7.5 Troubleshooting

8 Warranty and Disclosures

Online User Guide

Download this guide at
www.wildlifeacoustics.com/resources/user-guides

Tutorial Videos

Visit www.wildlifeacoustics.com/support/tutorial-videos to view tutorial videos for the Song Meter Mini and Song Meter Mini Bat .

Contacting Support

For technical queries contact the Wildlife Acoustics support team:

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

Don’t miss out on Important Updates

We continually add features to the Song Meter Mini and Song Meter Mini Bat. Stay up to date with the newest features and receive important technical support bulletins by signing up to our mailing list at:

http://www.wildlifeacoustics.com/products#mailinglist

1 Song Meter Mini Quick Start

1. Remove the lid from the Song Meter Mini recorder.
2. Insert four AA alkaline or NiMH batteries and an SD card.
3. Switch the recorder's power switch to On.
4. 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. Make sure Bluetooth is enabled on your mobile device.
7. Launch the app.
8. The Song Meter Mini will be detected by the app and will appear in the Recorders screen.
9. Press and hold the Pair button on the Song Meter Mini recorder for three seconds. The Bluetooth LED on the recorder will blink green, indicating it is ready to pair.
10. In the app, tap the Pair icon when it appears in the Recorders screen. The recorder's details will turn green, indicating successful pairing.
11. A pop-up asks if you want to set the recorder's time zone to your mobile device's time zone. Tap Yes. Next, a pop-up asks the same about location. Tap Yes.
12. After pairing, tap the Configure icon for the paired Song Meter Mini recorder in the Recorders screen. The Configuration Editor screen will open.
13. Select a preset recording schedule from the dropdown menu and make any desired setting changes.
14. The recording schedule and settings changes load onto the recorder after each change.

15. Tap the Unpair icon on the Recorders screen and the Song Meter Mini is now ready to deploy and record.

2 Introduction

Our smallest, lightest and most affordable wildlife audio recorders, the Wildlife Acoustics Song Meter Mini family offers simple, yet innovative tools for recording bats, birds, frogs and other vocal wildlife.

The Song Meter Mini recorders leverage the processing power of modern smart phones for remote scheduling and status checking, using the free Song Meter Configurator app.

2.1 Song Meter Mini Models

The Song Meter Mini family comprises two recorder models: the Song Meter Mini and the Song Meter Mini Bat. Both use the Song Meter Configurator app for iOS or Android.

In this guide, when features are common to both models, the Song Meter Mini and Song Meter Mini Bat are commonly referred to as the "Song Meter Mini recorder', or just "recorder". When there are differences between models, the Song Meter Mini and Song Meter Mini Bat are described separately.

NOTE: This manual uses the word "acoustic" to describe frequencies considered within the range of human hearing, below around 20,000Hz. "Bat" or "ultrasonic" is generally used for frequencies above 20,000Hz.

Key Differences Between Models

- The Song Meter Mini utilizes an acoustic microphone for recording sounds such as those made by birds or frogs.
- The Song Meter Mini Bat utilizes an ultrasonic microphone for recording bat calls and other ultrasonic sounds.
- Settings for acoustic and ultrasonic microphones are different and use different screens in the Configurator app.
- An optional acoustic microphone can be installed on either model to add acoustic recording capabilities on the right channel. When a second acoustic microphone is installed on the Song Meter Mini, this allows single channel audio recording with either the left or right channel microphone, or recording on both channels simultaneously in stereo mode.
- When the optional acoustic microphone is installed on a Song Meter Mini Bat, it is possible to run a recording schedule which alternates between acoustic and ultrasonic microphones. The ultrasonic and acoustic microphones, however, cannot be used at the same time.
- It is not possible to add a second ultrasonic microphone to the Song Meter Mini or Song Meter Mini Bat.

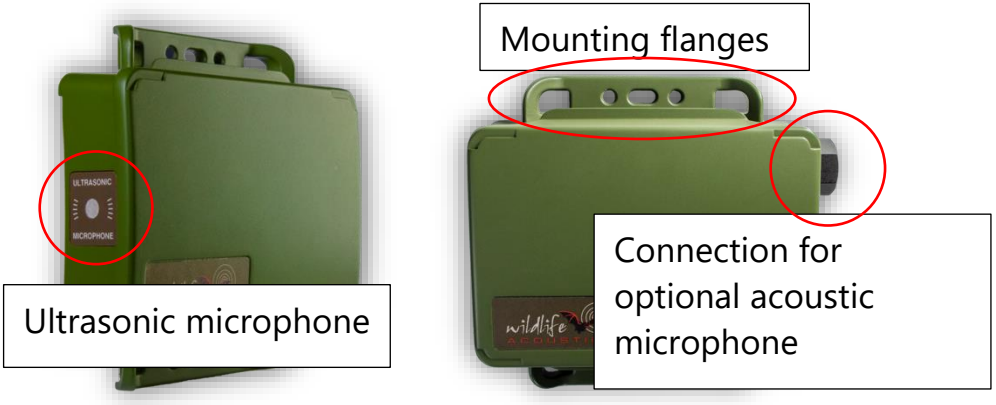
3 The Song Meter Mini Recorder

This section describes the Song Meter Mini recorder hardware.

3.1 External Features

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

Song Meter Mini Bat



Song Meter Mini

Mounting Flanges

Mounting Flanges can be used to secure the recorder to a branch or post (for example). Typical mounting methods include bungie cords, zip ties or cable locks. Cable locks must be under 0.3" (7.6mm) diameter.

Lid

The recorder consists of a main enclosure with sealed, snap-on lid. To remove the lid, grasp the long edges with your fingers, applying slight pressure with your thumbs to the center. The lid will pop off to expose the recorder's interior.

A label inside the lid provides basic instructions, button definitions, and Status LED definitions (see section 3.2)

An optional lid to hold Lithium-ion batteries is also available (see section 3.5).

NOTE: When the lid is properly connected to the recorder body, the seal is water-tight. If the recorder is wet when the lid is removed, some water droplets may splash from the lid edges into the recorder. This does not represent a leak or some other failure. Make sure to dry any water droplets before closing the lid.

Microphones

The Song Meter Mini utilizes a single built-in acoustic microphone. The microphone has a replaceable windscreen. An additional acoustic microphone can be purchased and added to the right side for stereo recording.

The Song Meter Mini Bat utilizes a single built-in ultrasonic microphone. The microphone is flush with the enclosure edge and has a mesh screen to protect against physical damage. An acoustic microphone can be purchased and added to the right side for recording acoustic sounds.

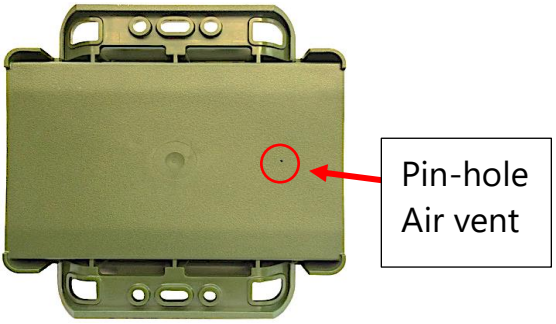
Optional Acoustic Microphone Port

This is the connection point for an acoustic microphone. There is an internal socket for the acoustic microphone wire connection.

Air Vent

A pin-hole air vent on the reverse of the enclosure prevents pressure build-up inside the recorder but does not allow water ingress during normal use. **The pin hole opening must not be blocked or covered in any way.**

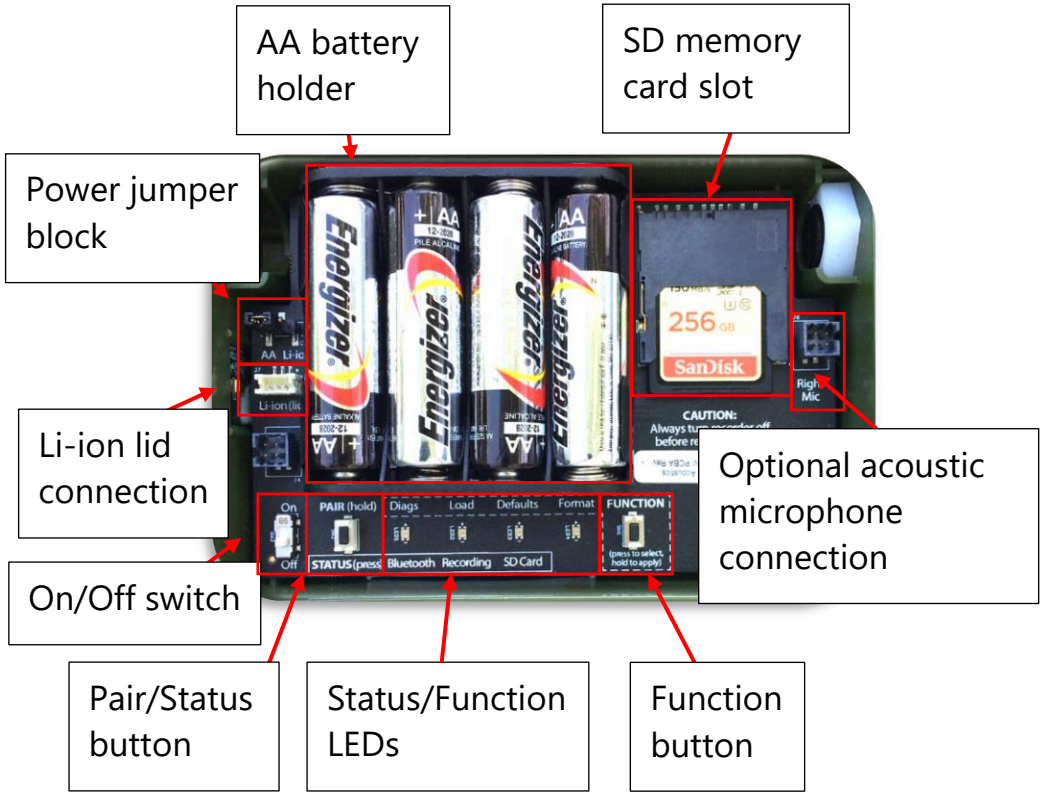
A self-regenerating desiccant packet inside the enclosure offers further protection - it will absorb or release moisture to keep a regulated humidity inside the recorder.



Security Bracket

A lockable security bracket is available for the Song Meter Mini recorder. The bracket is adjustable to accommodate the larger Lithium-ion lid

3.2 Internal Features



On/Off Switch

- **On:** Battery power is enabled. Schedule is started.
- **Off:** Schedule is stopped. Battery power is disabled.

When the Song Meter Mini recorder is first powered on, the Status LEDs show Bluetooth, Recording, and SD Card status. After one minute with no further activity, Status LEDs are disabled

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

Power Source Jumper Block

3 pin connector power source connection with the jumper installed in the default configuration to use AA batteries

The Song Meter Mini recorder can be powered by 4 AA batteries or 2, 4 or 6 Lithium-ion 18650 batteries with the optional Lithium-ion battery lid.

The power source jumper determines which source will be used. It connects the left pin to the center pin for AA power, or the right pin to the center pin to use Lithium Ion batteries installed in the optional Lithium battery lid.

- Remove the jumper by pulling it up.
- Install the jumper by pushing it down on the left two pins to use AA power or the on the right two pins to use Lithium-ion batteries.
- Default configuration is for AA batteries.

NOTE: If the jumper is disconnected or in the wrong position the recorder will not power up.

AA Battery Holder

The battery holder takes 4 AA alkaline or NiMH batteries.

AA Lithium batteries are approved for use. AA Lithium batteries are not rechargeable and under many circumstances will not provide longer life than AA Alkaline batteries

- Ensure batteries are oriented with the correct positive/negative polarity.
- Remove batteries before storage.

SD Memory Card Slot

The Song Meter Mini recorder saves recording files and a summary log to an SD memory 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 and then slide out.

- Only remove the SD card with the recorder powered off.
- Use the Configurator app to check recording space available on the SD card.

NOTE: Wildlife Acoustics recommends the SanDisk brand of memory cards for their superior performance.

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

PAIR/STATUS Button

This is a dual function button.

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

Press and hold the PAIR/STATUS button for three seconds to activate the Song Meter Mini recorder for pairing with the Configurator app. Pairing must be manually confirmed from the app (see section 4.5)

To unpair, press and hold the PAIR/STATUS button on the Song Meter Mini recorder for three seconds, or use the Configurator app.

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 Configurator app.

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

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 (*Triggered)
	Green Slow	*Armed & waiting for trigger
	Green Solid	Waiting next recording period
	Red Solid	Can't record
SD Card:	Off	No card detected
	Green Blinking	Card is active: do not eject
	Green Solid	No activity: can be ejected
	Red Blinking	SD card full
	Red Solid	SD card issue
* Song Meter Mini Bat in Bat Mode only.		

Function Button and Function LEDs

Press the FUNCTION button multiple times to cycle through the Functions. When the desired Function LED lights, press and hold the FUNCTION button for 3 seconds to select it.

The selected LED will blink green while the function is in progress.

When the function successfully completes, all four LEDs will blink green three times.

If the function fails, all four LEDs will blink red six times.

There are four Function LEDs .

- **Diags**: This runs an internal diagnostic check. Two files are then written to the SD card:
    - A diagnostic file describing the functions of the recorder with a file name of Prefix_YYYYMMDD_HHMMSS.minidiags. This is used by Wildlife Acoustics Support to evaluate the health of your Song Meter Mini recorder.
    - A configuration file named Prefix.miniconfig. This file can be used to load the configuration onto other Song Meter Mini recorders.
- **Load**: This loads a configuration file (.miniconfig) and/or firmware file (.smm), from the SD card to the recorder (also see section 4.14). If there are both a config file and firmware update file on the card, the config file will be loaded first and then the firmware update will be loaded.
- **Defaults**: This resets to factory defaults. Resetting factory defaults clears all internal settings except current date and time (see sections 4.8 and 4.9 for default settings). Default settings can also be changed on the app.

- **Format**: This formats the SD card (this can also be done in the app, see also section 4.14).

Right Microphone Connector

This is the connection point for the optional acoustic microphone.

3.3 Installing a Second Microphone

NOTE: The optional acoustic microphone is designed for a one-time installation. It is not designed to be repeatedly connected and disconnected. 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.

1. Remove the recorder's lid. In the top right corner of the recorder is a removable black plastic bolt threaded through a black plastic nut.

2. Use a ¾" wrench to gently unscrew the bolt from the nut. When the bolt is removed the internal nut will stay 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. Turn the microphone clockwise to screw it into the internal nut. **Be careful to make sure the connection wires are rotating freely as the microphone is turned.** Make sure the thread is not crossed. Tighten lightly with pliers or a wrench. Do not over-tighten.
5. Now connect the microphone wire to the jack labelled "Right Mic" on the circuit board. Route the wires to the right of the SD card to avoid physical interference or electrical noise from the SD card.

NOTE: The built-in microphone is referred to as the Left Channel. The optional second microphone is referred to as the Right Channel.

3.4 Lithium-ion Battery Lid

An optional lithium-ion battery lid is available that can hold 2, 4 or 6 18650 lithium-ion rechargeable batteries. This provides up to approximately five times the battery life of 4 alkaline AA batteries.

The lid adds $^{15}/_{16}$" (24mm) to the usual depth of a Song Meter Mini recorder.

WARNING! Lithium-ion batteries can cause fires if not used correctly. Please carefully read the following specifications and instructions. Wildlife Acoustics sells high-quality lithium-ion batteries that have been tested and approved for use in the Song Meter Mini recorder. It is HIGHLY recommended that you use these batteries.

