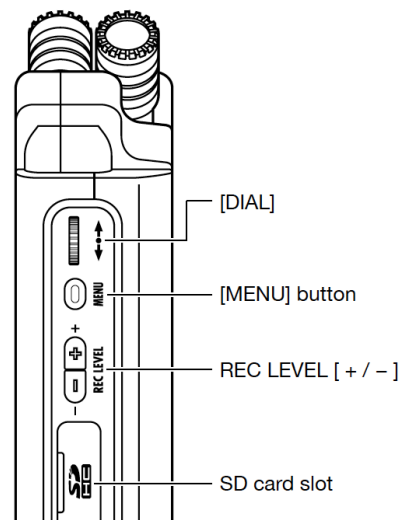

Threaded Tripod mount

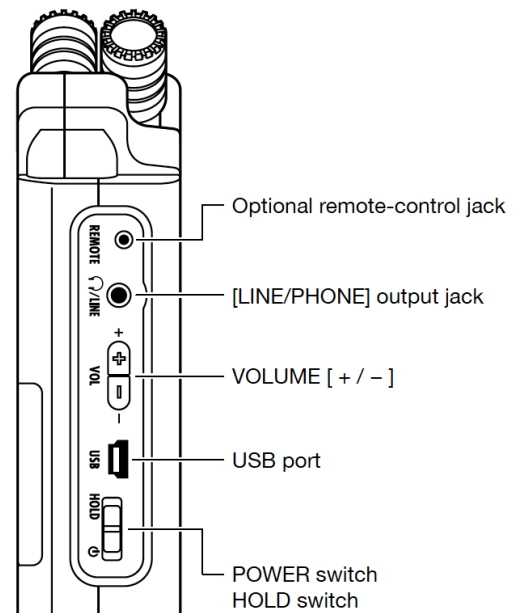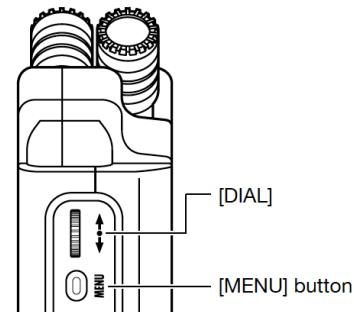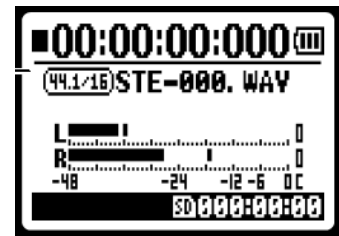Battery cover

STAMINA mode switch
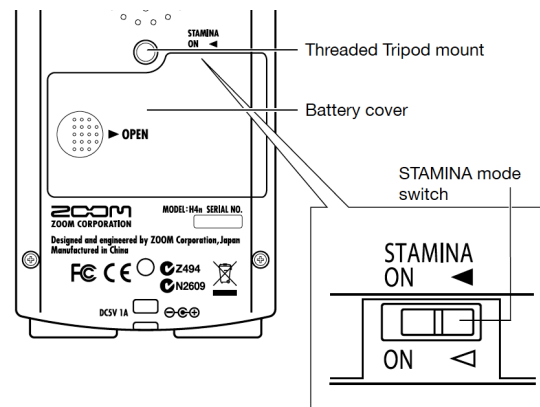
Setup and recording for the first time

1. In the battery compartment, **set the Stamina switch to OFF**. When it's ON the range of configuration options is limited and the menus are different.

2. **Insert two fresh AA batteries** in the battery compartment, the door slides on and off, be careful with the battery door since it's very fragile, if you have a broken door secure it with a piece of gaffer tape (not just any sticky tape)

3. **Insert the SD card** into the SD card slot (on the right side panel), before inserting the card make sure the "write protect" tab is disabled, otherwise you will not be able to format and write to the card.

