Song Meter Mini 2 User Guide

January 12, 2024

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1. SONG METER MINI 2 QUICKSTART GUIDE

Out of the box, the Song Meter Mini 2 can be quickly configured to run one of a few preset schedules that cover common use cases.

1. Unlatch and open the lid on the Song Meter Mini 2.
2. Depending on the version, insert four or eight AA batteries or between one and six Lithium-ion batteries.
   For additional information regarding batteries, see Batteries (page 76).
3. Insert an SD Card into the recorder's SD Card slot.
   For additional information regarding SD cards, see SD Cards (page 78).
4. Slide the **ON/OFF** switch to **ON**.
   If the **Bluetooth**® LED flashes red, this indicates that the recorder's internal clock is not set. It will be set when pairing.
5. Install the Song Meter Configurator app from the Apple App Store or Google Play Store onto your mobile device.
6. Check that Bluetooth is enabled on your mobile device.
7. Open the Song Meter Configurator app.
   The **Recorders** screen will be displayed. The Song Meter Mini 2 will automatically be detected by the app and will appear in the **Recorders** screen.
8. Press and hold the **PAIR/STATUS** button on the Song Meter Mini 2 for three seconds.
   The **Bluetooth** LED will blink green, indicating the recorder is ready to pair with the app.
   In the Song Meter Configurator app **Recorders** screen, the **Pair** icon is displayed next to the Song Meter Mini 2.
9. Tap the **Pair** icon.
   The icon will turn green, indicating successful pairing.
   A pop-up message will appear asking if you want to set the recorder's time zone to your mobile device's time zone.
10. Tap **Yes**.
    A pop-up message will appear asking if you want to set the recorder's location to your mobile device's location.
11. Tap **Yes**.
12. Tap the **Configure** icon for the paired Song Meter Mini 2 in the **Recorders** screen.
    The **Configuration Editor** screen is displayed.
13. Select a preset recording schedule from the dropdown menu and make any desired settings changes.

The Song Meter Mini 2 is now ready to deploy and record using the schedule you selected.

> **NOTE**
> Any changes made in the **Configuration Editor** screen are immediately loaded and saved into the Song Meter Mini 2. There is no need to manually save changes. If the Song Meter Mini 2 is unpaired or powered off, it will remember any changes made from within the **Configuration Editor** screen.

2. INTRODUCTION

2.1. ABOUT THE SONG METER MINI 2

The Wildlife Acoustics Song Meter Mini 2 acoustic recorder offers simple, yet innovative tools for recording birds, frogs, and other vocal wildlife.

The Song Meter Mini 2 leverages the processing power of modern smartphones with the Song Meter Configurator app. This companion app allows you to program the settings and schedules of multiple recorders and to check essential status info like battery and card usage from within Bluetooth range of the recorder.

2.2. CHANGES FROM THE SONG METER MINI TO THE SONG METER MINI 2

The Song Meter Mini 2 builds on the first-generation Song Meter Mini by taking into account the feedback we have received from users in all types of scenarios since the original product's launch in 2019.

The first- and second-generation recorders share much in common, and users coming from the original Song Meter Mini will find themselves well at home with the new Song Meter Mini 2. However, there are several major improvements worth highlighting, as well as functional differences that we recommend keeping in mind, particularly if you have a mixed fleet of first- and second-generation recorders.

2.2.1. Improved Enclosure

The Song Meter Mini 2's enclosure has been completely redesigned from the ground up to be more robust and easier to use.

While the first-generation Song Meter Mini's enclosure was comprised of a separate base and lid, the enclosure of the Song Meter Mini 2 is joined by a permanent hinge, and the new, lockable latch can be more easily operated with one hand. The latch can be locked close using an appropriately sized padlock, without requiring an additional security bracket.

> **NOTE**
> The optional Security Bracket accessory for the first-generation Song Meter Mini is not compatible with the Song Meter Mini 2.

The seal between the two halves of the enclosure has been improved, and the enclosure (excluding acoustic stub mics) passes IP67 standards. This means it is dust-tight and can withstand temporary submersion in water up to a depth of one meter. Note that installed acoustic stub mics can still be damaged by underwater submersion, though they are protected against rain.

The back of the Song Meter Mini 2 features a tripod-style, ¼"-20 threaded mounting point. This enables you to mount the recorder using many accessories designed for trail cameras and similar devices.

For more detailed information on the new enclosure, see Song Meter Mini 2 Hardware (page 8).

2.2.2. Battery Configuration

The original Song Meter Mini had one built-in AA battery tray, allowing the use of four AA batteries by default. The optional Lithium-Ion Lid accessory replaced the standard lid with a compartment for up to six 18650 lithium-ion batteries, installed in pairs.

The Song Meter Mini 2 now comes in two entirely separate versions, **AA** and **Li-ion**, each with a permanently installed battery tray for its respective battery type. See Battery Configuration Versions (page 6) for more detail.

> **NOTE**
> The Song Meter Mini 2 is not compatible with the Lithium-Ion Lid accessory for the first generation Song Meter Mini.

AA Batteries

The Song Meter Mini 2 AA can be used with either four or eight AA batteries. With eight AA batteries installed, you can record for twice as long as the original Song Meter Mini could with AA batteries. Ribbons built into the AA battery trays allow you to remove batteries much more easily.

> **FOUR OR EIGHT: MAXIMUM AA VOLTAGE IS THE SAME**
> AA batteries in the Song Meter Mini 2 AA are wired in two parallel sets of four batteries. This means that the recorder's **Status** screen will show the same voltage reading whether four or eight brand-new batteries are installed. The voltage reading on a recorder with eight batteries will decline at half the speed compared to a recorder with four batteries.

Lithium-Ion Batteries

The Song Meter Mini 2 Li-ion can be used with any number of 18650 batteries between one and six. Unlike the first-generation Song Meter Mini's Lithium-Ion Lid accessory, 18650 batteries do not need to be installed in pairs.

> **CHANGE IN VOLTAGE READING**
> The original Song Meter Mini's Lithium-Ion Lid used pairs of 18650 batteries in parallel with other pairs of batteries. The new Song Meter Mini 2 Li-ion uses individual 18650 batteries in parallel with each other. This means that the voltage reading on the Song Meter Mini 2Li-ion's **Status** screen is half that of the original Song Meter Mini, despite having the same possible deployment time.
>
> For example, with six fully charged 18650 batteries, a first-generation Song Meter Mini will display a voltage of 8.4 V, while a Song Meter Mini 2 will display a voltage of 4.2 V. Both recorders have the same total energy available despite the voltage difference.

2.2.3. Configuration and Firmware Files are Cross-Compatible

The Song Meter Mini and Song Meter Mini 2 run the same firmware versions, meaning both will be improved by the same new features and bug fixes as we release firmware updates.

Both recorders can also share configuration files. A configuration file exported from a Song Meter Mini can be imported into a Song Meter Mini 2, and vice-versa. This provides a simple way to maintain consistent settings across a mixed fleet of recorders.

NOTE
Configuration files that include the use of an optional second microphone cannot be completely imported into a recorder that does not have the second microphone installed. Relevant settings will be altered to only use the available microphone.

2.3. BATTERY CONFIGURATION VERSIONS

The Song Meter Mini 2 can be purchased with one of two options for battery power:

- The **Song Meter Mini 2 AA** can run on either four or eight AA batteries.
  Alkaline, NiMH, and Energizer® Ultimate Lithium™ batteries can be used. All installed batteries must match. See Types of AA Batteries (page 76) for more information.
- The **Song Meter Mini 2 Li-ion** can run on between one and six 18650 Lithium-ion (Li-ion) batteries. See Lithium-Ion Battery Requirements (page 77) for details on choosing compatible batteries.

NOTE
These are two separate versions of the Song Meter Mini 2. Neither version can be converted or reconfigured to use the other type of battery.

The type of battery used significantly affects deployment time. As a general rule, 18650 Lithium-ion batteries hold significantly more energy than AA batteries, and they are, by definition, rechargeable. Using six, high-quality 18650 Lithium-ion batteries will enable the longest possible deployments with the Song Meter Mini 2.

Other than the differences in battery compatibility, the AA and Li-ion versions of the Song Meter Mini 2 are identical in functionality.

IMPORTANT
Lithium-ion batteries are not to be confused with **Energizer® Ultimate Lithium™** (Lithium/Iron Disulfide) batteries.

18650 Lithium-ion batteries are larger and put out a much higher voltage than all types of AA batteries. 18650 Lithium-ion batteries therefore cannot be used interchangeably with any AA battery.

For specifications regarding batteries and deployment times, see: Batteries (page 76).

2.4. USEFUL RESOURCES

2.4.1. Where to Find This User Guide

This user guide is published in multiple locations:

- View a PDF in your web browser or download to your device at www.wildlifeacoustics.com/resources/user-guides.
- In the Song Meter Configurator app, open **App Info** > **User Guide**.
  The Song Meter Configurator app can be installed from the Apple App Store and Google Play Store.

> **NOTE**
>
> This user guide is updated regularly. If you use a saved copy of the PDF to view this guide, consider checking our website for an updated version. Whenever you update the Song Meter Configurator app, the latest version of the user guide is installed with the app.

2.4.2. Video Tutorials

Visit our Video Tutorials page to view tutorial videos for the Song Meter Mini 2.

2.4.3. Frequently Asked Questions

You can find answers to many common questions on our website, under **Resources** > **Frequently Asked Questions**.

https://www.wildlifeacoustics.com/resources/faqs

2.4.4. Don't Miss Out on Important Updates

We continually add features to the Song Meter Mini 2. Stay up to date with the newest features and receive important technical support bulletins by signing up to our Mailing List.

2.4.5. Contacting Support

For technical questions, contact the Wildlife Acoustics support team using one of the methods below. If contacting us via our website, please provide as much detail as you can so we can provide effective help as quickly as possible.

- www.wildlifeacoustics.com/contact-us
- North America (toll-free): 1-888-733-0200
- Outside North America (toll charges may apply): +1 978-369-5225

3. SONG METER MINI 2 HARDWARE

3.1. EXTERNAL FEATURES

The Song Meter Mini 2 recorder is designed for long-term, outdoor deployment. Made from durable polycarbonate plastic, it is UV-resistant and weatherproof.

Notable external features of the Song Meter Mini 2:

1. **Lockable Latch (page 9)**: Located along the top edge of the recorder.
2. **Primary Microphone (page 9)**: Every Song Meter Mini 2 comes with a microphone installed on the left edge of the recorder, covered by a foam windscreen. An optional second microphone may be installed on the right edge.
3. **Enclosure Hinge (page 9)**: The lid and body of the recorder are attached by a permanent hinge along the lower edge.
4. **Mounting Points (page 9)** (shown in front and back views): At the centers of the upper and lower edges are mounting holes, suitable for zip ties, bungie cords, compatible cable locks, or screws.
5. **Tripod Mount (page 9)**: A camera-style tripod threaded socket, located on the back face of the Song Meter Mini 2 enclosure, provides additional mounting options.

External features, continued:

6. **Optional Acoustic Microphone Port (page 10)**: A second acoustic microphone can be installed on the right edge of the Song Meter Mini 2. When a second microphone is not installed, the port is occupied by a plastic hex bolt.
7. **Air Vent (page 10)**: Located on the lower-right edge of the recorder, this vent has an internal membrane that allows air and moisture regulation without allowing water ingress.

3.1.1. Lockable Latch

A latch is used to close the lid. The latch is easily closed or opened by hand. The latch will snap closed to provide a tight seal for the lid. See Lock Compatibility (page 10) for details on choosing a compatible padlock for locking the latch shut.

3.1.2. Microphones

By default, the Song Meter Mini 2 utilizes a single built-in acoustic microphone. The microphone has a replaceable windscreen.

An additional acoustic microphone can be purchased and added to the Song Meter Mini 2. This enables you to record in stereo (two-channel) or to specify the left or right channel for mono (one-channel) recording.

When two microphones are used, the built-in microphone is considered channel 0, left. The optional second microphone is considered channel 1, right.

3.1.3. Hinged Lid

The lid for the Song Meter Mini 2 is permanently connected to the body of the recorder via a hinge and lockable latch. When the lid is latched close, a silicone rubber gasket creates a watertight seal between the lid and body.

3.1.4. Mounting Points

Mounting points can be used to secure the recorder to a branch or post (for example). Typical mounting methods include screws, bungie cords, cable locks, and zip ties. See Lock Compatibility (page 10) for spefications on compatible cable locks.

3.1.5. Tripod Mount

On the rear of the Song Meter Mini 2 recorder is a standard-sized threaded socket. This socket is typically used for camera tripod mounts or any other type of mount which uses the same thread size.

Tripod mount thread size specification: 1/4" 20 pitch.

3.1.6. Optional Acoustic Microphone Port

The Song Meter Mini 2 has a port for an optional second microphone. This allows for recording two channels of audio at once and provides redundancy in case one microphone is damaged.

The optional, second microphone can be installed on the right edge of the recorder. When the optional microphone is not installed, a plastic bolt and rubber gasket are used to seal the port.

For instructions on installing the optional acoustic microphone, see Installing a Second Microphone (page 16).

3.1.7. Air Vent

An air vent on the side of the enclosure prevents pressure build-up inside the recorder but does not allow water ingress during normal use.

⚠	**WARNING** The air vent opening must not be blocked or covered in any way.

A self-regenerating desiccant packet inside the enclosure offers further protection; it will absorb or release moisture to regulate humidity inside the recorder.

3.1.8. Lock Compatibility

The upper-left and upper-right corners of the Song Meter Mini 2 enclosure feature loops through which a cable lock can be fed to secure the recorder to a tree or structure. The diameter of the cable must be narrower than the internal diameter of these loops, which is 0.420" (10.67 mm).

To keep the lid of the Song Meter Mini 2 locked closed, a padlock can be inserted in the loop on the right side of the latch. The internal diameter of this padlock loop is 0.268" (6.81 mm). We recommend a padlock with a shackle diameter of 1/4". A padlock with a shackle narrower than 3/16" will not prevent the latch from completely opening.

❗	**IMPORTANT** When a 3/16" or 1/4" shackle-diameter padlock is installed, it is possible for the latch to be partially undone. This does not allow the lid to be fully opened, but it can loosen the seal between the two halves of the enclosure and may compromise the enclosure's weatherproofing.

3.2. INTERNAL FEATURES
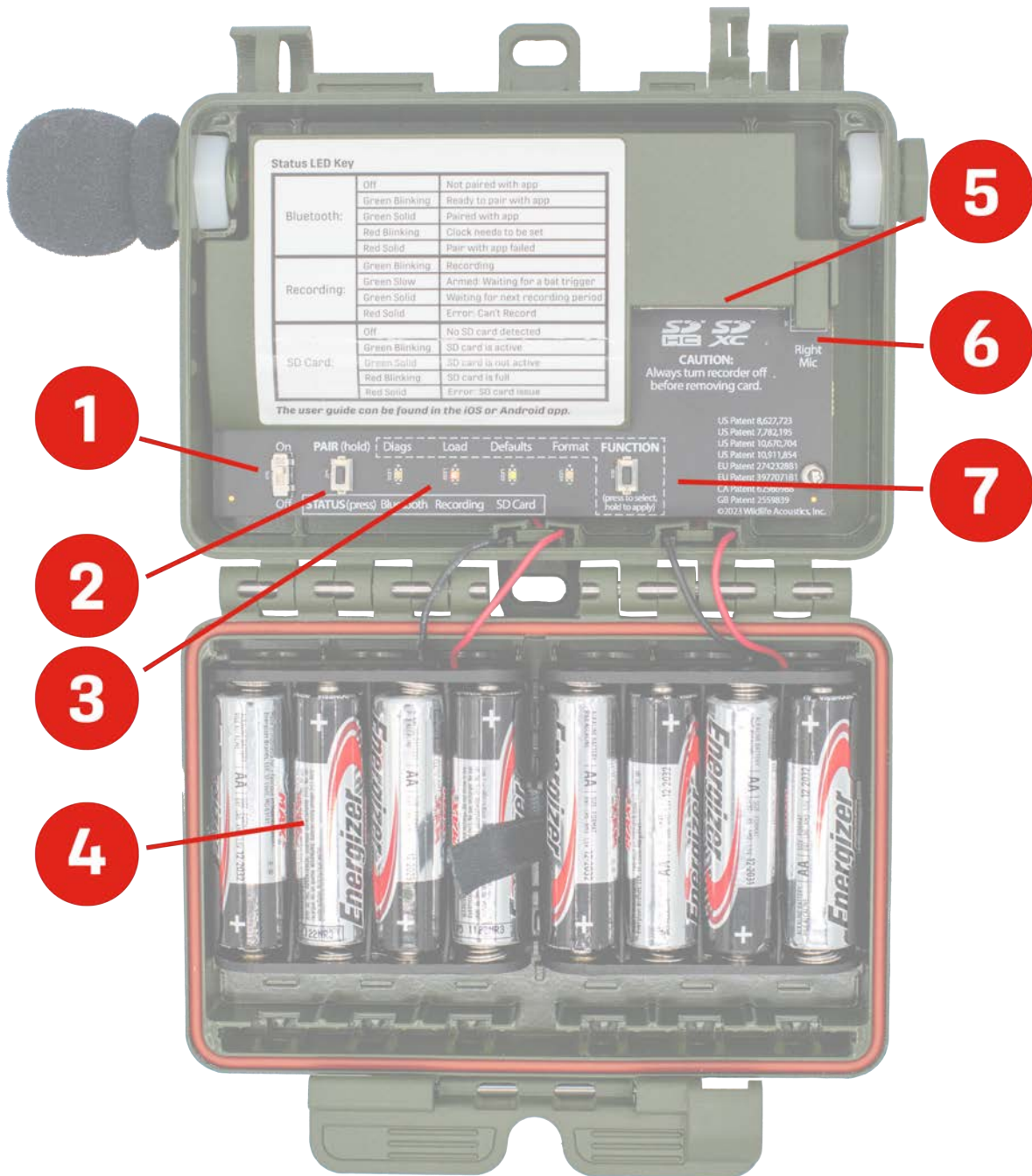
1. **ON/OFF Switch (page 12)**: Located in the lower left of the main internal panel.
2. **PAIR/STATUS Button (page 12)**: Located to the immediate right of the ON/OFF switch.
3. **Status LEDs (page 12)**: Four green/red LEDs laid out horizontally to the right of the PAIR/STATUS button and to the left of the FUNCTION button.
4. **Battery Compartment (page 13)**: The batteries are installed in the lid of the enclosure, opposite from the main control panel.
5. **SD Card Slot (page 14)**: Located in the upper-right of the main internal panel. SD cards can be inserted into the slot under a protective plastic panel.

6. **Right Microphone Connector (page 14)**: Located to the immediate right of the SD Card slot.
7. **FUNCTION Button (page 15)**: Located to the right of the four **Status** LEDs.

3.2.1. ON/OFF Switch

- **On** (up position): Battery power is enabled. Schedule is started.
- **Off** (down position): Battery power is disabled. Schedule is stopped.

When the Song Meter Mini 2 recorder is first powered on, the Status LEDs show Bluetooth, Recording, and SD Card status. If the recorder is left alone for one minute, the LEDs will turn off.

> **NOTE**
> When the Song Meter Mini 2 recorder is switched off, it goes through a routine to end and save any current recording. This can take a few seconds.

3.2.2. PAIR/STATUS Button

This is a dual-function button.

The Song Meter Mini 2 **Status** LEDs turn off after one minute without user input. Tap the **PAIR/STATUS** button once to reactivate the **Status** LEDs.

Press the **PAIR/STATUS** button once to check the **Status** LEDs.

Press and hold the **PAIR/STATUS** button for three seconds to enable pairing with the Song Meter Configurator app. You must the tap the **Pair** icon in the app to complete the pairing.

To unpair, press and hold the **PAIR/STATUS** button on the Song Meter Mini 2 recorder for three seconds, or tap the **Unpair** icon in the Song Meter Configurator app.

3.2.3. Status LEDs

The three Status LEDs on the recorder provide Bluetooth, Recording, and SD Card information.

The Status LEDs remain active while the recorder is paired with the Song Meter Configurator app.

The table of Status LED definitions, below, is also found inside the recorder's lid for reference.

Table 1. Status LED Key

LED Label	LED Activity	Status Meaning
Bluetooth:	Off	Not paired
	Green Blinking	Pairing
	Green Solid	Paired
	Red Blinking	Clock needs to be set
	Red Solid	Pair failed
Recording:	Green Blinking	Recording
	Green Solid	Waiting for next recording period
	Red Solid	Cannot record
SD Card:	Off	No card detected
	Green Blinking	Card is active: do not eject
	Green Solid	No activity: safe to eject

LED Label	LED Activity	Status Meaning
	Red Blinking	SD Card full
	Red Solid	SD Card issue

3.2.4. Battery Compartment

The lid of the Song Meter Mini 2 holds the recorder's batteries. Depending on the version of the recorder, it holds either AA batteries or 18650 Lithium-ion batteries.

AA Battery Compartment

The AA battery compartment holds two plastic battery trays. Each tray holds four AA batteries, and you can power the recorder with four or eight AA batteries in total. If you use only four AA batteries, all four must be installed in the same tray.

