



Stationary SM4BAT Deployment

Before going into the field

Verify that all necessary materials are present with checklist

Look over datasheet

Confirm adequate battery power

Open SM4 unit casing and flip small black switch on the right side to the **INT** position (FIGURE 1), recorder should begin to turn on.

- If the recorder does not turn on, change out the batteries (FIGURE 2)

Press [**Check Status**]

Verify battery voltage levels to the right of **Bat**: (FIGURE 3)

- If less than 4.0V, replace batteries
- New batteries should have voltage of about 6.0
- Record voltage for each unit on datasheet
- Change batteries if needed (FIGURE 2)

Verify space on SD cards

Look to the right of **SDA**: and **B**: (FIGURE 2).

- Recorder should have a 128 GB SD card in both slot A & B
- Verify there is at least 64GB of space on one of the cards.

If it says **0/128**, the card is empty and if it says **128/128**, that card is full.

Verify date and start time are accurate

The time should be accurate to at least 1 minute of verified time source (eg. cell phone or internet)

If time needs to be adjusted –

Return to **Main Menu**

Navigate to **Settings** then **Date and Time**

Press the right arrow to navigate between date and time

Use up and down arrows to change settings

Press [**Enter**] when done

Turn off SM4 recorder by switching black switch on top right side to the **EXT** position (FIGURE 1)

FIGURE 1.

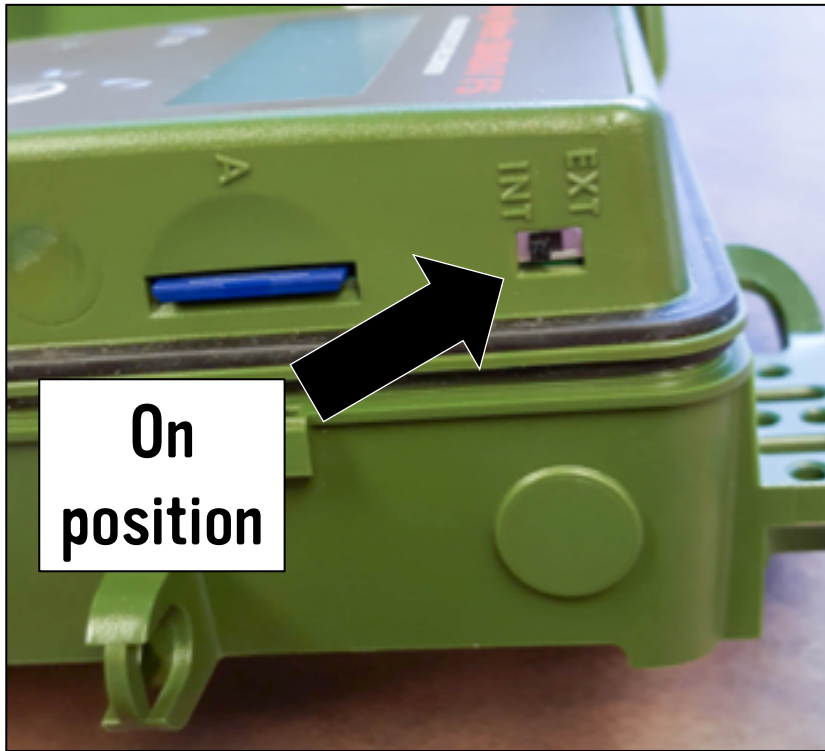


FIGURE 2.