POWER switch
HOLD switch

4. **Power on the recorder** (switch is located on the left side panel), slide it towards the power icon, do this again when you want to turn off the recorder, holding the switch for a couple of
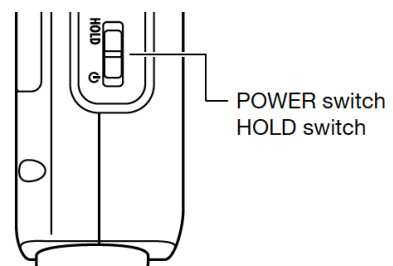
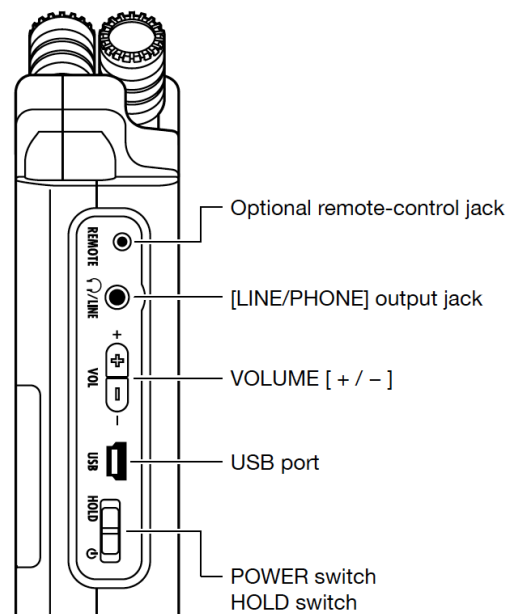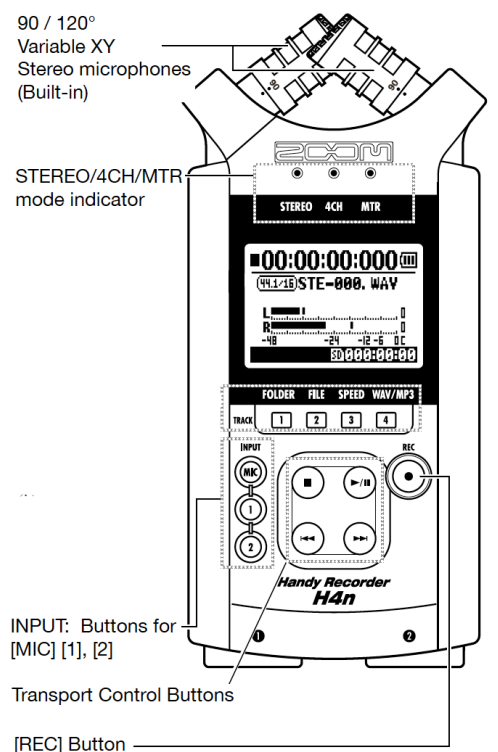seconds, otherwise the recorder will not turn off.

5. **Check the battery level** indicator on the LCD display to make sure you're starting with fresh batteries, if not, you should find an extra pair in the kit (make sure of this when you check out the gear).

6. If the recorder is reporting "No card" try removing and replacing the card. Some of our recorders are flaky in this manner. Repeated removal and insertion should resolve the issue.

7. If the recorder is reporting "Card protected" then the write-protect tab on the card is set to not allow recording, remove the SD card and disable the write-protect tab.

8. Select **MENU => SD CARD => FORMAT** to format the SD card, it will ask if you are sure just in case, this wipes out what was there so you can start with a fresh, empty card. It's a good idea to always format prior to using the recorder so you don't have to deal with other people's recordings on the device and reduce the chance of problems with a corrupt file system.

9. Select **MENU => REC SETTINGS => REC FORMAT** to set the recording format WAV 48KHz 16-bit (WAV file format, 48KHz sampling rate, 16-bit bit-depth, in other words, uncompressed audio that will sound good)

10. Select **MENU => REC SETTINGS => FILE NAME => DEFAULT** for file names with names starting with STE for stereo files and MONO for mono files; since it's easy with this recorder to record in mono by mistake, file names on the LCD called STE provides confirmation you are recording in stereo.