Battery Requirements

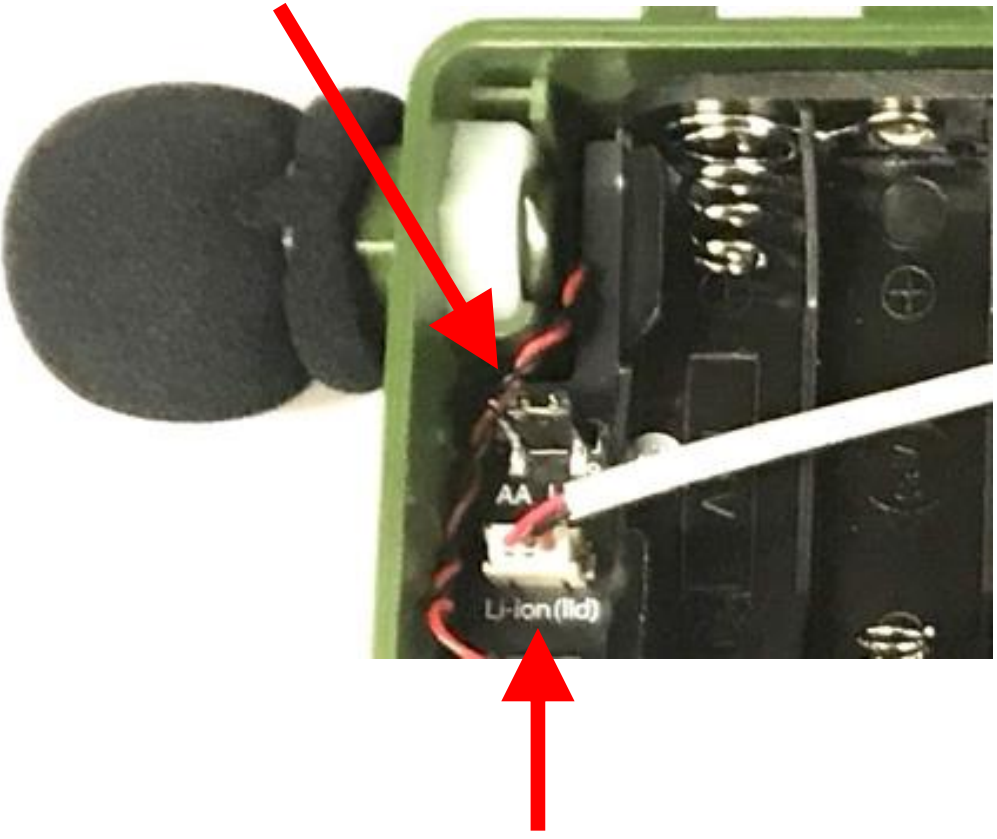
- The 18650 battery must be 68-69mm to make proper electrical contact. These dimensions include any tab at the top.
- The cell must be "protected" as opposed to "unprotected". This refers to additional circuitry inside the packaging, that protects the cell from over-charge, heat or over-discharge, over-current and short-circuit.
- All batteries must be fully and equally charged. A standard battery charger specifically designed to charge 3.6/3.7V lithium-ion batteries can be used and is available from Wildlife Acoustics.
- Remove batteries before storage.

How To Install The Lithium-Ion Battery Lid

1. Snap the empty lithium lid onto the base of your Song Meter Mini or Song Meter Mini Bat such that the eye-hole feature is lower left.

2. Install the removable zip-tie between the eye-hole in the lid and the mounting flange on the base. This provides strain relief so that the cable and connector do not bear the weight of the lid with batteries when it is left dangling. **Failure to take this step could result in damage to the connector.**

3. Remove the lid. Remove the black power selector jumper and reinsert it to the right so that it is inserted on the right two pins, labeled “Li-Ion”.



4. Attach the cable from the Lithium Lid to the Li-ion Lid connector.
5. Place the cable straight toward the right so the cable goes through the right-side notch in the AA battery tray. (If the cable isn't in the notch, it will get pinched and the lid cannot be fully closed).

6. Insert the SD card.
7. Place the metal bracket (with instruction label) above the AA battery tray. It should slide between the AA tray and the top of the enclosure. The purpose of the bracket is to retain the Lithium-ion batteries and help manage the cable.

8. Insert batteries in pairs as needed. When closing the lid, be careful to avoid pinching the cable. Seat the extra cable length under the metal bracket and close the lid. It should snap on both sides to create a weatherproof seal.

3.5 Upgrading the Recorder's Firmware

1. Download the current version firmware file from: https://www.wildlifeacoustics.com/account/downloads/sm-mini.

NOTE: In order to access firmware updates, a user account is required at WildlifeAcoustics.com

2. Copy this file to the top-level directory of an SD card. There must be only one firmware file on the card.
3. Insert the SD card into the recorder's card slot.
4. Turn on the recorder.
5. Press the FUNCTION button twice to select the "LOAD" function LED.
6. Press and hold the FUNCTION button until the "LOAD" LED begins blinking.
7. When the process is complete, all four LEDs will blink green three times 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 repeat the Load function or recheck the SD card and firmware update file on the SD card.

3.6 Loading a Config File from an SD Card

A configuration file is initially created by the Configurator app. The Configurator app can share the configuration file (see section 4.17). 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 a recorder.

1. Copy the mini.config file to the top-level directory of the SD card. There must be only one .config file on the card.
1. Insert the SD card into the recorder's card slot.
2. Turn on the recorder.
3. Press the FUNCTION button twice to select the "LOAD" function (see section 3.2).
4. Press and hold the FUNCTION button until the "LOAD" LED begins blinking.

5. When the process is complete, all four LEDs will blink green three times and the recorder will have loaded the config.file.

NOTE: 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 repeat the Load function or recheck the SD card and configuration file on the SD card.

NOTE: The configuration file must match the model of recorder. A Song Meter Mini cannot load a configuration file that was created for a Song Meter Mini Bat. A Song Meter Mini Bat cannot load a configuration file which was created for a Song Meter Mini.

3.7 Loading a Config File to an SD Card

The current configuration of the recorder can be transferred to an SD card via the Diags function (see section 3.2)

4 Song Meter Configurator App

Internal settings and schedules for the Song Meter Mini recorder are configured on an iOS or Android device via the Song Meter Configurator app.

- The Song Meter Configurator app is available in English, French, Spanish, and Portuguese. The display language of the Configurator app will follow the Android or iOS language setting. It is also possible to manually set the language of the app in the App Information screen.
- The Configurator app communicates with the recorder via Bluetooth connection.
- A Song Meter Mini that is detected by the Configurator app will automatically upload its current status to the app.

- The Configurator app can be used to program the recorder in real time. It can also create and save configuration files, which can be stored and uploaded to the recorder at a later time.
- The Configurator app can manage multiple recorders concurrently.
- The Configurator app can save, open, and share configuration files.

4.1 Installing the App

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

- **For Android** devices, download and install the Android version from Google Play. The Configurator app requires a minimum Android version of 8.0.

NOTE: The Song Meter Configurator app is only available in Google Play if the Android version of the device is compatible

- **For iOS** devices, download and install the iOS version from the Apple App Store. The Configurator app requires a minimum iOS version of 12.0.

4.2 Bluetooth Connection

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

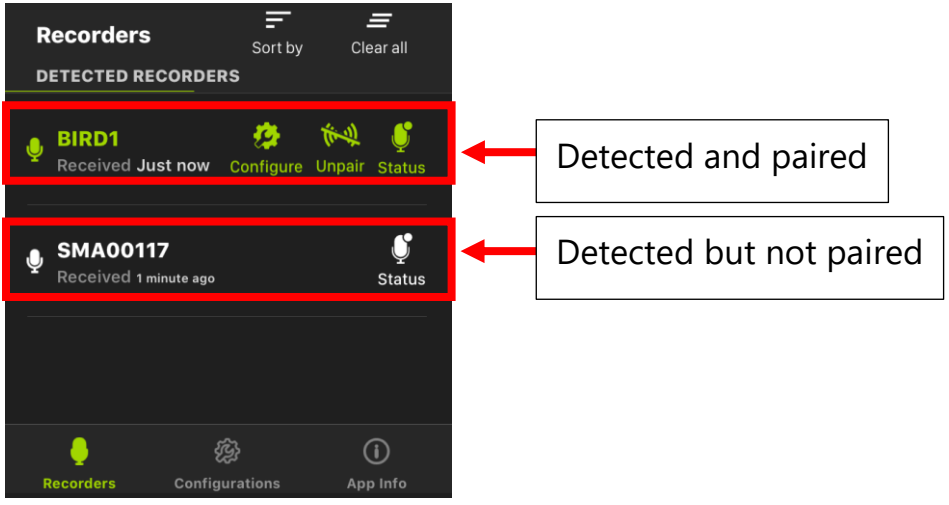
In factory default mode, when the Song Meter Mini recorder is powered on, it generates a Bluetooth status beacon. If the recorder is within Bluetooth range of the mobile device, the Configurator app will automatically detect the Bluetooth status beacon and the recorder will be detected and displayed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

NOTE: It is possible to disable the recorder's Bluetooth status beacon from the Paired Configuration Editor screen). If Bluetooth beacons are disabled, the recorder will not be detected by the app unless the Pair button on the recorder is pressed and held for three seconds.

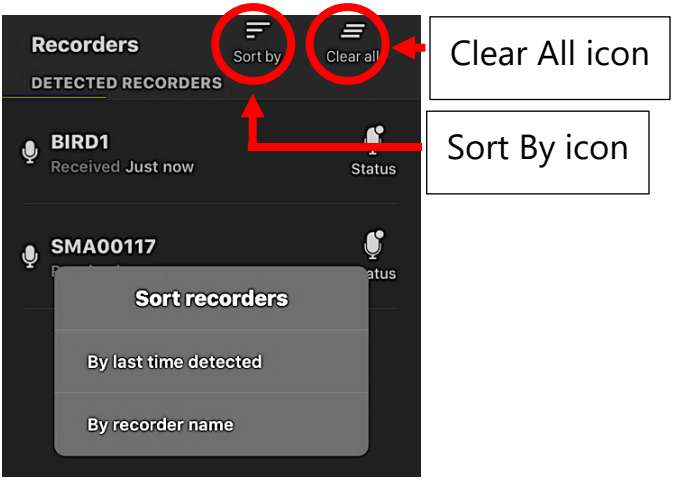
4.3 Recorders Screen

The Recorders screen is the first screen displayed when the Configurator app is launched. The Recorders screen can also be accessed by tapping the Recorders icon at the bottom of the Recorders/Configuration Library/App Info screens.

- The Recorders screen lists each recorder within Bluetooth range and detected by the Configurator app.
- Previously detected recorders that are out of Bluetooth range or powered off will remain in the list until removed.
- If a recorder is within range and powered on, but does not show in the Recorders screen list, check whether the Send Bluetooth Beacons? utility is enabled (see section 4.7).



Sort By

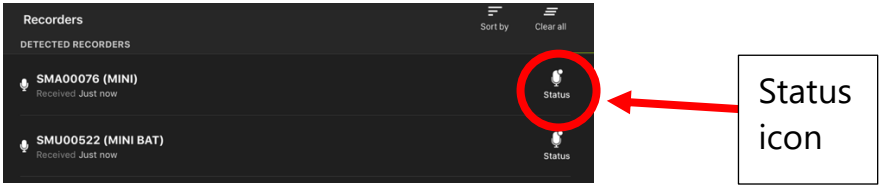


Tap the Sort By icon to sort the recorder list by time last detected or recorder name.

Clear All

Tap this icon to delete all recorders from the list. If a recorder is redetected it will reappear in the list.

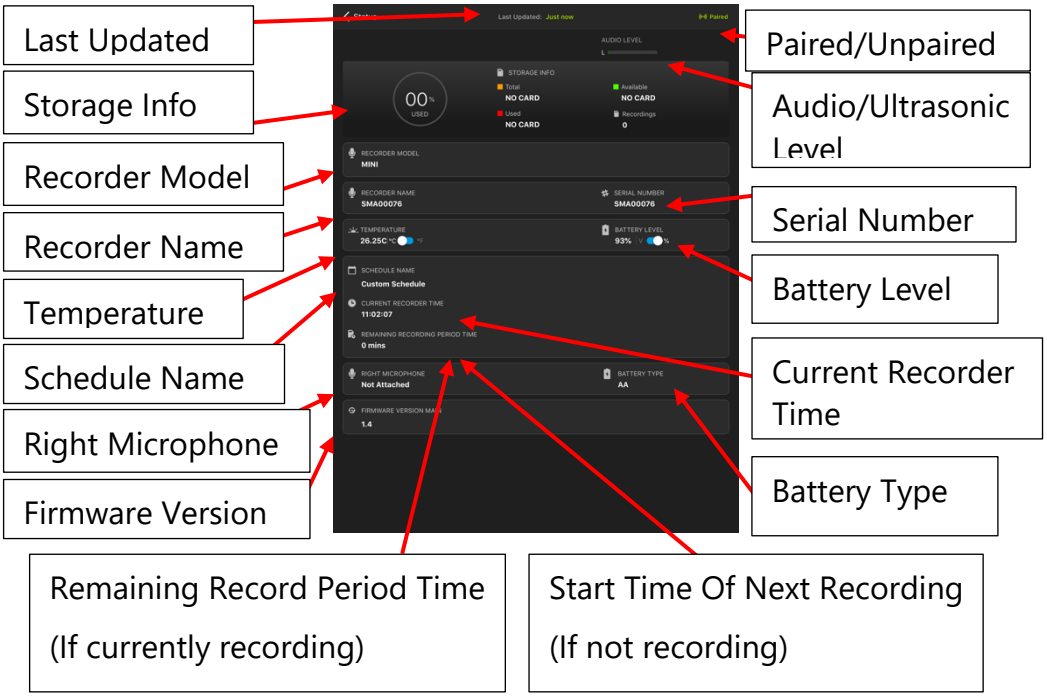
4.4 Status Screen



The Status screen for a detected recorder is accessed from the Recorders screen by tapping on the Status icon.

- When a Song Meter Mini recorder is within Bluetooth range and is detected by the Configurator app, its status automatically uploads to the app.
- Tap the Status icon for any recorder listed in the Recorders screen to see the most recently uploaded Status information for that recorder.
- The last uploaded Status information is retained by the app when the app is closed, or the mobile device is powered off or moved out of Bluetooth range of the recorder.
- The Song Meter Mini recorder does not need to be paired with the Configurator app to upload its current Status, as long as it is within Bluetooth range.
- If the recorder is currently being detected, the Status screen will update in real time. If the recorder is not currently being detected, the Status screen will display the last settings detected from the recorder.
- When a recorder is paired with the app it does not send Bluetooth status beacons and cannot be detected by another device.

The Status screen displays the following information:



Last Updated

Displays how long since the recorder was last detected by the app.

Paired/Unpaired

Displays whether the recorder is currently paired or unpaired with Configurator app.

Audio/Ultrasonic Level

If the Song Meter Mini recorder is currently paired with the app, and is in record mode, the Audio Level meter displays audio levels present at the built-in and/or optional microphones (if installed).

If the Song Meter Mini Bat recorder is currently paired with the app, and is in ultrasonic recording mode, the Ultrasonic Level meter will show any ultrasonic activity present at the built-in microphones. If the Song Meter Mini Bat recorder is set to record using an optional acoustic microphone (if installed), the Audio Level meter will show audio activity at that microphone.

If the recorder is not paired, or is paired but not in record mode, or the SD card is faulty, the Audio/Ultrasonic Level meter will not be visible.

Storage Info

Displays the current or last detected parameters for the SD memory card as follows:

- **% Used:** Percentage of SD card that has been used for file storage.
- **Total**: Gigabytes of total storage space on the SD card.
- **Available:** Gigabytes of free storage space remaining.
- **Used**: Gigabytes of used storage space.
- **Recordings**: Number of separate recording files made since the last time the recorder was powered on. This number will also be reset to zero if the SD memory card is reformatted by the Song Meter Mini recorder.

If there is no memory card inserted, or if there is a problem with the memory card, text will be displayed under Total, Used, and Available.

