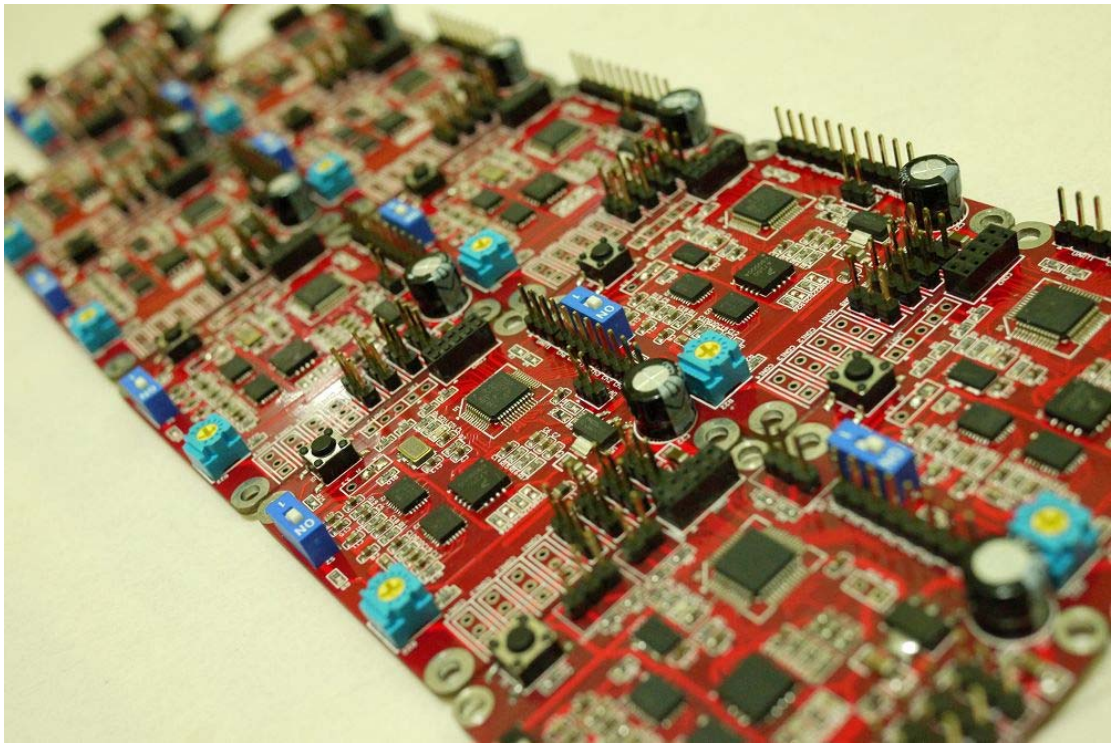
Multi-Rotor Copter
Flight Controller Manual



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A Note on Safety 安全注意事项

If you never fly any radio control helicopter before your live, you should practice on a RC-simulator first! Even if the copter is auto-stable, there are always situations where you quickly have to react in the right way.
如果你从未飞过任何遥控直升机，你应该先从模拟飞行器开始玩起! 即使直升机有自动稳定功能，但仍然有一些特定状况需要快速反应的经验。

This is not a toy, but it can give you a lot of fun.

这不是玩具，但是它可以给你带来许多乐趣。

Introduction 简介

A multi-rotor copter is a remote controlled vehicle that utilizes several motors to provide lift and control flight. The flight controller board have gyroscopes(measuring angular velocity) and accelerometers(measuring accelerations, or gravity), this sensors could help pilot to stabilize the inherently unstable vehicle, like multi-rotor copter. The pilot can control the multi-rotor copter with a remote control, roll, pitch, throttle and yaw are controlled via 2 sticks on the remote control, hence a 4-channel transmitter & receiver is needed.

多旋翼机是一个遥控操纵的飞行器且利用多个马达提供其升力与控制飞行。飞行控制板上有陀螺仪(测量转动速度)和加速度计(测量加速度或重力)，这些传感器可以帮助飞行员稳定一些先天不稳定的系统，如多旋翼机。飞行员可以利用遥控器来控制多旋翼机，滚转、俯仰、油门和航向可以通过在遥控器上的两只摇杆来操控，因此至少需要四通道的遥控器与接收机。

Installation and Building 安装与配置

- **Vibration 震动**

The AQ50d flight controller utilizes extremely sensitive gyroscopes and accelerometers to measurement motion of a multi-rotor copter. In order to make the flight performance better, therefore, some anti-vibration mounts is needed.