11. Select **MENU => MODE => STEREO** to set the recorder to record in stereo, confirm this with the STEREO light on and file names start with "STE" (if file names start with "MONO" you are not recording in stereo, even if set to stereo, see next stetting to solve that problem)

12. Select **MENU => INPUT SETTINGS => MONO MIX** to OFF, otherwise you'll be recording MONO even though you just set it to STEREO in the above menu!

13. Select **MENU => INPUT SETTINGS => 1/2 LINK** to ON, with this mode ON, the recorder level changes to channels 1/2 will be the same, what what when recording Stereo or discrete MS.

14. Select **MENU => INPUT SETTING => LIMITER** to ON, the Comp 1 setting is fine. The limiter kicks in when a peak gets close to 0dBFS to avoid distortion in your recording

15. Select **MENU => INPUT SETTING => LOW CUT** — Set this to ON for most recording, unless low frequencies are important for the sound effects you are recording, however, for dialogue recording it's good to leave the low cut enabled

[DIAL]

[MENU] button

Optional remote-control jack

[LINE/PHONE] output jack

VOLUME [+ / −]

USB port

POWER switch
HOLD switch

[DIAL]

[MENU] button

REC LEVEL [+ / −]

SD card slot

16. To use the built-in microphone, press the **MIC** button on the front panel, it will light up red, if 1 and 2 buttons are selected then the recorder is recording from the external microphone inputs.

17. Connect a pair of headphones, always monitor your recordings! Adjust the headphone levels using the VOLUME buttons (on the left side panel)

18. Now you're finally ready to record, press the **RECORD** button, it will blink red, this is called **Recording Standby Mode**, check your levels, you're not actually recording yet

19. **Adjust sound levels** as needed using the REC LEVEL buttons (on the left side panel), you want a healthy signal, too low, and the signal is lost in the noise floor, too loud and the peaks will distort. The limiter will catch errant peaks, but don't count on it constantly. Adjusting levels is crucial and takes some practice, set high enough (with peaks often over -6dB but rarely over -3dB) so you have a healthy signal and only in rare occasions should you have a peak for which the limiter needs to kick in and deal with the peak for you.

20. **Press RECORD, now you're recording!** Always check for ascending timecode numbers to confirm you're actually recording.

21. **Press the STOP button to stop recording**, the recorder creates a new file for each recording (it displays the file name on the LCD while it's recording or in record-standby mode)

22. **Keep a log**. The recorder shows you the file name it is recording to with makes it easy to match recordings to sound log entries. Make a note of the file name, date, place, and other details in your sound log. It's a good idea to SLATE your take (adding a verbal description of what you're recording at the beginning of the recording) which helps in identification of files without having to listen to the whole thing.

23. **Review your recording by pressing the FILE button** and then selecting the file you want to listen to using the scroll wheel/button, press play or other transport controls as needed

24. When recording in STEREO mode, the recorder will save files to one of the ten sub-folders of the STEREO folder. In the menu you can select with subfolder the file will go into, but default it goes into "FOLDER 01" You can change the folder by pressing the FOLDER button

25. **When you are done with your recording, copy the contents of the SD card to a unique folder in your media folder** inside your project folder (on the media server if you are taking a class that meets in Shillman 205). It's a good idea to name these folders with a consistent naming scheme, for example, I use a date (year.month.day) and name of event naming scheme that results in folder names like "2016.10.12 Snell Library Interviews" so it's easier to find things in the future and the folder names sort chronologically.