- **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** This state can occur after battery failure. Recordings on the card should still be readable on a computer. The card formatting may need to be checked and corrected. In some cases the state can be corrected just by properly ejecting the card from a computer.

Recorder Name

By default, this is the serial number of the Song Meter Mini recorder. If the recorder name has been edited (see section 4.7), the edited name will be displayed.

Serial Number

Displays the recorder's serial number. This cannot be edited.

Temperature

Displays the recorder's internal temperature in Celsius or Fahrenheit. Slide the button to choose.

Battery Level

Displays the current total voltage of the AA or lithium-ion batteries as a percentage or actual voltage. Slide the button to choose.

Schedule Name

Displays the currently programmed schedule name.

If a pre-set schedule is programmed, that name will be displayed. If the schedule has been edited it will be displayed as "Custom Schedule".

Current Recorder Time

Displays the recorder's currently programmed time.

If the recorder is currently not detected by the Configurator app, the time when the recorder was last detected is displayed.

Start Time Of Next Recording

If the recorder is not currently in record mode, this will display the start time of the next recording. This is displayed in one-hour increments.

Remaining Recording Period Time

(Displayed for pre-set schedules only) If the recorder is currently in record mode, this will display the end time of the current recording schedule block. If the schedule is set to 24-hour recording, this will display "Continuous".

Right Microphone

Displays "Attached" or "Not Attached" depending on whether or not a second acoustic microphone is connected to the recorder.

Battery Type

Displays AA or Lithium. AA refers to the internal AA battery holder. Lithium refers to the optional Lithium-Ion battery lid.

Firmware Version

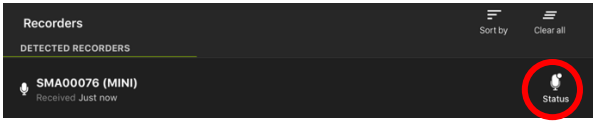
Displays the current firmware version of the recorder.

4.5 Pairing the Recorder with the Configurator app

If a Song Meter Mini recorder is powered on, and is within Bluetooth range of the mobile device, it can be paired or unpaired with the Configurator app.

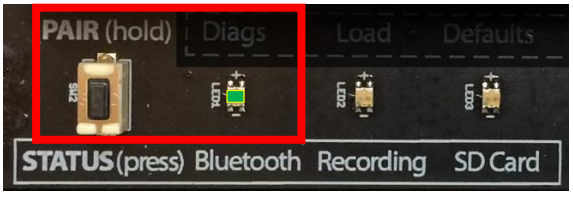
- A recorder must be paired with the app in order to edit the schedule and settings currently stored in the recorder.
- Pairing is not automatic and must be done manually.
- Only one recorder at a time can be paired with the Configurator app.
- The internal clock, location, and time zone are set during pairing when necessary.

1. Enable Bluetooth on the iOS or Android device.
2. Launch the Song Meter Configurator app and display the Recorders screen.
3. Remove the Song Meter Mini recorder's lid.
4. Turn the Power switch to On.
5. Launch the Song Meter Configurator app and display the Recorders screen. The Configurator app will detect the recorder.



Detected but not ready to pair. Bluetooth LED on recorder is off.

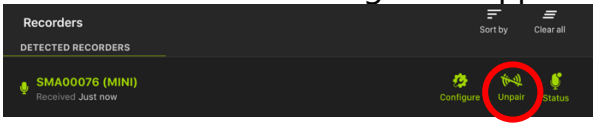
6. Press and hold the PAIR button on the recorder for three seconds, until the Bluetooth status LED blinks green.



The Pair icon will appear in the Recorders screen.

Ready to pair. Bluetooth LED on recorder is Blinking.

7. Tap the Pair icon to complete the pairing of the Song Meter Mini recorder to the Configurator app.



Recorder is paired with app. Bluetooth LED on recorder is solid green.

8. To unpair the recorder, tap the Unpair icon in the Configurator app Recorders screen, or press and hold the PAIR button on the recorder for three seconds.

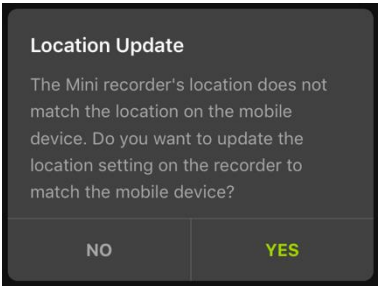
NOTE: Pairing does not affect the schedule of recordings nor interrupt a recording in progress. The Song Meter Mini recorder will not go to sleep while paired. If the recorder finishes a schedule and is ready to go to sleep, it will not go to sleep until it is unpaired.

Setting the Recorder's Clock

The first time the Song Meter Mini 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 Configurator app, the clock of the recorder will be automatically set to match the Mobile device.

Setting the Recorder's Location

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



- Tap **Yes** to reset the programmed location of the Song Meter Mini recorder to the current mobile device location
- Tap **No** to leave the currently programmed location of the recorder unchanged.

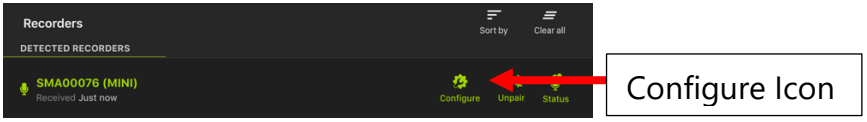
4.6 Pairing with a Different Recorder

1. Unpair any currently paired recorder by tapping the Unpair icon in the Recorders screen.
2. Press and hold the PAIR button on the next Song meter Mini recorder to be configured. That recorder will now become available for pairing in the Configurator app, and the Pair icon will appear.
3. Press the Pair icon for the new recorder. The text will turn green when the recorder pairs with the Configurator app, and the Configure and Unpair icons will be displayed.

4.7 Configuration Editor Screen

The configuration and settings of a paired recorder can be edited from within the Configuration Editor screen.

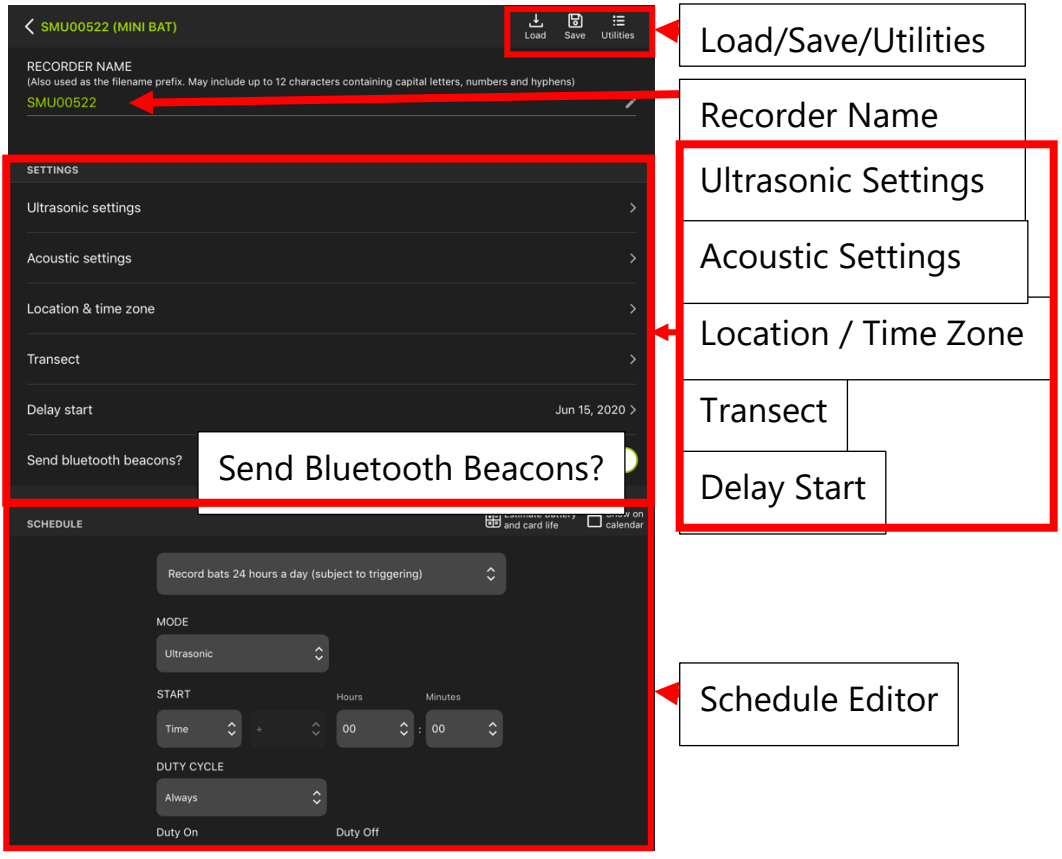
The Configuration Editor screen is accessed from the Recorders screen by tapping the Configure icon



- When the Song Meter Mini recorder pairs with the Configurator app, it automatically uploads and displays its current configuration to the app.
- Once paired, any changes subsequently made in the Configuration Editor and Ultrasonic/Acoustic Settings screens will immediately update the recorder.

NOTE: Making a configuration change stops any recording in progress and pauses the schedule for 10 seconds. This allows changes to be made to the configuration without constantly starting and stopping a record schedule. Each configuration change resets the 10 second pause. 10 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 displays the following:



Load

Tap the Load icon to display a list of any saved configuration files in the Configuration Library (see section 4.17).

Select the saved configuration file that you would like loaded onto the recorder and tap OK.

The saved configuration and settings will be loaded to the paired Song Meter Mini recorder.

Save

Tap the Save icon to name and save the current configuration and settings to the Configuration Library (see section 4.17) as a saved configuration file. Once the configuration is saved, the screen will again display the current configuration in the recorder. Changes made to the configuration will then edit the recorder directly. To save new changes to the Configuration Library, tap the Save icon again.

To further edit a saved configuration file, go to the Configuration Library window or, save a new configuration file.

Utilities

See section 4.14

Tap the Utilities icon to bring up the Utilities menu to:

- Test microphone.
- Format SD card.
- Restore recorder to factory defaults.
- Load firmware or a configuration from card.
- Email diagnostics to Wildlife.

Recorder Name

Tap the pencil icon to rename the currently paired recorder.

- The Recorder Name is added as a prefix to the file name of all recordings made by the Song Meter Mini recorder.
- The Recorder Name will not be over-written when loading a saved configuration file.
- Resetting Factory Defaults will reset Recorder Name to the recorder serial number.

Acoustic/Ultrasonic Settings

Acoustic Settings are available for the Song Meter Mini, and a Song Meter Mini Bat which has the optional acoustic microphone installed.

Ultrasonic Settings are available only for the Song Meter Mini Bat.

Use the Acoustic/Ultrasonic Settings to change recording parameters.

- Ultrasonic settings - see section 4.8
- Acoustic settings - see section 4.9

Location and Time Zone

Location and time can be set in the Location and Time Zone screen (see section 4.10).

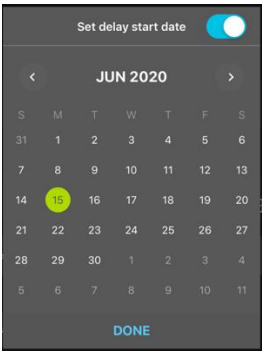
Transect (Available only for the Song Meter Mini Bat ultrasonic microphone)

For details on Transect mode, see this section.

Delay Start

It is possible to program a paired Song Meter Mini recorder so its recording schedule will not start until a specified date. The recorder will sleep until the Delay Start date and then wake up to commence its programmed recording schedule.

- To set the Delay Start date, tap the icon in the Configure screen to open a calendar.
- Select the desired start date.
- Tap Done.



Send Bluetooth Beacons?

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

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

- If Send Bluetooth Beacons? is disabled, the 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 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 recorder.

Schedule Editor

Use the Schedule editor to specify when the recorder is actively recording (see section 4.12).

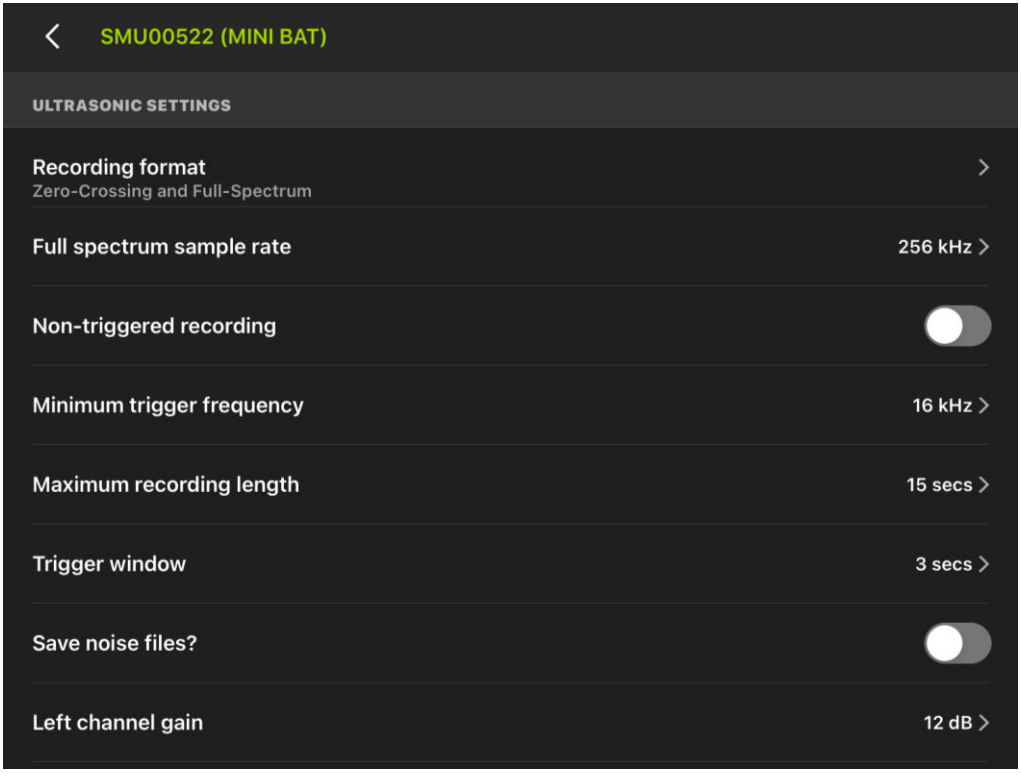
- Select a preset schedule or make a custom schedule.
- Estimate battery and SD card life.
- View sunset/sunrise times and schedule on a calendar.

4.8 Ultrasonic Settings Screen

The Ultrasonic Settings screen is accessed from the Paired Configuration Editor screen.

The parameters on the Ultrasonic Settings screen describe how audio is recorded by a Song Meter Mini Bat recorder. This screen is not displayed if the paired recorder is a Song Meter Mini model.

To make changes to any setting in this screen, tap the desired setting and the available options will be displayed.



Recording Format

- **Options**: Full-Spectrum; Zero-Crossing; Zero-Crossing and Full-Spectrum.

- **Default**: Full-Spectrum.

The Song Meter Mini Bat can record full spectrum or zero crossing format files. Both formats can be recorded at the same time.

Full-Spectrum Sample Rate

- **Options:** 256kHz, 384kHz, or 500kHz.
- **Default:** 256kHz.

A 256kHz sample rate will record up to 128kHz audio, sufficient for most North American and European bats.

A 384kHz sample rate will record up to 192kHz audio but will use proportionately more storage for recordings.

A 500kHz sample rate will record up to 250kHz audio and will use maximum storage space.

If Zero-Crossing (only) is the selected recording format, Full-Spectrum sample rate will be disabled.

Non-Triggered Recording

- **Options:** On, Off
- **Default:** Off

Non-triggered recording mode works the same as recording with the acoustic microphone but at ultrasonic sample rates. Recordings will be created during the recording schedule block. When the Maximum Recording Length is reached, a new recording will start. When Non-triggered recording mode is selected, all trigger functions are disabled.

