

# Black Rail SongMeter 2+ ARU/Remote Broadcast deployment

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## Preparatory work

1. **Program the FoxPro NX4 game caller according to the [Black Rail FoxPro NX4 game caller programming SOP](#).**
  - a. This will need to be completed or confirmed once at the beginning of the season.
2. **Program the SongMeter ARU according to the [Black Rail SongMeter 2+ \(ARU\) programming SOP](#).**
3. **Program the remote broadcaster timer according to the [Black Rail remote broadcast unit timer programming SOP](#)**
4. **Charge battery pack, if necessary.**
  - a. Charge the 12V pack using an appropriate (12V/500mA) AC/DC adapter. Charge with the toggle switch on the battery pack set to I (Input). The battery pack charges only on I (Input). If using the original AC/DC charging adapter, a complete charge is indicated by a green LED on the charger (a red LED indicates the unit is charging).
  - b. Disconnect from the charger, and confirm a fully-charged battery pack by a complete row of green LEDs on the battery pack. Flip the toggle switch on the battery pack to 0 (Off) until deployment.
5. **Connect battery pack to timer and FoxPro NX4 for field deployment**
  - a. The timer connects to the 12V battery pack using the red/black barrel jack cable. This cable is labeled 12V on the timer.
  - b. The timer connects to the FoxPro NX4 game caller using the solid black barrel jack cable. This cable is labeled BC (for broadcast) on the timer.
  - c. Center the FoxPro NX4 game caller in the case. The forward and rear speakers should align well with the openings on each end of the enclosure.
  - d. Carefully close and latch the case, ensuring the lid aligns with and sits snugly on the case bottom.
6. **If deploying a camera trap array, program the Bushnell Trophy Cams according to the [Black Rail Camera Trap Array deployment SOP](#)**

## Field deployment (“set”)

### 1. Attach SongMeter ARU to T-post using wing nuts or optional security nuts

### 2. Install the T-post into the marsh

- a. Install to a sufficient depth to ensure stability. The top of the ARU should be ~ 5’ above ground level, so long as the installation is stable.
- b. Make note of which direction the front speaker of the game caller will face when installed below the ARU.
- c. When surrounded completely by marsh, the front speaker of the game caller should face magnetic North. The microphones of the ARU will thus also align with magnetic North and South.
- d. When located on the edge of open water or upland habitat, the front speaker of the game caller should face the center of appropriate marsh habitat.

### 3. Mount and secure the remote broadcast unit case to the T-post with wing nuts

- a. Open the remote broadcast unit case and confirm cable connections are solid and as expected between the timer and 12V battery pack and FoxPro NX4 game caller.
- b. Flip the toggle switch on the battery pack to I to make power available to the timer and FoxPro NX4. Confirm a fully-charged battery pack by a complete row of green LEDs on the battery pack.
- c. Put the timer into automatic mode. Depending on the timer, a ☒ icon (older models) or ON (newer models) should be indicated along the bottom of the display. If so, press the MANUAL button until the timer displays AUTO along the bottom of the display. If the unit is already in AUTO mode, press the MANUAL button to pass through MANUAL mode and back into AUTO mode. This step prevents a glitch in some timer units whereby the broadcaster turns on when battery pack power is first supplied.
- d. Confirm volume and speaker settings on the FoxPro NX4 game caller. Both speakers of the game caller should be operational in open marsh and only the forward speaker operational when broadcasting from the edge of open water or upland habitat.
- e. Record the FoxPro NX4 unit number on the deployment data sheet.
- f. Carefully close and latch the case, ensuring the lid aligns well with, and fits snugly on, the case bottom.
- g. Attach the shelf to the T-post below the ARU using the 1½" carriage bolts with wing nuts.
- h. Attach the eye bolt to the T-post two holes below the shelf. Hand tight is sufficient.
  - i. Place the remote broadcast unit on the shelf and secure to the T-post using the 3’ bungee cord. Secure the bungee cord hooks to the eyebolt.
  - j. (optional) Lock the unit to the T-post using the security cable and combination lock.

### 4. Install microphones

- a. Attach microphones directly to the left and right microphone input connectors on the Song Meter. The connectors are keyed. Thus, the microphone should first be pushed into the connector when oriented correctly, and then locked into place by rotating the locking ring on the microphone clockwise. The microphones are fragile, and should be removed during transport to and from the field.

### 5. Power up the SongMeter ARU

- a. Remove front panel from ARU.

- b. Flip Power Source switch to Internal.
  - c. Press the WAKE/EXIT button.
  - d. If programmed correctly, it will indicate that the unit is Going to sleep until it begins recording at 30 minutes after sunset on the current day.
  - e. Replace front panel on ARU.
  - f. Ensure rubber rain flap is covering top seam of the ARU. See Figure 1 for example of deployed unit.
6. Record relevant data on the ARU deployment data sheet
- a. These include the ARU (SM2+), FoxPro NX4, and survey point identification, FoxPro NX4 orientation, set date (date if field deployment) and broadcast start date, and broadcast sequence.
  - b. Other information on the ARU deployment data sheet will be completed after ARU (SM2+) retrieval and recording review.
7. If deploying camera trap array, consult the [Black Rail Camera Trap Array deployment SOP](#)



Figure 1: Example of deployed ARU/broadcasting unit.

**Deployment equipment list**

- ARU/Remote broadcast unit
  - SongMeter SM2+ (w/attached plywood, 4 D batteries)
  - extra D batteries
  - remote broadcast unit (w/charged battery pack)
  - 7’ T-post
  - shelf for remote broadcast unit
  - 1½" carriage bolt with wing nut (2)
  - 2" carriage bolt with wing nut or (optional) security nut (2)
  - 3’ bungee cord
  - eyebolt with nut
  - #2 Phillips screwdriver
  - GPS
  - compass
  - ¾" ratchet drive with security nut socket (optional)
  - security cable (optional)
  - padlock (optional)
  - ARU deployment data sheet(s)
- Camera trap array (if deploying)
  - Trophy Cam cameras (with 40.5 mm +2 diopter and poster putty; 4)
  - Camera boxes and PVC pipe (4)
  - extra AA batteries

## **Field retrieval (“pull”)**

1. **Power down the SongMeter ARU**
  - a. Remove front panel from ARU.
  - b. Flip **Power Source** switch to **Off**.
  - c. Replace front panel on ARU.
  - d. Record retrieval (“pull”) date on the ARU deployment data sheet.
2. **If camera trap array was deployed, consult the [Black Rail Camera Trap Array deployment SOP](#)**