AQ50d 飞行控制板使用极为敏感的陀螺仪与加速度计来量测多旋翼机的运动。为了让飞行性能更好，因此使用一些避震装置是必要的。

- **Transmitter 遥控器**

The transmitter used to control a multi-rotor copter motion, the four controls are the sticks on the transmitter that control the Roll, Pitch, Throttle, and Yaw, hence a 4-channel transmitter is needed.

遥控器可用来操控多旋翼机的动作,有四个主要操作位于遥控器上的摇杆用以控制滚转，俯仰，油门和航向，因此四通道的遥控器是必要的。

Transmitter Parameter settings 遥控器参数设置

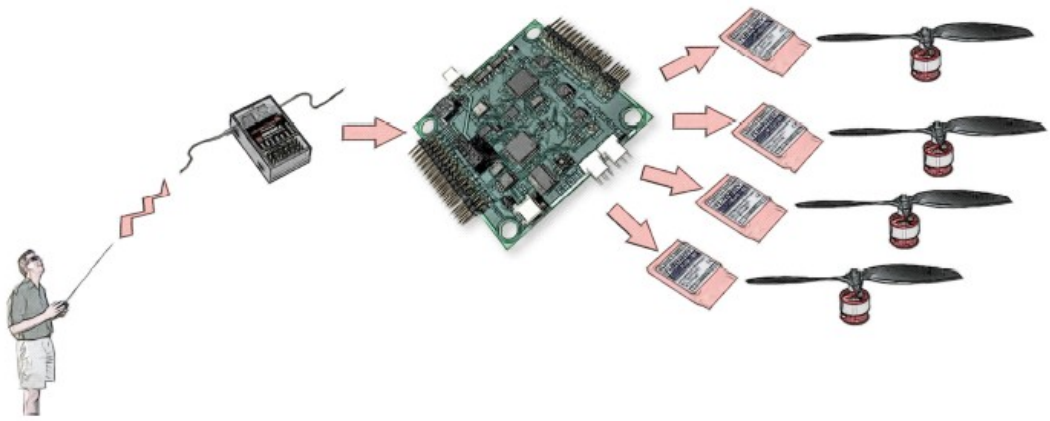
	Ch1 Aileron 副翼	Ch2 Elevator 升降舵	Ch3 Throttle 油门	Ch4 Rudder 方向舵
JR/Spektrum/HiTec /WFLY	Normal	Normal	Normal	Normal
Futaba	Reverse	Reverse	Reverse	Reverse
Trims Sub Trims	Centered 中立点			

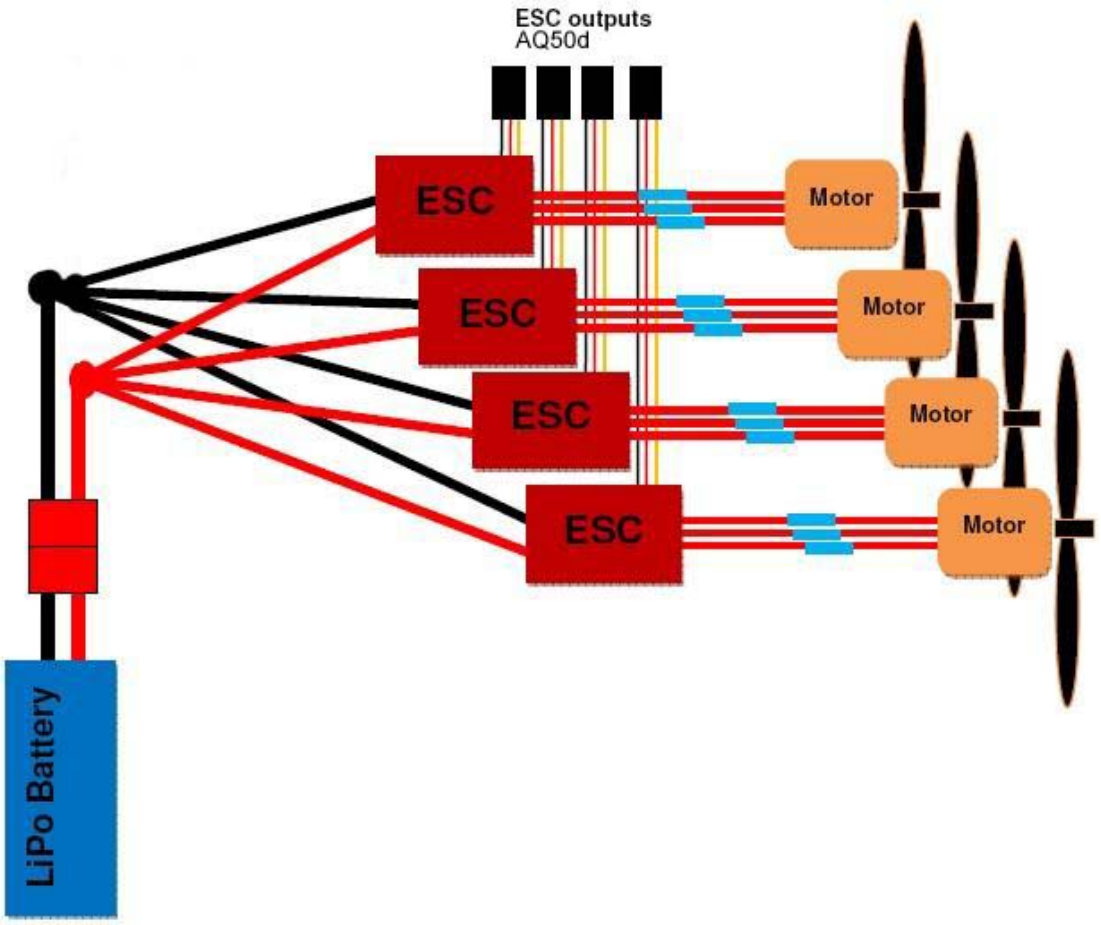
- **Electronic Speed Controllers(ESCs) 电子调速器**