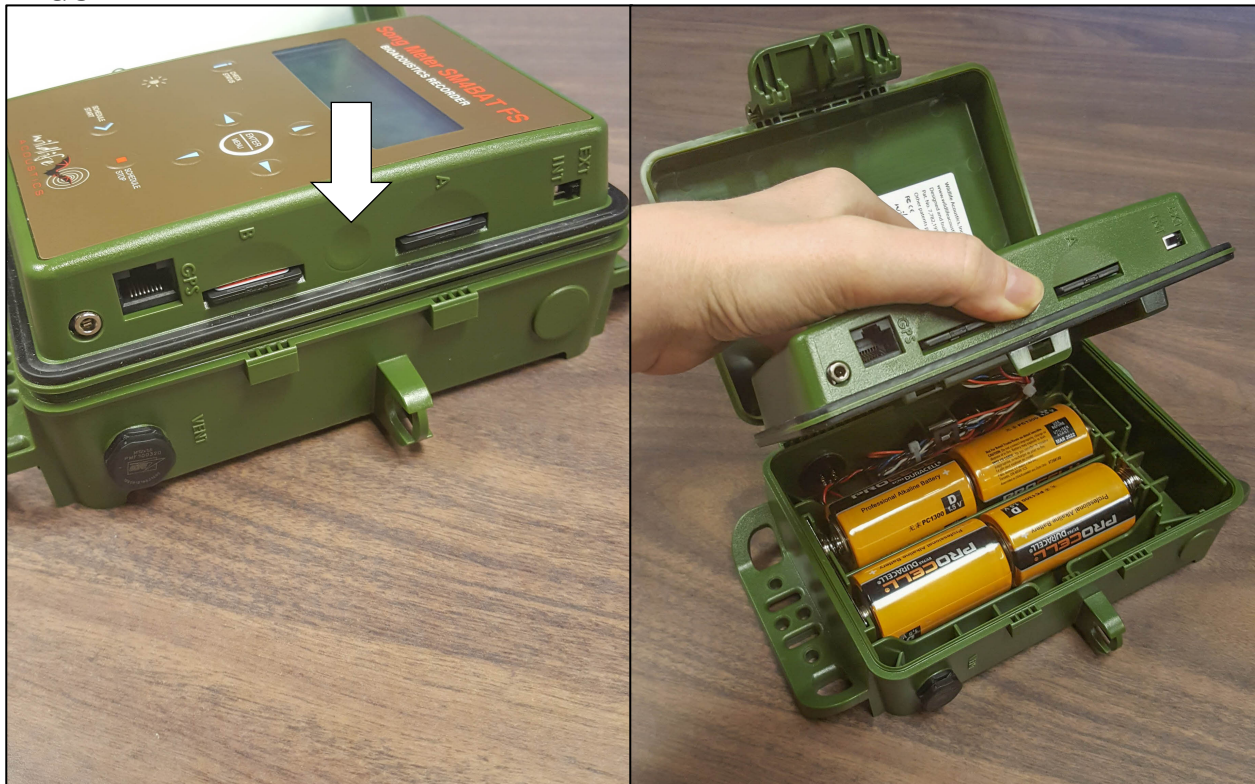
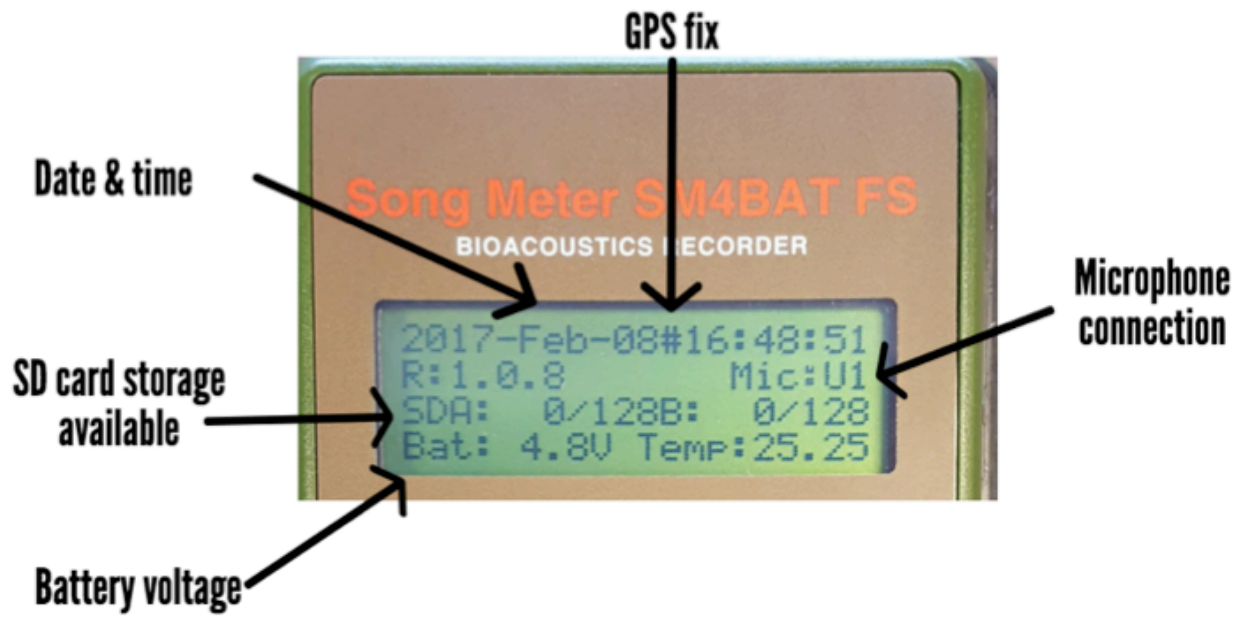


