

Micro-Fox 15 “Fox Hunt” Transmitter v1.7

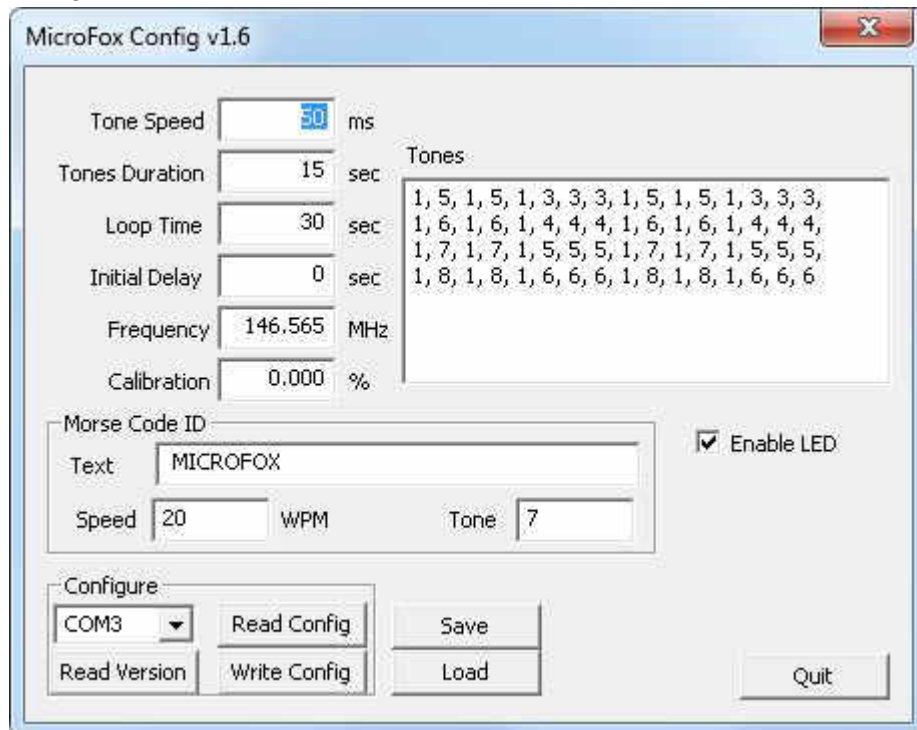
Overview

The Byonics Micro-Fox 15 (MF-15) is a frequency agile 2-meter amateur radio transmitter designed for short range hidden transmitter “Fox hunts”. It’s small size and 15mW output power makes it ideal for walking transmitter hunts. Using a directional antenna, it can typically be received from about 1-2 miles away. It is a user programmable to any frequency between 144 MHz and 148 MHz in 5 KHz steps, can be adjusted to many tones, durations, and duty cycles, and can transmit the user’s amateur radio callsign. The MF-15 can also be used as a beacon to help locate high altitude balloons and RC aircraft. It is sold as a built and tested transmitter in a plastic rectangular tube, which can also hold a standard 9V battery to power the transmitter. The MF-15 should run at 50% duty cycle for about 20 hours on a fresh battery.