Each tray is equipped with a ribbon. When installing AA batteries, position the ribbon underneath the batteries. Pulling on the ribbon will then let you easily remove the batteries.

> **IMPORTANT**
>
> When inserting batteries, start near the attached end of each ribbon at the outer side of each tray and work towards the free end. This will ensure the ribbon has enough slack to make room for each battery. Without enough slack, the ribbon may push batteries out of the tray.
>
> If only using four AA batteries, make sure the ribbon attached to the empty battery tray does not interfere with the seal between the lid and base of the recorder enclosure.

For information on the different types of AA batteries, including Energizer® Ultimate Lithium™, see Types of AA Batteries (page 76).

> **NOTE**
> Best practices for AA batteries:
>
> - Do not mix multiple types of batteries (e.g. combining alkaline with NiMH). This applies even when using eight AA batteries. All eight batteries must be of the same type.
>   Ideally, all batteries should be of the same brand and model. Mixing batteries with different characteristics can produce unpredictable results.
> - Do not mixed new or freshly charged batteries with used or uncharged batteries. A single dead battery will prevent the entire set from functioning.
> - Ensure batteries are oriented with the correct positive/negative polarity.
> - Remove batteries before storage.

Lithium-ion Battery Compartment

The Lithium-ion battery holder lid holds between one and six Lithium-ion 18650 batteries. You can install any number of 18650 batteries in any of the slots, and the recorder will work as intended,

but using more batteries provides longer run time. See Lithium-Ion Battery Requirements (page 77) for more details on choosing appropriate batteries.

> **NOTE**
>
> Best practices for lithium-ion batteries:
>
> - Do not mix freshly charged batteries with drained batteries.
> - Unlike many rechargeable AA batteries, lithium-ion batteries are shipped with no stored charge. You must charge them before initial use.
> - Ensure batteries are oriented with the correct positive/negative polarity.
> - Remove batteries before storage.

> **WARNING**
>
> There are strict regulations on shipping and traveling with lithium-ion batteries in many parts of the world. Consult applicable laws before air travel or when planning to ship lithium-ion batteries.

3.2.5. SD Card Slot

The Song Meter Mini 2 recorder saves recording files and a summary log to an SD card installed in the memory card slot.

To insert an SD card, slide it into the slot until it clicks into place. To remove, gently press the card further into the slot until it clicks again, and let the internal spring mechanism eject the card.

- Only remove the SD card after setting the power switch to OFF and waiting until all **Status** LEDs have turned off.
- Use the Song Meter Configurator app to check recording space available on the SD card.

> **NOTE**
>
> Wildlife Acoustics recommends the SanDisk® brand of SD cards for their superior performance.

> **NOTE**
>
> Be sure the card's write protection switch is "off." The Song Meter Mini 2 recorder will not record to a write-protected card.

3.2.6. Right Microphone Connector

This is the connection point for the optional acoustic microphone.

3.2.7. Function Button and Function LEDs

The physical controls on the Song Meter Mini 2 allow you to perform four basic functions without the Song Meter Configurator app.

Available Functions

There are four `Function` LEDs:

- `Diags`: This runs an internal diagnostic check. Two files are then written to the SD card:
    - A diagnostics file with a file name matching the format: `[RECORDER NAME]_[DATE]_[TIME].minidiags`. This may be used by Wildlife Acoustics Support to diagnose technical issues.
    - A configuration file with the file name format `[RECORDER NAME].miniconfig`. This file contains a copy of the recorder's settings. It can be used to load the same configuration into another Song Meter Mini 2.
- `Load`: This loads a configuration file (ending in `.miniconfig`) and/or firmware file (ending in `.smm`), from the SD card to the recorder. If there are both a configuration file and firmware file on the card, the configuration file will be loaded first, and then the firmware update will be loaded.

  For detailed instructions on installing a firmware file using the recorder's physical buttons, see Loading a Configuration File from an SD Card (page 18).

  This function can also be performed using the app. See Load Firmware or a Configuration from Card (page 35).

> **NOTE**
>
> Once a configuration file or firmware file is successfully loaded from an SD card, that information is stored on the Song Meter Mini 2's internal memory, and the file is no longer needed on the SD card.

- `Defaults`: This restores the default states of all of the recorder's settings except current date and time.

  This function can also be performed using the app. See Restore Recorder To Factory Defaults (page 35).

  Default settings values are shown in Acoustic Settings Screen (page 36).
- `Format`: This reformats the SD card, resetting it to a "blank slate" and deleting any existing files from the card.

  This function can also be performed using the app. See Format SD Card (page 35).

> **IMPORTANT**
>
> It is important to reformat the SD card prior to each deployment. Reformatting the card goes beyond just deleting existing data. It resets the structure of the card and reduces the likelihood of data corruption.
>
> Reformatting can be done using the Song Meter Mini 2 or using the SD Card Association's official, free formatting utility for Windows and Mac.

Performing a Function

To select and perform a function,

1. Tap the `FUNCTION` button multiple times.
   A green LED will cycle through the four positions to highlight the selected function.
2. When the desired function is highlighted, press and hold the `FUNCTION` button for three seconds.

3. When the highlighted LED starts flashing green, let go of the **FUNCTION** button.

If all four LEDs flash green three times, the function ran successfully.

If all four LEDs flash red six times, the function was unsuccessful.

3.3. INSTALLING A SECOND MICROPHONE

The Song Meter Mini 2 has a port available for a second, optional microphone, which you can install yourself. To do so, you'll need to remove the plastic hex bolt that occupies the right-hand microphone port and install the microphone according to the steps below.

> ⚠️ **WARNING**
> The optional acoustic microphone is designed for a one-time installation. It is not designed to be repeatedly installed and uninstalled. If the microphone is removed and re-installed multiple times, that could cause the connection wire to break, and the microphone will fail. Once the microphone is installed, it should only be removed if it needs to be replaced.

> 🗒️ **NOTE**
> You can view a video demonstration of this installation process on our Video Tutorials page.

1. Open the lid and place the Song Meter Mini 2 on a flat surface.

In the top right corner of the recorder is a removable, plastic bolt threaded through a plastic nut.
2. Use a 3/4" or adjustable hex wrench to gently loosen the bolt from the nut, then use your hand to completely unscrew the bolt.
    If the recorder is laid flat on its back, the internal hex nut will stay in place. The nut is necessary to hold the new microphone in place.
3. Thread the wire connector for the second microphone through the hole. Do not connect the wire to the circuit board yet.

4. Hand-turn the microphone clockwise to screw it into the internal nut. Make sure the microphone wires are not caught on anything as you turn the microphone.
   Make sure the threads of the microphone align with the threads of the hex nut.
5. When the microphone is finger-tight, tighten the microphone lightly with pliers or a wrench. Do not over-tighten.
6. Connect the plug at the end of the microphone wires to the jack labeled "Right Mic."
   The plug has a key on one face that must align with a slot on the left side of the socket.
7. Route the wires to the right of the SD card to keep them out of the way of the lid and to avoid electrical noise from the SD card.

When the microphone is correctly installed, the recorder's **Status** screen will display **RIGHT MICROPHONE: Attached**. For info on how to view the recorder's status screen via the Song Meter Configurator app, see Status Screen (page 25).

> **❗ IMPORTANT**
>
> The front face of the SD card holder is used to keep the batteries in place when the lid is closed. The microphone wire must not be loose or in front of the SD card holder. The wire must be tucked into the space to the right of the SD card holder so that it does not interfere with the batteries as the lid is closed.

3.4. UPGRADING THE RECORDER'S FIRMWARE

1. Download the current version firmware file from our Downloads page.
   The firmware file name is formatted as `sys-X.Y.smm`.

> **NOTE**
> You must have a user account on wildlifeacoustics.com to access our Downloads page. Only an email address is required to create a user account.

2. Connect an SD card to your computer.
   If your computer does not have a built-in SD card slot, use a USB SD card reader or similar accessory.
3. Copy the `sys-X.Y.smm` file to the top level of the SD card.
   "Top level" means the firmware file must not be inside a folder on the card.
   There must be only one firmware file on the card.
4. Eject the card from your computer's operating system before physically removing the card.
5. Insert the SD card into the Song Meter Mini 2's SD card slot.
6. Turn on the recorder.
7. Press the **FUNCTION** button twice to highlight the **Load** function LED.
8. Press and hold the **FUNCTION** button, then let go when the **Load** LED begins blinking.

When the process is complete, all four LEDs will blink green three time, and the recorder will reboot with the new firmware.

> **NOTE**
> If there is some sort of failure and the firmware update operation is not successful, all four LEDs will blink red six times. If this happens, reformat the SD card, then repeat the above steps. See Format SD Card (page 35).

3.5. LOADING A CONFIGURATION FILE FROM AN SD CARD

A configuration file can be created in the Song Meter Configurator app or exported from another Song Meter Mini 2. The Configurator app can share the configuration file (see How To Share A Saved Configuration File (page 50)). A configuration file can be copied from a computer to an SD memory card. The configuration file on the SD card can then be loaded into another Song Meter Mini 2.

> **.MINICONFIG FILE COMPATIBILITY**
> The first generation and second generation of a given recorder model can use the same configuration files. For example, a `.miniconfig` exported from a Song Meter Mini 1 can be imported into a Song Meter Mini 2.
>
> `.miniconfig` files cannot be shared between recorders of different models. For example, a `.miniconfig` file exported from a Song Meter Mini Bat 2 cannot be imported into a Song Meter Mini 2.

1. Connect an SD card to your computer.
   If your computer does not have a built-in SD card slot, use a USB SD card reader or similar accessory.

2. Copy the `.miniconfig` to the top-level directory of the SD card.

   "Top-level directory" means the `.miniconfig` file must not be inside a folder on the SD card.

   There must be only one `.miniconfig` file on the card.

3. Eject the card from your computer's operating system before physically removing the card.

4. Turn on the recorder.

5. Press the **FUNCTION** button twice to highlight the **Load** function LED.

6. Press and hold the **FUNCTION** button, then let go when the **Load** LED begins blinking.

When the process is complete, all four LEDs will blink green three times to indicate the recorder has loaded the `.miniconfig` file.

If there is some sort of failure and the configuration load operation is not successful, all four LEDs will blink red six times. If this happens, check that the `.miniconfig` file was exported from a recorder of the same model and that it is saved to the top level of the SD card.

3.6. EXPORTING CONFIGURATION AND DIAGNOSTIC FILES TO AN SD CARD FROM THE MAIN PANEL

Using only the buttons on the main panel of the Song Meter Mini 2 hardware, it is possible to export two useful files:

- **Configuration File**: `[RECORDER NAME].miniconfig`

  This is a file containing all of the recorder's settings. It can be loaded into another recorder of the same model to duplicate all settings from one recorder to another. This is particularly useful if you want a large fleet of recorders to all run the same schedule.
  See Loading a Configuration File from an SD Card (page 18) for instructions on loading a `.miniconfig` file using only the hardware controls, and see Load Firmware or a Configuration from Card (page 35) to load a `.miniconfig` file from an SD card using the Song Meter Configurator app.

  `.miniconfig` files can also be transferred between a recorder and the Song Meter Configurator app without the use of an SD card. See Configuration Editor Screen (page 31) and Configuration Library Screen (page 49) for more information.

- **Diagnostics File**: `[RECORDER NAME]_[DATE]_[TIME].minidiags`

  This is a file containing all of the recorder settings, plus hardware diagnostics information that can be used by Wildlife Acoustics Support for diagnosing certain kinds of issues. They can be created manually, as shown below, or automatically when the Song Meter Mini 2 experiences an unexpected reboot.

> **NOTE**
> Diagnostics files that have been generated automatically do not necessarily indicate a serious issue with the recorder. The most common cause is that the recorder has run until the batteries are almost entirely drained, to the point that the recorder loses power in the middle of a recording.

To export a Configuration file and Diagnostics file using only the buttons on the Song Meter Mini 2 hardware:

1. Install new or fully charged batteries, and set the **ON/OFF** switch to **ON**.

2. Press the **FUNCTION** button once.

   The **Diags** LED will be highlighted green, and the three other LEDs will be unlit.

3. Press and hold the **FUNCTION** button for three seconds.

4. When the **Diags** LED starts flashing green, let go of the **FUNCTION** button.

All four LEDs will flash green three times to indicate that the `.minidiags` and `.miniconfig` files have been saved to the SD card.

If all four LEDs flash red six times, it means an error prevented the recorder from saving these two files. If this happens, check that the SD card has available space and displays no error messages on the recorder's **Status** screen (see Status Screen (page 25)).

NOTE

Diagnostics files can be generated and emailed to Wildlife Acoustics Support from within the Song Meter Configurator app. See Email Diagnostics to Wildlife Acoustics (page 36).

Configurations Files can be saved from a paired recorder to the app's Configuration library, then imported to other recorders without using an SD card. See Configuration Editor Screen (page 31) and How to Import a Configuration File (page 51).

4. SONG METER CONFIGURATOR APP

4.1. ABOUT THE APP

The Song Meter Configurator app provides a simple interface for configuring the schedule and settings of the Song Meter Mini 2. It runs on phones and tablets running iOS and Android, and, once it's installed, it does not require an internet connection.

> **❗ IMPORTANT**
> While you can configure most settings without using the app by loading a `.miniconfig` file from an SD card, **you must use the app to set the recorder's clock**. The recorder will not run its recording schedule if its clock has not been set.

The Song Meter Configurator app communicates with the recorder via Bluetooth connection. By default, the recorder broadcasts periodic status beacons that can be received by the Song Meter Configurator app running on nearby devices, even when the app is not paired with the recorder.

The app can also be paired with one recorder at a time for two-way communication. When paired to a recorder, the Song Meter Configurator app can be used to program the recorder's settings in real time. You can also transfer configuration files between the paired recorder and the app's **Configuration Library**.

4.1.1. Bluetooth Functionality

The Song Meter Mini 2 recorder uses the Bluetooth Low Energy protocol to communicate with the Song Meter Configurator app.

> **📝 NOTE**
> The process for pairing the Song Meter Mini 2 with the Song Meter Configurator app is not the same as the process you might use for pairing common Bluetooth accessories, like headphones. See Pair the Recorder with the Song Meter Configurator app (page 28) for pairing instructions.

By default, when the Song Meter Mini 2 recorder is powered on, it generates a Bluetooth status beacon once every few seconds. If the recorder is within Bluetooth range of the mobile device, the Song Meter Configurator app will automatically detect the Bluetooth status beacon and the recorder will be detected and displayed in the Recorders screen of the app.

It is possible to disable the recorder's Bluetooth status beacons from the **Configuration Editor** screen. If Bluetooth beacons are disabled, the recorder will not be detected by the app unless the **PAIR/STATUS** button on the recorder is pressed and held for three seconds.

> **NOTE**
> The usable range of a Bluetooth signal varies from phone to phone and tablet to tablet, but it is usually under 30 feet, assuming a clear line of sight between the Song Meter Mini 2 and the phone or tablet.

4.1.2. Supported Operating Systems

The Song Meter Configurator app is available for Android and iOS devices.

For Android devices, download and install the Android version from Google Play. The Configurator app requires Android version 8.0 or later in order to run.
For iOS devices, download and install the iOS version from the Apple App Store. The Configurator app requires iOS version ˝12.0 or later.

> **NOTE**
> The Song Meter Configurator app cannot be installed if your device is running an older operating system than the minimum supported version.

4.1.3. Supported Languages

The Song Meter Configurator app is available in the following languages:

- English
- French
- Spanish
- Portuguese
- Chinese
- German
- Japanese

The display language of the Song Meter Configurator app will follow the Android or iOS system language setting. To manually set the language of the app, see App Information Screen (page 55).

4.2. RECORDERS SCREEN
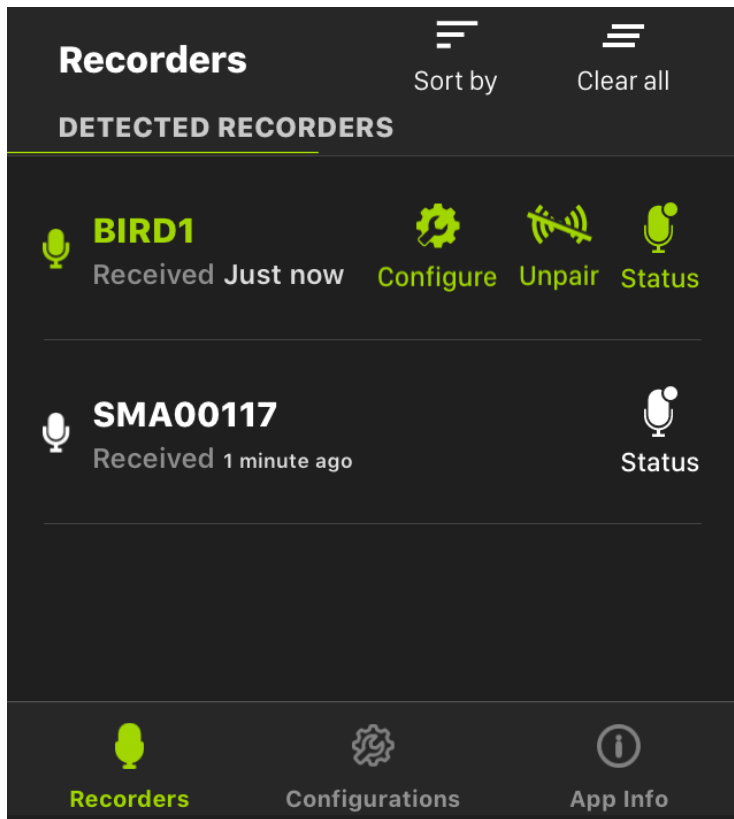
The **Recorders** screen is the first screen displayed when the Song Meter Configurator app is launched. The **Recorders** screen can be accessed from anywhere in the app by tapping the **Recorders** icon in the navigation bar at the bottom of the screen.

The **Recorders** screen lists each recorder within Bluetooth range and detected by the Song Meter Configurator app. Previously detected recorders that are out of Bluetooth range or powered off will remain in the list until removed. The **Status** page for each recorder will show information from the last beacon the app received from that recorder.

If a recorder is within range and powered on, but it does not show in the **Recorders** screen list, check whether the **Send Bluetooth Beacons?** utility is enabled (see Send Bluetooth Beacons? (page 42)).

The top menu bar of the **Recorders** screen includes the following buttons, listed from left to right:

- **Sort by**
  Tap this icon to open a **Sort Recorders** menu with options to sort the recorders by one of two options. The currently used sort option is indicated by an upwards or downwards arrow. To toggle the sorting between ascending and descending, tap **Sort by**, then tap the currently used sorting option once more.
  The available sorting options are:
  - **By last time detected**
    Tap to sort entries in the **Recorders** list by how long ago each recorder's status was updated. When the sorting option is marked with an upwards arrow, recorders with more recently detected status updates are listed first.
  - **By recorder name**
    Tap to sort recorders by their **RECORDER NAMES** in alphabetical or reverse-alphabetical order.

See Configuration Editor Screen (page 31) for instructions on editing the **RECORDER NAME**.

· **Clear all**

Tap this icon to clear all entries from the **Recorders** screen. Nearby recorders that are currently broadcasting Bluetooth beacons will repopulate the **Recorders** list within several seconds.

The entries for **unpaired** recorders are represented by white text and icons, and they include the following information:

· **RECORDER NAME**

The default value of a recorder's name is its serial number, but this can be changed to a custom value (see Configuration Editor Screen (page 31)).

· **Received**

This text lists when the Song Meter Configurator app last received a status update from the recorder. This text will read **Received Just now** for the first ten seconds after an update. After ten seconds, it will display a duration in seconds, minutes, hours, or days.

· **Status**

Tap this icon to open the **Status** screen for the recorder, which displays the information the app most recently received from the recorder. See Status Screen (page 25) for a breakdown of all information included on the **Status** screen.

The entries for **paired** recorders are represented by green text and icons, and they include two additional icons not shown for unpaired recorders:

· **Configure**

Tap to open the **Configuration Editor** screen, where you can alter the settings of the paired recorder and perform many other functions. See Configuration Editor Screen (page 31) for more information.

· **Unpair**

Tap to unpair the Song Meter Configurator app from the Song Meter Mini 2. You must unpair from the currently paired recorder before you can pair with another.

