

Batmic GO

Bat detector for your phone

The Batmic GO turns your phone into a **bat detector**. The capsule picks up ultrasound, divides the frequency by ten and brings it down to where your ears do reach, over a **listening range of 20 to 80 kHz**. With the app you also see the spectrogram in real time.

There is nothing to tune. A heterodyne detector makes you turn a dial and you miss everything that isn't on that frequency. Here you have it all at once, without a single adjustment.

You need a phone with USB-C. The **Birdfox Recorder** app is for now available **for Android**; the iOS version is in development. With an iPhone the kit works just the same and you will hear the bats, but to record and see the spectrogram you will have to use a third-party app.



The Batmic GO mounted on the phone

1 · What's in the box



Figure A · What's in the box

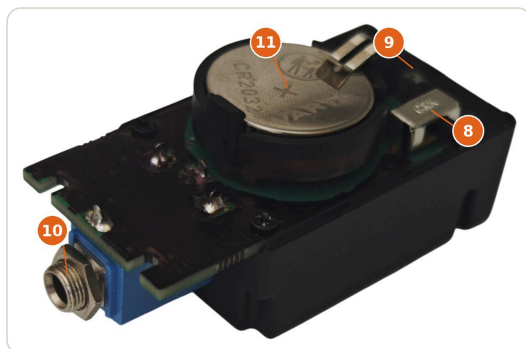


Figure D · The capsule



Figure E · The battery and its clip

1 Batmic Capsule · 2 1/4" male-to-male screw · 3 USB-C splitter to two jacks · 4 Phone clamp · 5 CR2032 battery · 6 Orange TRS-TRS cable · 7 Earphones · 8 ON-OFF switch · 9 Indicator led · 10 Female jack of the capsule · 11 Battery compartment · 12 Clip that holds the battery in place.

2 · What you are going to hear

Ultrasound is not a strange kind of sound: it is an ordinary sound that sits **above your hearing**. You reach 18 kHz, if you are lucky. The capsule picks up from **20 to 80 kHz**, divides that frequency by ten and puts it where you can hear it.

Some bats call well above 80 kHz, and those fall outside. But **most of what you are going to come across sits inside that range**.

What comes out is not “the bat talking”. It is **dry clicks**, very fast. A bat going past sounds like a steady series of clicks. When it spots an insect and goes for it, those clicks speed up all at once into a buzz: that is the **feeding buzz**, and it is the moment that hooks everybody.

What it doesn't do: identify species. This technology doesn't allow that: it gives you the frequency and points you towards the genus, and the species is your call.

3 • The battery

The capsule runs on a **CR2032 button cell**, which is in the box but **does not come fitted**.

To put it in: move the **clip (12)** aside with your finger, place the battery in its compartment (**11**) with the **“+” facing up**, as in Figure E, and press it down until the clip holds it. To take it out, the same move in reverse.

Switching on and off. The capsule has an **ON-OFF switch (8)**. At ON, the **led (9) blinks every two seconds**: that means it is working. **Switch it off when you finish the outing**, or you will eat through the battery. **Battery life: up to 80 hours.**

How to tell whether the battery will last. There is no warning stage: as long as the **led keeps blinking**, the capsule is working normally. When the battery runs out, the led goes off and the capsule stops working. If it is blinking, you can trust what you are recording.

4 • Putting it together

It goes together in a minute and stays together for the whole outing.

1. **Join the clamp to the capsule.** Screw the **1/4" screw (2)** into the thread of the clamp (**4**) and into the thread on the body of the capsule. Tighten with your fingers, without forcing it.
2. **Put the phone in the clamp.** The capsule ends up at the top, poking out above the phone.
3. **Plug the splitter (3)** into the phone's USB-C port.
4. **Plug the orange cable (6)** from the **microphone** output of the splitter into the **jack of the capsule (10)**.
5. **Plug the earphones (7)** into the **earphone** output.
6. **Switch the capsule on** with the switch (**8**) and check that the led (**9**) blinks.

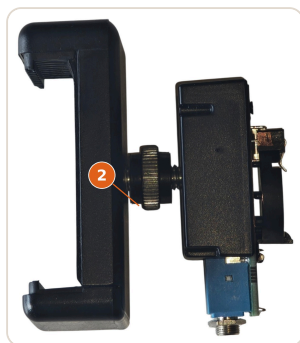


Figure C • The clamp and the capsule, joined by the screw



Figure B • The whole thing put together



Figure F • Each output of the splitter has its icon engraved: a microphone and a pair of earphones

The two outputs of the splitter are not interchangeable, and from the outside they are identical: look at the engraved icon. The microphone one is for the capsule.

The capsule points where you are looking. Place it so that nothing covers it: not your hand, not the edge of the phone.

5 • The Birdfox Recorder app

With the Batmic GO the app is not an extra: it is half the product. It is **free**, and right now it is available for **Android 7.0 or later**; the iOS version is in development.

If you have an iPhone. The splitter works just the same and you will hear the bats on the earphones. To record and see the spectrogram you will have to fall back on a third-party app for now, until we release ours. Bear in mind too that the splitter is USB-C: the iPhone 14 and earlier have Lightning and won't fit.

Put it in Batmic mode. It is the first tab along the top. You get the spectrogram in real time: time runs left to right and height is frequency. Each pulse appears as a vertical mark. A pass is a regular row of marks; a feeding buzz is a tight cluster.

The axis already reads in real frequencies. The capsule divides by ten, and the app compensates: it labels the axis "kHz ×10" and shows you the bat's frequency. You read 45 kHz, not 4.5.