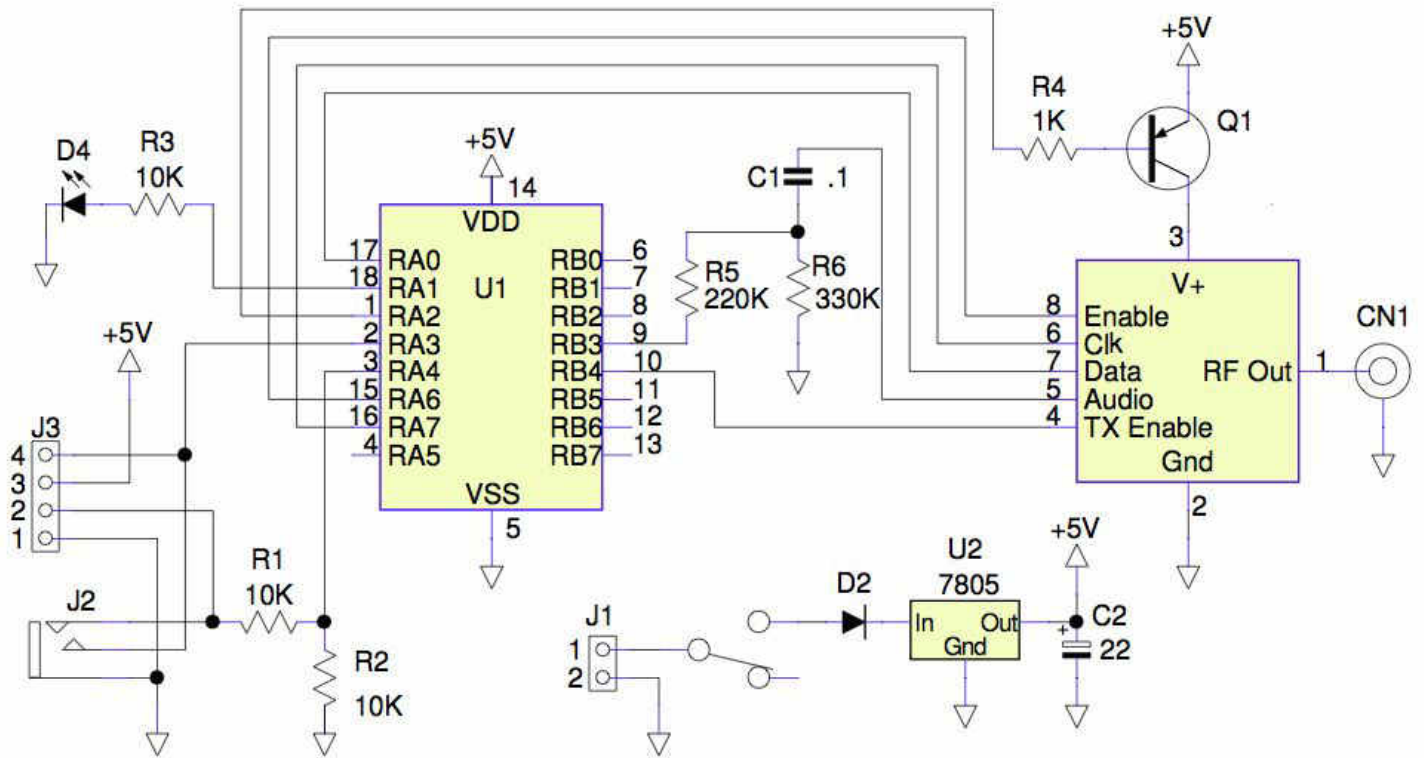
Configuration

The Micro-Fox 15 requires configuring with a Windows compatible computer, and a USB or RS-232 serial to 2.5mm stereo configuration cable, available from www.byonics.com. The configuration program is freely downloadable from the same website. Comprehensive information regarding programming of the MF-15 may be found in the Fox Configuration manual.



The default settings that appear when the configuration program is started are recommended for a basic hunt with the MF-15 transmitting tones for 15 seconds, and then a Morse code ID. It then will stop transmitting, and repeats every 30 seconds. The only setting users must change is the Morse Code ID text to be their assigned amateur radio callsign. After setting the desired options, select the configuration cable COM port, connect the cable to the 2.5mm jack on the MF15, being sure to push the plug all the way in, power the MF-15 via a battery and turn on the power switch, and click Write Config to apply the settings.

Schematic



Notes

- The 2.5mm programming jack on side of the MF-15 is initially very tight. Although the programming plug may feel like it is fully seated, You may need to use a bit more force the first few times the jack is used. The difference between working and failing is only a matter of a few thousandths of an inch.
- If the assigned COM port is not showing in the config software, it can be manually entered, or the COM port can be changed with Windows Device Manager.
- Disabling the FIFO buffer in the Com Port settings may allow more reliable reading and writing of configurations.
- The MF-15 is not water tight, it is especially vulnerable to taking on rain water through the switch hole. In some cases, users have used silicon sealer to help make the unit more resistant to wet weather.
- Hams actively involved in “Fox Hunting” will often repackage the MF-15 into a more covert enclosure.
- We recommend leaving a note with the MF-15 identifying the transmitter as an Amateur Radio, and listing a contact telephone number. These days, your transmitter may cause undue alarm if found by a member of the public and outside agencies contacted.
- Depending upon how often the device transmits, and how long the duration of the transmission, a nine volt battery can provide many hours of operation, but the unit is not limited to just using nine volt batteries; You can operate the device with battery power between 9-14 volts without any problems.
- Your choice of antenna directly affects the detectable range of the transmitter, and you may find that SMA stub antennas designed for 2.4 GHz transmitters or other electrically short transmitters can reduce the range if you so desire. There is no danger to the MF-15 from using a poorly matched antenna.

- The MF-15 can be programmed to automatically start immediately upon powering the unit, but a delay may also be programmed to allow the hider's to avoid being spotted.
- The LED may be turned off in the configuration program, to avoid making it too easy to spot. In this case, you cannot depend on it as a "power-on" switch indicator. The LED in the MF-15 was by intention, designed to be very faint, and may be hard to see in direct sunlight.
- The firmware in the MF-15 can be user updated and a serial GPS receiver can be added to convert it into a low power APRS transmitter suitable for a high altitude balloon. Contact Byonics for details.