FIGURE 3.





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In the field – ready to setup

Location Selection

- It is ideal to find a tree to attach recorder, but avoid trees with low hanging branches. Avoid vegetation within 5 feet of the microphone because rustling will cause noise in recording.
- It may help to use the PVC pole to sight where microphone will ultimately be placed.
- If you are recording a bat flyway, you want to aim the microphone down the flyway, in parallel to, not perpendicular to, the flyway (FIGURE 4)
- If you are recording near a roost, aim the microphone into open space near roost where bats may forage immediately after exiting, instead of directly at roost.
- Avoid areas with telephone wires, electric fences, and noisy stream riffles

Microphone Setup

1. Tighten gray ring at the base of the microphone to verify microphone is securely attached to cable (FIGURE 5)
2. Use bungee to attach microphone to the T-shaped connector on the top of the PVC pole. Use rubber bands if additional stability needed (FIGURE 6)
3. Gently wrap cable around PVC pipe in order to avoid the cable flapping in the wind
4. Use 2+ zipties to secure cable on PVC pipe (without being so tight as to damage cable)
5. Attach cable from microphone to the top left side of the recorder. You should be able to line up the prongs, press the connector in place, and then gently screw grey locking ring onto connector securely - do not turn the entire plug, just the grey ring!

Recorder Setup

1. Turn on GPS unit to allow to acquire satellites
2. Open SM4 casing and flip small black switch on the right side to the **INT** position (FIGURE 1). Recorder should turn on.
3. Plug in the GPS disc below the SD cards and wait a few minutes for the device to acquire satellites
4. Press [**Check Status**] and in the space between the date and the time the symbol will change from **?** to **#** when the recorder has fixed on a GPS location (FIGURE 7)
 - When you have verified the **#** symbol, remove the GPS disc
5. On check status screen, next to **Mic:** should say **U1** identifying the type of microphone attached. If it says **NA** unplug and reattach microphone (FIGURE 8)

FIGURE 4.

