SKYDROID 云卓

S1专业版用户手册

V1.0

四轴（ArduCopter）

泉州云卓科技有限公司

建议：在您阅读本用户手册时，边阅读边操作。您在阅读这些说明时，如遇到困难请查阅**本用户手册**或致电我们售后（ 400-6996-520 ）及云卓微信公众平台，云卓官方群：318480806 查看相关问题问答。

云卓官方群2群

云卓微信公众平台

售后服务条款

1.本条款仅适用于泉州云卓科技有限公司所生产的产品，云卓授权经销商销售的产品亦适用本条款。

2.本公司产品自购买之日起，一周内经我司核实为非人为造成的质量问题，由云卓承担返修产品的往返快递费，购买云卓产品一周以上一年以内经我司核实为质量问题，用户和云卓各自承担寄出返修产品的快递费。

3.返修时需提供购买凭证和保修卡或网络平台交易记录。

4.云卓产品自购买之日起七天内，在正常使用情况下出现非人为造成的质量问题，外观无损坏，凭保修卡及购机凭证在经销商处协商可以免费更换同型号产品；经销商在收到更换产品时烦请第一时间通知云卓公司予以备案更换。

5.云卓产品将由泉州云卓科技有限公司提供终身售后服务， 属于非人为造成的质量问题，一年内免费保修；对于自购买之日起人为的损坏、改装、拆机及超过一年免费保修期的，用户须支付往返邮费及维修费用。

6.为确保您的权益受到保护，并能及时有效的为您服务，请在购买云卓产品时完整填写好保修卡及索要购机凭证。用户享受本售后服务条款必须提供保修卡及购机凭证。

7.返修产品将于云卓公司收到后的 15 个工作日内寄回给顾客，并附上维修报告。

8.以上售后服务条款仅限于中国大陆销售的云卓产品。

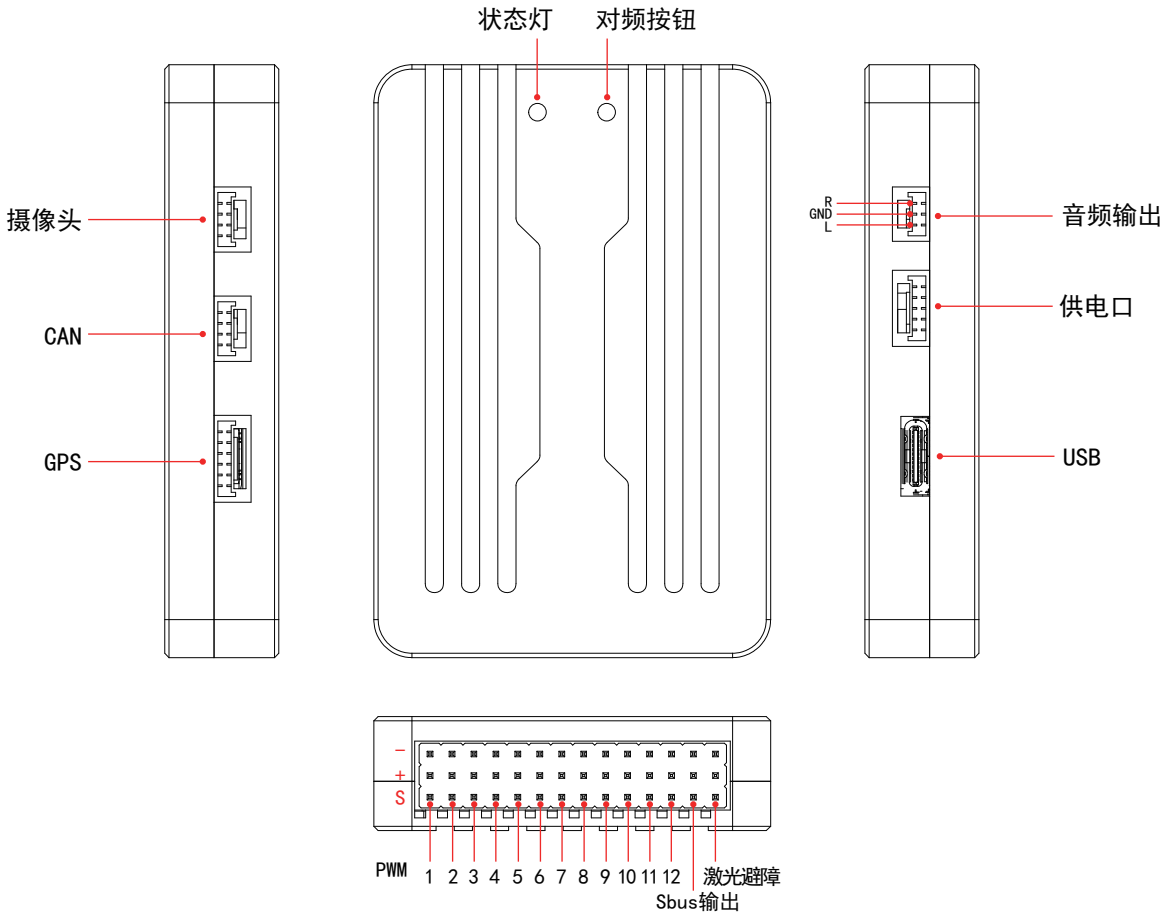
港澳台及海外客户的售后问题发至邮箱 sales01@skydroid.xin，具体售后细则视情况而定。

目录

1、云卓飞控板概览

1.1、部件

1.2、端口和技术参数



S1航电系统		
技术参数		
硬件参数	主处理器	STM32H743
	陀螺仪	BMI088
	电子罗盘	IST8310
	气压计	LPS22HB
	接口	GH1.25
	天线长度	默认30cm、40cm、50cm可选
	PWM输出	12 OneShot/PWM输出（可配置）
	接收机	内置H12接收机
	接收机天线增益	3dBm
	接收机发射功率	100mw/20dBm
	GPS	M8N
	RC OUT SBUS	1
	GPS UART串口	1
	POWER电源口	1
	音频输出口	1
	摄像头接口	1
	CAN接口	1
支持机型	3-8轴	
工作环境及物理参数	POWER输入电压	2s-18s
	USB电压	5V±0.3V
	Servo电压	5V±0.3V
	工作温度	-40~80℃
重量与大小	大小	68*47*13mm
	重量	62g

避障双轴云台	
尺寸	57.5*49*47.1mm
镜头规格	1/2.7 sensor EFL=2.4mm
俯仰角度	100°
横滚角度	40°
像素	200w
录像分辨率	1080p 25fps
图传分辨率	640*360
支持内存卡	16G、32G、64G、128G
视频接口	串口（仅支持云卓接收机）
激光避障接口	串口（仅支持云卓飞控）
重量	51g
测量量程	0.05-20m
测量精度	0.05-2m:±2cm　2-20m:±2%
测量速度	50Hz/100Hz
激光分辨率	1cm
光源波长	750-830mm
工作电压	3.5-5.5V
工作温度	-10~60°C
功耗	60mA@5V

1.3、使用建议

对于初次使用 S1 飞控的用户来说，建议分步骤完成飞控的入门使用：

1、首先安装地面站控制软件，熟悉地面站界面的各个菜单功能；

2、组装飞机，完成动力套的装配；

3、遥控器连接飞控完成罗盘校准和电机校准；

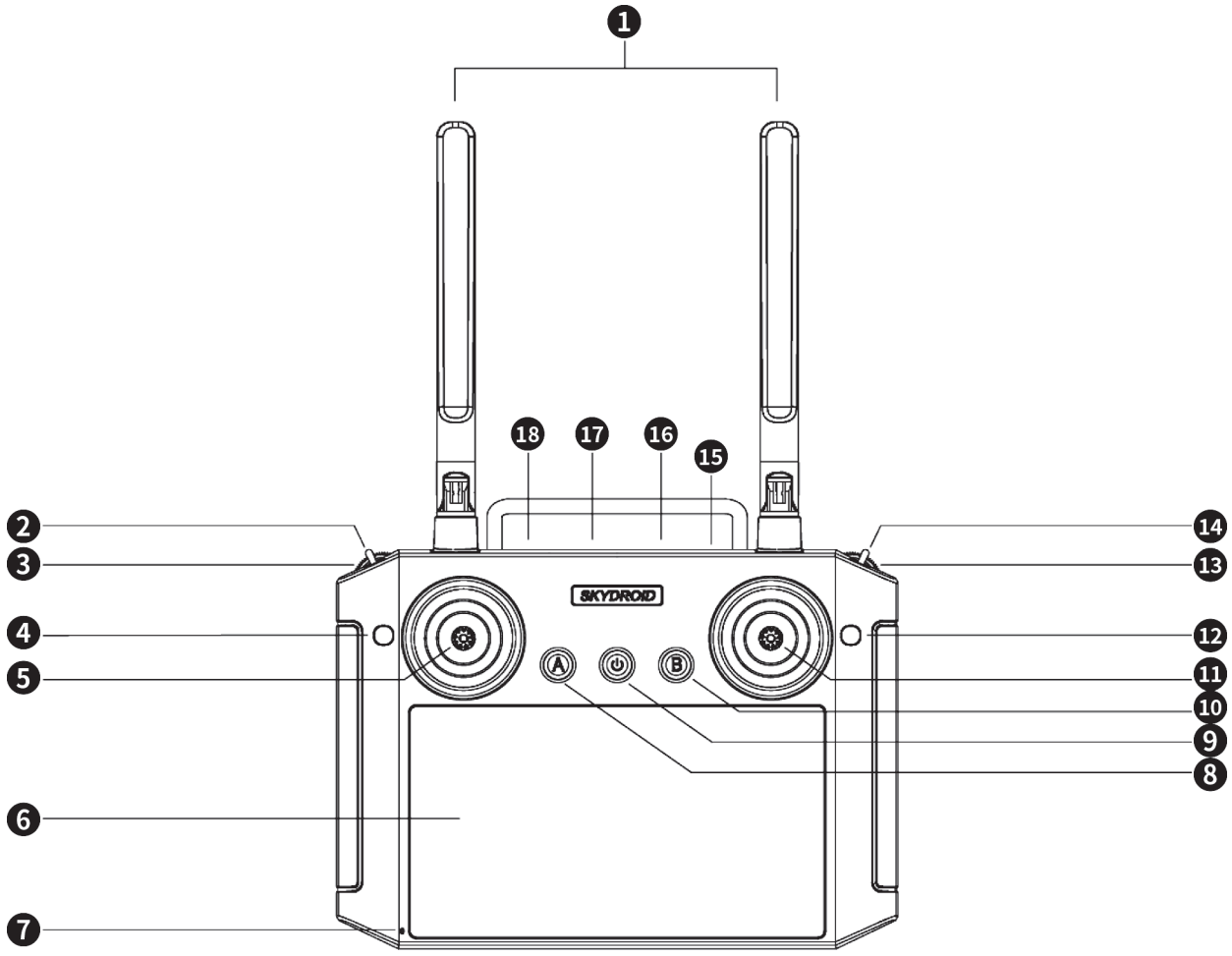
4、检查各类参数设定；

5、第一次解锁起飞；

6、飞控各类高阶应用，辅助通道设置。

2、遥控器概览

2.1、遥控器（美国手模式）



序号	注解	序号	注解
❶	2.4G3dB天线	❿	按键B（暂无功能）
❷	拨动三段开关/飞行模式	⓫	右摇杆X2、Y2
❸	波轮G（暂无功能）	⓬	按键D（暂无功能）
❹	按键C（暂无功能）	⓭	云台控制俯仰
❺	左摇杆X1、Y1	⓮	拨动三段开关（暂无功能）
❻	显示屏	⓯	防尘塞
❼	喊话MIC	⓰	SIM卡接插口
❽	按键A（暂无功能）	⓱	Type-C充电口
❾	开关机按键	⓲	PPM输出/串口线接口

2.2、遥控器功能概述

序号	功能键	功能描述
❺	油门/转向控制杆 （美国手模式）	- 控制杆向上推、飞行器上升 - 控制杆往下拉、飞行器下降 - 控制杆往左打、飞行器往左边旋转
⓫	前进后退/侧飞控制杆 （美国手模式）	- 控制杆向上推、飞行器前进 - 控制杆往下拉、飞行器后退 - 控制杆往左打、飞行器往左边侧飞
❷	飞行模式控制	- 定高模式 - GPS模式 - 返航模式
⓭	云台俯仰控制拨轮	- 控制飞行器云台俯仰角

