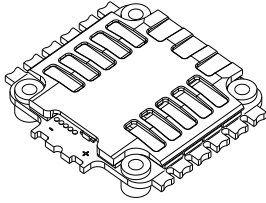# FLYCOLOR®

多旋翼飞行器
无刷电子调速器说明书

X-CROSS
BL-32 4in1 ESC

⚠ **ATTENTION**

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。强烈建议您在使用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。我们有权在不经通知的情况下变更产品的设计、外观、性能及使用要求。
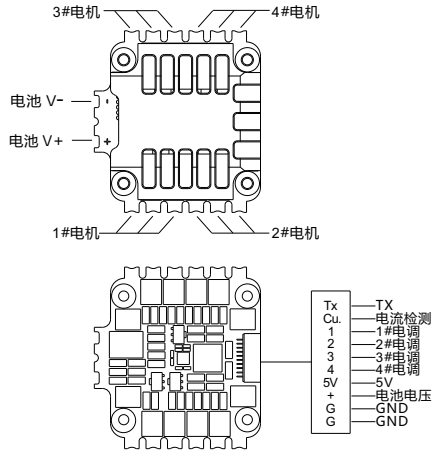
01 产品特点

● ARM 32-bit Cortex 核心MCU，工作频率高达48MHz。
● BLHeli-32 固件，超快响应速度，卓越的性能。
● 内置电流计、内置5V/3A BEC、VBAT电池电压输出。
● 大面积铝合金散热器，有效减缓电调温升。
● 电调上电自动检测油门信号，支持普通PWM油门模式（1-2ms）的脉宽输
　入、Oneshot125（125-250us）、Oneshot42（41.7-83.3us）和
　Multshot（5-25us）。
● 支持所有Dshot数字信号,最高达到Dshot1200。
● Damped light再生制动，使得效率更高，油门从大到小变化时电机减速响
　应更加迅速，稳定性和灵活性显著加强 。
● 支持更大功率负载，适合竞速级多旋翼的暴力飞行。

02 规格参数

●型号:	X-Cross BL-32 4in1	
●持续电流:	45A	60A
●瞬时电流:	55A (10s)	70A (10s)
●BEC:	5V/3A	
●锂电池节数:	3-6S	
●重量:	20g	
●尺寸(供参考):	45x41.5x7.5mm	
●安装孔:	30.5x30.5mm,M3	
●调参软件:	BLHeliSuite32	
●电调固件:	Flycolor_X_Cross_BL_32	
●典型应用:	170-450 多旋翼	

03 连线图

3#电机　　　　　4#电机
电池 V-
电池 V+
1#电机　　　　　2#电机

Tx	─ TX
Cu.	─ 电流检测
1	─ 1#电调
2	─ 2#电调
3	─ 3#电调
4	─ 4#电调
5V	─ 5V
+	─ 电池电压
G	─ GND
G	─ GND

*图片仅供参考，产品以实物为准

04 零件清单

|	
● X-Cross BL-32 4in1	1x
● 硅胶减震柱	4x
● 尼龙螺母 M3	8x
● 螺钉 M3x16	4x
● 尼龙支撑柱M3*6+6	4x
● XT60电源线	1x
● 10P&10P 硅胶线束	1x
● 10P&8P 硅胶线束*	1x
● 电解电容	1x

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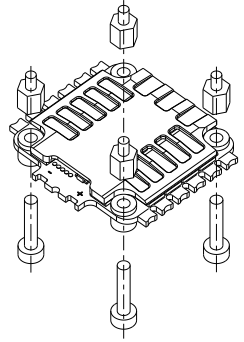
●*10P&8P 硅胶线束，可适用Flycolor X-Tower F4飞控。
● 为加强更好滤波效果，请将配件包中的电解电容，焊接在正负极两端。
● 对于快速安装线束，连接前务必确认线序与飞控接口的线序是对应关系。
　如果不对应，请改装连接线以适用于您的飞控。

05 注意事项

● 每次上电会自动检测输入的油门信号，然后执行相应的油门模式；
● 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；
　Dshot 模式时，将不再需要校准油门；
● 请勿刷写除"Flycolor_X_Cross_BL_32"以外的固件,以免损坏电调；
● 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；
● 请不要超出ESC工作电流范围使用；
● 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；
● VBAT 为电池电压,如果连接至其它设备，务必确认工作电压是否匹配；
● Cu.(Current)为电流检测口，可连接至飞控对应电流检测口；
● 可以做一些减震措施尽量避免震动；
● 如需更多信息，请联系飞盈佳乐售后或者技术支持。