4.2.1. Status Screen
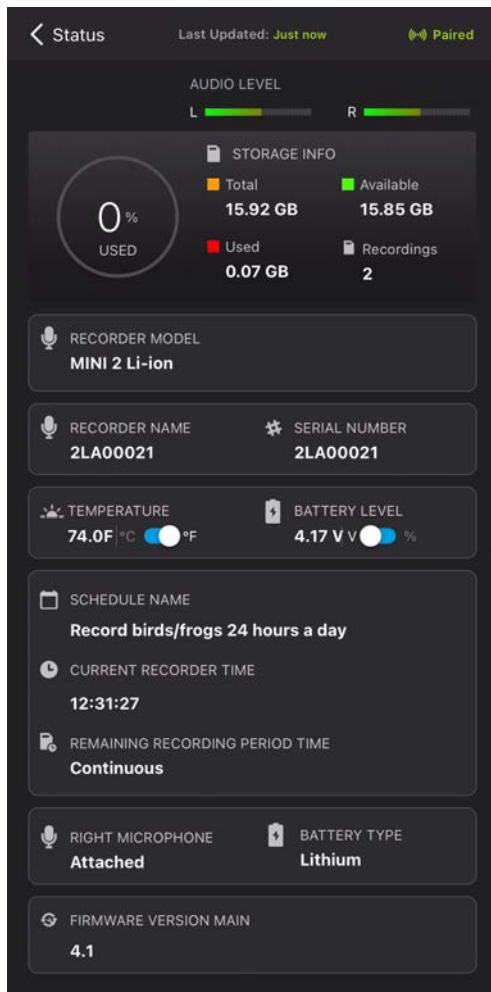
To access the **Status** screen for a recorder, navigate to the **Recorders** screen, then tap the **Status** icon listed to the right of the recorder's name.

When a Song Meter Mini 2 is within Bluetooth range and either broadcasting Bluetooth beacons or paired with the app, its status will update in the app once every few seconds. The last-received status information for a recorder is retained by the app when the app is closed, the mobile device or recorder are turned off, or if the recorder moves out of Bluetooth range. Tap the **Status** icon in line with a recorder to see the most recently received status information for that recorder.

While a Song Meter Mini 2 is paired with the Song Meter Configurator app on one mobile device, it will not broadcast Bluetooth beacons for other mobile devices to receive. Only the paired mobile device will receive real-time status updates.

The **Status** screen displays the following information and interface elements, listed in order from top to bottom, left to right:

Top-most Info Bar

- **< Status** (back button)
  Tap this button to exit the **Status** screen and return to the **Recorders** screen.
- **Last Updated**
  This text indicates when the Song Meter Configurator app last received status information from the selected recorder.
- **Paired/Unpaired**

This text indicates whether the recorder is paired with the app or not.

New Firmware Alert

New firmware is available for your recorder!

Firmware version 3.4 includes the following improvements:
• Reduced recording noise on Mini recorder at low gain settings (6dB and 12dB).
• Fixes a bug on the Mini recorder in generating the "GUANO WA|Song Meter|Audio Settings" meta-data in stereo recordings.
• Now when loading a configuration with a 0 latitude and 0 longitude from an SD card, any existing coordinates are not overwritten.
• Fixes a bug where loading a configuration with a different time zone from an SD card would not automatically adjust the clock.

DISMISS

If the app detects that the recorder is running an older firmware version than the latest available, a message will be displayed below the top-most info bar. This message includes a link to instructions on updating the firmware as well as release notes for the latest available firmware version.

Microphone Level Panel

This panel is only visible when the recorder is paired with the app. It displays a real-time representation of any currently installed and active microphone.

NOTE

If the Song Meter Mini 2 is currently recording only on the left microphone, then the level meter for the right microphone will not respond to sound, even if the right microphone is installed.

- **AUDIO LEVEL**
  These meters display real-time representations of the volume of sound being picked up by each active microphone. Each meter is labeled **L** and **R** to indicate the left and right microphones. The **R** meter will only be displayed if the optional, second microphone is installed.
  The meters will only be responsive if the recorder is currently running a recording period, and only the meters for the active microphone(s) will be responsive, according to the recorder's **Channel** setting (see Channel (page 38)).

STORAGE INFO Panel

- Error Message Readout
  If there is a problem with the SD card, an error message will be displayed underneath the **STORAGE INFO** text. See SD Card Error Messages (page 72) for descriptions of common error messages.
- Storage Percentage Used
  This circular graph and percentage text indicate what proportion of the available space on the SD Card has been used.

- **Total**

  In gigabytes, shows how much total space, used and available, is present on the SD card.
- **Available**

  In gigabytes, shows how much space is unused and available for recording storage on the SD card.
- **Used**

  In gigabytes, shows how much space on the SD card is occupied by recordings or other data.

> **NOTE**
>
> If the contents of an SD card were "Moved to trash" using a computer, that space may still be shown as **Used** in the **Status** screen. Formatting the SD card will make all of the card's space available. See Format SD Card (page 35).

- **Recordings**

  Number of separate recording files saved to the SD card since the recorder was last powered on. This number will reset to zero when the recorder powers off or when the SD card is reformatted.

Other Info Panels

- **RECORDER MODEL**

  Displays the model name of the recorder.
- **RECORDER NAME**

  Displays the name of the recorder. By default, the name is the recorder's serial number, but it can be customized in the Configuration Editor Screen (page 31).
- **SERIAL NUMBER**

  Displays the serial number of the recorder.

  The same serial number is also printed on the right side of the recorder's enclosure.
- **TEMPERATURE**

  Displays the temperature reading from the Song Meter Mini 2's internal temperature sensor. The **°C/°F** toggle switch allows you to set the units of temperature to degrees Celsius or Fahrenheit.
- **BATTERY LEVEL**

  Displays the state of the recorder's batteries.

  The **V/%** toggle switch determines whether the battery level is displayed as a Voltage reading or an estimation of the remaining battery life percentage.

> **NOTE**
>
> For AA batteries, the battery life percentage is estimated based on the typical behavior of alkaline AA batteries. **The battery life percentage estimate is not accurate for NiMH batteries or Energizer® Ultimate Lithium™ batteries.**

- **SCHEDULE NAME**

  If the recorder is running one of the preset schedules, selected from the **Configuration Editor** screen, the name of the schedule will be displayed here. If the recorder is running a custom schedule, **Custom Schedule** will be displayed here.
- **CURRENT RECORDER TIME**

  Displays the time of the recorder's internal clock.

  If the app is not currently receiving status updates from the recorder, the time of the last received status update is shown instead.
- **START TIME OF NEXT RECORDING**

If the Song Meter Mini 2 is not currently recording, this displays the time of the recorder's next scheduled recording period.

This text will only display if an SD card is installed with enough available space for the next recording period.

- **REMAINING RECORDING PERIOD TIME**

    If the Song Meter Mini 2 is running a preset schedule and is currently recording, this the amount of time remaining in the current recording period. If the recorder is running a 24-hour schedule, this will read **Continuous**.

    This information is not displayed for recorders running custom schedules.

- **RIGHT MICROPHONE**

    Displays **Attached** or **Not Attached** to indicate whether a right-hand microphone is installed on and detected by the Song Meter Mini 2.

- **BATTERY TYPE**

    Indicates which type of battery is powering the recorder.

    AA refers to AA batteries of any type, including alkaline, NiMH, and Energizer® Ultimate Lithium™ (Lithium/Iron Disulfide).

    Lithium refers to 18650 lithium-ion batteries.

- **FIRMWARE VERSION**

    Displays the recorder's installed firmware version.

4.2.2. Pair the Recorder with the Song Meter Configurator app

In order to set the Song Meter Mini 2's date and time and to configure the recorder's settings using the Song Meter Configurator mobile app, you must pair the app with the recorder.

> **NOTE**
>
> The Song Meter Configurator app can only be paired with a single recorder at a time. When you are done configuring one recorder, unpair from it before trying to pair with the next one.

1. Make sure Bluetooth is enabled in your mobile device's settings.
   On iOS or Android, open the **Settings** app and select the **Bluetooth** page to turn Bluetooth on or off.
2. If using an Android device, ensure that Location is turned on in your device's settings.
   See this Google support article for instructions on how to turn on Location.
3. Make sure the Song Meter Configurator app has been granted all requested permissions.
    - On iOS:
        a. Open the **Settings** app.
        b. Tap the **Song Meter** entry to open the settings page for the Song Meter app. Permissions can be toggled from this page.
    - On Android:
        a. Open the **Settings** app.
        b. Tap **Apps**.
        c. Tap on the **Song Meter** app entry.
        d. Tap **Permissions**.
        e. Enable all permissions on this page.

> **(!) IMPORTANT**
> On some devices, GPS and Bluetooth connections are handled by the same hardware component, so the Song Meter app must have access to Location permissions in order to use Bluetooth.

4. Open the Song Meter Configurator app and tap on the **Recorders** icon if the **Recorders** screen is not already shown.
5. Turn on the Song Meter Mini 2

    If the recorder had been set to broadcast Bluetooth beacons, the recorder name will appear in the **Recorders** list. The **Received** text should read "Just now" or a duration of less than one minute.
6. Press and hold the **PAIR/STATUS** button on the Song Meter Mini 2 for three seconds.

    A **Pair** icon will appear to the right of the recorder's name in the **Recorders** screen.
7. Tap the **Pair** icon in the app.

    The app will display messages indicating it is updating the recorder's clock and reading the recorder's settings.

    The app may prompt you to update the Song Meter Mini 2's Time Zone and/or Location settings to match the settings on your mobile device. See Automatically Set the Recorder's Time Zone (page 29) and Setting the Recorder's Deployment Location (page 30).

In the **Recorders** screen, **Configure** and **Unpair** icons will be displayed to the right of the paired recorder's name and to the left of the **Status** icon. The recorder name and all three of these icons will be colored green to indicate Paired status.

> **(NOTE)**
> Pairing does not affect the schedule of recordings nor interrupt a recording in progress. The Song Meter Mini 2 recorder will not go to sleep while paired. If the recorder finishes a recording period and is ready to go to sleep, it will not go to sleep until it is unpaired.

Setting the Recorder's Clock

The first time the Song Meter Mini 2 recorder is configured, or if the batteries have been removed for some time, the internal clock will not be set. When the recorder is paired with the Song Meter Configurator app, the clock of the recorder will be automatically set to match the Mobile device.

Automatically Set the Recorder's Time Zone

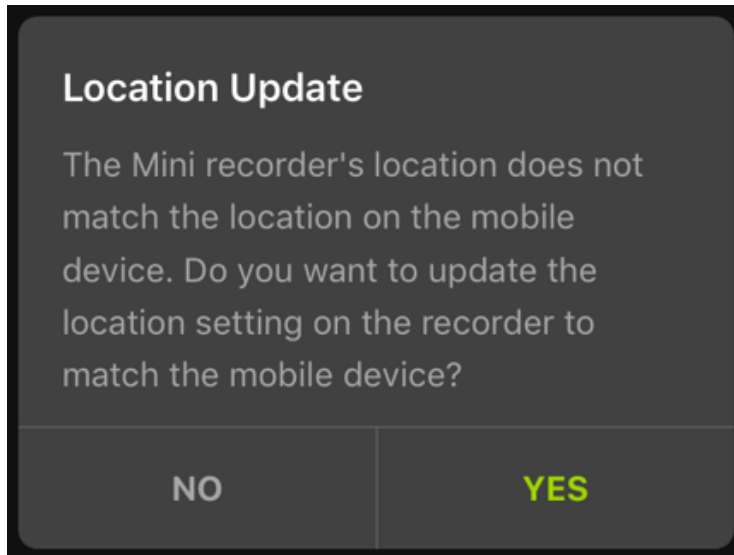You can set the time zone setting of the Song Meter Mini 2 automatically when pairing with the recorder.

During pairing, if the recorder's current time zone setting does not match the time zone setting on your mobile device, the app will ask if you want to update the recorder's time zone. In most circumstances, we recommend tapping **YES** to match the recorder's time zone with your mobile device's time zone.

If you are configuring the recorder in a different time zone than where the recorder will be deployed, you should either configure the recorder's time zone manually (see Location & Time Zone Screen (page 38)) or pair with the recorder when you reach the deployment site to update its time zone.

Setting the Recorder's Deployment Location

The Song Meter Mini 2 can save one set of Latitude/Longitude coordinates at a time. This saved location is used to calculate the times of sunset and sunrise each day, and it is also saved as metadata to each recording file and to the recorder's summary text file. This provides a record of where each audio file originated.

When the Song Meter Mini 2 recorder is pairing with the Song Meter Configurator app, the current location of the mobile device is compared with the recorder. If the saved location on the recorder does not match the current location of the mobile device, the following message will be displayed:

Location Update

The Mini recorder's location does not match the location on the mobile device. Do you want to update the location setting on the recorder to match the mobile device?

NO   YES

Tap **YES** to set the programmed location of the Song Meter Mini 2 recorder to the current mobile device location

Tap **NO** to leave the currently programmed location of the recorder unchanged.

The recorder's location settings can be edited from within the **Configuration Editor** screen. See Location & Time Zone Screen (page 38).

Unpair from the Recorder

To unpair from a paired recorder, simply tap the **Unpair** icon to the right of the recorder's name in the **Recorders** screen.

The **Configure** and **Unpair** icons will disappear, and the recorder's name and **Status** icon will change color from green back to white.

4.3. CONFIGURATION EDITOR SCREEN
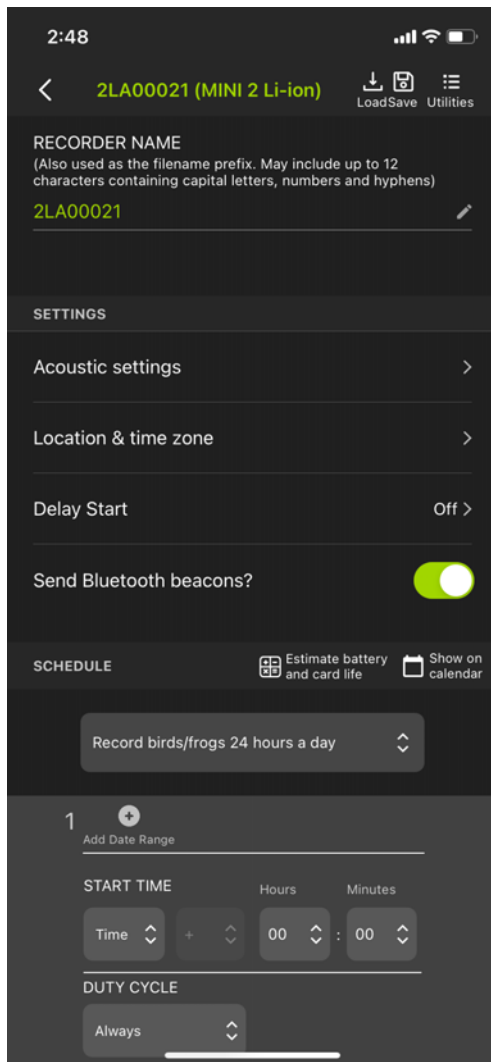
To view and alter the schedule and settings of a paired recorder, tap the **Configure** icon to open the Configuration Editor screen.

If the **Configure** icon is not visible, it means the app is not paired with the recorder. See Pair the Recorder with the Song Meter Configurator app (page 28) for instructions on pairing.

When the Song Meter Mini 2 recorder pairs with the Song Meter Configurator app, it automatically uploads and displays its current configuration to the app. Any changes you make in the Configuration Editor are immediately saved to the paired recorder. The Status LEDs on the paired recorder will flash green three times each time a setting is changed.

NOTE
Making a configuration change stops any recording in progress and pauses the schedule for ten seconds. This allows changes to be made to the configuration without constantly starting and stopping a record schedule. Each configuration change resets the ten-second pause. Ten seconds after no further changes have been made, the recorder will resume its schedule, which may mean that it starts recording again if scheduled to do so.

The Configuration Editor screen contains the following elements, ordered from top to bottom, left to right:

- Top-most info bar
  - `<` (back) button and paired recorder info
    This text displays the paired recorder's name and model. Tap on this text to return to the **Recorders** screen.
  - **Load**
    Tap to load a Configuration file from the app's **Configuration Library**, updating all of the paired recorder's settings to match. See Configuration Library Screen (page 49) for more info.
  - **Save**
    Tap to save a copy of the paired recorder's settings to the **Configuration Library** with a custom Configuration Name.
    After the configuration has been saved, the configuration editor will continue to show the active settings for the paired recorder. To edit the saved configuration, see Configuration Library Screen (page 49).
  - **Utilities**
    Tap to access various utility functions. See Utilities Menu (page 33) for descriptions of all available utility functions.
- **RECORDER NAME** Panel
  This panel displays the current recorder name as an editable text field. Tap on the recorder name or on the pencil icon to edit the recorder name. The default value of the Recorder Name is the recorder's serial number.
  The **RECORDER NAME** is saved as the prefix of every audio file name for easy file organization. It is also saved to the metadata of each `.wav` audio file in the "WA|Song Meter|Prefix" field.
- **SETTINGS** Panel
  - **Acoustic settings**
    Tap to open the Acoustic Settings Screen (page 36).
  - **Location & time zone**
    Tap to open the Location & Time Zone Screen (page 38).
  - **Delay start**
    Tap to open the Delay Start (page 41) window.
  - **Send Bluetooth beacons?**
    Use this toggle switch to set whether the paired Song Meter Mini 2 will broadcast status beacons that can be received by the Song Meter Configurator app when not paired.
- **SCHEDULE** Panel
  The lower section of the Configuration Editor screen contains many different controls for configuring the recorder's schedule. See Schedule Editor (page 42) for a full description of this panel and the Song Meter Mini 2's schedule capabilities.

4.3.1. Utilities Menu
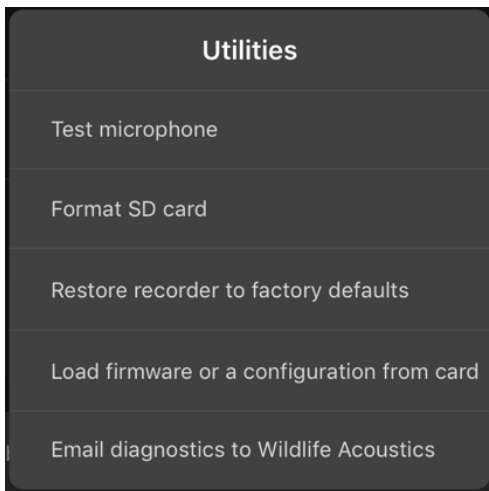
To access the **Utilities** menu, tap the **Utilities** icon at the top right of the Configuration Editor screen. The **Utilities** menu brings up the following utilities:

- Test Microphone (page 33)
- Format SD Card (page 35)
- Restore Recorder To Factory Defaults (page 35)
- Load Firmware or a Configuration from Card (page 35)
- Email Diagnostics to Wildlife Acoustics (page 36)

Test Microphone

This window can be used to test the sensitivity of the paired recorder's installed microphone(s). It displays real-time measurements of the volume of each microphone's incoming signal in decibels relative to full scale (dBFS). When paired with a calibrated signal generator, this provides a simple and objective measurement of the microphone's sensitivity at one frequency.

Test the Acoustic Microphone
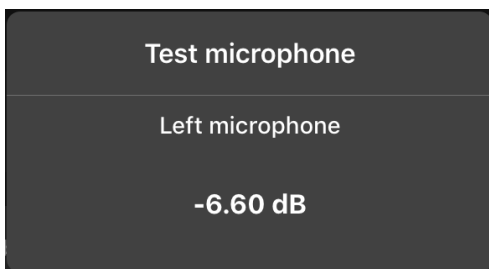
The sensitivity of the acoustic microphone can be measured to test its functionality. The **Test microphone** readout measures the volume of the incoming signal from the acoustic microphone with a bandpass filter applied at 1 kHz. This readout is designed for use with a standard microphone calibrator.

A standard microphone calibrator will produce a 1 Pa / 94dB SPL, 1kHz tone at a fixed distance from the microphone. The calibrator must be compatible with 0.5 inch diameter microphones.

> **❗ IMPORTANT**
> This procedure is only valid for third-party microphone calibrators that emit a calibrated, 1.0 kHz sine wave at a volume of 94 dB SPL.

1. Open the **Test microphone** window.
    a. Pair the Recorder with the Song Meter Configurator app (page 28).
    b. Tap **Configure** > **Utilities** > **Test microphone**.
2. Close the lid of the Song Meter Mini 2.
3. Remove the foam windscreen from the acoustic microphone.

4. Connect the calibrator to the acoustic microphone according to the calibrator's instructions.

5. Turn the calibrator on.
6. If the calibrator has the option of multiple test frequencies and amplitudes, select 1 kHz and 94 dB SPL.
7. Observe the amplitude reading in the **Test microphone** window. If the value is higher than -16 dB, the microphone has passed and is ready to use. If the value is lower, the microphone has lost some or all of its sensitivity and should be replaced.

NOTE

dBFS readings in the **Test microphone** window are negative numbers, so a "higher" value than -16 dB is one that is closer to 0 dB. For example, a reading of -10 dB would pass, while a reading of -20 dB would fail.

Format SD Card

This utility can be accessed via the Utilities Menu (page 33). SD cards can also be formatted on the recorder using the ⌈**FUNCTION**⌋ button, without using the app (see Function Button and Function LEDs (page 15)).

This utility re-formats the SD card in the currently paired recorder, resetting it to a "blank slate" and deleting any existing files from the card. We recommend re-formatting your SD card prior to the start of each deployment to minimize the risk of SD card errors, which can result in lost data.

Common kinds of SD card errors can be resolved by reformatting the card. See SD Card Error Messages (page 72) for details on common SD card errors.

> ⚠ **CAUTION**
>
> This procedure erases all data on the SD card. Verify that you have saved any important configuration files, recordings, or other files before running this utility.