2.3、遥控器充电

遥控器使用Type-C USB数据线充电，在编号为17的位置。

遥控器充电时间约为2-4小时，充电时遥控器开机图标闪烁，充满后图标熄灭。充满电后使用时长为5-8小时左右。

2.4、遥控器天线角度

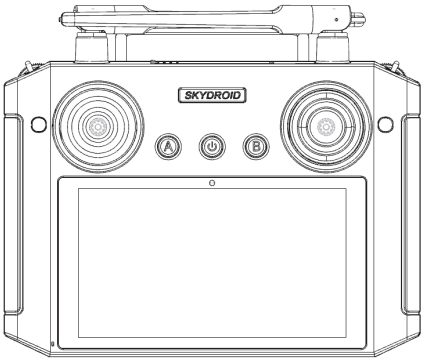
(1)调整遥控器天线角度，尽量正对飞行器飞行方向；

(2)天线相互不要形成遮挡，交叉。

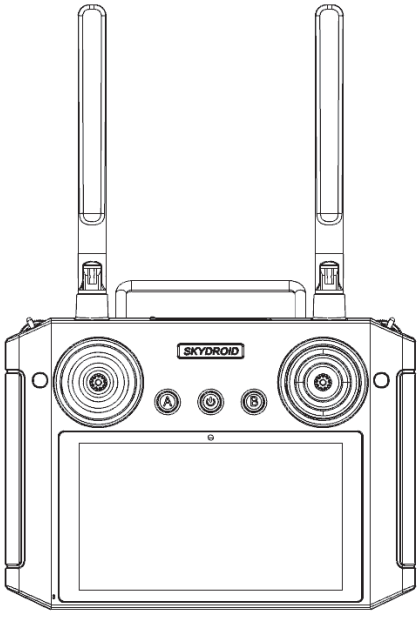
正确操作✓

天线展开并呈45°向上

错误操作X



天线不能交叉

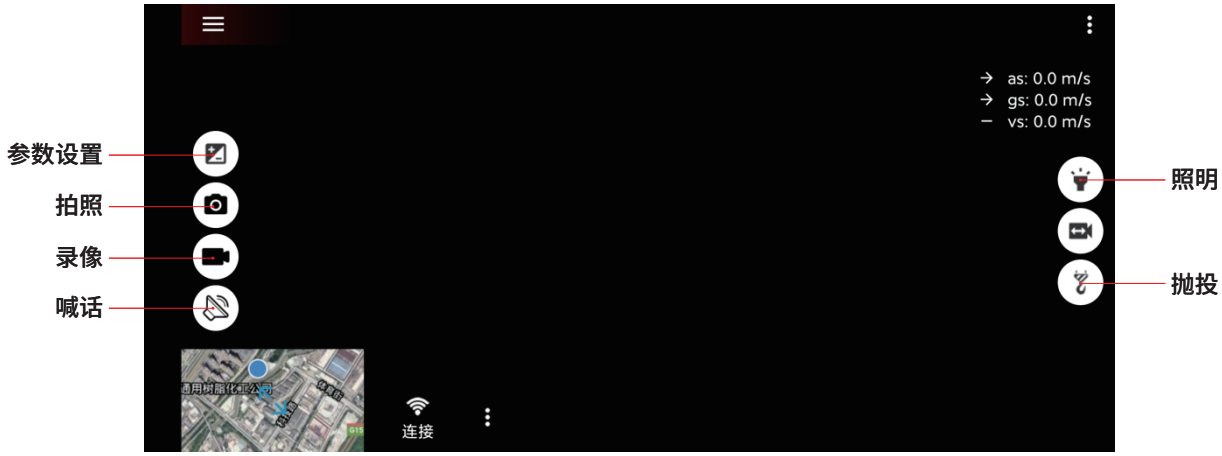


天线不能与遥控器平行

3、Skydroid Fly APP

3.1、需要下载Skydroid Fly APP，请扫描二维码或登录www.skydroid.xin下载。

3.2、APP主页面：



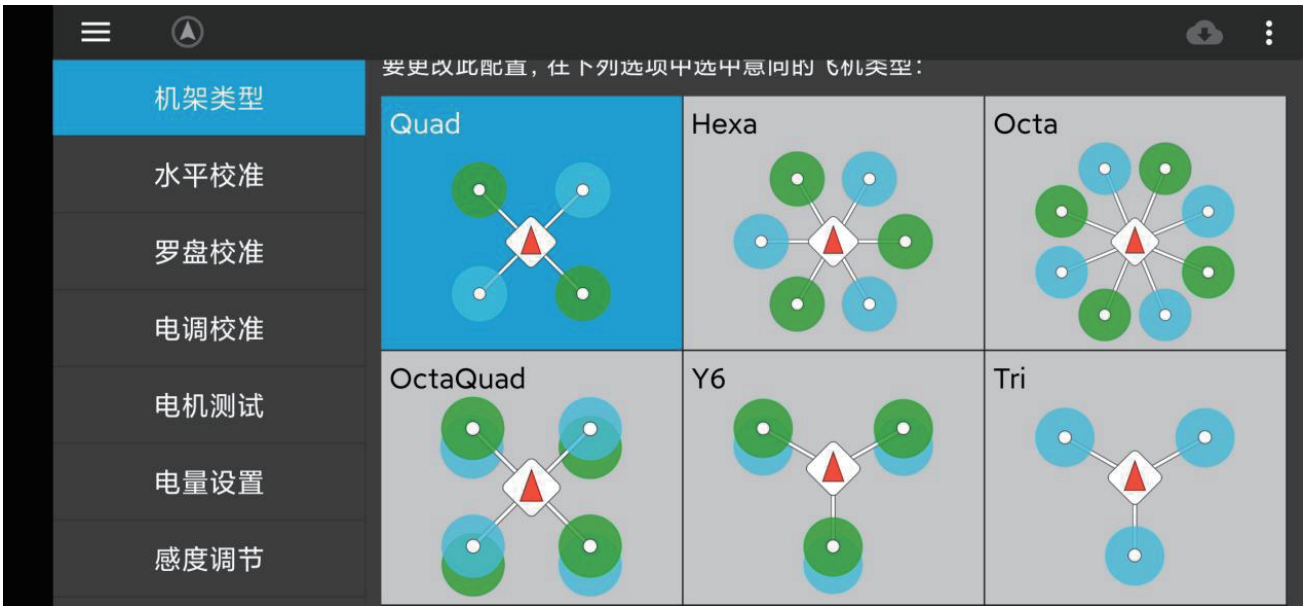
4、第一次接触准备

前期准备工作：正常连接遥控器数传，图传。

初级调参密码999，高级调参密码999999。

首次使用初级调参密码即可。

4.1、机架类型选择



四轴，六轴，八轴，Y6轴，3轴点击图案即可保存机架类型。

4.2、水平校准

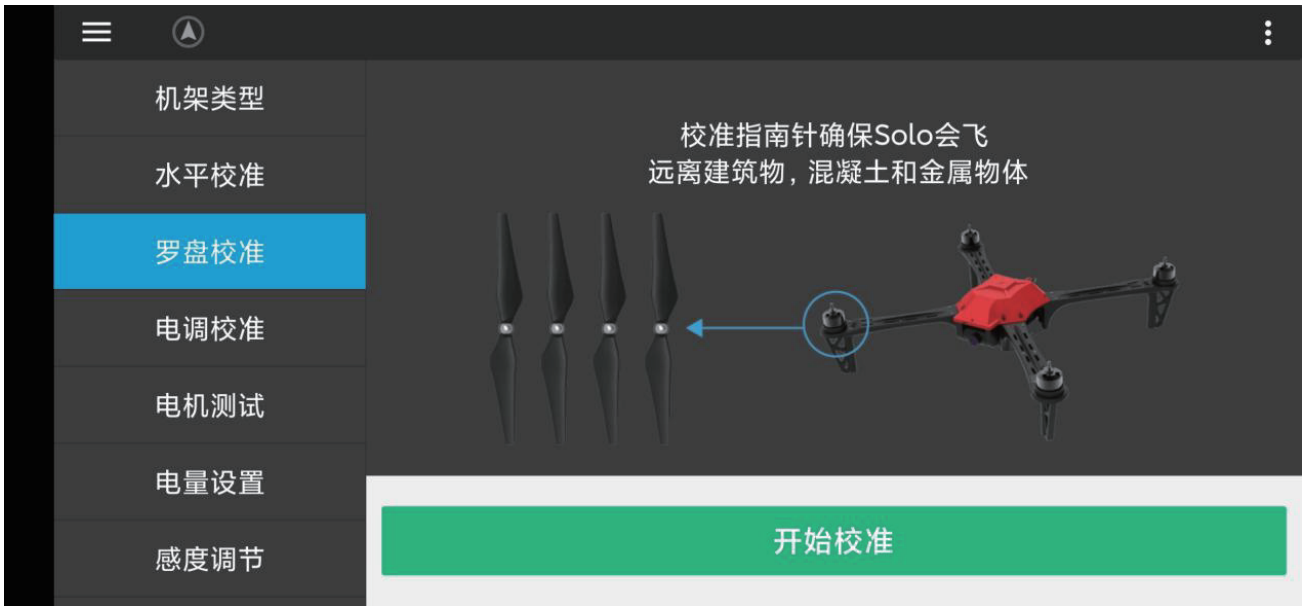
步骤1：将飞行器放到水平的地面上；

步骤2：确保机身水平且无震动；

步骤3：点击（校准），开始水平校准；

步骤4：重新给飞控上电。

4.3、罗盘校准



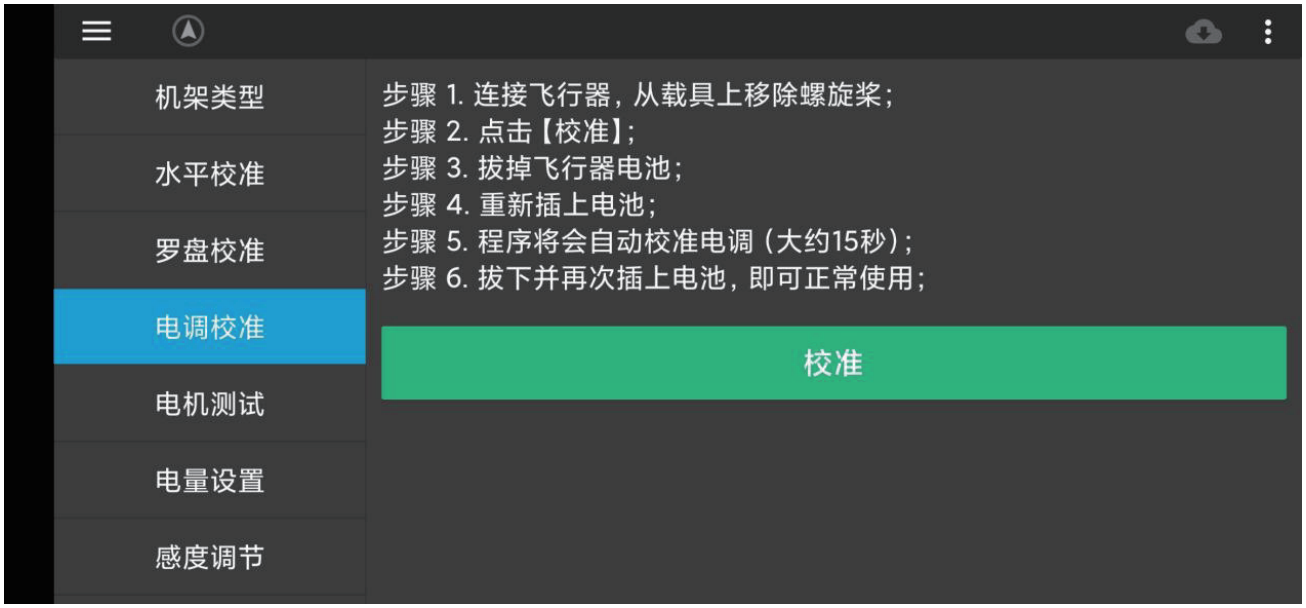
步骤1:点击开始校准;

步骤2:按动画来转动飞机;

步骤3:进度条走动,提示校准完成;

步骤4:重新给飞控上电。

4.4、电调校准



步骤 1:连接飞行器,从载具上移除螺旋桨;

步骤 2:点击**【校准】**;

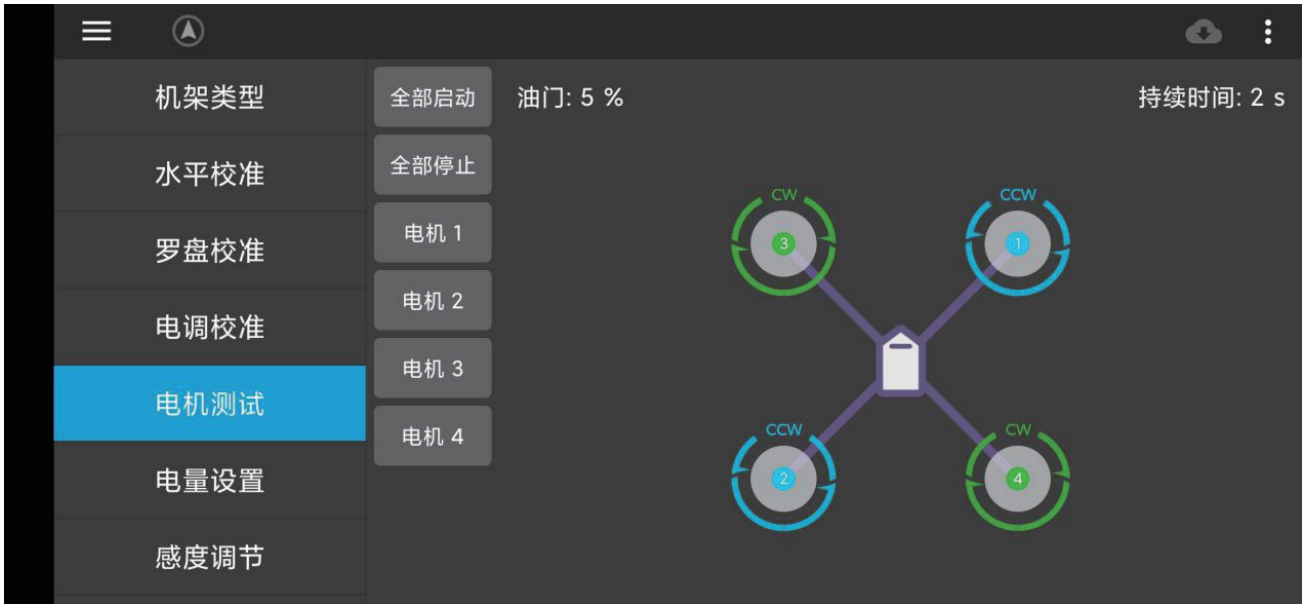
步骤 3:拔掉飞行器电池;

步骤 4:重新插上电池;

步骤 5:程序将会自动校准电调(大约15秒);

步骤 6:拔下并再次插上电池,即可正常使用。

4.5、电机测试



步骤1：输入油门值，建议5%-10%（大飞机电机KV值低，可以再设置大一些）；

步骤2：输入持续时间，单位秒；

步骤3：按图片转向，电机序号测试电机旋转方向是否正确。

4.6、电量设置

未解锁补偿电压：飞机通电保持未解锁状态，万用表测量电池当前电压，再看数传显示的电压，填入差值。

满载补偿电压：飞机需要满载载荷，悬停20秒，记录当前电压。然后立即降落，等待20秒，记录降落电压，填入差值。

4.7、感度调节

4.8、辅助设置

1.先在H12助手（设备助手）里设置好自己需要控制舵机的通道，并设置好失控保护值，失控保护值为0是保持当前状态。

2.遥控器对频连接飞控，打开飞控APP：Skydroid Fly，在飞控调参-999-辅助设置里修改自己需要的通道。

3.舵机的失控保护需要飞机解锁后才可以触发。

测试方法：飞机不装桨叶，解锁后，遥控器关控，测试舵机是否执行。

4.9、飞行模式介绍

飞行模式（飞控判断GPS信号，切换相对应的模式）	定高模式	在GPS信号差或指南针受到干扰，飞行器会进入定高模式，只支持手动飞行。定高模式下，飞行器定点异常，请尽快降落。
	GPS模式	使用GPS实现飞行器的精准悬停、稳定飞行模式等。
	返航模式	当飞行器拨到返航档位或失控，飞行器将爬升到返航高度并自动返航。

*飞行模式由遥控器序号 ❷ 的拨动三段开关设置。

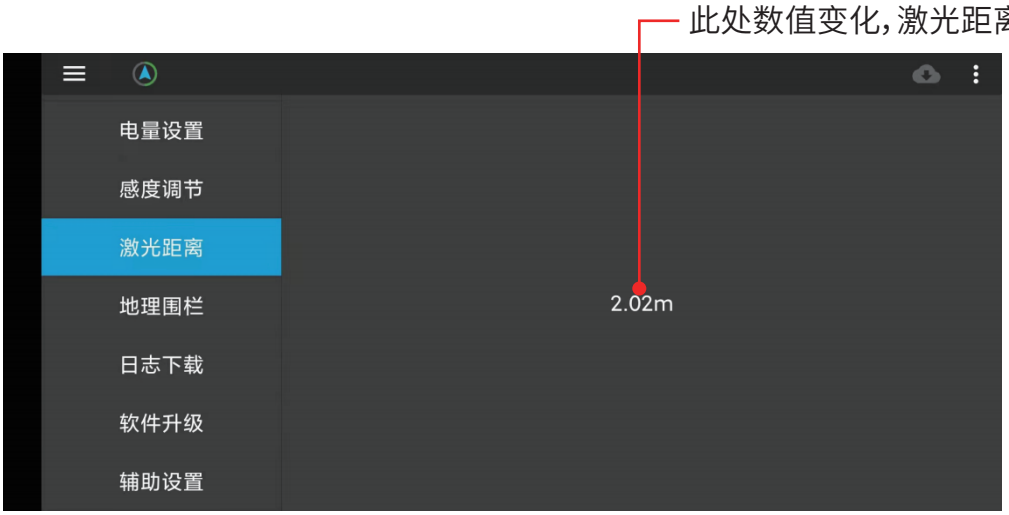
飞行速度	低速	最大速度 2m/s，上升速度：1.2m/s，下降速度0.4m/s
	中速	最大速度 12m/s，上升速度：4.2m/s，下降速度2.0m/s
	高速	最大速度 17m/s，上升速度：5.1m/s，下降速度4.9m/s

