

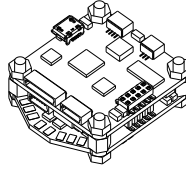
Raptor 390 Tower



感谢您使用本产品！本产品功率强大，错误的使用可能导致人身伤害和设备损坏，强烈建议您在设备前仔细阅读本说明书并保存，严格遵守规定的操作程序。我们不承担因使用本产品或擅自对产品进行改造所引起的任何责任，包括但不限于对附带损失或间接损失的赔偿责任。我们有权在不通知的情况下变更产品的设计、外观、性能及使用要求。

01 主要特性

- 电调采用功能强大C8051F390 MCU，8位C8051核心，工作频率高达50MHz；
- 电调采用专用的三合一驱动IC，反应更快，体积更小更轻。电调支持最高40万转速；
- 极筒的两层塔式结构；电调和飞控之间采用快捷式插针连接，最大程度降低信号传输所产生的干扰使飞行更稳定。让整机重量更轻，安装更快，更方便；
- F3飞控，支持PPM、PWM、SBUS等主流遥控/接收模式；
- 飞控集成OSD，并且集成5V、12V 以及电池电压(BATV)，方便给图传、摄像头、蜂鸣器、LED灯等外设供电；所有接插头均配有连接线，给您前所未有的安装体验；
- 使用BLHeli开源程序；默认Damped light模式，效率更高，显著提升油门响应速度。油门从大到小变化时，电机减速响应更加迅速，多旋翼稳定性和灵活性得到显著加强，特别适合穿越机使用；
- 电调上电自动检测油门信号，支持普通油门模式1-2ms的脉宽输入，oneshot125(125-250us)，oneshot42(41.7-83.3us)和multishot(5-25us)。



02 产品规格

型号	持续电流	瞬时电流(10S)	BEC	锂电池节数	重量	尺寸(供参考)	典型应用(供参考)
Raptor 390Tower-20A	20A	30A	No	2-4S	19.5g	41.5x36x15.1mm	130-330多旋翼
Raptor 390Tower-30A	30A	40A	No	2-4S	19.5g	41.5x36x15.1mm	170-450多旋翼

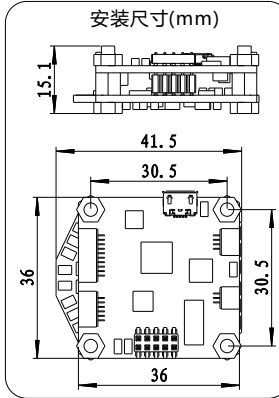
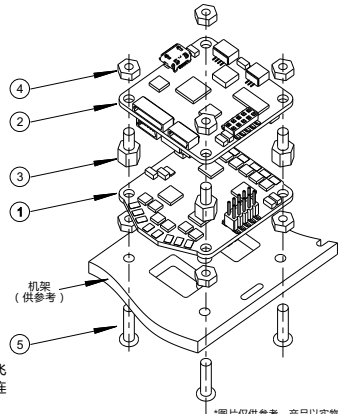
*Raptor 390Tower 电调使用的BLHeli固件为Flycolor Raptor390 20A Multi；飞控使用的是SPRACINGF3；请联系Flycolor以获取更多信息。

03 元件清单/安装尺寸

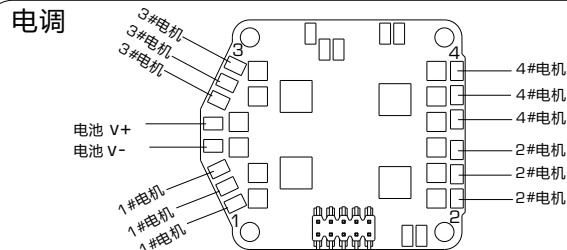
序号	描述	数量
①	猛禽390四合一电调	1
②	飞控	1
③	尼龙支撑柱 M3*5+6	4
④	尼龙螺母 M3	8
⑤	尼龙螺钉 M3*12	4

为实现快速安装，额外提供了：
 一根10Pin线束（10p SH1.0端子），用于PWM或者PPM接口；
 一根3Pin线束（4p SH1.0端子），用于SBUS接口；
 一根6Pin线束（6p SH1.0端子），用于LED及蜂鸣器。
 三根4Pin线束（4p SH1.0端子），用于不同的图传
 两根3Pin线束（3p SH1.0端子），用于不同的摄像头；

