

SKYDROID 云卓

泉州云卓科技有限公司



云卓 G16

用户手册

V1.0

注意

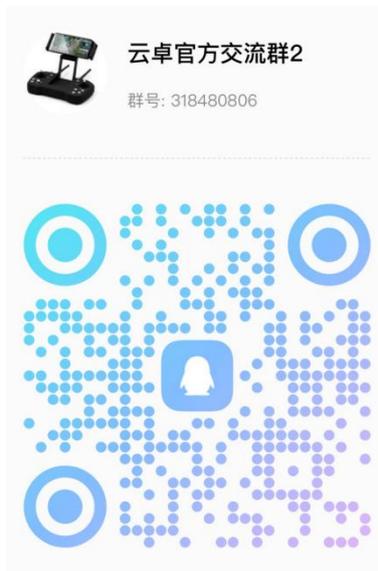
本产品使用以下词条因操作不当可能带来的潜在危险加以分级说明。

注意：如果不遵循说明进行操作，可能会导致财产损失和轻微伤害。

注意：如果不遵循说明进行操作，可能会导致财产损失、重大事故和严重伤害。

警告：通过阅读整个用户手册，熟悉产品的功能之后再进行操作。如果没有正确操作本产品可能会对自身或他人造成严重伤害，或者导致产品损坏和财产损失。本产品较为复杂，需要经过一段时间熟悉后才能安全使用，并且需要具备一些基本常识后才能进行操作，如果没有强烈的安全意识，不恰当的操作可能会导致产品损坏和财产损失，甚至对自身或他人造成严重伤害。本产品不适合儿童使用。切勿使用非云卓提供或建议的部件，必须严格遵守云卓的指引来使用产品。

云卓官方 QQ 群



云卓官方微信群



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,并能及时有效地为您服务,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。

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一、概述

1. 产品特性

(1) G16 系列采用高通 6nm 处理器，搭载安卓 13（64 位）嵌入式系统，操作流畅，生态开放，可安装市面上绝大多数 APP。采用全新高功率、高带宽的 2.4/5.8G 双频无线模块，支持自动跳频和 MCS 自主动态调整，图数传距离可达 30KM。

(2) G16 支持 SIM 卡、USB 接口、TYPE-C 接口、PPM 口等丰富接口提供 SDK 开发包，支持视频悬浮，支持主流飞控的地面站。

(3) 1920*1200 分辨率、7 寸工业触摸屏+阳光可视屏，超大的屏占比，在阳光环境下依然可以清晰地查看实时显示信息。

(4) 采用高能量密度的锂离子电池，满电可工作 9~10 个小时，一贯的荒野求生思维让您对设备的可靠性毫无牵挂。

2. 主要用途及适用范围

G16 适用于对直升机、固定翼、多旋翼、车、船等无人设备的视频图像传输（需选配摄像头）、数据传输和操控。

3. 使用环境条件

注意：

a) 环境温度：-10°C~60°C。

b) 贮存温度：-20°C~50°C。

c) 相对湿度：Not exceed 85%。

d) 大气压力：86kPa ~ 106kPa。

e) 使用地点不允许有爆炸危险的介质，周围介质中不应含有腐蚀金属和破坏绝缘的气

体及导电介质，不允许充满水蒸气及有严重的霉菌存在。

f) 使用地点应具有防御雨、雪、风、沙、灰的设施。

4. 工作条件

供电方式和注意事项

G16 系列地面端内置一体式可充电锂电池，兼容市场标准 TYPE-C 接口，请使用原装充电器充电。

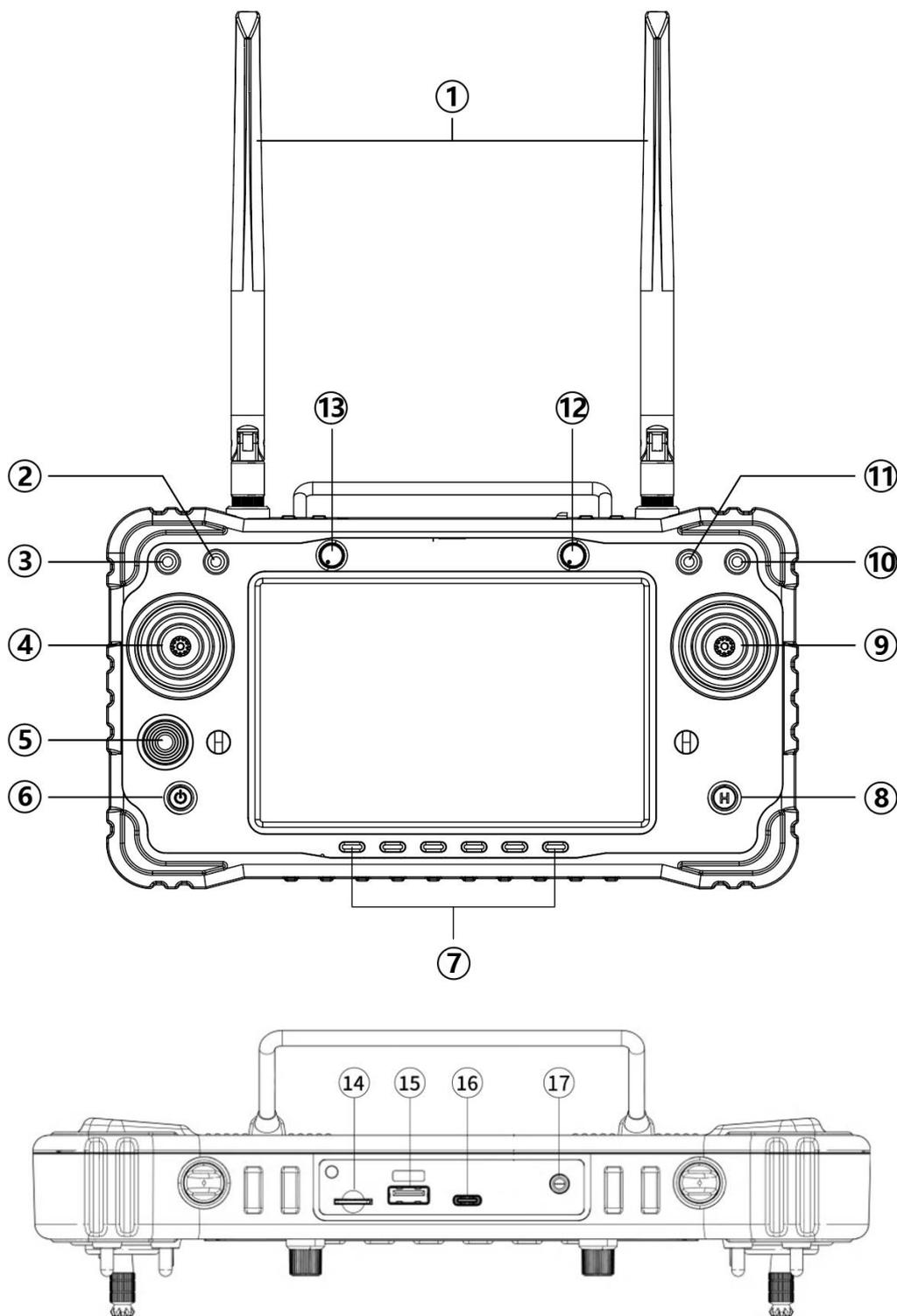
如在地面端充电时遇到冒烟、有异味、漏液的情况时，请勿继续给地面端充电，请移送至本公司进行维修。

请勿在婴儿触碰区域给本产品进行充电，以免发生触电危险。

请勿在超过 60°C 的环境下对本产品进行充电。

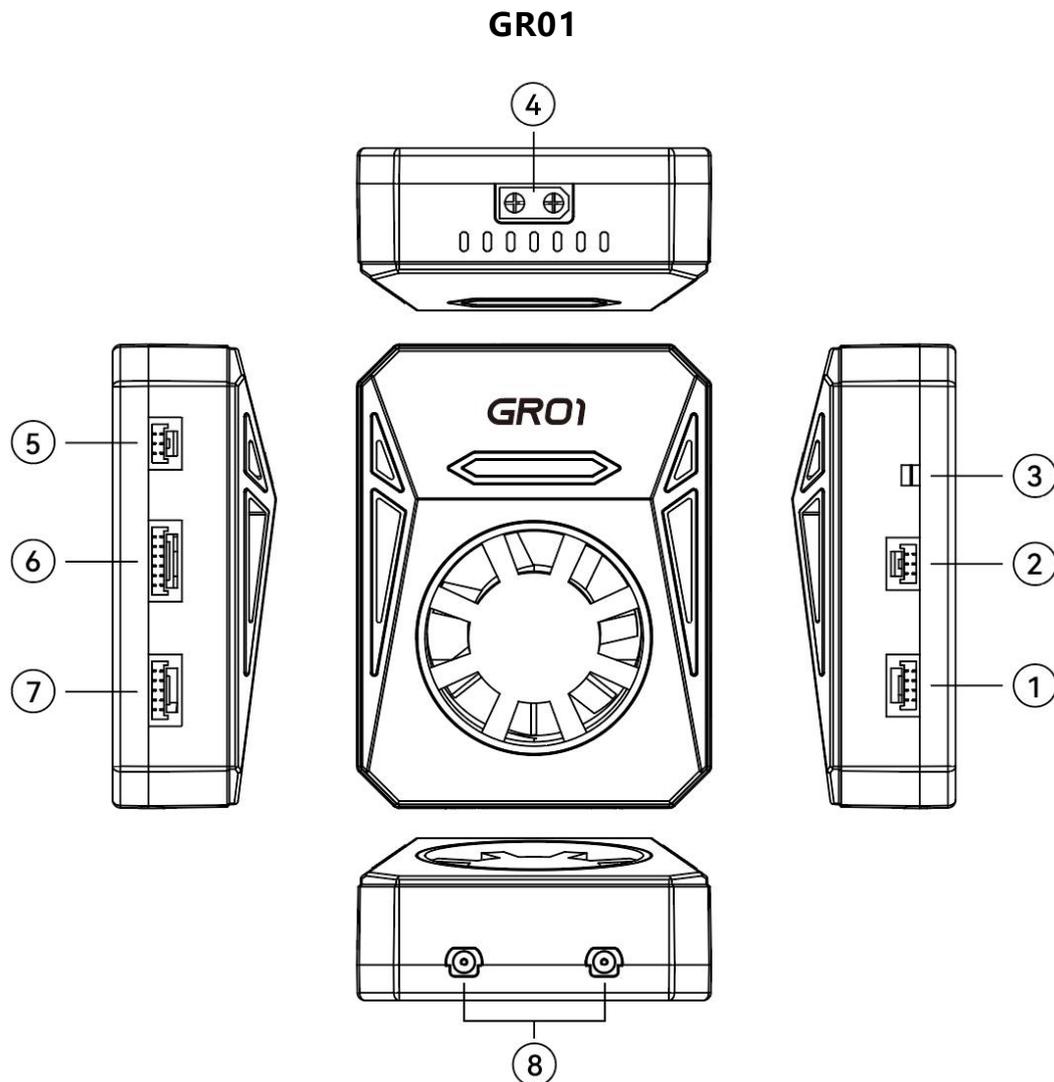
二、部件名称

1. 遥控器



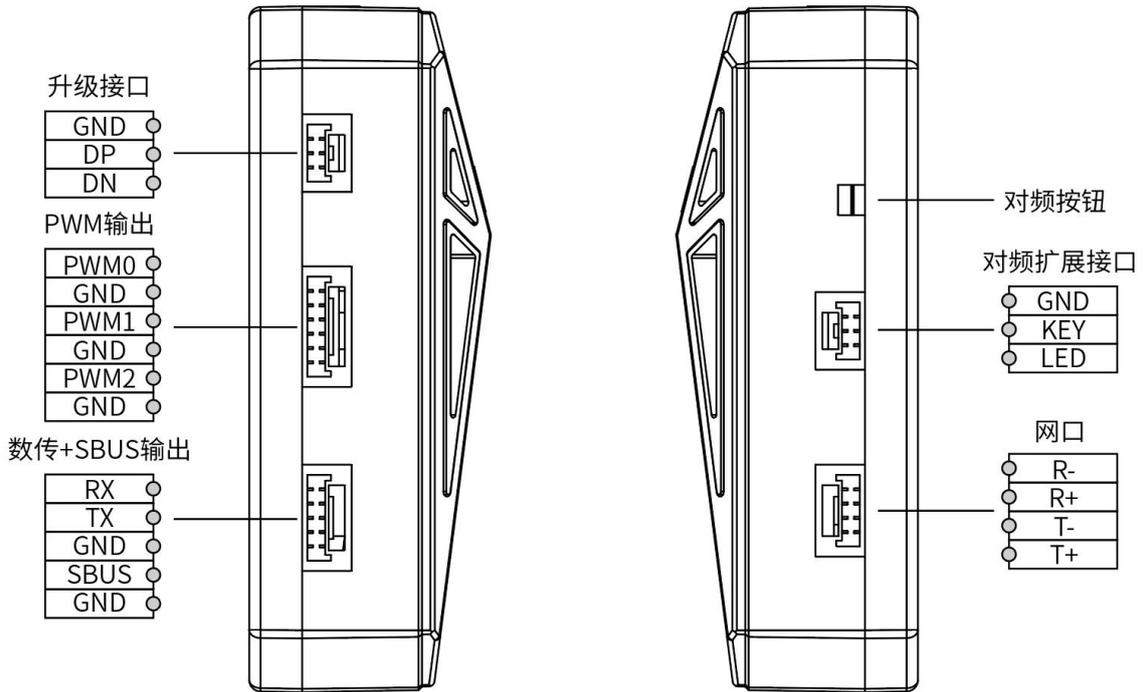
序号	注解	序号	注解
1	2.4G/5.8G 天线	10	拨动三档开关 SW4
2	拨动三档开关 SW2	11	拨动三档开关 SW3
3	拨动三档开关 SW1	12	旋钮 AUX2
4	左摇杆 X1、Y1	13	旋钮 AUX1
5	小摇杆 X3、Y3	14	SIM 卡插口
6	电源开关	15	USB-A 插口 (升级接口)
7	六段开关	16	Type-C 充电口
8	按键开关	17	PPM 接口
9	右摇杆 X2、Y2		

2. 接收机



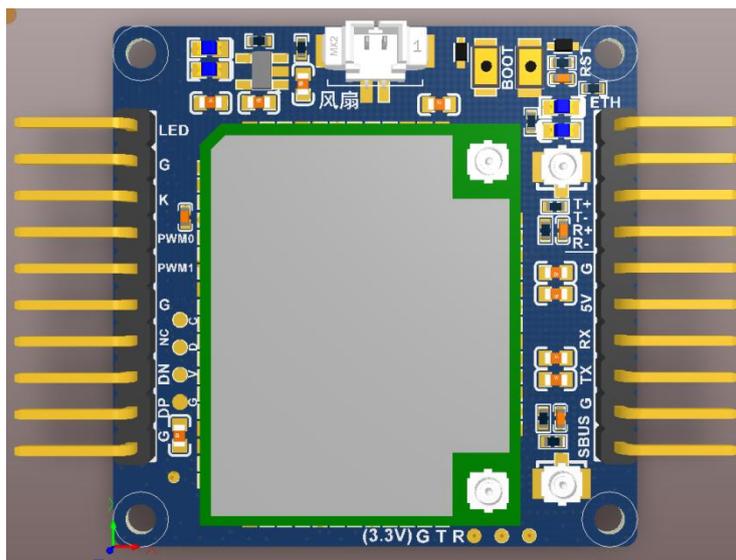
序号	注解	序号	注解
1	网口	5	升级接口
2	对频扩展接口	6	PWM 输出
3	对频按钮	7	数传接口+SBUS 输出
4	电源输入口 (7.2V ~ 72V)	8	天线接口

接收机接口定义：



注： GR01 的 PWM0~2 对应遥控器通道 9~11

G12 RX

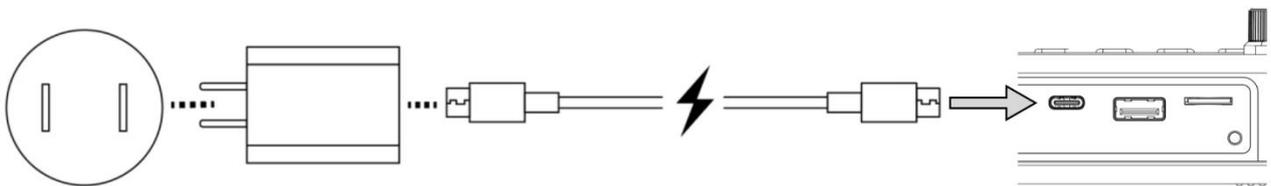


名称	注解	名称	注解
		ANT	天线
LED	对频指示灯	ETH0_TX+	网口 0
GND	地线	ETH0_TX-	
KEY	对频按钮	ETH0_RX+	
PWM0	PWM9 口 (9 通道)	ETH0_RX-	
PWM1	PWM10 口 (10 通道)	GND	供电+数传口
GND	地线	5V_IN	
NC	空引脚	UART_RX	
DN	升级口	UART_TX	SBUS 接口
DP		GND	
GND		SBUS	