*飞行速度可在APP里的-档位设置-里更改。

4.10、激光避障云台的使用

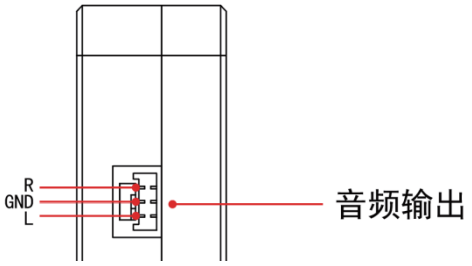
H12遥控器用右手波轮控制云台俯仰。

激光避障功能：仅在飞机返航和自动模式下生效，遇到障碍物时停止前进，自动爬升。避过障碍物后，继续前进。



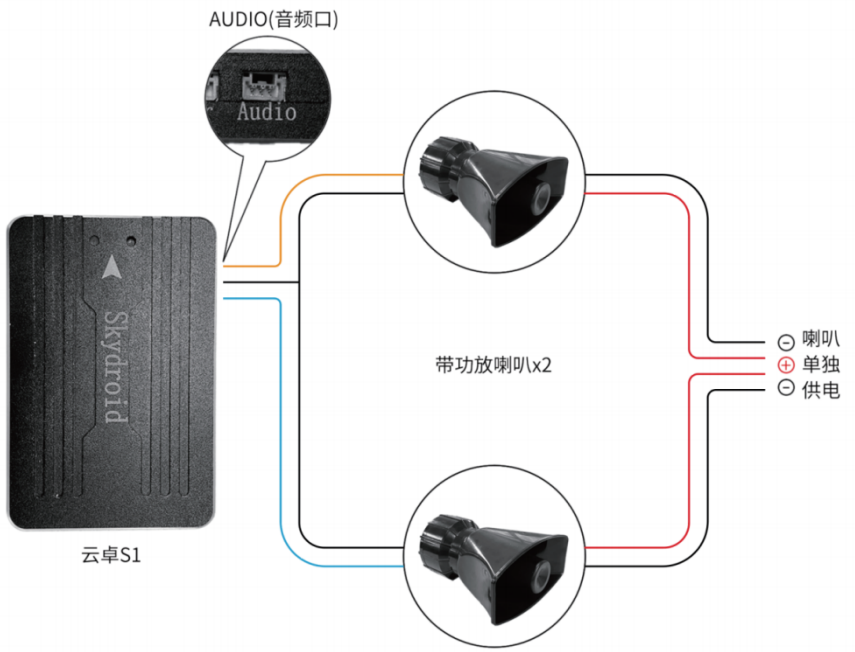
4.11、音频功能使用

(1)音频输出口接线定义如下图所示



R为右声道，L为左声道，GND为接地。

(2)使用接线图



(3)使用方法

步骤一:按接线图接好线序。

步骤二:给飞控和喇叭通上电。

步骤三:地面站里点击喊话图标即可使用多种喊话功能

5、失控保护

飞行器返航方式分别为RTL返航、智能低电量返航以及失控返航。起飞时,GPS>12星,飞行器成功记录到返航点。如果是无GPS信号强制起飞,则以最新GPS>12星 时的位置记录为返航点。

返航过程	1.记录返航点 2.触发返航条件 3.调整机头方向 4.按APP设置的返航高度进行返航 (1)不管飞行器目前高度,如果飞行器在水平距离5米之内,直接降落。 (2)如果飞机距离5米之外、20米之内则按当前高度返航,最低返航高度5米。 (3)20米之外,飞行器高于返航高度直接返航,不足返航高度升高到返航高度再执行返航。
一键返航	APP一键返航/遥控器按键一键返航
低电压返航	1.飞行器会根据强制返航电压自动执行低电压返航。 2.如果低电压返航时没有GPS信号或者信号不强,则自动降落。 3.起飞的时候,如果是在GPS信号不好的情况下强制起飞,则无人机会自动返航到第一次获得良好的GPS信号的地点。 4.若电量低于强制降落电压,则进入降落模式。
失联返航	当飞行器与遥控器失去连接超过2秒,飞行器自动返航。 性能要求: (1)飞行器失去控制2秒后,触发自动返航; (2)失联返航过程中,如果无人机恢复了连接,无人机将继续执行返航程序; (3)当无GPS信号或者信号不强时直接降落。

6、硬件安装

首先你要拥有一个飞行器，这里我们以 X 型四轴为例，在你拥有了一个完整安装好的多轴飞行器后，请按照以下步骤来安装你的 S1。

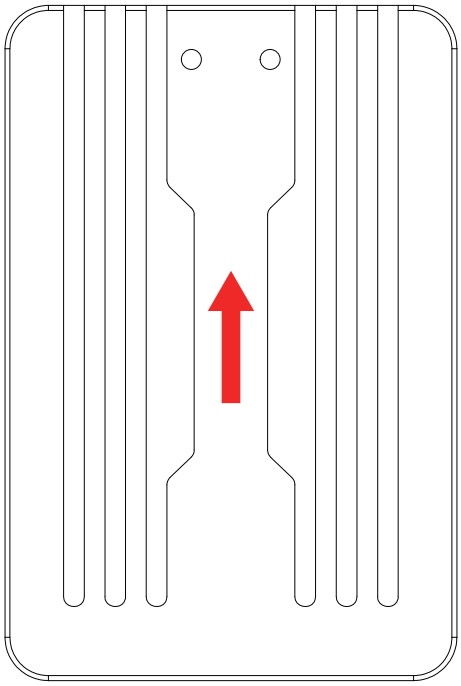
(1) 在飞行器上安装S1，安装固定飞控在机架中心位置，并确保安装位置水平，天线在前为机头方向。

(2) 遥控器对频，连接 Skydroid Fly，进行之前几步校准你的飞行器 。

(3) 遥杆内八进行解锁，如解锁正常，安装好桨后进行正常飞行；如解锁不正常，查找APP红色故障提示，进行解决 。

6.1、在飞行器上安装S1

尽可能在靠近载具重心的位置，使用提供的泡棉安装 S1。确保飞控指向前方。

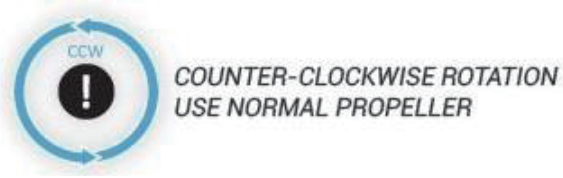


安装GPS，GPS 可不分方向，校准罗盘即可。

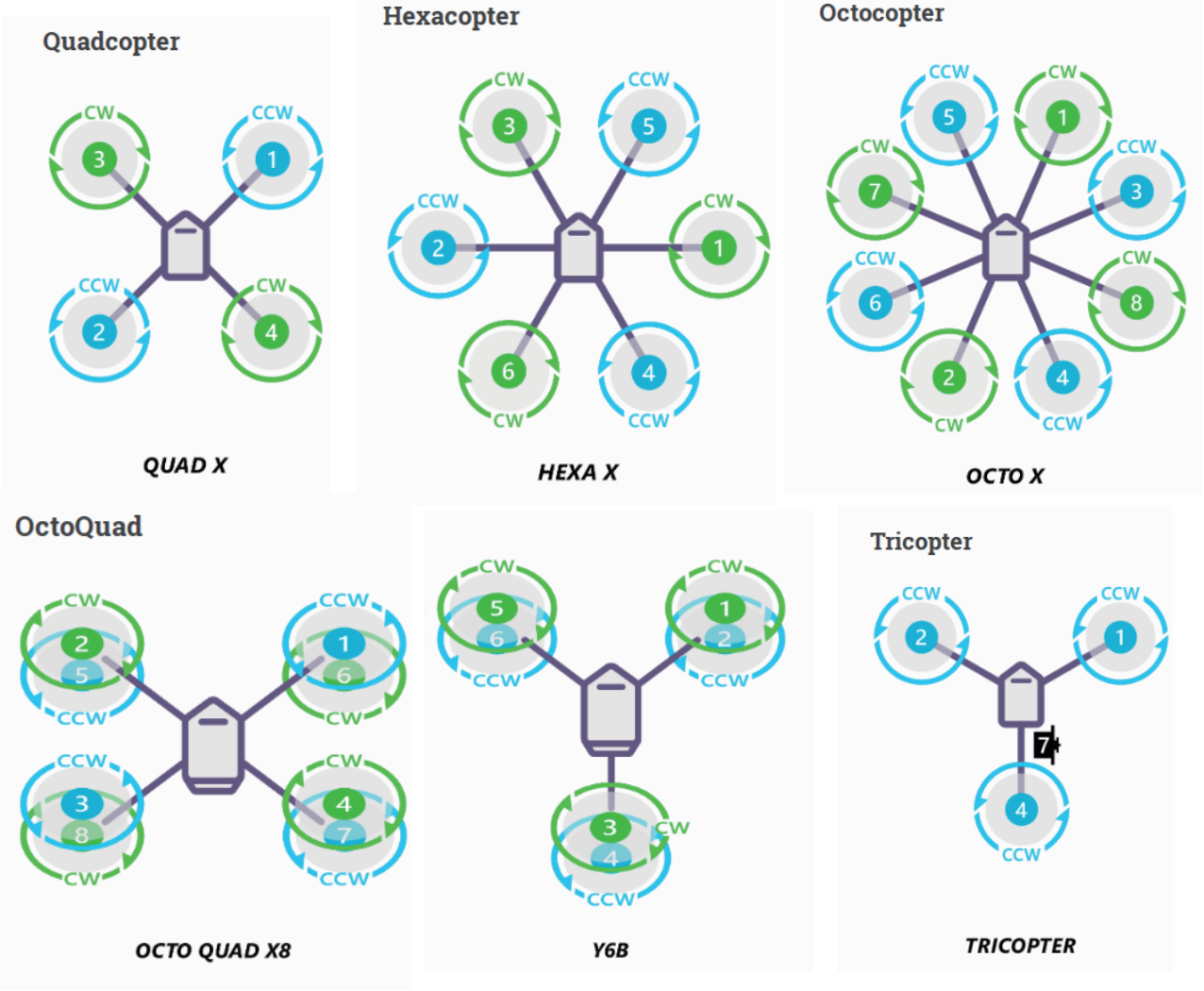
6.2、在飞行器上安装S1

6.2.1、在飞行器上安装S1

绿色 CW 顺时针转



蓝色 CCW 逆时针转



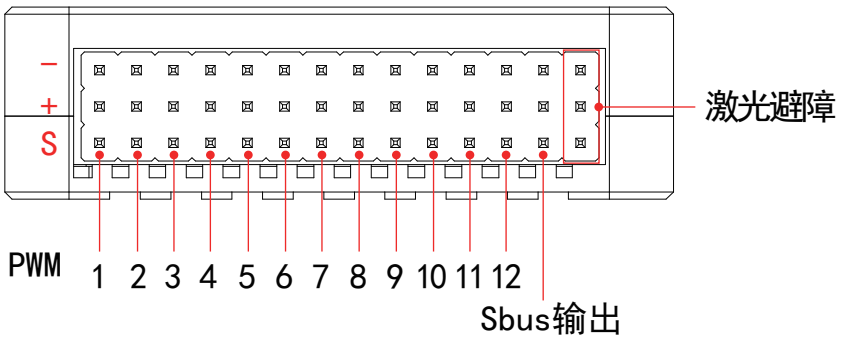
注意:因飞控无电压输出，三轴机型接舵机需要外加BEC 模块插针给舵机供电。

6.2.2、顺时针和逆时针桨的识别

顺时针方向（称为反桨）和逆时针（称为正桨）。推进器螺旋桨通常标有 P。然而并非所有的螺旋桨被标记和这两种类型通常可以在任一旋转方向。因此，按照如下桨的形状来判断是比较可靠的。你可以参考这些特征，正确的识别桨的方向。