Turn monitoring on. There is a **speaker icon** in the bottom bar: tap it and **it goes green** when monitoring is active. That is what sends the sound to the earphones. Without it the kit records and draws, but you hear nothing — and it is the first thing to check when somebody says they can't hear a thing.

Adjust the brightness and the contrast

It is the only setting that really matters, and it is worth understanding:

- **With too much brightness**, every pulse is drawn as a tall saturated column, and **you can no longer tell where the bulk of the signal sits**.
- **With too little brightness**, the pulse disappears from the screen altogether.

Adjust it until the pulses show as well-defined marks and you can read where their main frequency sits. Intensity varies slightly between species, but **everything inside the range can be seen and heard**. Bats calling above 80 kHz fall outside the detector, and they won't appear whatever you do with the brightness.

Recording, trimming, adding a photo as a field note and exporting with GUANO metadata are in the **app manual: birdfox.tech/app**

6 · Your first night

Start where you can see them. For your first tries, look for a place where you can make them out with the naked eye, even if it is just flying over a street lamp. That way you can check that the kit works while you get used to it: **bats call almost all the time**, so if you are seeing them, you should be seeing pulses.

When. Late in the afternoon, as the light drops. In the hardest months of winter you won't find them: either they have migrated or they are hibernating.

Where. Around water — ponds, rivers, reservoirs — wherever there are insects. And **street lamps**, which are a feeding station: they draw insects, and the bats come after them.

How to place yourself. Quietly. Once the capsule is on you will hear a few clicks caused by your own voice or by other noises nearby, so talk only as much as you need to. **Put the phone in aeroplane mode:** as well as avoiding interference, it spares you the notifications.

Watch out for insects. Many of them sing at high frequencies that go straight into the detector and fill the screen. Here you have no dish to leave them out, so the only thing you can do is move away from them.

And then it happens. When a bat calls and is close enough, you will hear a series of clear clicks and the pulses will appear on the spectrogram. The first time, nobody needs it explained to them.

7 · How far it can go

The capsule you are holding screws into any Birdmic dish, ONE or PRO. It is not another part and not another product: it is exactly the same one.

What you gain with the dish is not volume, it is **direction**: it picks up what you point it at and leaves out a good part of the noise off to the sides, insects included. And with the Birdmic audio interface you would also have earphone monitoring without depending on the phone.

birdfox.tech/birdmic

8 • Care

- **The battery and the board are left exposed.** This is not a piece of kit for the rain: if it starts raining, cover it or put it away.
- If you come back damp, let the capsule air-dry before you put it in its box.
- Don't touch the acoustic window of the capsule and don't try to clean it.
- Store the kit taken apart, with the capsule in its box.

9 • If something doesn't work

What's happening	What to check
The led doesn't blink	The switch (8) at ON · the battery in properly, with the "+" up and the clip (12) holding it · flat battery
No sound at all	First, the speaker icon in the app: if it isn't green, there is no sound · then, that the earphones are in the output with the earphone icon
No sound at all and the speaker is green	Almost always that is normal: most of the time there is nothing to hear. Only worry if you can see bats going past nearby and no pulses appear
The phone doesn't detect the splitter	Try plugging the splitter in first and opening the app afterwards · check that the orange cable is in the output with the microphone icon, not the earphone one
A click every time I speak	That's normal, your voice has high components too. Talk less
The screen fills up with continuous marks	Those are insects singing. Move away from them
I see the pulses but I can't make out the frequency	Turn the spectrogram brightness down in the app
Rhythmic buzzing	That's the phone's mobile signal. Turn on aeroplane mode

If none of that fixes it, write to us at info@birdfox.tech. The people who make the thing are the ones who answer.

10 • Safety

- Do not expose the product to rain or damp.
- Use only 3 V **CR2032** batteries.
- **Keep the battery out of the reach of children.** A swallowed button cell is a medical emergency: go to a medical centre immediately.
- Do not try to recharge the battery, do not puncture it and do not throw it into fire.
- Take the battery out if you are not going to use the capsule for a long time.

11 • Warranty, conformity and disposal

Warranty. If you bought from us directly at birdfox.tech, you have **3 years** of legal guarantee of conformity from delivery. If you bought from a shop in your own country, that country's legal guarantee applies, with a minimum of 2 years in the European Union, and you must go to that shop first.

Conformity. This product carries the **CE marking**. The EU declaration of conformity is available at birdfox.tech or by writing to us.

Disposal. This product and its battery must not be thrown out with household waste. Dispose of them in line with your local electronic waste and battery regulations.

Specifications

PRINCIPLE

Frequency division ± 10 with pulse generation.

LISTENING RANGE

20 – 80 kHz. Species calling above that fall outside.

POWER

CR2032 button cell, included and not fitted.

BATTERY LIFE

Up to 80 hours.

INDICATOR

Led that blinks every 2 seconds while the unit is on.

CONTROLS

ON-OFF switch. No other setting: no gain, no modes, no tuning.

CAPSULE OUTPUT

Female 3.5 mm TRS jack.

CONNECTION TO THE PHONE

USB-C splitter to two 3.5 mm jacks, with an icon engraved on each output: microphone and earphones.

FIXING

Phone clamp and 1/4" male-to-male screw. The capsule has a female 1/4" thread.

CAPSULE WEIGHT

21 g without battery · 24 g with the battery in.

EXPANDABLE

The same capsule screws into any Birdmic dish, ONE or PRO.

APP

Birdfox Recorder, free. Android 7.0 or later; iOS version in development.

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