BirdBrain Mk1 User's Manual

Description

The BirdBrain is an electric motor timer meant for small pager type motors and single cell lithium-polymer cells. The timer can be set from 4 to more than 1000 seconds in 4 second steps, it has low battery detection, prop strike safety stop and two flight modes. The best match for this timer are 6mm pager type motors, but it can drive any DC motor at up to 3A.

Turning on the timer

Connect the battery to the timer, the status light should turn on for a second and then start blinking every second. If not disconnect the battery immediately and make sure the polarity is correct. If the light turns on for a second and then stays off the battery charge is equal or less than 3 volts and it should be recharged to prevent damage to it.
The status light will show what flight mode is selected, if the timer is set to Mode 1 (full power mode) it will blink once per second, if it is set to Mode 2 (Discharge power mode) it will make two rapid, consecutive blinks every second.

Setting the run time.

To set the timer run time press and hold down the control button for at least 2 seconds, after that the status light will blink once per second, every time the light blinks 4 seconds will be added to the flight time. For example, pressing and holding the button for 5 seconds (5 light blinks) will set a run time of 5x4 seconds, 20 seconds. You should release the button after the desired count has been reached, now the run time has been set and will remain on the timer memory even if the battery is disconnected.

Setting the run mode

The mode select switch changes between two flight modes, Mode 1 is the Full Power Mode, the motor will run at full power during the whole run time. Mode 2 is the Discharge Power Mode, the motor will start at 100% power at the start of the motor run and throttle down to about 60% power by the end of the time set.

Starting the timer run

To start the timer double click on the control button, two clicks within one second. The Status light will flash back the time set for the run divided by 4, for example, if the time set was 20 seconds it will blink 5 times.
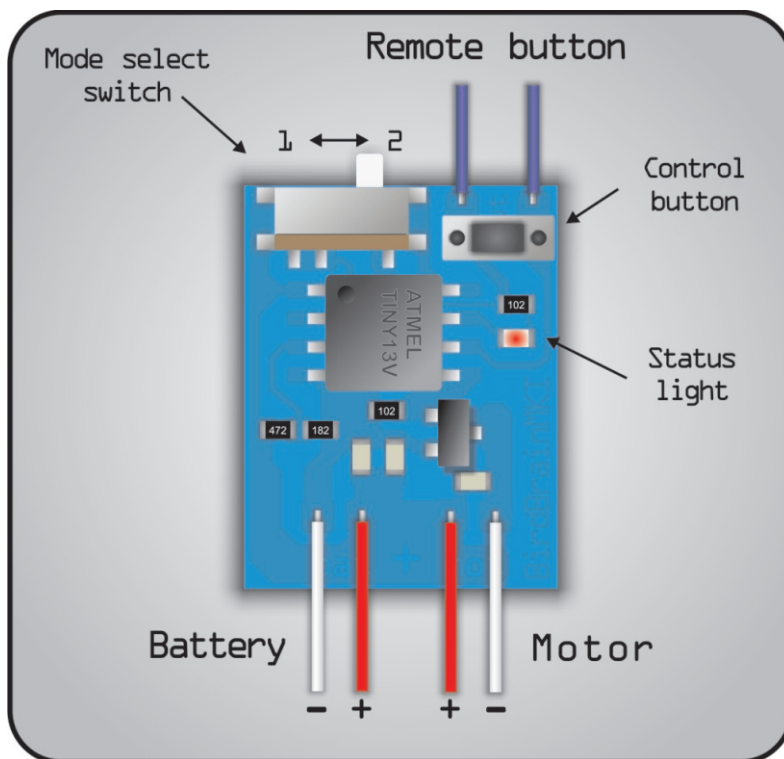After the status light flashes the run time the motor will be soft started ramping up from 0% to 100% power in two seconds. The motor will run for the lenght of the time set and in the last second it will perform a soft stop.

Stopping the motor

At any point of the motor run a single click on the control button will stop the motor immediately.
If during the motor run the battery voltage drops bellow 3 volts the motor will be stopped and the timer go into sleep mode; the same will happen if the motor is stalled although with some small (i.e. 4mm pagers) this may not be reliable.

Sleep mode

If the timer is not used for more than 45 seconds or the battery discharges bellow 3 volts the timer will go into sleep mode, to wake it up either change the battery or click on the control button. Sleep mode does not disconnect the battery, the timer will still consume about 1.5 mA of current, so a battery should not be left connected when the timer is not in use.

BirdBrain Mk1 diagram