6.2.3、配件连接

避障双轴云台3P连接线插在最右侧排针位置，黑线在上。

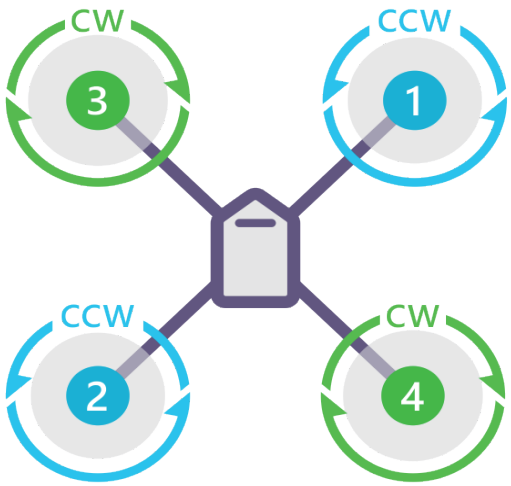


6.3、基础飞行

1.飞行前先把电池充满电。

2.把飞行器放置在平整开阔地面上，用户面朝机尾（电池尾插为机尾）。

3.正确安装螺旋桨。



QUAD X

4.开启遥控器（长按开机按键），把电池插头插入飞机供电口中。

5. 等待飞行器电机长滴一声后自检成功。

6.打开Skydroid Fly APP，点击连接图标，即可链接数传图传，起飞模式建议为GPS模式，搜星>12颗才能解锁起飞。

7.内八拨动摇杆，解锁飞机，往上缓慢推油门杆，让飞行器平稳起飞。

8.如大飞机晃动，需要在app里进行感度调节

9.下拉油门杆使飞行器下降。

10.落地后，将油门杆拉到最低位置并保持3秒以上直至电机停止。

11.停机后依次断开飞行器电源和遥控器电源。

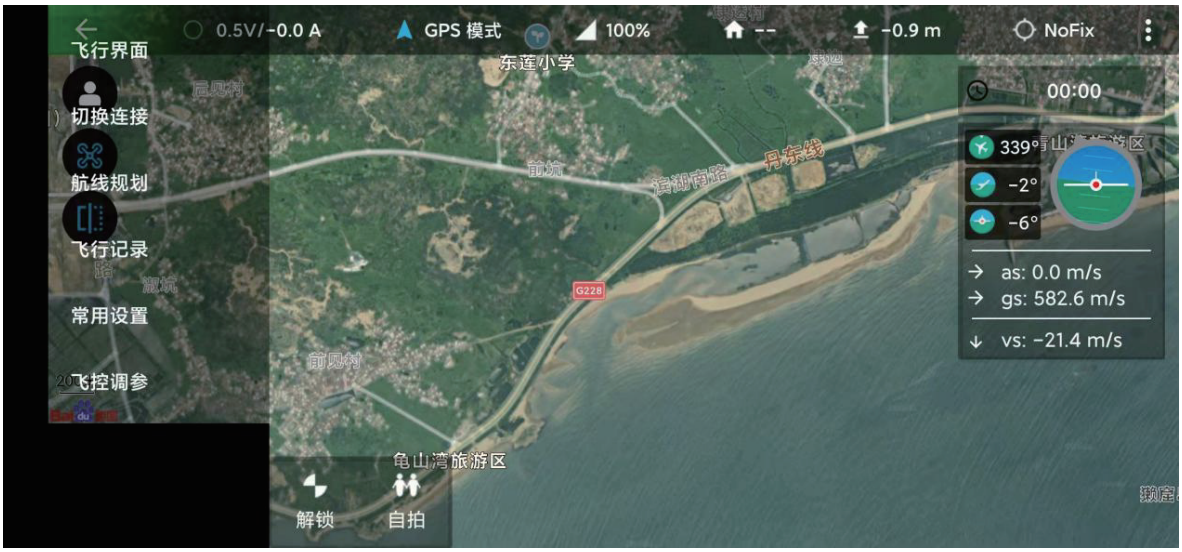
6.4、地理围栏

默认关闭地理围栏，如有需要在飞控调参-地理围栏里开启。

这是一种安全保护机制,保护飞机不飞出你设定的范围，开启此机制会检测 GPS 是否定位，当没有定位无法解锁。

7、日志下载与查看

Skydroid Flyapp里飞行记录查看。



8、常见问题解答

1.遥控器无法连接。

①查看APP类型是否选对

②有无后台占用Skydroid Fly地面站

2.图像卡顿断连

①调整天线角度对准飞机，中间不要有阻挡

②更换飞行场地，请勿在高楼、信号塔附近飞行

3.飞行器悬停不稳

①更换飞行场地,请勿在高楼、信号塔附近飞行

②进行飞行器指南针校准和水平较准

③判断是否风力过大影响飞行

④微调感度

4.飞行器GPS精度不准或无法通过GPS精度测试

①在室外空旷的地方搜索GPS达11颗及以上

5.拍摄不清晰

①检查镜头部位是否有指纹、污渍，用酒精擦一下

②在光线良好环境使用

6.镜头朦胧起雾

①气候潮湿导致镜头起雾，更换飞行器储存位置

②存放时放置干燥剂

7.拍摄的图片或视频丢失

录制视频要执行结束录制操作,否则有可能导致视频损坏或者丢失。

免责免除

使用本产品时,因下列原因造成的直接或间接损害,云卓不承担赔偿责任与法律责任。

1.用户在饮酒、吸毒、药物麻醉、头晕、乏力、恶心等其他身体状况不佳或精神状况不佳的情况下,造成损害。

2 .用户的主观故意或判断失误造成的人身伤害、财产损失与法律责任等。

3.因事故发生而引起的任何有关精神损害的赔偿。

4.因用户在自然保护区等法律法规禁止的飞行区域飞行造成的损害。

5.自行改装或更换非云卓生产的配件或零件,致使飞行器运行不良而造成的其它损害。

6.飞行器自然磨损(飞行时间达到100小时及以上)、腐朽、线路老化等造成飞行器本身的运行不良。

7.飞行器发出低电压报警,仍不降落,导致飞行器坠落。

8.明知飞行器处于非正常状态(如进水、油、土、沙等其它不明物质以及组装未完成,主要部件发生明显故障,配件存在显而易见的缺损或缺失),仍然强制飞行而造成的损害。

9.飞行器处于磁场干扰区、无线电干扰区(如高压电线附近、大型电力设备、广播电视发射塔、手机基站等区域)、政府规定的禁飞区域或用户视野处于背光、被障碍物遮挡、视线模糊、视力不良等不适合操控以及其它不适合操控的状况下飞行,造成的损害。

10.在恶劣天气下飞行,如雨天或刮风(超过4级)、下雪、冰雹等不良天气下飞行。

11.飞行器遭遇碰撞、倾覆、火灾、爆炸、雷击、暴风、龙卷风、暴雨、洪水、海啸、地陷、冰陷、崖崩、雪崩、雹灾、泥石流、滑坡、地震等。

12.用户使用飞行器取得的任何数据、音频或者影像资料等,因侵权而发生的损害。

13.关于电池,如因保护电路、电池组、充电器的匹配或使用不当导致的损害。

14.由于设备或配件(包括存储卡)的问题而造成的任何间接损失与法律责任,例如图像或视频无法被保存。

15.用户在未完成足够的飞行训练而鲁莽地进行不安全的飞行而造成的损失与法律责任。

16.用户未遵守云卓官方公布在云卓官网的产品说明书或用户快速入门指南里提及的使用方法以及各种注意事项造成的损失与法律责任。

17.其它不属于云卓责任范围内的损害。

建议

1.本产品与外界环境能够互相兼容，满足FCC中对无线视频方面的限定要求。
本产品遵从FCC中第15部分规定,其包含两个方面：
(1)产品工作不会对外产生有害干扰；
(2)同时产品能够承受可能会导致产品异常工作的有害干扰。
注意：对设备进行非法修改及变更所导致的任何无线及它的干扰，制造商对此类事件不负有责任。因为这些修改及变更已经超出了用户的操作权限。注意：本产品已经通过测试，并已证明符合FCC中第15部分对B类数字 产品规定要求。
这些规定是为了确保产品在安装使用时,不会对居民环境造成有害影响。本产品工作时会对外辐射射频能量,若未按指令去安装使用本产品,可能造成对无线通信的干扰。然而,在一些特定的安装使用场合,这里并不保证干扰不会产生。用户可以通过对产品的开关机,来确定一些干扰是不是由于本产品所引起。假如产品确实已经对无线及视频接收设备产生了干扰,鼓励用户对以下一些纠正措施：
✔适当调整接收天线的方位。
✔增加本产品与接收设备之间的距离。
✔向经销商或有经验的无线/视频技术员寻求帮助。
2.当使用本产品时,确保产品天线离人的距离不小于20cm。遥控器内部的USB接口，以及飞机的USB接口只能与USB2.0及以上通信接口相连。禁止与USB电源接口相连。请选用正确型号的电池，使用其它型号的电池,会有爆炸的危险。同时，请按照指令正确处理使用过的电池。
因此，云卓承诺本产品符合19991/EC中规定的基本要求和其它一些相关指令要求。
3.本产品仅限个人使用用途，严禁使用本产品进行任何违反国际及当地法律法规的行为。
请勿使用本产品进行以下活动(仅为示例,不限于此)：
(1)诽谤、滥用、骚扰、跟踪、威胁或以其它方式侵犯他人的合法权利(如隐私权和公开权)；
(2)未经许可拍摄他人照片或私人区域；
(3)将本产品用于除一般商业目的之外的其它违法或不恰当的用途(如用于间谍、军事活动，或未经授权的侦查与调查等)；
(4)违反本产品使用地区的任何法律、行政法规以及相关的社会习俗。

请注意：

(1)在某些情况下,出于私人目的拍摄或者摄录表演、展会或其它商业建筑,也可能造成对他人知识产权的侵害;
(2)在某些地区和国家,小型航拍模型亦被禁止参与任何商业行为。
如果您在安装过程中遇到无法解决的问题，请与云卓正式授权的代理商或云卓技术支持取得联系。

温馨提示:使用前请仔细阅读操作说明书!

- 充电时要随时有人照看
- 充电完成后请立即拔掉充电线
- 螺旋桨部件可能导致伤害
- 此款产品不是玩具
- 不适合14岁以下的儿童

微信公众号

泉州云卓科技全国服务热线

400-6996-520

产品名称:S1专业版

制造商:泉州云卓科技有限公司

地址:福建省泉州市高新产业园区海西育成基地A幢2楼

邮箱:sales01@skydroid.xin

www.skydroid.xin

SKYDROID 云卓

S1 Pro User Manual

V1.0

ArduCopter

Skydroid Co.,Ltd

Suggestion: When you read this user manual, operate it at the same time. When you read these instructions, if you encounter difficulties, please refer to this user manual or call our after-sales service (400-6996-520) or visit our WeChat public platform, also, you can visit our official QQ chat group: 318480806 to view related questions and answers.

Skydroid official QQ chat group

Skydroid WeChat public platform

After-sales service terms

1. These terms are only applicable to the products produced by Skydroid Co., Ltd., and the products sold by authorized Skydroid distributors are also applicable to this clause.
2. From the date of purchase, our company has verified that the quality problems are not caused by human beings within one week, and Skydroid will afford the round-trip express fee for the repaired products. If you purchase Skydroid products more than one week, the quality will be verified by our company within one year. If there is any problem, the user and Skydroid each affords the courier fee for sending the repaired product.
3. Proof of purchase and warranty card or online platform transaction records are required when returning for repair.
4. Skydroid products have quality problems that are not caused by human beings under normal use within seven days from the date of purchase, and the appearance is not damaged. With the warranty card and purchase proof, you can negotiate with the dealer for a free replacement of the same model product; Once the dealer receives the replacement product, please notify Skydroid company for the record and replacement at the first time.
5. Skydroid products will be provided lifelong after-sales service by us. Quality problems that are not caused by human beings will be guaranteed for one year free of charge; for artificial damage, modification, disassembly and more than one year free warranty from the date of purchase. The user shall pay the round-trip postage and maintenance costs.
6. In order to ensure that your rights and interests are protected and to serve you in a timely and effective manner, please complete the warranty card and ask for the purchase proof when purchasing Skydroid products. To enjoy this after-sale service, users shall provide warranty card and purchase proof.
7. The repaired product will be returned to the customer within 15 working days after receipt by Skydroid, and the repair report will be attached.
8. The above after-sales service terms are limited to Skydroid products sold in China mainland.

After-sales questions from Hong Kong, Macao, Taiwan and overseas customers, please send to sales01@skydroid.xin, and the specific after-sales details will depend on the situation.

Content

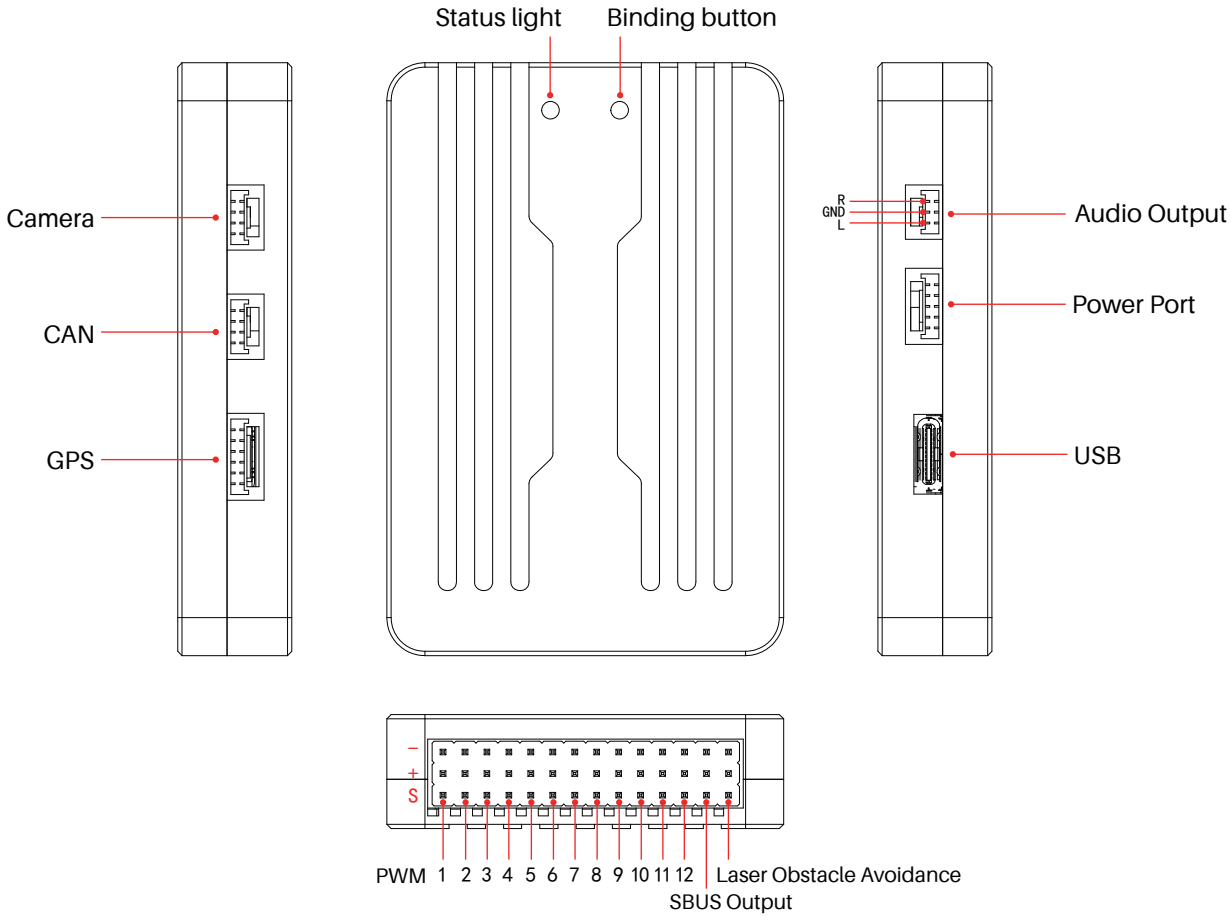
1、Overview of S1

1.1、Compunents

H12 remote control　S1　GPS　S1 Cable

Charging Cable　Charger　Mode Changing Accessories　Card Reader　Laser Obstacle Avoidance gimbal　Data cable　Antenna Cover

1.2、Ports and Technical Parameters



S1 ECS		
Technical Parameters		
Hardware	Processor	STM32H743
	Gyro	BMI088
	Electronic compass	IST8310
	Barometer	LPS22HB
	Interface	GH1.25
	Antenna Length	30cm/40cm/50cm Optional
	PWM Output	12 OneShot/PWM Output(configurable)
	Receiver	Built-in R12
	Receiver antenna gain	3dBm
	Receiver transmit power	100mw/20dBm
	GPS	M8N
	RC OUT SBUS	1
	GPS UART serial port	1
	POWER port	1
	Audio Output	1
	Camera interface	1
	CAN port	1
Supported models	3~8 axes	
Working environment and physical parameters	POWER input voltage	2s-18s
	USB voltage	5V±0.3V
	Servo voltage	5V±0.3V
	Working temperature	-40~80°C
Size & weight	Size	68*47*13mm
	Weight	62g

Obstacle Avoidance Dual Axis Gimbal	
Size	57.5*49*47.1mm
Lens Specifications	1/2.7 sensor EFL=2.4mm
Pitch angle	100°
Roll angle	40°
Pixel	200w
Video Resolution	1080p 25fps
Image Resolution	640*360
Supported Memory Card	16G、32G、64G、128G
Video interface	Serial port (Supports Skydroid receiver only)
Laser obstacle avoidance interface	Serial port (Supports Skydroid receiver only)
Weight	51g
Measurement range	0.05-20m
Measurement accuracy	0.05-2m:±2cm 2-20m:±2%
Measuring speed	50Hz/100Hz
Laser resolution	1cm
Light source wavelength working voltage	750-830mm
Working voltage	3.5-5.5V
Working Temperature	-10~60℃
Power consumption	60mA@5V

