Extended Tracking with the GPS System

While most flights and recoveries are complete within an hour or less, some chases may require extended tracking time, or an overnight stay.   This guide is intended as a quick reference for best practices in managing the GPS and providing your bird's safe recovery.

Note: Marshall always recommends the use of two transmitters (GPS primary in conjunction with a long life "beeping" secondary transmitter*)

With factory settings, the GPS transmitter will provide 2-3 days of continuous runtime. As a default, the GPS will run for ~4hrs in ECO mode [or 2hrs in HD] then will automatically transition to RESERVE mode when the battery reaches 60% and will continue running in this mode for the next 2-3 days.

In RESERVE, Battery life is preserved by updating the GPS position once an hour [default], on the hour. This position is then re-transmitted every few seconds over the next hour. The Reserve update rate may be changed: increasing or decreasing battery life by speeding up or slowing down update rate.**

In addition to GPS, the transmitter may also be pinpointed using a Field Marshall UHF receiver [freq: 434.005 default, user selectable], in ECO, EXT, and Reserve. HD mode will automatically transition to ECO should the transmitter fly out of range.

> **RECOMMENDED ITEMS TO BRING FOR AN EXTENDED RECOVERY**
>
> **High Gain Omni Antenna** to extend the GPS tracking range by 2-3x
>
> **UHF Receiver** Increase ground tracking range by up to 5x, and pinpoint location between GPS updates

In situations where extra battery life is required, the user need not wait for RESERVE. While in control range, battery saving modes may be commanded proactively by the user to extend runtime of the GPS.

EXT allows you to extend the time between GPS updates. User selectable in AeroVision [2 min. to 12 hrs]. In addition to using this Mode for extended flights, EXT is useful for overnight monitoring if you are unsure of whether the bird may move before first light. Simply select a medium update rate (15 or 30min), then should the bird relocate during the night, your last coordinate will be less than 15/30 min old. If taking out of reserve or changing the reserve update rate: speeding up the update rate will decrease the battery life.

Sleep is useful if your bird is not coming down from a known location, has a good chance of remaining in place, and you will be back before your bird makes a move. If you choose to use Sleep, it is very important to set it to wake up after a certain time interval. While in sleep mode, the transmitter will not transmit GPS or RF Beeps. If your bird flies off, and you are outside of control range, the transmitter will not update again until it wakes up. The wake up time that you set on the transmitter will depend on when you think the bird may begin to be active again. Before commanding Sleep, note that when the transmitter wakes up, it will return to the last mode it was in. If the transmitter was in HD it will wake up in HD and drain the battery at a faster rate. Aways set the transmitter to the mode you want to it to wake into [ECO or EXT], prior to commanding Sleep.

If your bird is out overnight, leaving the PocketLink running and in close proximity [i.e. at the base of the tree where the bird is roosting] will both reduce power consumed in the transmitter and will contain a record of the last GPS update from the transmitter, updating AeroVision when you re-connect to the PocketLink. ***

IT IS IMPORTANT TO KNOW HOW TO USE YOUR GPS AND UHF EQUIPMENT BEFORE THE TIME COMES THAT YOU NEED TO. WE RECOMMEND PRACTICING WITH YOUR SYSTEM WITH A FRIEND OR ANIMAL [TO SIMULATE A RECOVERY], THUS BEING READY TO USE THE SYSTEM IN THE FIELD SHOULD AN EXTENDED RECOVERY BECOME NECESSARY.

NOTES ON WHAT YOU MAY SEE IN AEROVISION DURING AN EXTENDED RECOVERY

Transmitter dot has a color, but no GPS updates are coming through (PocketLink will flash orange, data received, but no new GPS update). This means you are in range of your transmitter, but are in a low update mode (Reserve, EXT, or Sleep). If you are in command range, you may change to ECO or HD to get a live position.

Transmitter dot (and battery ring) are grey – no signal from transmitter (PocketLink LED will be slowly flashing white). This means your transmitter is out of range.

IF YOU CONTINUE TO SEE WHITE FLASHING ON POCKETLINK THEN TRY THE FOLLOWING TIPS:
- If you are in a hilly/mountainous terrain, get to the highest location possible. -Tune into the GPS transmitter with your UHF receiver
- Lift the PocketLink on a drone, and take it up as high as possible, if a signal is received, it will be delivered to AeroVision when back in Bluetooth range
- Attach Omni or UHF yagi to PocketLink to further extend the range
- Use your UHF Field Marshall to listen for the beeping signal

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If you are tracking in reserve mode, (Transmitter dot will be Yellow) you may use your UHF receiver to track the beeping signal in between GPS updates to continue preserving the battery. However if you need a live GPS update, Reserve mode may be canceled [while in control range] by commanding another mode [EXT, ECO, HD]. It is important to note that this will cancel Reserve Mode, and allow the full remaining battery to be used for the live tracking state you have commanded.
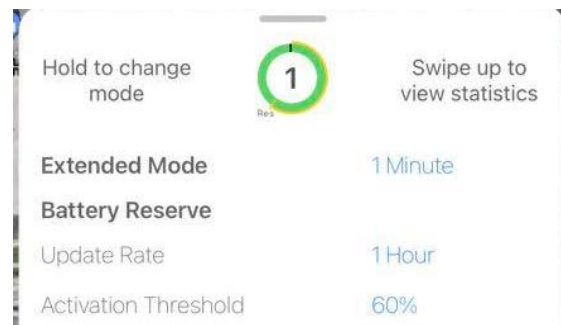
⚠️ **Indicates it is recommended that you reset the reserve % for safety** should you command any live tracking state. I.E. 50% battery remaining, switch to ECO, then set the Reserve % to a lower percent, like 30%. This will allow Reserve mode to automatically re-engage should recovery extend further**.**

Hold to change mode · Swipe up to view statistics

IMPORTANT NOTE ON RESERVE MODE AND RESERVE %. HAVING THE TRANSMITTER SET WITH A HIGH RESERVE PERCENTAGE [DEFAULT IS 60%, 1HR UPDATES] GIVES YOU THE LONGEST RUNTIME (2-3DAYS). REDUCING THIS PERCENTAGE OR INCREASING THE GPS UPDATE RATE WILL REDUCE OVERALL RUNTIME.

Hold to change mode	1	Swipe up to view statistics
Extended Mode		1 Minute
Battery Reserve		
Update Rate		1 Hour
Activation Threshold		60%

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*Our UHF transmitters can last anywhere between 5-10 days. These can be used as backup to extend tracking times.
** More information about Reserve mode can be learned from the Tutorial Videos or in the GPS Runtime PDF
*** If your Pocketlink has been running for 8+ hours you will need to reboot and reconnect to AeroVision.