三、准备遥控器

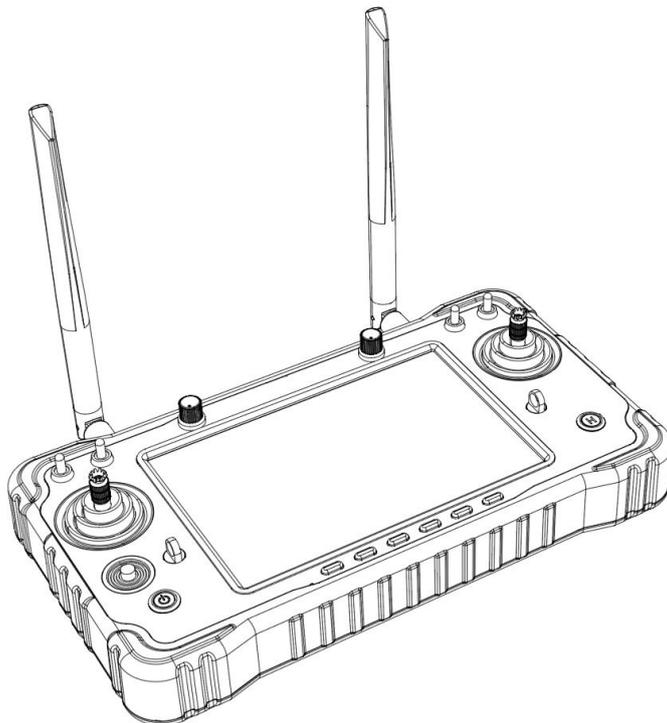
1. 遥控器充电

使用原装充电器充满约 3 ~ 4 小时



请使用原装充电器充电，为保持遥控器电池最佳状态，请确保每一个月对电池进行一次完全充电。

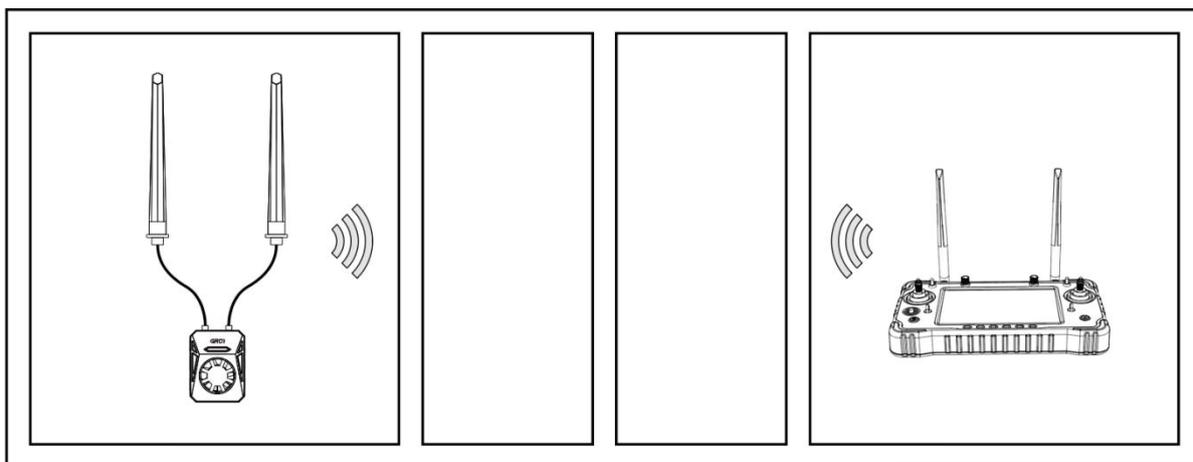
2. 天线正确打开



展开天线并垂直朝上

3. 室内拉距测试

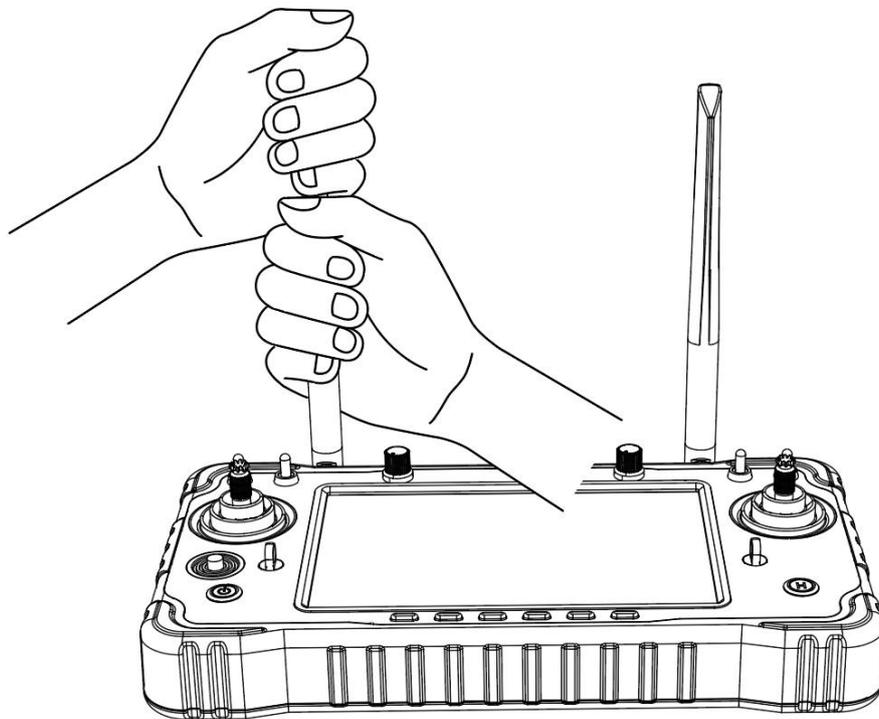
(1) 测试场景：遥控器与接收机隔着 3-4 堵墙。



(2) 没有对天线进行遮挡的情况下，信号强度如下图所示。

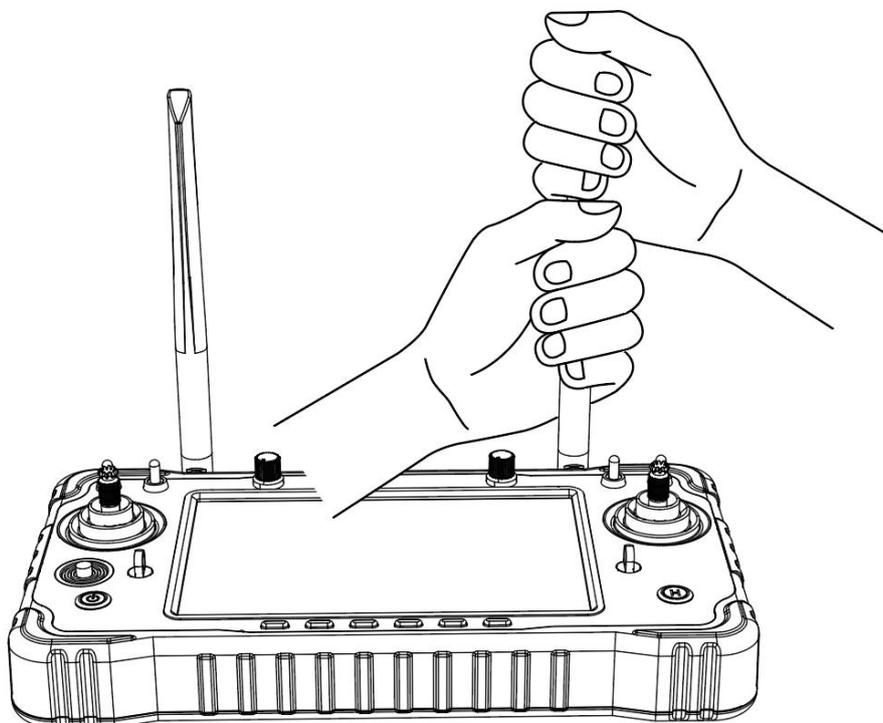


(3) 当紧握住遥控器左侧天线时，信号强度如下图所示。



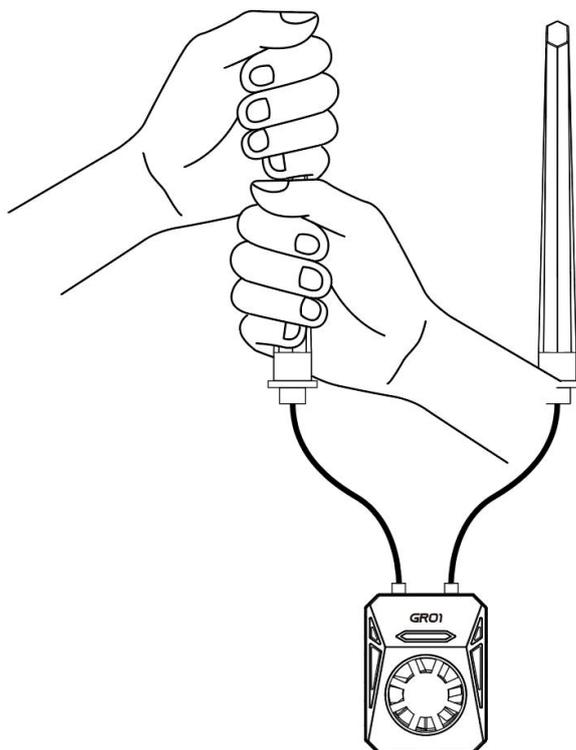


(4) 当紧握住遥控器右侧天线时，信号强度如下图所示。



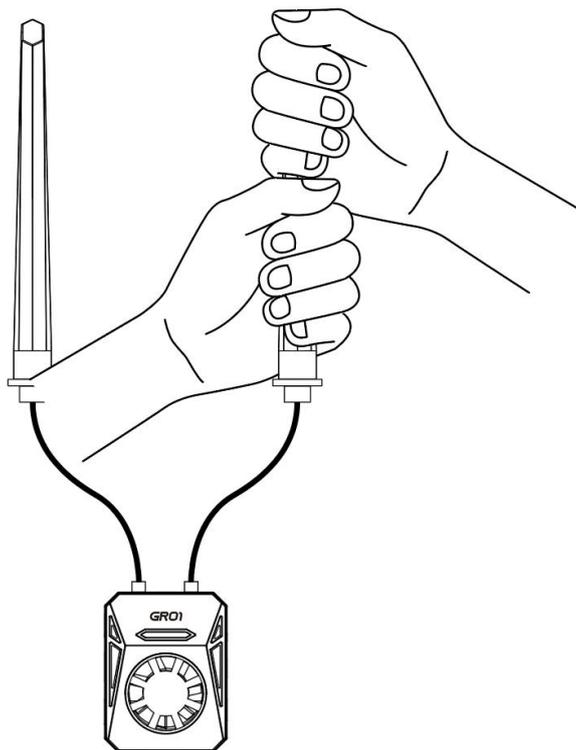


(5) 当紧握住接收机左侧天线时，信号强度如下图所示。





(6) 当紧握住接收机右侧天线时，信号强度如下图所示。

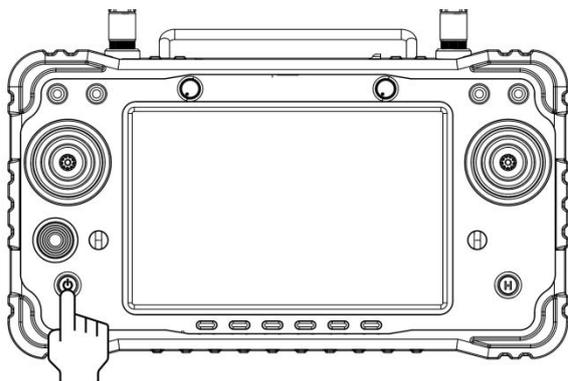




四、使用、操作

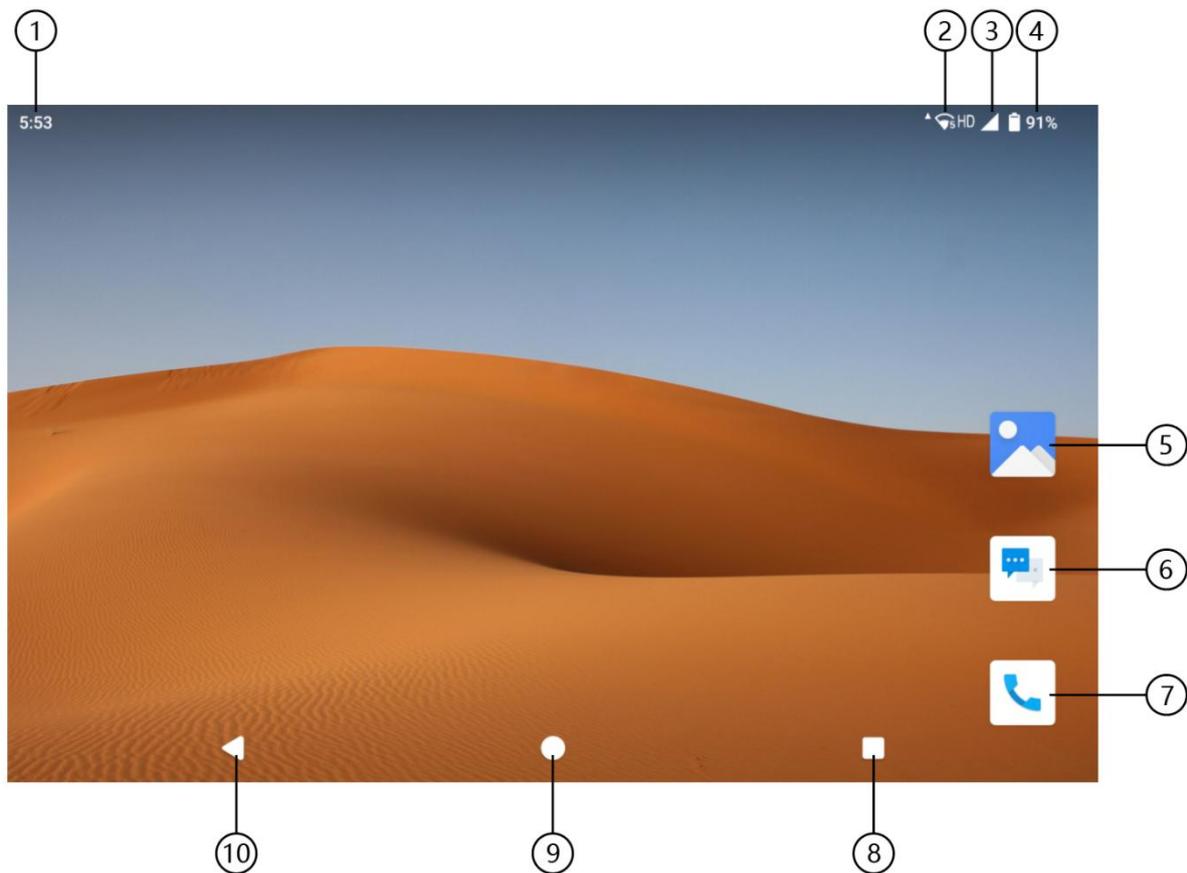
1. 遥控器开机与关机

长按电源键 2 秒可以开启遥控器，长按电源键 2 秒，再点击屏幕关机可以关闭遥控器。



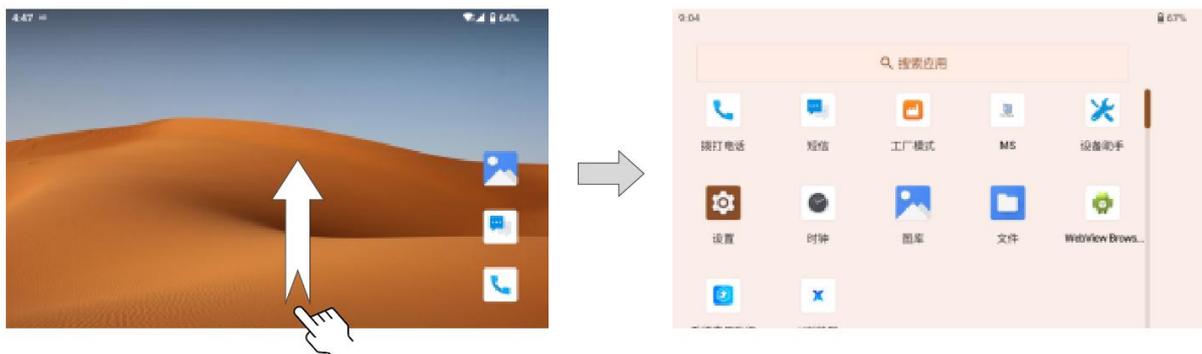
关机

2. 系统桌面



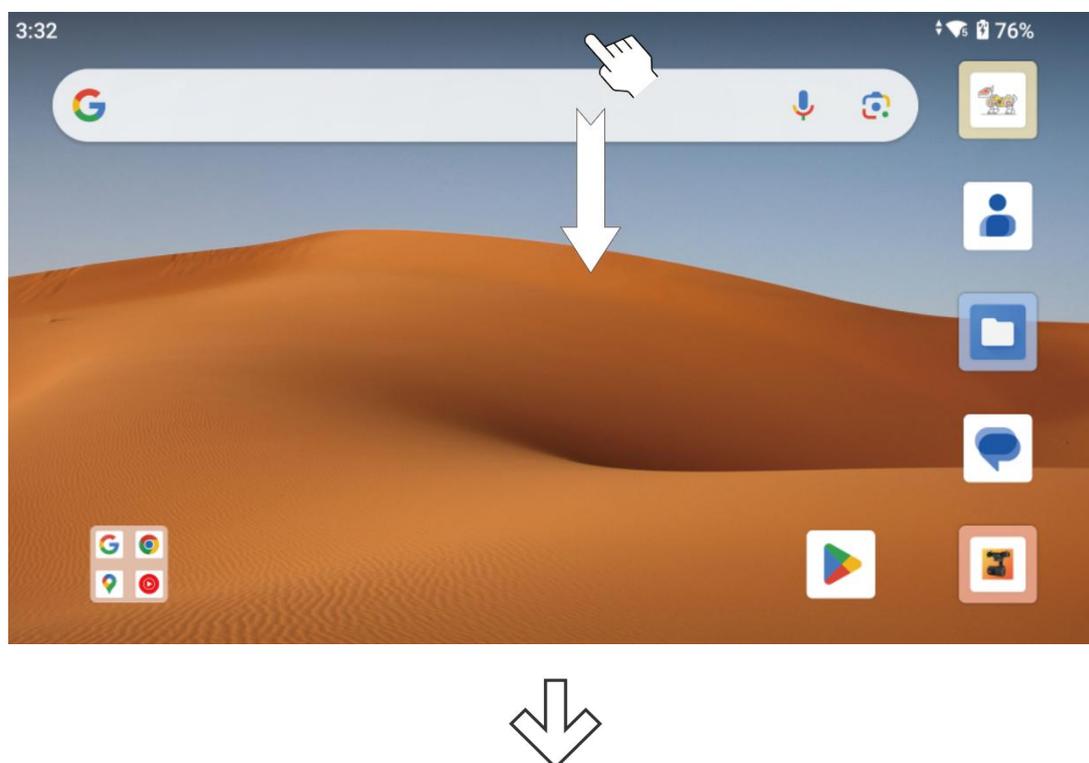
序号	注解	序号	注解
1	时间	6	短信
2	WIFI 信号状态显示	7	电话
3	SIM 卡状态显示	8	任务中心
4	电量显示	9	回到桌面
5	图库	10	返回操作

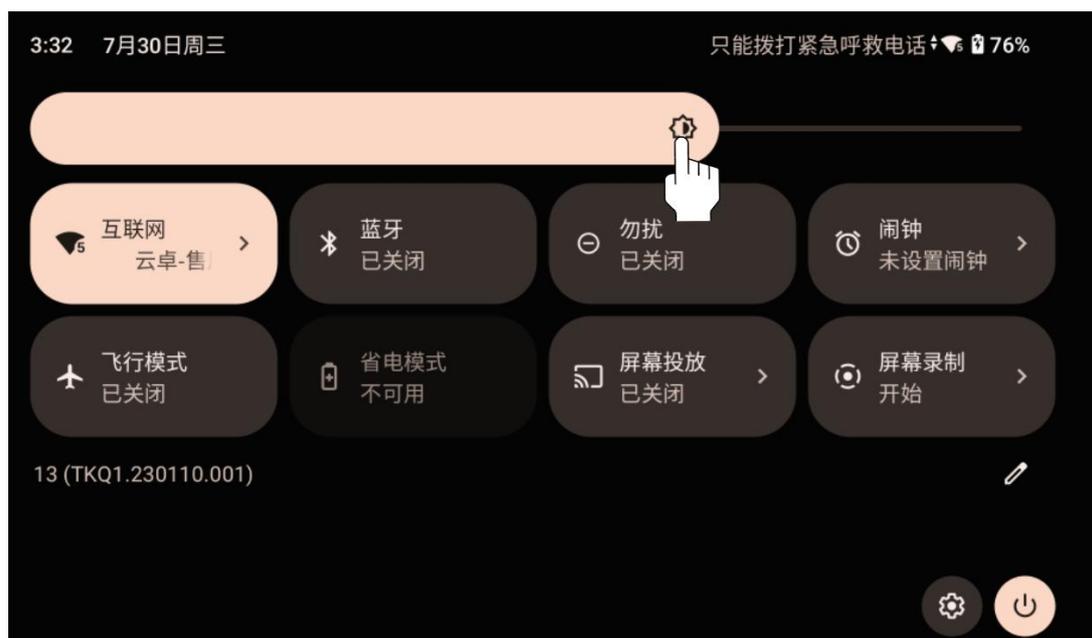
从屏幕底部边缘向上滑动可进入应用界面

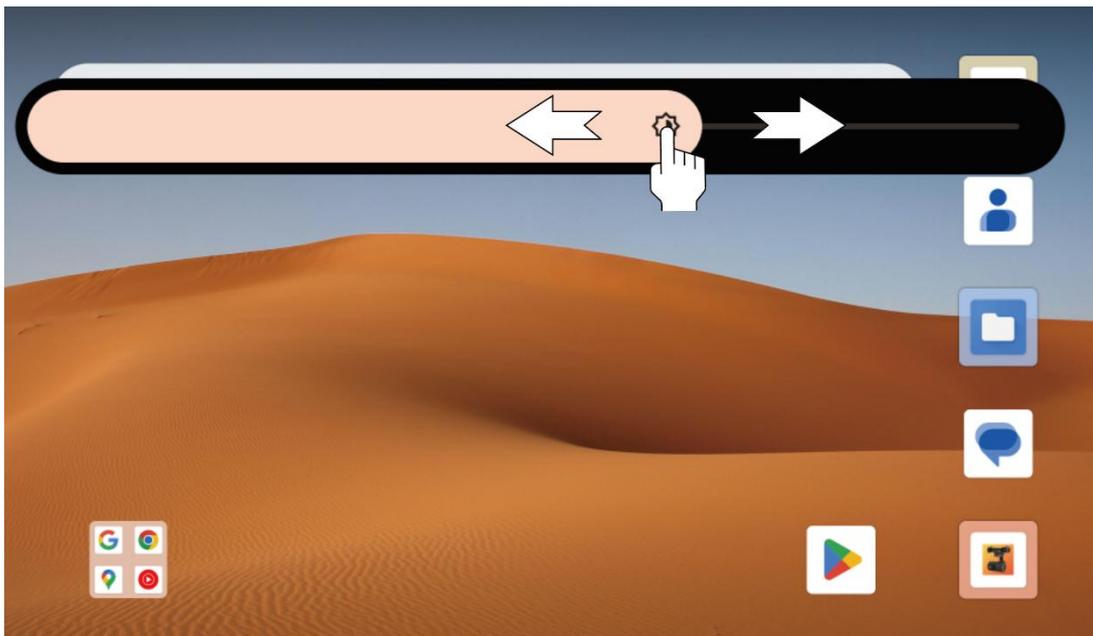


3. 调节亮度

从屏幕顶部向下滑动可进入控制中心，拖动滑动条可调节屏幕亮度。

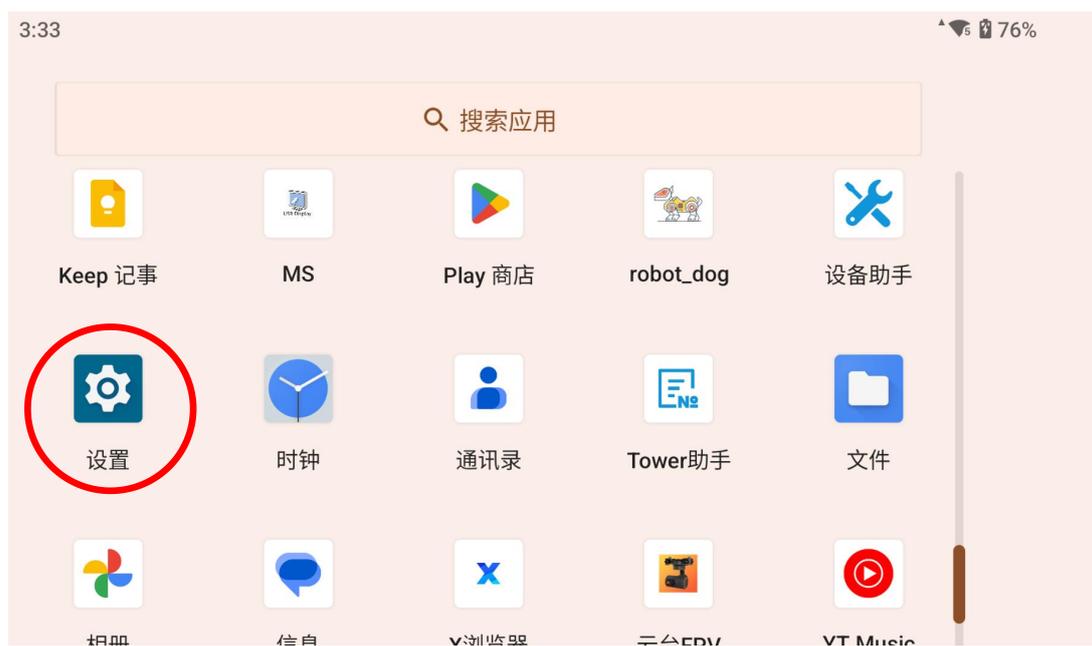






4. 调节音量

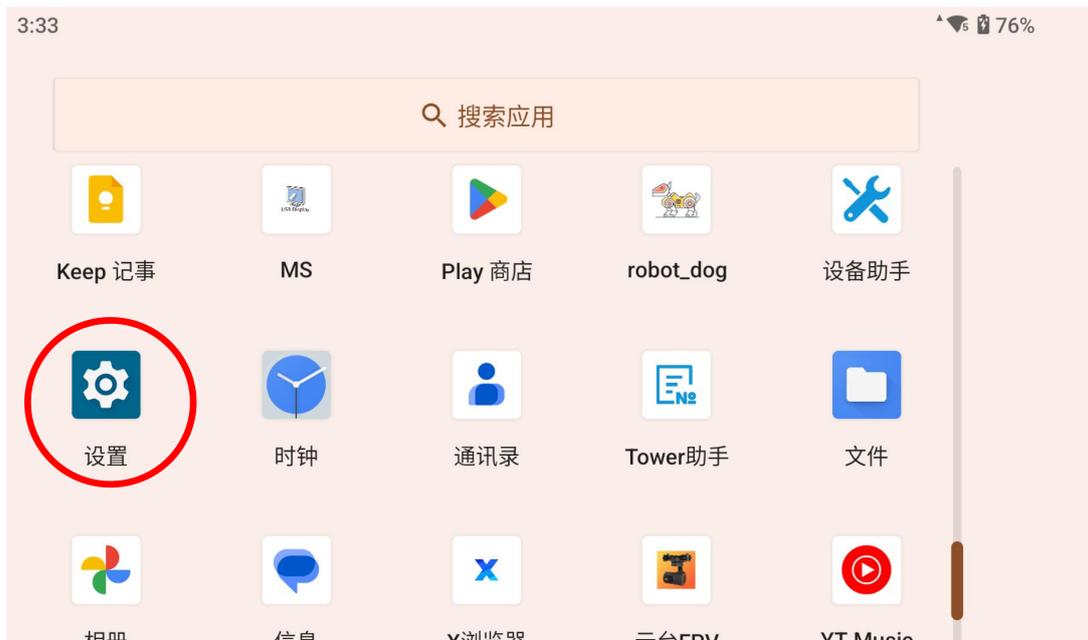
进入应用界面，点击设置，找到声音选项，拖动滑动条可调节音量大小。





5. 语言设置

点击设置，选择系统，选择语言输入法，点击语言，选择添加语言，添加好语言后，将想要设置的语言拖动到第一位即可修改系统语言。

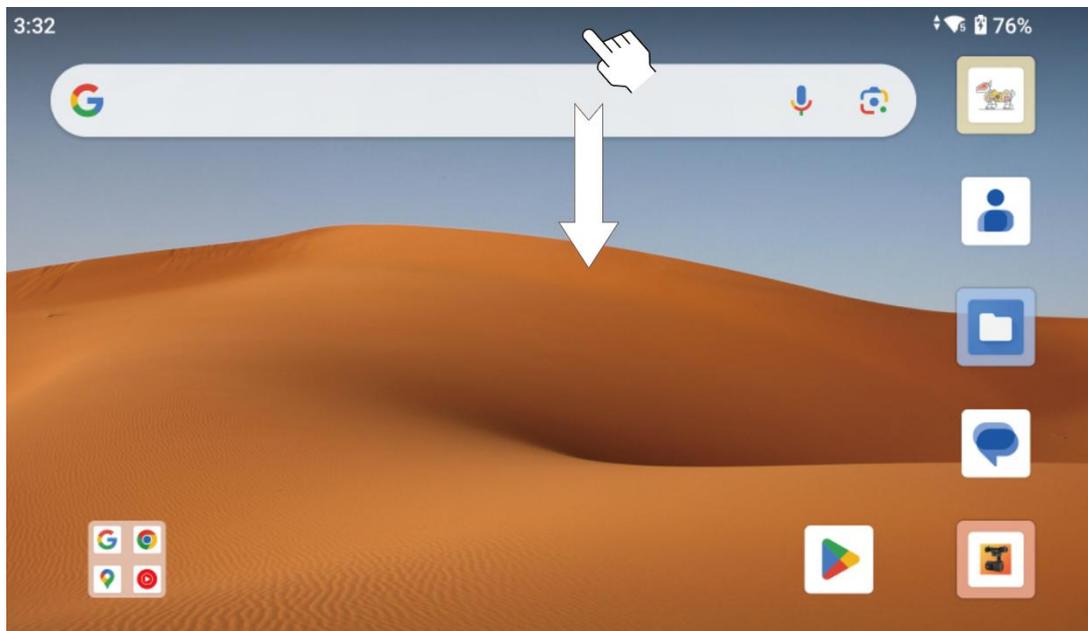






6. 与电脑传输文件

遥控器使用 type-c 口连接电脑，进入控制中心点击查看更多，选择传输文件。



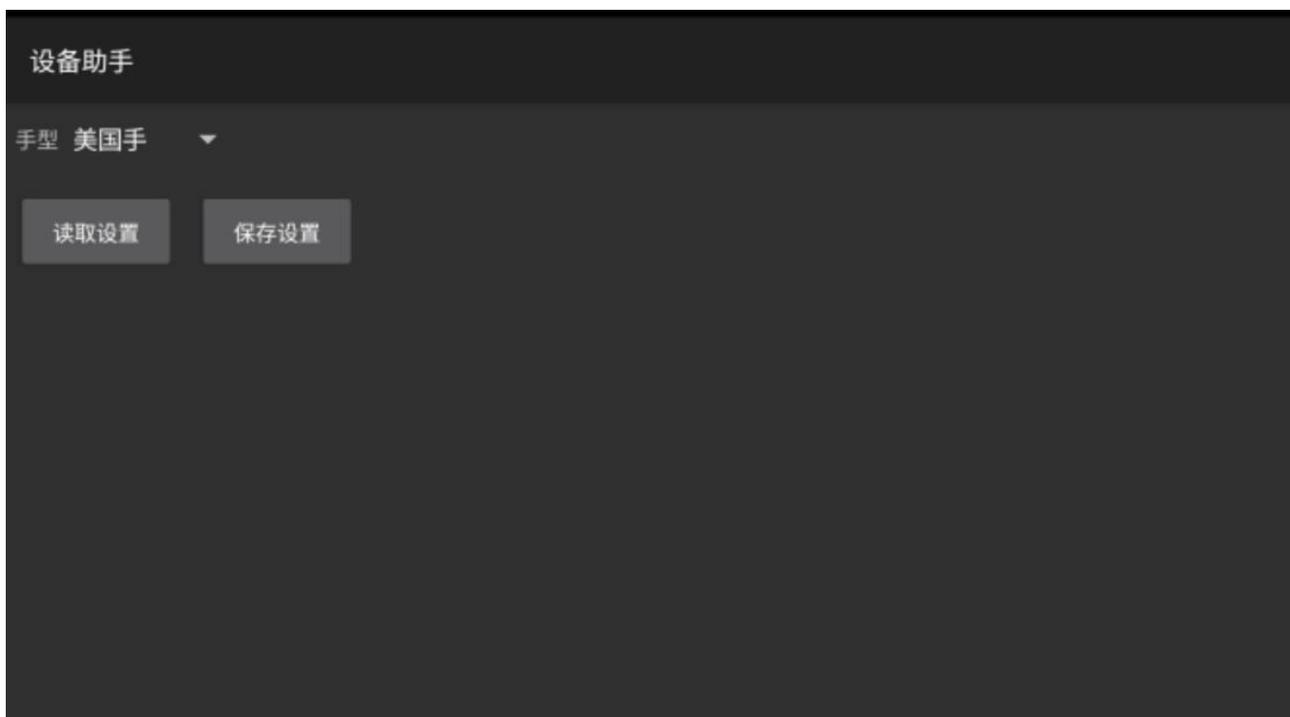


7. 设备助手介绍

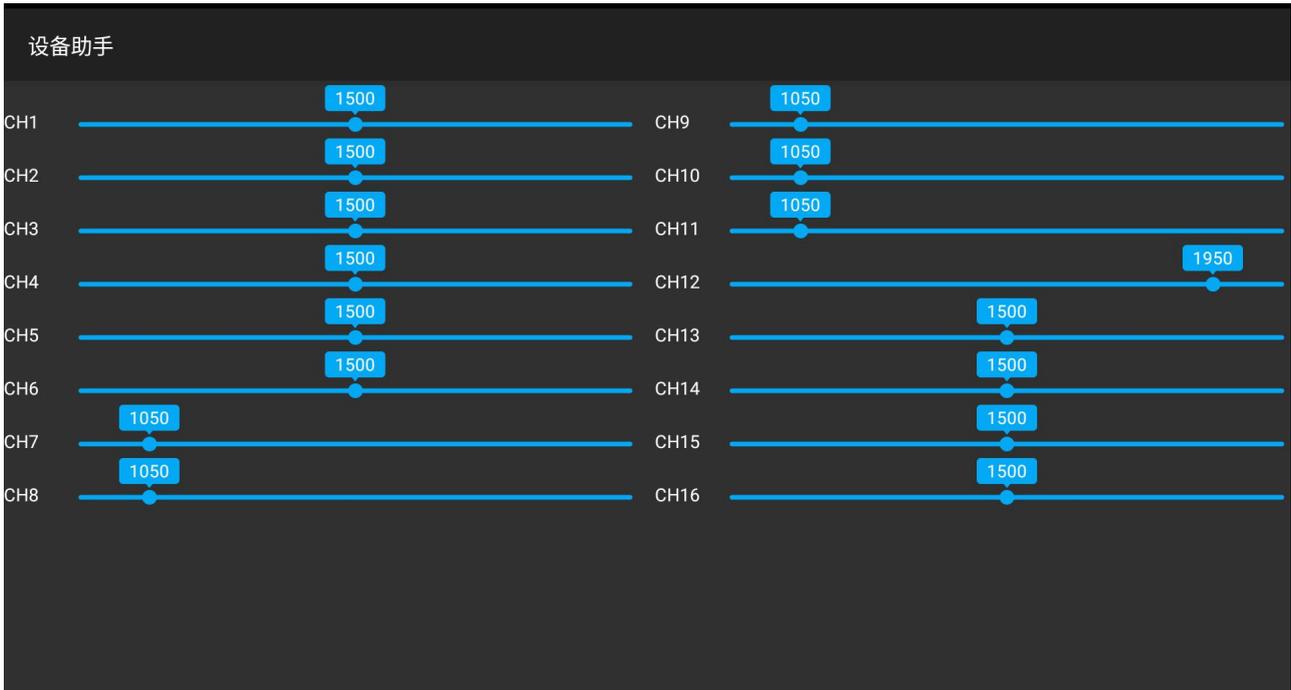


助手版本需要联网更新至最新版本。

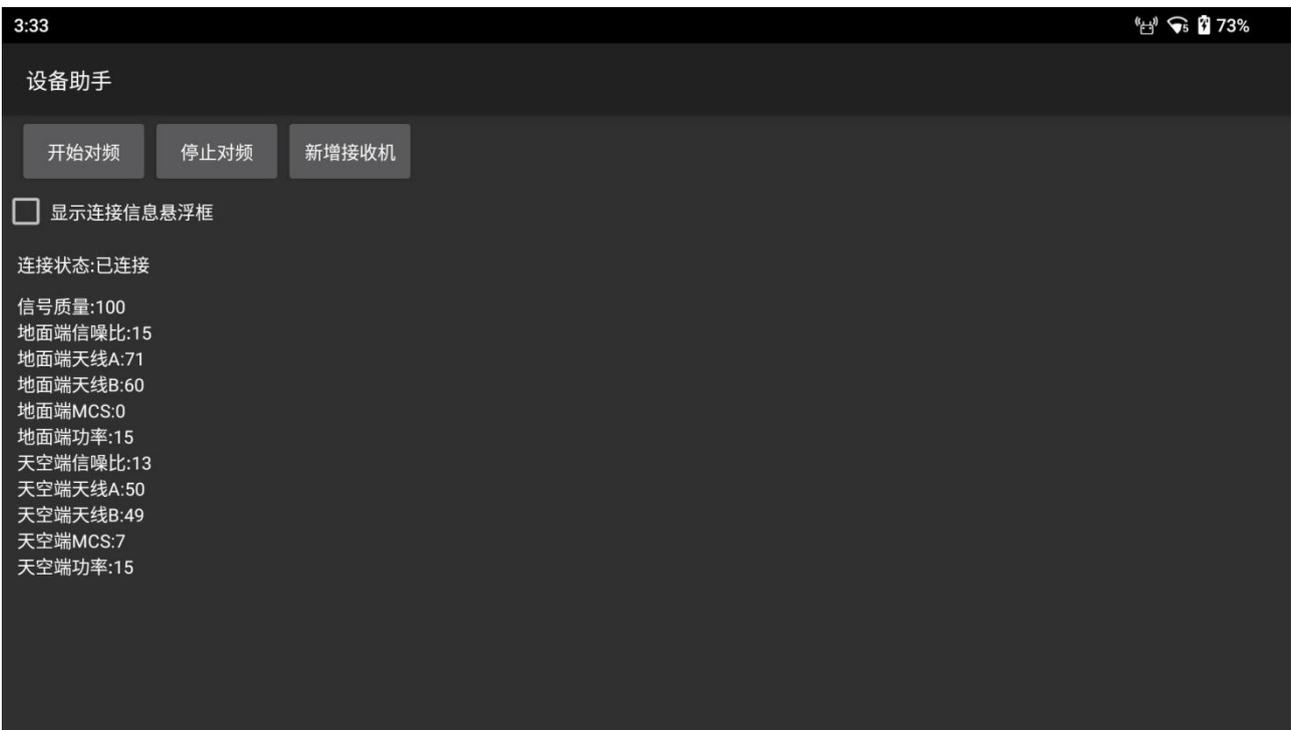
①手型设置：可设置遥控器手型，默认美国手。



②舵量查看：可查看遥控器各个通道的实时舵量值。



③对频：可查看对频状态和对频信息。



④视频查看：可查看相机回传视频。

⑤高级选项，可设置遥控器接收机的高级选项设置（下文会详细描述）

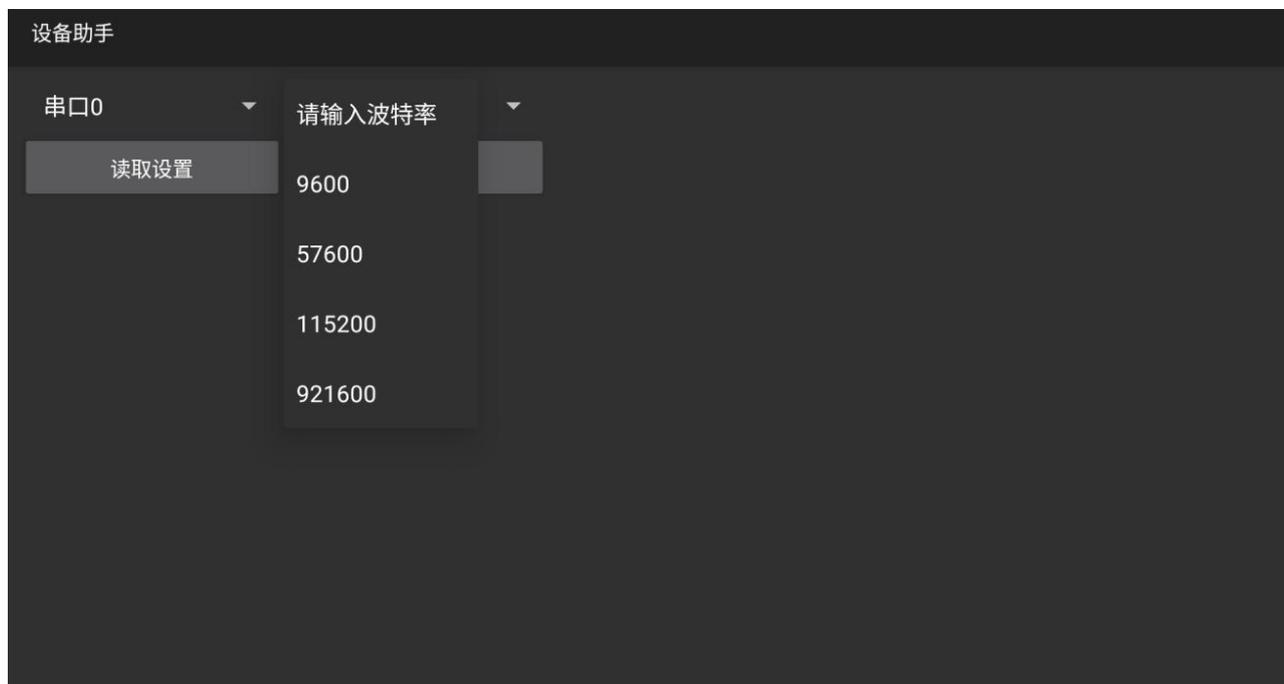
8. 设备助手介绍 - ⑤高级选项（密码 999）



①遥控调参：可自定义按键通道、设置反向和修改舵量最大最小值。



②波特率设置：修改接收机串口波特率。

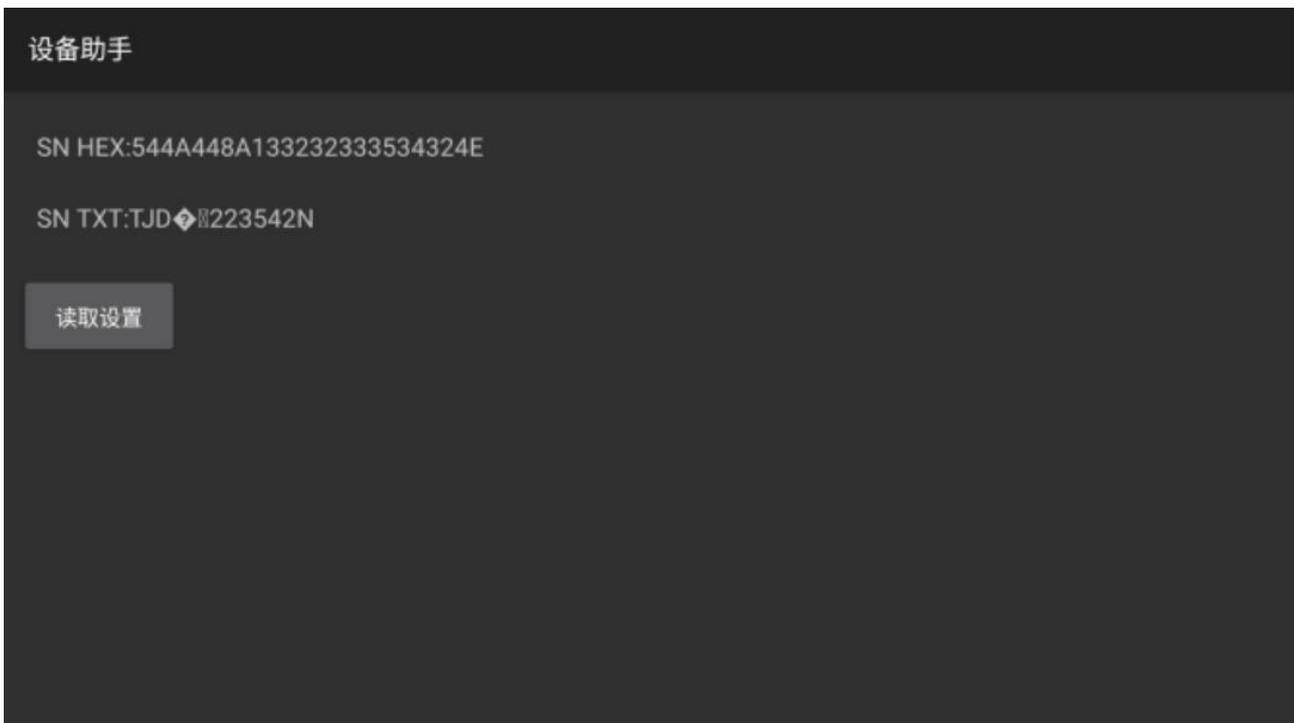


③升级设备：升级遥控器 MCU 固件、接收机无线模块、遥控器无线模块，安卓无线驱动固件。



注意：升级顺序为 1234。

④SN：遥控器查看 SN。



9. 遥控器对频

接收机 1: GR01

方式一:

