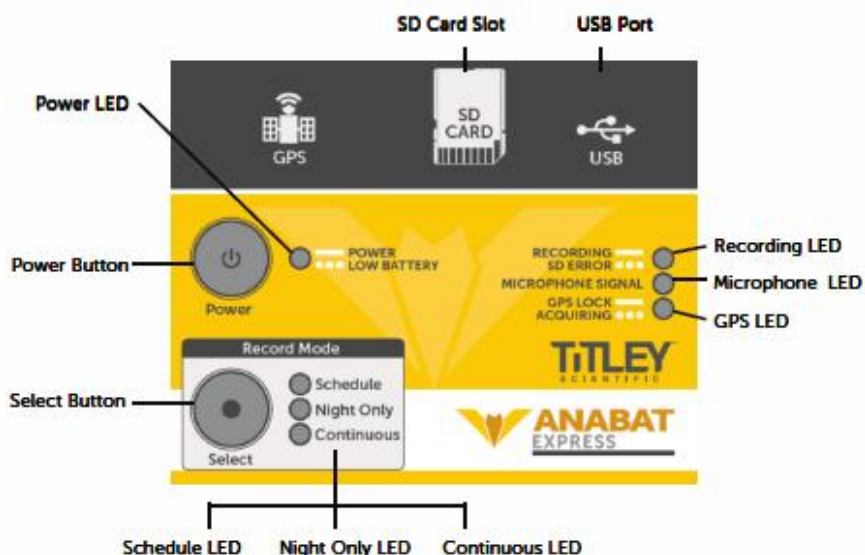


Anabat Express Quick Start Guide

1. Please follow the Quickstart User Guide provided with the Anabat Express. Instructions are underneath the orange highlighted line.
2. The detector should be set on Night Only mode if using the detector in a stationary position.
3. The detector should be set on Night Only mode with the transect mode activated (see instructions below) when undertaking a transect (a walking, cycling or driven survey).



NIGHT ONLY RECORDING MODE

The night only mode is designed for efficient deployment. This recording mode will turn the detector on 30 minutes before sunset and off 30 minutes after sunrise. If the detector is left on, this mode will continue to record nightly until the batteries run out or the SD card becomes full. Night only mode will only work if a GPS fix can be acquired, as the detector automatically calculates the sunset and sunrise times based on the longitude and latitude of the GPS location.

To select this recording mode:

1. Press the **Select** button until the **Night Only LED** is lit.
2. Wait for the GPS LED to turn on solid. The detector will automatically try to acquire satellites to obtain a GPS fix. While acquiring satellites, the **GPS LED** will flash. Once a GPS fix is made, the **GPS LED** will produce a solid light. To assist this process, place/hold the detector where there is a clear sky view, with the microphone facing skywards. The GPS fix will automatically set the clock, record the GPS location and determine the sunset/sunrise times.
3. While the case is still open, rub your fingers in front of the microphone; the **Microphone LED** will flicker to confirm that an ultrasonic audio signal is detected.
4. Once no LEDs are flashing, you can lock the lid closed and place the detector in its final deployment location and secure. Use the magnet to check the detector is functional after final deployment (see **Testing the System** below).
5. The detector will automatically attempt to acquire a GPS fix **daily**. If a satellite fix cannot be found, the detector will refer to the last GPS fix made. If you are moving your detector to a new location, make sure you turn the detector off and on again at the new location to ensure a correct GPS fix.

TRANSECT MODE

The transect mode will record your GPS location every second. This will create a GPS file, which can be used to display the sequence files recorded on a map at their closest GPS fix, as well as the path traced by the detector. You can use the transect mode in conjunction with any of the three standard modes (Schedule, Night Only or Continuous).

To activate the transect mode:

1. Select your desired mode by following the instructions above.
2. Press and hold the **Select** button until the **GPS LED** flashes quickly (should take about 5 seconds).
3. The detector is now in transect mode, when recording in transect mode the **Check LED** will flicker when receiving ultrasonic signal.
4. To exit transect mode, simply hold the **Select** button until the **GPS LED** flashes quickly again (should take about 5 seconds), **or** turn the detector off and on again.

Be aware that transect mode will consume batteries more quickly than a standard mode.

TESTING THE SYSTEM

To test the operation of the detector before deployment you can open the camouflage case and rub your fingers in front of the microphone; the **Microphone LED** (inside the case) will flicker to confirm that an ultrasonic audio signal is being detected. To test the operation of the detector while the camouflage case is closed, after deployment, place the magnet (at end of lanyard) next to the **Check LED** (beside microphone, on outside of case); a brief flash indicates unit is working. Hold the magnet next to **Check LED** and rub fingers near the microphone. The LED flickering faintly confirms that ultrasonic audio signals are being detected.