There are many different commercial ESCs can be use with multi-rotor copter. As a result, it is impossible to provide a specific description of the set-up and calibration steps required, but the basic throttle calibration is necessary.

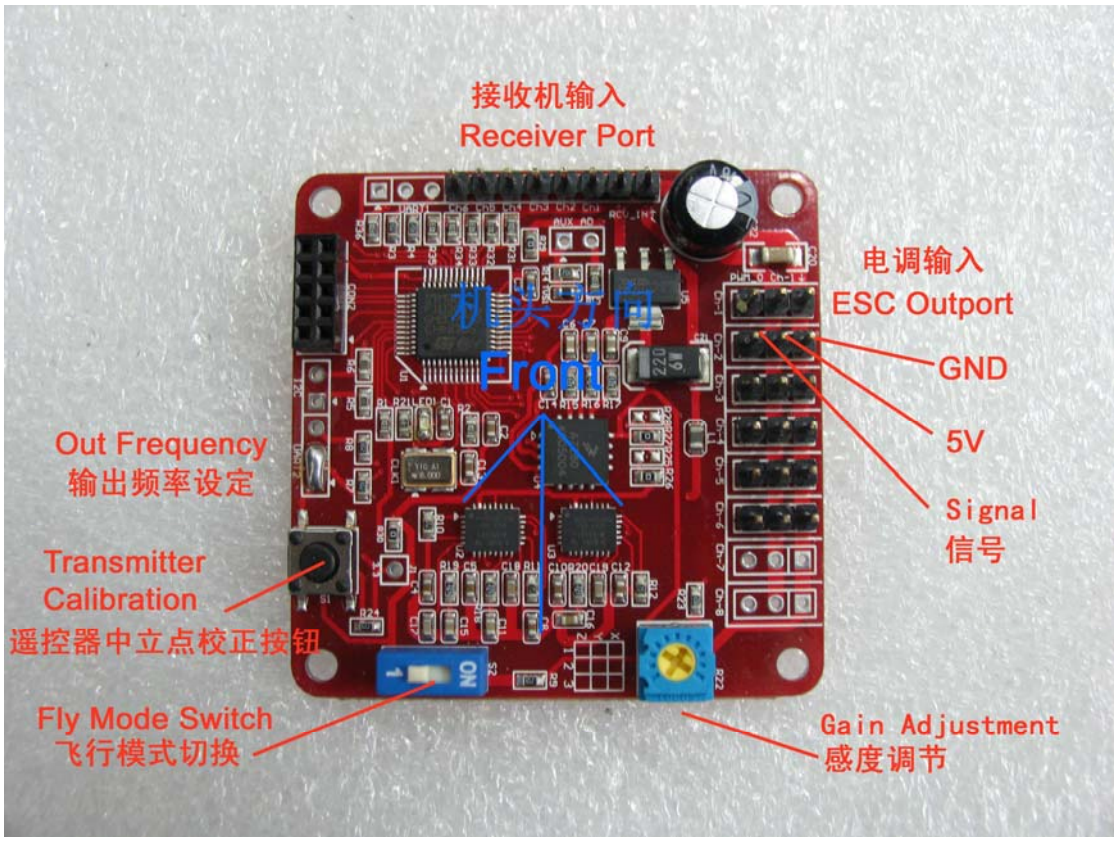
有许多不同种类的商用电子调速器可以用于多旋翼机。基于这个理由，不太可能提供一个具体的设定与校正步骤，但是最基本的油门校正是必须的。对所有用到的电子调速器逐一校正油门行程。