- ①遥控器开机、接收机通电，通电后绿灯常亮，蓝灯间歇闪烁，风扇间歇转动。
- ②长按接收机对频按钮，直到蓝灯快速闪烁后松开。
- ③打开遥控器上的设备助手，点击对频-->开始对频，确认对频，等待显示对频成功。
- ④对频成功接收机指示灯将会蓝灯常亮。

方式二:

- ①给接收机快速上电 4 次，第 4 次将自动进入对频模式，蓝灯快速闪烁。
- ②打开遥控器上的设备助手，点击对频-->开始对频，确认对频，等待显示对频成功。
- ③对频成功接收机指示灯将会蓝灯常亮。

注: 对频时请保持遥控器和接收机在 50CM 以内。

接收机 2: G12 RX

方式一:

- ①遥控器开机、接收机通电，通电后红灯常亮，绿灯间歇闪烁。
- ②短接接收机的 GND 和 KEY 引脚，直到绿灯快速闪烁后松开。
- ③打开遥控器上的设备助手，点击对频-->开始对频，确认对频，等待显示对频成功。
- ④对频成功接收机指示灯将会绿灯常亮。

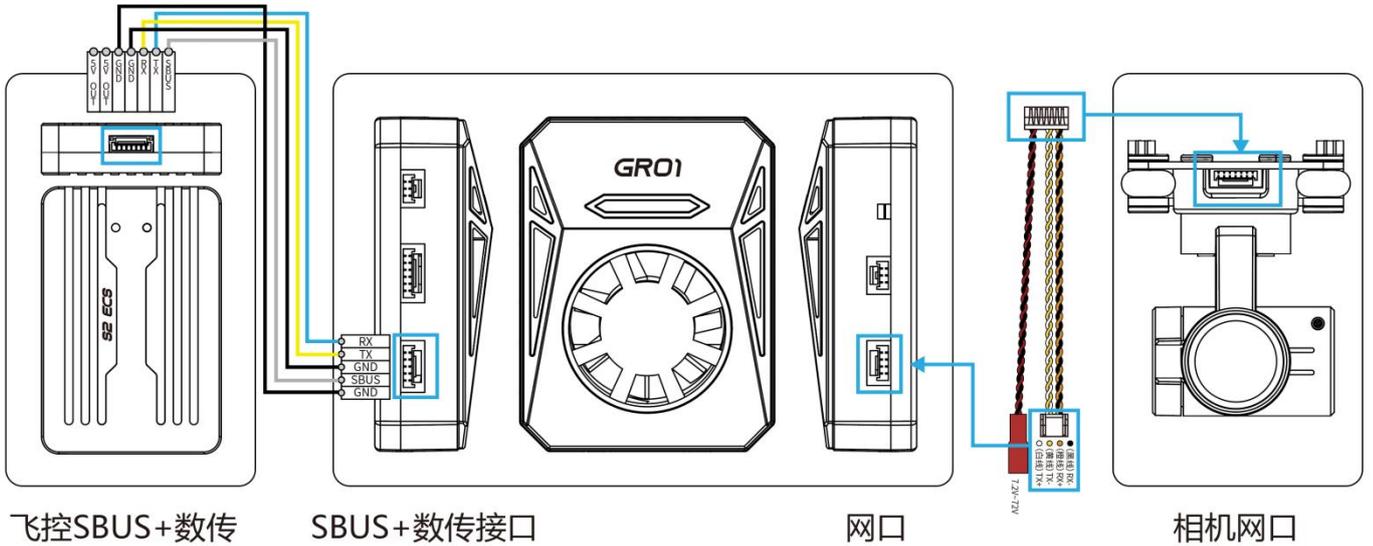
方式二:

- ①给接收机快速上电 4 次，第 4 次将自动进入对频模式，蓝灯快速闪烁。
- ②打开遥控器上的设备助手，点击对频-->开始对频，确认对频，等待显示对频成功。
- ③对频成功接收机指示灯将会蓝灯常亮。

注: 对频时请保持遥控器和接收机距离在 50CM 以内。

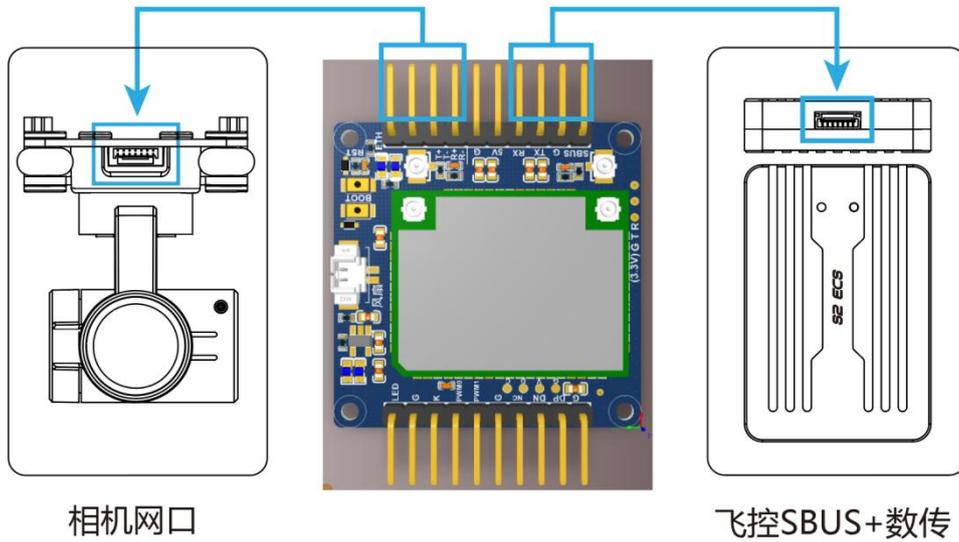
10. 图数传连接

接收机 1: GR01



按照上图接线，接收机的 SBUS+数传接口连接飞控 SBUS+数传接口，接收机的网口连接相机网口（**注意：**设备供电和其他接线请参考对应说明书）。

接收机 2: G12 RX



按照上图接线，接收机的 SBUS+数传接口连接飞控 SBUS+数传接口，接收机的网口连接相机网口。

(1) 图传



以云卓 C10Pro 为例，摄像头供电并且连接至接收机网口，打开**云台 FPV** 即可看见图传画面；云台 FPV app 下载地址：<http://file.skydroid.xin/SkydroidCameraFPV.apk> 若使用第三方摄像头，摄像头 IP 网段需要设置为 144 网段（192.168.144.XXX），网关必须设置为 192.168.144.11，否则会无法共享图传给电脑端。

打开设备助手--视频查看--点击下方设置按钮--视频流地址--自定义，输入摄像头的 RTSP 拉流地址。

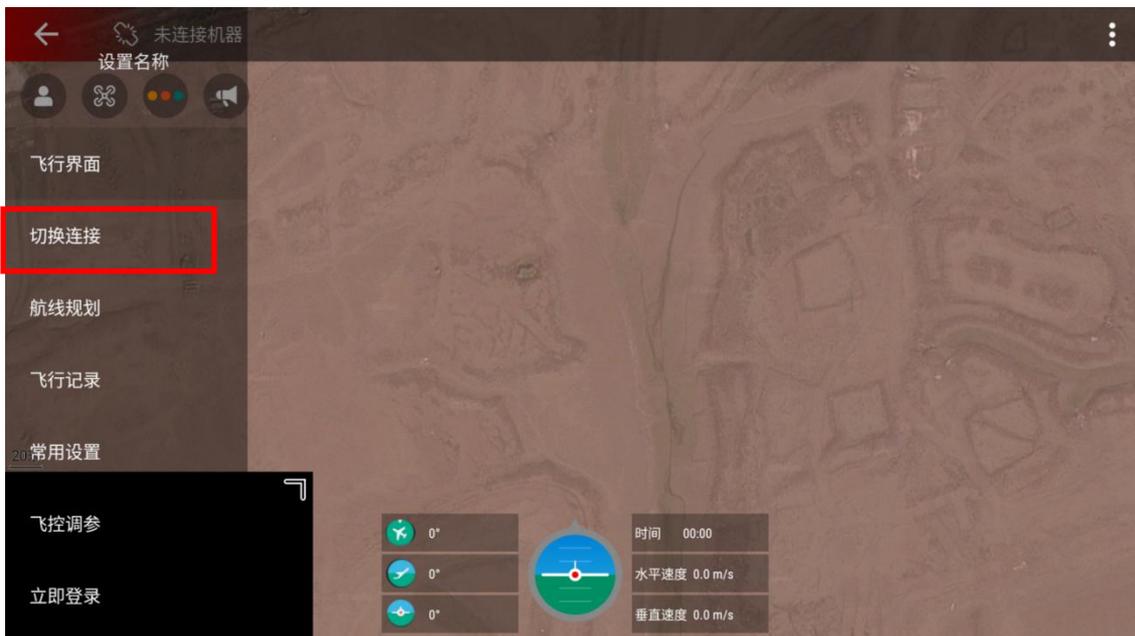
注：第三方摄像头 RTSP 地址需要找厂家提供，FLY 地面站无法进行控制云台。

若使用 **FLY GCS** 则在常用设置--其他设置--用户界面--视频窗口--C10

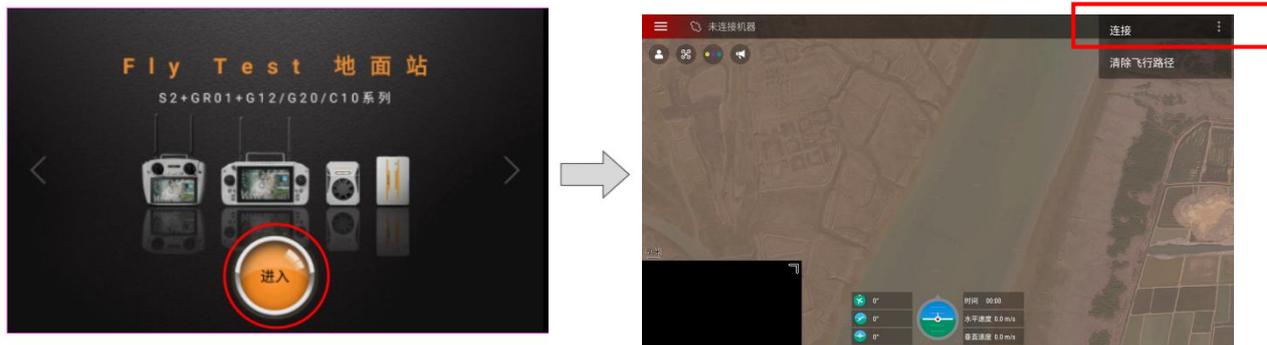


(2) 数传

以云卓 FLY GCS 为例，进入地面站，点击左上角，进入切换连接界面。



选择 S2+G12+G20+G30 组合点击进入，点击连接。



注：若连接不成功，请检查

- ①接收机串口波特率是不是与飞控数传口波特率一致；（S2 飞控的波特率为 921600）
- ②数传接线定义是否正确（RX 接 TX，TX 接 RX，详见本文 **11.图数传连接**）。

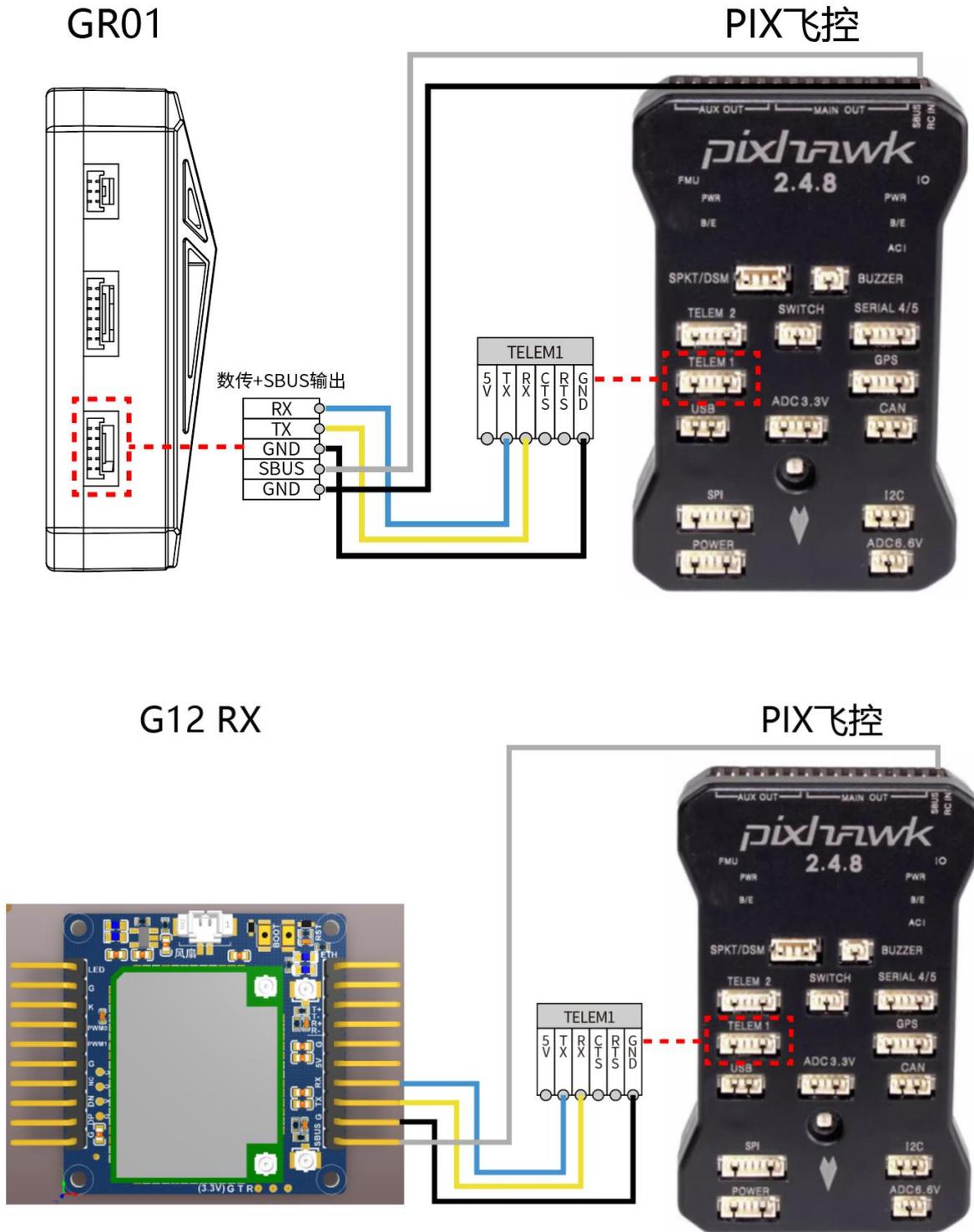
11. 如何在 G16 遥控器 QGroundContro 地面站显示数传图传

开源飞控数传线连接接收机数传口，以 QGroundContro 地面站（以下简称为 QGC，当前版本 V4.4.3 64 位）为例做参考连接数传，QGC 官网下载链接

<http://qgroundcontrol.com>。

注意：S2 飞控只能用云卓 FLY 地面站，不要使用 QGC 连接。

开源 PIX 飞控 SBUS+数传连接示意图：

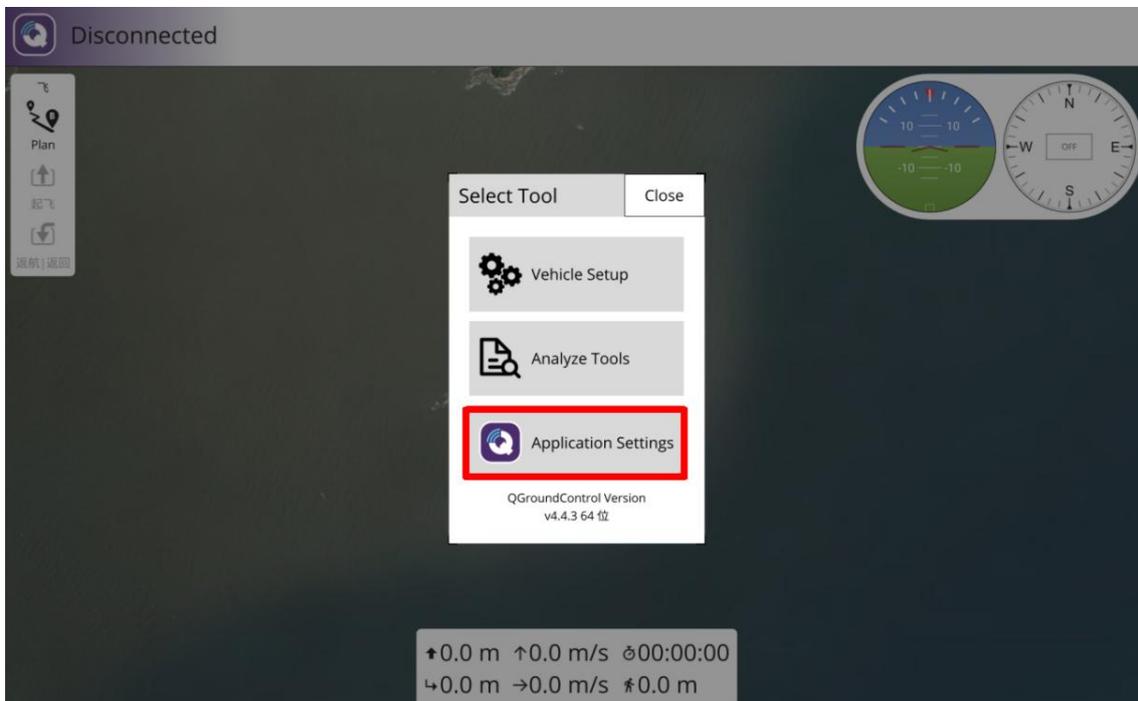


11.1 QGC 数传设置

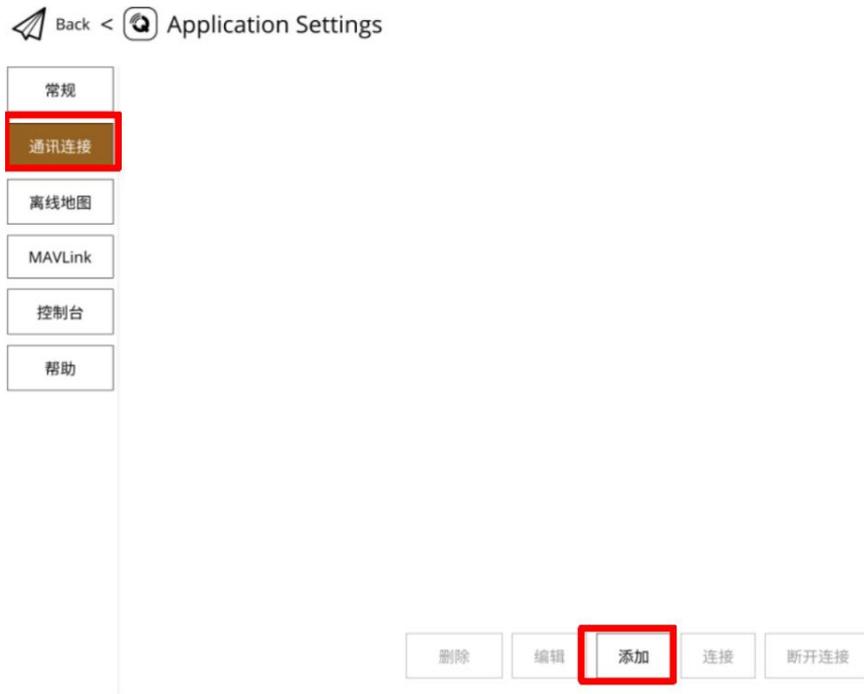
(1) 点击 QGC 左上角的 Q 图标。



(2) 在弹出的弹窗上，选择 Application Settings。



(3) 点击通讯连接，再点击添加。



(4) 数传设置：

- ① NAME 添加名称；
- ② 勾选开始时自动连接；
- ③ Type（连接方式）点开选项设置为 UDP；
- ④ Port（端口）设置为 14551；
- ⑤ Server Addresses 下框内输入数传 IP 地址：127.0.0.1:14552；
- ⑥ 点击 Add Server（添加）；
- ⑦ 点击确认。



Back <



Application Settings

常规

通讯连接

离线地图

MAVLink

控制台

帮助

Name ①

开始时自动连接 ②

高延迟

Type ③

Note: For best performance, please disable AutoConnect to UDP devices on the General page.

Port ④

Server Addresses (optional)

⑤ ⑥

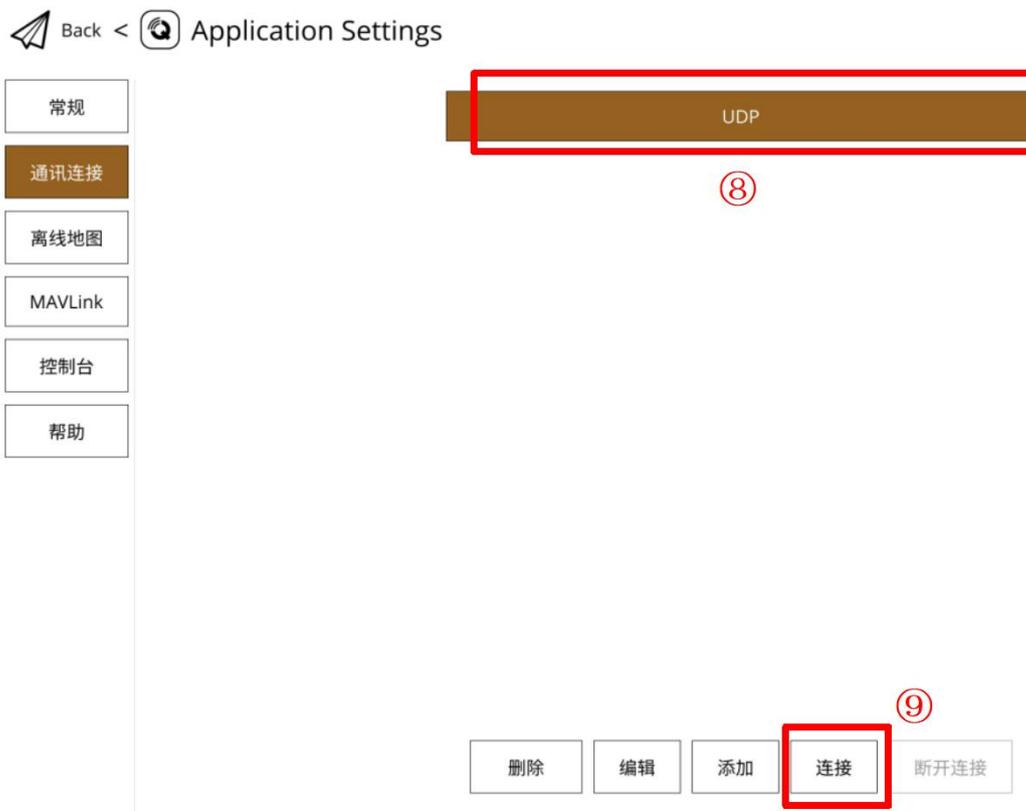
⑦

确认

取消

⑧ 点击选择刚才命名的 UDP;

⑨ 再点击连接。

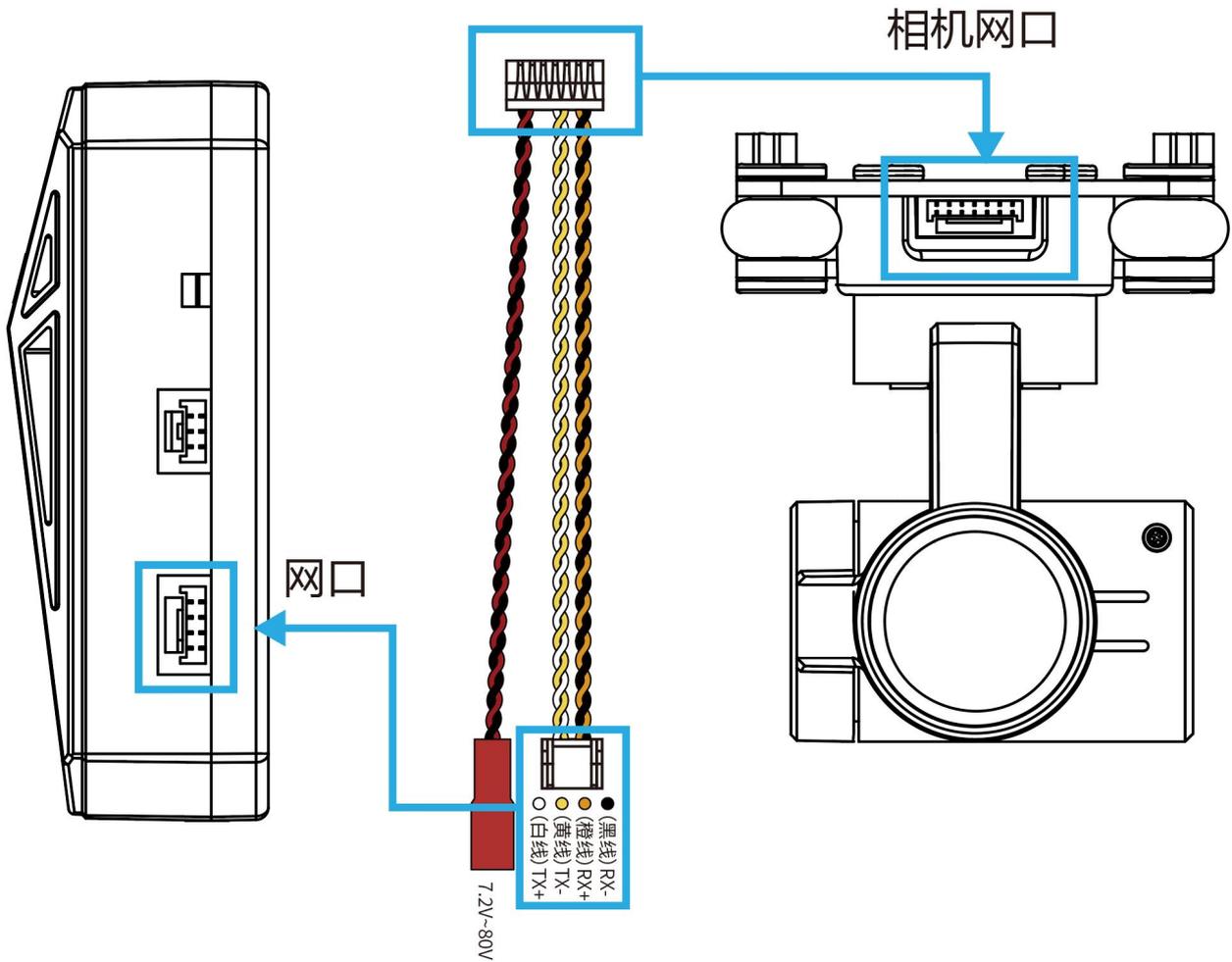


(5) 正常连接上飞控数传。



11.2 QGC 图传设置

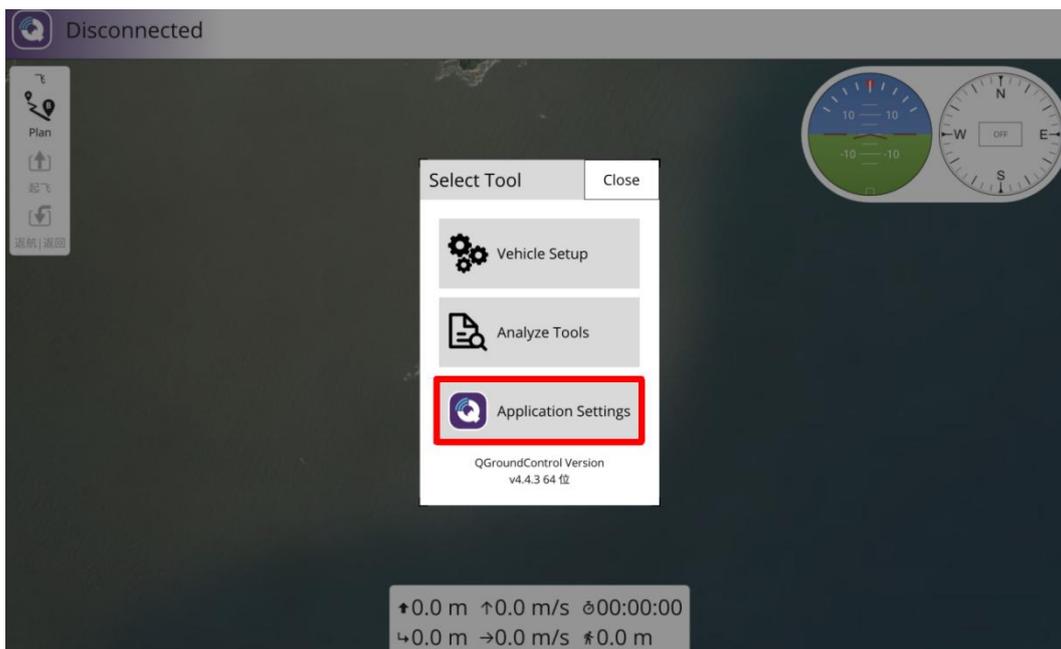
以 G16 遥控器 QGC 地面站为例做参考连接 C10PRO 摄像头图传 (G16 助手后台需要关闭)。