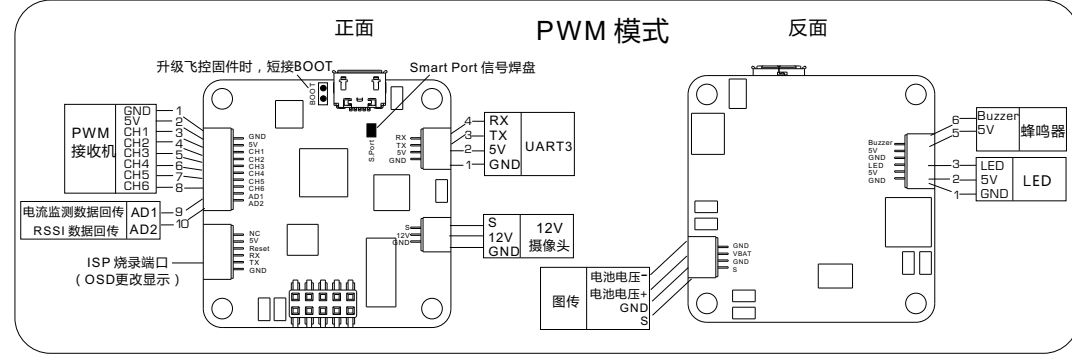
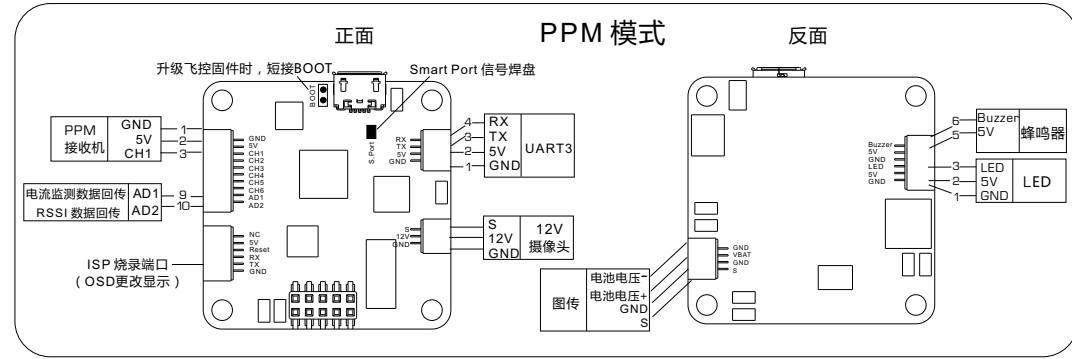
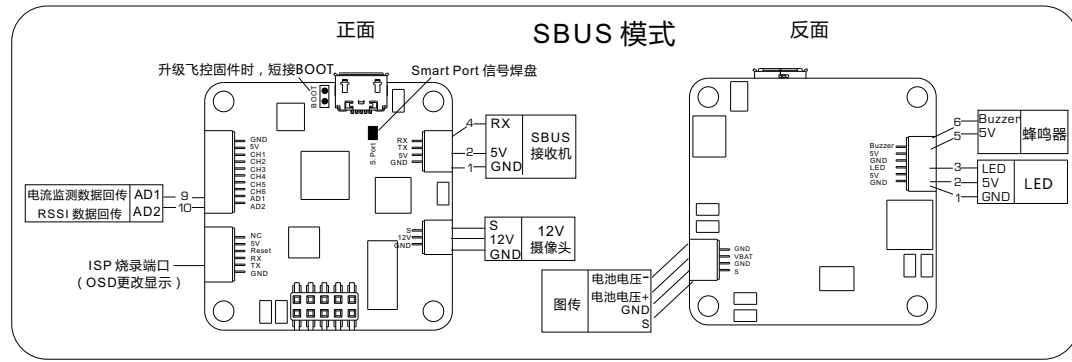
注意：对于快速安装线束，连接前务必确认您设备接口的线序与飞控接口的线序是对应的关系。如果您的图传或摄像头不适用配件连接线的端子，请改装连接线以适用于您的设备。



04 电调及飞控连线示意图



- 所有焊接要求良好的焊接技术，任何时候都需要避免因焊接而造成元件或线材之间短路；
- 为避免短路和漏电，请确保连接处绝缘良好；
- 接电之前务必再次检查极性是否正确；



05 注意事项

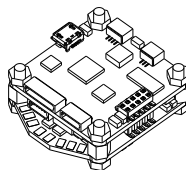
- 首次使用无刷电调或更换遥控设备后需要进行油门行程校准；
- 使用BLHeli开源程序，当电机出现异常或者要求达到更高转速时，可尝试更改进角参数；
- 可通过飞控连接BLHeli调参软件(BLHeliSuite)升级最新版本BLHeli开源程序；
- 无论任何时候都要注意极性，供电之前一定要反复检查。
- 在插拔或者做任何连接时，请关闭电源。
- 5V 12V只能用于低功耗设备（5V最大1A, 12V最大500mA, 12V只建议用于摄像头）。
- 可以做一些减震措施尽量避免震动，因加速度计/陀螺仪对震动很敏感。
- 飞控要远离一切磁性材料。
- 如需更多信息，请联系飞盈佳乐售后或者技术支持。



Thank you for using our product. Any improper operation may cause personal injury damage to the product and related equipments. This high power system for RC model can be dangerous, we strongly recommend reading the user manual carefully and completely. We will not assume any responsibility for any losses caused by unauthorized modifications to our product. We have the right to change the design, appearance, performance and usage requirements of the product without notice.