NOTE: It is not possible to switch between Triggered and Non-triggered recording modes within a schedule.

Minimum Trigger Frequency

- **Values**: 6-60kHz in 1kHz increments.
- **Default**: 16kHz.

A signal must be above the minimum trigger frequency in order to trigger an actual recording. Any signal below the minimum trigger frequency will not trigger a recording, to prevent recording unwanted lower frequency sounds.

Maximum Recording Length

Triggered recording:

- **Values:** 3-60 seconds in 1 second increments
- **Default**: 15 seconds

Allows setting the maximum recording length to comply with file size restrictions of analysis software or for a specific recording protocol or definition of a bat pass.

Non-triggered recording:

- **Values:** 1-30 minutes in 1 minute increments
- **Default**: 30 minutes

Specifies the maximum length of segmented recording files within schedule blocks.

Trigger Window

- **Values:** 1-15s in 1 second increments.
- **Default**: 3s.

The Song Meter Mini Bat continues to record for this amount of time after the last signal that satisfies the minimum trigger frequency is detected unless the recording reaches the Maximum Recording Length first (The recording is also truncated when it reaches the maximum recording duration set by Maximum Recording Length).

Set the trigger window setting long enough to avoid a recording that ends after one echolocation pulse.

NOTE: Some standards describe a specific recording trigger window as a bat pass.

Save Noise Files?

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

Sets whether Noise files are discarded or stored with the rest of the recordings.

If Save Noise Files is enabled, and if a triggered recording does not appear to contain any bats, it will be saved and marked as Noise. Otherwise, the file will be discarded. This is called "scrubbing". The Song Meter Mini Bat scrub parameters are set automatically.

Left Channel Gain

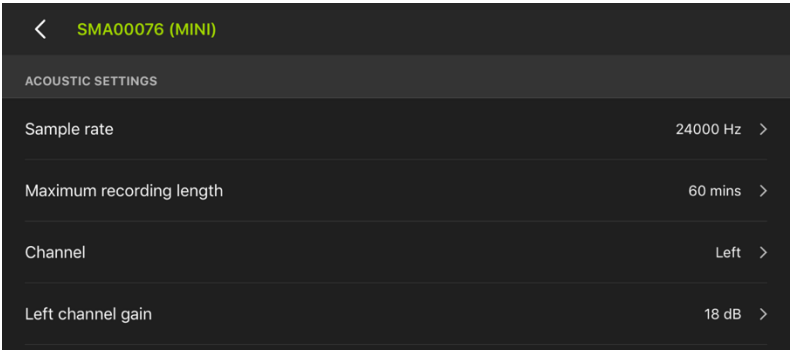
- **Options:** 0, 6, or 12dB.
- **Default:** 12dB.

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

Test recordings should be made to ensure 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.

4.9 Acoustic Settings Screen

The Acoustic Settings screen is accessed from the Configuration Editor screen. The Acoustic Settings screen parameters dictate how audio is recorded by a Song Meter Mini, or by the optional acoustic microphone of a Song Meter Mini Bat.



To make changes to any setting in this screen, tap the desired setting and the available options will be displayed.

Sample Rate

- **Options:** 8,000; 12,000; 16,000; 22,050; 24,000; 32,000; 44,100; 48,000; or 96,000Hz.
- **Default:** 24,000Hz.

Determines the number of samples per second used to make a recording during a recording period. Higher sample rates record higher frequencies.

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

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.

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, 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:** 1s to 60min in 1 minute increments.
- **Default:** 15min.

Specifies the maximum length (seconds and minutes) of recordings within a schedule. For example, if a recording schedule is set to record always and the maximum record length is set to 60 minutes, the recorder will create 24 60-minute files per day.

Channel

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

This option is not available for a Song Meter Mini Bat.

If a second microphone is connected to the Song Meter Mini, 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 only has a single microphone this option is not available for selection and is greyed out.

Left Channel Gain/Right Channel Gain

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

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 there are separate gain controls for each microphone.

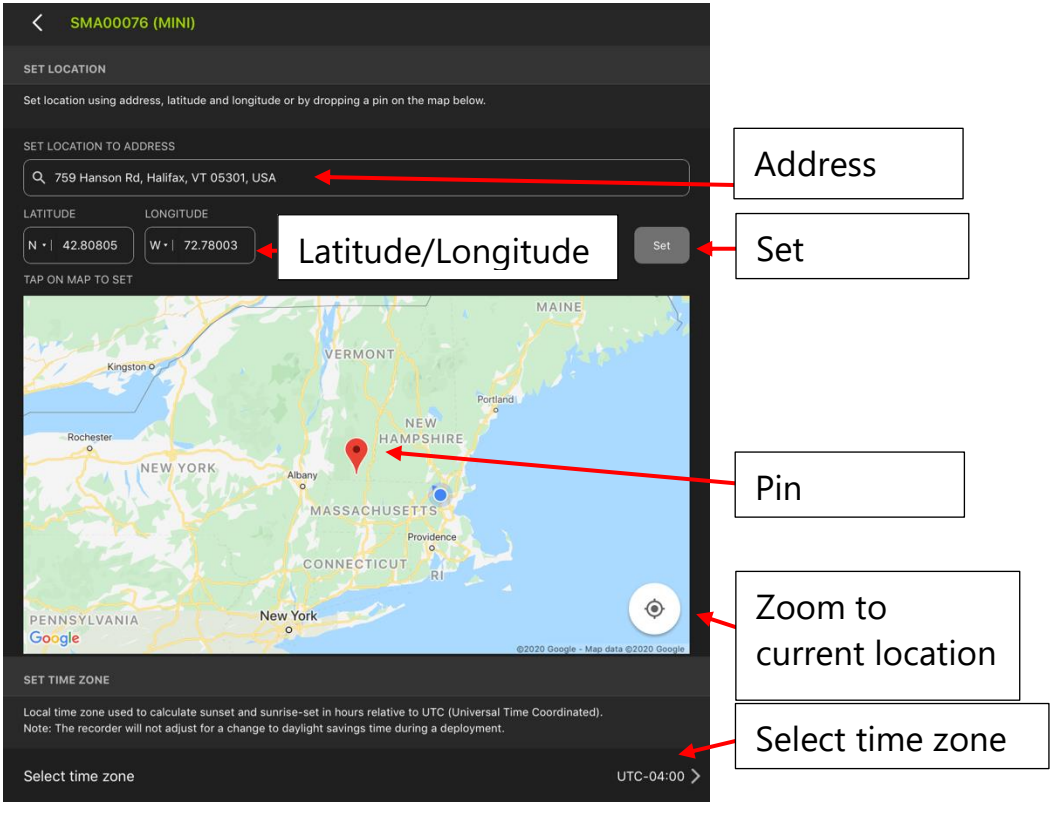
For the Song Meter Mini Bat, only Right Channel Gain will be displayed for the optional acoustic microphone.

The default setting of 18dB allows for lower or higher gain settings. 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.

4.10 Location and Time Zone Screen

Location and time can be set in the Location and 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 recorder.
- Accurate time zone and location information is required if sunrise/sunset times are to be used in a recording schedule.
- Location and time zone can also be set when the Song Meter Mini recorder is first paired with the Configurator app on a device (see section 4.5).



Set Location to Address

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

Set

Tap this icon to scroll the map view to the manually entered address or latitude/longitude.

Tap the Set icon to update newly entered latitude and longitude.

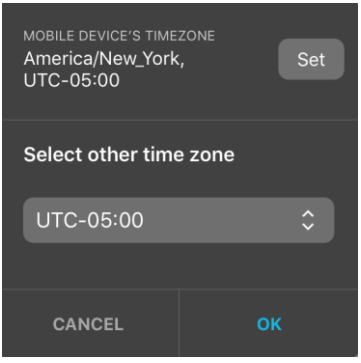
Zoom to Current Location

Tap this icon to center the Pin in the Map view.

Map

If the mobile device is connected to the internet, the map view displays the manually entered location on a map. It is also possible to tap on the map to create a “pinned” location. The address and longitude/latitude for the pinned location are then displayed above.

Select Time Zone



By default, time zone is based on the mobile device.

Tap the set button to instantly set the recorder to the device’s current location and dismiss the time zone setting pop up window.

When manually programming a location for the Song Meter Mini recorder, it is also possible to manually select a time zone. Use the UTC menu to select the time zone offset.

4.11 Ultrasonic Transect Mode

Transect Mode allows the Song Meter Mini Bat to be used in a mobile application. The Song Meter Mini Bat can be transported from location to location while in trigger-record mode. In Transect mode, the Song Meter Mini Bat uses the paired mobile device's GPS location to embed accurate location metadata into each WAV/ZC file, and to log the recorder's path to a .kml file.

- Transect mode is available only for the ultrasonic microphone on the Song Meter Mini Bat.
- Transect mode allows the Song Meter Mini Bat to be used as a mobile, attended recorder.
- Each recording made during a transect mode session will have embedded location information based on the mobile device GPS.
- At the end of the transect session a .kml file (Compatible with Google Earth) is generated and can be deleted or shared.
- The Song Meter Mini Bat must be paired with the Configurator app in order for Transect mode to be available.
- Transect mode is available via the Paired Configuration Editor screen.
- When Transect mode is engaged, any current recording schedule is suspended. When Transect mode is disengaged, any current recording schedule will be active again.
- When Transect mode is engaged, the Song Meter Mini Bat is in trigger record mode.
- Transect mode can be disengaged manually or will be disengaged if the Song Meter Mini is no longer paired with the Configurator app.

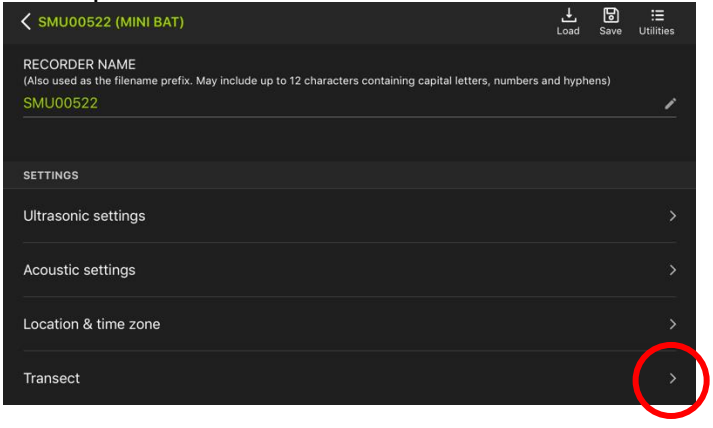
- Transect Mode will continue when Echo Meter Touch 2 is running in the background.

Engage Transect Mode

1. Pair the Song Meter Mini Bat with the Configurator app
2. Tap the Configure icon to open the Paired Configuration Editor screen.
3. Check the recording schedule to make sure a schedule block is currently set to record.

Note: If the current schedule is not set to record, Transect Mode will not record any audio files. A .kml file will be created but it will not contain any recording references. Always check to be sure the Song Meter Mini Bat is currently running an active record schedule before entering Transect Mode.

4. Tap the Transect arrow to enter the Transect screen.



The current location of the device, based on GPS, is displayed in the Transect screen.

Paths view

Map/satellite view

Current location

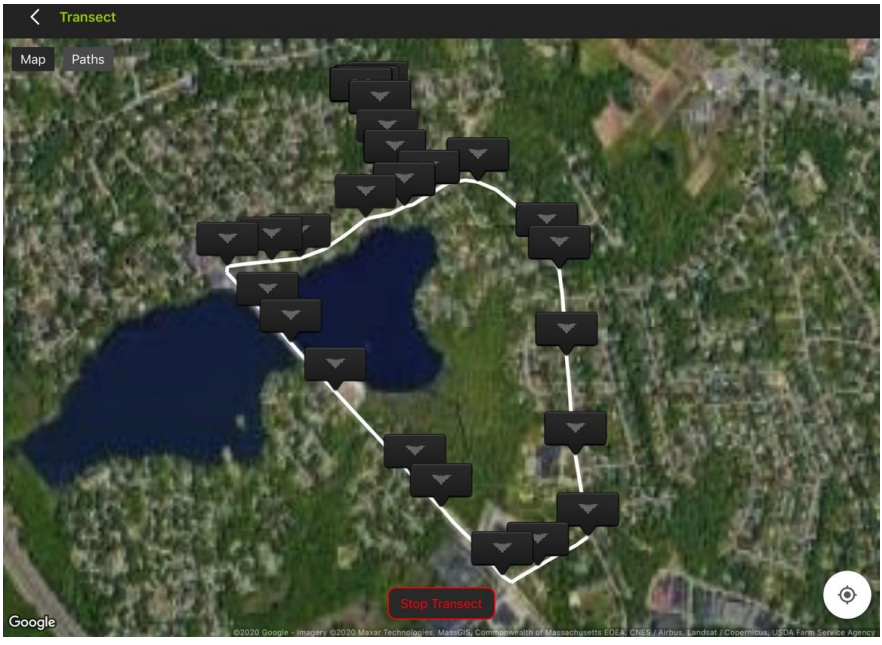
Center view

Start Transect button

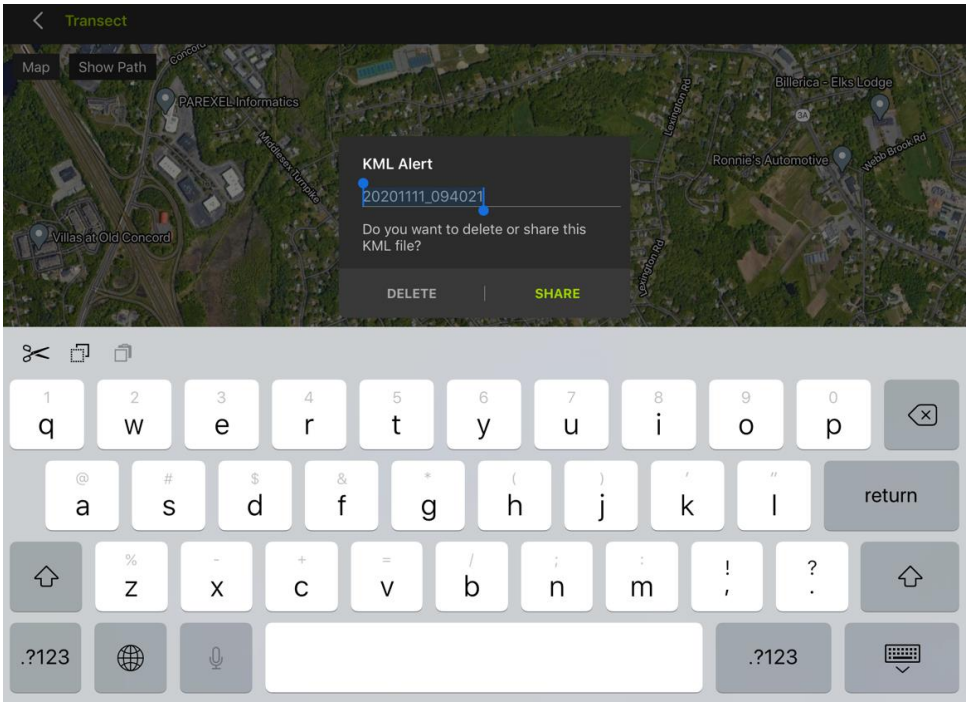
NOTE: The map display relies on Google Maps and will only be visible if the Android/iOS device is currently connected to Wi-Fi or cellular. If the device is not connected, accurate GPS information will still be embedded to audio files and the .kml file.

5. Press the Start Transect button. The Song Meter Mini Bat will go into Trigger-wait mode.
   - When an ultrasonic sound triggers the Song Meter Mini to record, the current GPS position is embedded in the recording file.
   - The recording location is also displayed in the Transect screen.
   - The visible path of the recording session can be toggled on or off at any time.