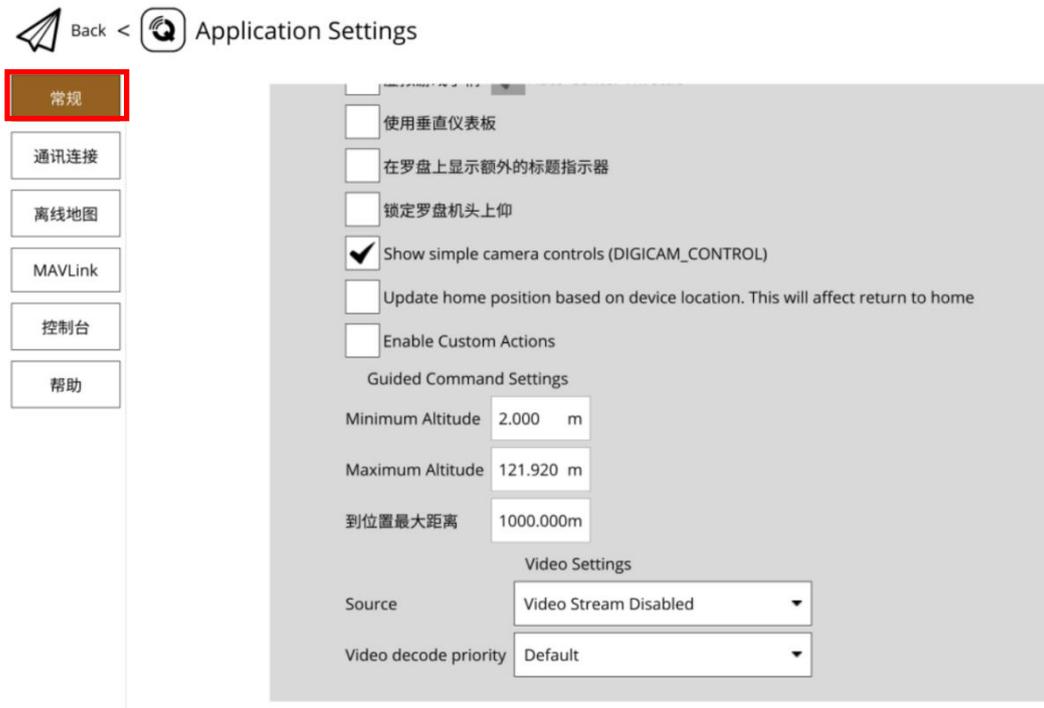
(1) 打开 QGC，点击 QGC 左上角的 Q 图标。



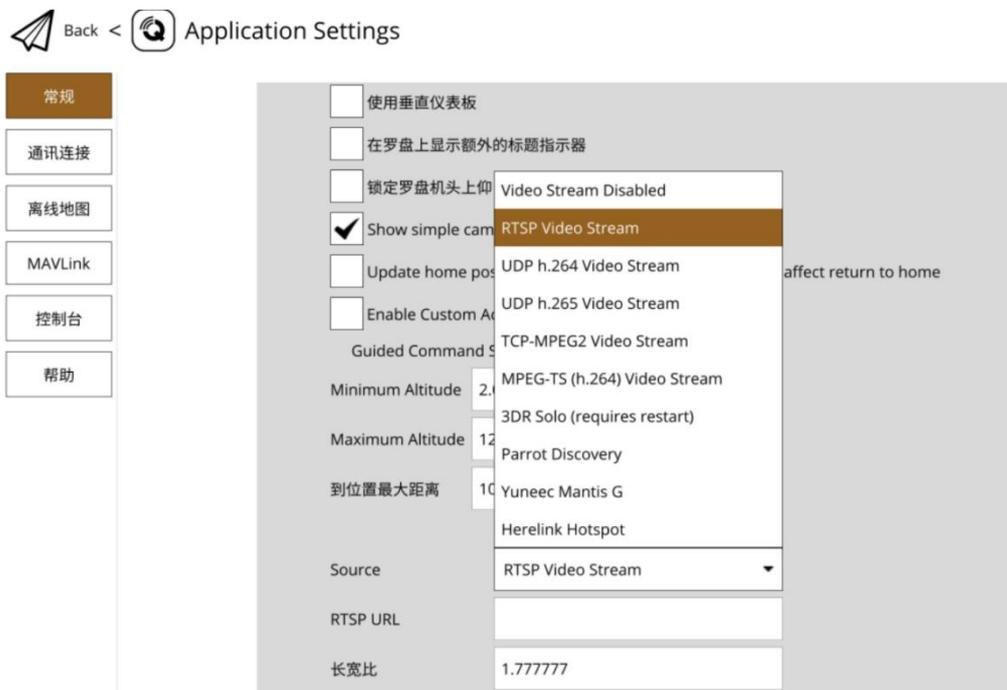
(2) 在弹出的弹窗上，选择 Application Settings。



(3) 点击 General (常规) 。



(4) 将 Source (视频来源) 更改为 RTSP Video Stream。



(5) 在 RTSP URL 填入网口相机的 RTSP 地址。

C10PRO/网口三体的图像（需要接 C10PRO）RTSP 地址：

rtsp://192.168.144.108:554/stream=0。

C12 双光分别是

rtsp://192.168.144.108:554/stream=1

rtsp://192.168.144.108:555/stream=2

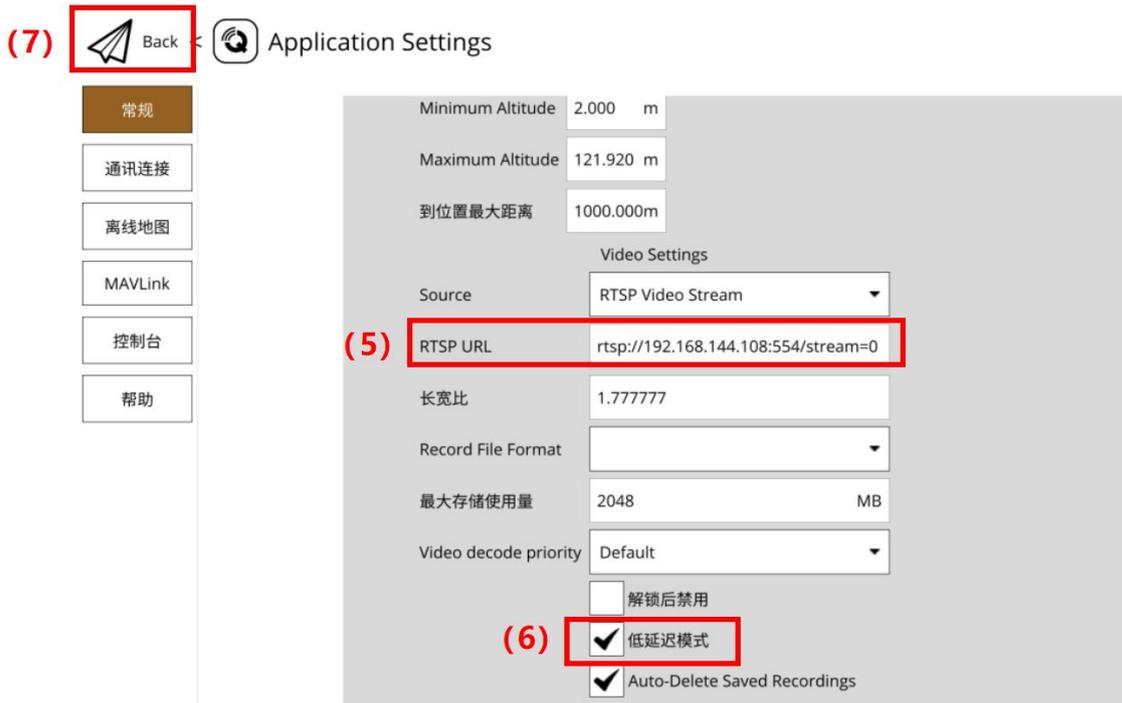
C20 是 rtsp://192.168.144.108:554/main

第三方摄像头仅支持拉流显示可设置自定义后，在下列输入摄像头对应的 RTSP 拉流地址。

注意：摄像头网段需要设置为 144 网段。

(6) 勾选低延迟模式

(7) 点击左上角飞机图标 Back 返回飞行页面。



(8) 正常连接上图传。



13. 使用热点共享数传图传

注意：此教程以使用开源飞控为例，如使用第三方飞控详询飞控技术是否支持此连接。

遥控器开启热点步骤如下：

(1) 方式一：

打开设置->网络和互联网->热点和网络共享->WLAN 热点->打开“使用 WLAN 热点”，将电脑连接到遥控器的热点。



(2) 方式二：

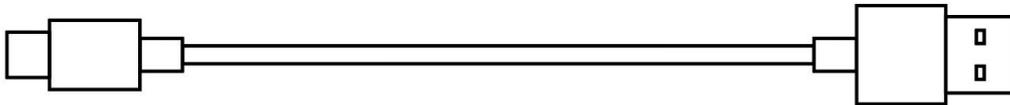
通过网线将电脑网口与遥控器的 TYPE-C 端口连接起来，打开设置->网络和互联网->热点和网络共享->打开“以太网共享”





(3) 方式三:

通过 A to C 数据线将电脑 TYPE-A 与遥控器的 TYPE-C 端口连接起来, 打开设置->网络和互联网->热点和网络共享->打开“USB 网络共享”。



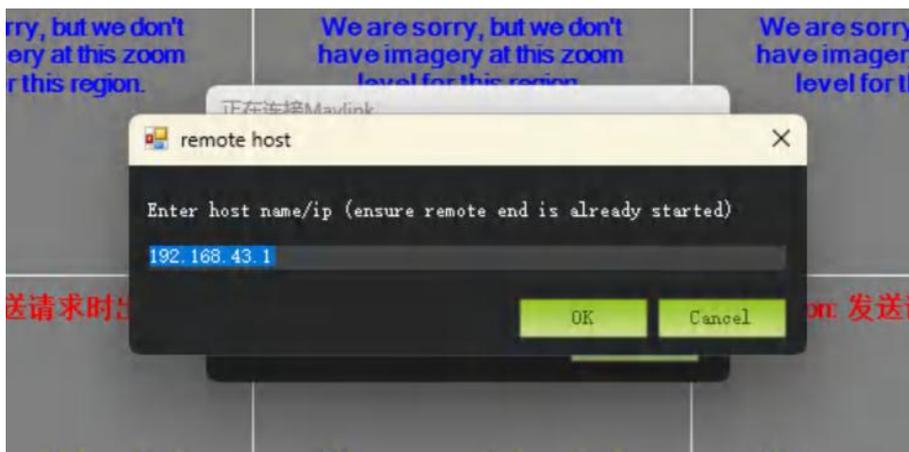
注意: 电脑端对应连接的网络需要设置为自动获得 IP 地址, 防火墙需要关闭。

13.1 共享数传

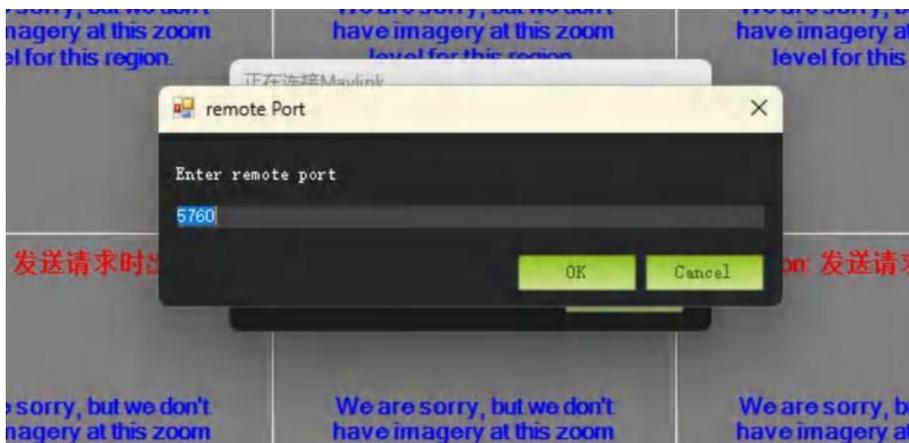
上述三种方式三选一连接成功后，打开 Mission Planner，连接方式选择 TCP。



点击连接后，IP 输入 192.168.43.1 输入完成后点击 OK。



端口号输入 5760 点击 ok，即可连上数传。



13.2 共享图传

上述三种方式三选一连接成功后，启动电脑上的 VLC 播放器。在媒体菜单中选择“打开网络串流”，然后输入相机的码流地址，如下图所示，即可实现图传共享。

注意：如果使用第三方摄像头时，需要设置摄像头的网关为 192.168.144.11 才能共享图传。



14. 参数

G16 遥控器参数			
显示屏	7寸工业触摸屏+阳光可视屏	分辨率	1920*1200
处理器	高通 6nm 处理器	系统	Android 13
尺寸	272×183×94mm	重量	1.05kg
电池	20000mAh	续航时间	约 9-10 小时
运行内存	4G	系统存储内存	64G
工作频段	2.4G/5.8G	通道数	16
动态调频	自动跳频	射频功率	23dBm@CE/FCC
遥控距离	5-30KM(地对空, 通视)	工作温度	-10°C~60°C
充电接口	TYPE-C	外部接口	USB-A 口、SIM 卡槽、 TYPE-C, PPM

GR01 接收机参数			
工作频段	2.4G/5.8G	串口波特率	57600/115200/921600
供电电压	7.2 ~ 72V(XT30)	工作电流	12V/300mA
数传口	1 路	空口速率	出厂默认上行 200kbps (上传模式: ≤17.7Mbps) 下行 15Mbps (下载模式: ≤30Mbps) (注意: 打开助手的上传/ 下载模式后会影晌通讯距 离, 建议近距离使用。 高速率版本需要无线模块 版本_2)
网口	1 路	尺寸	45.5×60×21.5mm
SBUS 输出	1 路	重量	37g
PWM 接口	3 路	工作温度	-10°C~60°C
射频功率	23dBm@CE/FCC	信道带宽	1.25MHz/2.5MHz/5MHz/ 10MHz/20MHz/40MHz

G12 RX 接收机参数			
工作频段	2.4G/5.8G	串口波特率	57600/115200/921600
供电电压	5V	工作电流	5V/720mA
数传口	1 路	空口速率	出厂默认上行 200kbps (上传模式: ≤17.7Mbps) 下行 15Mbps (下载模式: ≤30Mbps) (注意: 打开助手的上传/下载模式后会影 响通讯距离, 建议近 距离使用。) 高速率版本需要无线 模块 版本_2)
网口	1 路	尺寸	51×40.8×23.3mm
SBUS 输出	1 路	重量	45g
PWM 接口	2 路	工作温度	-10°C~60°C
射频功率	23dBm@CE/FCC	信道带宽	1.25MHz/2.5MHz/5MHz/ 10MHz/20MHz/40MHz

15. 相关软件下载

RCSDK (数传通讯, 遥控器、云台、相机相关接口) :

适用于 H12、H12Pro、H16、H16Pro、H20、H30、G12、G16、G20、三体相机 (串

口版)、三体相机(网口版)、串口双轴云台、C10、C20、C10Pro、C12、电子云台 C01。

<https://gitee.com/skydroid/rcsdk-demo>

图传播放器(适用网口图传/串口图传):

<https://gitee.com/skydroid/fpv-player-demo>

DEMO <https://gitee.com/skydroid/SkydroidDemo>

云卓 Skydroid FLY 下载: <http://file.skydroid.xin/SkydroidFly.apk>

五、保养保修

长期停放时的维护、保养:

将遥控器存放于干燥通风处,减少阳光直射以防止电池过热。若需存放超过三个月,需要每隔一个月给遥控器充至 80%,则推荐的存放温度区间为 22 摄氏度至 28 摄氏度。切勿将电池存在于低于零下 20 摄氏度或高于 45 摄氏度的场所。

六、运输储存

警告

为避免可能的伤害和损失,务必遵守以下各项:

由于线材和小零件可能对儿童造成危险,所以务必让儿童远离遥控器的部件。

注意

- 1) 切勿让遥控器浸入水中,若入水,请及时用柔软干布擦拭,并立即关闭电源。
- 2) 禁止机械撞击、碾压、刺穿电池,禁止将电池跌落。

说明书如有更新,恕不另行通知,请持续关注官网 www.skydroid.xin

SKYDROID 云卓

QUAN ZHOU SKYDROID TECHNOLOGY CO., LTD



Skydroid G16

User Manual

V1.0

Caution

This product uses the following terms to classify and explain potential hazards that may arise from improper operation.

Caution: Failure to follow the instructions may result in property damage and minor injury.

Caution: Failure to follow the instructions may result in property damage, major accidents, and serious injury.

Warning: Operate the product only after reading the entire user manual and becoming familiar with its functions. Improper operation of this product may cause serious injury to yourself or others, or lead to product damage and property loss. This product is relatively complex and requires a period of time to become familiar with before it can be used safely; additionally, basic knowledge is required to operate it. Without a strong safety awareness, improper operation may cause product damage and property loss, and even serious injury to yourself or others. This product is not suitable for children. Do not use parts that are not provided or recommended by Skydroid. You must strictly follow Skydroid's guidelines when using the product.

After-Sales Service Terms

1. These terms apply only to products manufactured by Quanzhou Skydroid Technology Co., Ltd. They also apply to products sold by authorized Skydroid distributors.
2. For products of our company, if non-human-caused quality issues are verified by our company within one week from the date of purchase, Skydroid will bear the round-trip courier fees for the returned and repaired products. If quality issues are verified by our company for Skydroid products purchased for more than one week but less than one year, the user and Skydroid shall each bear the courier fee for sending the product for repair.
3. When returning a product for repair, the purchase certificate, warranty card, or online platform transaction record must be provided.
4. If a Skydroid product has non-human-caused quality issues under normal use within seven days from the date of purchase, and the appearance is undamaged, the user can negotiate with the distributor for a free replacement of the same-model product with the warranty card and purchase certificate. The distributor is requested to notify Skydroid immediately for filing and replacement when receiving the product to be replaced.
5. Quanzhou Skydroid Technology Co., Ltd. provides lifelong after-sales service for Skydroid products. For non-human-caused quality issues, free warranty service is provided within one year. For damages caused by human factors, modifications, disassembly, or products beyond the one-year free warranty period from the date of purchase, the user must pay the round-trip shipping fees and repair costs.
6. To ensure your rights are protected and that you can receive timely and effective service, please fill out the warranty card completely and request a purchase certificate when buying a Skydroid product. Users must provide the warranty card and purchase certificate to enjoy the services under these after-sales terms.
7. Repaired products will be sent back to the customer within 15 working days after Skydroid receives them, along with a repair report.
8. The above after-sales service terms apply only to Skydroid products sold in Mainland China.

For after-sales issues of customers in Hong Kong, Macau, Taiwan, and overseas regions, please send an email to sales01@skydroid.xin. The specific after-sales details will be determined based on the actual situation.

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I . Overview

1. Product Features

- (1)The G16 series utilizes a Qualcomm 6nm processor and runs on the Android 13 (64-bit) embedded system, ensuring smooth operation and an open ecosystem capable of installing the vast majority of APPs available on the market. It features a new high-power, high-bandwidth 2.4/5.8 GHz dual-band wireless module supporting automatic frequency hopping and dynamic MCS (Modulation and Coding Scheme) adaptation, achieving a image/data transmission range of up to 30 km.
- (2)The G16 supports a rich set of interfaces, including SIM card, USB, Type-C, and PPM ports, and provides an SDK development kit. It supports video overlay and is compatible with mainstream flight controllers' ground station software.
- (3)It boasts a 7-inch industrial touchscreen with a 1920×1200 resolution and sunlight-readable display. The high screen-to-body ratio ensures clear visibility of real-time information even under direct sunlight.
- (4)Equipped with a high-energy-density lithium-ion battery, the device delivers 9-10 hours of operation on a full charge. The consistent "wilderness survival" design philosophy ensures you have no worries about the device's reliability.

2. Main Uses and Applicable Scope

The G16 is suitable for video/image transmission (with optional camera), data transmission, and control of unmanned equipment such as helicopters, fixed-wing aircraft, multi-rotor drones, unmanned vehicles, and unmanned boats.

3. Operating Environment Conditions

Caution:

- a)Ambient temperature:-10°C~55°C。
- b)Storage temperature:-20°C~50°C。
- c)Relative humidity:Not exceed 85%。
- d)Atmospheric pressure:86kPa~106kPa。
- e)The usage location must not have explosive hazardous media, and the surrounding media should not contain gases that corrode metals and damage insulation, nor should it be filled with water vapor or have severe mold growth.
- f)The usage location should have facilities to prevent rain, snow, wind, sand, and dust.

4. Working Conditions

Power Supply Methods and Precautions:

The G16 series ground station features a built-in integrated rechargeable lithium battery and supports standard Type-C interfaces available in the market. Please use the original charger for charging.

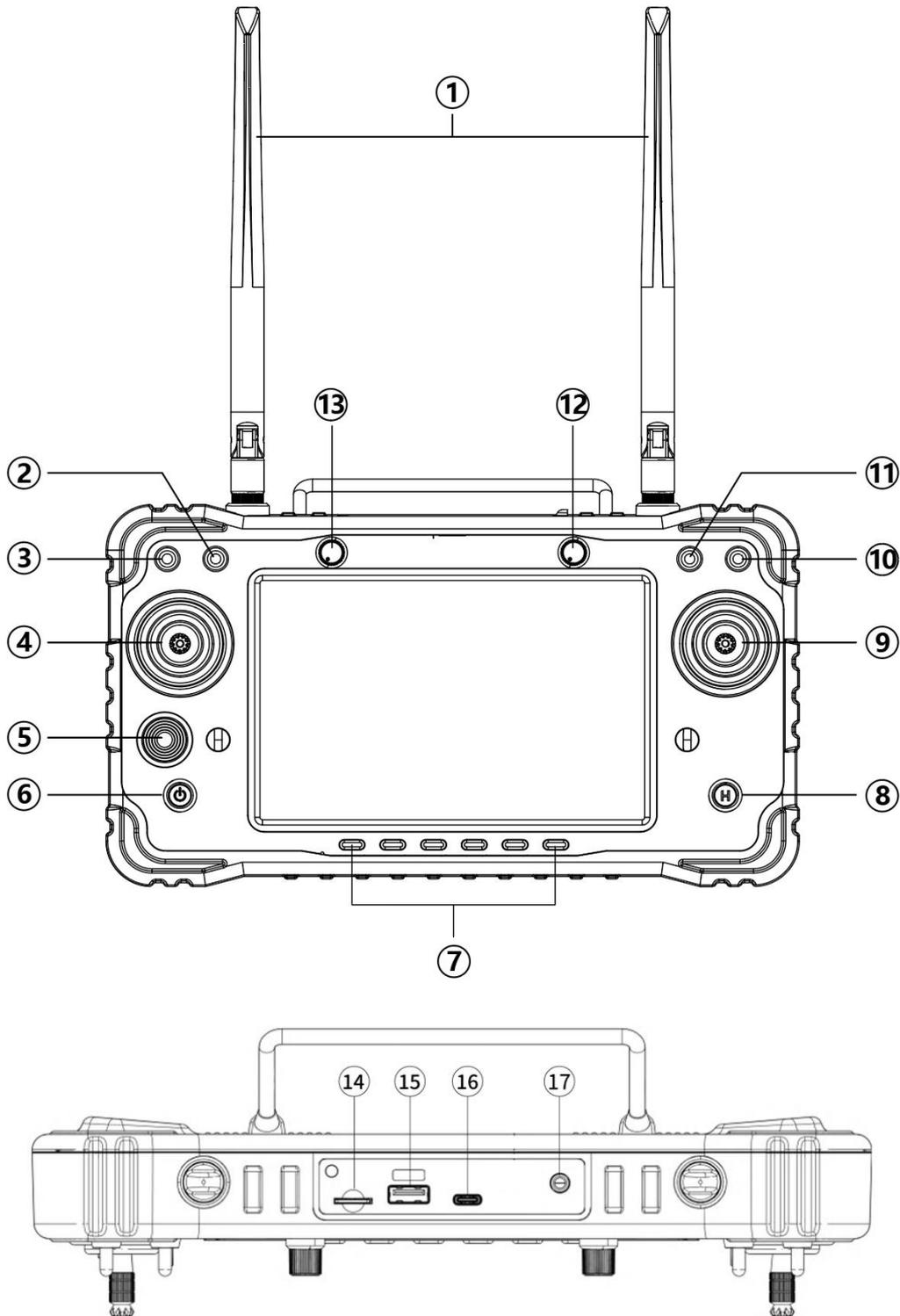
If smoke, abnormal odor, or liquid leakage occurs while charging the ground unit, do not continue charging it. Please send the unit to our company for repair.

Do not charge this product in areas accessible to infants to prevent electric shock hazards.

Do not charge this product in an environment where the temperature exceeds 60°C.

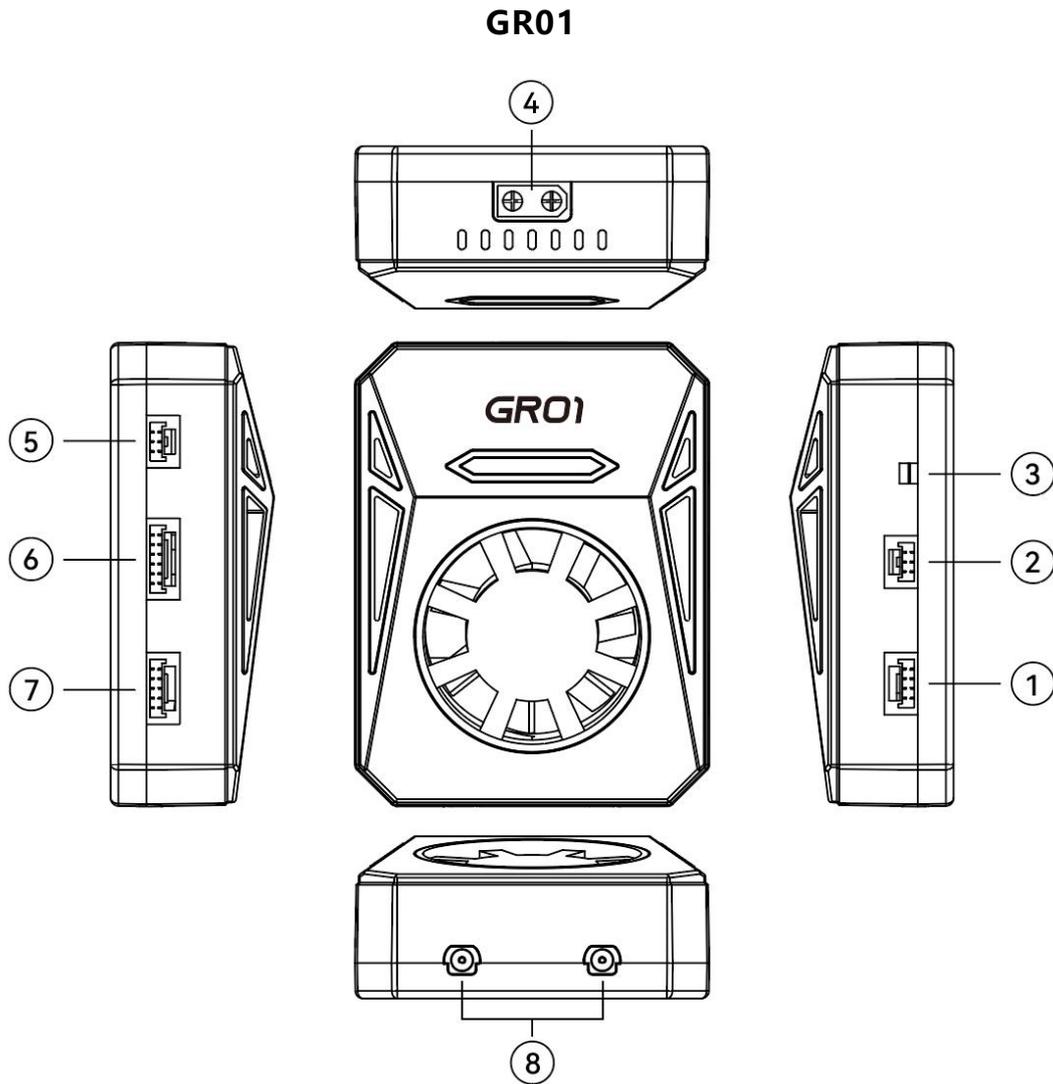
II . Component Names

1. Remote Controller



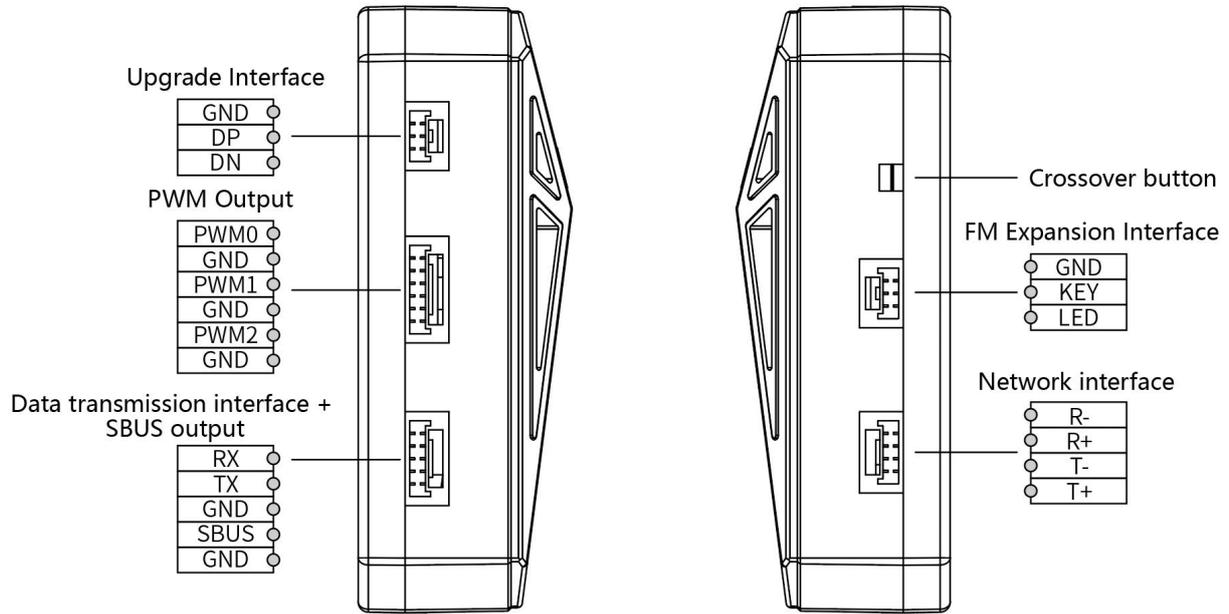
No.	Annotation	No.	Annotation
1	2.4G/5.8G Antenna	10	Three-position switch SW4
2	Three-position switch SW2	11	Three-position switch SW3
3	Three-position switch SW1	12	Rotary Knob AUX2
4	Left joystick X1、Y1	13	Rotary Knob AUX1
5	Small joystick X3、Y3	14	SIM slot
6	Switch button	15	USB-A slot (Upgrade interface)
7	Six-position switch	16	TYPE-C (Charging Port)
8	Push-button switch	17	PPM output
9	Right joystick X2、Y2		

2. Receiver



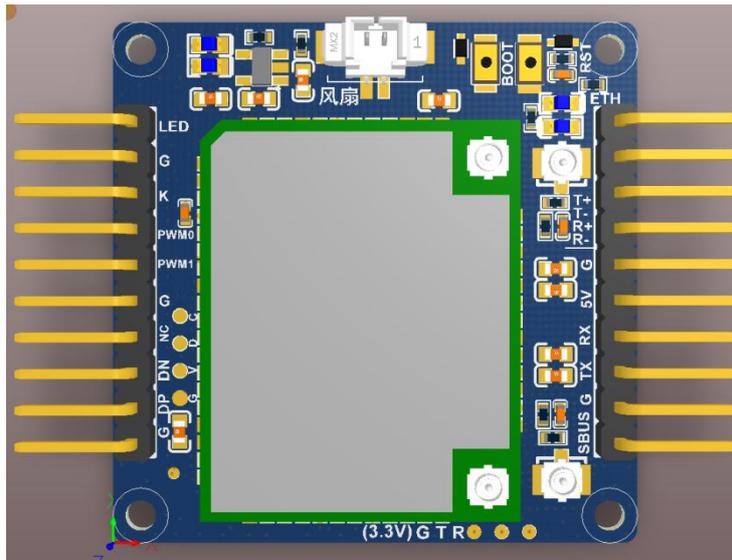
No.	Annotation	No.	Annotation
1	LAN Port	5	Upgrade Interface
2	Frequency Pairing Expansion Interface	6	PWM Output
3	Frequency Pairing Button	7	Data Transmission Interface + SBUS Output
4	Power Input Port (7.2V ~ 72V)	8	Antenna Interface

Definition of Receiver Interface :



Note: PWM0~2 of GR01 correspond to Channels 9~11 of the Remote Controller.