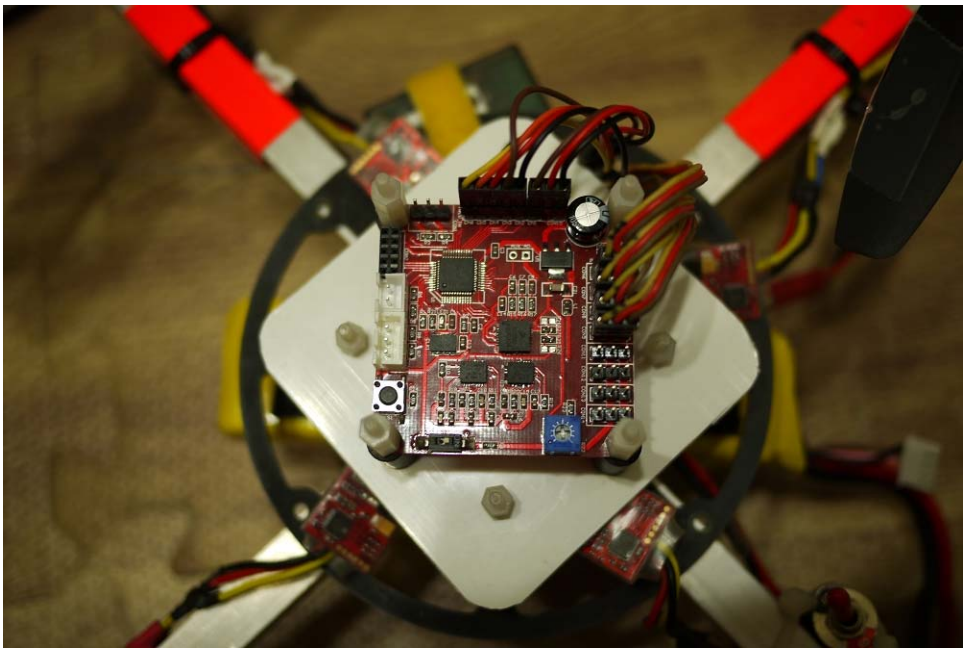
- **System Layout 系统布线**




ESC outputs
AQ50d
ESC
ESC
ESC
ESC
Motor
Motor
Motor
Motor
LiPo Battery

- **Flight controller board** 飞行控制板



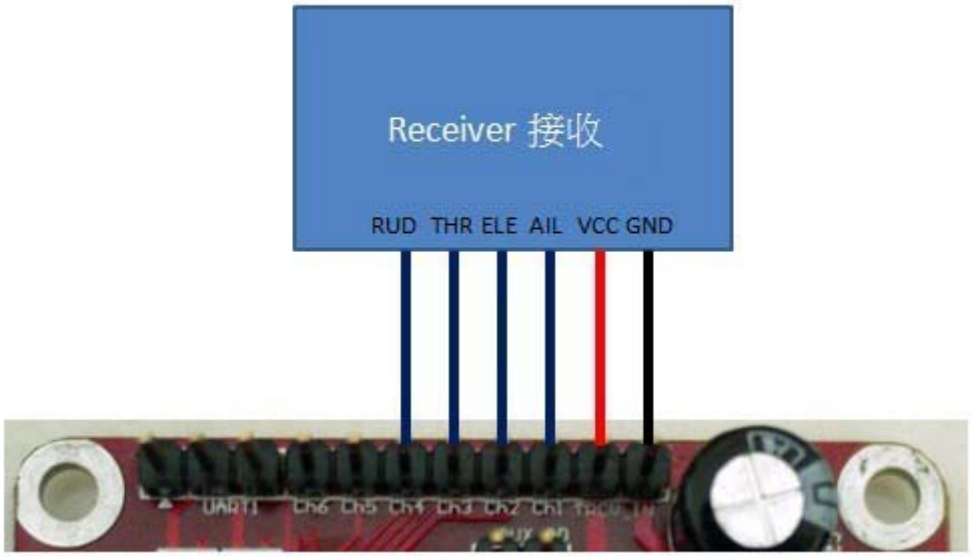


- **Flight Mode Switch** 飞行模式切换开关

Left 左　　Right 右

Version 版本	Left 左	Right 右
Quad 四旋翼 +4/X4		
Hexa 六旋翼 +6/X6		
Quad-Hexa 四/六旋翼 X6/X4		
Y4/Y6 Y 型四/六旋翼		