> ❗ **IMPORTANT**
>
> It is important to reformat the SD card prior to each deployment. Reformatting the card goes beyond just deleting existing data. It resets the structure of the card and reduces the likelihood of data corruption.
>
> Reformatting can be done using the Song Meter Mini 2 or using the SD Card Association's official, free formatting utility for Windows and Mac.

Restore Recorder To Factory Defaults

Restores the Song Meter Mini 2 recorder to its factory default configuration.

- Restoring factory defaults will not change the date and time of the recorder.
- See Acoustic Settings Screen (page 36) for default acoustic audio settings.
- The default schedule is the preset **Record birds/frogs 24 hours a day**.

Load Firmware or a Configuration from Card

This utility can be accessed via the Utilities Menu (page 33). The same function can be performed without the Song Meter Configurator app, using the buttons on the main panel (see Function Button and Function LEDs (page 15)).

This utility loads a configuration file (ending in `.miniconfig`) and/or firmware file (ending in `.smm`), from the SD card to the recorder. If there are both a configuration file and firmware file on the card, the configuration file will be loaded first, and then the firmware update will be loaded.

Configuration files can be generated using the following methods:

- Export from a Song Meter Mini 2 to an SD card using the main panel buttons (see Exporting Configuration and Diagnostic Files to an SD Card from the Main Panel (page 19)).
- Share a configuration from the **Configuration Library** to an email, messaging, or cloud storage application (see How To Share A Saved Configuration File (page 50)).

If your Song Meter Mini 2 is running an out-of-date firmware version, a warning will be displayed on the recorder's Status Screen (page 25). The latest firmware file can be downloaded from our Downloads page.

The same SD card can be inserted into multiple recorders, one after another, to update the firmware and configure a large fleet with matching settings.

Email Diagnostics to Wildlife Acoustics

This function is accessed from the Utilities Menu (page 33).

This utility generates a diagnostics file from the paired Song Meter Mini 2 and opens a blank email, addressed to Wildlife Acoustics Support, with the diagnostics file as an attachment. You can then edit the subject and body of the email before sending it. You must have your mobile device's built-in email application properly configured in order to send a diagnostics file using this method. A diagnostics file can also be saved to an SD card using the physical controls on the Song Meter Mini 2 main panel.

In general, we recommend only sending a diagnostics file to Wildlife Acoustics Support if a support representative requests it. A diagnostics file by itself is not enough to identify issues you may be experiencing with your recorder; your own description of the problem is the best place to start. A support representative may ask to see a diagnostics file once they understand the context of the issue.

4.3.2. Acoustic Settings Screen

The parameters on the **Acoustic settings** screen affect how the Song Meter Mini 2 records audio during its recording schedule.

To make changes to any setting on this page, tap on the setting label. A new window will appear to let you select the available options for that setting.
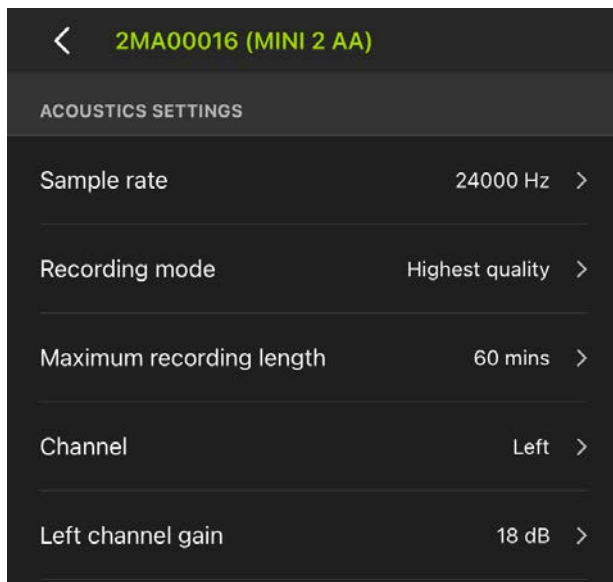
The **Acoustic settings** screen includes the following settings:

- Sample Rate (page 37)
- Recording Mode (page 37)
- Maximum Recording Length (page 37)
- Channel (page 38)
- Left Channel Gain/Right Channel Gain (page 38)

Sample Rate

- **Options:** 8000; 12000; 16000; 22050; 24000; 32000; 44100; 48000; or 96000 Hz
- **Default:** 24000 Hz

Determines the number of samples per second used to make a recording during a recording period. Higher sample rates take up more SD card space for a given recording length, but they allow you to record a broader frequency range of sound (subject to the sensitivity of the microphone).

Choose a sample rate at least double the highest frequency you want to record. For example, a sample rate of 24,000 Hz will capture sounds up to 12,000 Hz.

Recording Mode

- **Values**: Highest quality, Low-power
- **Default**: Highest quality

> **NOTE**
> The **Recording Mode** setting was introduced in firmware 4.1 for the first- and second-generation Song Meter Mini families. Prior to this firmware version, the "Highest quality" mode was the only mode used.

The **Recording Mode** setting enables you to make a trade-off between audio quality and longer battery life.

The battery life benefits from opting for Low-power mode depend on the sample rate and number of channels you have selected. Generally speaking, lower sample rates benefit more than higher sample rates, but there is significant variation from one sample rate to the next. At the default sample rate of 24 kHz, the battery life benefit is approximately 30% in mono and 13% in stereo. See Acoustic Recording Power Consumption (page 78) for a table of power consumption measurements taken at each sample rate, with Highest Quality and Low-Power modes.

The audio trade-off is that, in Low-power mode, the anti-alias filter is less effective. The anti-alias filter removes frequencies that are too high for the selected sample rate to record. Sounds that are higher in frequency than half of the sample rate are not recorded accurately. They instead are "folded down" and appear as upside-down artifacts in the recorded audio. In both recording modes on the Song Meter Mini 2, aliasing is possible, as the anti-alias filter takes effect gradually as frequency increases. In Low-power mode, aliasing artifacts will be louder by 3 to 12 dB.

In many situations, when using the default sample rate of 24 kHz, this may not present a significant or even noticeable problem. There are relatively few sound sources in nature above 12 kHz. Echolocating animals like bats are the most obvious exception, but some species of droning insects may present a more severe problem.

If you are recording in an environment with significant high-frequency sound sources, like droning insects or high levels of bat activity, we recommend using the default, Highest quality mode.

Maximum Recording Length

- **Values**: 1 minute to 60 minutes in 1-minute increments

- **Default**: 60 minutes

Specifies the maximum length of individual recordings within a schedule. Long recording periods will be broken up into sections defined by this length. For example, if a recording schedule is set to record 24 hours per day, and the maximum record length is set to 60 minutes, the recorder will create twenty-four 60-minute files per day.

Channel

- **Options**: Left, Right, or Stereo.
- **Default**: Stereo.

If a second microphone is connected to the Song Meter Mini 2, there is an option to record one or two channels of audio.

For single channel recording, either microphone can be selected. If stereo is selected, both microphones will record. If the Song Meter Mini 2 only has a single microphone detected, this option is not available for selection.

Left Channel Gain/Right Channel Gain

- **Options**: 6, 12, 18, or 24 dB
- **Default**: 18 dB

Gain can be added to the microphone signal to increase the recorded signal's amplitude.

If there are two microphones connected to the Song Meter Mini 2, there are separate gain controls for each microphone.

Test recordings should be made to make sure desired signals are being recorded with enough gain, but not so much as to cause clipping distortion. If a test recording shows clipping distortion, lower the gain setting. If a test recording shows a faint signal, raise the gain setting.

Right Channel Gain

- **Options**: 6, 12, 18, or 24 dB
- **Default**: 18 dB

Gain can be added to the microphone signal to increase the recorded signal's amplitude.

Test recordings should be made to make sure desired signals are being recorded with enough gain, but not so much as to cause clipping distortion. If a test recording shows clipping distortion, lower the gain setting. If a test recording shows a faint signal, raise the gain setting.

4.3.3. Location & Time Zone Screen

The Song Meter Mini 2 deployment location and time zone can be set in the **Location & Time Zone** screen, accessed from the **Configuration Editor** screen.

Time zone and location information are embedded in the metadata of files created by the Song Meter Mini 2 recorder.

The saved location settings must match the recorder's actual deployment location to within roughly 0.25 degrees longitude if sunrise or sunset times are to be used in a recording schedule.

The time zone setting must match the time zone convention you want the recorder to follow. Note that in regions that practice daylight savings time, the time zone conventions are different for standard and daylight time.

Deployment location and time zone can be set automatically when the Song Meter Mini 2 recorder is first paired with the Song Meter Configurator app (see Pair the Recorder with the Song Meter Configurator app (page 28)).
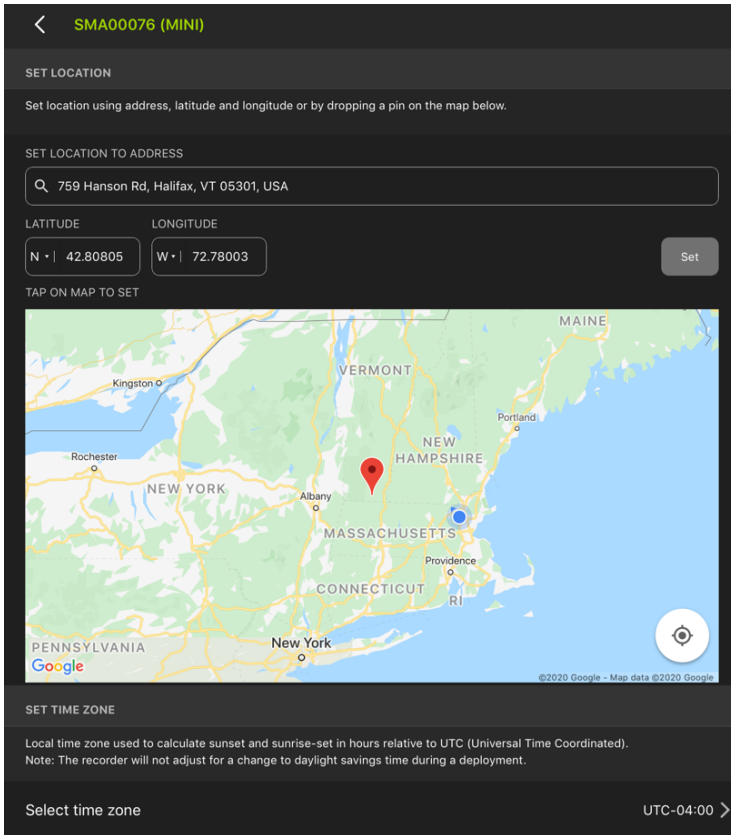
Set Location to Address

Specify a deployment location based on a street address using the Google Maps database. This will automatically update the location's latitude and longitude, which will be represented by the pin on the map.

Latitude/Longitude

Manually enter latitude and longitude information. Tap the **Set** icon to update. This will also automatically update the **ADDRESS** field to the nearest valid address, and the new location will be represented by the pin on the map.

Set

Tap the **Set** icon to save manually entered Latitude and Longitude settings. This will also center the map view on the entered location.

Map

If the mobile device is connected to the internet, or if the nearby area is saved in Google Maps as an offline map, this panel will display an interactive map. The Song Meter Mini 2's saved location is indicated by a red pin, and the mobile device's current location is indicated by a blue dot. A light blue halo around the blue dot indicates the level of precision for the mobile device's detected location.

> **NOTE**
>
> Map data for specific regions can be saved to your mobile device for offline use using the Google Maps app. For full instructions, refer to this Google support article.

To pan across the map view, touch and drag across the map panel with one or two fingers. To zoom in and out, touch the map with two fingers and move them together or apart.

One way to update the Song Meter Mini 2's saved location is to tap on the desired location in the map view with one finger. The red pin will be moved to the tapped location, and the address, latitude, and longitude fields will all update to match, reflecting the recorder's new saved deployment location.

> **NOTE**
>
> Many tablets that do not have cellular connectivity also lack a built-in GPS antenna. In this case, approximate location data can be detected from nearby WiFi routers, but this data will not be very precise even if there are WiFi routers nearby.
>
> A tablet can be used with a dedicated GPS unit like the Garmin GLO 2 to access more precise location data.

Crosshairs Icon (Zoom to Current Location)

Tap the crosshairs icon in the lower-right corner of the map view to center the map view on the mobile device's current location. Tapping this icon **does not** automatically update the Song Meter Mini 2's location. You can tap a location on the map to drop a red pin and update the recorder's saved location.

Select Time Zone
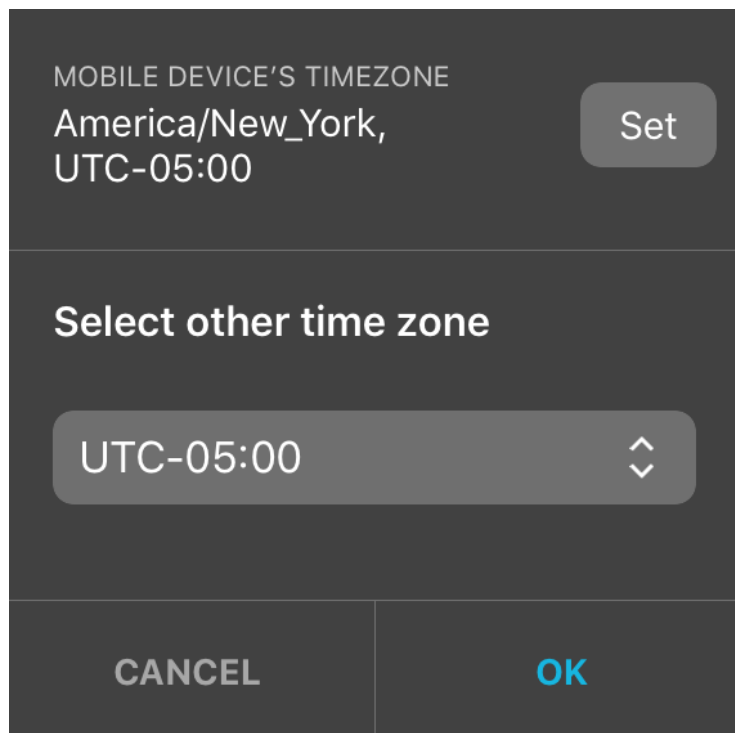
By default, the time zone setting is copied from the mobile device's current time zone.

Tap the **SET** button to instantly set the recorder to match the mobile device's Time Zone and dismiss the time zone setting window.

To manually set the recorder's time zone, tap on the drop-down menu, select the desired time zone setting for your deployment, and tap **OK**.
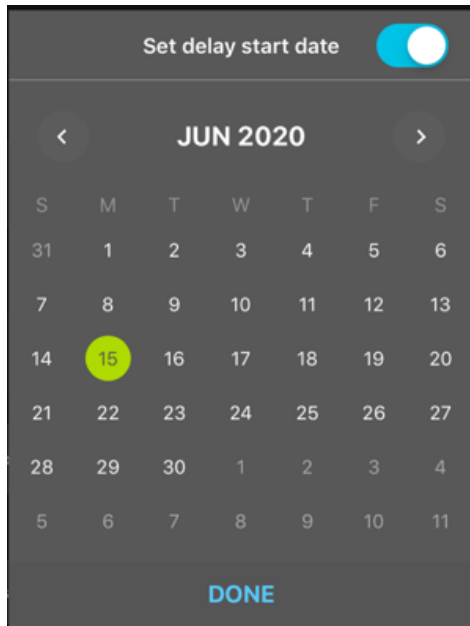
4.3.4. Delay Start

The **Delay Start** setting allows you to program the recorder to not begin running its schedule until 12:00 AM at the start of the selected date, specified by year, month, and day.

For example, imagine you the Song Meter Mini 2 to record only the winter season, but it would be much easier to reach the deployment site in the fall, before the first snowfall. This setting ensures the recorder will not waste valuable card space and battery life until the specified date.

If the **Delay Start** date is enabled, but you power on the Song Meter Mini 2 on or after the specified date, it will begin running its schedule immediately.

Configuring Delay Start

1. Open the **Configuration Editor**.
2. Tap on the **Delay Start** entry to open a calendar interface.

3. Tap the **Set delay start date** toggle switch to enable or disable the **Delay Start** setting. When the toggle is enabled, the calendar is active.
4. Navigate between months using the left and right arrows below the **Set delay start date** toggle.
5. Select a date by tapping the corresponding entry on the calendar. The selected date is highlighted with a green circle.
6. Tap **DONE** to save your **Delay Start** setting.

4.3.5. Send Bluetooth Beacons?

- **Options**: On or Off
- **Default**: On

By default, a recorder that is powered on will send continuous Bluetooth beacons so the Song Meter Configurator app can detect the recorder and receive its current status.

- If Send Bluetooth Beacons? is disabled, the Song Meter Configurator app will not automatically detect the recorder, and its current status will not be automatically updated.
- If Send Bluetooth Beacons? is disabled, the recorder must be manually paired with the Song Meter Configurator app in order for the current status to be updated in the app.
- Disabling Send Bluetooth Beacons? will not affect the recording functions of the Song Meter Mini 2 recorder.

4.3.6. Schedule Editor

The Schedule Editor occupies the lower half of the Configuration Editor Screen (page 31).

This section and the following subsections will describe the interface of the schedule editor and the basic functions of each element of the editing interface. For more information on how schedules work and how to design a custom schedule yourself, see Understanding Schedules (page 56).
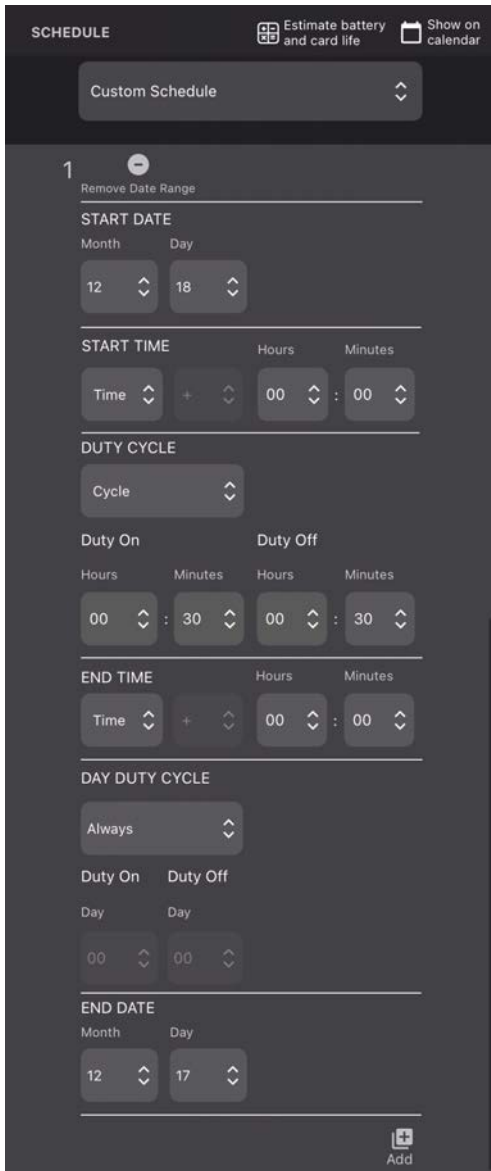
The Schedule Editor interface includes the following elements, listed from top to bottom, left to right.

- **Estimate battery and card life**
  Tap to open the Estimate Battery and Card Life Window (page 45).
- **Show on Calendar**
  Tap to open the Calendar View (page 47) for the active schedule.
- **Preset Schedules Drop-down**
  Tap to select one of the Preset Schedules (page 48). Doing so will overwrite the existing schedule.

Each schedule can be composed of up to 10 schedule blocks, listed vertically below the Preset Schedules drop-down menu. Each schedule block includes the following elements:

- **Add Date Range** / **Remove Date Range**
  Tap to add or remove the **START DATE**, **DAY DUTY CYCLE**, and **END DATE** features from the schedule block. When these features are disabled, the schedule block will run each day.
- **START DATE**: **Month** and **Day** drop-downs
  When **Date Range** is active, these drop-downs determine the date when the schedule block begins running.