G12 RX

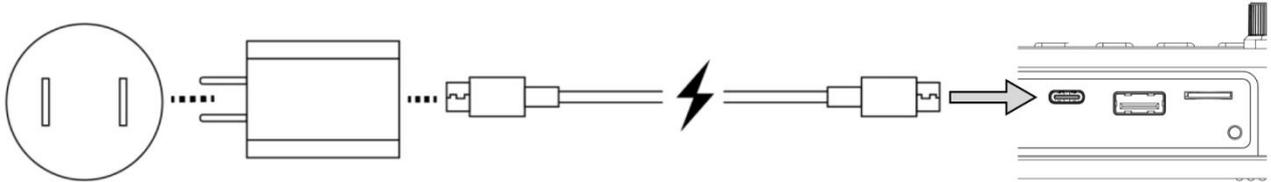


Name	Annotation	Name	Annotation
		ANT	Antenna
LED	Frequency pairing indicator light	ETH0_TX+	Network port 0
GND	Ground wire	ETH0_TX-	
KEY	Frequency pairing button	ETH0_RX+	
PWM0	PWM9 port (9channels)	ETH0_RX-	
PWM1	PWM10 port (10channels)	GND	Power Supply+ Data transmission port
GND	Ground wire	5V_IN	
NC	Unconnected Pin	UART_RX	
DN	Upgrade port	UART_TX	
DP		GND	SBUS interface
GND		SBUS	
		ANT	Antenna

III. Preparing the Remote Controller

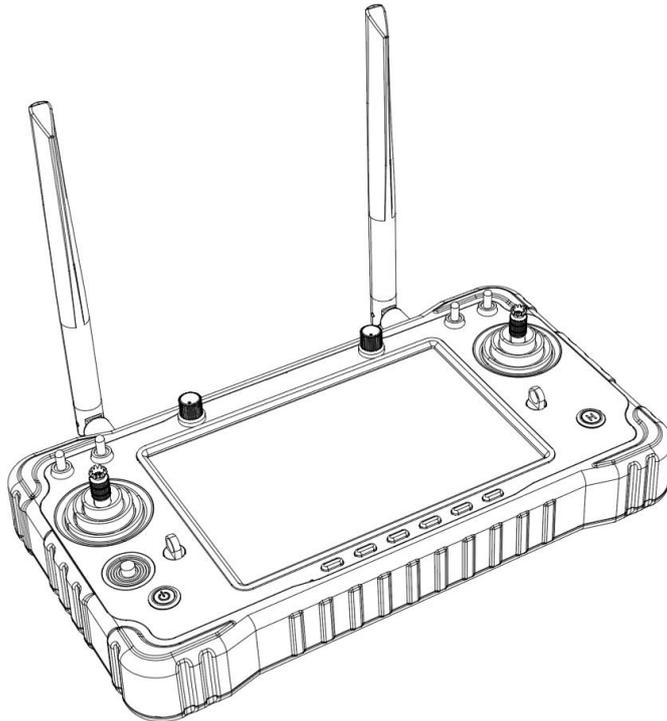
1. Charging the Remote Controller

Use the original charger for charging, and it takes approximately 3–4 hours to fully charge.



Please charge the remote controller using the original charger. To maintain the remote controller battery in optimal condition, ensure the battery is fully charged once a month.

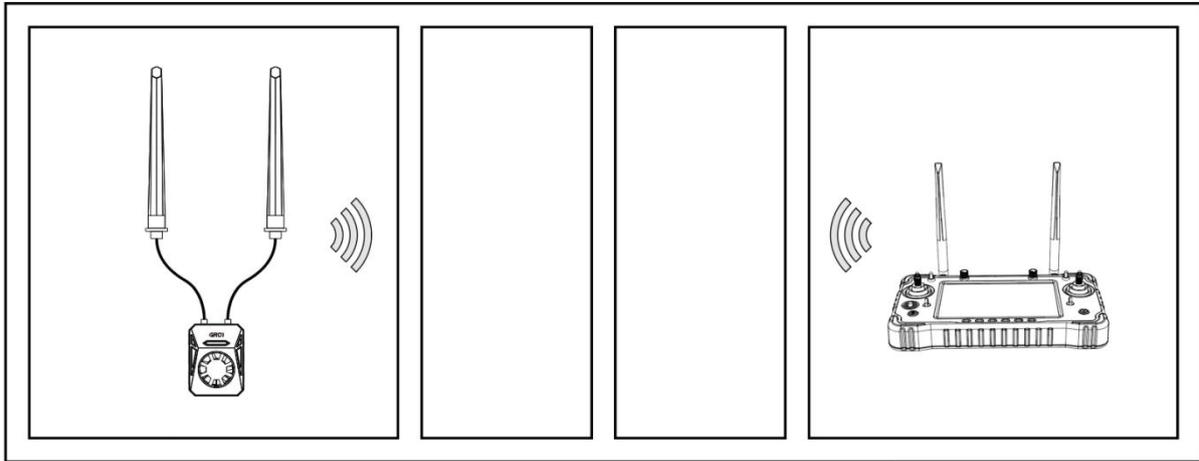
2. Properly Extending the Antenna



Extend the antenna and point it vertically upwards

3. Indoor Range Test

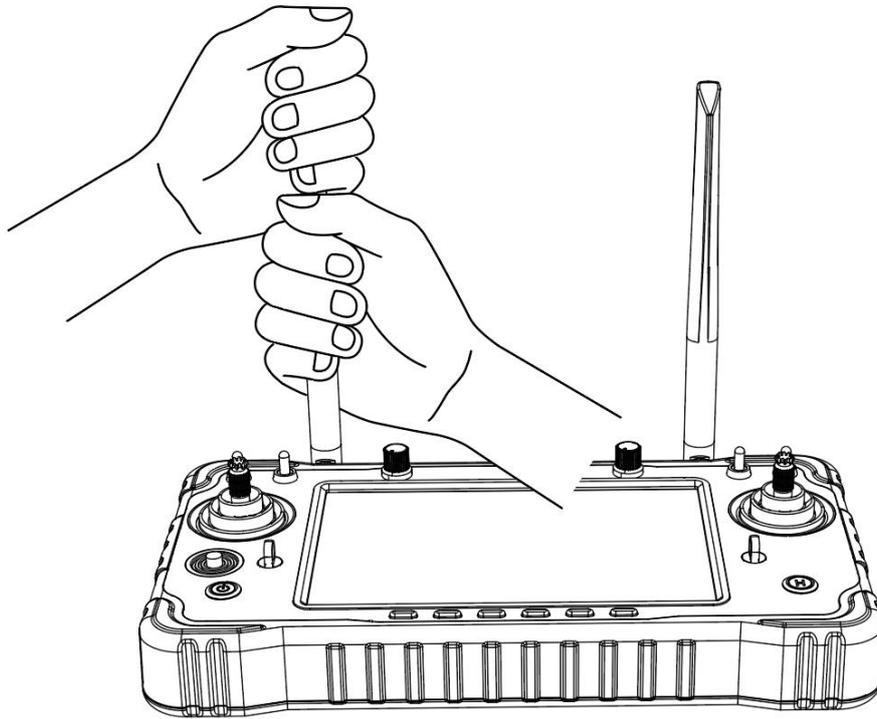
(1) Test Scenario: Place the remote controller and the receiver with 3–4 walls between them.



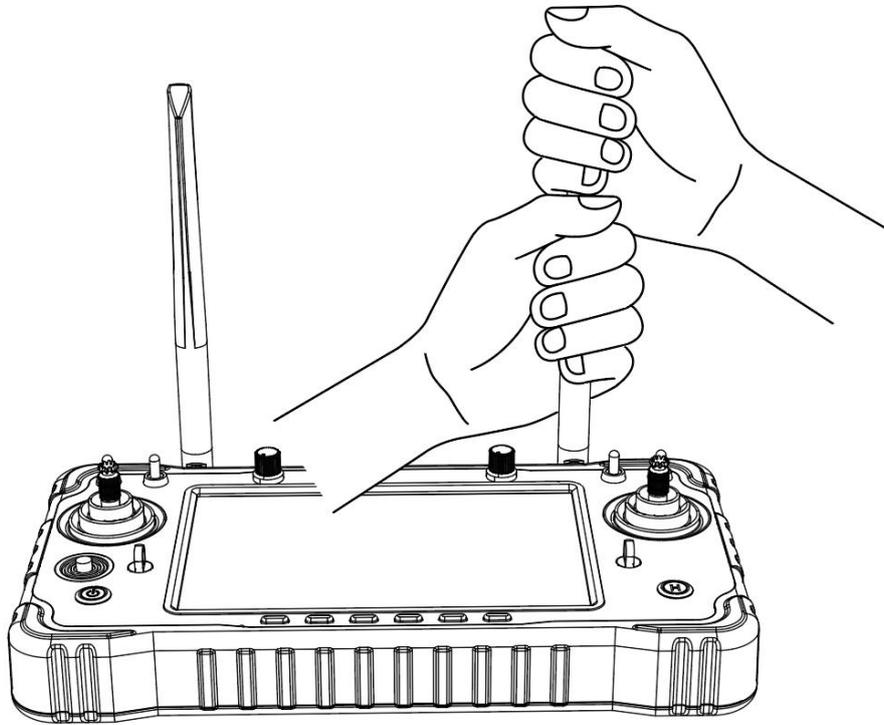
(2) When the antenna is not blocked, the signal strength is as shown in the figure below.



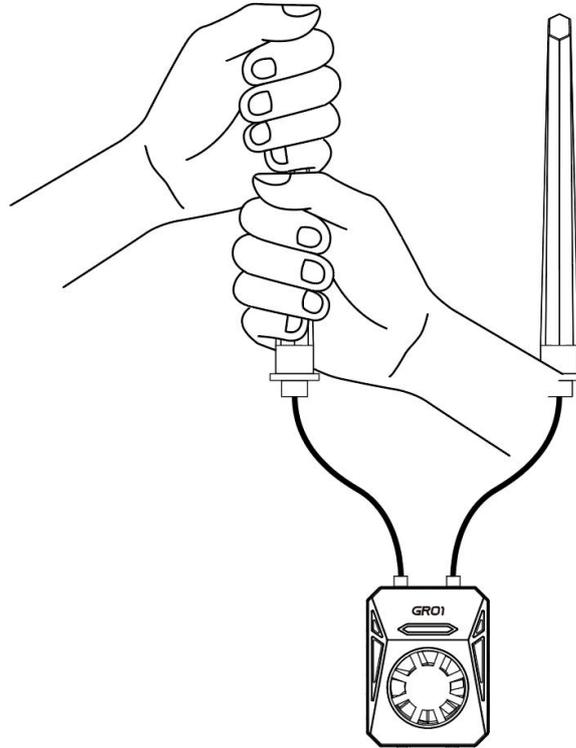
(3) When holding the left antenna of the remote controller tightly, the signal strength is as shown in the figure below.



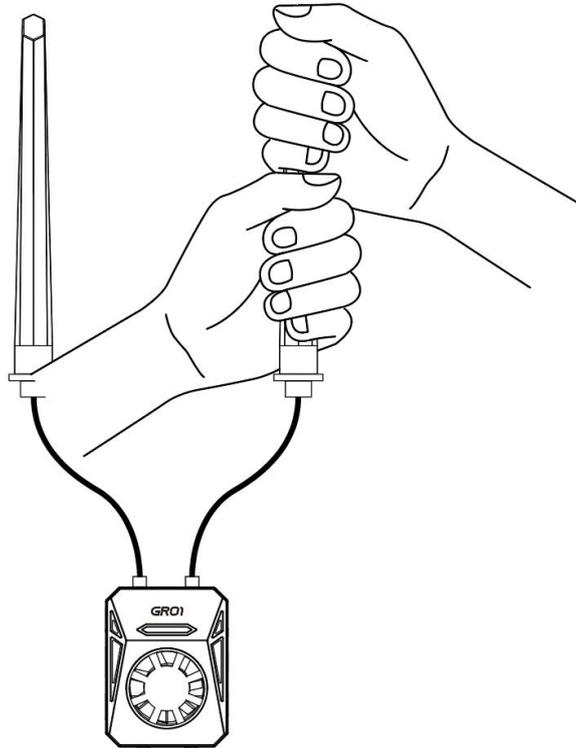
(4) When you firmly hold the right antenna of the remote controller, the signal strength is as shown in the figure below.



(5) When you firmly hold the left antenna of the receiver, the signal strength is as shown in the figure below.



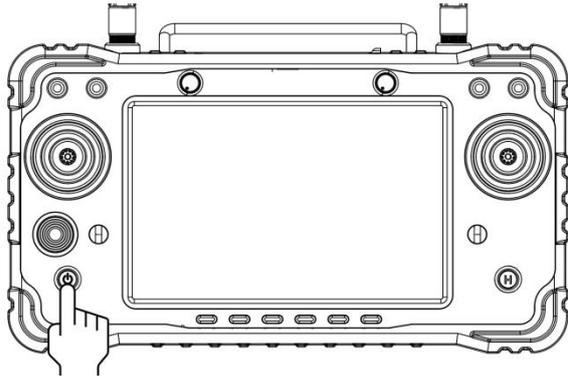
(6) When you firmly hold the right antenna of the receiver, the signal strength is as shown in the figure below.



IV、 Usages & Operations

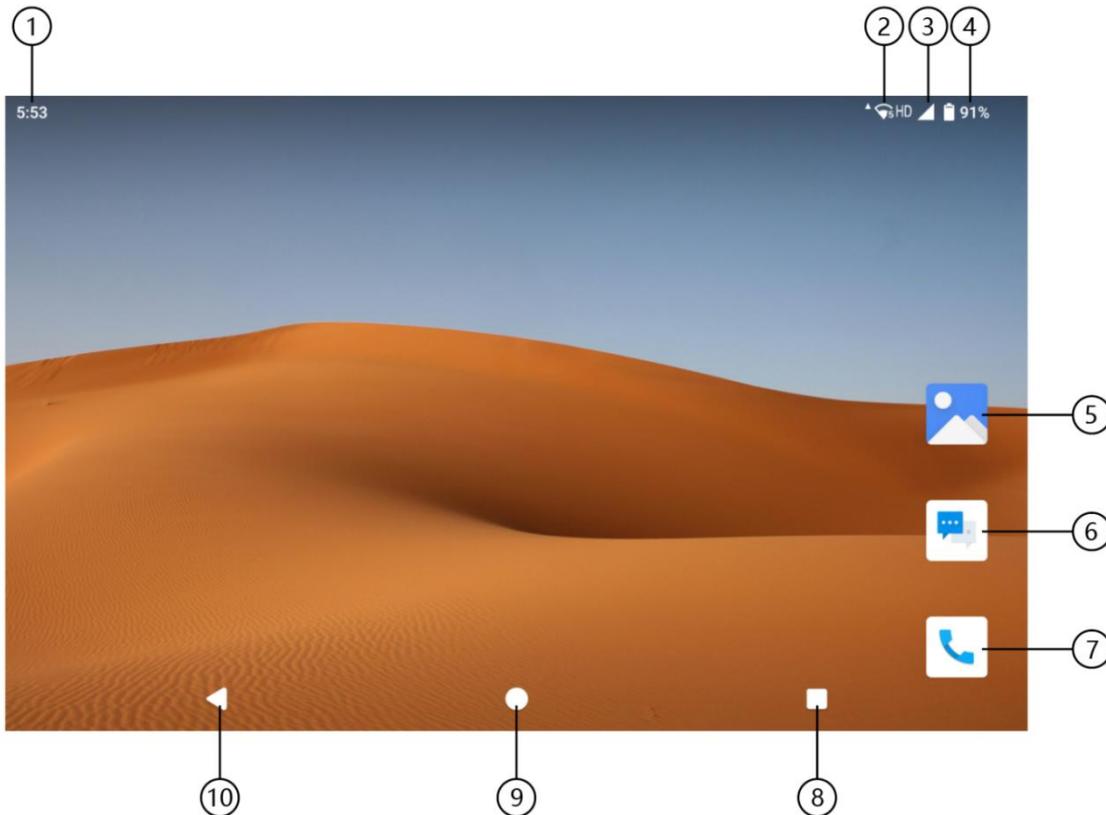
1. Turning on and off the remote control

Press and hold the power button for 2 seconds to activate the remote control. Press and hold the power button for 2 seconds again, then click the screen to the remote control.



shut down

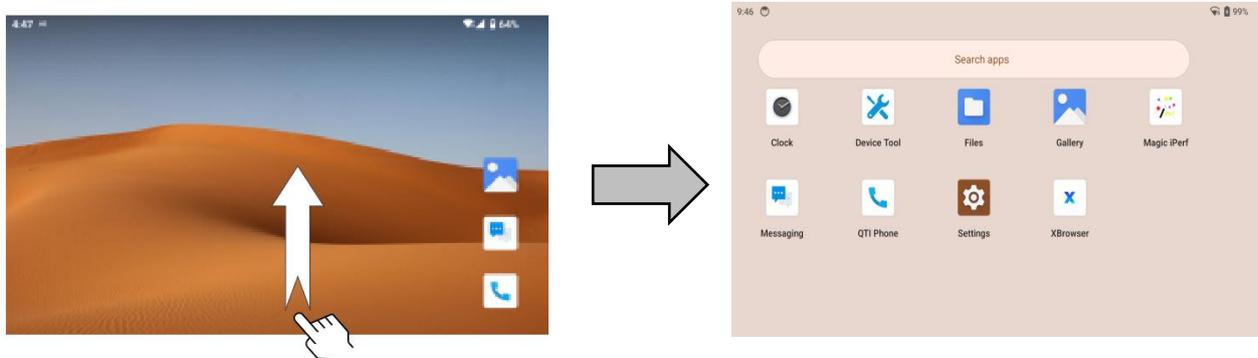
2. System Desk



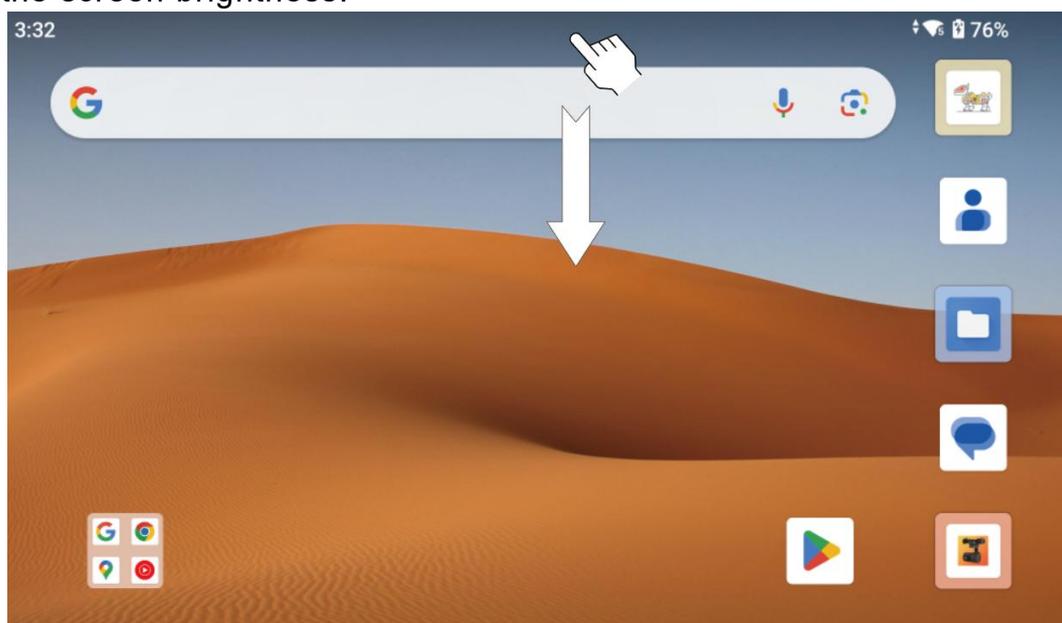
No.	Annotation	No.	Annotation
1	Time	6	SMS
2	WIFI signal status display	7	Phone
3	SIM card status display	8	Task center
4	Battery level display	9	Back to desktop
5	Gallery	10	Return to menu

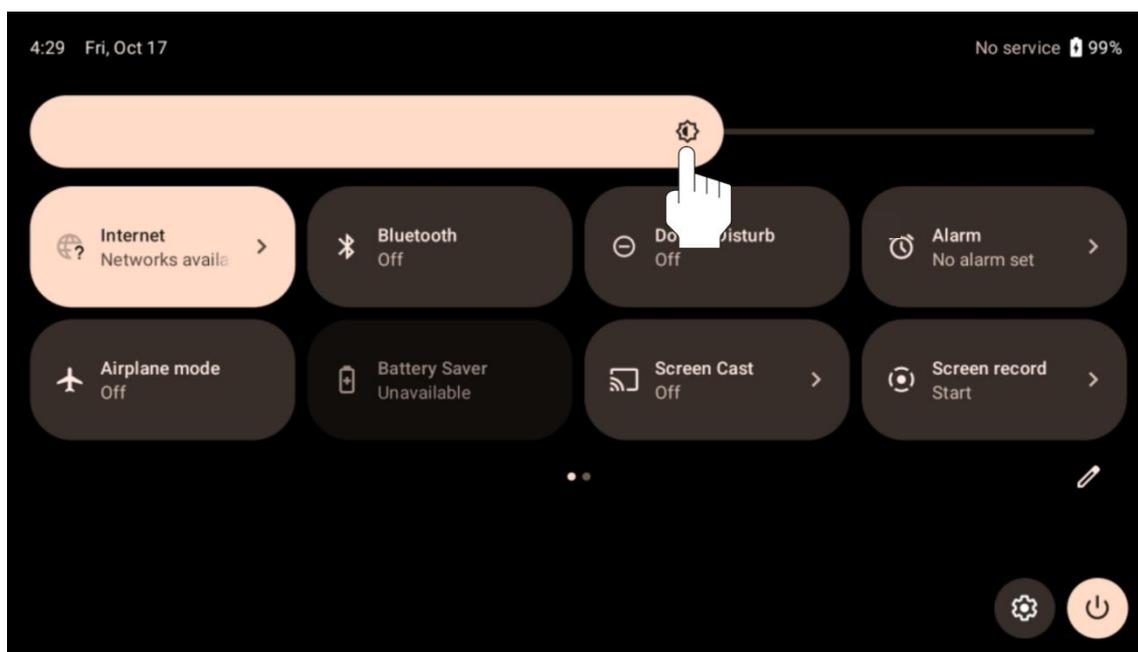
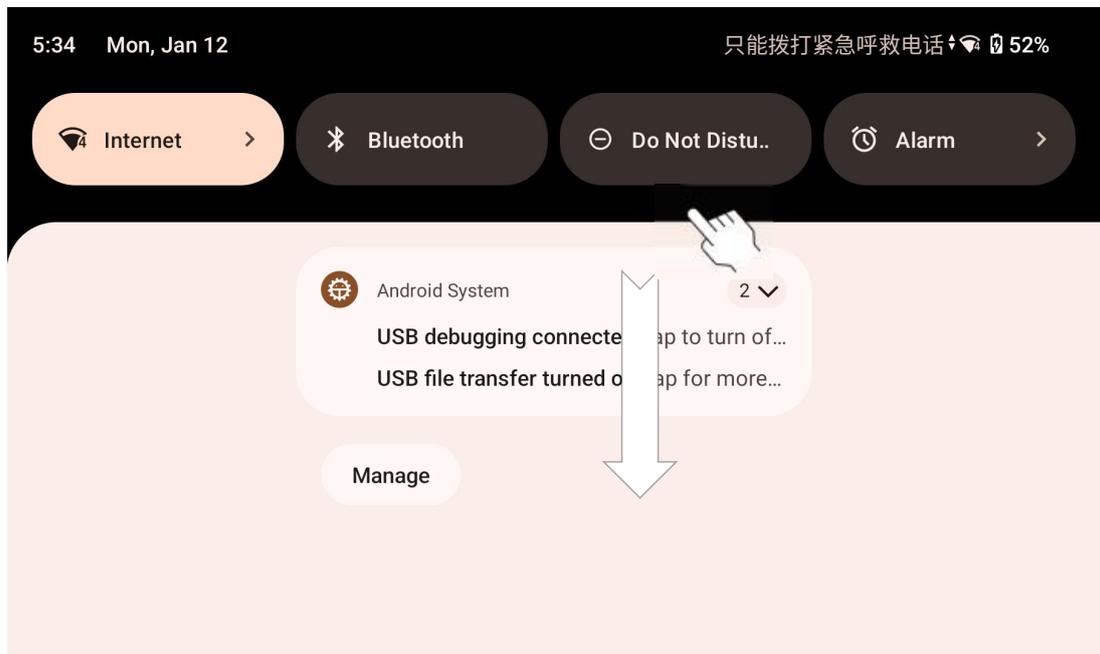
Swipe upwards from the bottom edge of the screen to enter the application interface.

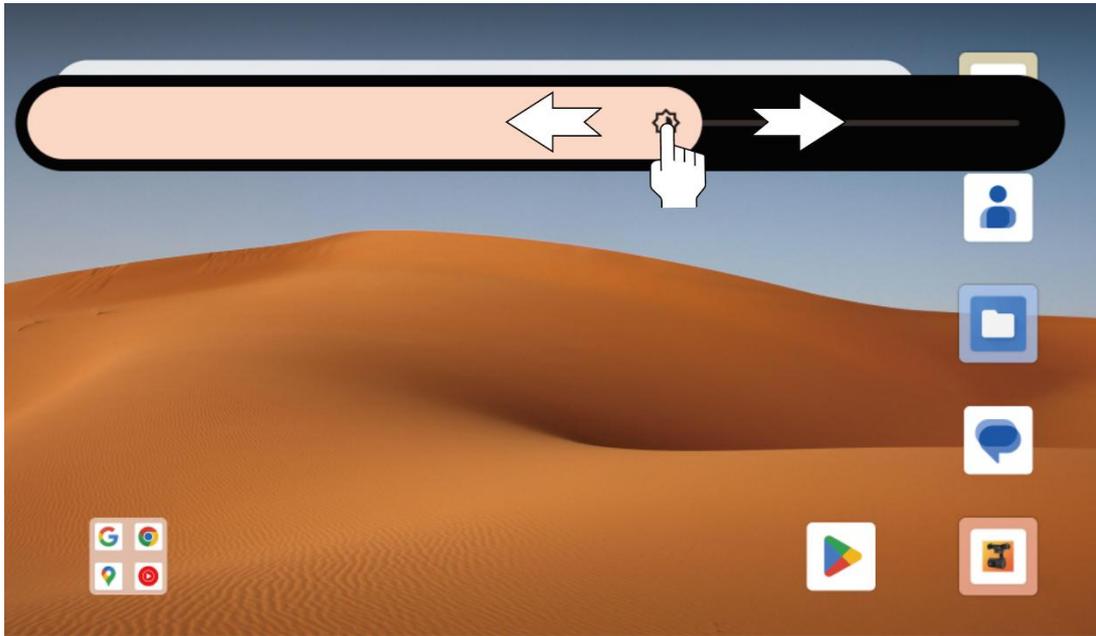
3. Brightness Adjustments



Slide down from the top of the screen to enter the control center. Drag the slider to adjust the screen brightness.