MOUNTING AND PLACEMENT

The placement of any detector can have a significant effect on the results of a survey. It is important to consider the location and height of the detector. Detectors are typically placed in or beside a 'flyway', a corridor where bats will fly through or beside vegetation.

Avoid placing the detector inside dense vegetation where most bats cannot fly. Avoid having vegetation or other objects between the detector and the bats expected flight path, or close beside the detector, as echoes can degrade the signal. The best signals will be obtained when the microphone is in the open, away from other objects and pointing in the direction of the bat's expected flight path.

We do recommend that the AnaBat™ Express is mounted vertically (refer to the section on weatherproofing) so that any rain water runs off the microphone and doesn't settle on the element. Also make sure that the magnetic lanyard is not being blown around in the wind as this may create unwanted noise on your recordings. It is also important to avoid surface noise, such as vegetation brushing against the detector case or microphone.

| LED Indicators | | | |
|-----------------------------------|---------------------------------------|--|--|
| | ——Solid Light |Flashing Light | No Light |
| Power LED | Detector is on | . Low battery. Change batteries immediately. | Detector is off or asleep |
| Schedule LED | Recording on a predetermined schedule | No schedule set | - |
| Night Only LED | Will record from dusk until dawn | Satellite fix required | - |
| Continuous LED | Detector is continuously recording | - | - |
| Recording LED | Detector is recording | SD Card missing, full or faulty | - |
| GPS LED | GPS lock acquired | Slow flash: GPS has not yet acquired satellites Fast flash: GPS is entering transect mode | No GPS lock is needed |
| Microphone LED | - | Will flicker when receiving ultrasonic signal | - |
| Check LED (without magnet) | - | Detector not ready, open case to see what is required. In transect mode: Will flicker when receiving ultrasonic signal. | Detector is off or is working normally |
| Check LED (with magnet) | - | Will flash once to indicate the device is on. Will flicker when receiving ultrasonic signal | Detector is off |

TROUBLESHOOTING

FLASHING INDICATORS

Any LED indicator persistently flashing means there is an error or problem. Do not deploy the detector if there are LEDs flashing. Please see the table below to resolve a flashing LED indicator.

| LED Indicator | Problem | Solution |
|------------------------------|---|---|
| Power | Batteries are too low | Replace AA batteries |
| Schedule | No schedule set | Need to set the schedule on the SD card with a computer, or select a different recording mode |
| Continuous | Error | Turn the detector off then on again |
| Recording | SD Card missing, full or faulty | Make sure a card is inserted. Make sure the card is properly seated in its socket. Try removing it and replacing it. If that does not work, use a different card. The faulty card may be fixed if formatted on a computer. |
| Night Only | Satellite fix is required | If this persists for several minutes, move to an area with a clearer view of the sky* for better satellite reception and restart the detector by turning it off, then on again. If no GPS fix can be acquired, use a different recording mode |
| GPS | Satellite fix is required | |
| Check (front of case) | If flashing without a magnet, satellite fix is required If flickering when receiving ultrasonic signal, the detector is in Transect Mode | |

* You only need to move the detector until a GPS fix is obtained. Once a fix is obtained, you can move the detector to its intended deployment site

Q. How far away can a bat be detected using the AnaBat?

A. Detection distances will vary with frequency and loudness (amplitude) of the bat calls, atmospheric attenuation, and the directional characteristics and sensitivity of the bat detector. It will also be affected by the amount of structural clutter (obstacles such as vegetation) which can block the path of the signal.

The frequency and amplitude of the bat call have a major influence on how far away the call can be detected, and makes some species easier to detect from afar than others.

Quiet (low amplitude) and high frequency bat calls are more difficult to detect than loud (high amplitude) or low frequency calls. Call amplitude can vary within an individual, as many bats will reduce the amplitude of their calls as they approach prey or depending on the context in which they are flying. Call amplitude can also vary between species.

Species which always produce low amplitude calls ('whispering bats') will be more difficult to detect from a distance than other species. In addition, bat calls of higher frequencies cannot usually be detected from as far as those of lower frequencies, as higher frequencies suffer greater absorption by the atmosphere than lower frequencies.

Atmospheric absorption depends upon weather conditions such as temperature, humidity and air pressure. This relationship is complex, but in general, cool dry conditions will allow the detection of bat calls over greater distances.

The sensitivity of the detector also has a major influence on detection distance, and while there is always some variability in sensitivity among units, the biggest influence is the sensitivity setting.

Given all the above, it is obvious that detection distances will vary enormously. Many bats are easily detected over 30m under typical conditions, while some species which call at low frequencies may be detectable from as far as 100m. However, some species will be hard to detect from even 1m away. This is why activity levels measured acoustically cannot easily be compared between different species. However, acoustic indices of activity are generally much less biased than indices based on capture data

Further information on detection distances and the calculation of detection fields and distances can be obtained from the software AnaVolumes.