- **START TIME**
  These controls determine when, during a 24-hour period, the schedule block starts running.
  - **Time** / **Rise** / **Set** drop-down
    When **Time** is selected, the schedule block will start at a fixed time on the clock each day.
    When **Rise** or **Set** is selected, the schedule block will start at a fixed offset relative to sunrise or sunset, respectively.
  - **+** / **-** drop-down
    Not active when **Time** is selected.
    When **Rise** or **Set** is selected:
    + specifies an offset **after** sunrise or sunset.
    - specifies an offset **before** sunrise or sunset.
  - **Hours** and **Minutes** drop-downs
    When **Time** is selected, these drop-downs define the fixed time when the schedule block begins running, using the 24-hour clock system.
    When **Rise** or **Set** is selected, these drop-downs define the length of the offset before or after sunrise or sunset.
- **DUTY CYCLE**
  - **Always** / **Cycle** drop-down
    Tap to select whether the schedule block runs continuously between its start and end times or follows a duty cycle.
  - **Duty On**: **Hours** and **Minutes**
    When **Cycle** is selected, these dropdowns define the length of the active portion of the duty cycle.
  - **Duty Off**: **Hours** and **Minutes**
    When **Cycle** is selected, these dropdowns define the length of the inactive portion of the duty cycle.
- **END TIME**
  These controls determine when, during a 24-hour period, the schedule block stops running.
  - **Time** / **Rise** / **Set** drop-down
    When **Time** is selected, the schedule block will end at a fixed time on the clock each day.
    When **Rise** or **Set** is selected, the schedule block will end at a fixed offset relative to sunrise or sunset, respectively.
  - **+** / **-** drop-down
    Not active when **Time** is selected.
    When **Rise** or **Set** is selected:
    + specifies an offset **after** sunrise or sunset.
    - specifies an offset **before** sunrise or sunset.
  - **Hours** and **Minutes** drop-downs
    When **Time** is selected, these drop-downs define the fixed time when the schedule block stops running, using the 24-hour clock system.
    When **Rise** or **Set** is selected, these drop-downs define the length of the offset before or after sunrise or sunset.
- **DAY DUTY CYCLE**
  These controls are only visible when a **Date Range** is enabled for a given schedule block.
  - **Always** / **Cycle** drop-down
    Tap to select whether the schedule block runs every day between the **START DATE** and **END DATE** or whether it follows a duty cycle to determine on which days to run.
  - **Duty On**: **Days**
    When **Cycle** is selected, determines the length, in days, of the active portion **DAY DUTY CYCLE**.
  - **Duty Off**
    When **Cycle** is selected, determines the length, in days, of the inactive portion **DAY DUTY CYCLE**.

- **END DATE**: **Month** and **Day** drop-downs
  When **Date Range** is active, these drop-downs determine the date when the schedule block stops running.

Estimate Battery and Card Life Window

From the **Configuration Editor** screen, tap the **Estimate battery and card life** icon to open the **Estimate battery and card life** utility.

This utility estimates battery and SD card life for different battery types and card sizes, using the currently programmed schedule and settings.
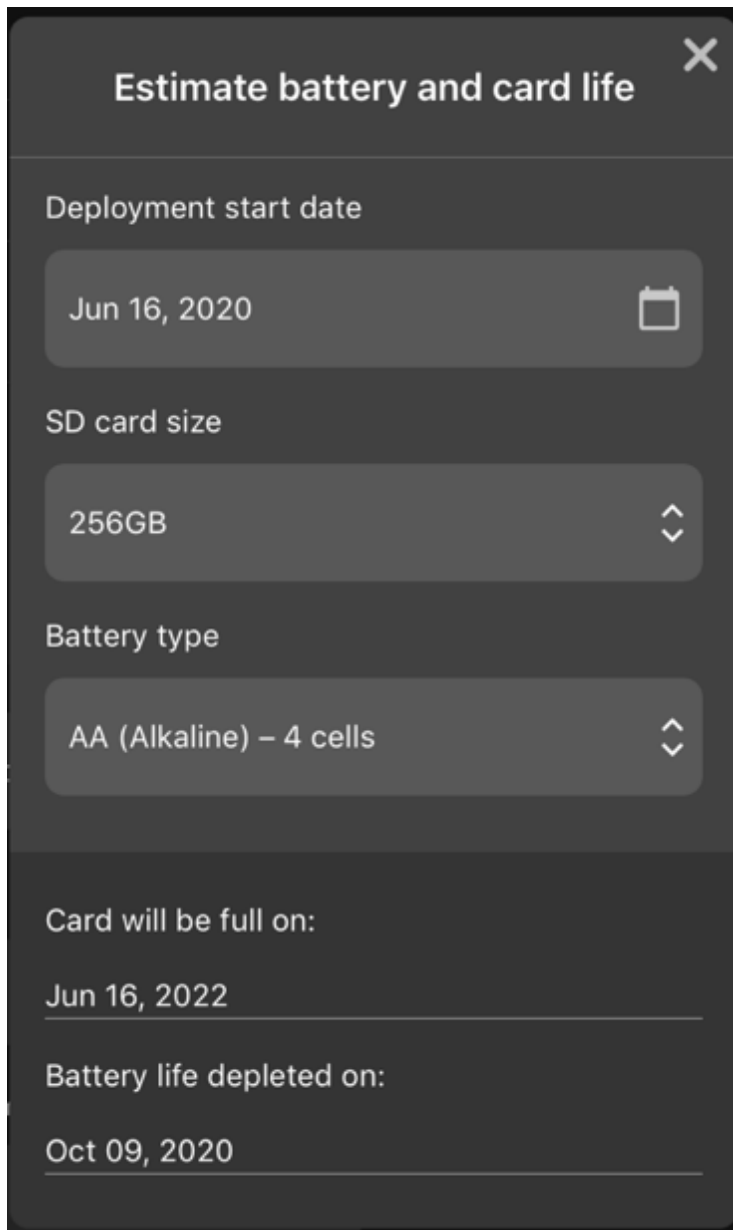
The **Estimate battery and card life** window contains the following elements:

- **Deployment start date** interactive calendar
  Tap on the text showing the selected start date to open a calendar window and select a new start date.
  Changing the expected start date directly affects the estimated end dates for card space and battery life. This date only affects the estimation; it does not affect when the recorder will start

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running its schedule. To specify an initial delay in the recorder's schedule, use the Delay Start (page 41) setting.

- **SD card size** drop-down

  Select the card capacity to use for estimating when the card will be completely full.

  The options include the most common SD card sizes between 8 GB and 2 TB. If configuring a paired recorder, the **Use Current Card** option bases the estimation on the remaining available space on the installed SD card.

- **Battery type** drop-down

  Select type and quantity of batteries to use for estimating when the batteries will die.

  If configuring a paired recorder, **Use Current Batteries** measures the voltage of the installed batteries and estimates the remaining available energy.

- **Alkaline/Lithium Cells Count** drop-down

  If **Use Current Batteries** is selected, use this drop-down to specify how many alkaline AA batteries or 18650 Lithium-ion batteries are installed.

- **Card will be full on:**

  Displays the date on which the card is estimated to be full, based on the recorder configuration and SD card settings listed above.

  The SD Card estimation assumes the recorder never runs out of power.

- **Battery life depleted on:**

  Displays the date on which the batteries are estimated to lose power, based on the recorder configuration and battery settings listed above.

  The Battery Life estimation assumes the recorder never runs out of SD card space.

Battery Life Estimations

Battery life estimations are based on measurements taken with typical SD cards at room temperature. These estimations should be treated as very broad, as many factors can significantly affect power consumption. These factors include, but are not limited to:

- **SD card power consumption**: SD cards vary significantly in how much power they require. Even cards of the same model and size from the same manufacturer exhibit this variation.
- **Ambient temperature**: Most types of batteries experience diminished performance in cold weather compared to room temperature. The magnitude of this effect is different for various battery chemistries. For example, alkaline AA batteries can have their performance reduced by 50% or more in freezing temperatures.

> **NOTE**
> For a full table of the power consumption measurements that inform these battery life estimations, see Power Consumption and Expected Battery Life (page 78).

Battery life estimations assume either:

- Alkaline AA batteries, Energizer brand or similar quality
- Lithium-ion 18650 batteries with charge capacities of 3500 mAh

Using non-alkaline AA batteries, such as rechargeable NiMH batteries or Energizer® Ultimate Lithium™ batteries will result in real-world battery life that is drastically different from the estimations shown here. For more information, see Types of AA Batteries (page 76).

Using lithium-ion 18650 batteries with charge capacities other than 3500 mAh per cell will result in proportionally inaccurate battery life estimations. For more information about recommended lithium-ion batteries, see Lithium-Ion Battery Requirements (page 77).

SD Card Estimations

When you select a preset SD card size in the **Estimate battery and card life** window, the estimation assumes that all of the card space is completely unused. Reformat the SD card before each deployment to ensure that this is the case (see Format SD Card (page 35)).

For acoustic recording, SD card usage is very predictable. Assuming the SD card used during the deployment is freshly formatted and does not encounter an unusual issue, the date at which the card fills up should not significantly deviate from the estimation shown on the **Estimate battery and card life** window.

Calendar View
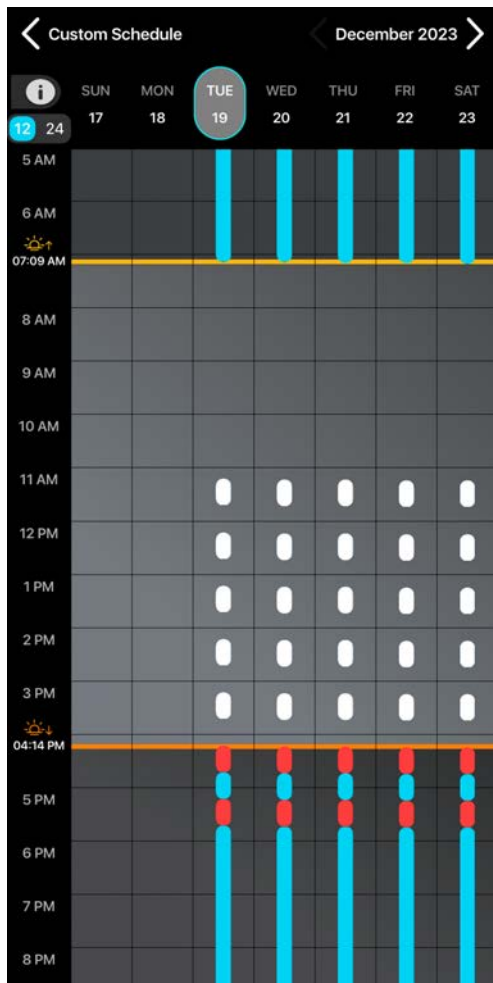
From the **Configuration Editor** screen, tap the **Show on calendar** icon to visually check schedules on a calendar.

- Press the **Show Legends** button to display color coding.
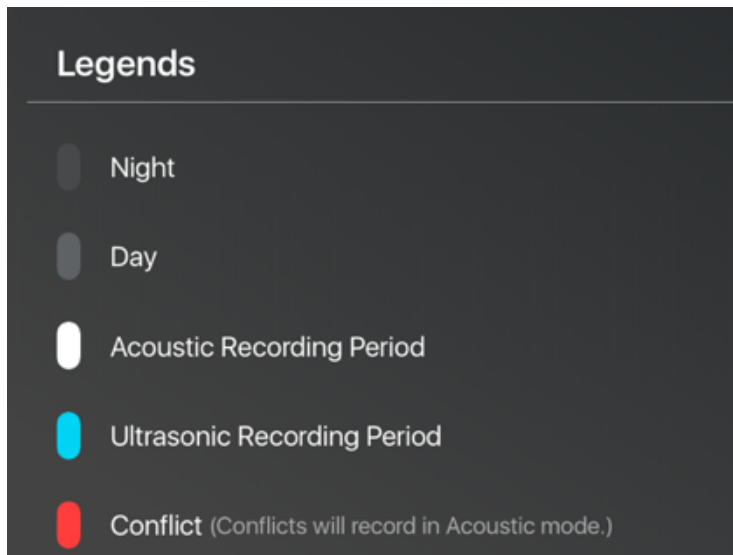
- Scroll left or right to change the currently displayed date and schedule.
- Sunrise/sunset times for any date are based on the currently programmed GPS location.
- Tap on a day within a week to view the sunrise/sunset times for that day.

Preset Schedules

The Configurator app includes preset schedules for several common recording schedules.

Tap the schedule menu to select different preset schedules. If a customized schedule is currently programmed, this menu will display **Custom Schedule**.

When a preset schedule is selected, it is automatically loaded onto the Song Meter Mini 2 recorder. The schedule settings are displayed and can be immediately edited.

Preset schedules for acoustic recording are:

- Record birds/frogs 24 hours a day
- Record birds/frogs for 30 minutes of every hour.
- Record birds/frogs for 5 minutes of every hour
- Record birds/frogs from sunrise to sunset
- Record birds/frogs 2 hours around sunrise and 2 hours around sunset

4.4. CONFIGURATION LIBRARY SCREEN
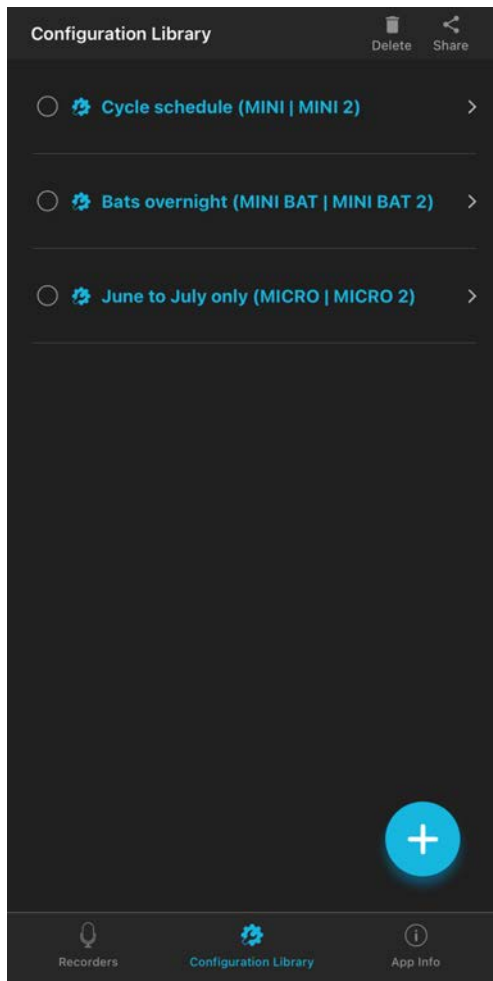
- The Configuration Library screen is accessed by tapping the Configuration Library icon at the bottom of the Recorders/Configuration Library/App Info screens. Since the Song Meter Mini 2 has internal memory for a single configuration, the Configuration Library in the app is where you can store multiple configuration files. A configuration file can be downloaded to a paired Song Meter Mini 2 recorder from the Song Meter Configurator Library (see Configuration Editor Screen (page 31)). A configuration file consists of settings and a schedule for the Song Meter Mini 2 recorder.
- Configuration files can be created and saved from the Paired **Configuration Editor** screen (see Configuration Editor Screen (page 31)).
- Configuration files can be created directly from the Configuration Library screen.
- Saved configuration files can be edited. After making an edit to a saved configuration file, exiting the edit window will save the change.
- Configuration files can be shared via standard iOS or Android protocols.
- A shared configuration file can be copied from a PC to an SD memory card and the SD card can then be used to program the configuration into a Song Meter Mini 2 recorder.

> **NOTE**
> A saved configuration file can have a specific location and time zone as part of its settings. The configuration file's location and time zone will overwrite the previously saved location and time zone on the Song Meter Mini 2 recorder when the saved configuration file is loaded, either to a paired recorder or via an SD card.
>
> When using a single configuration file to program multiple recorders, be sure to update the location and time zone for each recorder individually. This can be done quickly by pairing with each recorder at the deployment location and accepting the prompts to update the recorder's time zone and location settings.

4.4.1. How To Create a Configuration File From the Configuration Library Screen

1. Navigate to the **Configuration Library** screen.
2. Tap the **+** icon to open the **Add configuration** screen.
3. Choose which Song Meter model the configuration is intended for.
4. Tap on the **CONFIGURATION NAME** text field to enter a custom name.
5. Choose a **PRESET SCHEDULE** from the drop-down menu to use as a starting point.
   The schedule can be changed on the next screen.
6. Choose whether to **Use Mobile Device Location** or not.
   If this option is disabled, fields will appear to manually enter coordinates or an address or to tap a location on a map.
7. Choose whether to **Use Mobile Device Time Zone** or not.
   If this option is disabled, a menu item will appear to select a Time Zone from a drop-down list.
8. Tap **NEXT**.
   The **Configuration Editor** will open. This screen is nearly identical to the one shown when configuring a paired recorder.
9. Adjust the Settings and Schedule as necessary (see Configuration Editor Screen (page 31)).
10. When you are done making changes to the configuration, tap the configuration's name at the top of the screen.

The app will return to the **Configuration Library** screen, and the configuration file you just created will be present in the list of configurations.

4.4.2. How To Delete A Saved Configuration File

1. In the **Configuration Library** screen, tap on the selection circle icon to the left of any configuration to select it.
   Selected configurations have the selection circle icon filled in with a check mark.
2. Repeat step 1 to select multiple configurations, if desired.
3. Tap the **Delete** icon in the upper right of the screen.
   A message will ask if you're sure you want to delete the configuration.
4. Tap **DELETE**.

4.4.3. How To Share A Saved Configuration File

A configuration file can be shared to other iOS/Android devices or a computer. The configuration file has the file name suffix **.miniconfig**.

1. In the **Configuration Library** screen, tap on the selection circle icon to the left of any configuration to select it.
    Selected configurations have the selection circle icon filled in with a check mark.
2. Repeat Step 1 to select multiple configurations, if desired.
3. Tap the **Share** icon at the top right of the screen.
    The iOS or Android interface for sharing files between applications will open.
4. From the operating system's file-sharing interface, select the desired method for sharing the file.
    For example, you can send the configuration file as an email attachment or use your device's file manager to save the configuration file to an SD card.

Shared configuration files can be transferred from to an SD card directly from a mobile device with a file manager and SD card reader, or they can be sent to a computer for transfer to an SD card. The card can then be used to transfer the configuration directly to the recorder using the recorder's `LOAD` button (see Function Button and Function LEDs (page 15)).

## 4.4.4. How to Import a Configuration File

On iOS, import from Mail

If a `.miniconfig` file is sent to you as an email attachment, you can import the file into the Song Meter Configurator's **Configuration Library**. Importing files sent via other means, such as a message app, a cloud storage app, or Apple AirDrop, works via a similar series of steps.

1. Open the Mail app.
2. Open the message containing the `.miniconfig` file attachment.
3. Tap on the attachment to open a preview window. **Do not** tap on the **Download** icon, shown as a square with a downward arrow.
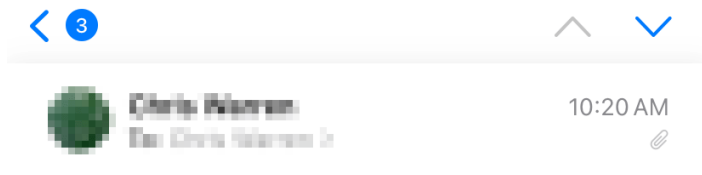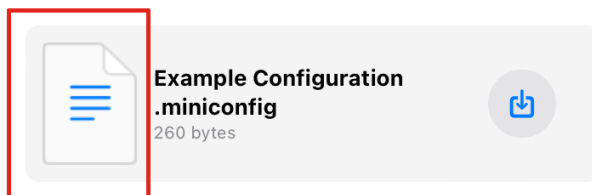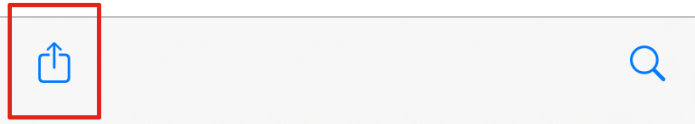

Because the Mail app doesn't know how to interpret a `.miniconfig` file, the body of the preview window will display a short string of nonsensical text.

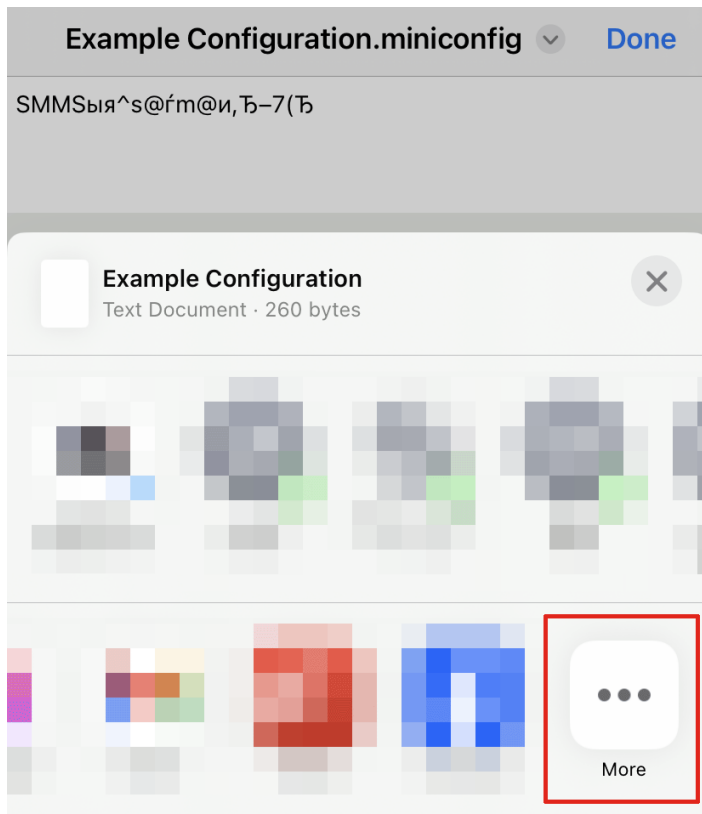4. Tap on the **Share** icon, shown as a square with an upwards arrow.