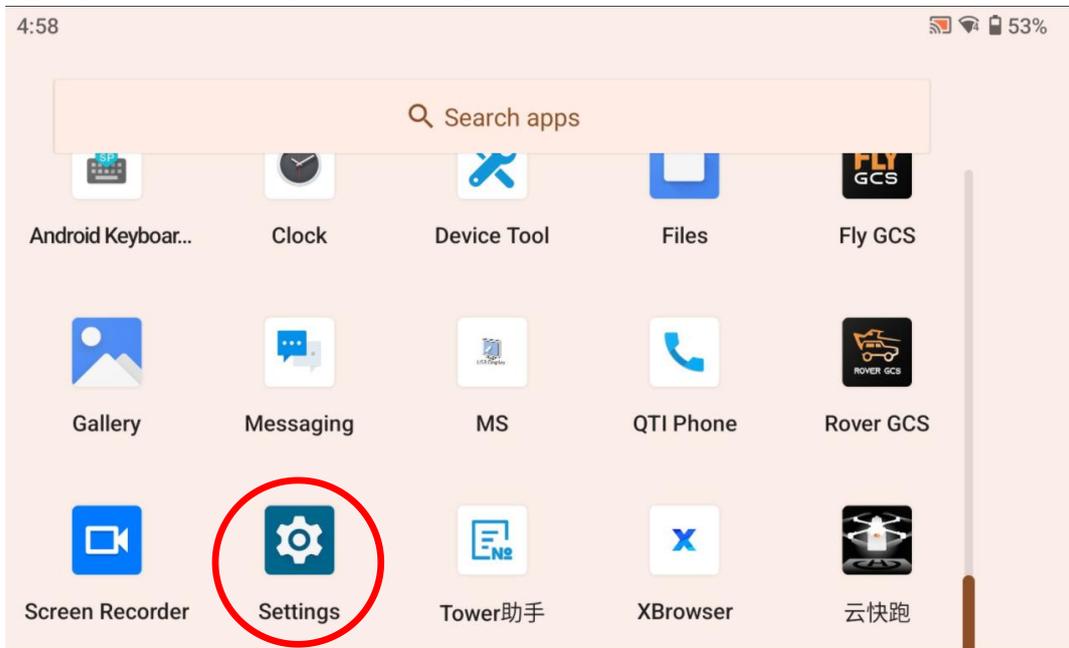


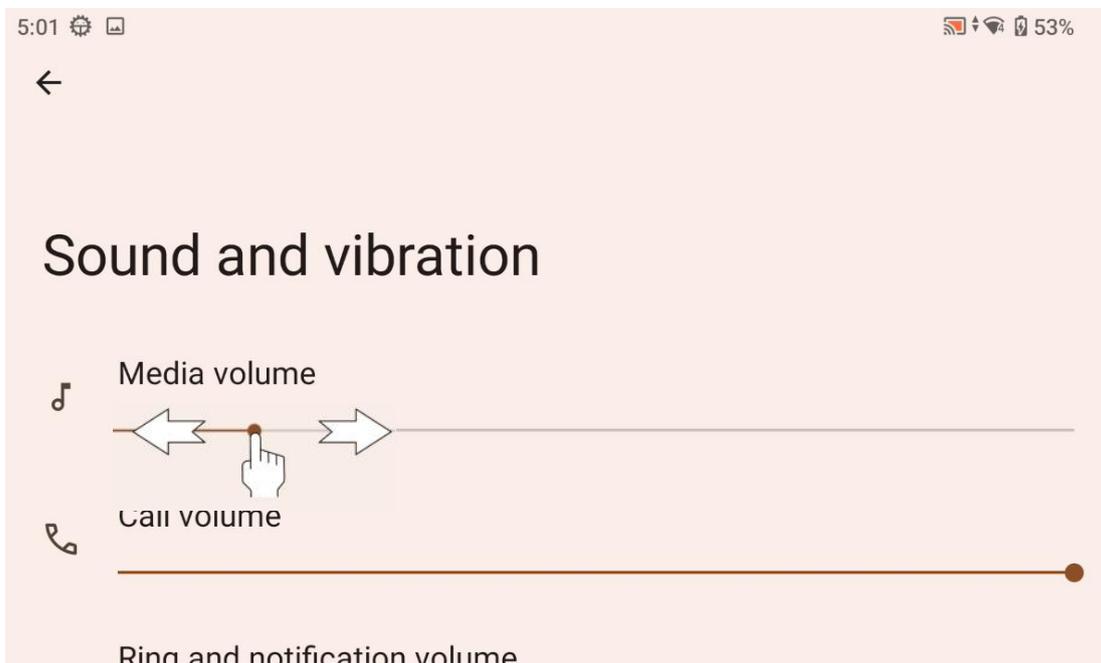
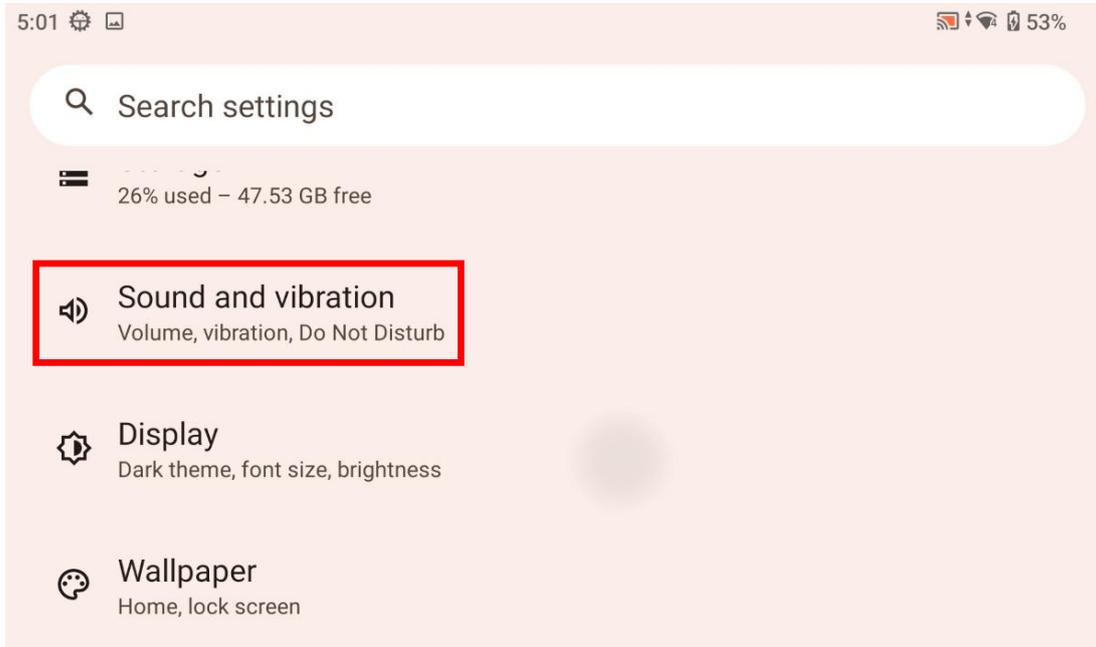




4. Volume Adjustments

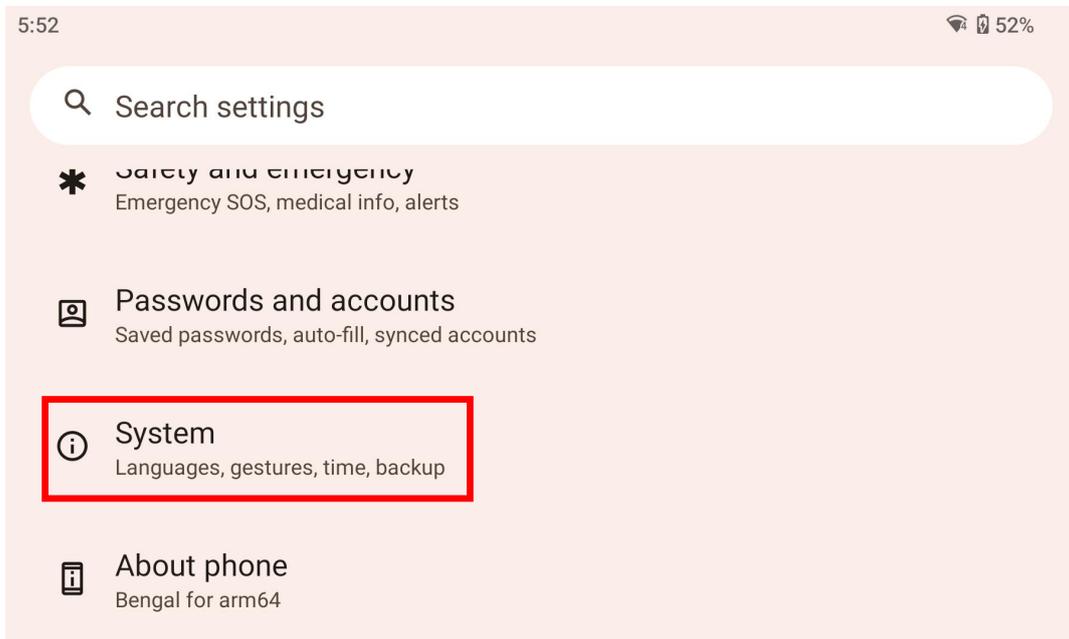
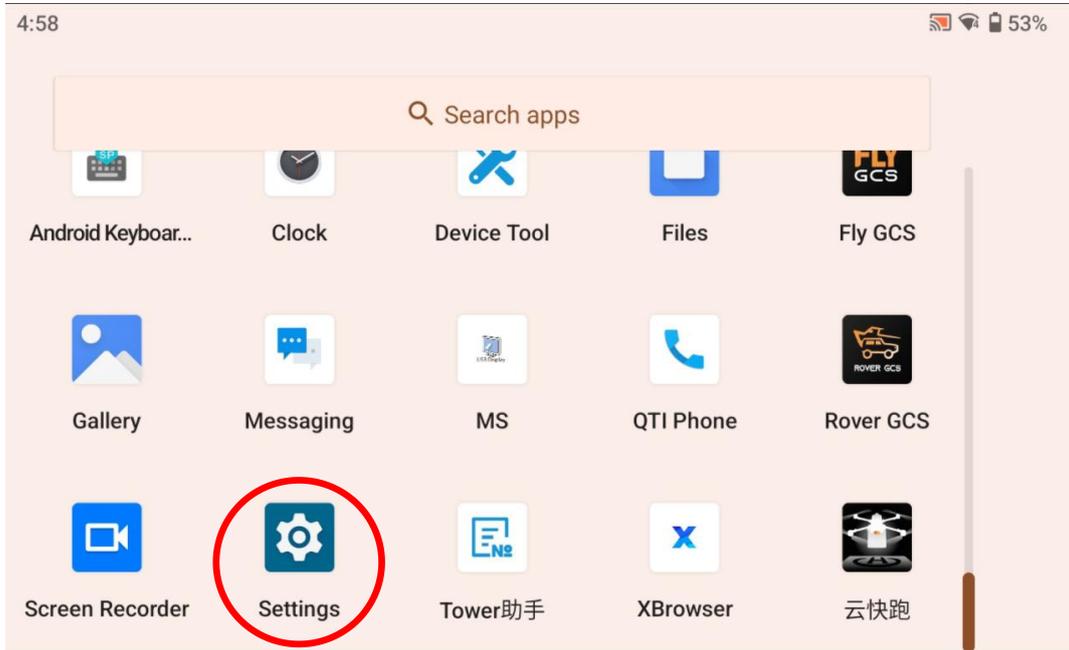
Enter the application interface, click on settings, find the sound option, and by dragging the slider, you can adjust the volume level.

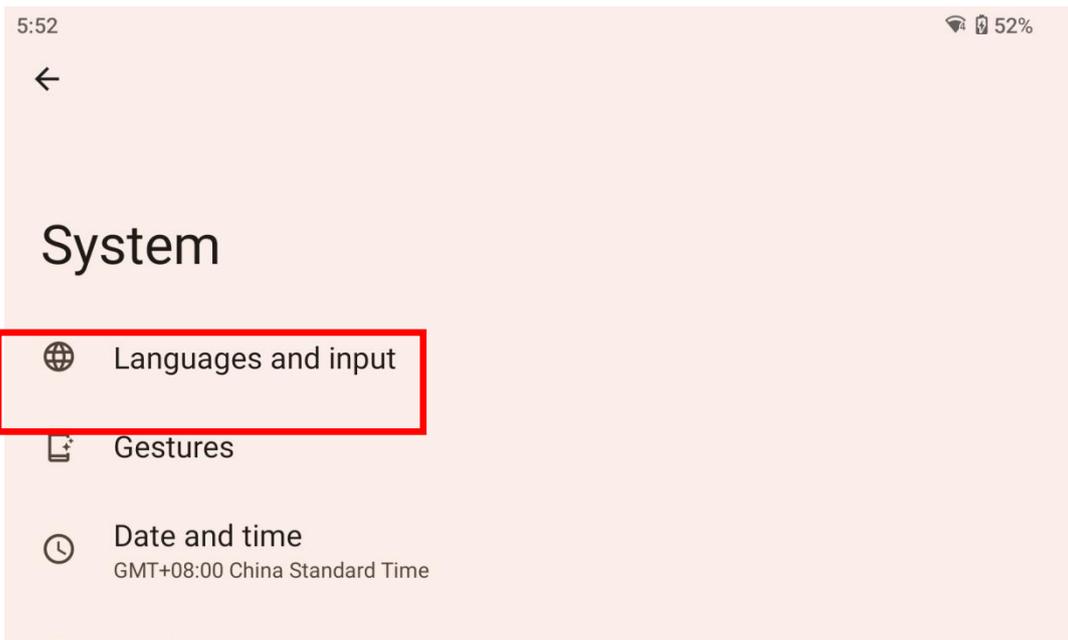
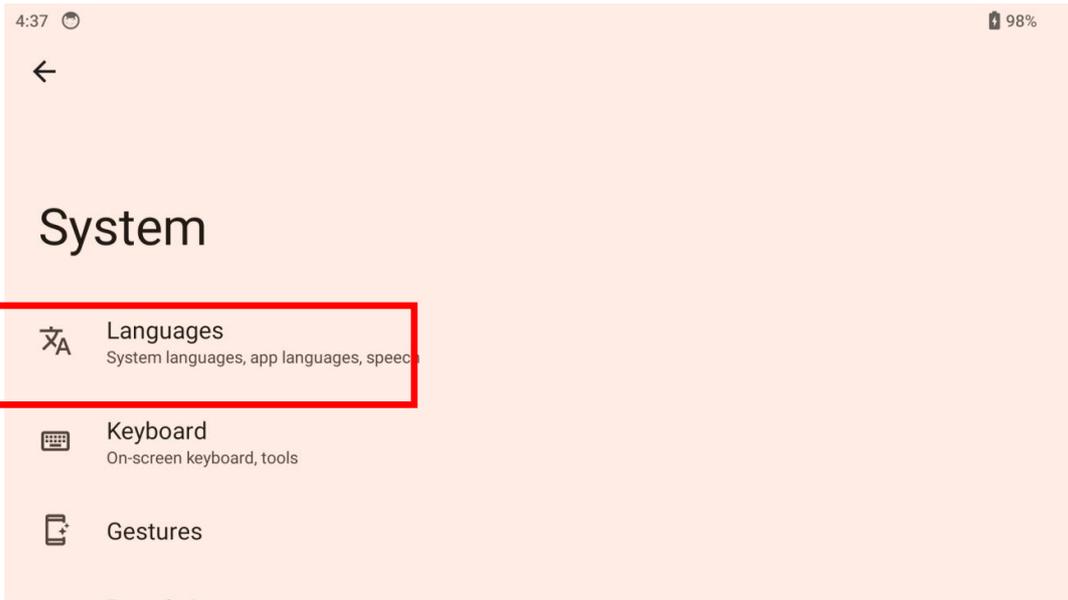


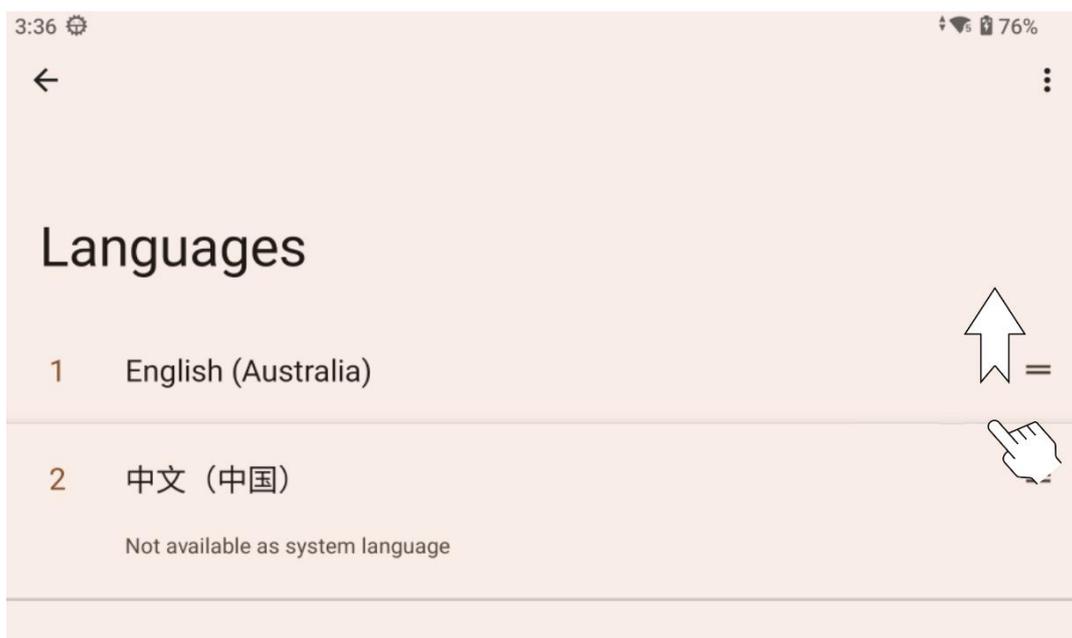
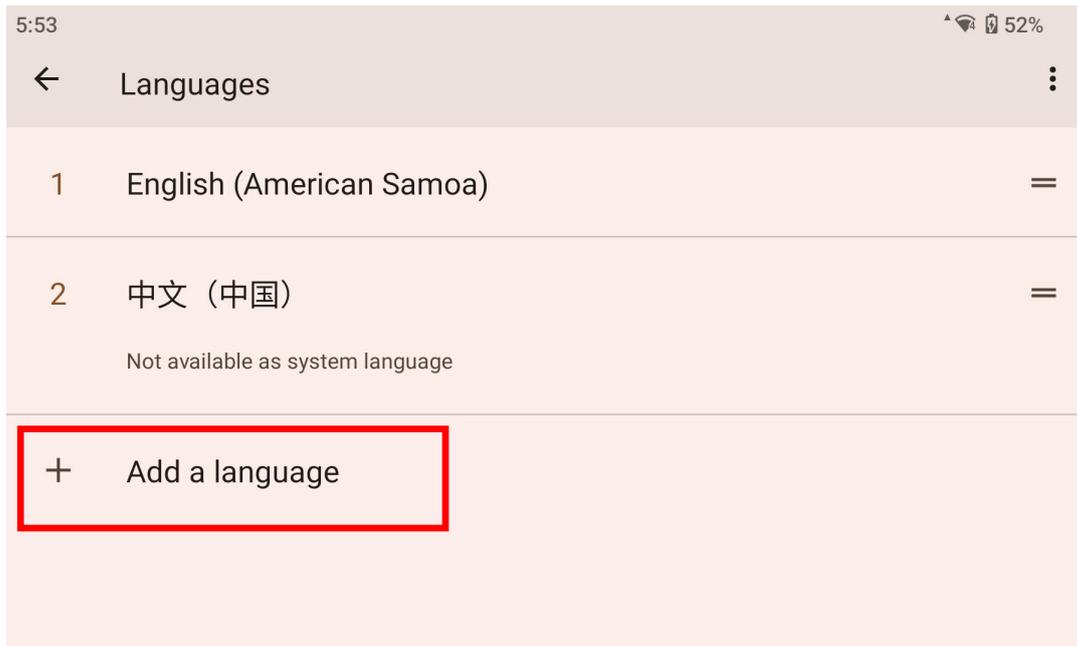


5. Language Settings

Click on "Settings", select "System", then choose "Language Input Method". Click on "Language", select "Add Language", after adding the language, drag the language you want to set to the first position to modify the system language.

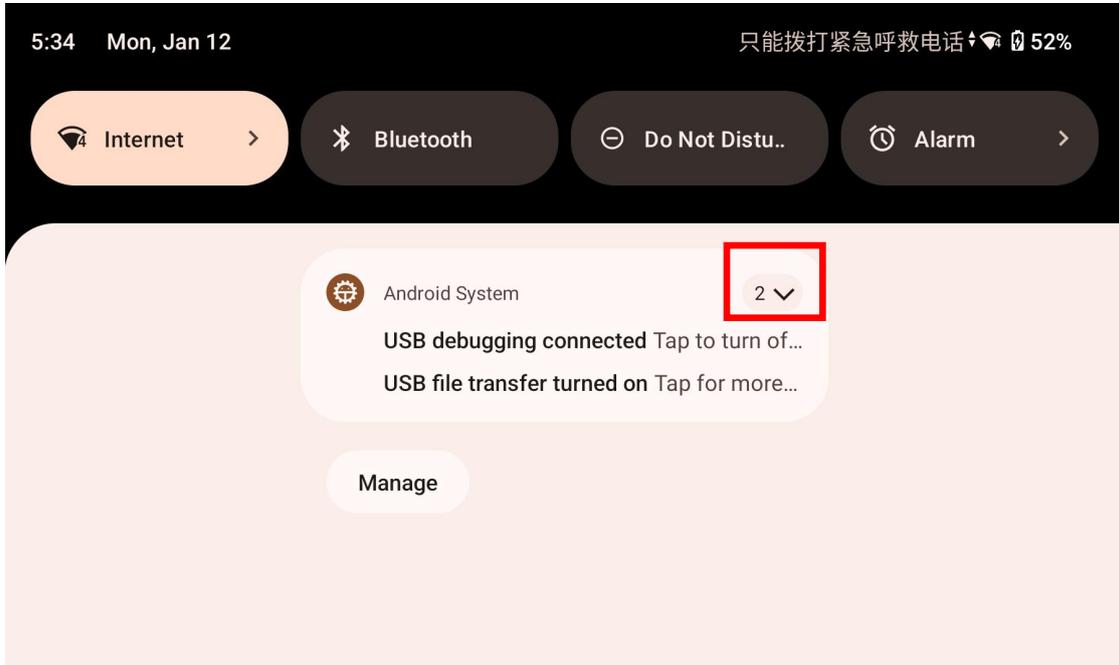
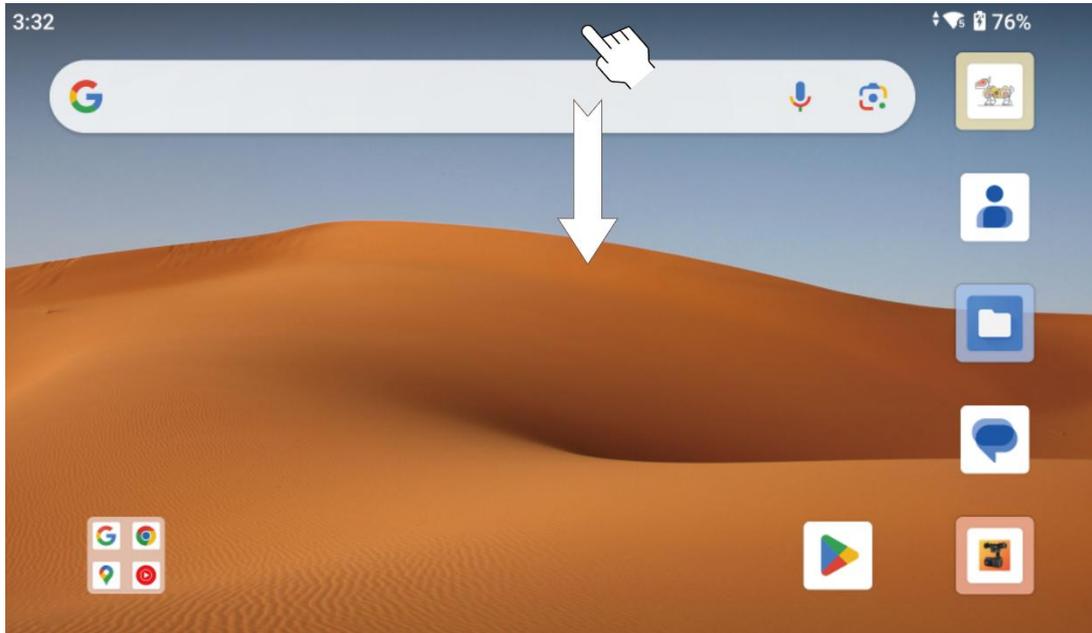


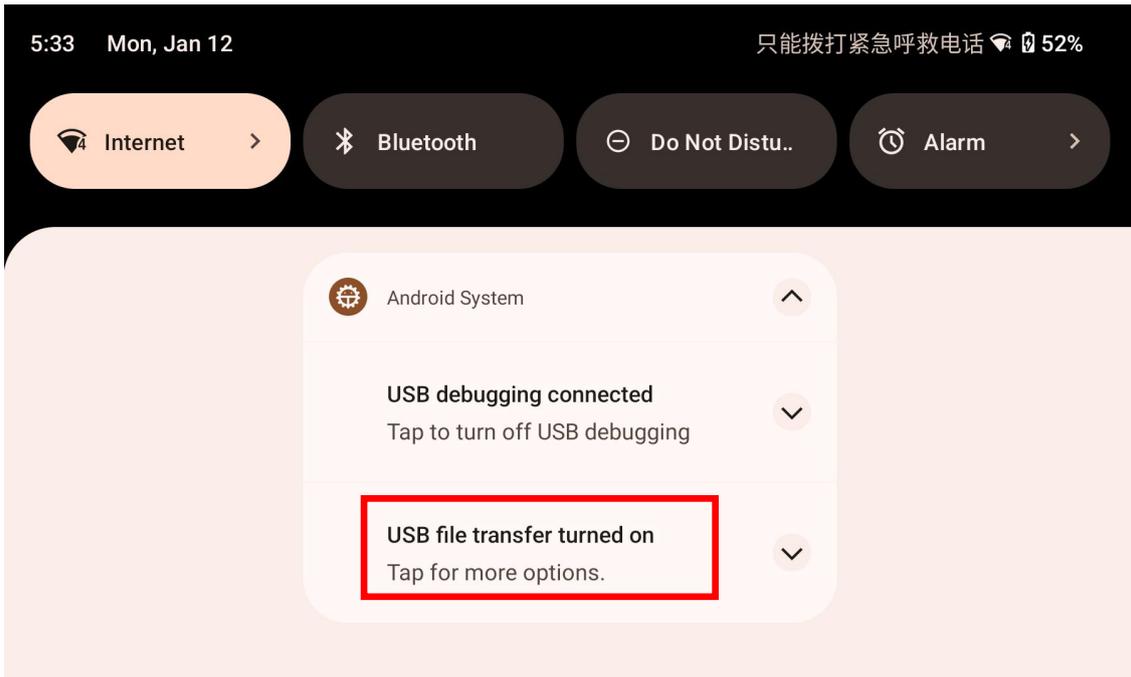




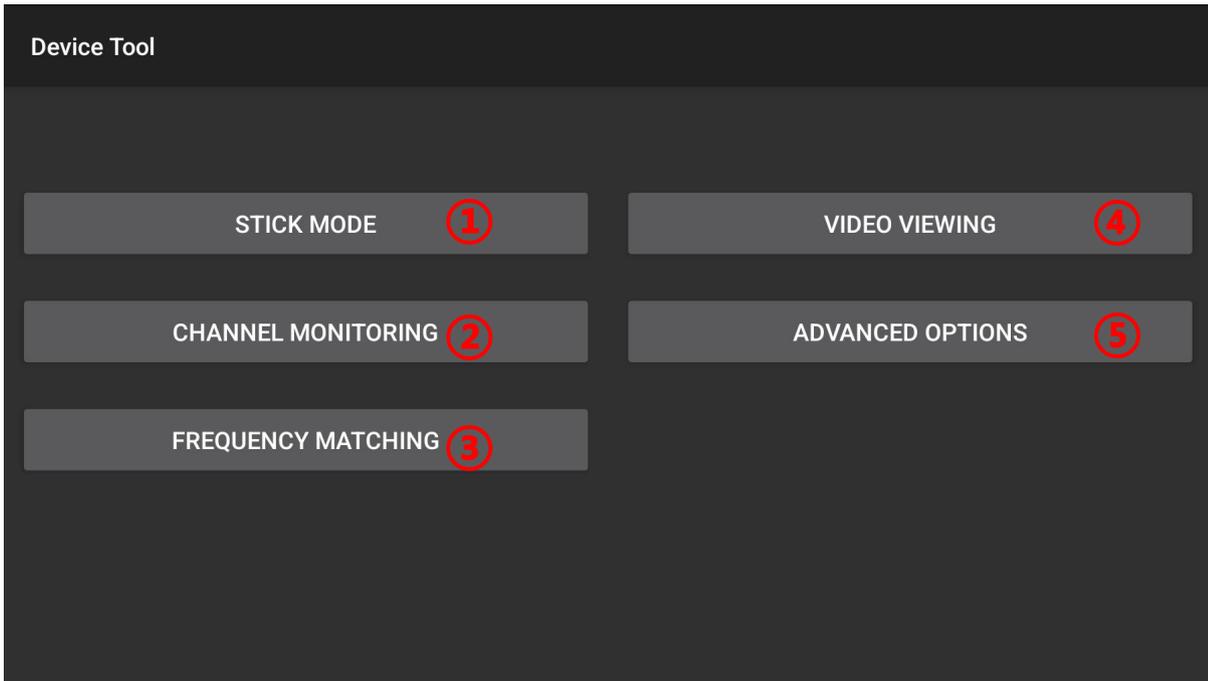
6. Transmitting files to the computer

The remote control is connected to the computer via the Type-C port. Enter the control center, click on "View More", and select "Transfer Files".