X-CROSS
BL-32 4in1 ESC

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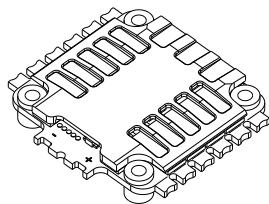
Thank you for using our product. Any Improper operation may cause personal injury damage to the product and related equipments. This high power system for RC model can be dangerous ,we strongly recommend reading the user manual carefully and completely. We will not assume any responsibility for any losses 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.
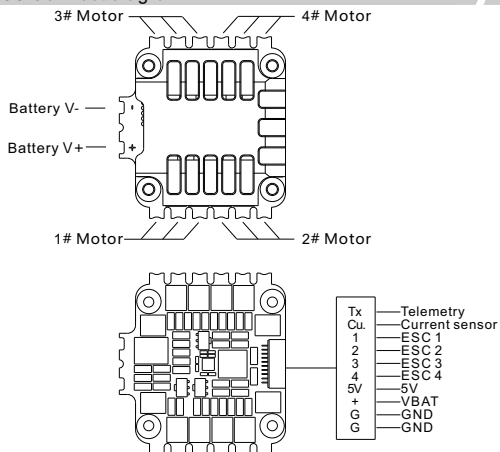
03 Connect diagram

3# Motor   4# Motor

Battery V-
Battery V+

1# Motor   2# Motor

Tx	Telemetry
Cu.	Current sensor
1	ESC 1
2	ESC 2
3	ESC 3
4	ESC 4
5V	5V
+	VBAT
G	GND
G	GND

*All pictures are for reference only

01 Main features

● ARM 32-bit Cortex MCU, frequency up to 48 MHZ.

● BLHeli_32 firmware, which is designed for superior functionality and performance.

● 4in1 ESC built-in current sensor,5V/3A BEC, VBAT output.

● Large area aluminum heat sink can effectively slow down the temperature rise

● Supports regular 1-2ms pulse width input, as well as Oneshot125 (125-250us), Oneshot42 (41.7-83.3us) and Multshot (5- 25us). The input signal is automatically detected by the ESC upon power up.

● Dshot signal is supported at any rate up to at least Dshot1200.

● Damped light does regenerative braking, causing very fast motor retardation, and inherently also does active freewheeling.

● Supports higher power load, more suitable for violent flight of racing drone.

04 Part list

● X-Cross BL-32 4in1   1x
● Silicon rubber spacer   4x
● Nylon Nut M3   8x
● Screw M3x16   4x
● Nylon spacer M3*6+6   4x
● Power cable+XT60   1x
● 10P&10P SH1.0 cable   1x
● 10P&8P SH1.0 cable*   1x
● Low ESR Capacitor   1x

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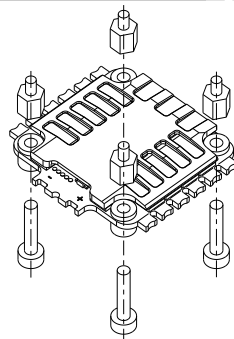
● 10P&8P SH1.0 cable is suitable for Flycolor X-Tower F4 flight control.
● To enhance filter performance , please solder included capacitor to the positive and negative terminals on the ESC.
● Please confirm the pinout and sequences between flight controller and ESC before applying power. Modify as necessary.

02 Specification

●Model:	X-Cross BL-32 4in1	
●Con. Current:	45A	60A
●Burst Current:	55A (10s)	70A (10s)
●BEC:	5V/3A	
●LiPo cells:	3-6S	
●Weight:	20g	
●Size:	45x41.5x7.5mm	
●Mounting:	30.5x30.5mm,M3	
●Configurator:	BLHeliSuite32	
●Firmware :	Flycolor_X_Cross_BL_32	
●Application:	170-450 Multi	

05 Attention

● ESC will automatically detect the input throttle signals every time as soon as it powered on, and then execute the corresponding signal-receiving mode.

● User need to calibrate the throttle range when starting to use a new ESC or another transmitter. When the input signal is Dshot, throttle calibration is disabled.

● Please don't flash any other firmware except "Flycolor_X_Cross_BL _32".

● Observe polarity at all times. Check and double check before applying power.

● Power off before unplugging ,plugging in or making any connections.

● Please do not exceed the current range.

● All welding requires good welding technology, short circuit between the element or the wire should be avoided at any time.

● VBAT is battery output, make sure your device operating voltage is matched if you want to use VBAT.

● Cu.(Current)port can be connect to the port on F.C for current meter.

● Do everything you can to prevent vibrations.

● Please contact Flycolor sales or technical support for more information.