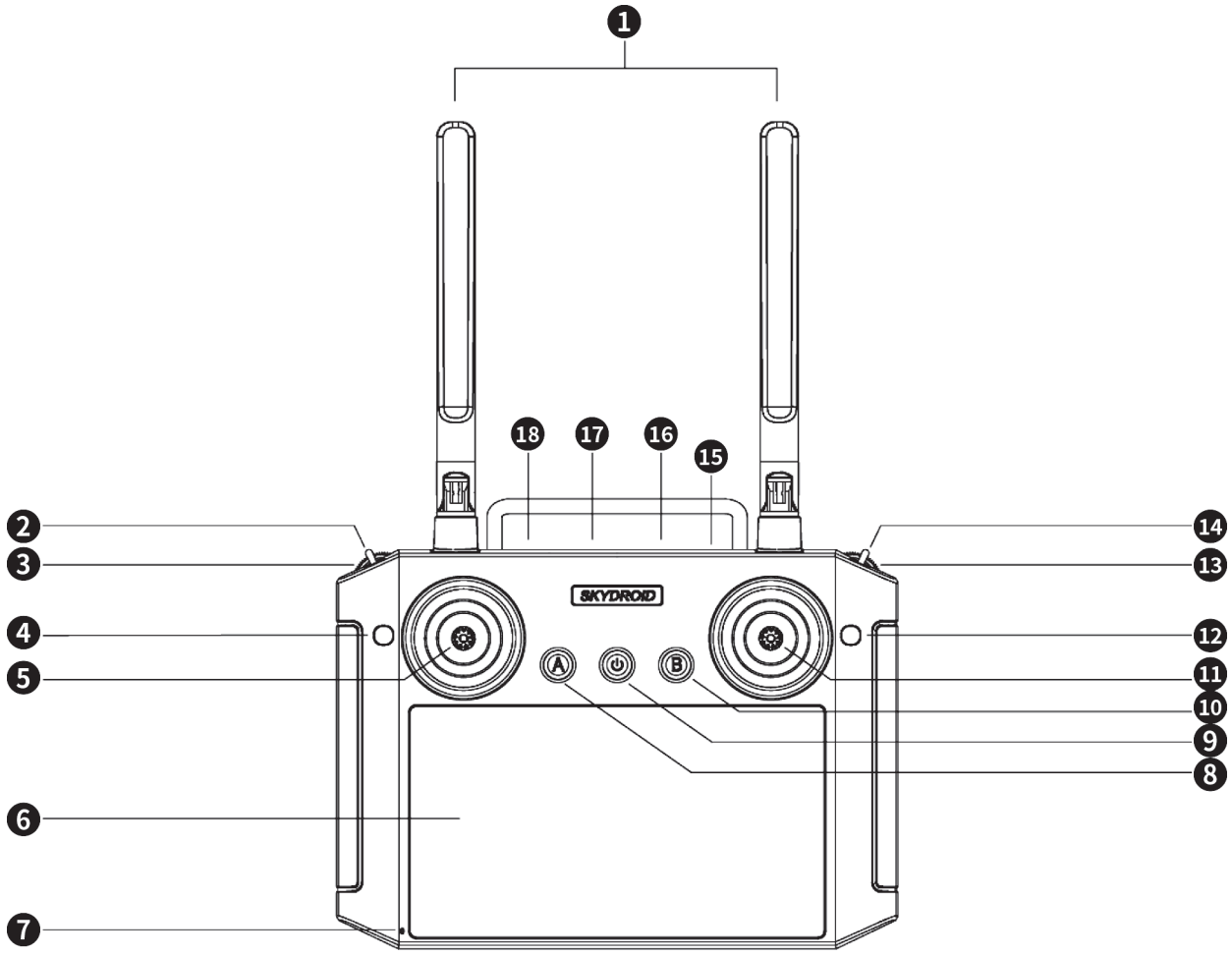
1.3、Recommendations for use

For users who are using the S1 flight controller for the first time, it is recommended to complete the introductory use of the flight controller in steps:

1. First install the ground station control app, and be familiar with the various menu functions of it;
2. Assemble the drone and complete the assembly of the power system;
3. Connect the remote controller to the flight controller to complete compass calibration and motor calibration;
4. Check various parameter settings;
5. Unlock and take off for the first time;
6. Various high-end applications of flight control, auxiliary channel settings.

2、Overview of the remote controller

2.1、Remote control (Mode 2)



No.	Annotation	No.	Annotation
❶	2.4G 3dB antenna	❿	Button B (No function)
❷	Toggle 3 positions switcher/ Flying mode	⓫	Right side Stick X2、Y2
❸	Thumbwheel switch G	⓬	Button D (No function)
❹	Button C	⓭	Thumbwheel switch H
❺	Left side Stick X1、Y1	⓮	Toggle 3 positions switcher (No function)
❻	5.5inch screen	⓯	Dust-free plug
❼	MIC port	⓰	SIM card slot
❽	Button A (No function)	⓱	Charging port
❾	Power switcher	⓲	PPM output/ Serial cable port

2.2、Overview of the remote control functions

No.	Buttons	Functions description
❺	Throttle/steering control lever (American mode)	-Push the joystick up and the drone rises. -Pull down the control stick and descend the drone. -Turn the control stick to the left, and thedrone rotates to the left.
⓫	Forward/backward/ side fly control lever (American mode)	-Push the joystick up and the drone will move forward. -Pull down the control stick and make the drone back. -Press the control stick to the left, and the drone flies to the left side.
❷	Flying mode control	-Fixed height mode -GPS mode -Return home mode
⓭	Gimbal pitch control wheel	-Control the pitch angle of the drone gimbal

2.3、Remote controller charging

he remote control is charged with a Type-C USB data cable, please see the No. 17 mark. The charging time of the remote control is about 2-4 hours. The power-on icon of the remote control flashes when charging, and the icon goes out when it is fully charged. The use time is around 5-8 hours after being fully charged.

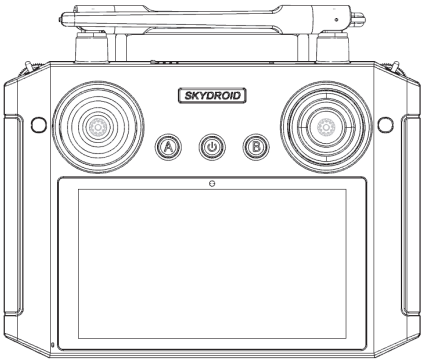
2.4、Remote control antenna angle

(1) Adjust the antenna angle of the remote control, and try to face the flying direction of the drone as much as possible;
(2) Do not block or cross the antennas.

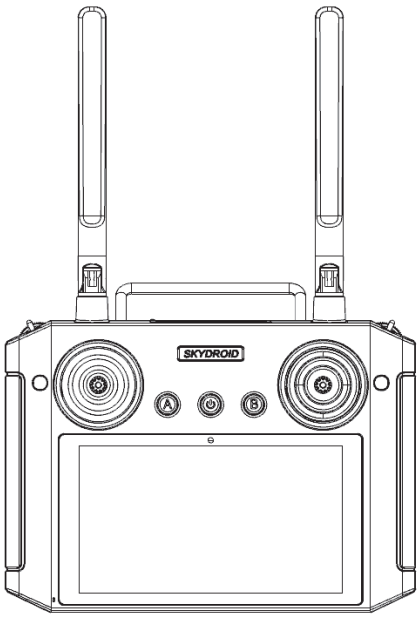
Correct operation

The antenna is unfolded and 45° upward

Wrong operation



Antennas cannot cross

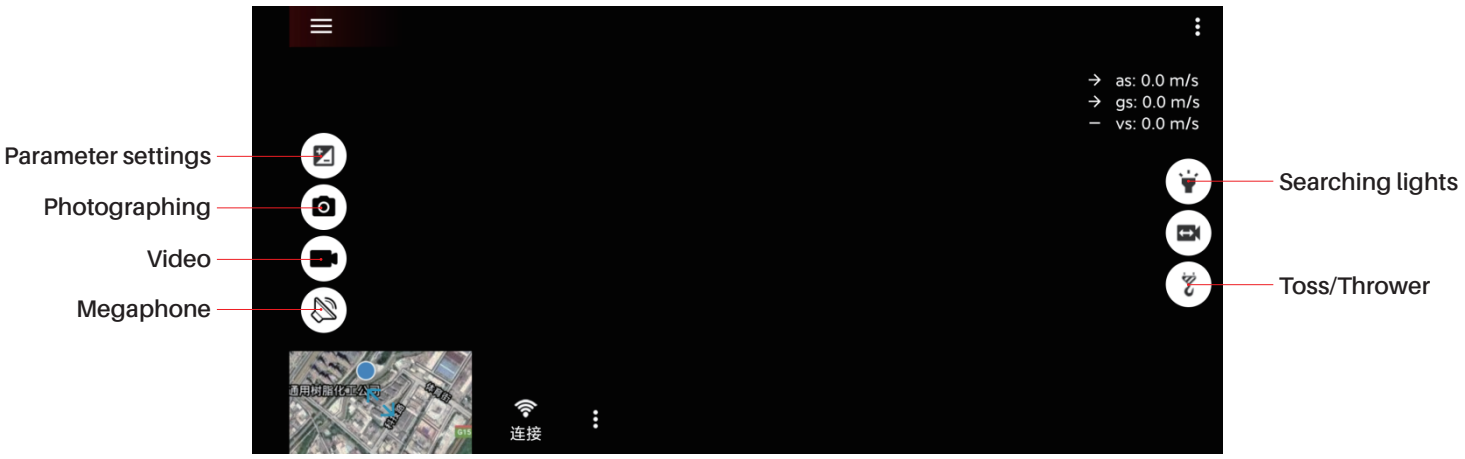


The antenna cannot be parallel to the remote control

3、Skydroid Fly APP

3.1、Please use Skydroid Fly APP, you can download by scanning the QR code from the card in the package or from our official website: www.skydroid.xin

3.2、App main interface



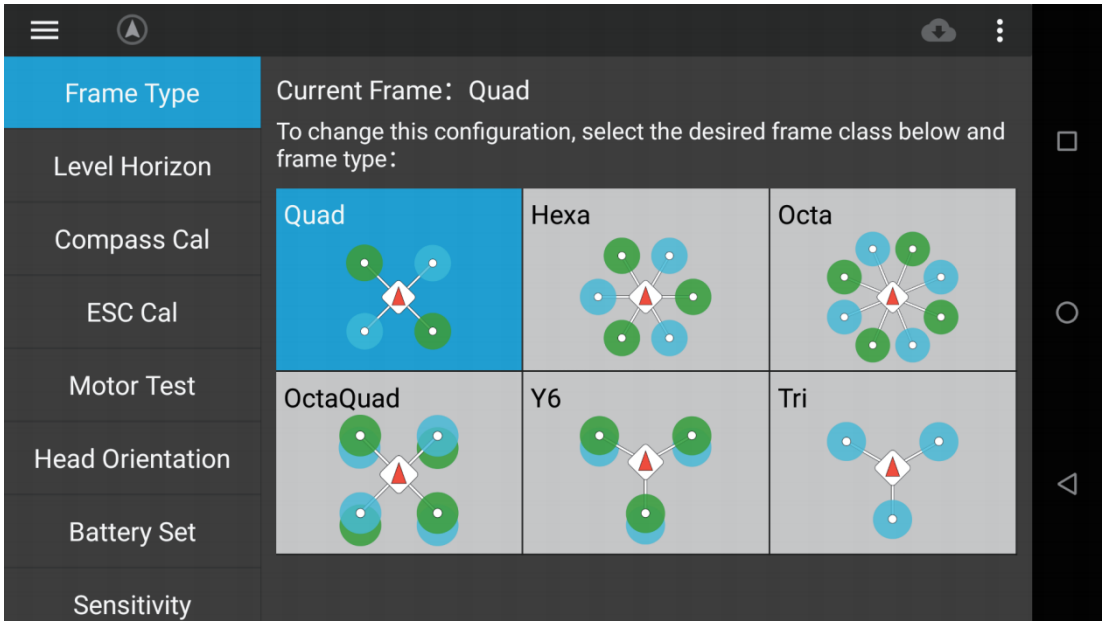
4、Preparation for the first use

Preliminary preparations: connect the remote control's data transmission and image transmission normally.

The primary parameter adjustment password is 999, and the advanced parameter adjustment password is 999999.

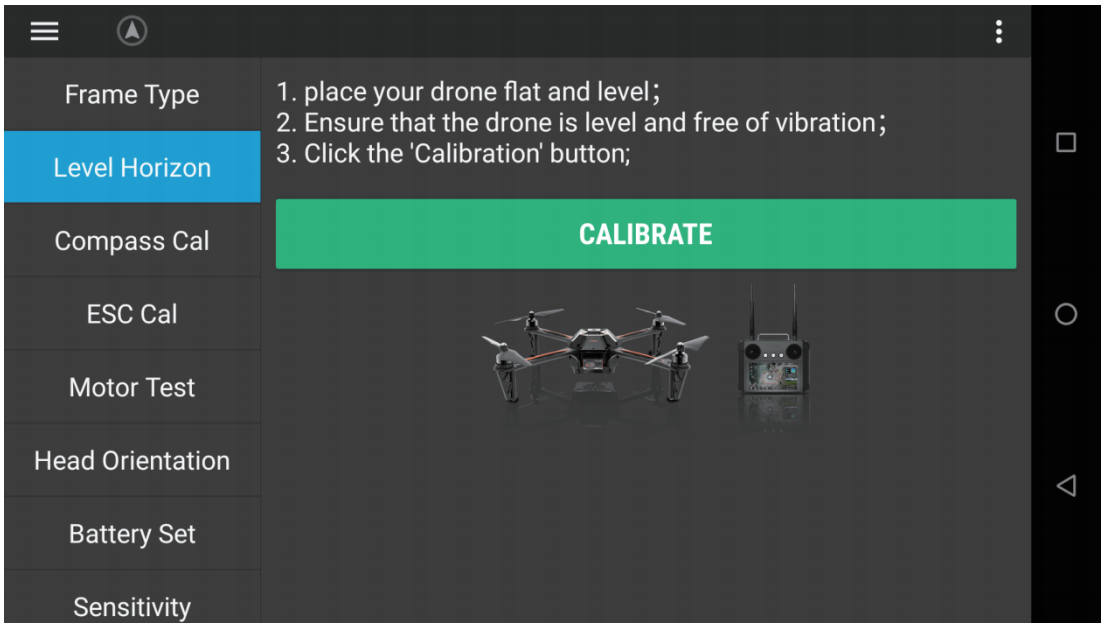
You can use the primary parameter adjustment password for the first time.

4.1、Rack type selection



Four-axis, six-axis, eight-axis, Y6-axis, 3-axis. Click the pattern to save the rack type.