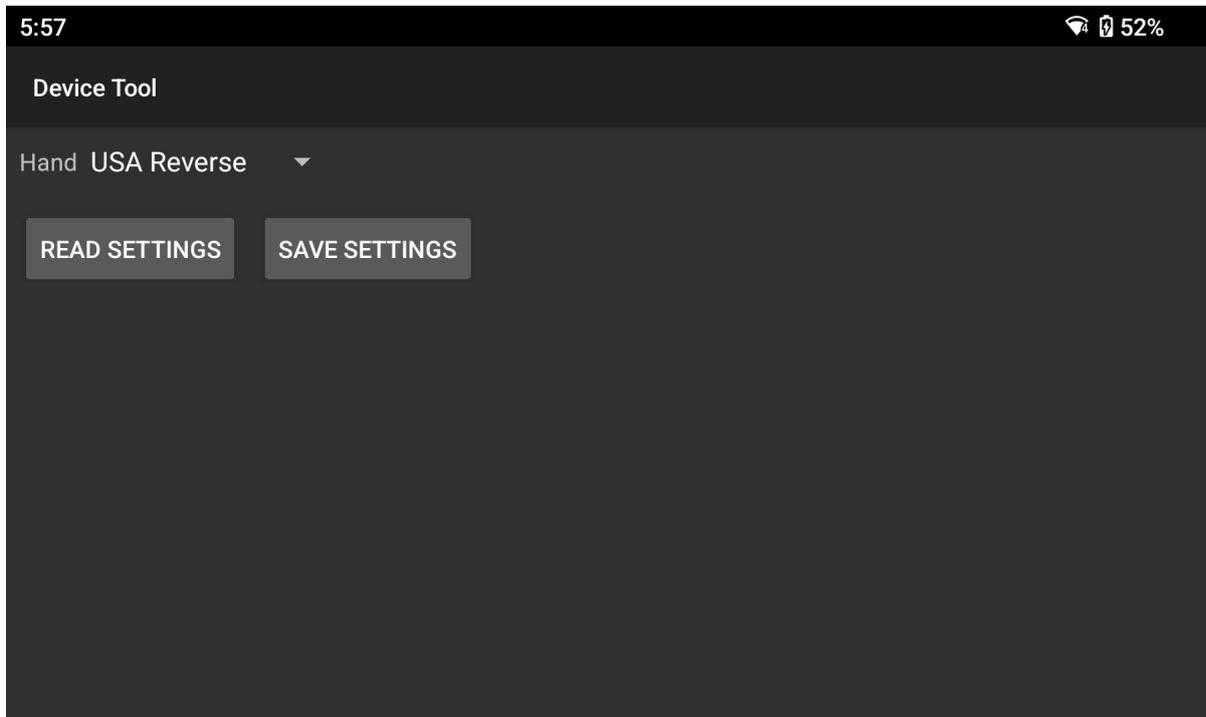


7. Introduction of the device assistant

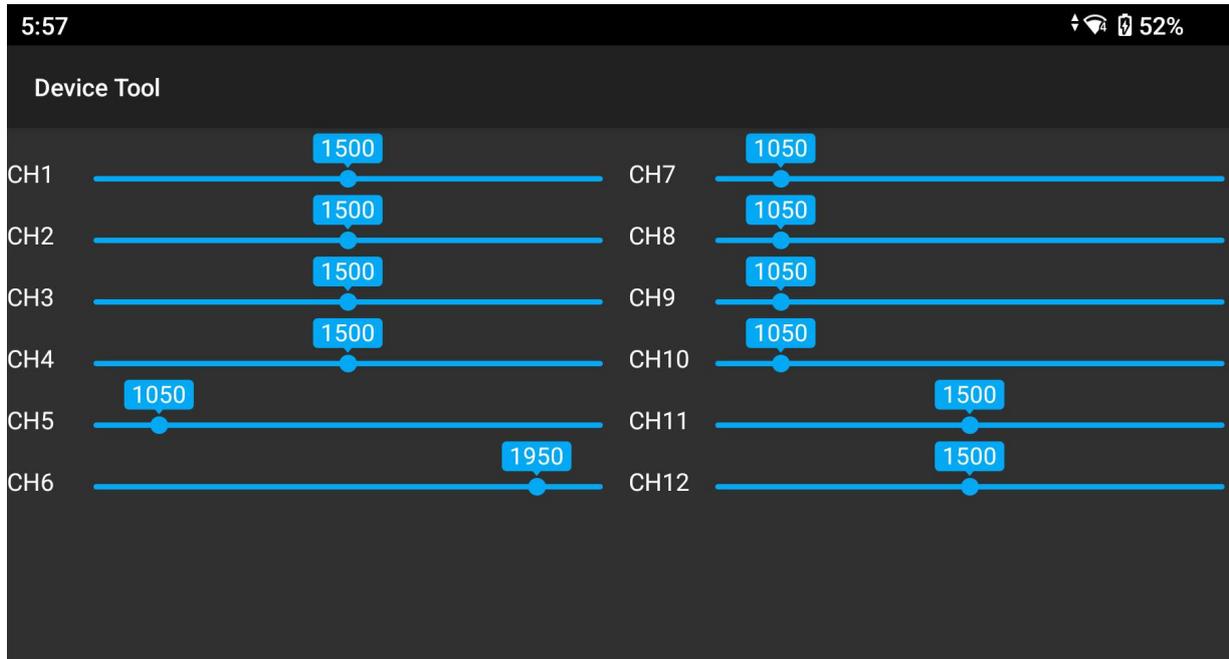


The assistant version requires an internet connection to be updated to the latest version.

① Hand Mode Setting: The controller's hand mode can be configured, with the default set to Mode 2 (American hand).



- ② Stick Value Monitoring: Allows real-time viewing of the stick value (PWM output) for each channel of the remote controller.



- ③ Frequency Pairing: Allows viewing of the frequency pairing status and information.

6:01 52%

Device Tool

START FREQUENCY MATCHING STOP FREQUENCY MATCHING ADD RECEIVER

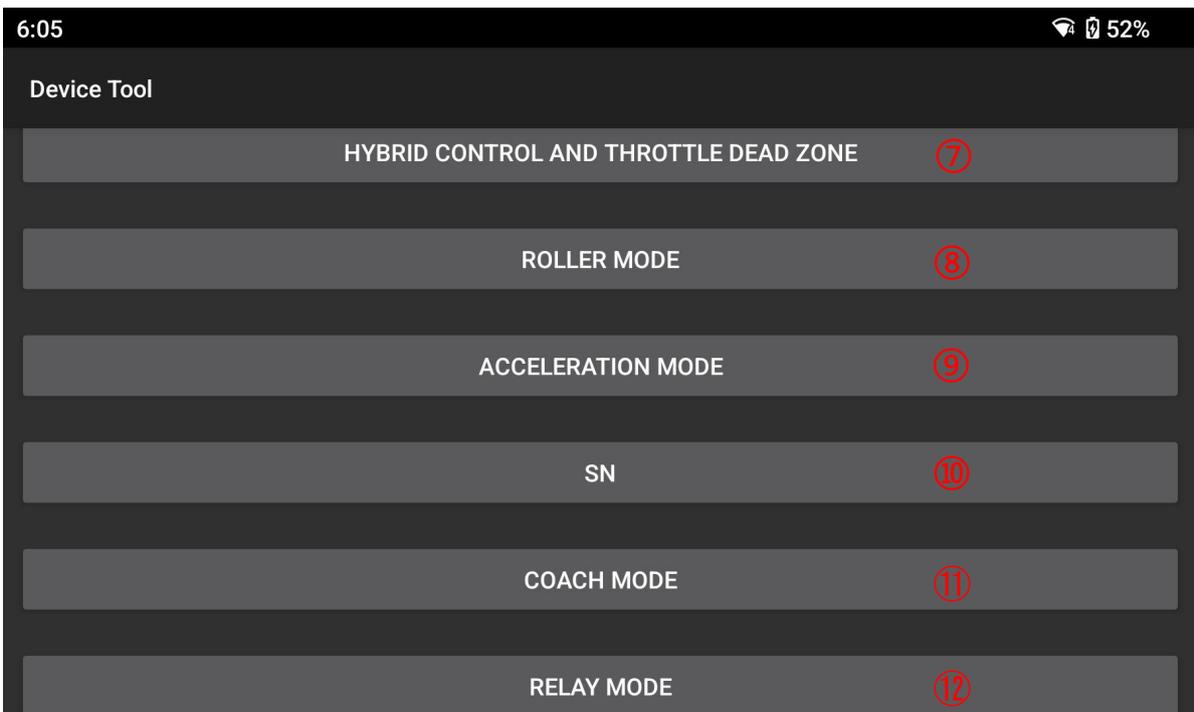
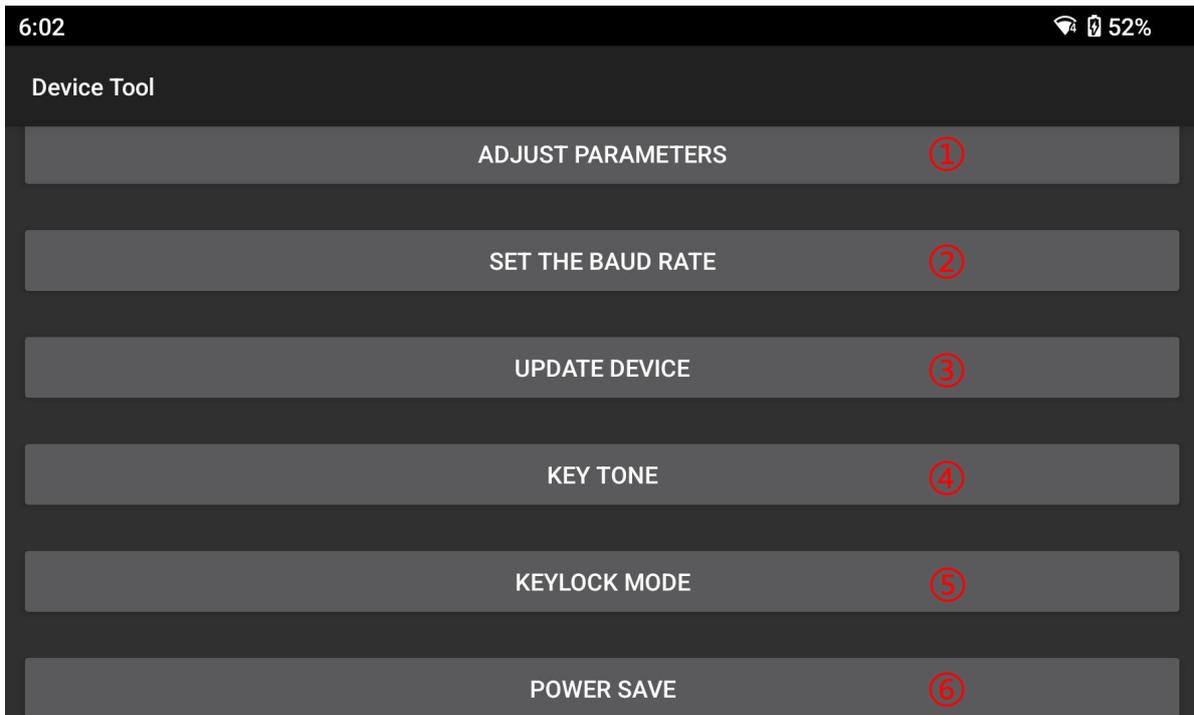
Displays floating box

Connecting Status:Connected

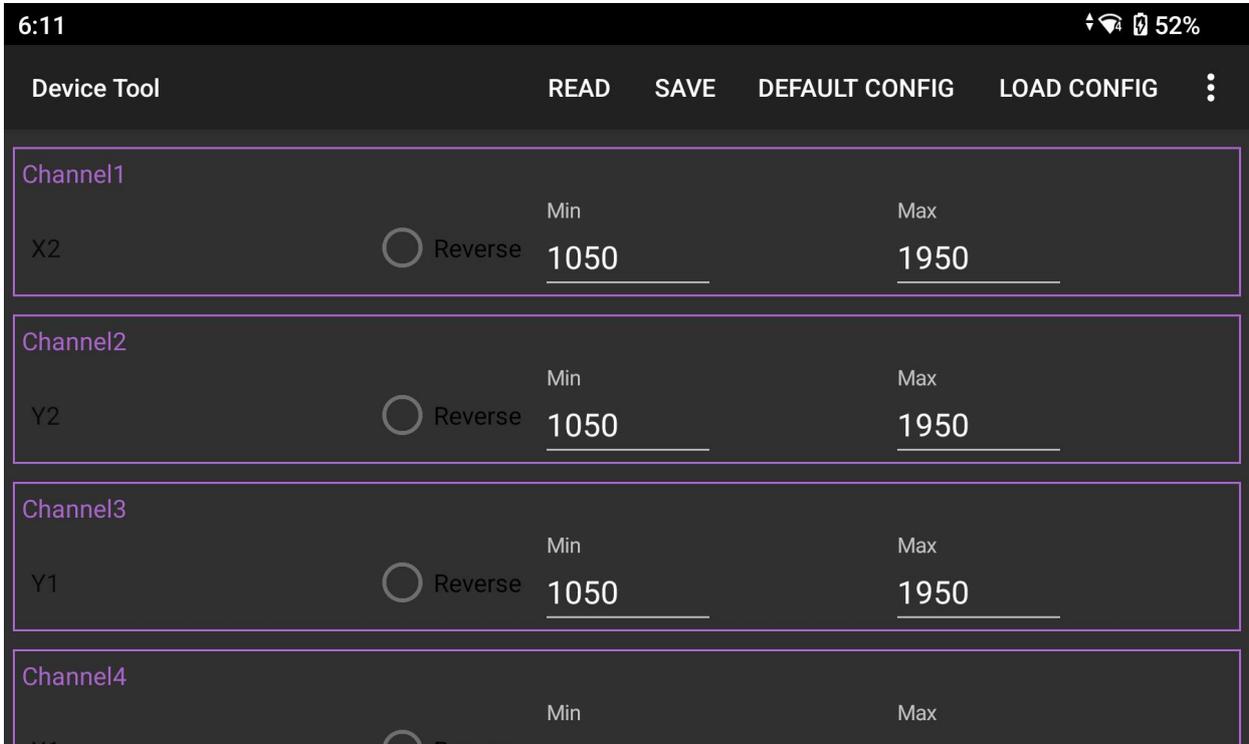
Signal:89
RC SNR:16
RC GAINA:39
RC GAINB:39
RC MCS:0
RC Power:25
SKY SNR:17
SKY GAINA:51
SKY GAINB:42
SKY MCS:7
SKY POWER:26

- ④ Video View: Allows viewing of the video feed transmitted back from the camera.
- ⑤ Advanced Options: Configures advanced settings for the remote controller receiver (described in detail below).

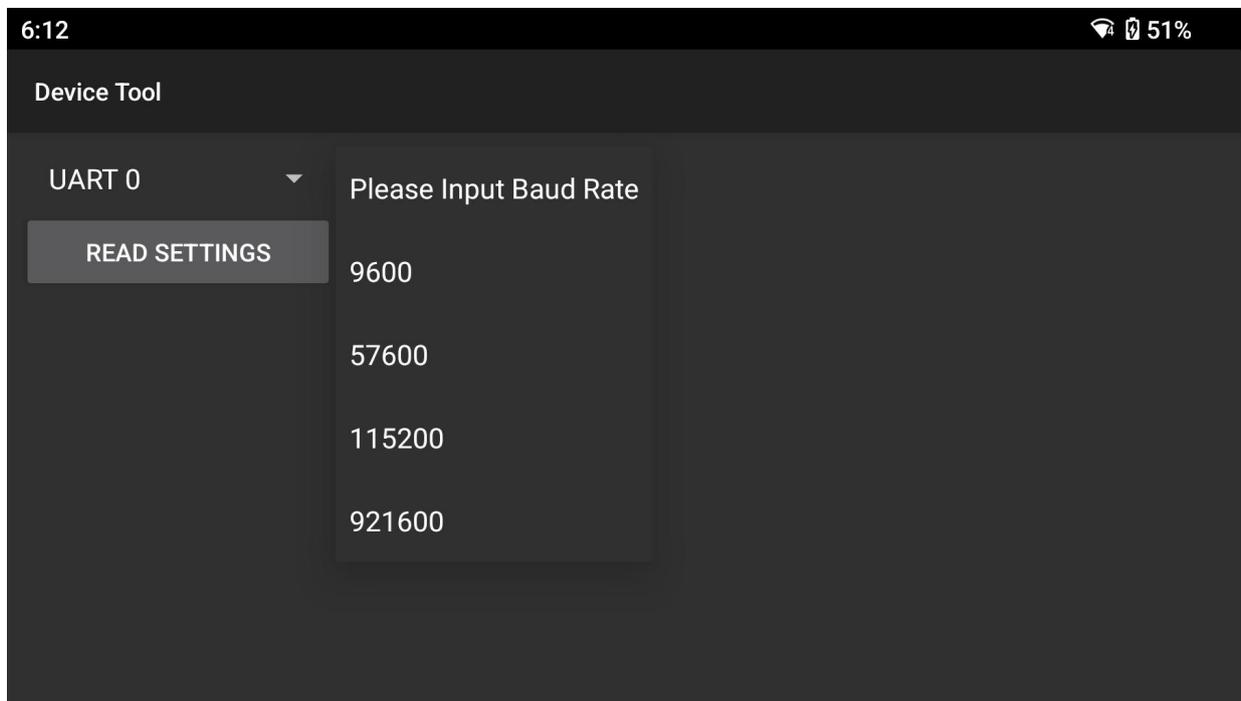
8. Introduction of the device assistant - ⑤Advanced option (password:999)



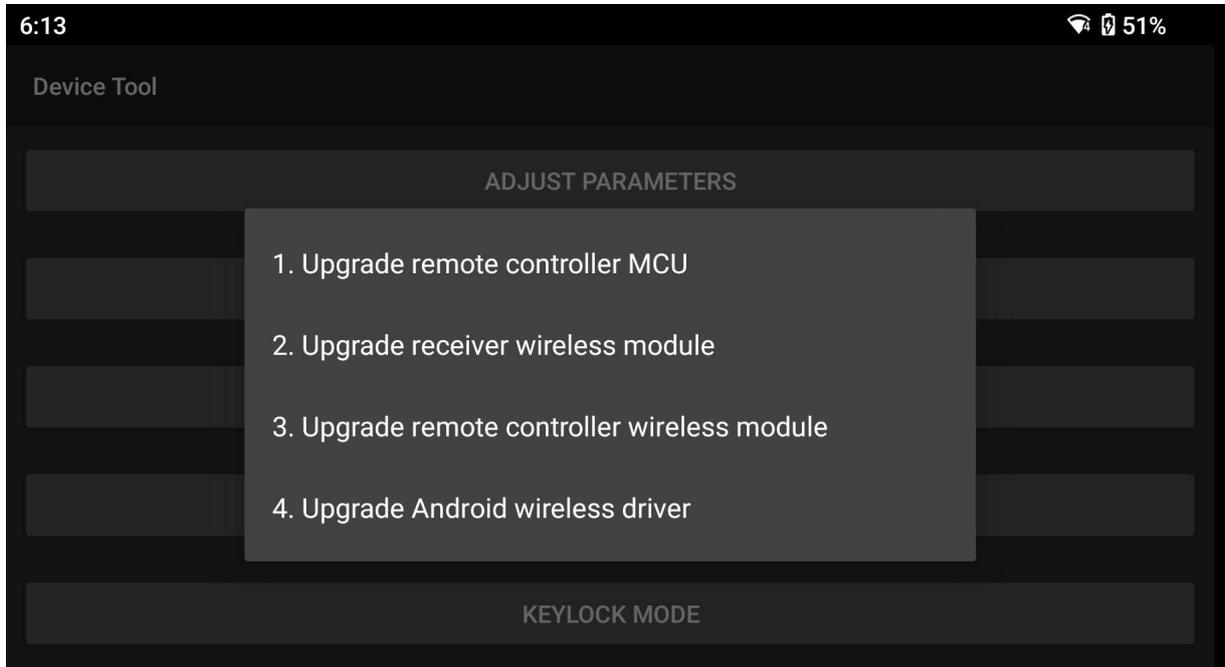
①RC Parameter Adjustment: Allows custom mapping of control channels for buttons, setting channel inversion, and modifying the maximum/minimum stick values.



②Baud Rate Configuration: Modifies the serial port baud rate of the receiver.

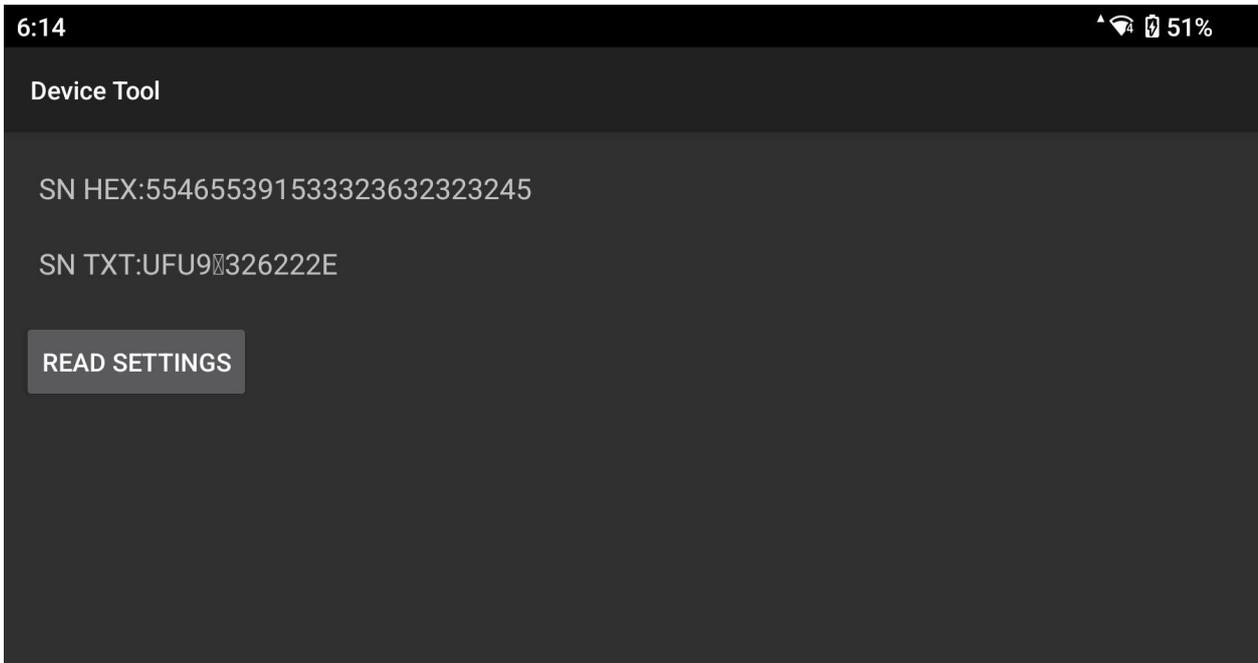


③Firmware Update:Updates the MCU firmware of the remote controller, the wireless module firmware of the receiver, the wireless module firmware of the remote controller, and the Android wireless driver firmware.



Note: The update sequence is 1→2→3→4

④SN (Serial Number): Displays the remote controller's serial number.



9. Frequency Pairing for Remote Controller

Receiver 1: GR01

Method 1:

- ① Power on the remote controller and receiver. After power-up, the receiver's green light will stay on steadily, the blue light will blink intermittently, and the fan will run intermittently.
- ② Press and hold the frequency pairing button on the receiver until the blue light starts flashing rapidly, then release the button.
- ③ Open the Device Helper app on the remote controller, tap "Pairing" → Start Pairing, confirm the operation, and wait for the "Pairing Successful" message.
- ④ After successful pairing, the receiver's blue light will remain steadily lit.

Method 2:

- ① Quickly power-cycle the receiver four times. On the fourth cycle, it will automatically enter pairing mode, indicated by the blue light flashing rapidly.
- ② Open the Device Helper app on the remote controller, tap "Pairing" → Start Pairing, confirm the operation, and wait for the "Pairing Successful" message.
- ③ After successful pairing, the receiver's blue light will remain steadily lit.

Note: During frequency pairing, keep the remote controller and receiver within 50 CM of each other.

Receiver 2: G12 RX

Method 1:

- ① Power on the remote controller and receiver. After power-up, the receiver's red light will stay on steadily, and the green light will blink intermittently.
- ② Short-circuit the GND and KEY pins of the receiver until the green light starts flashing rapidly, then release it.
- ③ Open the Device Helper app on the remote controller, tap "Pairing" → Start Pairing, confirm the operation, and wait for the "Pairing Successful" message.
- ④ After successful pairing, the receiver's green light will remain steadily lit.

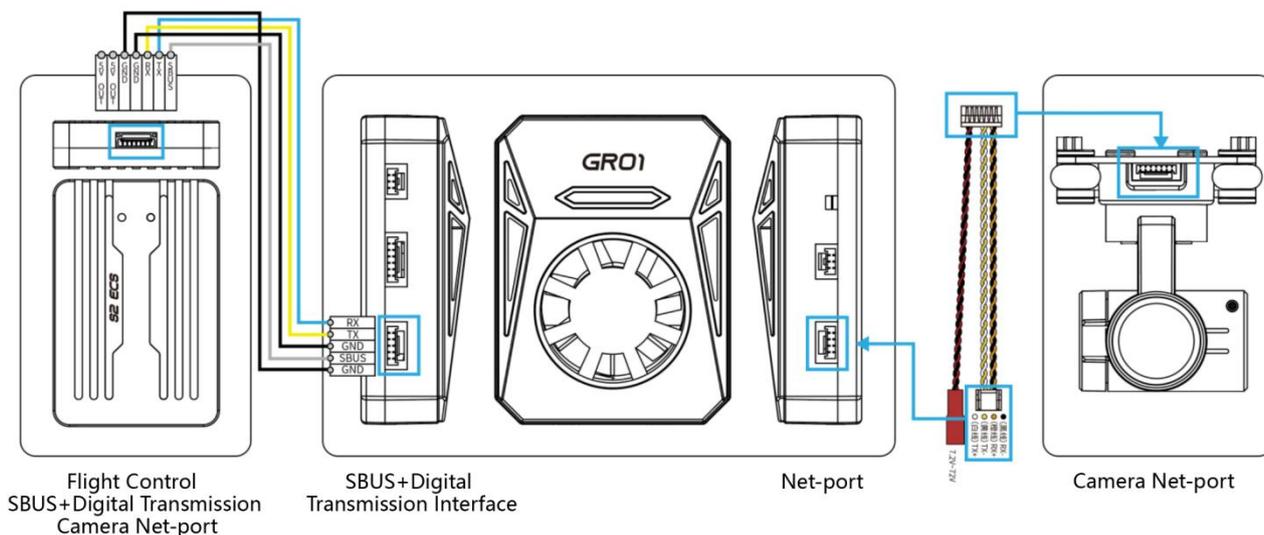
Method 2:

- ① Quickly power-cycle the receiver four times. On the fourth cycle, it will automatically enter pairing mode, indicated by the blue light flashing rapidly.
- ② Open the Device Helper app on the remote controller, tap "Pairing" → Start Pairing, confirm the operation, and wait for the "Pairing Successful" message.
- ③ After successful frequency pairing, the receiver's blue light will remain steadily lit.

Note: During frequency pairing, keep the remote controller and receiver within 50 CM of each other.

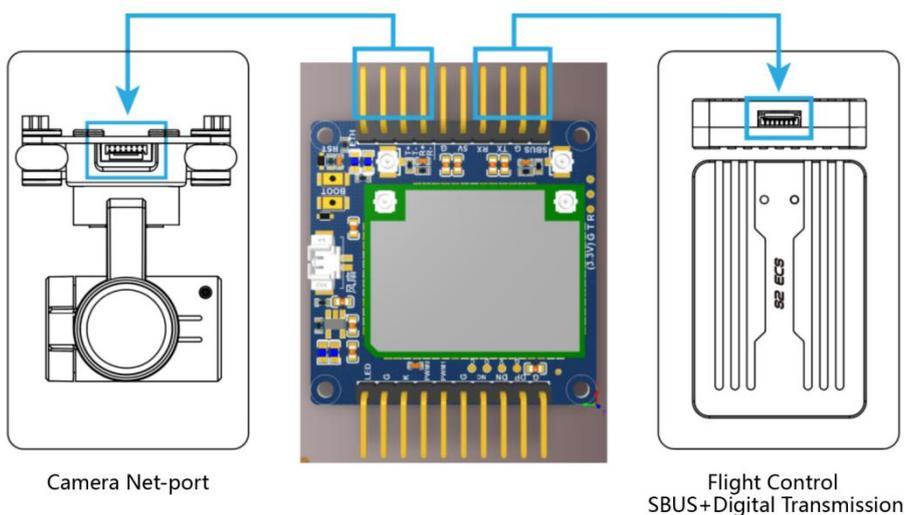
10. Data Transmission and Image Transmission Connection

Receiver 1: GR01



According to the wiring diagram above, connect the SBUS+Data interface of the receiver to the SBUS+Data interface of the flight controller, and connect the Ethernet port of the receiver to the Ethernet port of the camera. (**Note:** Please refer to the corresponding manual for device power supply and other wiring connections.)

Receiver 2: G12 RX



According to the wiring diagram above, connect the SBUS+Data interface of the receiver to the SBUS+Data interface of the flight controller, and connect the Ethernet port of the receiver to the Ethernet port of the camera.

(1) Image Transmission



Taking the Skydroid C10 Pro as an example: after powering the camera and connecting it to the Ethernet port of the receiver, launch the **Gimbal FPV** app to view the video transmission image.

Download the Gimbal FPV app at:

<http://file.skydroid.xin/SkydroidCameraFPV.apk>

If a third-party camera is used, its IP address must be set to the 144 subnet (e.g., 192.168.144.XXX), and the gateway must be set to 192.168.144.11. Otherwise, image sharing to a computer will not be possible.

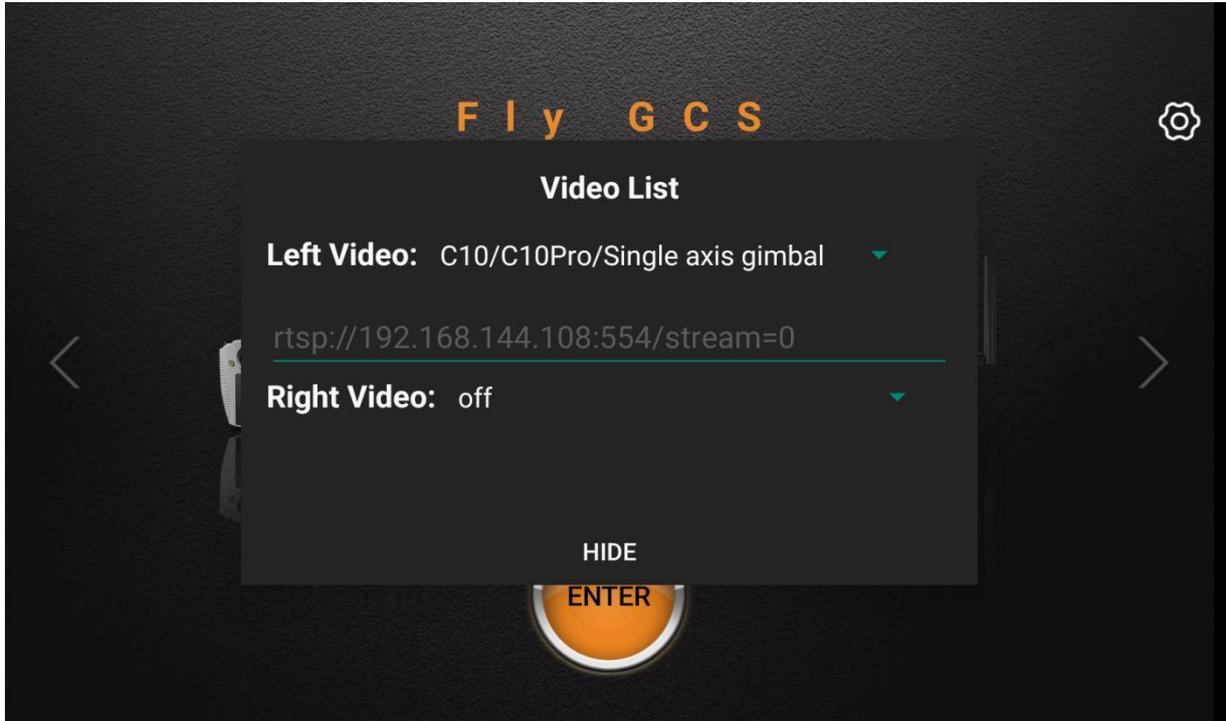
To set up the video stream:

Open Device Helper → Video View → tap the Settings button at the bottom → Video Stream Address → select Custom, then enter the camera's RTSP pull address.