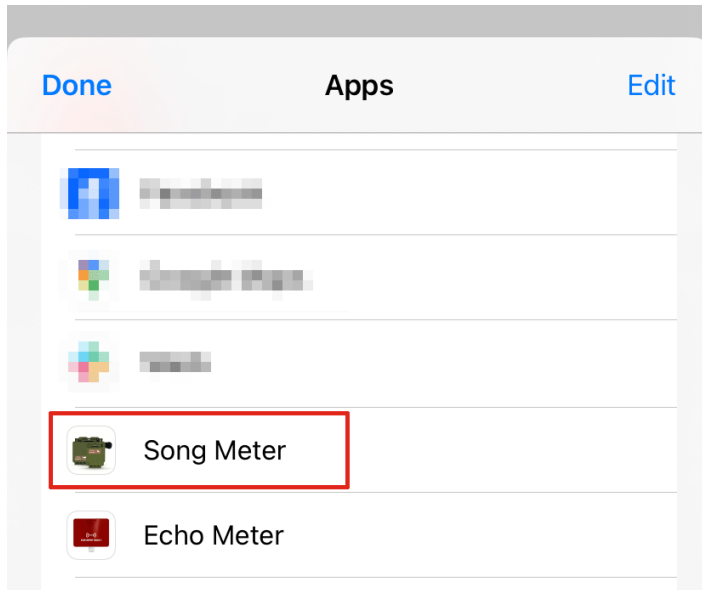Example Configuration.miniconfig ⌄   **Done**

SMMSыя^s@ŕm@и,Ђ−7(Ђ

This opens the iOS interface for sharing files between apps.

5. If the Song Meter app is not shown in the list of apps in the sharing interface, tap the **More** icon at the far-right end of the list.
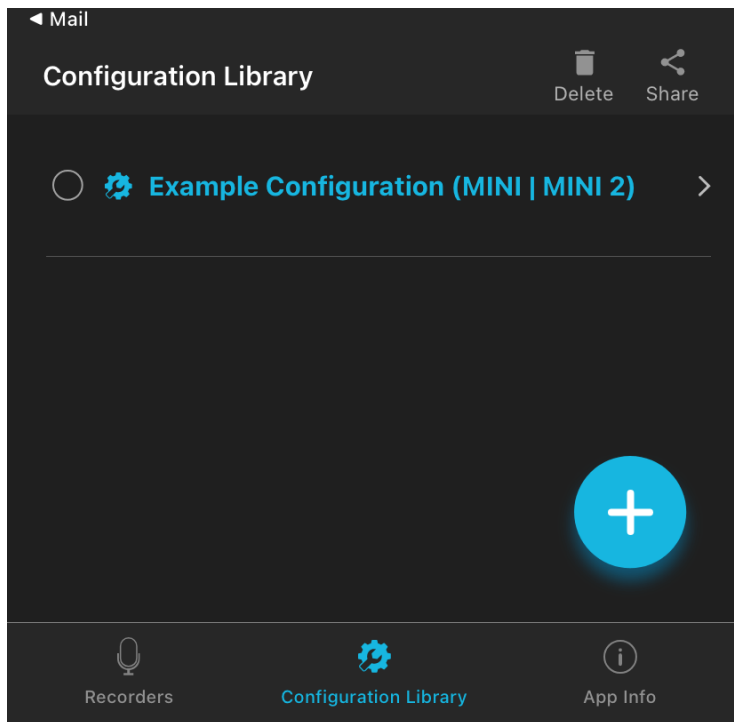

This will bring up an **Apps** list.

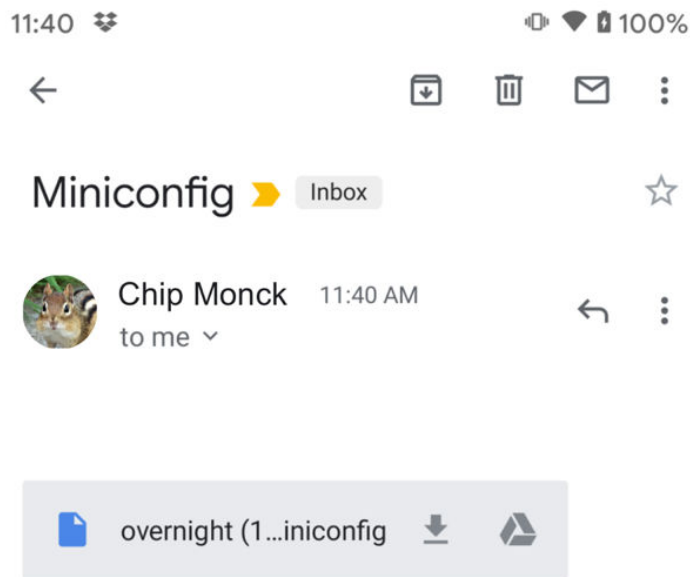6. From the **Apps** list, tap the **Song Meter** app.

The Configuration file will be imported and visible in the **Configuration Library**.

On Android, import from Gmail

1. Open the Gmail app.
2. Open the message containing the `.miniconfig` file attachment.

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3. Tap on the attachment.

The Configuration file will be imported and visible in the **Configuration Library**.

4.4.5. Edit A Saved Configuration File

1. In the **Configuration Library** screen, tap on the name of the configuration you wish to edit.
2. The Saved **Configuration Editor** screen opens.
3. Edit the settings and schedule (see Configuration Editor Screen (page 31)).
4. Tap the Rename icon at the top of the screen to rename the saved configuration File.
5. Tap the Configuration name at the top of the screen to return to the **Configuration Library** screen.

Changes made to a saved configuration file are saved immediately.

4.5. APP INFORMATION SCREEN
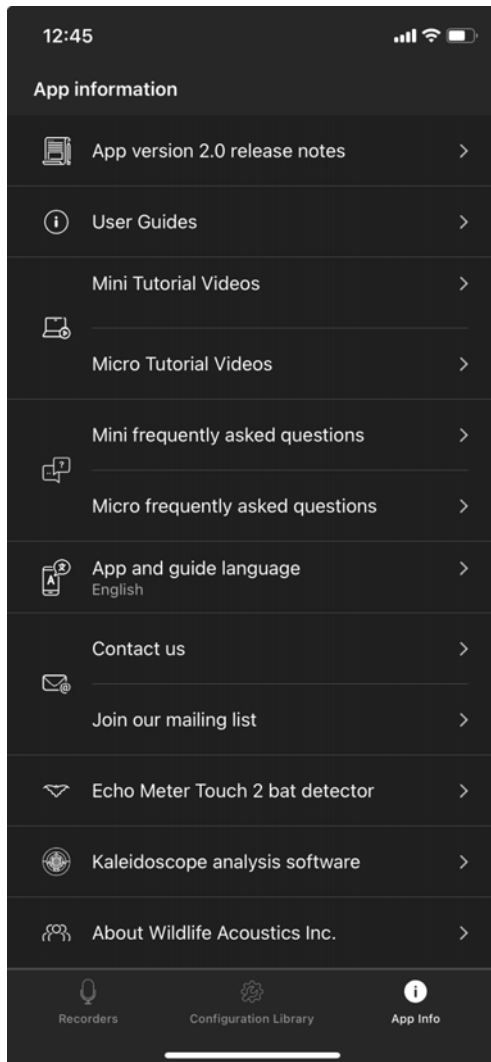
The **App Information** screen is accessed by tapping the **App Info** button at the bottom right of the **Recorders** or **Configuration Library** screens. It contains:

- Information about the current version of the app
- Links to user guides, tutorial videos, and frequently asked questions for Wildlife Acoustics recorders
- Language settings for the Song Meter Configurator app
- Contact info for Wildlife Acoustics
- Info about some of Wildlife Acoustics' other products

4.5.1. App Version Number and Release Notes

The current version of the Song Meter Configurator app is listed. Tapping this entry opens a screen with release notes for the installed app version.

4.5.2. User Guides, Tutorial Videos, and Frequently Asked Questions

User guides for all versions of the Song Meter Mini and Song Meter Micro families of recorders can be accessed from within the app. These user guides are included in the app installation and can therefore be accessed without an internet connection.

The entries for Tutorial Videos and Frequently Asked Questions will open a web browser window on your device to show the Video Tutorials and Frequently Asked Questions, respectively. Viewing these pages requires an internet connection.

4.5.3. App and Guide Language

Tap this item to change the language used by the Song Meter Configurator app and built-in user guides. By default, the app will use the language system setting of the iOS or Android device if a translation exists for that language. A manual selection from this menu will override the default setting.

The Song Meter Configurator app is available in the following languages:

- English
- French
- Spanish
- Portuguese
- Chinese
- German
- Japanese

4.5.4. Other Links

Contact Us

Tap this item to generate a blank email addressed to Wildlife Acoustics Technical Support, `<support2024@wildlifeacoustics.com>`. Sending an email requires an active internet connection.

Join Our Mailing List

Opens your web browser to a page where you can join our Mailing List. Join our mailing list to get notified about upcoming training opportunities, important technical service bulletins, webinars, our quarterly grant program, and product updates.

Echo Meter Touch 2 Bat Detector

Opens your web browser to the product page for the Echo Meter Touch, an ultrasonic microphone that turns your mobile device into a species-identifying bat recorder.

Kaleidoscope Analysis Software

Opens your web browser to the product page for Kaleidoscope Pro, our desktop software for wildlife sound analysis.

About Wildlife Acoustics Inc.

Displays a short info page about us.

4.6. UNDERSTANDING SCHEDULES

Writing a custom schedule for the Song Meter Mini 2 can appear to be a daunting task. The scheduling system is very flexible, and while that provides great benefits in the hands of an experienced user, it can also be overwhelming to someone who doesn't understand the fundamentals of how a schedule works.

This section will start with the most basic element of any schedule: a schedule block. Just understanding this opens up many possible use cases, as many common types of schedules can be created using one schedule block comprised of a few simple commands.

4.6.1. Schedules and Schedule Blocks

A schedule for the Song Meter Mini 2 can be made up of up to ten schedule blocks. If a schedule block were just a single recording period, having only ten would be severely limiting. For instance, let's say you wanted to capture a short snapshot of a soundscape over the course of each day by recording 5 minutes at the start of every hour. If one schedule block only provided

one recording period, you would need to tediously punch in separate start and end dates, and then you would run out before you even recorded half of your snapshots!

Luckily, this type of schedule can be programmed with just one schedule block:

Example: Record 5 minutes every hour

For accessibility and ease of reading on multiple screen sizes, further examples will only present schedules as plain text. The text below mimics the commands shown in the screenshot above.

```
START TIME: Time 00:00

DUTY CYCLE: Cycle

Duty On: 00:05

Duty Off: 00:55

END TIME: Time 00:00
```

With 5 simple commands, this one schedule block has told the Song Meter Mini 2 to record 5 minutes at the start of each hour. Let's break down how each command works.

> **NOTE**
>
> This example does not use the optional **Date Range** feature. This means that, as soon as the recorder starts its schedule, this schedule block will perform the same thing every day. We'll cover the capabilities of **Date Range** in a later section.

Start Time and End Time

```
START TIME: Time 00:00
...
END TIME: Time 00:00
```

The **START TIME** and **END TIME** commands are best understood in relation to each other. Everything the schedule block does occurs after the **START TIME** and continues until it reaches the **END TIME**. This is the case even when the **START TIME** and **END TIME** share the same value, as they do here. The schedule block will begin every time it reaches 00:00 (12:00 AM, for those of us on the 12-hour clock) and it will do whatever you tell it to do until it reaches the next 00:00. Each midnight, the recorder will simultaneously end one cycle of this schedule block and start a new one.

This same logic means that a single schedule block can span two calendar dates:

```
START TIME: Time 17:00
...
END TIME: Time 05:00
```

In this example, the schedule block will start running every time the clock hits 17:00 (5:00 PM) and will end the next time the clock hits 05:00 (5:00 AM), which will be the next day.

While this may seem obvious, understanding this now is important for when we later introduce **START TIMES** and **END TIMES** set relative to sunrise and sunset.

> **NOTE**
> When you start your deployment for the first time, the Song Meter Mini 2 will pick up in the middle of any schedule block that should be occurring at that time. The recorder does not need to wait for the next occurrence of the **START TIME** when it turns on.

Duty Cycle

In the engineering world, "duty cycle" describes a pattern of repeating activity and inactivity. This could be a pattern of "on" and "off" signals in a computer that alternate millions of times per second, or it could be a schedule whereby a manufacturing machine is run for three hours every day.

In Song Meter schedules, a duty cycle tells the recorder to alternate between recording and sleeping, at fixed time intervals, in between the **START TIME** and **END TIME**.

When **DUTY CYCLE** is enabled by selecting **Cycle**, the schedule block will begin at the **START TIME** by recording, then it will pause, then it will record, then it will pause, repeating this until the **END TIME** is reached.

Returning to our "Record 5 minutes every hour" example, the **DUTY CYCLE** section of the schedule block is:

```
DUTY CYCLE: Cycle

Duty On: 00:05

Duty Off: 00:55
```

At the **START TIME**, the recorder begins at the **Duty On** phase by recording for 5 minutes. Then, it runs the **Duty Off** phase by sleeping for 55 minutes. It will alternate between 5 minutes of recording and 55 minutes of sleeping for as many time as it takes to reach the **END TIME**.

The **END TIME** will immediately end the schedule block in the middle of either the **Duty On** or **Duty Off** phase. If the time span between the **START TIME** and **END TIME** is short enough, it is possible to end a schedule block before the recorder can complete a single cycle.

4.6.2. Schedules Using Sunrise and Sunset

We've already seen that the **START TIME** and **END TIME** of a schedule block can be defined as fixed times on the clock each day. We can also define the **START TIME** and **END TIME** relative to sunrise and sunset, which the Song Meter Mini 2 calculates each day based on its latitude, longitude, and time zone settings.

This means that, if your goal is to record the dawn chorus each day, the Song Meter Mini 2 can time its recording period to follow sunrise as it shifts earlier and later in the day over the span of weeks and months. This opens up a wide range of useful possibilities for bioacoustics applications.

Let's look at a variation of a typical schedule one might use for recording nocturnal animals.

Example: Record Overnight, Plus Some Padding

```
START TIME: Set – 01:30

DUTY CYCLE: Always

END TIME: Rise + 00:45
```

The above example is more concise than the one shown in Schedules and Schedule Blocks (page 56), as it does not make use of the **DUTY CYCLE** feature. This schedule block begins 1 hour and 30 minutes before sunset, it ends 45 minutes after sunrise, and it runs uninterrupted for the time in between.

Let's break down the three commands.

Start Time: Offset from Sunset

The first command in this block is:

```
START TIME: Set – 01:30
```

Set means the **START TIME** is defined relative to the time of sunset on a given day. The negative sign, **-**, means the block starts earlier than sunset, and the offset, **01:30**, means it starts 1 hour and 30 minutes prior to sunset.

If you want the schedule block to start exactly at sunset, you should set the offset to **00:00**. The value of the positive or negative sign does not matter in that case.

Duty Cycle: Always

Setting the **DUTY CYCLE** to **Always** means the schedule block runs from the **START TIME** to the **END TIME** with no pauses in between.

When **Always** is selected, the **Duty On** and **Duty Off** commands are not used.

End Time: Offset from Sunrise

The last command in this block is:

```
END TIME: Rise + 00:45
```

The structure of the **END TIME** command is the same as for the **START TIME** command. Selecting **Rise** means we're defining the **END TIME** for this schedule block relative to the time of sunrise on each day. The positive sign, **+**, means we want to specify a time after sunrise occurs. **00:45** specifies 45 minutes after sunrise.

4.6.3. Schedules with Multiple Blocks

We have seen that a single schedule block provides quite a bit of flexibility. Its start and end times can dynamically adjust to follow sunrise and sunset times, and the **DUTY CYCLE** feature can create patterns of alternating on/off cycles.

As mentioned before, a single schedule can be made of up to 10 schedule blocks. Here's what you need to know about using multiple blocks:

Ordering of blocks

Within a schedule, it does not matter which block is positioned at the top of the list and which is at the bottom. The order does not mean one block is prioritized over another.

Block independence

Within a single schedule, each block can have entirely different commands from each other. For example, the first block could have its **START TIME** and **END TIME** set as fixed times on the clock, with no duty cycle, and the second block could reference sunrise and sunset for either or both of its **START TIME** and **END TIME** and use a **DUTY CYCLE**.

Overlapping blocks

When two schedule blocks have recording periods that overlap, the overlapping recording periods are treated as a single recording period.

For example, if block 1 includes a recording period from 13:45 to 14:15, and block 2 includes a recording period from 14:00 to 15:00, the Song Meter Mini 2 will treat the time from 13:45 to 15:00 as one single recording period, only broken up according to the Maximum Recording Length (page 37) setting. This is true regardless of whether each block is set to reference fixed times on the clock or sunrise/sunset.

4.6.4. Date Range and Day Duty Cycle

By default, every schedule block runs every single day, starting from when the recorder is powered on or until the Delay Start (page 41) date occurs, if applicable.

By enabling the **Date Range** for a schedule block, you can specify a range of dates over which the schedule block should run, and/or you can define a cycle for the block to run for *X* days, then not run for *Y* days, then repeat.

These features can be set **independently for each block** in your schedule. For example, block 1 can be set to run every day, block 2 can be set to only run from July 1st to August 15th, and block 3 can be set to run for 3 days of every 7 from June through September.

The rules for what occurs when multiple recording periods overlap, described in Schedules with Multiple Blocks (page 60), still apply.

Enable Date Range and Day Duty Cycle

To enable these features for any schedule block, tap the **Add Date Range** icon at the top of the schedule block. To disable these features, tap the **Remove Date Range** icon at the same position.

When these features are enabled, three new sections of the schedule block appear: **START DATE**, **DAY DUTY CYCLE**, and **END DATE**.

START DATE and END DATE

These commands work similarly to the **START TIME** and **END TIME** commands, described in Schedules and Schedule Blocks (page 56). **START DATE** sets the date when the block should begin running, and **END DATE** sets the date when the block should cease.

These dates can only be defined by Month and Day, not by Year. Once the clock reaches the **START DATE** during any year, the block will run as specified until the next time the **END DATE** occurs, which may be during the same calendar year or the following calendar year.

If a schedule block runs through midnight, like a "sunset to sunrise" block, it will begin running at midnight at the beginning of the **START DATE**, and it will stop running at midnight at the end of the **END DATE**.

If the **END DATE** is set to the same date as the **START DATE**, or if it is set to one day before the **START DATE**, the schedule block will run year-round. This is useful if you want to use the **DAY DUTY CYCLE** feature without limiting the schedule block to a particular date range.

DAY DUTY CYCLE

This command works similarly to the standard **DUTY CYCLE** command described in Schedules and Schedule Blocks (page 56). When this section is set to **Cycle**, you can define a pattern of alternating between running the schedule block on some days and not running on other days.

For the purpose of these commands, a day is defined as one calendar day, spanning from midnight to midnight. If the schedule block runs through midnight, it will begin at midnight at the start of the first active day and end at midnight at the end of the last active day.

Duty On defines how many days of recording you want to happen during the active phase of the duty cycle. These active days occur consecutively before switching to the inactive phase.

Duty Off defines how many days you want the recorder to skip this schedule block in between active recording days.

Active days and inactive days always occur as consecutive blocks. For example, if **Duty On** is set to 3 days and **Duty Off** is set to 5 days, the schedule block will run for 3 days in a row, then it will skip 5 days in a row, then it will run for 3 days in a row, and so on.

During "inactive days" for this schedule block, other blocks in your schedule may still run, depending on their settings. The **START DATE**, **END DATE**, and **DAY DUTY CYCLE** commands only affect the schedule block to which they are applied.

4.6.5. Schedule Block Examples

This section provides recording schedule examples that demonstrate how schedule blocks work. Most of these examples are built into the app and can be selected as starting points for customized schedules.

A schedule specifies the record start and end times, but does not necessarily result in a single file for the entire period.

Long recording periods will be split up into segments whose length is set by the Maximum Recording Length (page 37) setting.

Record Continuously All Hours of Every Day

The following schedule records continuously all day and night, 24 hours per day:

```
START TIME: Time 00:00
DUTY CYCLE: Always
END TIME: Time 00:00
```

Whenever the start and end times are identical and the **DUTY CYCLE** is set to **Always**, the schedule will record continuously.

Record Continuously for Part of Each Day
The following schedule records daily from 4:00am to 10:00am:

```
START TIME: Time 04:00
DUTY CYCLE: Always
END TIME: Time 10:00
```

Record in 5-Minute Segments Every Hour
The following schedule uses the **DUTY CYCLE** and records for 5 minutes at the beginning of each hour:

```
START TIME: Time 00:00
DUTY CYCLE: Cycle
Duty On: 00:05
Duty Off: 00:55
END TIME: Time 00:00
```

Record from Sunset to Sunrise
The following schedule starts every day at sunset and records until sunrise on the following day:

```
START TIME: Set + 00:00
DUTY CYCLE: Always
END TIME: Rise + 00:00
```

Record in Multiple Blocks Relative to Sunset and Sunrise
The following schedule uses two blocks. The first block defines a period relative to sunrise and the second block defines a period relative to sunset. The combined result records for 2 hours centered on sunrise and 2 hours centered on sunset.

```
Block 1:
START TIME: Rise - 01:00
DUTY CYCLE: Always
END TIME: Rise + 01:00

Block 2:
START TIME: Set - 01:00
DUTY CYCLE: Always
END TIME: Set + 01:00
```

5. RECORDING FILES

The purpose of the Song Meter Mini 2 recorder is to create audio files that are embedded with metadata. The files are initially written to the SD card, and from there can be transferred to a computer for analysis.