4.2、Horizontal Calibration



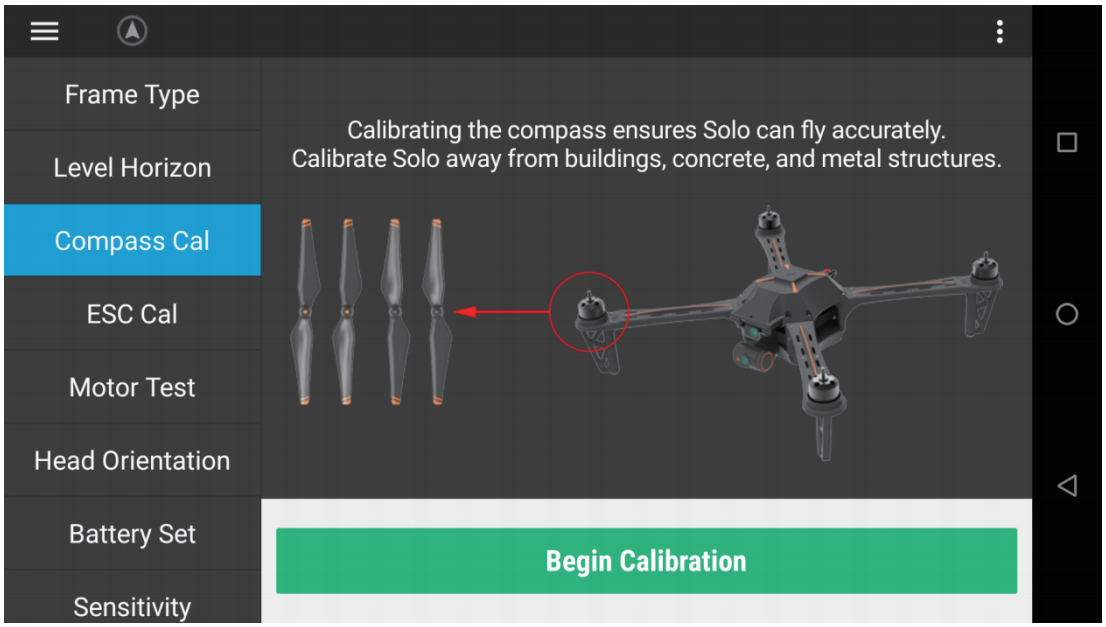
Step 1: Put the drone on a flat ground;

Step 2: Make sure the drone body is in a flat level and free situation and without vibration;

Step 3: Click (Calibrate) to start horizontal calibration;

Step 4: Re-power on the flight controller again.

4.3、Compass calibration



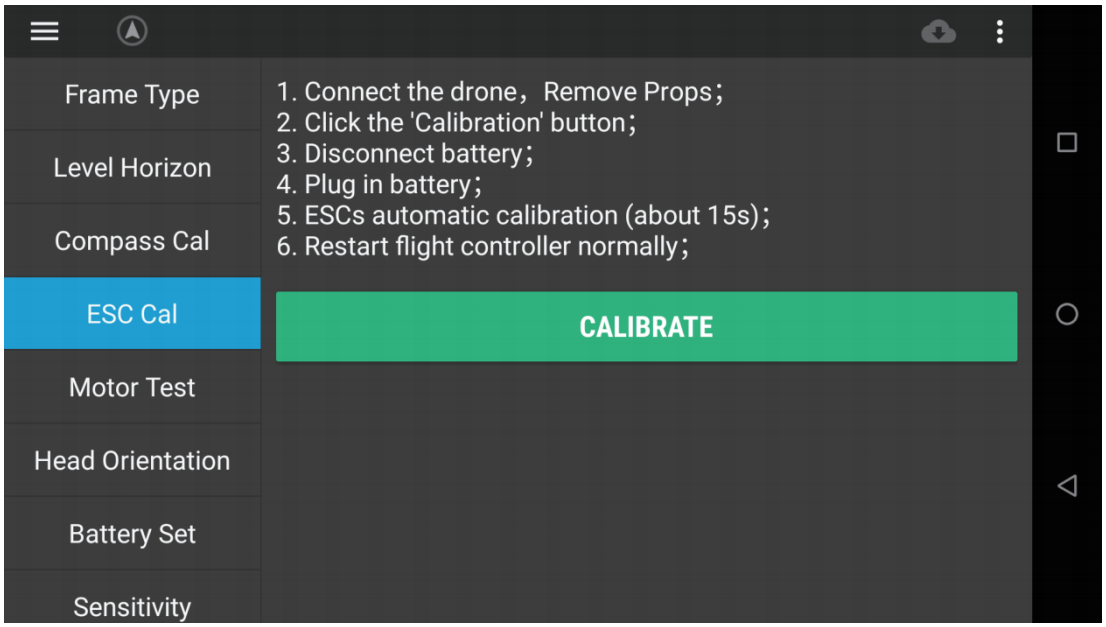
Step 1: Click to start calibration;

Step 2: Turn the drone according to the animation;

Step 3: The progress bar moves, indicating that the calibration is complete;

Step 4: Re-power on the flight controller again.

4.4、ESC calibration



Step 1: Connect the drone and remove the propeller from the it;

Step 2: Click [Calibrate];

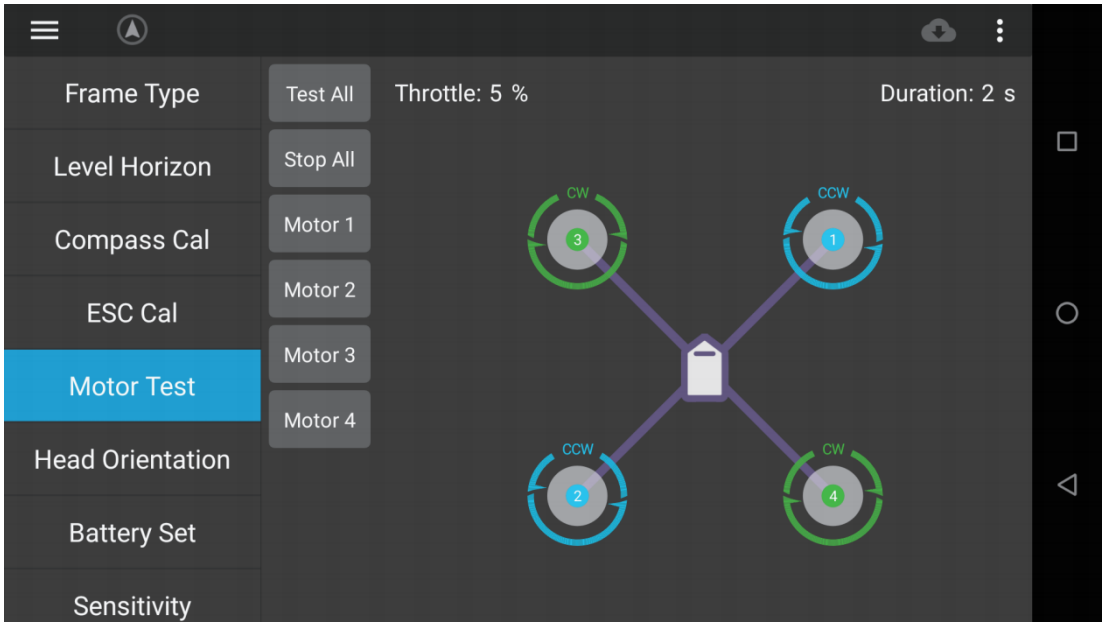
Step 3: Unplug the drone battery;

Step 4: Replug the battery;

Step 5: The program will automatically calibrate the ESC (about 15 seconds);

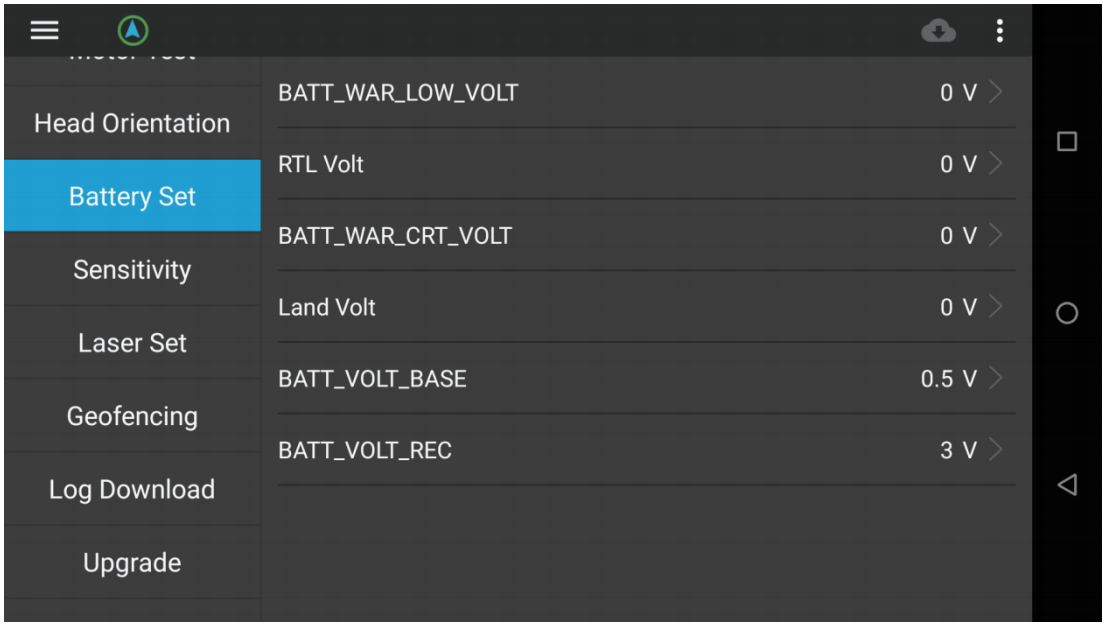
Step 6: Unplug and plug the battery again and it will work normally.

4.5、Motor test



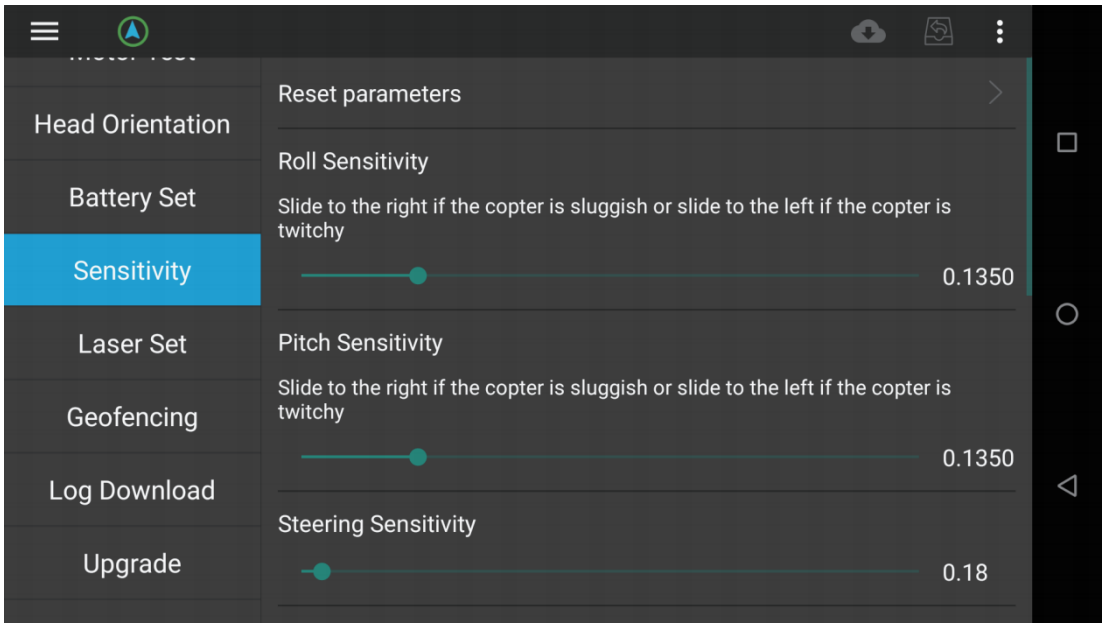
Step 1: Enter the throttle value, 5%-10% is recommended (the KV value of the big drone motor is low, you can set it to a larger value);
Step 2: Enter the duration, in seconds;
Step 3: Turn according to the picture, and test the motor number to see if the rotation direction of the motor is correct.

4.6、Battery Settings



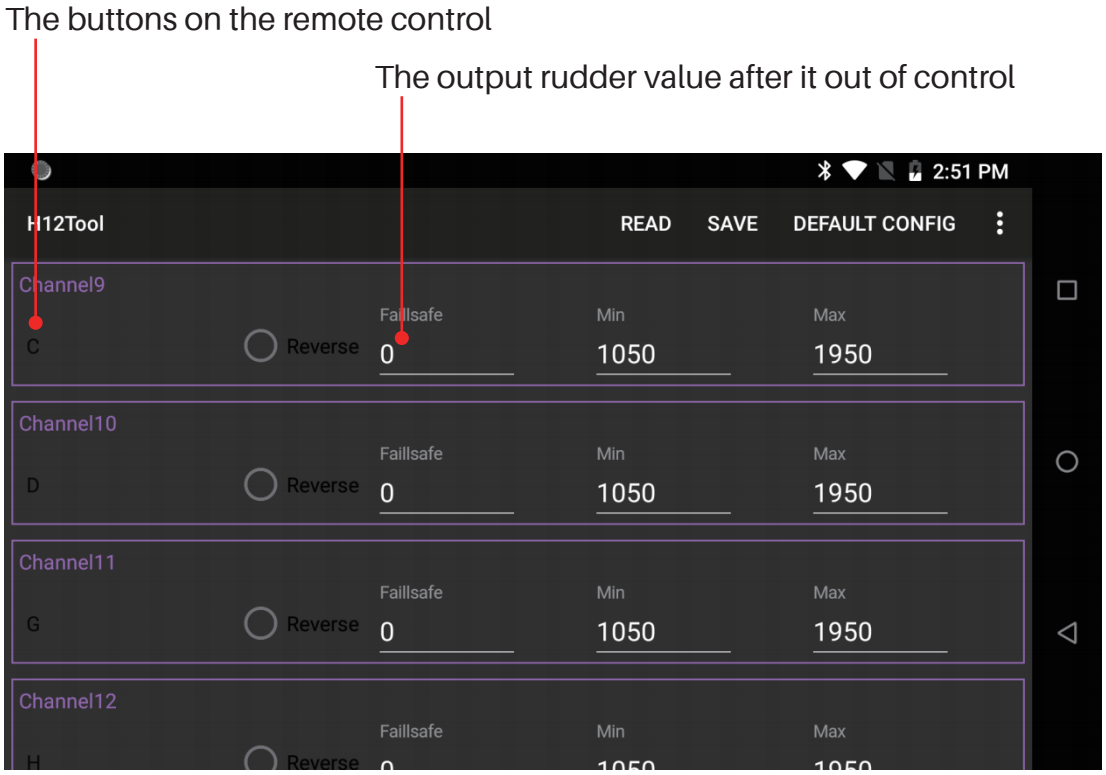
Unlocked compensation voltage: Power on the drone and keep it unlocked, use the multimeter measures the current voltage of the battery, and then check the voltage displayed from the data transmission, and fills in with the difference.
Full load compensation voltage: The drone needs to be fully loaded, hover for 20 seconds, and record the current voltage. Then land immediately, wait 20 seconds, record the landing voltage, and fill in with the difference.

