Micro transmitter

Marshall RADIO TELEMETRY

USER GUIDE

Congratulations on your purchase! The MICRO Transmitter provides best in class range and efficiency, nothing this size provides safer tracking for your bird. The Mico is the ideal primary transmitters for small parrots and micro falcons as well as the perfect tail mounted backup transmitter for larger species.:

- *Smallest Size*
- *Frequency Stability*
- *Short and Safe™ Antenna*
- *Magnetic Tap On /Tap Off ™*
- *Superior cold temperature performance*
- *Ultra-Efficiency*
- *High Impact Crystal*
- *Re-Configurable*

Batteries

The MICRO is the designed to use the CR1225 lithium coin cell battery. This battery is used mainly in watches and calculators (make sure not to use the lower power BR1225). The battery is installed by inserting the negative side of the battery facing the transmitter and screwing on the lid. Always insert the battery at an angle, toward the tab spring. Installing it the battery straight down can damage the tab spring.

> *Please be careful when screwing on the battery lid to avoid cross-threading. In the interest of keeping the size and weight to a minimum, the MICRO uses precision threads which may be damaged if cross-threaded (damage to threads is not warranted.) Rotate the lid counter clockwise with firm pressure until the thread "settles in" or "clicks" before screwing on*

Battery Life: At room temperature the MICRO will transmit continuously for 30 hours of normal use before telling you to change battery with a "double beep" every 10 pulses. After that, the CR1225 battery runs about 68 hours longer for a total of about 96 hours. These numbers are not as small as they may seem – with Tap On /Tap Off™ you'll use the transmitter only when flying, giving 30 one-hour flights, or perhaps a couple of months of use on a single battery.

Note: The Micro uses a timer to track battery usage (and warn you to change batteries with the "double-beep)". When installing a new battery it is important to clear the timer memory, to do this, simply install the battery upside down for a few seconds, then install normally.

Apollo 13 Mode™: If the transmitter has been going for 10 hours, the transmitter assumes your bird is probably lost and does what NASA would do in the same situation, conserving battery life with shorter and less frequent pulses. If your bird was lost with a new battery, Apollo 13 Mode would come on after 10 hours and, if you still haven't found the bird, the transmitter would last another five days or so. If you lost the bird just before the double beep came on, it would last another three and a half days.

Cold Temperatures: If the bird will be in very cold conditions or if it may become lost overnight when the temperature drops, you should *always use a new battery*. As coin cell batteries run through their life cycle, they lose some of their ability to provide current to run the transmitter in cold temperatures. A MICRO with a new battery will operate in extreme cold, down to -40C (-40F). But after 48 hours of normal use the same battery may not work below -18C (0 F).
In cold weather flying, the cost of a new battery is negligible compared with the protection it provides against loss of the bird. Keep plenty of batteries on hand and use them – the shelf-life of these lithium batteries is about seven years.

You can leave your battery in the MICRO for up to six months. The transmitter keeps track of cumulative transmission time to estimate remaining battery life, even when not transmitting.

Note: All the numbers given here are approximations and are not guaranteed.

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Recommendation: You should *get into the habit of changing the battery when you hear the double beep.* The MICRO uses small batteries and there is not as large a margin for error as with bigger transmitters.

Tap On /Tap Off™ Switch

The MICRO uses a unique magnetic switch to turn transmitter on and off. You can leave it on bird while not in use, removing only to change battery. To turn MICRO off, touch magnet to transmitter case near the base of the antenna until you hear 5 rapid beeps on receiver as confirmation. Repeat process to turn back on, confirmed by 3 rapid beeps. If you lose magnet, transmitter can be turned on and off by un-screwing the lid and removing battery. Always double check for transmitter signal by tuning in on receiver before flight, and when turning it off.

Note:
With tail (or back pack) mounted Micros that have a tail spring, it is important to keep you magnet away from the tail spring when turning the transmitter on or off. In some circumstances, it is possible to magnetize the tail spring with the magnetic wand, which can effect operation of the magnetic switch, in which case the tail spring should be removed and replaced with a new one. Practice a quick tap to the top of the transmitter (battery lid) to turn the Micro on / off.

Replacing the Antenna

The short antenna on MICRO transmitter is user replaceable. Use only genuine Marshall replacement antennas. The length of the antenna may vary between transmitters. Measure or keep the old antenna and cut the new one to the same length. Your Marshall replacement antenna will come with instructions for replacing the antenna.

Transmitting Range

The MICRO is designed to give best range while on your bird, rather than hanging or sitting on an object. It has been tested to over 100 miles line-of-sight. As with any transmitter, *range varies greatly with terrain*. Tests have shown its range in hunting situations of western US deserts to be anywhere from 2 to 25 miles for VHF [4-50 miles for the UHF version], depending on height of transmitter, height of receiver, type of terrain and obstructions, and radio noise or interference. Higher ground always gives better range.

Using the Receiver

Signal from MICRO is *strongest* if **receiver antenna is lined up in same orientation as MICRO antenna**. Since a falcon on a perch keeps tail almost vertical, you will get best signal if holding receiver antenna with its elements vertical. However, there are cases when transmitter's antenna could be nearly horizontal and holding your receiver antenna horizontally will give the better result.


Bird on perch


Bird on ground

Hint: *If **both** horizontal and vertical signals can be heard, use **horizontal** for better pinpoint accuracy.*

Customized Transmitter

If your needs change in the future, the Micro's frequency (channel) can be electronically reprogrammed. VHF models can be set to any frequency between 216.000 and 219.995 MHz, and UHF models can be set to any frequency between 433.005 and 434.995 MHz. The pulse width and pulse rate can also be adjusted to optimize either battery life or easy tracking, allowing for longer, stronger pulses that are easier to track. Your Micro can be custom configured as part of a transmitter service.

The default factory settings are 43 pulses per minute (ppm), a 40 millisecond pulse width, and low-battery indication after approximately 24 hours.

Warranty

Marshall Radio Telemetry warrants that the MICRO Transmitter will be free from defects of workmanship and materials for Three (3) Years from the date of purchase by end-user. Return defective transmitter directly to Marshall Radio Telemetry and we will repair or replace it and return it free of charge. However, we will not be responsible for damage from misuse or normal wear and tear incurred during use. Damage to the transmitter threads from any cause is not warranted. Warranty is void if a non-Marshall Radio Telemetry antenna has been used. *Under no circumstances will Marshall Radio be responsible for damages or loss beyond the value of the transmitter itself, including but not limited to the loss of a bird, equipment or lost time.*

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FCC Notice: This device does not interfere with TV reception or Federal Government radar.

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