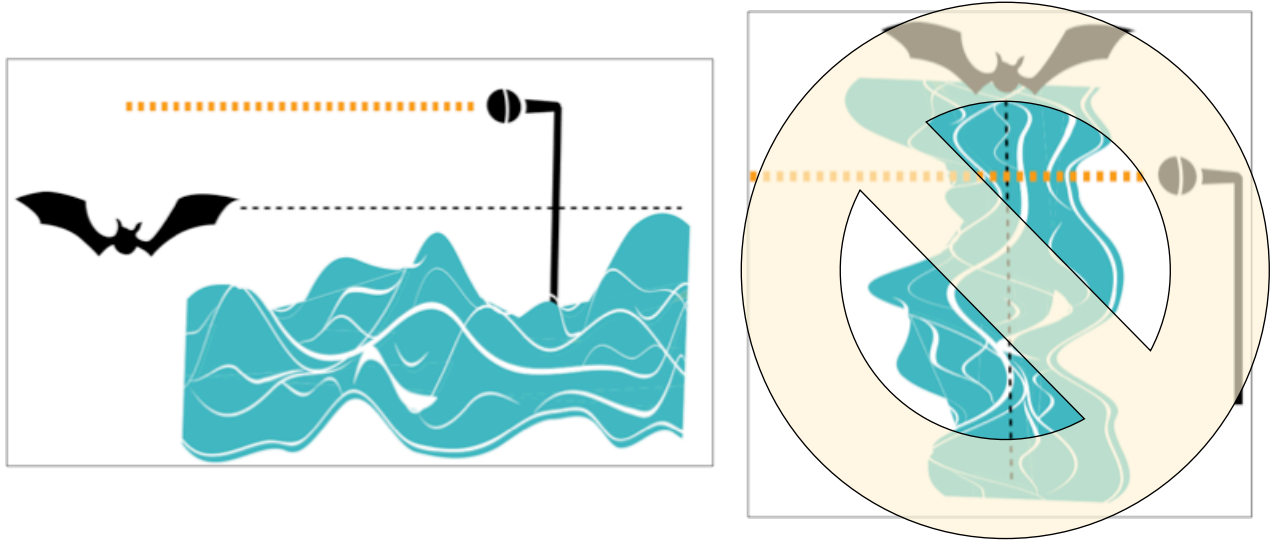


FIGURE 5.



FIGURE 6.



FIGURE 7.



FIGURE 8.





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6. Press [**Schedule Start**] (FIGURE 9)
 - The display will briefly show the current date and time and the time that it is scheduled to turn on
 - Verify that the recording will start at 19:00 on the current date
If this is incorrect –
Navigate to **Main Menu**, then **Schedule**, then **Edit Schedule**
Schedule should read -
START: time 19:00
DUTY: always
END: time 07:30
Edit using arrows as needed
7. KEEP black switch in the **INT** position (FIGURE 1) and your unit should be ready to record
8. Close recorder box and secure padlock over recorder door
9. Use cable lock to secure recorder to tree, verify stability (FIGURE 10)
10. Use compass to record microphone orientation on datasheet
11. Use the point & shoot camera to first take a photo of your completed data sheet, then the recorder setup (looking at recorder), and finally a photo from underneath the microphone pointing in the direction the microphone will be recording. Please take photos in this specific sequence, to aid us in managing data.

GPS location & positional accuracy

- Navigate to **Satellite** (FIGURE 11)
- Record distance under **GPS** as the positional accuracy. Aim for less than 6m or 20ft (FIGURE 11)
- Record coordinates on datasheet
- Navigate to **Mark Waypoint**
- Name waypoint **GRTS#-SITE#** - example "1355_Site1" (FIGURE 12)
- Select **DONE** at bottom on screen

FIGURE 9.