4.7、Sensitivity adjustment

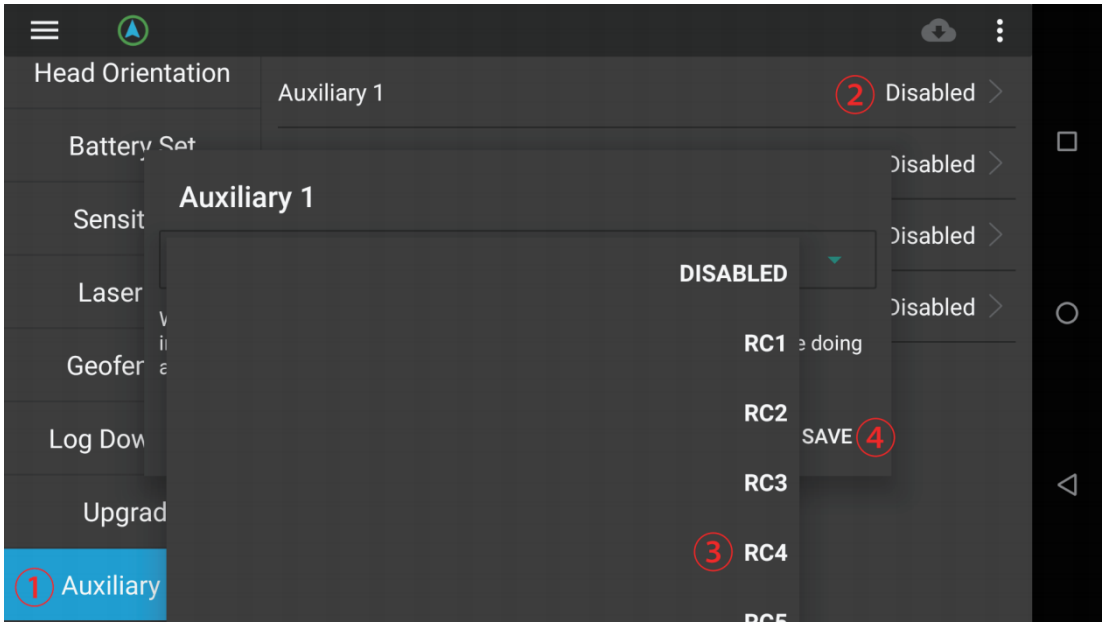


4.8、Auxiliary settings

1. First set the channel you need to control the servo in the H12 Tool App (H12 assistant), and set the fail-safe protection value. If the fail-safe protection value is 0, the current state means maintained.



2. Binding the remote controller and the flight controller, open the flight controller app, and modify the desired channels in the flight controller-passcode is: 999-auxiliary setting. Auxiliary functions can only be used on channels 9-12 of the remote control.



3. The out-of-control protection of the servo can be triggered only after the drone is unlocked. Test way: make the drone not equipped with propellers, and unlock it, turn off the remote control to test whether the servo is working or not.

4.9、Introduction of airplane modes

Flying mode (the flight controller will judge the GPS signal, please switch the corresponding mode)signal, please switch the corresponding mode)	Altitude fixed mode	When the GPS signal is poor or the compass is interfered, the drone will enter "Altitude Fixed Mode", which only supports manual flying. In the fixed altitude mode, if the fixed point of the drone is abnormal, please land as soon as possible.
	GPS mode	Use GPS to achieve precise hovering and stable flying mode of the drone.
	Return Mode	When the drone is switched to the return position or loses control, the drone will climb to the return altitude and return automatically.

*The flying mode is set by the three-position switch of the serial number ❷ of the remote control.serial number 2 of the remote control.

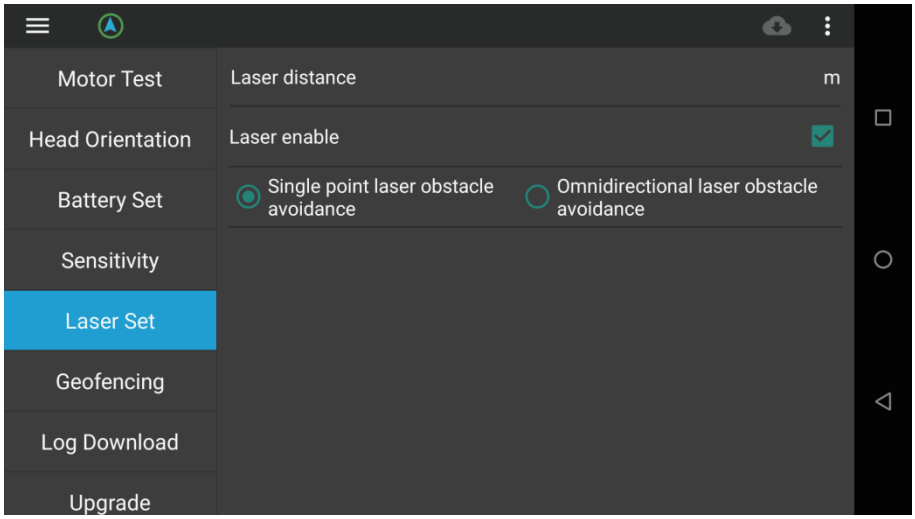
Flying speed	Low speed	Maximum speed 2m/s, ascending speed: 1.2m/s, descending speed 0.4m/s
	Medium speed	Maximum speed 12m/s, ascending speed: 4.2m/s, descending speed 2.0m/s
	High speed	The maximum speed is 17m/s, the ascending speed: 5.1m/s, the descending speed is 4.9m/s

*The flying speed can be changed in "Gear Settings" in the APP.

4.10、The use of laser obstacle avoidance gimbal

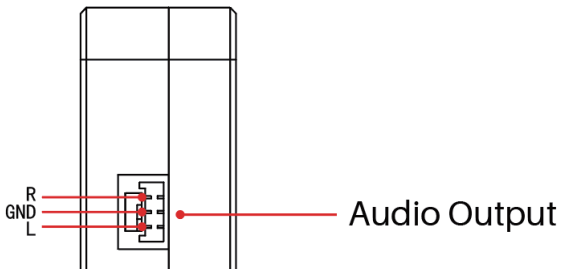
The H12 remote control uses the right hand wheel to control the pitch of the gimbal.

Laser Obstacle Avoidance: It only takes effect when the drone returns to home and in automatic mode. When encountering an obstacle, it stops moving forward and automatically climbs. After avoid obstacles it moves on.



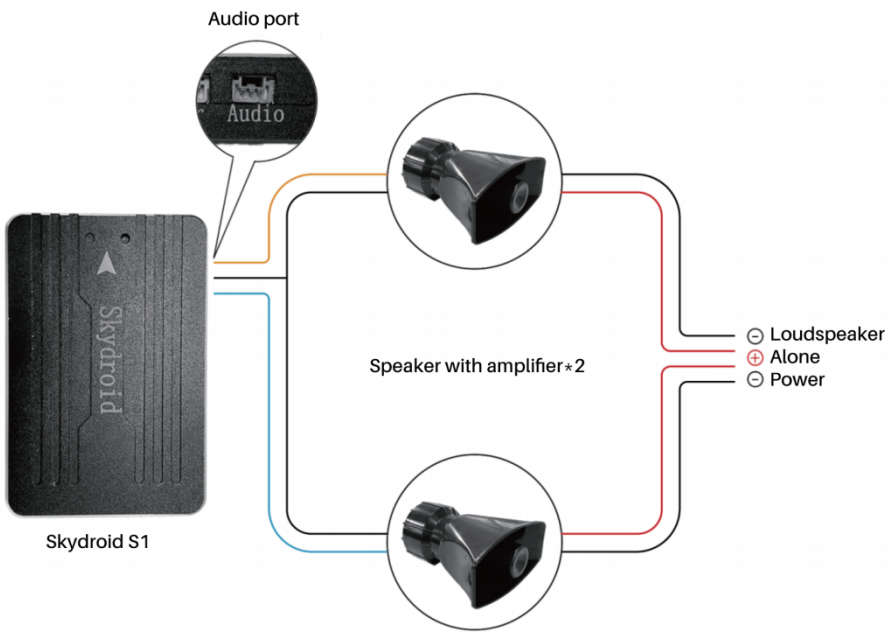
4.11、Use of audio function

(1) The definition of audio output port wiring is shown as below



R is the right channel，L is the left channel，GND is the ground

(2) Use the wiring diagram

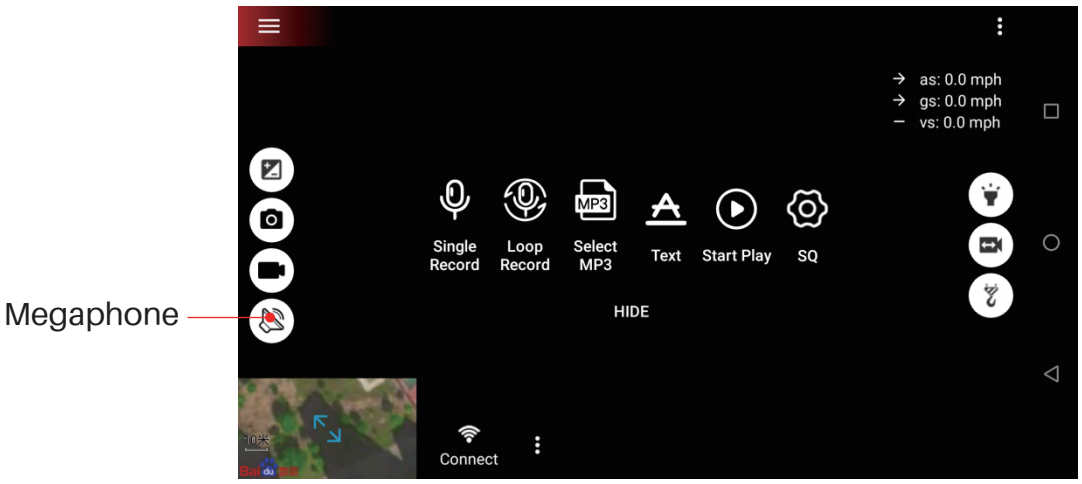


(3) How to use

Step 1: Connect the wires according to the wiring diagram.

Step 2: Power on the flight controller and loudspeaker.

Step 3: Click the shout icon in the ground station to use various shout functions.



5、Out of control protection

The return methods of the drone are RTL return, smart low battery return, and lost connection return. When taking off, GPS>12 pieces, the drone will successfully record the home point. If it is forced to take off without GPS signal, the latest GPS>12 piece position will be recorded as the home point.

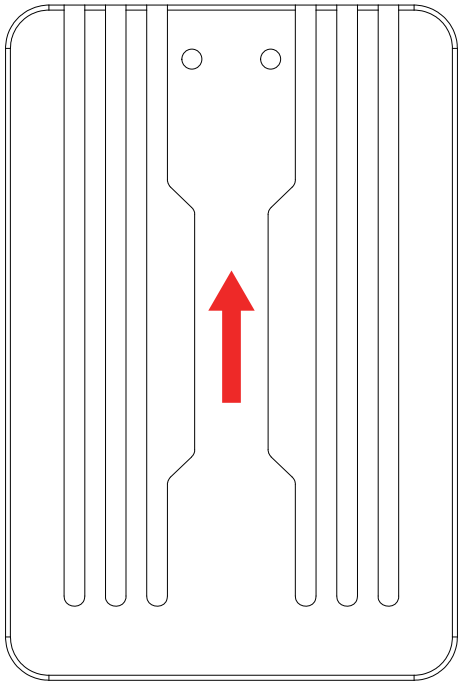
Return process	1. Record the home point 2. Trigger the return home condition 3. Adjust the direction of the nose 4. Return home based with the setting in the App (1) Ignore the current altitude of the drone, if the drone is within 5 meters of the horizontal distance, it will land directly. (2) If the drone is 5 meters away and within 20 meters, it will return at the current altitude, and the minimum return altitude is 5 meters. (3) At a distance of 20 meters, the drone will return directly above the return altitude. If the return altitude is less than the set return altitude, the drone will firstly ascending the return altitude and then, return home.
One key return	APP one key return home / remote control button one key return home
Return home with low batteryhome	1. The drone will automatically return to home on low battery or according to its distance to the Home point. 2. If there is no GPS signal or weak signal when returning home with low battery, it will land automatically. 3. When taking off, if it is forced to take off when the GPS signal is not good, the drone will automatically return to the place where it got a good GPS signal for the first time. 4. If the power is less than 10% or the voltage is less than 11.1V, it will enter the landing mode.
Lost connection return	When the drone loses connection with the remote control for more than 2 seconds, it will return home automatically. Performance requirements: (1) After the drone loses control for 2 seconds, it will trigger automatic return home; (2) In the process of losing connection and returning to home, if the drone is connected again, the drone will continue to perform the returning procedure; (3) Land directly when there is no GPS signal or the signal is not strong.

6、Hardware installation

First of all you need to have a drone, here let's take the X-type quadcopter as an example, after you have a fully installed multicopter, please follow the steps below to install your S1.
(1) Install the S1 on the drone, make sure it is installed in the center of the rack, and ensure that the installation position is horizontal, and the antenna is in the direction of the nose.
(2) Pair the remote controller, connect to Skydroid Fly, and do the previous calibration steps to calibrate your drone.
(3) Unlock the drone with joystick making as an inverted V. If the unlocking is normal, install the propellers and it can fly normally; if the unlocking is not normal, check the red fault prompt in the APP and solve it.

6.1、Install S1 on the drone

Mount the S1 as close to the vehicle's gravity center as possible, using the foam provided. Make sure the flight controller is pointing forward.

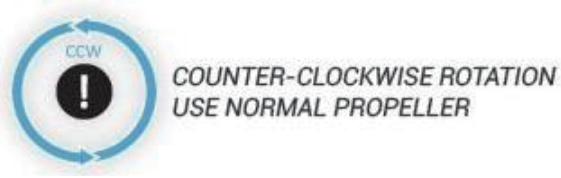


Install GPS, GPS can be regardless of direction, just calibrate the compass is OK.

