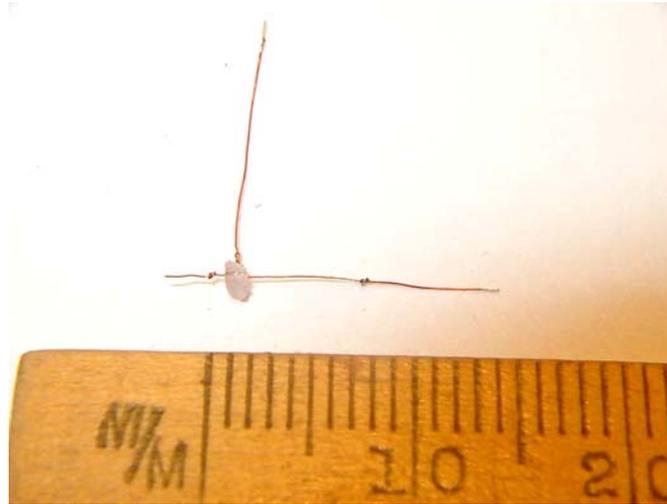


## The 2mg "Wire Switch"

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October 2005



The "wire switch" is for use with very lightweight equipment where weight is at a premium.

The switch is built on a 1mm x 1mm x 1mm cube of silicone rubber, with two pieces of 38 awg insulated magnet wire – see the Figure on page 2.

The two pieces of wire are called the "loop-wire" and the "straight-wire". The loop-wire passes through a hole in the block of rubber, loops back and is twisted on itself to compress the rubber block. The straight-wire goes through the same hole in the block, under the loop-wire. The part of the loop-wire inside the block is stripped of insulation. A short length of the straight-wire is also stripped.

The idea is that the rubber block provides pressure to hold the two wires together. When the straight-wire is pulled through the block to the stripped part, the switch turns on. There are knots in the straight-wire to limit its travel.

The stripped parts of each wire can be created by holding the wire in a blob of solder on a hot soldering iron, at least 650 degrees F (350 degrees C), for about 3 seconds. This also tins the wire.

The tinned part of the loop-wire is burnished to make it smooth and less likely to wear through the insulation of the straight-wire. In practice one of these switches has been turned on and off about a hundred times and the insulation is still holding up. Nevertheless, when leaving a plane for several days it may be a good idea to un-solder the battery lead.

A number of receivers use a common "+" connection point for battery "+" and motor "+", and separate connection points for receiver "-" and motor "-". The switch can conveniently accommodate this convention by wiring it as shown in the diagram, thereby using virtually no more wire than would be used anyway. In this configuration, the block slides along the straight wire. A pair of tweezers makes this easier, though it can be done with a fingernail.

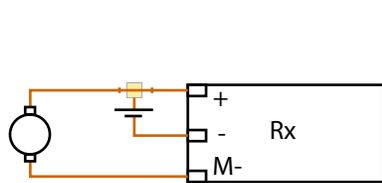
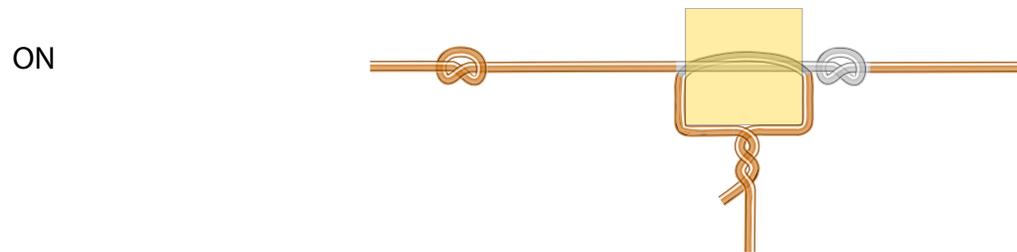
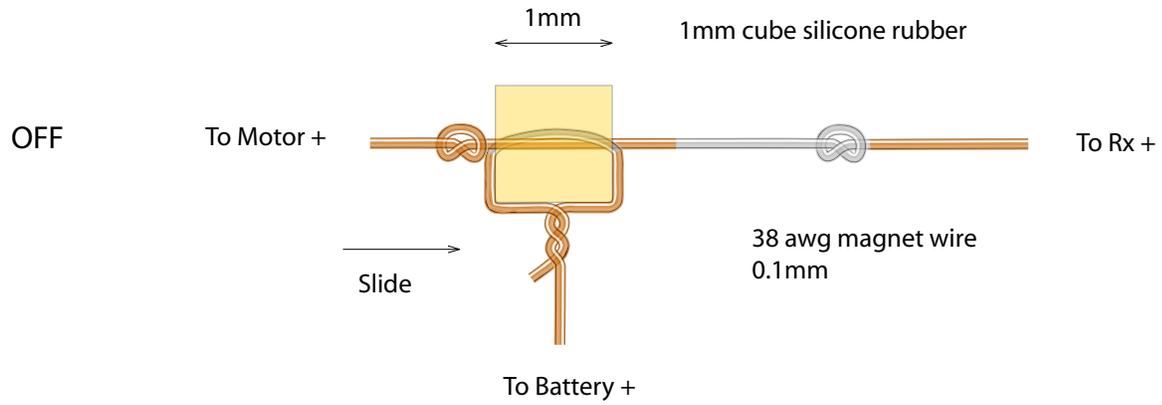
Given this setup, the incremental weight of the wire switch is less than 2mg, though the wire is very light anyway.

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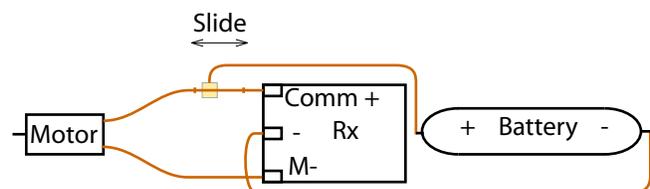
# The 2mg Wire Switch

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Schematic



Physical Layout