MICRO Transmitter

USER GUIDE

Congratulations on your purchase! The MICRO Transmitter incorporates many industry firsts to give your bird the best protection available -- long range coupled with reliability and excellent efficiency in a compact size:

- *Smallest Size*
- *Frequency Stability*
- *Short and Safe™ Antenna*
- *Magnetic Tap On /Tap Off ™*
- *Cold temperatures*
- *Ultra Efficiency*
- *Power Line Static Protection*
- *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 get the 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 small, 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. It's a good idea to memorize the angle of this point from some mark on the lid, so you're always confident you're threading it right even if you can't feel the "click."*

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 1225 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 ten hours, the transmitter figures 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 ten 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. With extremely weak batteries, the Tap On /Tap Off™ may not work.

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. 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 Marshall replacement antennas with *Power Line Static Protection* ™. 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, 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 frequency (channel) of the MICRO can be changed electronically without opening it up. A 216 MHz transmitter can be set anywhere from 216.000 to 219.995. A 173 MHz transmitter can be set to 173.000 to 173.995. Also, the pulse width and pulse rate can be adjusted to give either better battery life or more, longer, easier-to-track pulses. The low battery trigger point can also be set earlier or later if you prefer. The default operational settings are: 43 pulses per minute (ppm), 40 millisecond pulse width and approximately 24 hours before low battery mode begins. Send transmitter to Marshall Radio to custom re-configure it for $35 plus shipping. Same day turn-around guaranteed.

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.*

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

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