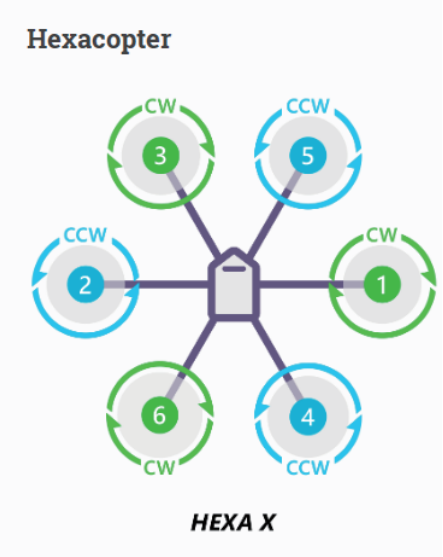
6.2、Install S1 on the drone

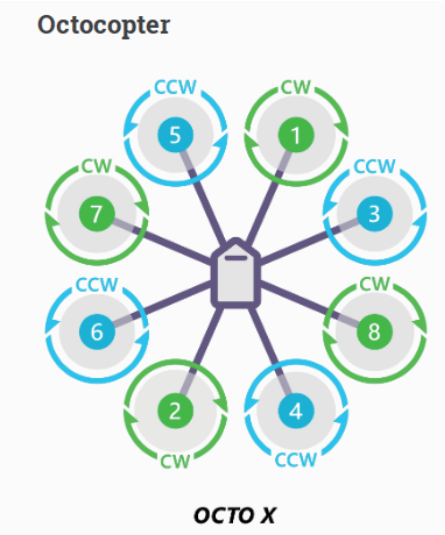
6.2.1、Install S1 on the drone

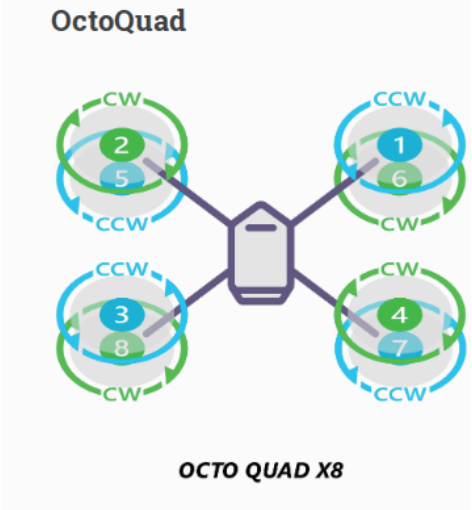
Green CW rotates clockwise

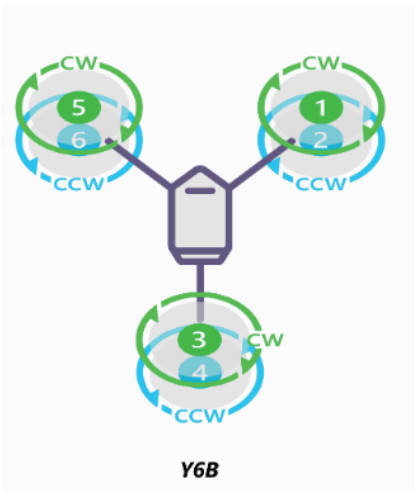


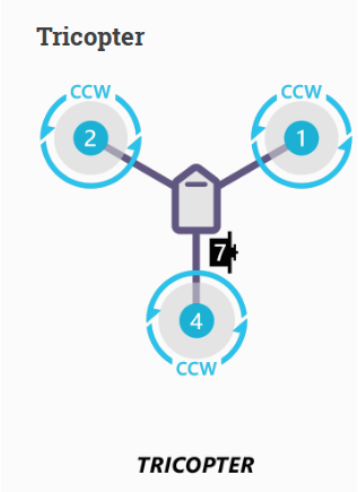
Blue CCW rotates counterclockwise











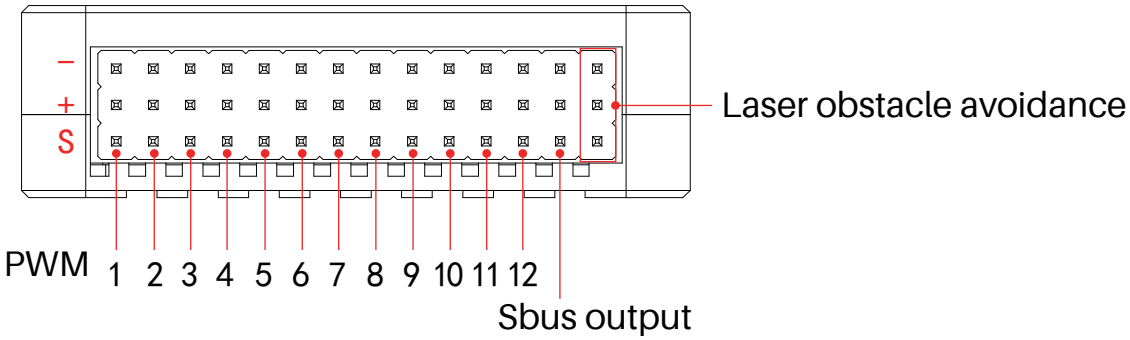
Note: Because the flight controller has no voltage output, the three-axis model drone needs to add BEC module pins to supply power to the servo.

6.2.2、Identification of clockwise and counterclockwise propellers

Clockwise (called reverse propeller) and counterclockwise (called forward propeller). Thruster propellers are usually marked with a “P”. However not all propellers are marked, so both types can usually rotate in either direction. Therefore, it is more reliable to judge the propellers according to its shape. You can refer to these features to correctly identify the direction of the paddle.

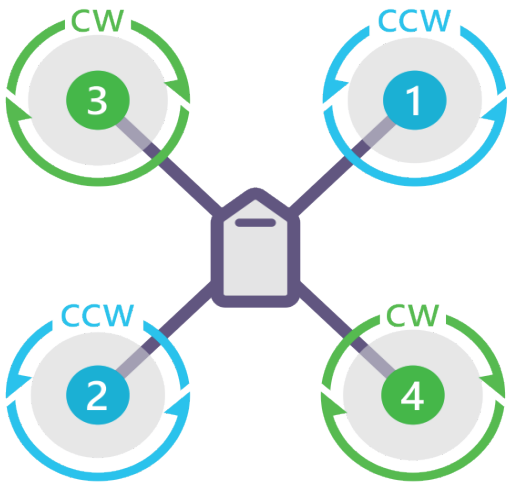
6.2.3、Accessory connection

The 3P cable of the obstacle avoidance dual-axis gimbal is inserted into the pin header on the far right, with the black line on top.



6.3、Basic flying

1. Fully charge the battery before flying.
2. Put the drone on a flat and open ground with the user facing the tail of the drone (the battery tail plug is the tail of the drone).
3. Install the propeller correctly.



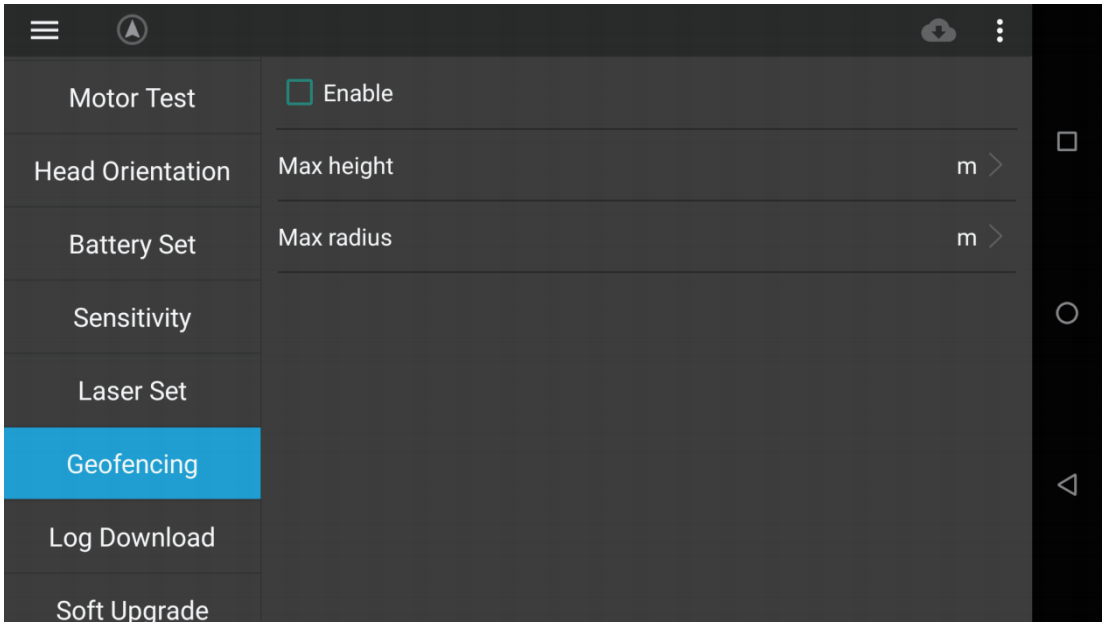
QUAD X

4. Turn on the remote control (long press the power button), and insert the battery plug into the power supply port of the drone.
5. Wait for the drone motor to make a long beep before the self-check succeeds.
6. Open the Skydroid Ground Station APP and click on the connection icon to connect to the video/image transmission. The GPS mode is recommended for take-off. It will search for satellites automatically, when the numbers of satellites more than 12 pieces, it can unlock and take-off.
7. Move the joystick upside-down “V” mode to unlock the drone, and slowly push the throttle joystick upward to let the drone take off smoothly.
8. If it is a big plane and it shakes, you need to adjust the sensitive in the app.
9.Pull down the throttle stick to land the drone.
10.After landing, pull the throttle stick to the lowest position and hold it for more than 3 seconds until the motor stops.
11. Plug out the drone battery from the drone tail and the power of the remote controller in turn after stopping.

6.4、Geofencing Geofence

Geofencing Geofence is turned off by default, if necessary, turn it on in section “flight control parameters” in the APP - geofence.

This is a safety protection mechanism to protect the drone from flying out of the range you set. When this mechanism is turned on, it will detect whether the GPS is positioned. When there is no positioning, it cannot be unlocked.



7、Log download and view

View flight records in Skydroid Flyapp.

8、FAQ

1.The remote control cannot be connected.

①Check whether the APP type is correct.

②Whether the background occupies the Skydroid Fly APP or not.

2.The image is stuck and disconnected

①Adjust the angle of the antenna to aim at the drone, and there should be no obstruction in the middle.

②Change the flying field, do not fly near tall buildings or signal towers.

3.Unsteady hovering of the drone

①Change the flying field, do not fly near tall buildings or signal towers.

②Carry out drone compass calibration and level calibration.

③check whether the wind is too strong to affect the flight.

④Fine-tuning the sensitivity.

4.The GPS accuracy of the drone is inaccurate or cannot pass the GPS accuracy test.

①Search for at least 11 GPS in an open outdoor place.

5.Unclear shooting.

①Check if the protective film of the lens is removed.

②whether use in a good light environment.

6.The lens is hazy and foggy.

①The humid climate causes the lens to fog, change the storage location of the drone.

②Place desiccant when storing.

7.Lost pictures or videos taken.

When finish recording, please remember to click the “recording” icon to stop recording, otherwise the video may be damaged or lost.

Exemptions

When using this product, Skydroid shall not be liable for compensation and legal responsibility for direct or indirect damage caused by the following reasons.
1.The user has caused damage when drinking, taking drugs, drug anesthesia, dizziness, fatigue, nausea and other poor physical or mental conditions.
2 .Personal injury, property damage and legal liability caused by the user's subjective intention or misjudgment.
3.Compensation for any mental damage caused by the accident.
4.Damage caused by the user flying in a flight area prohibited by laws and regulations such as nature reserves.
5.Other damages caused by self-modification or replacement of accessories or parts not produced by Skydroid, resulting in poor operation of the drone.
6.The drone's natural wear and tear (flying time of 100 hours or more), decay, and aging of the wiring have caused the aircraft itself to operate poorly.
7.The drone issued a low-voltage alarm and did not land, causing the drone to fall or crash.
8. Knowing that the drone is in an abnormal state (such as water, oil, soil, sand and other unidentified substances, incomplete assembly, obvious failure of main components, obvious defects or missing parts), damage caused by forced flying.
9.The drone is in a magnetic field interference zone, a radio interference zone (such as near high-voltage power lines, large power equipment, radio and television transmission towers, mobile phone base stations, etc.), a no-fly zone specified by the government, or the user's field of view is in backlight, blocked by obstacles, caused by flying under conditions that are not suitable for control, such as blur, poor eyesight, and other conditions that are not suitable for control.
10.Flying in bad weather, such as rainy or windy (more than level 4), snow, hail and other bad weather.
11.The drone has encountered collisions, overturns, fires, explosions, lightning strikes, storms, tornadoes, rainstorms, floods, tsunamis, subsidence, ice sinks, cliffs, avalanches, hailstorms, mudslides, landslides, earthquakes, etc.
12.Any data, audio or image data obtained by the user using the drone is damaged due to infringement.
13.Regarding the battery, such as damage caused by the matching or improper use of the protection circuit, battery pack, and charger.
14.Any indirect losses and legal liabilities caused by problems with equipment or accessories (including memory cards), such as images or videos that cannot be saved.
15.The loss and legal liability caused by the user recklessly flying unsafe without completing sufficient flying training.
16.The user fails to comply with the use methods and various precautions mentioned in the user manual or user quick start guide of Skydroid official website and the loss and legal responsibility caused by various precautions.
17.Other damages that are not within the scope of Skydroid liability.

Suggestions

1.This product is compatible with the external environment and meets the FCC's limited requirements for wireless video.
This product complies with FCC Part 15 regulations, which contains two aspects:
(1)The work of the product will not cause harmful interference to others;
(2)At the same time, the product can withstand harmful interference that may cause the product to work abnormally.
Attentions: The manufacturer is not responsible for any wireless and other interference caused by illegal modifications and changes to the equipment. Because these modifications and changes have exceeded the user's operating authority.
Attentions: This product has passed tests and has been proven to comply with the FCC Part 15 requirements for Class B digital products.
These regulations are to ensure that the product will not cause harmful effects on the residential environment when it is installed and used. This product will radiate radio frequency energy when it is working. If the product is not installed and used in accordance with the instructions, it may cause interference to public wireless communication. However, in some specific installation and use occasions, there is no guarantee that interference will not occur. The user can check whether some interference is caused by this product by turning on and off the product. If this product has indeed caused interference to wireless and video receiving equipment, users can try to take the following corrective measures:
✓ Properly adjust the position of the antenna.
✓ Increase the distance between the product and the receiving device.
✓ Asking for help from dealers or experienced wireless/video technicians.
2.When using this product, make sure that the product antenna is not less than 20cm away from people. The USB interface inside the remote controller and the USB interface of the drone can only be connected with the communication interface USB2.0 or above. It is forbidden to connect to the USB power interface. Please choose the correct type of battery. Using other types of batteries may cause explosion. At the same time, please follow the instructions to properly dispose of the used battery.
Therefore, we Skydroid promises that this product meets the basic requirements specified in 19991/EC and some other related directive requirements.
3.This product is for personal use only, and it is strictly forbidden to use this product for any behavior that violates international and local laws and regulations.
Do not use this product for the following activities (only examples, not limited to this):
(1) Defame, abuse, harass, stalk, threaten or other violate the legal rights of others (such as the right of privacy and publicity);
(2) Taking pictures of others or private areas without permission;
(3) Use this product for illegal or inappropriate purposes other than general commercial purposes (such as spying, military activities, or unauthorized inspections and investigations, etc.);
(4) Violate any laws, administrative regulations and related social customs in the area where this product is used.

Attentions:

(1) In some cases, shooting or recording performances, exhibitions or other commercial buildings for private purposes may also cause infringement of the intellectual property rights of others;
(2) In some regions and countries, small aerial models are also prohibited from participating in any commercial activities.
If you encounter an unsolvable problem during the installation process, please contact Skydroid officially authorized agents or Skydroid technical support.

Reminder: Please read the user manual carefully before use!

- Always be supervised while charging
- Please unplug the charging cable immediately after charging
- Propeller components may cause injury
- This product is not a toy
- Not suitable for children under 14 years

WeChat public account

Skydroid National Service Hotline

400-6996-520

Product name: S1
Manufacturer: Skydroid Co., Ltd
Address: 2nd Floor, Building A, Haixi Yucheng Base, High-tech Industrial Park, Quanzhou City, Fujian China.
Email: sales01@skydroid.xin
Official Website: www.skydroid.xin