NOTE: If there is no SD card inserted in the recorder, or if the SD card is full, the Start Transect button will be greyed out and unavailable.



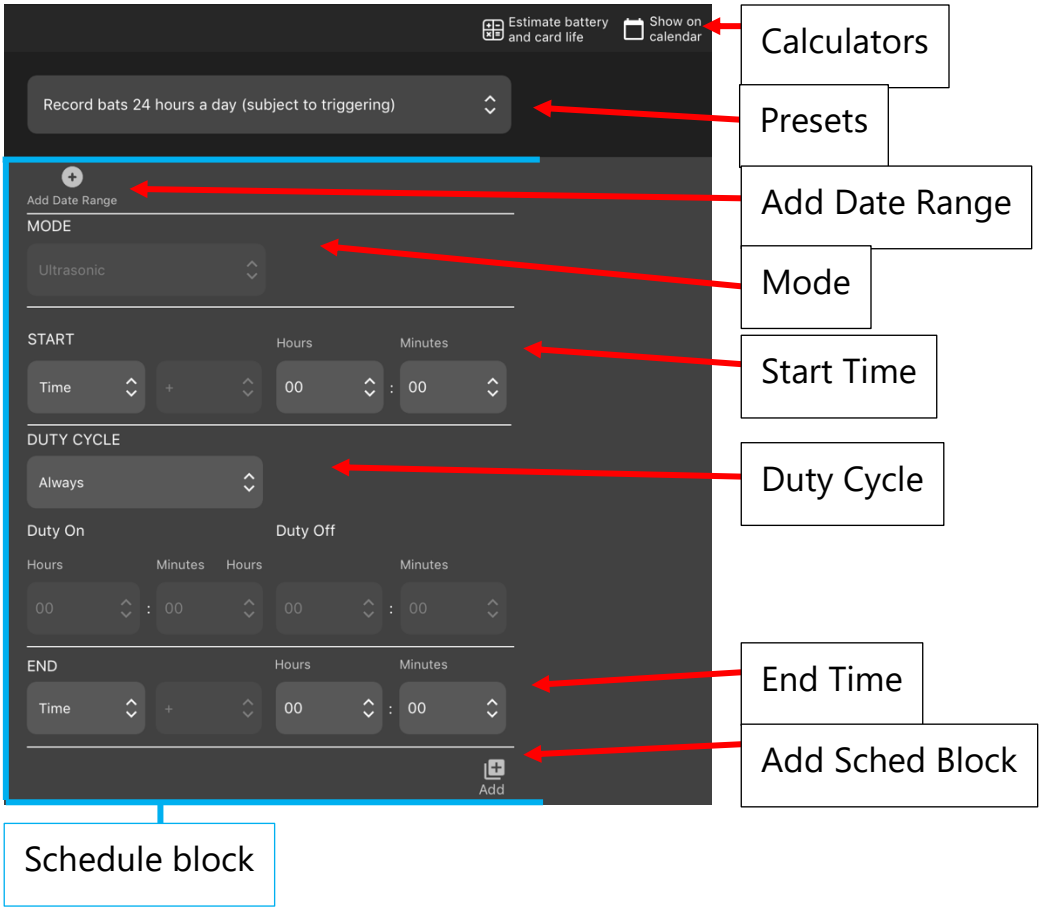
6. Press the Stop Transect button to end the Transect recording session.
   - The Song Meter Mini Bat will revert to the currently programmed recording schedule.
   - A window will open providing the option to name, delete, or share a .kml file.
     - KML (Keyhole Markup Language) is a file format created for storing geographic data and associated content with Google Earth. A .kml file can be opened in other applications which also support this format.
     - The .kml file contains references to each recording made in the session, including GPS location. The .kml file is a text file and can be manually edited with a simple text application.



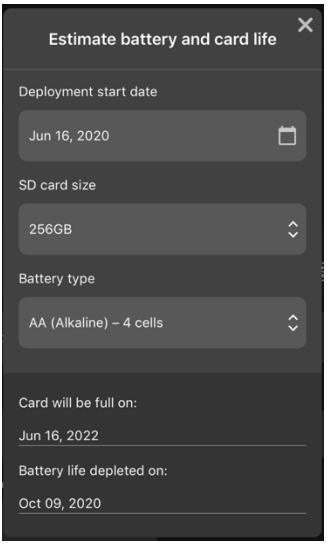
4.12 Schedule Editor

The Schedule Editor is accessed on the Configure screen (see section 4.7).
A schedule specifies when the Song Meter Mini recorder is in record mode. When not in scheduled record mode, the Song Meter Mini recorder goes to sleep, which conserves battery power.

- The recording schedule can be edited directly on a paired recorder or within a saved configuration.
- When the Song Meter Mini Bat is in record mode it will only actually record when there is an ultrasonic trigger and continues recording until the Trigger Window has been satisfied.



Estimate Battery and Card Life



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.

- **Deployment start date:** tap the calendar icon to select the deployment start date. The Use Current Date slider must be set to off before you can select another date.
- **SD Card size:** tap to select current card or choose another card size.

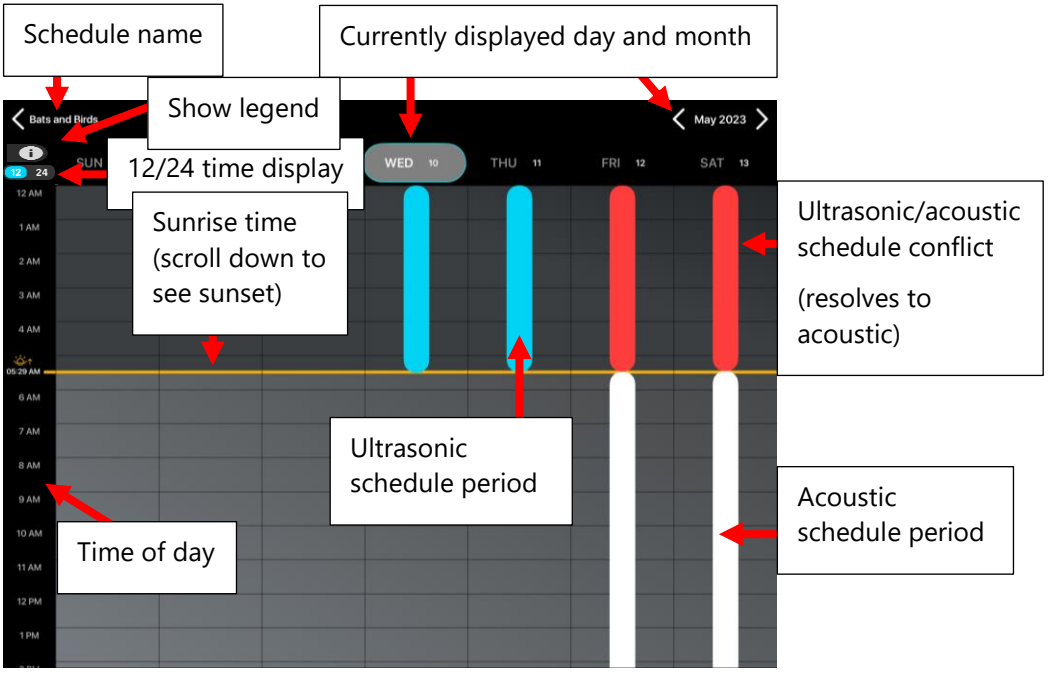
NOTE: Estimate is based on a high-quality SD memory card that has been reformatted and is completely empty.

- **Battery type:** tap to select current battery or choose another battery type and size.

NOTE: If current battery is selected, estimate will be based on the current battery charge. If another type of battery is selected, the calculation will be based on fully charged batteries at room temperature.

- **Card will be full on:** gives the estimated date when the SD card will be full.
- **Battery Life depleted on:** gives the estimated date when the battery life will be depleted.

Show on Calendar

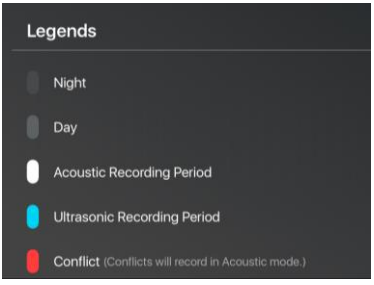


Tap the Show on Calendar icon to visually check schedules on a calendar.

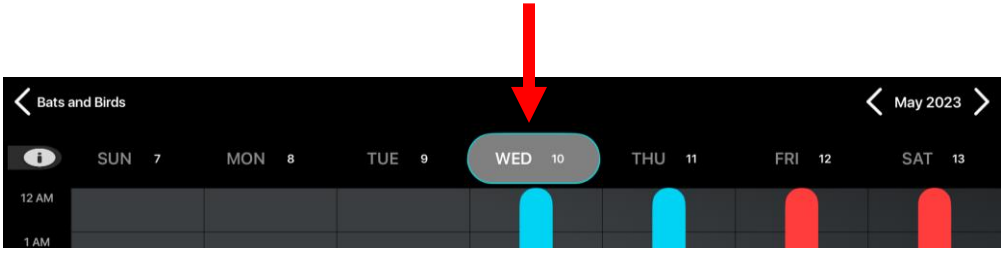
- Color coding displays the ultrasonic, acoustic, and any conflicting schedule periods.

NOTE: When using a Song Meter Mini Bat with the optional acoustic microphone installed it is possible to create one schedule for both microphones. However, where Acoustic and Ultrasonic recording are scheduled for the exact same time, recording in Acoustic mode will override Ultrasonic mode.

- 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 ultrasonic (when paired with a Song Meter Mini Bat only) and acoustic 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 recorder.

Preset schedules for ultrasonic recording (Song Meter Mini Bat only) are:

- Record bats 24 hours a day (subject to triggering).
- Record bats from sunset to sunrise (subject to triggering).
- Record bats 30 min before sunset to 30 min after sunrise (subject to triggering).

Preset schedules for acoustic recording (both models) 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.

When a preset schedule is selected, the schedule settings are displayed and can be immediately edited.

MODE (Song Meter Mini Bat Only)

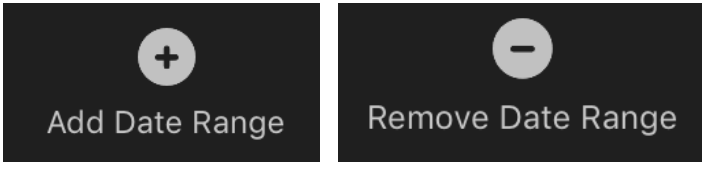
This option is only available for a Song Meter Mini Bat with the optional acoustic microphone installed.

MODE determines whether an individual schedule block will use the ultrasonic or acoustic microphone.

- A schedule can be created which utilizes multiple schedule blocks. Each schedule block can be set to use either the ultrasonic or the acoustic microphone.
- Each schedule block has its own MODE setting which applies to that specific schedule block only.
- A Song Meter Mini Bat can alternate between ultrasonic and acoustic recording periods, but both modes CANNOT be utilized simultaneously.
- A schedule that uses both ultrasonic and acoustic schedule blocks can only be loaded only onto a Song Meter Mini Bat that has the second optional acoustic microphone installed.

NOTE: Attempting to load a configuration file to a recorder that has incompatible schedule blocks will fail. The file will not load, and an error message will be displayed.

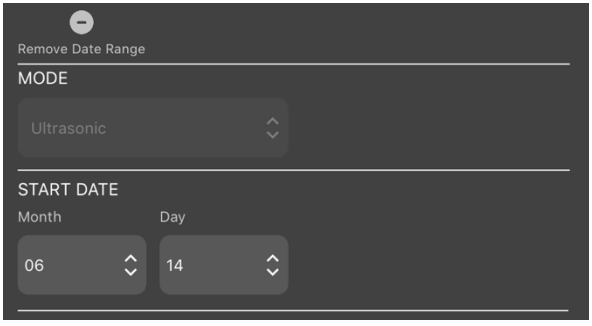
Add Date Range/Remove Date Range



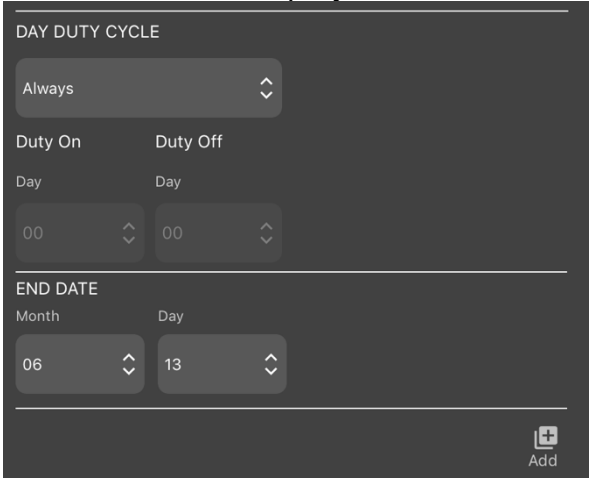
- This function is available separately for each schedule block.
- If no Date Range is specified, the schedule block will repeat indefinitely every 24 hours.
- If a Date Range is specified, the schedule block will work within that specified range.
- Each schedule block can have its own start and end dates
- Start and End Dates of schedule blocks can overlap

- The End Date ends at midnight on the specified date
- This allows for complex programming of recording schedules over time.

When Add Date Range is enabled for a schedule block, additional fields are displayed. At the top of the schedule block, a START DATE is displayed. This is the date on which the following schedule block will commence.



At the end of the schedule block, DAY DUTY CYCLE and END DATE fields are displayed.



Duty Cycle specifies what will happen within the Start and End dates.

- **Always** means the schedule block will be enabled continuously between the Start and End times.
- **Cycle** provides Month and Day settings for Duty On and Duty Off. The schedule block will be cycled between the specified number of days on and specified number of days off between the start and end dates.

NOTE: When Add Date Range is enabled for a schedule block, the default Start Date will be the current month and day according to the Android/iOS device. The default End Date will be set to the day before the current Android/iOS date. These default settings run the schedule block every day of the year.

NOTE: If a Date Range is removed from a schedule block, that schedule block returns to repeating every 24 hours.

START

Specifies the start time of the recording schedule block.

- Start time can be based on a specific Time, Sunrise, or Sunset.
- If Time is selected, the start time of the schedule block is entered in hours and minutes.
- Sunrise and sunset times are calculated based on the time and location currently programmed in the recorder.

- If Sunrise or Sunset is chosen, the available parameters include plus or minus, hours, and minutes. For example, Sunrise + 1:00 would mean the schedule block starts one hour after sunrise.

DUTY CYCLE

Specifies what will happen within the Start and End times.

- **Always** means the recorder will be in record mode continuously between the Start and End times.
- **Cycle** provides hour and minute settings for Duty On and Duty Off.

END

Specifies the end time of the schedule block.

- End time can be based on a specific Time, Sunrise, or Sunset.
- If Time is selected, the end time of the schedule block is entered in hours and minutes.
- If Sunrise or Sunset is chosen, the available parameters include plus or minus, hours, and minutes. For example, Sunrise + 1:00 would mean the schedule block ends one hour after sunrise.
- Sunrise and sunset times are calculated based on the set date and location of the recorder.

Add/Delete

It is possible to add or delete additional schedule blocks. This allows creation of complex schedules within a 24-hour cycle. See next section for examples of building schedules using blocks.