A summary file is also created and saved to the SD card. The summary file is a text file and contains the following information:

- Date
- Time
- Latitude
- Longitude
- Power (V)
- Temp (C)
- # FS files
- # ZC files
- # Scrubbed noise files

5.1. TRANSFERRING RECORDING FILES TO A COMPUTER

- After making a recording, remove the SD card from the recorder.
- Insert it to an SD card slot or SD card adapter connected to a computer.
- The SD card will appear as a standard storage device.
- Copy the files to the internal drive of the computer.

NOTE: Once the files have been transferred to the computer the SD card can be erased or reformatted and used again to make more recordings. Before reformatting the SD card ensure the files are readable on the computer. It's also a good idea to back the files up for long-term storage.

NOTE: When files are transferred from the SD card to a computer, the number of files listed in the Status screen will not be reset to zero unless the SD card is reformatted in the recorder, or if the recorder is powered off, then powered on again.

5.2. WAV FILES

The Song Meter Mini 2 creates standard `.wav` audio files.

- `.wav` is a digital audio file standard. A `.wav` file can be played back by most music playback software as long as the software supports the sample rate of the file.
- The `.wav` files created by the Song Meter Mini 2 contains embedded Metadata (page 63).
- `.wav` files are written to a folder called `Data` on the SD memory card.

5.3. METADATA

Metadata is additional information embedded in the recording file. The Song Meter Mini 2 recorder embeds metadata according to the GUANO standard. Software that is capable of reading GUANO format metadata can access the information within the files.

When the Song Meter Mini 2 recorder creates a recording file it embeds the following metadata:

`.wav` file metadata

- Firmware Version

- Length
- Loc Position
- Make
- Model
- Original Filename
- Sample rate
- Serial
- Temperature Int
- Timestamp
- WA|Song Meter|Audio settings
- WA|Song Meter|Prefix

# 6. ANALYSIS SOFTWARE

6.1. KALEIDOSCOPE PRO

Kaleidoscope Pro analysis software allows you to quickly sort, label, and identify bird songs, frog calls, and bat identifications from weeks, months, or even years of recordings. Whether you are conducting species inventory, presence/absence surveys, endangered species detection or habitat health monitoring, Kaleidoscope Pro significantly minimizes the time it takes to find what you're looking for. Download it from our website's Downloads page and request a two-week trial of the full set of features from our Kaleidoscope Pro Trial page.

Kaleidoscope Pro includes the following core functions:

6.1.1. Automatic Bat Species Identification

Kaleidoscope Pro's bat Auto-ID function analyzes recordings of bat echolocations and automatically suggests the most likely bat species for supported regions. Bat Auto-ID results are presented along with other metadata such as timestamps, temperature, etc., in a table that can be exported to spreadsheet applications for pivot table and chart creation.
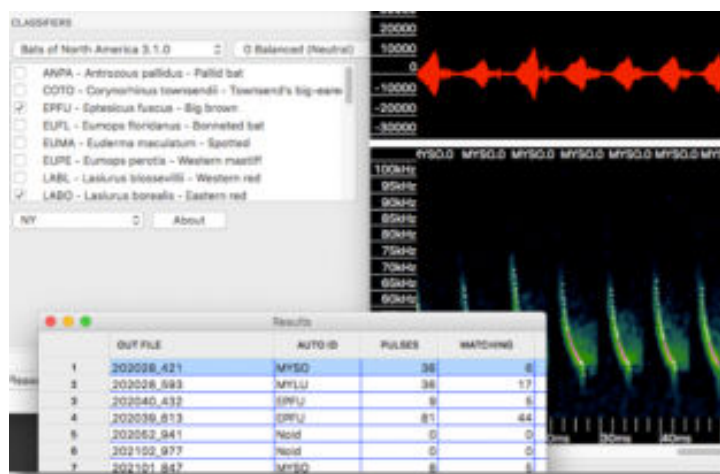
6.1.2. Cluster Analysis

Kaleidoscope Pro automatically scans recordings, pulls out individual sounds and phrases (such as frog calls or bird songs), and groups them into clusters. Once grouped, you can view, sort and

label each cluster to efficiently analyze your recordings. Customize cluster settings to help you more easily search for a specific species or refine for classifiers.
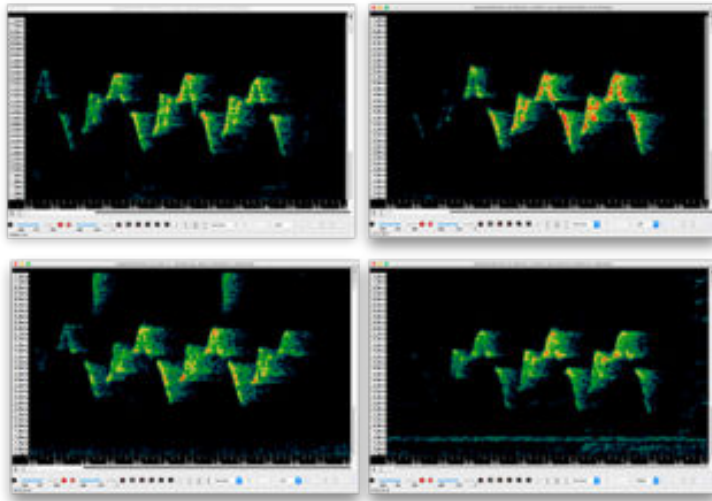

6.1.3. Sound Pressure Level Analysis

The Kaleidoscope Pro SPL Analysis feature allows you to scan recordings to analyze the noise spectrum, and generate reports of sound pressure levels in accordance with various standards. Sound level data is reported in a table that is easily exported into spreadsheet applications for pivot table and chart creation.

6.1.4. Smart Search and Cloud Storage

Search your recordings based on details such as time, temperature, identifications, or even spectral qualities of the recording. Smart Search works on recordings stored locally in your own PostgresSQL database or in a Kaleidoscope Pro Managed Cloud Account.
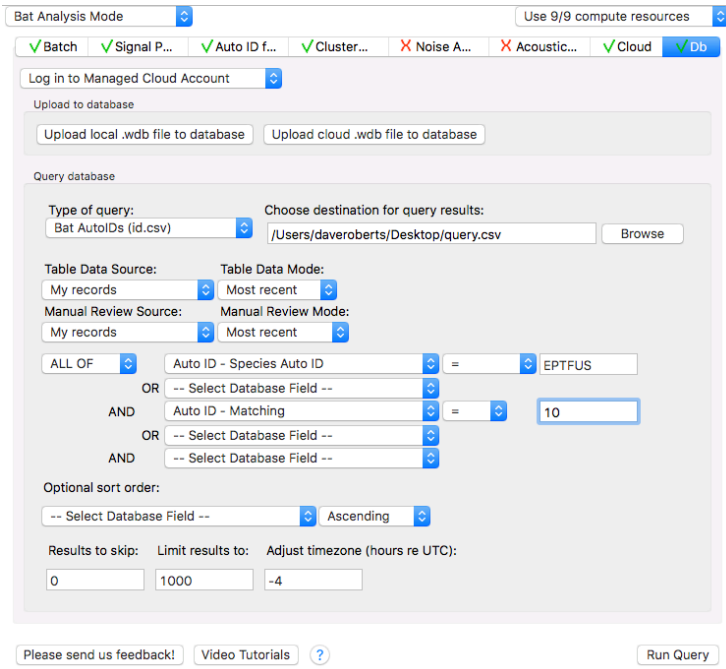
6.1.5. Easy Report Generation

Kaleidoscope Pro presents the cluster or classifier result, along with other metadata such as timestamps, temperature, etc in a table that's easily exported into Excel and other applications for pivot table and chart creation.
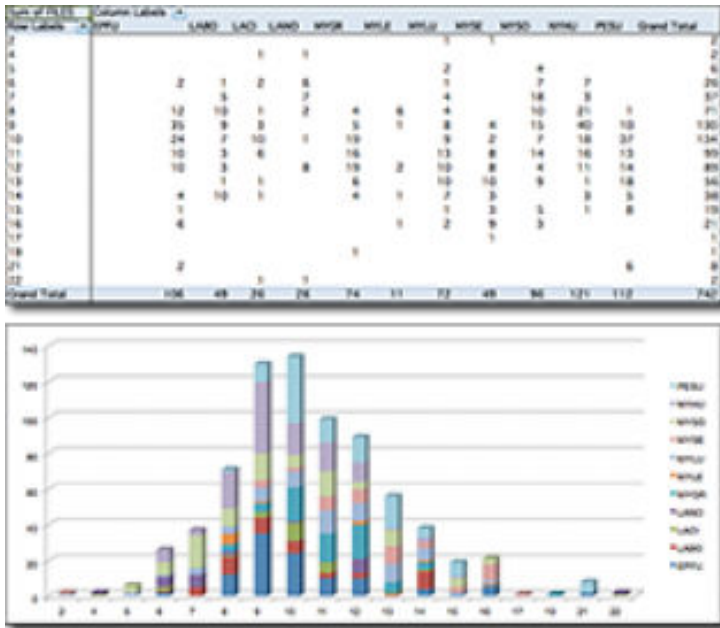
6.1.6. 15-Day Free Trial

Download Kaleidoscope Pro and use it for FREE for 15 days via our web site
www.wildlifeacoustics.com.

After your free trial of Kaleidoscope Pro ends, the software will revert to Kaleidoscope Lite, and you will still be able to view spectrograms, convert audio files, and listen to your recordings.

> **NOTE**
>
> You must have a user account on our website to access our downloads page and to request a Kaleidoscope Pro trial.

6.2. THIRD-PARTY SOFTWARE

The Song Meter Mini 2 creates standard `.wav` files that can be opened with most audio applications. The audio application must be able to support the sample rate of the recorded file.

7. MAINTANANCE

7.1. DEPLOYMENT CHECKLIST

☐ Install brand-new or freshly charged batteries

☐ Install the latest version of the Song Meter Configurator app from the Apple App Store or Google Play Store.

☐ On the **Status** screen for the recorder, confirm that the installed firmware version matches the latest available version from our Downloads page.

☐ Pair with the recorder and confirm that all settings and the schedule are correct.

☐ Set the deployment location and time zone using one of the methods below:
  • At the deployment site, use a GPS-enabled mobile device to pair with the Song Meter Mini 2. Accept the prompts to match the recorder's location and time zone to the device's location and time zone.
  • In the **Location & time zone** screen, set the location and time zone manually.

7.2. WATERPROOFING

The Song Meter Mini 2 is designed to work in all kinds of weather, and will not let in any water under normal circumstances. However, there are a few routine checks that should be done to make sure that your recorder is as weatherproof as it was when you received it.

• Examine the red rubber gasket around the edge of the battery compartment. The gasket should be free of debris and tears. Note that DEET, a common ingredient in insect repellent, is known to degrade the plastic used in the Song Meter Mini 2 enclosure. Some plant oils may also soften the recorder's rubber gasket over extended periods of exposure. When possible, avoid contact with insect repellent.
• Ensure the bolt covering the optional microphone port on the right side of the recorder is tightened and undamaged.
• If using a AA-powered recorder, ensure that the battery tray ribbons are not pinched between the two halves of the lid.
• Ensure that all acoustic microphones have foam windscreens in good condition. Windscreens may turn brown with long-term UV exposure, but they can be used until the foam begins to crumble.
• Avoid pointing microphones directly upwards.

> ⚠️ **WARNING**
> Do not over-tighten the optional microphone or cover bolt. Doing so will distort the rubber O-ring gasket and allow water to enter the recorder.

7.3. MOUNTING

Avoid putting strain on the Song Meter Mini 2 case by mounting it too tightly. This can distort the case and break the seal with the lid, causing a gap that may leak. Note that trees can sometimes grow rapidly enough to cause further strain on equipment that has been mounted on them.

7.4. SECURITY

The upper-left and upper-right corners of the Song Meter Mini 2 enclosure feature loops through which a cable lock can be fed to secure the recorder to a tree or structure. The diameter of the cable must be narrower than the internal diameter of these loops, which is 0.420" (10.67 mm).

To keep the lid of the Song Meter Mini 2 locked closed, a padlock can be inserted in the loop on the right side of the latch. The internal diameter of this padlock loop is 0.268" (6.81 mm). We recommend a padlock with a shackle diameter of 1/4". A padlock with a shackle narrower than 3/16" will not prevent the latch from completely opening.

❗ IMPORTANT

When a 3/16" or 1/4" shackle-diameter padlock is installed, it is possible for the latch to be partially undone. This does not allow the lid to be fully opened, but it can loosen the seal between the two halves of the enclosure and may compromise the enclosure's weatherproofing.

8. TROUBLESHOOTING

The following is a list of symptoms for common problems. After each symptom are items to check. If the checks do not solve the problem, please contact Wildlife Acoustics Technical Support for further assistance.

8.1. RECORDER NOT TURNING ON

If your Song Meter Mini 2 appears to be unresponsive, there are a few things you should check to confirm the cause and try some common solutions:

1. Check that all installed batteries are brand-new or freshly charged and properly installed.
    The AA version of the Song Meter Mini 2 must have either four or eight AA batteries installed. If using only four batteries, they must all be installed in the same battery tray. Splitting four batteries between the two trays will result in no power.
    The AA battery tray can have a very tight fit. It is possible for a battery to be held in place by the tray without contacting the positive contact. Ensure each battery is in contact with both the spring on the negative end and the metal contact on the positive end.
2. Check that the **ON/OFF** switch is in the **ON** position.
3. Press the **FUNCTION** button several times, and check if any of the **FUNCTION** LEDs light up.

If any of the **FUNCTION** LEDs light up in response to your button presses, then the recorder is receiving power. Attempt to pair the recorder with the Song Meter Configurator app (see Pair the Recorder with the Song Meter Configurator app (page 28)). If your recorder is not displayed in the app's **Recorders** screen, see Recorder Not Updating Status (page 70).

If none of the **FUNCTION** LEDs light up at all, your Song Meter Mini 2 may need repair. Contact Wildlife Acoustics Support for further assistance (see Contacting Support (page 7)).

8.2. RECORDER NOT UPDATING STATUS

If your Song Meter Mini 2 does not appear in the Song Meter Configurator app's **Recorders** screen, or if the app is not receiving status updates from the recorder several times per minute, there are several possible causes to check.

1. Confirm that the Song Meter Mini 2 is powered on, and pressing the **FUNCTION** button causes one or more of the **FUNCTION** LEDs to light up.
    See Recorder Not Turning On (page 70) for more information.

> **NOTE**
> If the installed batteries are mostly drained, it is possible for the recorder to have enough power to show LED activity, but not enough power to communicate over Bluetooth.
>
> Make sure all installed batteries are in good condition.

2. Make sure Bluetooth is enabled in your mobile device's settings.
    On iOS or Android, open the **Settings** app and select the **Bluetooth** page to turn Bluetooth on or off.
3. If using an Android device, ensure that Location is turned on in your device's settings.
    See this Google support article for instructions on how to turn on Location.
4. Make sure the Song Meter Configurator app has been granted all requested permissions.
    ▪ On iOS:

      a. Open the **Settings** app.

      b. Tap the **Song Meter** entry to open the settings page for the Song Meter app. Permissions can be toggled from this page.

- On Android:

      a. Open the **Settings** app.

      b. Tap **Apps**.

      c. Tap on the **Song Meter** app entry.

      d. Tap **Permissions**.

      e. Enable all permissions on this page.

> **IMPORTANT**
>
> On some devices, GPS and Bluetooth connections are handled by the same hardware component, so the Song Meter app must have access to Location permissions in order to use Bluetooth.

5. If you are able to pair with the recorder, check whether the **Send Bluetooth beacons?** setting is enabled. If this setting is disabled, the Song Meter Mini 2 will not update its status in the Song Meter Configurator app unless the recorder and app are paired.

If the recorder does appear in the **Recorders** screen with an up-to-date status, but you are unable to pair with and configure the recorder, see Unable to Pair App with Recorder (page 71).

8.3. UNABLE TO PAIR APP WITH RECORDER

If you are unable to pair the Song Meter Configurator app with the Song Meter Mini 2, first check the following:

1. Confirm that the Song Meter Mini 2 is powered on, and pressing the FUNCTION button causes one or more of the FUNCTION LEDs to light up.
   See Recorder Not Turning On (page 70) for more information.

> **NOTE**
>
> If the installed batteries are mostly drained, it is possible for the recorder to have enough power to show LED activity, but not enough power to communicate over Bluetooth.
>
> Make sure all installed batteries are in good condition.

2. Confirm that the Song Meter Mini 2 appears in the app's **Recorders** screen and that the app is receiving status updates from the recorder several times per minute.
   See Recorder Not Updating Status (page 70) if this is not the case.

If the Song Meter Mini 2 is powered on with fresh batteries and sending regular status updates to the Song Meter Configurator app, but the pairing process consistently fails, proceed with the following steps:

1. If using single-use batteries, make sure they are brand new. If using rechargeable batteries, make sure they are recently and fully charged.
2. Tap the **Status** icon for the recorder to open the **Status** screen.
3. Under the **BATTERY LEVEL** label, set the **%/V** toggle switch to **V**.
4. Check the value of the **FIRMWARE VERSION** listed at the bottom of the **Status** screen. Make sure the listed version matches the latest version on our Downloads page. If it does not, see Load Firmware or a Configuration from Card (page 35).

5. Check that the voltage level is sufficiently high. Below are **approximate** voltage readings for new or fully charged batteries of several common types.
   - **AA Alkaline**: 6.4 V
   - **AA NiMH**: 5.8 V
   - **AA Energizer® Ultimate Lithium™**: 6.7 V
   - **18650 Lithium-ion**: 4.2 V
   -

   If new or fully charged batteries consistently read significantly lower than these values, contact Wildlife Acoustics Support for help diagnosing possible issues with your batteries or the Song Meter Mini 2.

8.4. SD CARD ERROR MESSAGES

These error messages might appear on a recorder's **Status** screen, in the **STORAGE INFO** panel.

- **NO SD CARD**: No SD card is detected
- **SD CARD FULL**: Memory card is detected and full
- **SD WRITE PROTECTED**: Memory card is write protected
- **SD CARD ERROR**: Card is detected but is not working
- **SD CARD BAD FORMAT**: Card format is not recognized or is corrupted
- **SD CARD DIRTY**: Indicates the card was interrupted in the middle of writing, and the recorder cannot write to the card until this status is cleared. See the section SD Card Dirty (page 74) below for more details.

8.4.1. General SD Card Troubleshooting Tips

If you encounter any issue with an SD card, there are some simple steps that are usually a good starting point:

1. If you know the card does not hold any data that you need to save, reformat the card (see Format SD Card (page 35)).
   Formatting the card erases all data from the card and resets it to a "blank slate." We recommend formatting the card prior to each deployment to avoid common card errors during recording.
2. If the card may contain data that you need, such as recordings from a deployment that just finished, connect the card to a computer. If you are able to access the data, copy the data to another location (such as your computer's internal drive), and then reformat the card (see Format SD Card (page 35)).

In addition, always be sure to properly eject the card from your computer's operating system before physically removing the card from your computer. Failing to eject the card according to these instructions can cause the Song Meter Mini 2 to display error messages.

- On Windows, refer to this Microsoft support article on safely removing hardware (including SD Cards).
- On MacOS, refer to this Apple support article on ejecting SD cards.

8.4.2. No SD Card

If this error message is displayed, check that the SD card is fully inserted into the Song Meter Mini 2's card slot. To properly engage the slot's spring mechanism, press the card fully into the slot to insert it, then press it again, and the spring will eject the card from the slot.

If the error message persists, try using a different card with the same recorder, or the same card with a different recorder, if you have multiple. Doing so will help determine whether there's an underlying issue with the card or with the Song Meter Mini 2's SD card slot.

8.4.3. SD Card Full

This message means there is not enough available space on the card for the Song Meter Mini 2 to save any more audio files to the card.

If this message is displayed even though the card appears to not be full when viewed from a computer, it may mean the card was not properly formatted since the last time it was used.

If you delete files by moving them to the Trash or Recycling Bin but do not reformat the card, the structure of the card is still affected by the deleted files, and the Song Meter Mini 2 will be unable to use that space. Formatting the SD card both deletes all files and resets the structure of the card.

8.4.4. SD Write Protected

This error message indicates that the SD card has its Write Protect switch enabled. This is a physical switch on the left edge of the card when the front label is facing the viewer. When the switch is in the lower, "locked" position, it activates a switch in the SD card that prevents the connected device from altering the contents of the card. In the case of the Song Meter Mini 2, this means the recorder cannot save any new files to the card, nor can it reformat the card.