01 Main features

- Using C8051F390 MCU, pipelined 8-bit C8051 core with 50 MHz maximum operating frequency;
- Using dedicated 3in1 drivers, faster response, small size&lighter in weight. ESC maximum speed is limited to 400k eRPM;
- Two layers tower structure between the 4in1 ESC and FC with quick pin connection. The interference caused by the signal transmission is reduced to the maximum extent, and the flight is more stable, make the whole weight lighter, and the installation is faster and more convenient;
- Standard F3 flight controller, Supports PPM, PWM and SBUS remote control / receiving mode;
- FC integrated OSD, also integrated 5V, 12V, and battery voltage (VBAT), Easy power supply to Image transmitter, camera, buzzer, LED and other peripheral; Provided all kind of cables for connectors on FC, to give you an unprecedented experience of installation;
- Use BLHeli open-source firmware; Using "Damped light" mode, it improves the throttle response, when reducing the throttle amount, the Motors slow down rapidly. It strengthens the stability and flexibility of multi-rotors, quite suitable for QAVs.
- Supports regular 1-2ms pulse width input, as well as Oneshot125 (125-250us), Oneshot42 (41.7-83.3us) and Multishot (5-25us). The input signal is automatically detected by the ESC upon power up.



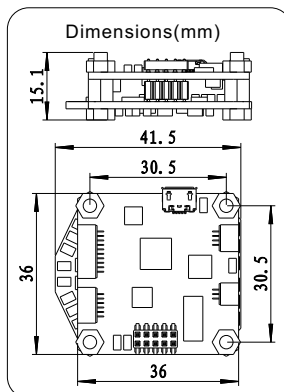
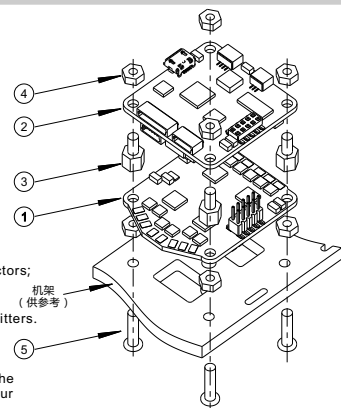
02 Specifications

Model	Con. Current	Burst Current (10S)	BEC	LiPo cells	Weight	Size (For reference)	Typical Applications (For reference)
Raptor 390Tower-20A	20A	30A	No	2-4S	19.5g	41.5x36x15.1mm	130-330 Multi
Raptor 390Tower-30A	30A	40A	No	2-4S	19.5g	41.5x36x15.1mm	170-450 Multi

*Raptor 390Tower ESC is using the Flycolor Raptor390 20A Multi BLHeli firmware ;FC is using SPRACINGF3 firmware; Please contact Flycolor for more information.

03 Part list / Install Dimensions

Item	Description	Qty.
①	Raptor 390 4in1 ESC	1
②	Flight Controller	1
③	Nylon spacer M3*5+6	4
④	Nylon Nut M3	8
⑤	Nylon screw M3*12	4

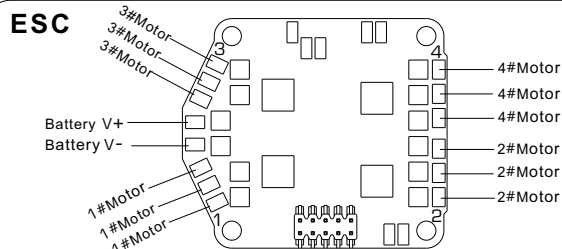


For quick plug, Flight Controller additionally provide: :
 one 10p cable (10-pin SH1.0 terminal) for PWM or PPM connectors;
 one 3p cable (4-pin SH1.0 terminal) for SBUS connector;
 one 6p cable (6-pin SH1.0 terminal) for LED and Buzzer.
 three 4p cables(4-pin SH1.0) for different brand Image Transmitters.
 two 3p cables (3-pin SH1.0) for different brand Cameras;