4.13 Schedule Block Examples

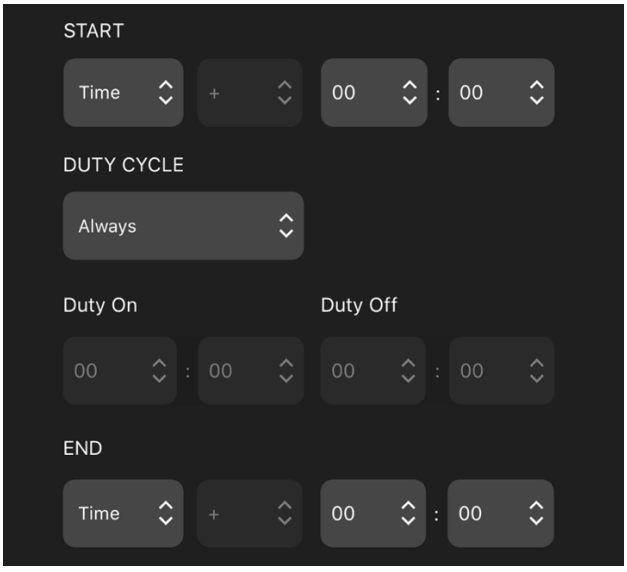
This section provides recording schedule examples that demonstrate how schedule blocks work. Most of these examples are built into the app and can be selected as starting points for customized schedules.

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

- If you are making triggered recordings on the Song Meter Mini Bat, then the number of recordings for a given schedule will be determined by the Trigger Settings set in the Ultrasonic Settings screen, and by bat activity.
- If you are making acoustic recordings on the Song Meter Mini or Song Meter Mini Bat, the number of recordings for a given schedule will be determined by the Maximum Recording Length set in the Acoustic Settings screen, and the Duty Cycle within the Start and End times of the recording schedule.

Record Continuously All Hours of Every Day

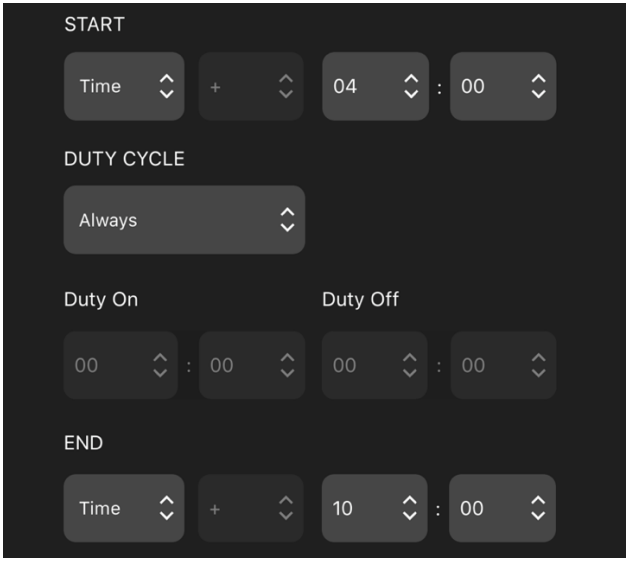
The following schedule records continuously all day and night, 24 hours per day:



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

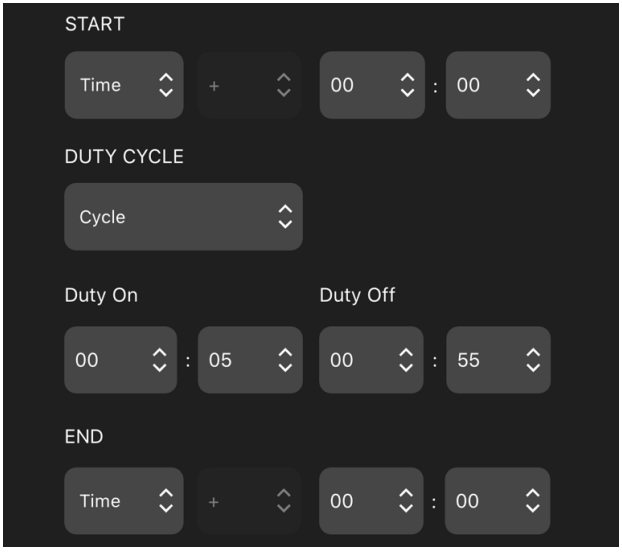
Record Continuously for Part of Each Day

The following schedule records daily from 4:00am to 10:00am:



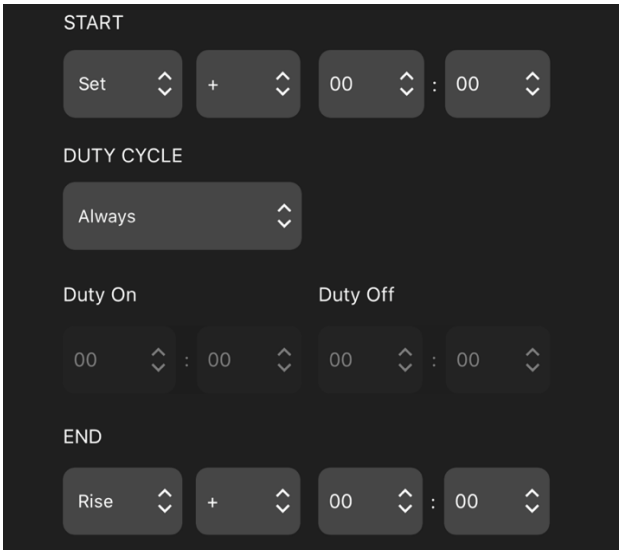
Record in 5-Minute Segments Every Hour

The following schedule uses the Duty Cycle and records for 5 minutes at the beginning of each hour:



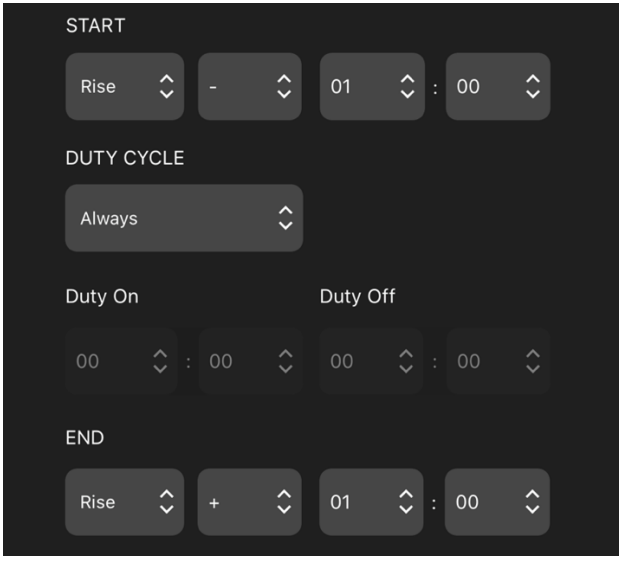
Record from Sunset to Sunrise

The following schedule starts every day at sunset and records until sunrise on the following day:

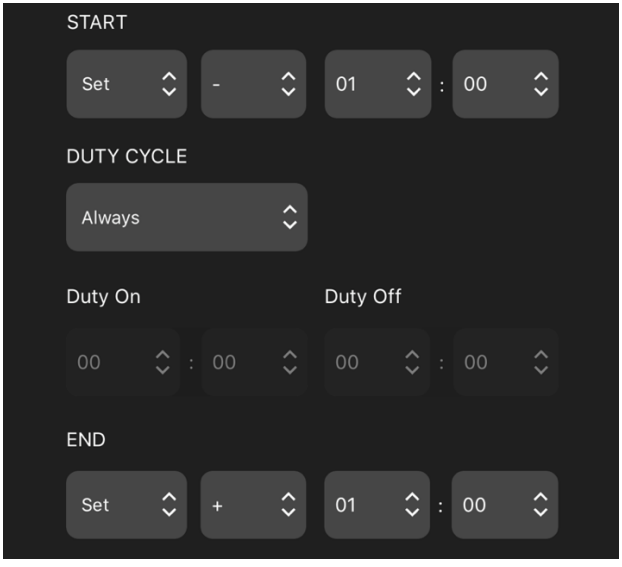


Record in Multiple Blocks Relative to Sunset and Sunrise

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 before and after sunrise, and 2 hours before and after sunset.

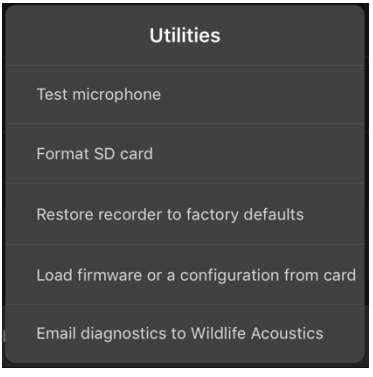


Schedule block 1 records one hour before sunrise to one hour after sunrise



Schedule block 2 records one hour before sunset to one hour after sunset

4.14 Utilities Menu



To access the Utilities menu, tap the Utilities icon at the top right of the Configure screen. The Utilties menu brings up the following utilties:

- Test microphone
- Format SD card
- Restore recorder to factory defaults
- Load firmware or a configuration from card

- Email diagnostics to Wildlife Acoustics.

Test Microphone

This window is used to test the ultrasonic or acoustic microphone of the recorder. The number displayed shows the current microphone sensitivity in dB FS. The Test Microphone function is designed to be used with a calibrated signal generator. (see sections 4.15 and 4.16 for calibration test instructions).

Format SD Card

Formats the SD memory card in the currently paired recorder.

- Use this utility prior to all deployments for optimal performance and to ensure that the cards are empty.
- Formatting a corrupt SD memory card can sometimes make it work again; if not, the card may be defective.
- SD cards can also be formatted on the recorder itself, without using the app (see section 3.2).

WARNING! This procedure erases all data on the SD memory card. Verify that you have saved any important schedules or recording files before running this utility.

Restore Recorder To Factory Defaults

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

- Restoring factory defaults will not change the date and time of the recorder.
- See sections 4.8 and 4.9 for default settings values.

Load Firmware or a Configuration from Card

If there is a firmware update and/or configuration file on the SD card, this function will load those files to the recorder.

Email Diagnostics to Wildlife Acoustics

Generates a Diagnostics Dump file can then be sent to Wildlife Acoustics technical support for further analysis.

4.15 Testing the Ultrasonic Microphone

The ultrasonic microphone calibration is bandpass filtered at 40kHz and designed to work with the separate ultrasonic calibrator available from Wildlife Acoustics.

The calibrator has two modes of operation:

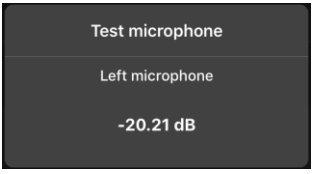
- **CAL**: Calibration mode is used to test the microphone at close range.

- **CHIRP**: Chirp mode is used to test the entire system at a distance. In Chirp mode loud ultrasonic signals are emitted that can be picked up by the recorder from some distance. Analyze the recording files later to verify that the Song Meter Mini Bat settings are appropriate, and the system is functioning as expected.

Calibration Mode Microphone Testing

1. Navigate to the Test microphone window under the Utilities menu.
2. Turn the calibrator ON and set the mode toggle switch to CAL.
3. The calibrator generates a 40kHz tone.
4. Place the Song Meter Mini Bat so its edge touches the on/off and cal/chirp switches.

5. Observe the dB level in the Test microphone window on the app. If the value is higher (less negative) than -32dB the microphone has passed and is ready to use. If the value is lower (more negative), the microphone has lost some or all of its sensitivity and should be replaced. For example, a value of -40dB means the microphone has lost sensitivity, while a value of -30dB means the microphone passes.

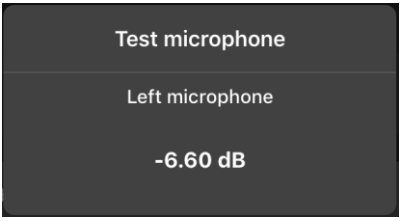


Chirp Mode System Testing

1. Prepare the Song Meter Mini Bat for recording and place it no more than 20m (65ft) away from the calibrator.
2. Set the calibrator's toggle switch to **CHIRP**.
3. The calibrator emits a 100ms long 40kHz (+/- 10Hz) tone every 500ms. The amplitude of the tone is 104dB SPL (+/- 3dB) at 10cm.
4. Make a recording and then analyze the recording file to verify the system is operating as expected.

WARNING! Do not place the Ultrasonic Calibrator near your ears. In **CHIRP** mode, the calibrator emits a 40kHz signal at over 100dB SPL. Prolonged exposure to high intensity ultrasonic signals may cause permanent hearing loss at audible frequencies.

4.16 Testing the Acoustic Microphone



The sensitivity of the acoustic microphone can be measured to test its functionality. The acoustic microphone calibration is bandpass filtered at 1kHz and is designed to be used with a standard third-party microphone calibrator.

A standard microphone calibrator will produce a 94dB SPL (1 Pa) 1kHz tone at the microphone.

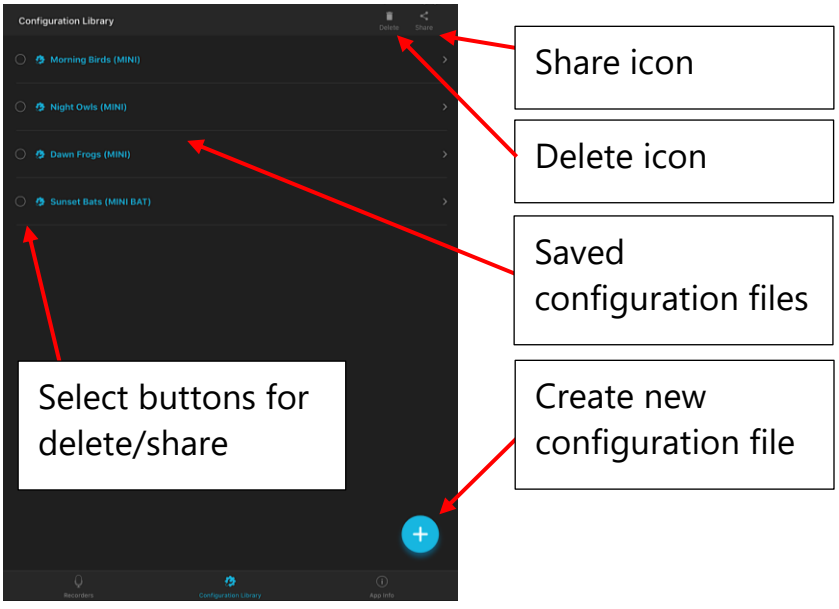
Note: This procedure is only valid for third-party microphone calibrators that emit a calibrated 1.0 kHz signal.

1. Navigate to the Test microphone window under the Utilities menu.
2. Remove the windscreen from the acoustic microphone.

3. Connect the calibrator to the acoustic microphone.
4. Turn the calibrator ON.

5. The calibrator generates a 1kHz tone.
6. Observe the dB level in the Test microphone window. If the value is higher (less negative) than -16 dB the microphone has passed and is ready to use. If the value is lower (more negative), the microphone has lost some or all of its sensitivity and should be replaced. For example, if the value is -17dB it fails. If the value is -14dB the microphone passes.

4.17 Configuration Library Screen

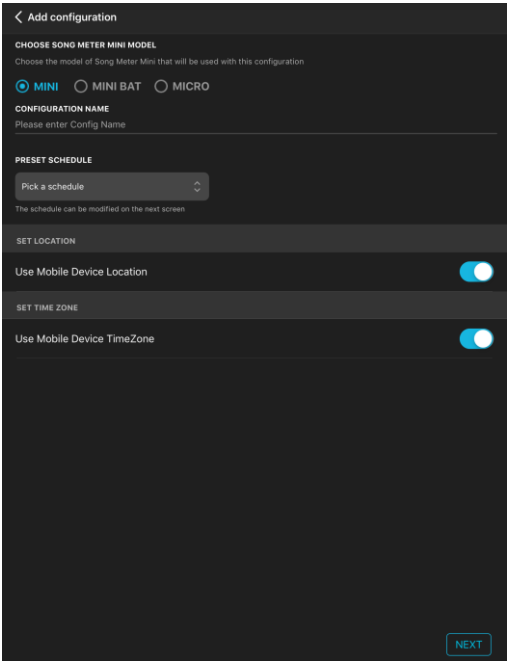


- The Configuration Library screen is accessed by tapping the Configuration Library icon at the bottom of the Recorders/Configuration Library/App Info screens. Since the Song Meter Mini has internal memory for a single configuration, the Configuration Library in the app is where you can store multiple configuration files. A configuration file can be downloaded to a paired Song Meter Mini recorder from the Configurator Library (see section 4.7). A configuration file consists of settings and a schedule for the Song Meter Mini recorder.
- Configuration files can be created and saved from the Paired Configuration Editor screen (see section 4.7).
- 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 recorder.