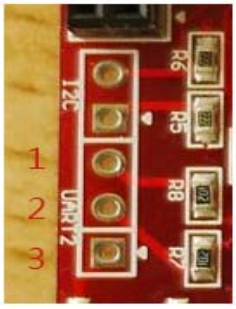
- **Receiver 接收机**



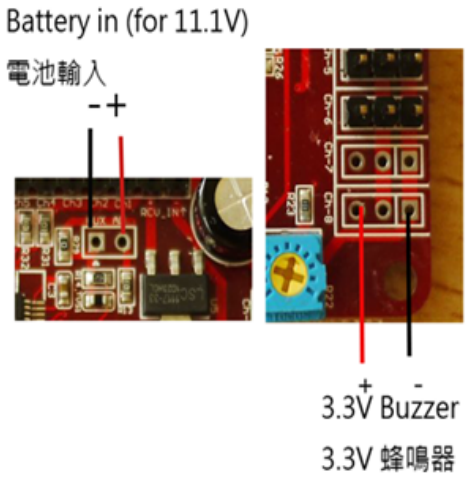
- **Output Frequency** 输出频率

1-2 short circuit -> 400Hz
2-3 short circuit -> 250Hz

1-2短路 -> 400Hz
2-3短路 -> 250Hz



- **Low Voltage Warning** 低电压报警（对 3S 电池有效）



Operation 操作

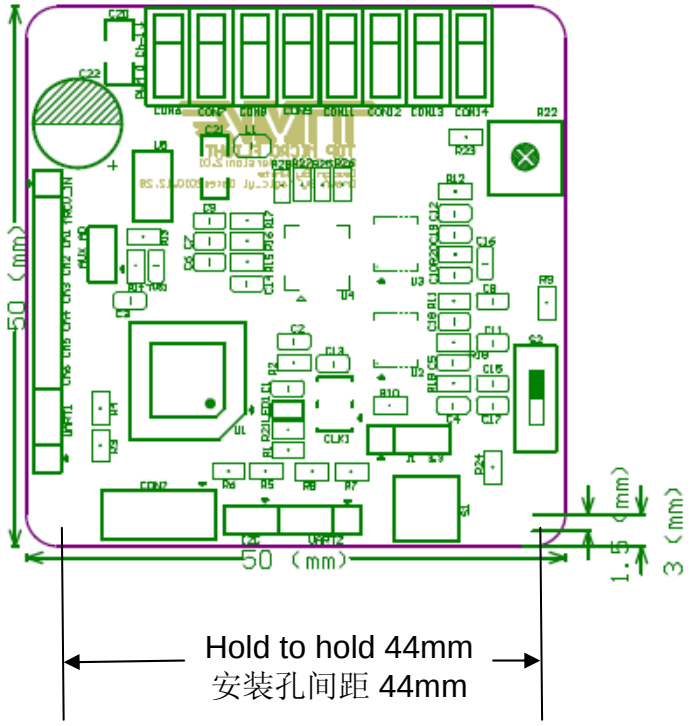
Quick Start Flight Step 快速开始飞行步骤

1. Power on, then the blue LED light will bright.
   上电，然后蓝色 LED 灯会亮起。
2. Calibration your transmitter if you first time uses this flight controller board. To maintain your stick on the center, throttle move down, press and hold on the calibration button, wait the LED light relight.(If you change your receiver, you must do this step again)
   如果你是第一次使用，你必须校正你的遥控器。保持你的摇杆于中立点，油门移到最小，按住并保持校正钮，等待 LED 灯再次变亮。(如有更换接收机，你必须再次执行此步骤)
3. Calibration flight controller board sensor. Put down your vehicle one the level ground, then move the throttle up and rudder left, wait the LED light relight, then back to initial position.
   校正飞行控制板传感器。把你的飞行器置于水平地面，油门移到最上且方向舵移到最左，等待 LED 灯再次亮起，然后游戏杆回到原来位置。

4. Tune the gain, clockwise smaller gain value, counterclockwise larger gain value.(Only in motor stop mode can be change gain, in motor idel mode will lock the gain value)
   调整增益值，顺时针转动增益值变小，逆时针转动增益值变大。(只有在马达停转模式时才能改变增益值，在马达怠速模式下将会锁定增益值)
5. Start your motor into motor idle mode. Throttle move down and rudder move right, then you will be able to begin to enjoy the flight.
   启动你的马达进入怠速模式。油门移到最下且方向舵移到最右，然后你将可以开始享受飞行。

6. Stop your motor. Throttle move down and rudder move left.
停转你的马达。油门移向最下且方向舵移到最左。

Appendix 附录



购买方式：

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http://www.aliexpress.com/fm-store/204653

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