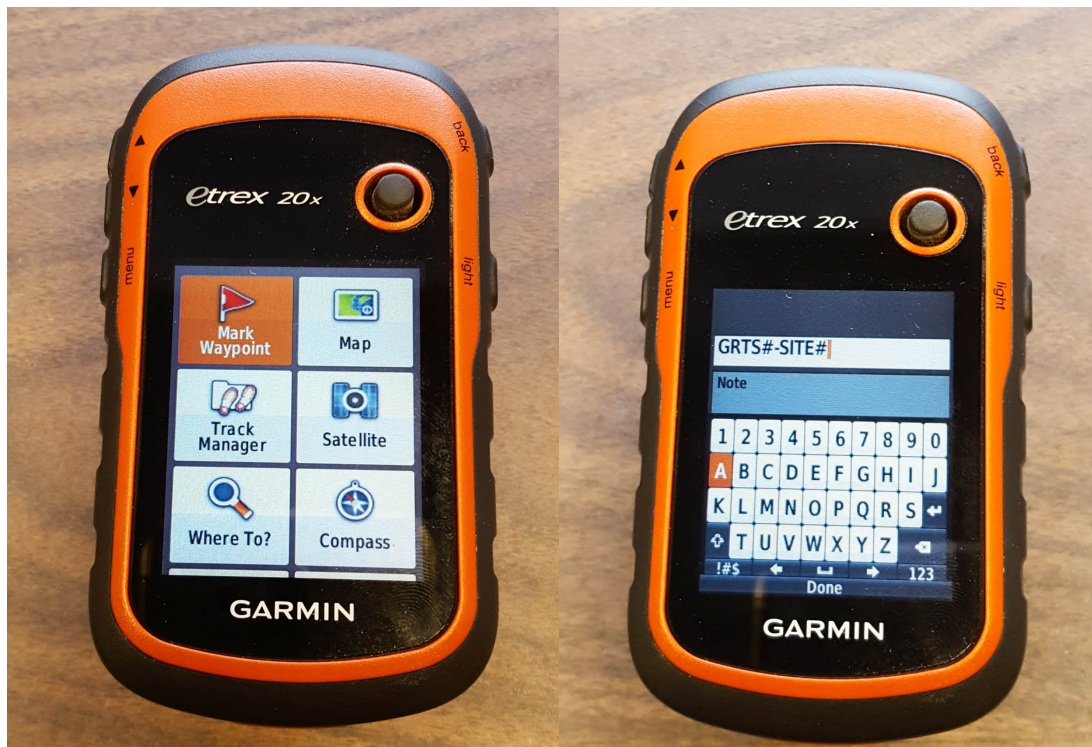
FIGURE 10.



FIGURE 11.



FIGURE 12.





Stationary SM4BAT Deployment

Post setup

Recorder should be deployed for 4 nights of approved weather –

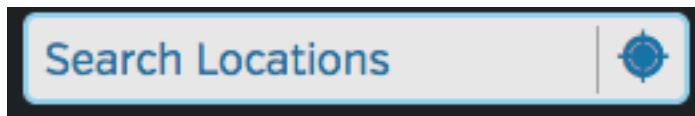
- Low temperature above 50°F

- No sustained winds over 9mph that exceed 30 minutes

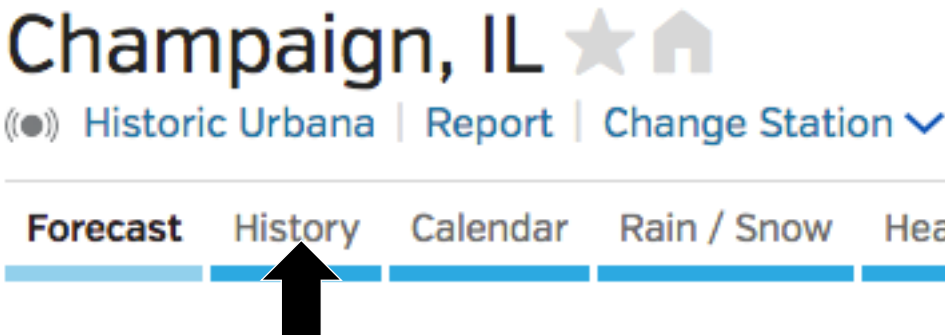
- No precipitation that exceeds 30 minutes

Monitor the weather at recorder locations using Weather Underground (<https://www.wunderground.com>).

You can use the Search Locations window to enter GPS coordinates of recorder locations



You can review previous nights weather by clicking on the history tab below your location



Verify the date and scroll down to **Hourly Weather History & Observations**

Review weather data for the hours of recording ~ 19:00 – 07:30. You will have to look at two days for one night of survey since the data ends at midnight

Optional: Copy/paste the data into Excel (be sure to add the date) to keep a record of the weather