NOTE: A saved configuration file can have a specific location and time zone as part of its settings. The saved location and time zone will over-ride the currently programmed location and time zone of a Song Meter Mini recorder when the saved configuration file is loaded, either to a paired recorder or via an SD card.

How To Create a Configuration File From the Configuration Library Screen



1. Go to the Configuration Library screen and tap the Plus icon.
2. The Add Configuration utility will open.

3. Choose whether the configuration is intended for a Song Meter Mini or Song Meter Mini Bat.
4. Tap Configuration Name to open a keyboard.
5. Name the Configuration.
6. Choose a starting schedule.
7. Choose to set location and time zone to match the mobile device or to set them manually. Choosing manually will take you directly to the location setting page when you choose OK.
8. Press NEXT .
9. The Saved Configuration Edit screen will open.
10. Adjust the Settings and Schedule as necessary (see section 4.7 onwards).
11. When you are ready to save the configuration, tap its name at the top of the screen.
12. The Configuration Library screen will open and the saved file will show in the list of saved configurations.

How To Delete A Saved Configuration File

1. In the Configuration Library screen, select one or more saved configurations.
2. Tap the Trash icon at the top of the screen to delete the selected configuration(s).

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".

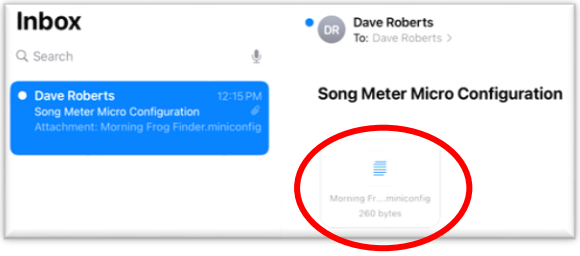
1. In the Configuration Library screen, select one or more saved configurations.
2. Tap the Share icon at the top of the screen.
3. Choose your preferred method to share the file.

NOTE: Shared configuration files can be transferred from a computer to an SD memory card. The memory card can then be used to transfer the configuration directly to the recorder using the recorder's LOAD button (see section 3.2).

How to Import a Configuration File

Use Mail under iOS to import from any email source:

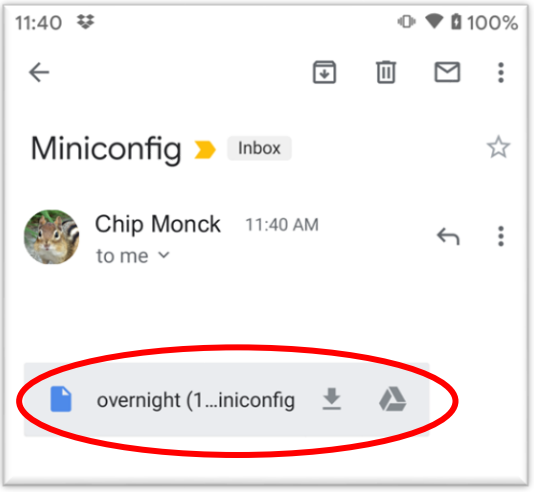
1. Open Mail. The Configuration file will be available as an attachment within the email message.



2. Tap on the Attachment. The next screen will open.
3. Tap on Open In Song Meter and the Configuration file will be imported directly into the Configuration Library.

Use Gmail under Android to import from any email source:

1. Open Gmail. The Configuration file will be available as an attachment within the email message.



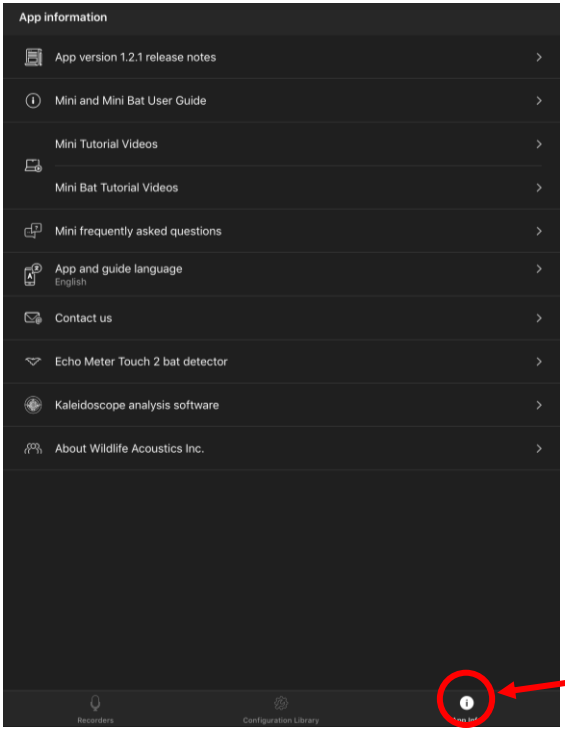
2. Tap on the attachment and the Configuration file will be imported directly into the Configuration Library.

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 section 4.7 onwards).
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.
6. Changes made to a saved configuration file are saved immediately.

4.18 App Information Screen

The App Information screen is accessed by tapping the button at the bottom of the Recorders or Configuration Library screens.



App version "x.x" release notes

The current version of the configurator app is listed. Tapping the button opens a screen which shows update notes.

Mini and Mini Bat User Guide

Tap to open the built-in User Guide

Mini Tutorial Videos
Mini Bat Tutorial Videos

Tap to link to tutorial videos. Requires Wi-Fi connection.

Mini Frequently Asked Questions

Tap for quick answers to common questions.

App and Guide Language

Tap to access language choices. By default, the language used in the app is determined by the language setting of the iOS or Android device. This setting will override the device language.

Contact Us

Tap to open email form addressed to Wildlife Acoustics Technical Support. Requires Wi-Fi connection to send.

Echo Meter Touch 2 Bat Detector
Kaleidoscope Analysis Software

Tap to link to further information about these products. Requires Wi-Fi connection

About Wildlife Acoustics Inc.

About us!

5 Recording Files

The purpose of the Song Meter Mini recorder is to create audio files that are embedded with metadata. The files are initially written to the SD memory 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

1. After making a recording, remove the SD Memory card from the recorder.
2. Insert it to an SD card slot or SD card adapter connected to a computer.
3. The SD card will appear as a standard storage device.
4. 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 and Song Meter Mini Bat create 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 and Song Meter Mini Bat contain embedded metadata (see section 5.4).
- The .wav files created by the Song Meter Mini Bat with the ultrasonic microphone are also known as Full-Spectrum recordings.
- .wav files are written to a folder called Data on the SD memory card

NOTE: When using a Song Meter Mini Bat with the optional acoustic microphone installed, files created using the acoustic microphone will be written to a folder called Data 2.

5.3 Zero-Crossing Files

The Song Meter Mini Bat can create both .wav and .zc (zero-crossing) files.

- A .zc file represents an audio signal by counting and displaying the points where a waveform crosses the zero-amplitude point.
- .ZC files are much smaller than .wav files, allowing for a greater number of recordings to be stored to a memory card.
- A .zc file can only represent a single frequency at a time and does not contain any amplitude information.
- The .zc files created by the Song Meter Mini Bat contain embedded metadata (see section 5.4).

- .zc files are written to the Data folder on the SD memory card.

5.4 Metadata

Metadata is additional information embedded in the recording file. The Song Meter Mini 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 recorder creates a recording file it embeds the following metadata:

.wav:

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

.zc

- Firmware Version
- Length
- Loc Position
- Make

- Model
- Original Filename
- Serial
- Temperature Int
- Timestamp
- WA|Song Meter|Audio settings
- WA|Song Meter|Prefix

6 Analysis Software

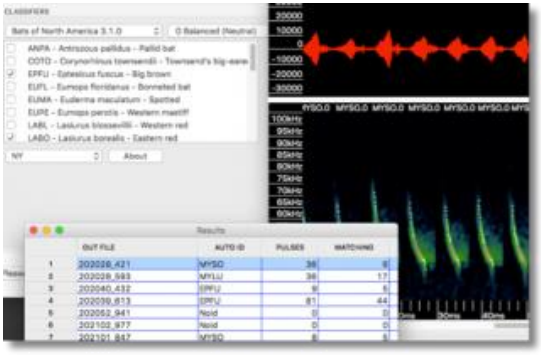
6.1 Kaleidoscope Pro

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 at www.wildlifeacoustics.com/products/kaleidoscope-pro

Kaleidoscope Pro includes:

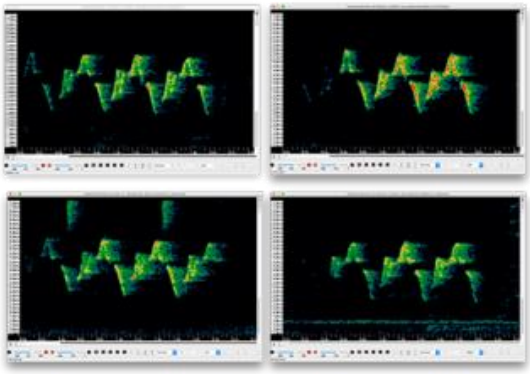
Automatic Bat Species Identification

Kaleidoscope Pro's bat Auto-ID function analyzes recordings of bat echolocations and automatically suggests the most likely bat species. 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.



Cluster Analysis

Kaleidoscope Pro automatically scans recordings and pulls out distinct 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.

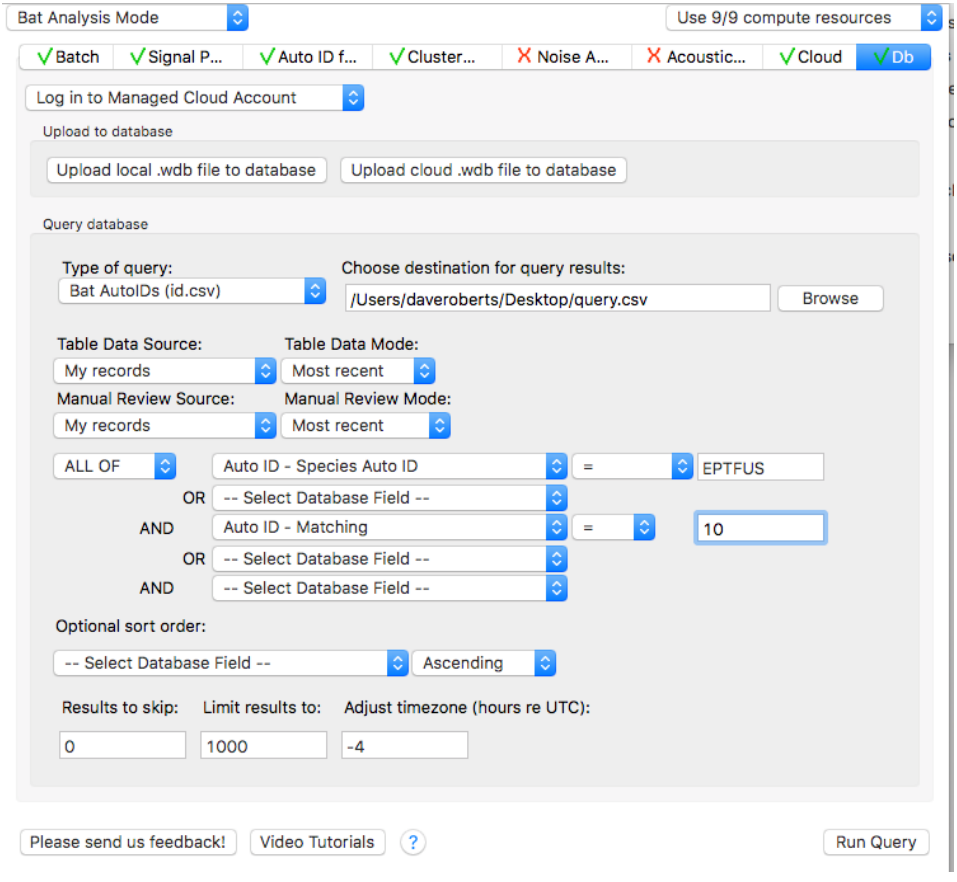


Sound Pressure Level Analysis

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.

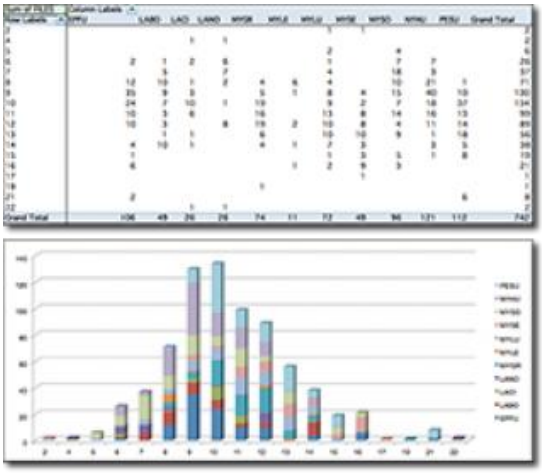
Smart Search and Cloud Storage

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.



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.



15-Day Free Trial

Download Kaleidoscope Pro and use it for FREE for 15 days via our web site www.wildlifeacoustics.com. (You will need to create and log in to an account on our website).

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.

6.2 Third-Party Software

The Song Meter Mini 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.

The Song Meter Mini Bat creates standard .wav files and/or zero crossing files. The audio application must be able to support the sample rate of the recorded file, and/or zero-crossing (.zc) format files.