Using an external microphone

Follow these additional steps when using external mics

90 / 120°
Variable XY
Stereo microphones
(Built-in)

STEREO/4CH/MTR
mode indicator

INPUT: Buttons for
[MIC] [1], [2]

Transport Control Buttons

[REC] Button

Optional remote-control jack

[LINE/PHONE] output jack

VOLUME [+ / –]

USB port

POWER switch
HOLD switch

connected to the XLR-3F connectors:

1. **Make sure you are using the right cables and connectors** (see sidebar on next page)

2. Connect the microphone cable(s) to the XLR inputs on the bottom of the recorder

3. **If the microphone requires Phantom Power**, Select the **MENU => INPUT SETTING => PHANTOM => +48V** to set the recorder to provide +48 Phantom Power (e.g. the BP-4029 requires +48V Phantom Power)

4. If the microphone has a built-in LOW CUT FILTER use that instead of the filter in the recorder, to disable the LOW CUT on the H4n, select **MENU => INPUT SETTING => LOW CUT => OFF.**

5. Press the **1** and **2** buttons on the front panel, they will light up red letting you know that the external input is selected, make sure the 1 and 2 input buttons are lit!

6. If the microphone requires a battery, make sure to install it. The Sennheiser shotguns have a battery compartment but if you leave the battery out, they will work with Phantom Power.

7. You are ready to record, everything else is pretty much the same, except it will probably sound better!

The following gear is available for check-out a la carte from the Media Center:

- **Headphones** for monitoring (essential)
- **Reporter/handheld microphone** (dynamic, omnidirectional pick-up pattern, not very sensitive)
- **Short shotgun microphone** (various models, mono, condenser, sensitive, directional pick-up pattern, operates with phantom power from the recorder)
- **Sony EMC-44 lavaliere microphone** with wind screen and tie clip (requires AA battery to operate, condenser, sensitive, omnidirectional pickup pattern)
- **Audio-Technica BP4029 MS Stereo shotgun microphones** (condenser, sensitive, directional pick-up pattern, can be configured to give you separate Mid and Side signals or stereo)
- **Rycote shock mount pistol grip** for hand-held use or mounting on boom pole
- **Shock mount** for mounting mic on boom pole, pistol grip is most versatile, always use a shock mount for better protection from handling noise on a boom
- **Boom pole** (make sure it has a small "whitworth tip" on the end the connects to the Rycote pistol grip)
- **Rycote softie windshield** (essential when shooting outdoors with wind, there's also a lavaliere windjammers are also available)
- **Cables and adapters**, including mono and stereo mic cables, Y adapter cables
- **Sennheiser Evolution wireless mic kit** (w/ 2 transmitters, 2 receivers, 2 lav mics, 1 hand-held mic, and 1 "brick" transmitter).

XLR-5M
XLR-5F
XLR-3F
XLR-3M

Making sense of professional sound cables and connectors

There are two types of balanced microphone cables commonly use: **stereo cables** (with XLR-5 connectors) and **mono cables** (with XLR-3 connectors). You want to make sure you have the right cables and adapters when you check-out gear.

Mono microphones have an XLR-3M connector on the end and **mono mic cables** have a XLR-3F connector on one end and a XLR-3M on the other.

Stereo microphones have a XLR-5M connector on the end and **stereo mic cables** have an XLR-5F connector on one end and a XLR-5M on the other.

Mixers, cameras, recorders usually have one XLR-3F sockets for each input channel, 1/L and 2/R is the convention.

Y cables are used to adapt between stereo and mono: they have a XLR-5F connector on one end that goes to the mic or extension mic cable from the mic and two short cables with XLR-3M connectors on the ends for connecting to the inputs on a recorder, mixer, or camera.

Balanced wiring (two conductors and one ground for each signal plus special circuitry on each end) is used in professional production because it is less susceptible to electromagnetic interference (EMI) and also allows for longer cable runs. Consumer gear uses wiring with only one conductor and one ground and is very susceptible to interference. For a technical explanation how this works, see [What's the Difference Between Balanced and Unbalanced?](#) (Aviom blog).