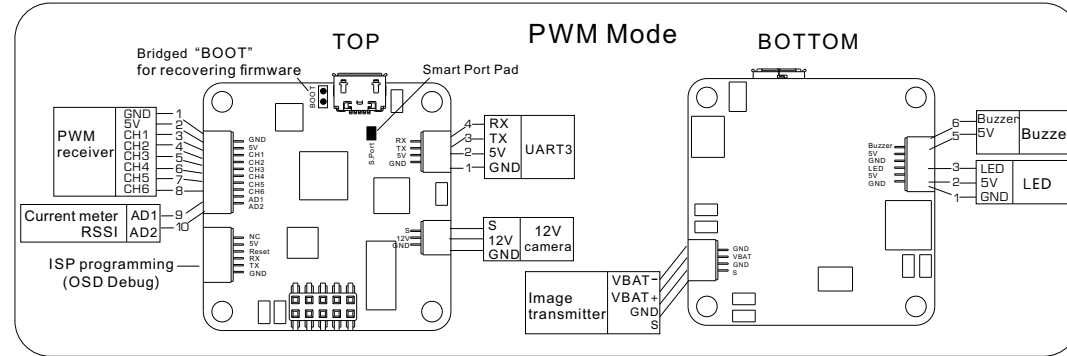
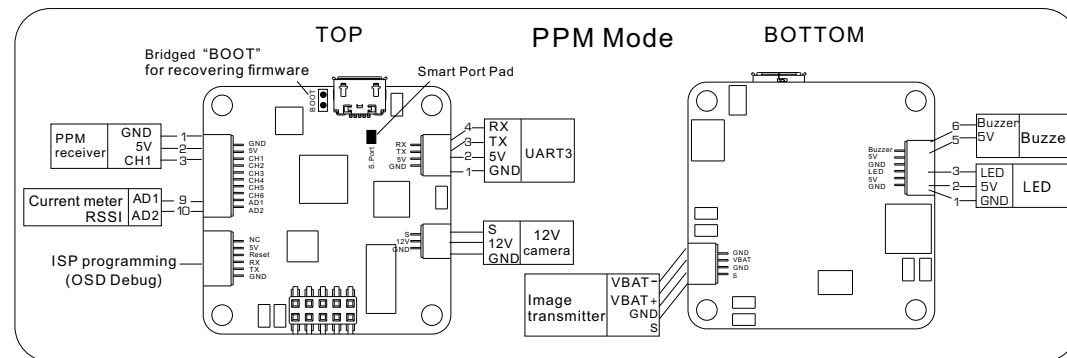
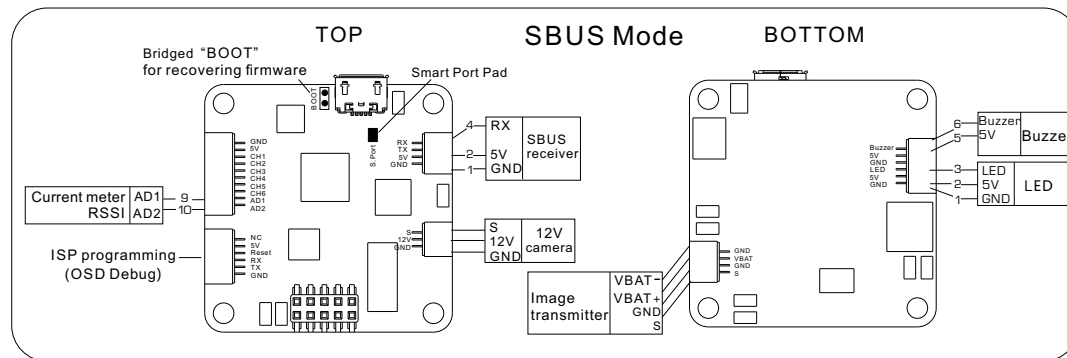
Attention: For these quick plug cables, please confirm the wire sequences on your devices' connector are corresponding with the Flight controller before connecting. If the terminals are not fit your devices, please make a modified connection to fit.

*All pictures are for reference only

04 Connect diagram of ESC and FC



- All welding requires good welding technology, short circuit between the element or the wire should be avoided at any time.
- Please ensure all solder joints are insulated with heat shrink where necessary.
- Please double-check the polarity is correct before power up.



05 Attention

- User need to calibrate the throttle range when starting to use a new ESC or another transmitter.
- BLHeli open-source firmware, when some abnormality occurs in ESC driving the motor or need the motor to reach a higher RPM, user can try to change the timing.
- User also can connect the flight control to the computer to update the firmware or change the setup via configuration software (BLHeliSuite).
- Observe polarity at all times. Check and double check before applying power.
- Power off before unplugging, plugging in or making any connections.
- 5V, 12V supply is for low-current use only(5V 1A MAX, 12V 500mA MAX, 12V is suggested for camera only).
- Keep magnets away from the Flight Controller.
- Do everything you can to prevent vibrations.
- Please contact Flycolor sales or technical support for more information.