7 Specifications

7.1 Physical

	Song Meter Mini	Song Meter Mini Bat
Height:	**4.9in (124.4mm)**	
Width (with no right microphone):	**6.6in (167.6mm)**	**5.3in (134.6mm)**
Depth with lid:	**1.4in (35.5mm)**	
Weight no batteries:	**0.42lb (190.5g)**	
Weight with 4 AA batteries	**0.64lb (290g)**	
Power options	**4 AA-size alkaline or NiHM batteries 2, 4 or 6 18650 rechargeable lithium-ion batteries using the optional lithium lid**	
Storage type	**1 SDHC/SDXC flash card slot (Class 4 or greater)**	
Storage capacity	**Up to 2TB**	
Material:	**Polycarbonate**	
Environmental:	**Fully weatherproof**	
Operating Temp	**-4°F to +185°F or -20°C to 85°C**	
Warranty	**2 Years recorder and ultrasonic microphone**	

7.2 Audio and Microphones

Audio

	Song Meter Mini	Song Meter Mini Bat
Recording Format:	**16-bit PCM .wav**	**16-bit PCM .wav and/or Zero-Crossing (.zc)**

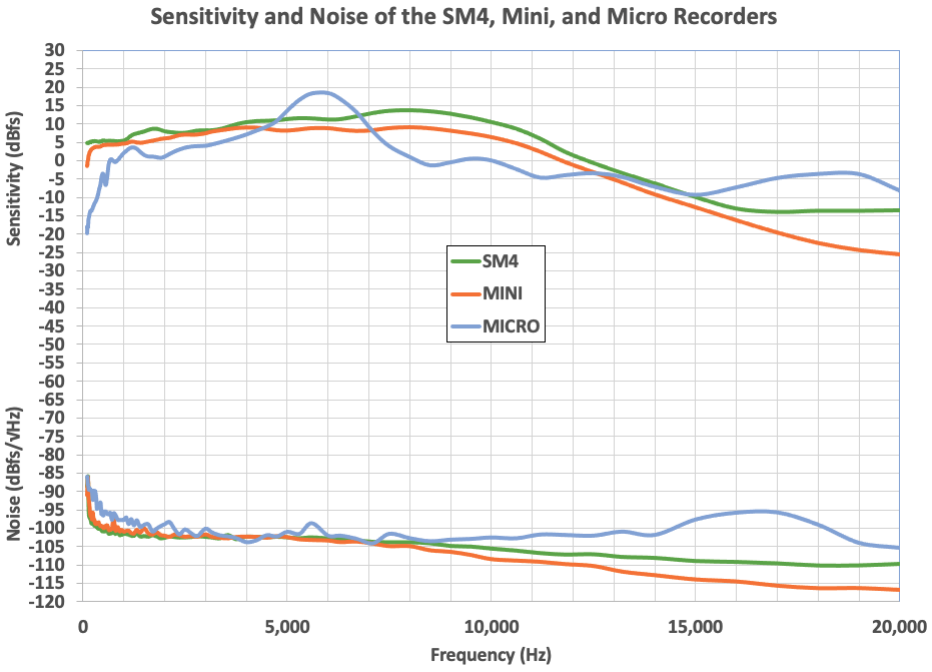
Sample Rate:	**8,000 – 96,000Hz**	**192, 256, 384, 500kHz**
Flatness of frequency response	**100Hz-20,000Hz** Standard deviation 7dB	**N/A**
Record channels (with optional mic)	**Left, right, stereo**	**Ultrasonic or Acoustic**
High Pass Filter	**2-pole 100Hz**	**2-pole 8kHz**
Anti-Alias Filter	**-5.0 dB @ 0.4 fs, -12 dB @ 0.6 fs**	**N/A**
Low Pass Filter	**2-Pole 20,000 kHz**	**2-Pole 191 kHz**

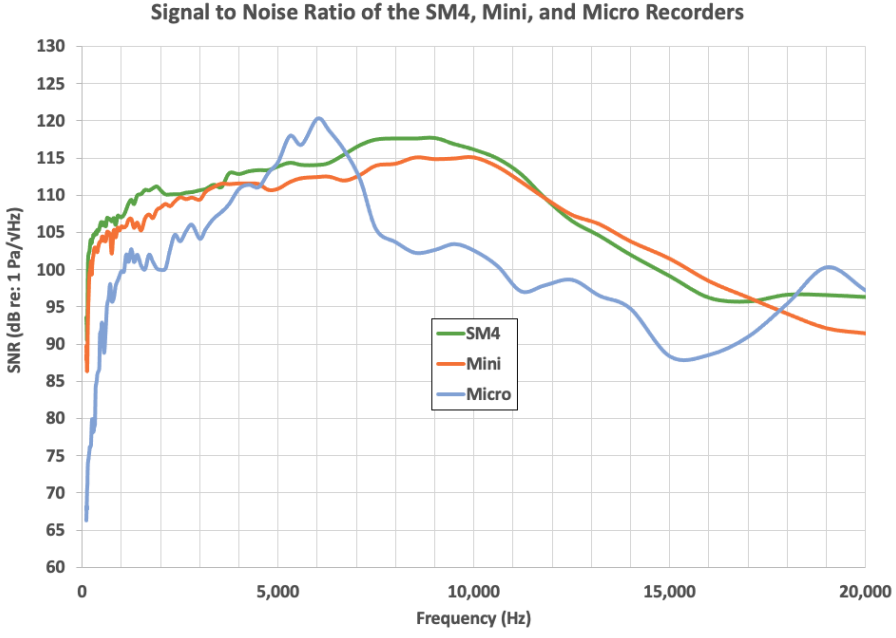
Acoustic Microphone

- Directional Characteristic: Omni-Directional
- Sensitivity: +6dB FS ±4dB re 1Pa@1kHz*
- Signal to Noise Ratio: 78dB Typ. at 1kHz (1 Pa, A weighted)*
- Max Input Sound Level: 101dB SPL Typical (With +6 dB Gain).

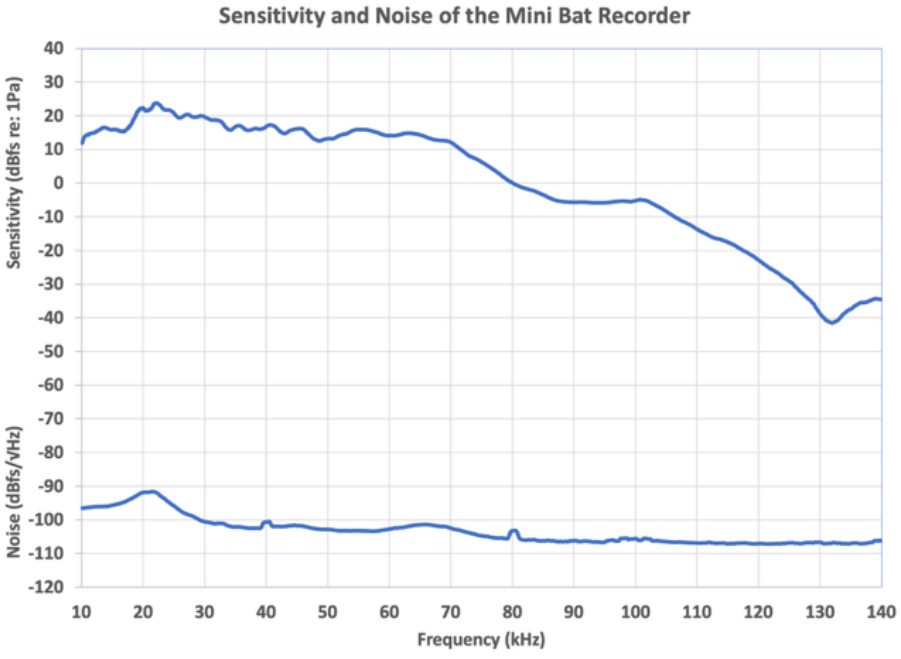
*Measured with default +18 dB Gain

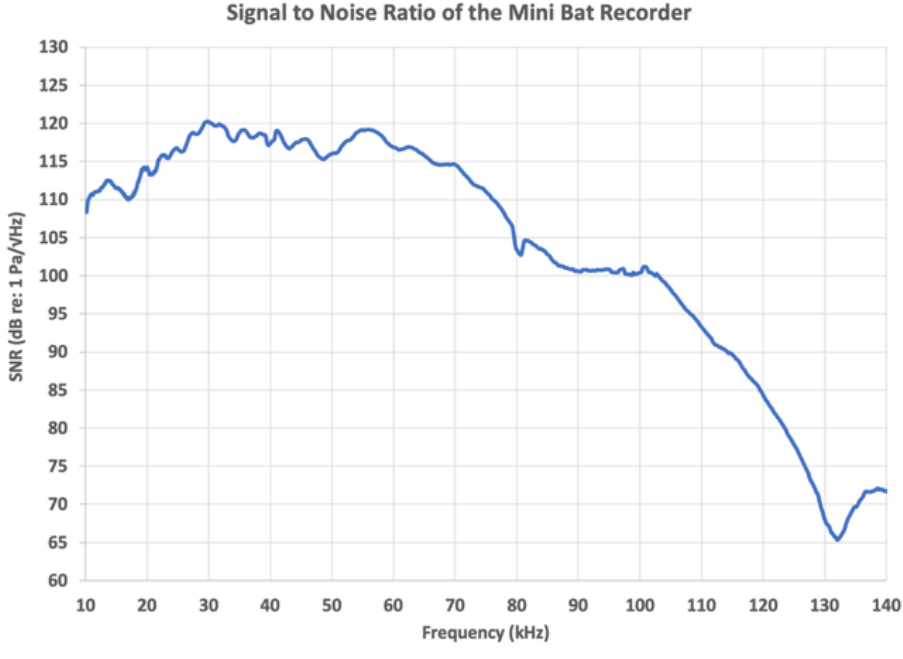
The following charts reflect default gain (+18dB) and filter settings, 48 kHz sample rate, calibrated sound source 1m from recorder perpendicular to microphone axis.



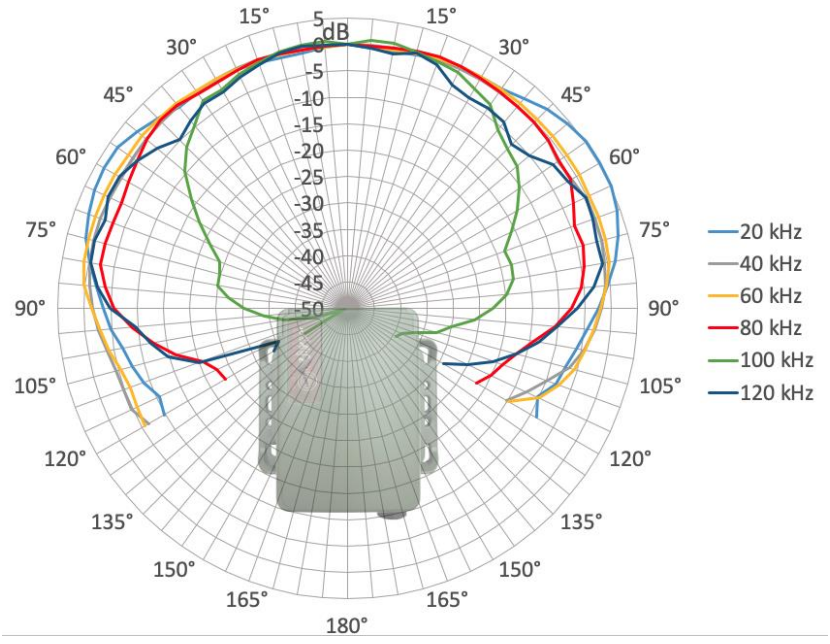


Ultrasonic Microphone

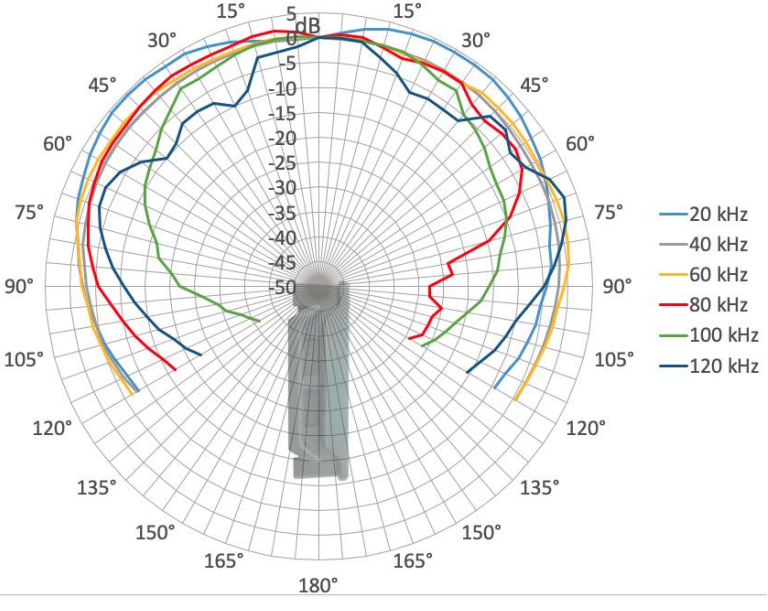

Sensitivity and Noise of the Mini Bat Recorder
Sensitivity (dBfs re: 1Pa)
Noise (dBfs/√Hz)
Frequency (kHz)


Signal to Noise Ratio of the Mini Bat Recorder
SNR (dB re: 1 Pa/√Hz)
Frequency (kHz)

Song Meter Mini Bat Directionality (Horizontal)



Song Meter Mini Bat Directionality (Vertical)



7.3 Battery Life

Song Meter Mini Current Consumption and Expected Battery Life in Hours:

Sample Rate	mW	4 Alkaline AA Hours	6 18650 Hours
Mono 8,000	61	248	1,238
Mono 12,000	62	240	1,202
Mono 16,000 or Stereo 8,000	73	207	1,033
Mono 22,050	63	238	1,190
Mono 24,000 or Stereo 12,000	67	223	1,116
Mono 32,000 or Stereo 16,000	76	198	992
Mono 44,100 or Stereo 22,050	69	217	1,087
Mono 48,000 or Stereo 24,000	71	210	1,050
Stereo 32,000	85	176	880
Stereo 44,100	80	187	933
Mono 96,000	79	190	949
Stereo 96,000	101	149	744
Off	1.6	---	---
Sleeping	1.7	---	---

NOTE: For 18650 Lithium-Ion, displayed run times are 2/3 for four batteries and 1/3 for two batteries.

Song Meter Mini Bat Battery Life for Ultrasonic Recording

- 4 Alkaline AA: up to 25 ten-hour nights
- 4 NiMH AA: up to 20 ten-hour nights
- 6 Lithium-Ion 18650: up to 100 ten-hour nights

(Based on 10% triggering at 256 kHz sample rate)

Current Consumption:

State	Sample Rate	mW
Armed	256,000	43
	384,000	46
	500,000	53
Triggered	256,000	110
	384,000	122
	500,000	135
10% Triggered	256,000	50
	384,000	54
	500,000	62
Off		1.6
Sleeping		1.7

Song Meter Mini Bat Battery Life for Acoustic Recording

- Battery life is the same as the Song Meter Mini

NOTE: Battery life can vary based on how the recorder is used, quality, charge, and type of battery and other conditions such as operating temperature. All estimations of battery life for deployment are based on fully charged, high quality batteries. Energizer's brand of AA alkaline batteries or Wildlife Acoustics' brand lithium-ion batteries are recommended. Based on their low power consumption in our tests, we recommend SanDisk SDHC/SDXC cards from a reliable vendor (to avoid counterfeits). Recording times will vary with other brands.

7.4 Maintenance

Deployment Checklist

- Batteries
- SD Memory Card
- Song Meter Configurator App version
- Check Status/firmware version
- Check Schedule
- Check Location

Waterproofing

The Song Meter Mini and Song Meter Mini are 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 black rubber gasket inside the lid. The gasket should be free of debris and tears. Note that DEET, a common ingredient in insect repellant, is known to degrade the plastic used in the Song Meter Mini enclosure. Some plant oils may also soften the recorders rubber gasket over extended periods of exposure. When possible, avoid contact with insect repellants
- Ensure the bolt covering the optional microphone port on the right side of the recorder is tightened and undamaged.

NOTE: Do not overtighten the optional microphone or cover bolt. Doing so will distort the rubber O-ring gasket and allow water to enter the recorder.

Closing The Lid

- Clean out any external debris before closing the lid.

Mounting

- Avoid putting strain on the Song Meter Mini 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.

Security

7.5 Troubleshooting

No LED Activity

- Power Switch
- Batteries
- Power jumper block

SD Memory Cards

- Memory card quality
- Formatting
- Corruption

Song Meter Configurator App Tips

- Check version
- Relaunch app
- Clear Recorders

No Status/Pairing

- Check LED activity
- Check firmware version

Recording/Deployment Problems

- Water

- Damage
- Batteries drain quickly
- Few or no recordings are made
- Corrupt recordings
- Poor quality recordings
- Summary Files
- Dump Files

Frequently Asked Questions

Contact Technical Support

8 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	**All components (excluding microphones and accessories)**	**2 Years**
Song Meter Mini Bat	**All components including built-in ultrasonic microphone**	**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.

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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: WAI20200208

Manufacturer:

Wildlife Acoustics, Inc.

3 Mill and Main Place, Suite 210

Maynard, MA 01754

United States of America

Declares that the following product:

Product Name: Song Meter Mini and Mini Bat

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)

Marking appears as follows:

CE

FC

This product was tested in a typical configuration.

Ian Agranat, President

Wildlife Acoustics, Inc.

February, 8, 2020

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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The Song Meter Mini and Song Meter Mini Bat are covered under the following patents:

US 10911854, 8627723, 7782195, 10670704
EP 2742328, 3977071
CA 62986988
GB 2559839

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