If this error appears, check that the card's Write Protect switch is in the unlocked position, and that there is no debris attached to the card or stuck in the card slot that might be falsely triggering the switch inside the card slot.

> **NOTE**
> The Write Protect switch does not affect the electronics of the card itself. Instead, it works by pressing a contact in the SD card slot when the switch is in the locked position. If any foreign object presses that contact, it is as if the Write Protect switch is set to the locked position.

8.4.5. SD Card Error

This message could indicate a number of different kinds of card errors. As a first step, refer to the General SD Card Troubleshooting Tips (page 72). Check to see if a computer also displays an error message when you try to view the contents of the card, as this may indicate an isssue with the card itself.

If multiple different SD cards consistently display this error message on one particular Song Meter Mini 2, but not on other recorders or computers, it may indicate a problem with the Song Meter Mini 2 itself. Contact Wildlife Acoustics Support for further assistance diagnosing the issue (see Contacting Support (page 7)).

8.4.6. SD Card Bad Format

This indicates that the card is not formatted correctly. The Song Meter Mini 2 expects cards to have one of two particular file systems, depending on the size of the card:

- For SDHC cards, which range in size from 4 GB to 32 GB, the file system must be FAT32.
- For SDXC cards, which range in size from 64 GB to 2 TB, the file system must be exFAT.

Whenever the Song Meter Mini 2 formats a card (see Format SD Card (page 35)), it applies the file system listed above for the size of the SD card. However, it is possible to apply other file systems to SD cards that don't match these conventions using software formatting tools on a computer.

For example, it is possible to apply FAT32 formatting to a card larger than 32 GB. Doing so is not recommended, and it will cause this error message to appear and prevent the Song Meter Mini 2 from using the card. In some cases, it can even cause errors that persist after the Song Meter Mini 2 attempts to reformat the card.

If an SD card has been formatted to a file system that does not match the conventions listed above, use the SD Association's free formatting tool to apply a "Quick Format" to the card.

8.4.7. SD Card Dirty

This error message generally appears after the Song Meter Mini 2 was interrupted in the middle of writing to the SD card. The most common cause of this message, by far, is that the recorder's batteries reached the very end of their lifespan, and the recorder lost power.

> **IMPORTANT**
>
> In the vast majority of cases, the "SD Card Dirty" message does not indicate a serious or unusual issue with the SD card or the Song Meter Mini 2, nor does it indicate the loss of data recorded before the error occurred.

Clearing the dirty bit is generally as simple as connecting the card to a MacOS or Windows computer, then ejecting the card before removing it (see General SD Card Troubleshooting Tips (page 72)). Reformatting the card will also clear the dirty bit, but make sure you back up any data from the card to your computer first!

The Technical Details

The SD card being labeled as "dirty" refers to a safety mechanism called a "dirty bit" used by SD cards and other data storage systems. If the Song Meter Mini 2 loses power or its connection to the SD card in the middle of certain operations, the "dirty bit" serves as a marker of that interruption.

Continuing to write data to a card that was interrupted in the middle of this kind of operation could lead to corruption that might affect all data previously saved to the card. When the Song Meter Mini 2 detects that the SD card is marked with a dirty bit, it will cease writing to the card in order to prevent serious data corruption. Any data saved to the card before the dirty bit was raised will be retained.

9. SPECIFICATIONS

9.1. PHYSICAL SPECIFICATIONS

Height	4.7 in (120 mm)
Length (with no right microphone, with left microphone and windscreen)	7.0 in (177 mm)
Depth	1.6 in (40 mm)
Weight with no batteries	AA Version: 0.54 lb (245 g)
	Li-ion Version: 0.52 lb (236 g)
Weight with max number of batteries (typical)	AA Version: 0.95 lb (429 g)
	Li-ion Version: 1.15 lb (522 g)
Power options	AA Version: 4 or 8 AA-size alkaline, NiMH, or lithium/iron disulfide batteries
	Li-ion Version: between 1 and 6 18650-size rechargeable lithium-ion batteries
Storage type	1 SDHC/SDXC flash card slot (Class 4 or greater)
Storage capacity	Up to 2TB
Enclosure Material	Polycarbonate
Environmental	Fully weatherproof, includes automatic humidity control
	IP67 Rated
Operating Temperature Range	-4°F to +185°F or -20°C to 85°C
	Batteries may have narrower operating temperature range.
Warranty Period Length	2 years, excluding microphone windscreens

9.2. AUDIO AND MICROPHONES

9.2.1. Audio Specifications

Recording Format	16-bit PCM .wav
Sample Rate	8,000; 12,000; 16,000; 22,050; 24,000; 32,000; 44,100; 48,000; or 96,000 Hz
Record channels	One channel in stock configuration.
	Two channels with optional second microphone installed.
High Pass Filter	2-pole 100 Hz
Anti-Alias Filter	Highest Quality setting: -5.0 dB @ 0.4 f_s, -12 dB @ 0.6 f_s
Low Pass Filter	2-Pole 20,000 kHz

9.2.2. Acoustic Microphone Specifications

- **Directional Characteristic**: Omnidirectional
- **On-Axis Sensitivity**: +12 ± 4 dB FS re: 1 Pa at 1 kHz, measured at 18 dB gain setting

The following charts reflect default gain (+18 dB), 48 kHz sample rate, calibrated sound source one meter from the recorder, perpendicular to microphone axis.

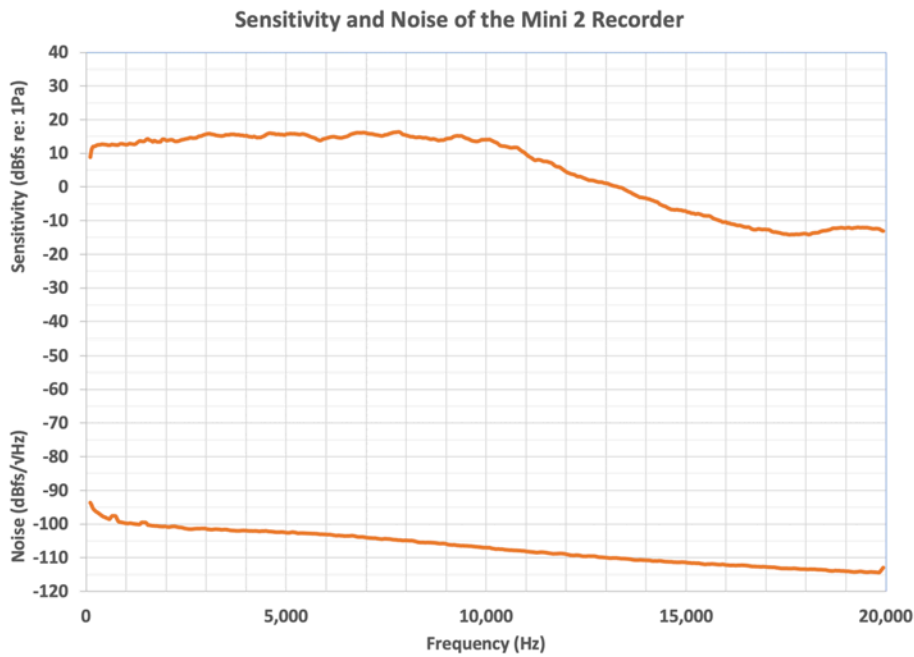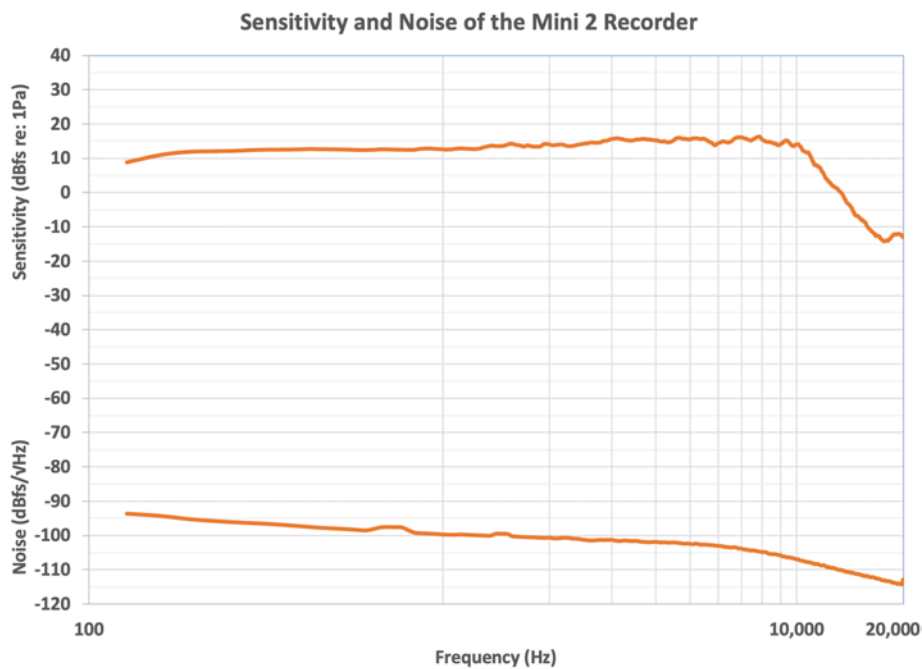**Figure 1. Sensitivity and Noise Floor, Linear Frequency Scale**

Figure 2. Sensitivity and Noise Floor, Logarithmic Frequency Scale

9.3. BATTERIES

9.3.1. Types of AA Batteries

AA batteries are available in several distinct categories:

- **Alkaline**: This is the standard, single-use battery. When using AA batteries, the Song Meter Configurator app's battery life estimations assume this type of battery.

- **Nickel-metal hydride (NiMH)**: This is the most common type of rechargeable AA battery. A single use-cycle of NiMH batteries will last between 50% and 70% as long as a set of alkaline batteries.
- **Lithium/Iron Disulfide**, sold as **Energizer® Ultimate Lithium™**: This is a type of single-use battery. At room temperature, and when used with a low-power device like the Song Meter Mini 2, they last slightly longer than typical alkaline batteries.

  However, in near-freezing or below-freezing temperatures, Lithium/Iron Disulfide batteries maintain their performance significantly better than alkaline batteries.

9.3.2. Lithium-Ion Battery Requirements

From one to six lithium-ion batteries may be used in any combination of positions in the battery tray.

The redesigned lithium-ion battery compartment in the Song Meter Mini 2 can fit a slightly broader range of lithium-ion batteries than the optional lithium-ion lid accessory for the first-generation Song Meter Mini and Song Meter Mini Bat. Wildlife Acoustics sells high-quality 18650 batteries that are compatible with the first-generation Song Meter Mini and new Song Meter Mini 2 models.

Lithium-ion batteries may be sourced elsewhere. The following requirements must be met:

- The batteries must be specified as 18650 Lithium-ion batteries.
  "18650" describes the dimensions of the battery. Larger or smaller lithium-ion batteries will not fit in the battery tray.
- Use only protected batteries.
  Protected batteries (or protected cells) are assembled with circuitry that prevents the battery from being over-charged or over-discharged.

> ⚠️ **DANGER**
> Unprotected lithium-ion cells lack protective circuitry, and they are at greater risk of suffering permanent damage or even igniting.

- "Button-top" batteries are recommended.
  The vast majority of protected 18650 batteries are sold as "button-top," meaning the positive contact protrudes from one end of the battery. This protruding button ensures the battery makes proper contact with the positive end of the recorder's battery tray.
- The batteries must be between 67.0 and 70.5 mm in length, button included.
  The protection circuit can vary in size across brands, but most protected batteries sold by reputable dealers fall within this range.
  Note that the first-generation Song Meter Mini Lithium Lid has a narrower acceptable size range.

> 📝 **NOTE**
> 18650 batteries are available in different charge capacities, measured in milliamp-hours, or mAh. The batteries sold by Wildlife Acoustics have a typical capacity of 3500 mAh (3350 mAh minimum). Therefore, the battery life estimates found in our documentation and in the Song Meter Configurator app assume this capacity when using Lithium-ion batteries. Protected 18650 batteries with lower capacity will still work, but they will not last as long as these estimates before needing to be recharged.

9.3.3. Power Consumption and Expected Battery Life

The tables in this section display measured power consumption for the Song Meter Mini 2 in various recording modes. All measurements were taken using the same SanDisk SD card.

> **NOTE**
>
> SD cards can vary significantly in the amount of power they draw. Two cards of the same model from the same manufacturer will likely have different power requirements. These differences will affect the overall battery life of the recorder.

Battery life duration is estimated based on the nominal energy capacity of high-quality, brand-new alkaline AA batteries or freshly-charged Li-ion batteries. Real-world battery capacity can be altered by factors including ambient temperature. Rechargeable batteries lose their capacity with repeated use, and the rate of this loss is affected by the quality of the charger and the rate of recharge.

Acoustic Recording Power Consumption

Power consumption measurements taken using a single SanDisk 256 GB Extreme 180 MB/s SD card. Power consumption can vary significantly between cards, even among those with similar labels from a single manufacturer.

Table 2. Acoustic Recording Power Consumption (mW)

Sample Rate (Hz)	Highest Quality, Mono Power (mW)	Highest Quality, Stereo Power (mW)	Low Power, Mono Power (mW)	Low Power, Stereo Power (mW)
8,000	66	82	45	54
12,000	69	77	48	60
16,000	78	88	51	67
22,050	71	85	67	73
24,000	74	87	56	77
32,000	85	104	63	84
44,100	82	104	70	102
48,000	84	407	74	96
96,000	103	142	93	136

Table 3. Expected Recording Time: Default Acoustic Settings, Mono Channel

Battery Configuration	Highest Quality Recording Time (Hours)	Low Power Recording Time (Hours)
4x Alkaline AA	210	290
8x Alkaline AA	420	625
6x Lithium-Ion	1040	1565

9.4. SD CARDS

Type: Supports SDHC and SDXC

Capacity: Supports up to 32 GB SDHC or up to 2 TB SDXC per slot.

10. WARRANTY AND DISCLOSURES

Except as specifically provided herein, Wildlife Acoustics makes no warranty of any kind, express or implied, with respect to this product.

Hardware Limited Warranty

Product	Components	Warranty Period
Song Meter Mini 2	All components (excluding foam windscreens)	2 Years

Wildlife Acoustics, Inc. Limited Warranty

HARDWARE: Wildlife Acoustics, Inc. ("WAI") warrants to the original end user ("Customer") that new WAI branded products will be free from defects in workmanship and materials, under normal use. Refer to the Hardware Limited Warranty table at the top of this page for the applicable warranty period from the original date of purchase.

WAI warrants refurbished WAI products, marked and sold as such, for ninety (90) days from the original purchase date.

SOFTWARE: WAI warrants to Customer that any WAI branded software will perform in substantial conformance to their schedule specifications for a period of ninety (90) days from the date of original purchase. WAI warrants the media containing software against failure during the warranty period. WAI makes no warranty or representation that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

EXCLUSIONS: This warranty excludes (1) physical damage to the surface of the product, including cracks or scratches on the outside casing; (2) damage caused by misuse, neglect, improper installation or testing, unauthorized attempts to open, repair, or modify the product, or any other cause beyond the range of the intended use; (3) damage caused by accident, fire, power changes, other hazards, or acts of God; or (4) use of the product with any non-WAI device or service if such device or service causes the problem.

Any third party products, including software, included with WAI products are not covered by this WAI warranty and WAI makes no representations or warranties on behalf of such third parties. Any warranty on such products is from the supplier or licensor of the product.

No warranty is provided by WAI unless the product was purchased from an authorized distributor or authorized reseller.

EXCLUSIVE REMEDIES: Should a covered defect occur during the warranty period and you notify WAI, your sole and exclusive remedy shall be, at sole option and expense of WAI, to repair or replace the product or software. If WAI cannot reasonably repair nor replace then WAI may, in its sole discretion, refund the purchase price paid for the product. Replacement products or parts may be new or reconditioned or comparable versions of the defective item. WAI warrants any replaced or repaired product, part, or software for a period of ninety (90) days from shipment, or through the end of the original warranty, whichever is longer.

OBTAINING WARRANTY SERVICE: Customer should refer to the WAI website at www.wildlifeacoustics.com/support/contact-support for information on obtaining warranty service authorization. Methods for obtaining warranty service may vary depending on whether purchases were made from an authorized provider of WAI products or from WAI directly. All requests for warranty service authorization must be made within the applicable warranty period. Dated proof of original purchase will be required. Products or parts shipped by Customer

to WAI must be sent postage-paid and packaged appropriately for safe shipment. WAI is not responsible for Customer products received without a warranty service authorization and may be rejected. Repaired or replacement products will be shipped to Customer at WAI expense. All products or parts that are replaced become the property of WAI. WAI shall not be responsible for Customer software, firmware, information, or memory data contained in, stored on, or integrated with any products returned to WAI for repair, whether under warranty or not. The repair and replacement process for products or parts in locations outside of the United States will vary depending on Customer's location.

WARRANTIES EXCLUSIVE: THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, TERMS OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, ACCURACY, CORRESPONDENCE WITH DESCRIPTION, SATISFACTORY QUALITY AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY WAI AND ITS SUPPLIERS.

LIMITATIONS OF LIABILITY: NEITHER WAI NOR ITS SUPPLIERS SHALL BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, LOSS OF INFORMATION OR DATA, LOSS OF REVENUE, LOSS OF BUSINESS OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE OR USE OF THIS PRODUCT, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR ANY OTHER THEORY, EVEN IF WAI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND EVEN IF ANY LIMITED REMEDY SPECIFIED IN THIS LICENSE AGREEMENT IS DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE. WAI'S ENTIRE LIABILITY SHALL BE LIMITED TO REPLACEMENT, REPAIR, OR REFUND OF THE PURCHASE PRICE PAID, AT WAI'S OPTION. IN NO EVENT SHALL WAI'S LIABILITY FOR ALL DAMAGES RELATED TO THE PURCHASE OF PRODUCT EXCEED THE AMOUNT PAID FOR THE APPLICABLE PRODUCT. THE FOREGOING LIMITATIONS WILL APPLY EVEN IF THE ABOVE STATED REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

DISCLAIMER: Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages so the above limitations and exclusions may be limited in their application to you. When implied warranties may not be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights; you may have other rights that may vary depending on local law. Your statutory rights are not affected.

GOVERNING LAW: This Limited Warranty shall be governed by the laws of the Commonwealth of Massachusetts, and by the laws of the United States, excluding their conflicts of laws principles. The United Nations Convention on Contracts for the International Sale of Goods is hereby excluded in its entirety from application to this Limited Warranty.

DECLARATION OF CONFORMITY (according to EN ISO/IEC 17050-1:2010)

No: WAI20231221

Manufacturer:

Wildlife Acoustics, Inc.
3 Mill and Main Place, Suite 110
Maynard, MA 01754
United States of America

Declares that the following product:

Product Name: Song Meter Mini 2

Product Type: Bioacoustics Recorder

Conforms to the appropriate country standards and governing regulations listed below. As the manufacturer, we are fully responsible for the design and production of the above-mentioned equipment.

- (FCC) Code of Federal Regulations, Title 47, Part 15, Subpart B: Class B Device (2015): Radio Frequency Devices – Unintentional radiators
- AS CISPR 11, (2017): Industrial, scientific and medical (ISM) radio-frequency equipment – electromagnetic disturbance characteristics – limits and methods of measurement, Class B
- EN 55011, (2016): Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics – Limits and methods of measurement, Class B
- ICES-003, (2012): Industry Canada, Interference-Causing Equipment Standard, Digital Apparatus, Class B
- EN61326, (2013): Electrical Equipment for Measurement, Control and Laboratory use EMC Requirements
- EN 61000-4-2 (2009): Electromagnetic compatibility (EMC) Testing and measurement techniques - Electrostatic discharge immunity test
- IEC 61000-4-3 (2006): Electromagnetic compatibility (EMC) Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
- (FCC) Code of Federal Regulations, Title 47, Part 15.247 (2015): Radio Frequency Devices – Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz
- ISED RSS-247, Issue 1 (2017): Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
- ETSI EN 300 328 (2017): Wideband transmission systems - Data transmission equipment operating in the 2.4GHz band
- EN 301 489-1 (2017): ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements
- EN 301 489-17 (2016): ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems
- EN 62479 (2010): Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
- IEC 60529 IPX7 (2019): Temporary Immersion (tested exclusive of microphone)

Marking appears as follows:

$\mathsf{C}\mathsf{E}$

This product was tested in a typical configuration.

Ian Agranat, President

Wildlife Acoustics, Inc.

December 21, 2023

ELECTROMAGNETIC INTERFERENCE

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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Wildlife Acoustics, Inc. could void the user's authority to operate the equipment.

PROHIBITION AGAINST EAVESDROPPING

United States law (Federal Communications Commission Part 15 Section 15.9) states "Except for the operations of law enforcement officers conducted under lawful authority, no person shall use, either directly or indirectly, a device operated pursuant to the provisions of this Part for the purpose of overhearing or recording the private conversations of others unless such use is authorized by all of the parties engaging in the conversation."

You are responsible for complying with all applicable laws within your jurisdiction

PRODUCT DOCUMENTATION

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Updated on Jan 12, 2024.