Note: The RTSP address for third-party cameras should be obtained from the manufacturer. The FLY Ground Station does not support gimbal control for third-party cameras.

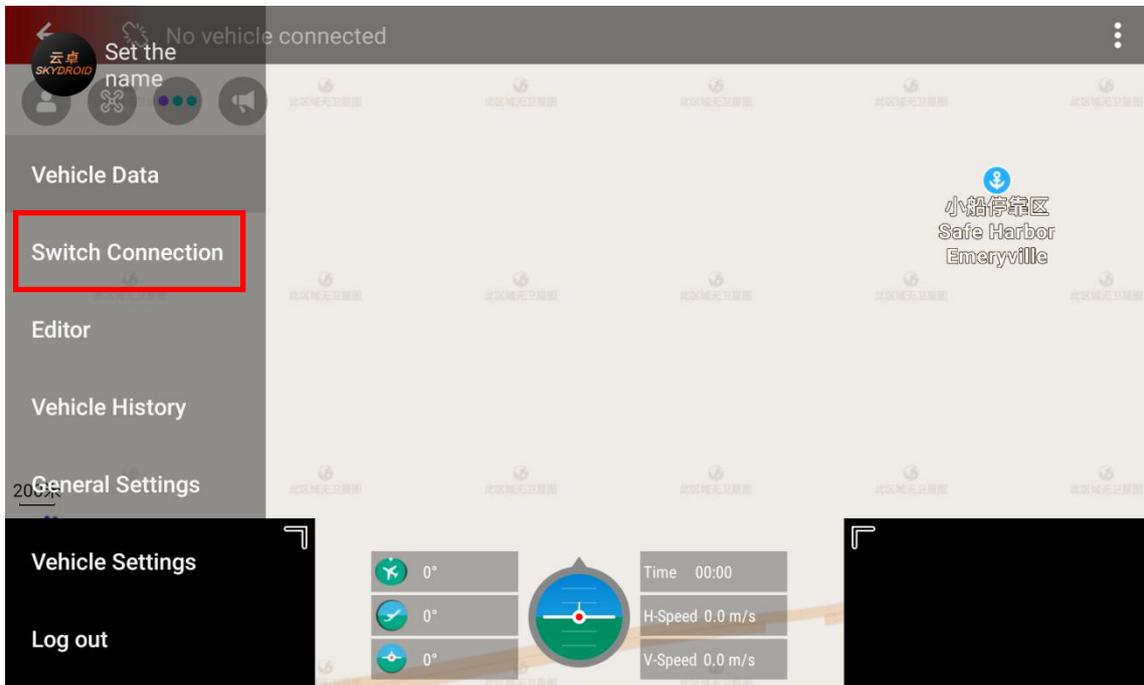
If using **FLY GCS**, go to:

Common Settings → Other Settings → User Interface → Video Window → C10.

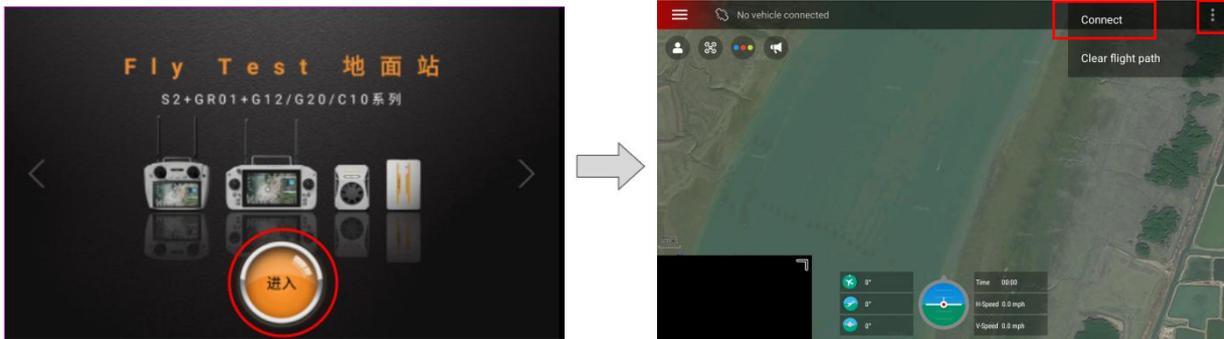


(2) Data Transmission

Taking Skydroid FLY GCS as an example: enter the ground station, click the upper-left corner to access the connection switching interface.



Select the “S2 + G12 + G20 + G30” combination and click to enter, then click “Connect”.



Note: If the connection fails, please check:

- ① Whether the serial port baud rate of the receiver matches the baud rate of the flight controller's data transmission port (the S2 flight controller's baud rate is 921600).
- ② Whether the wiring of the data transmission line is correct (RX should connect to TX, TX to RX; see Section 11: Image/Data Transmission Connection in this document for details).

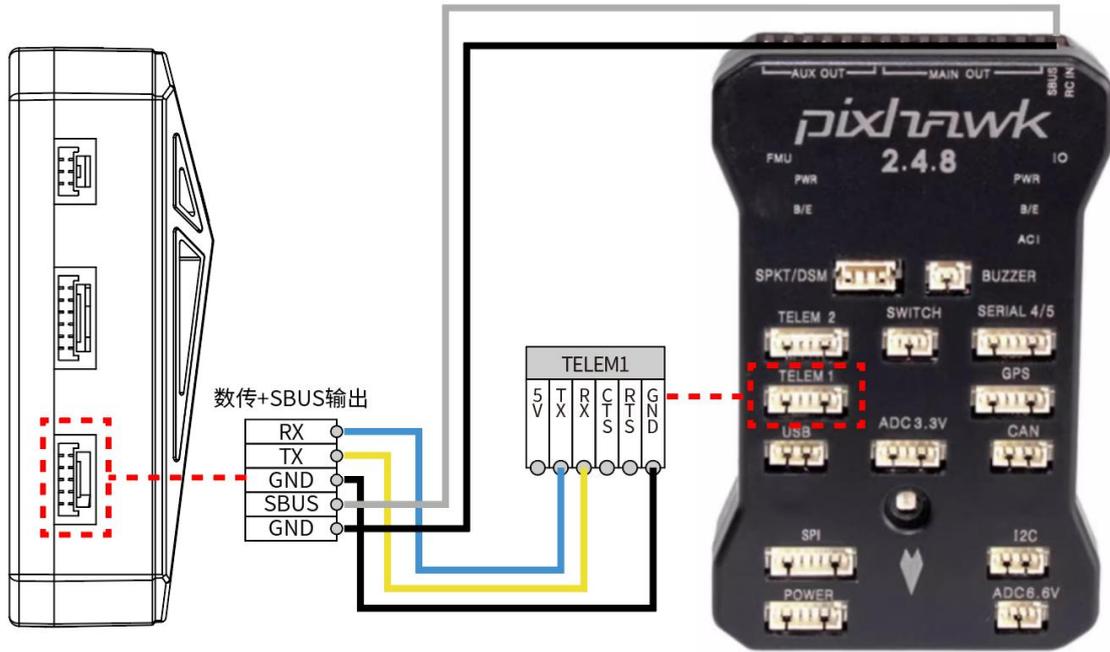
11. How to Display Data-Transmission and Image-Transmission on G16 Remote Controller and QGroundContro Ground Station

Connect the data transmission cable of the open-source flight controller to the data transmission port of the receiver. Taking the QGroundContro ground station (hereinafter referred to as QGC, current version V4.4.3 64-bit) as an example for reference connection, the download link for QGC is: <http://qgroundcontrol.com>.

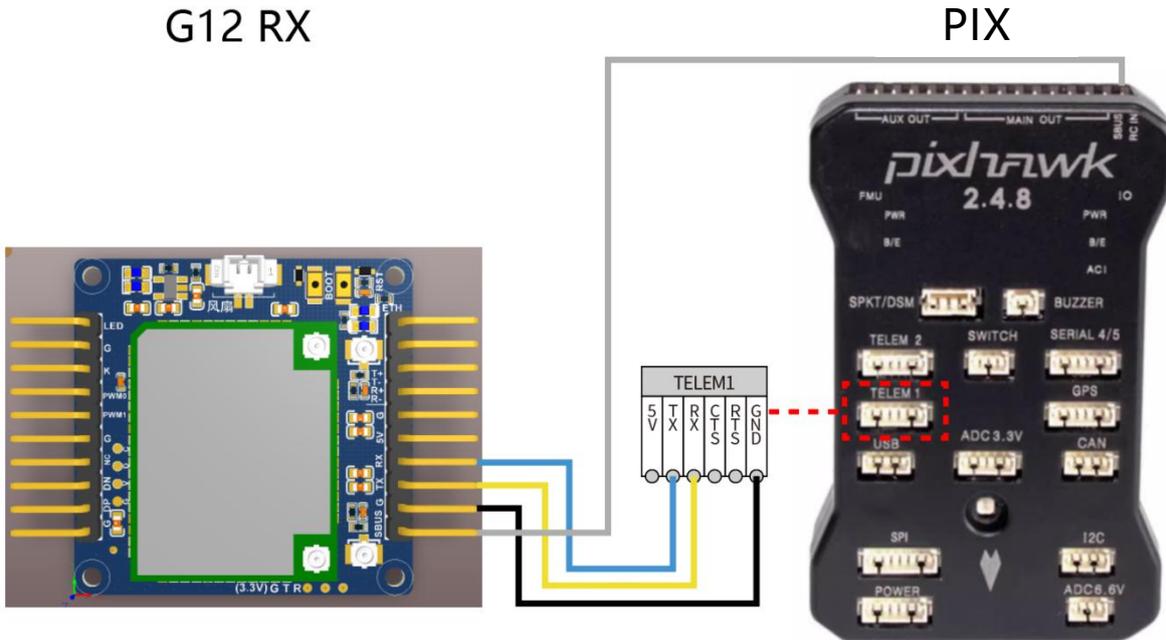
Note: The S2 flight controller can only be used with the Skydroid FLY ground station; do not use QGC to connect to it.

Diagram of Open-Source PIX Flight Controller SBUS + Data Transmission Connection:

GR01



G12 RX

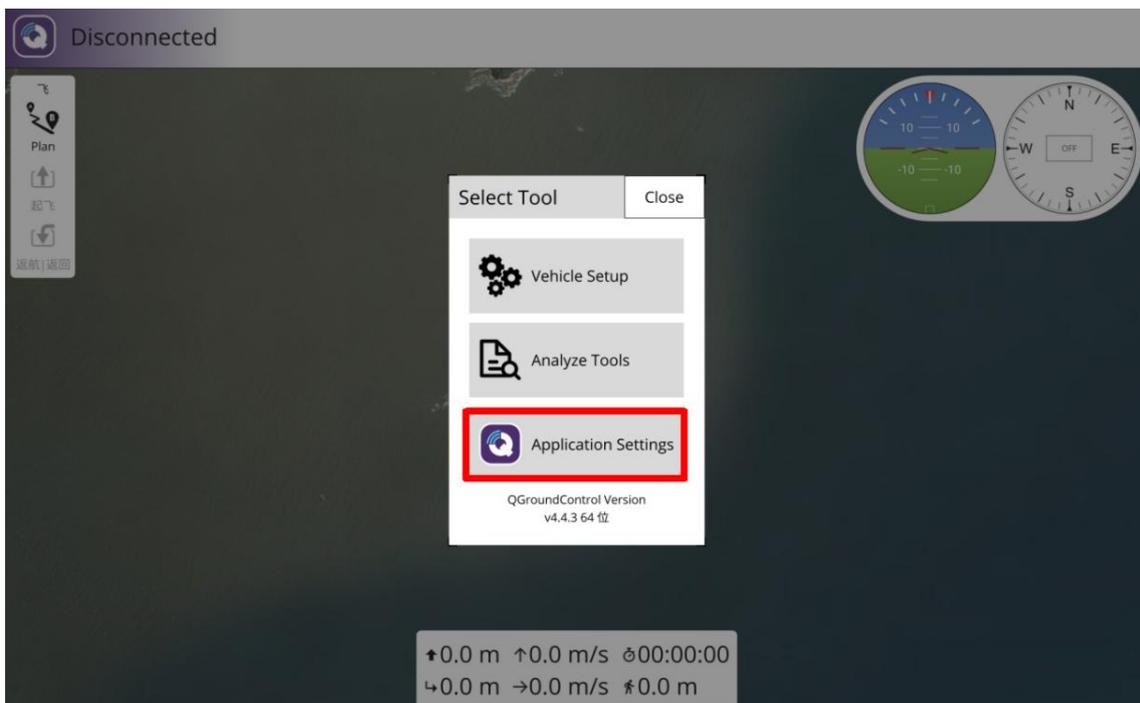


11.1 QGC Data-Transmission Settings

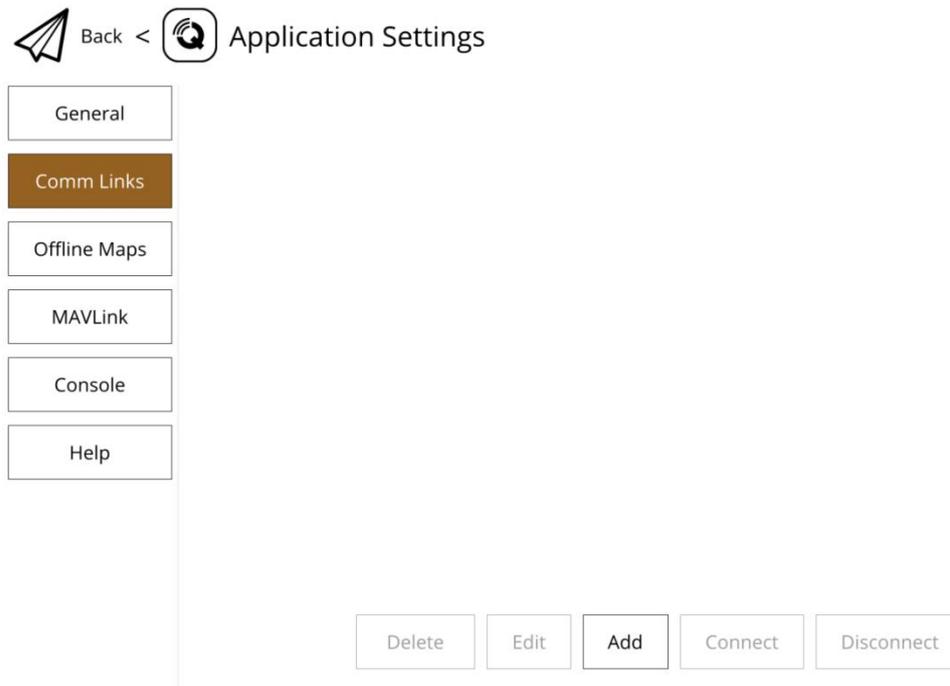
(1) Click the Q icon in the upper-left corner of QGC.



(2) In the pop-up window, select “Application Settings”.



(3) Then click “Communication Connection”, and click “Add”.



(4) Data Transmission Settings:

- ① NAME: Enter a name;
- ② Check "Connect automatically on startup";
- ③ Type (Connection method): Set the option to UDP;
- ④ Port: Set to 14551;
- ⑤ Under Server Addresses, enter the data transmission IP address:
127.0.0.1:14552;
- ⑥ Click Add Server;
- ⑦ Click Confirm.

 Back <  Application Settings

- General
- Comm Links
- Offline Maps
- MAVLink
- Console
- Help

Create New LINK CONFIGURATION

Name

Automatically Connect on Start

High Latency

Type

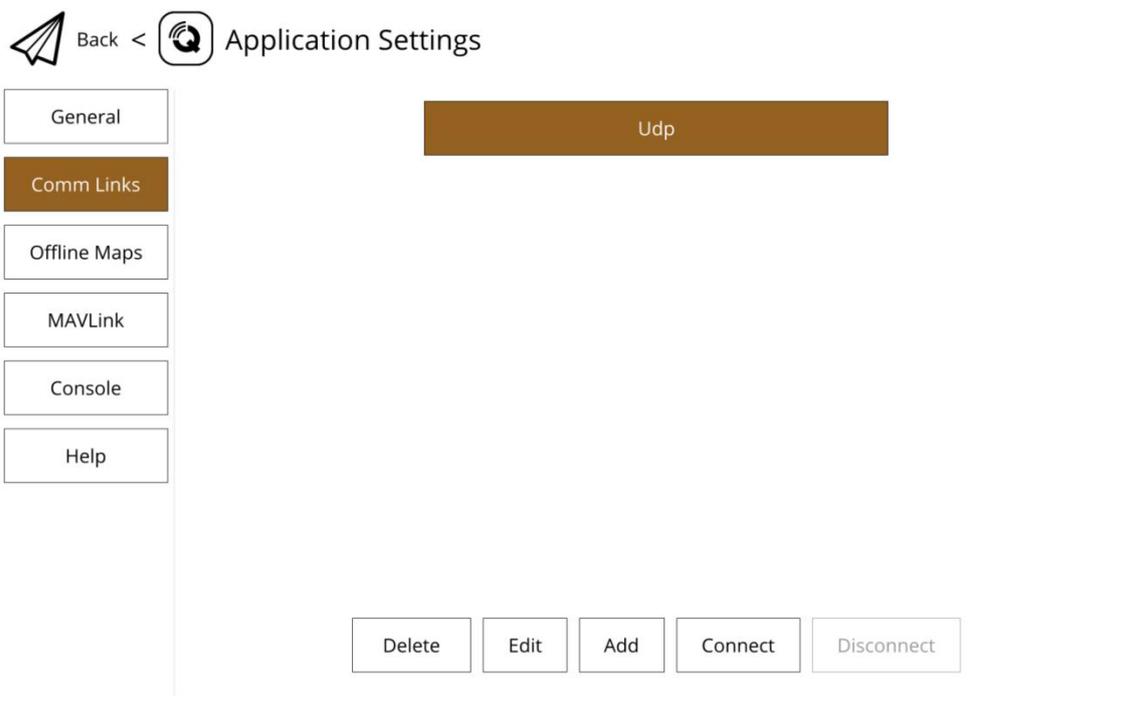
Note: For best performance, please disable AutoConnect to UDP devices on the General page.

Port

Server Addresses (optional)

⑧ Click to select the **UDP** connection you just named;

⑨ Then click “connect”

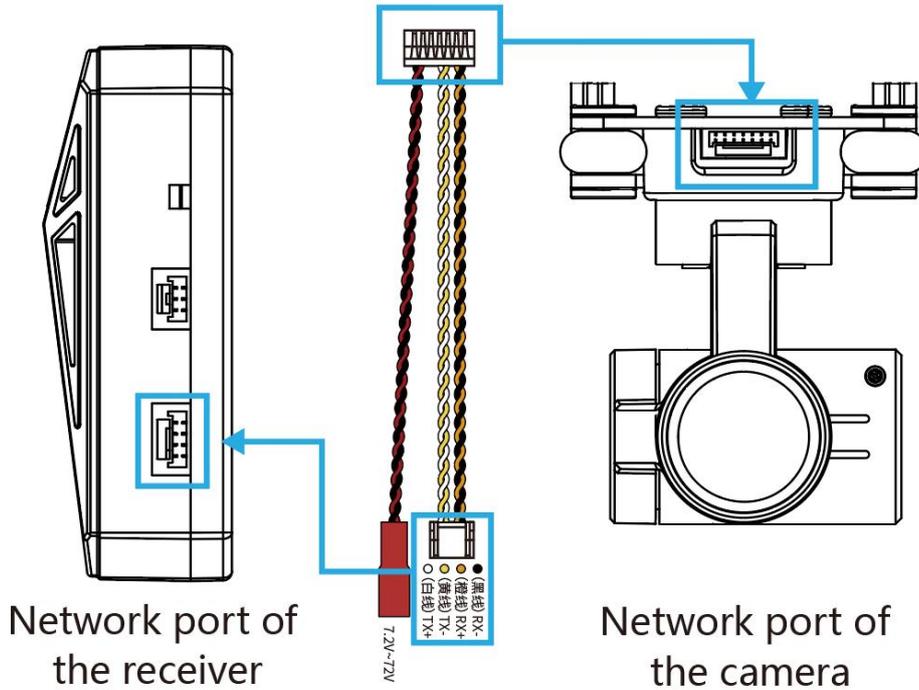


(5) The flight controller's data transmission has been successfully connected.

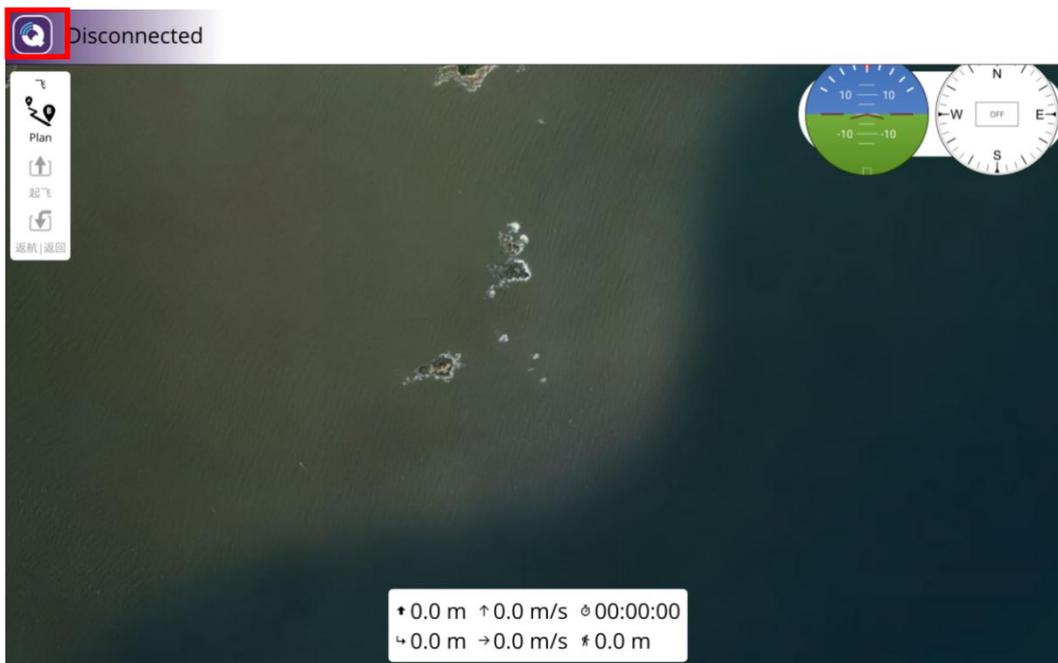


11.2 QGC Image-Transmission Settings

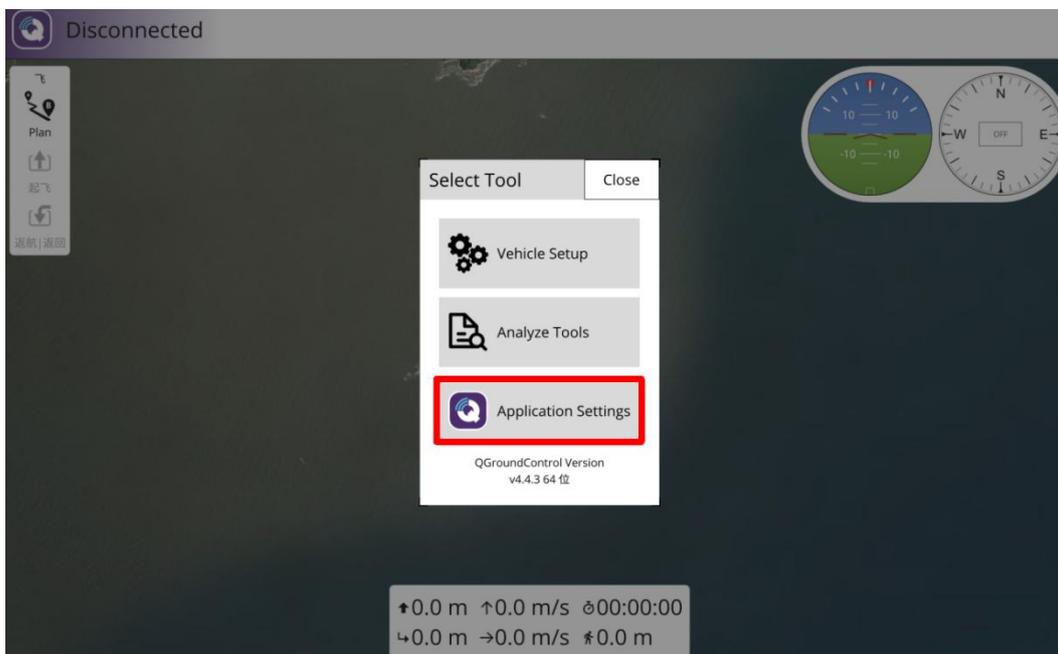
Taking the G16 remote controller with QGC ground station as an example for reference when connecting the C10PRO camera for image transmission (ensure the G16 Assistant background service is closed).



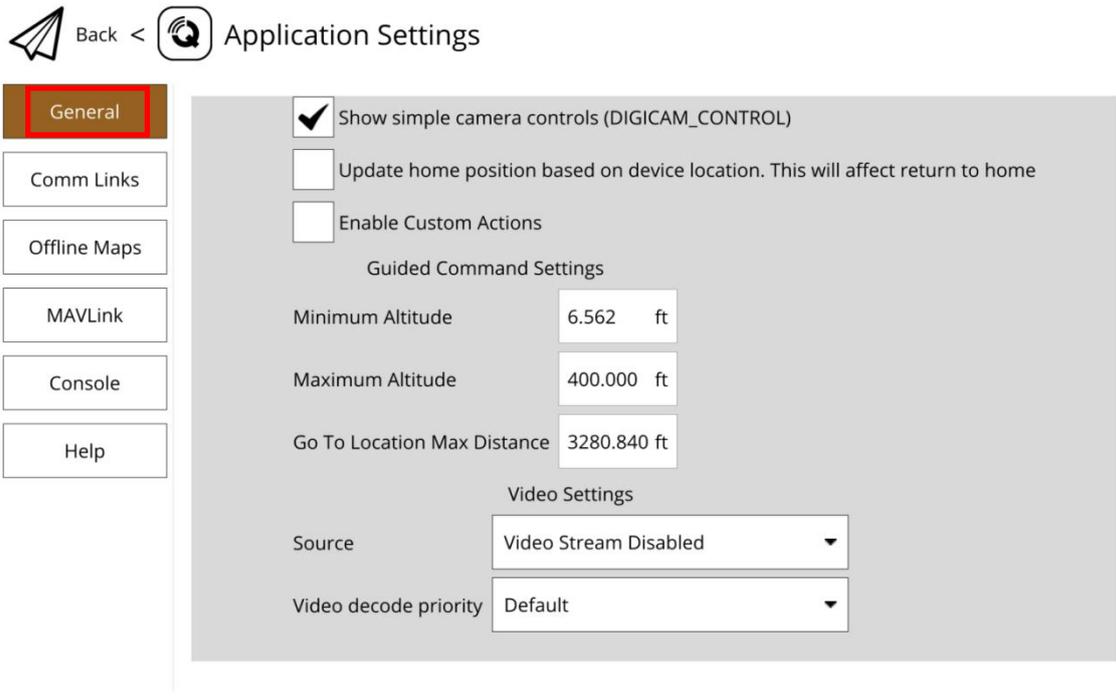
(1) Open QGC and click the Q icon in the top-left corner of QGC.



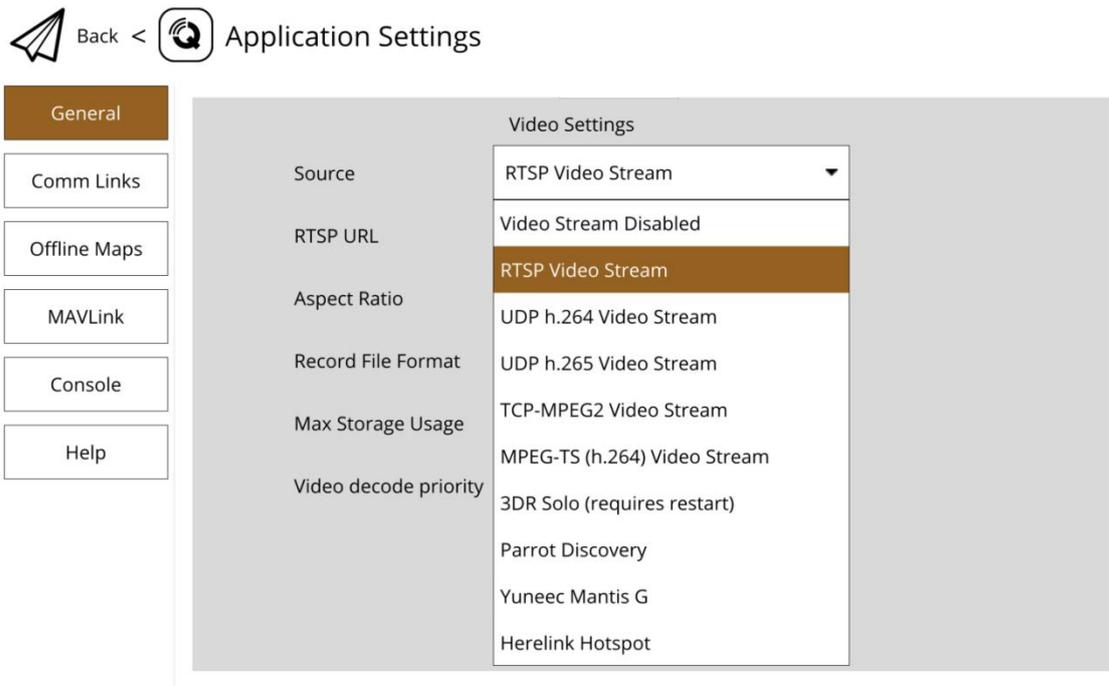
(2) In the pop-up window, select “Application Settings”.



(3) Click “General”.



(4) Change the Source (Video Source) to RTSP Video Stream.



(5) Enter the RTSP address of the network camera in the RTSP URL field.

C10PRO / Network Port Gimbal (requires connection to C10PRO) RTSP address:

rtsp://192.168.144.108:554/stream=0

C12 Dual- Sensor:

rtsp://192.168.144.108:554/stream=1

rtsp://192.168.144.108:555/stream=2

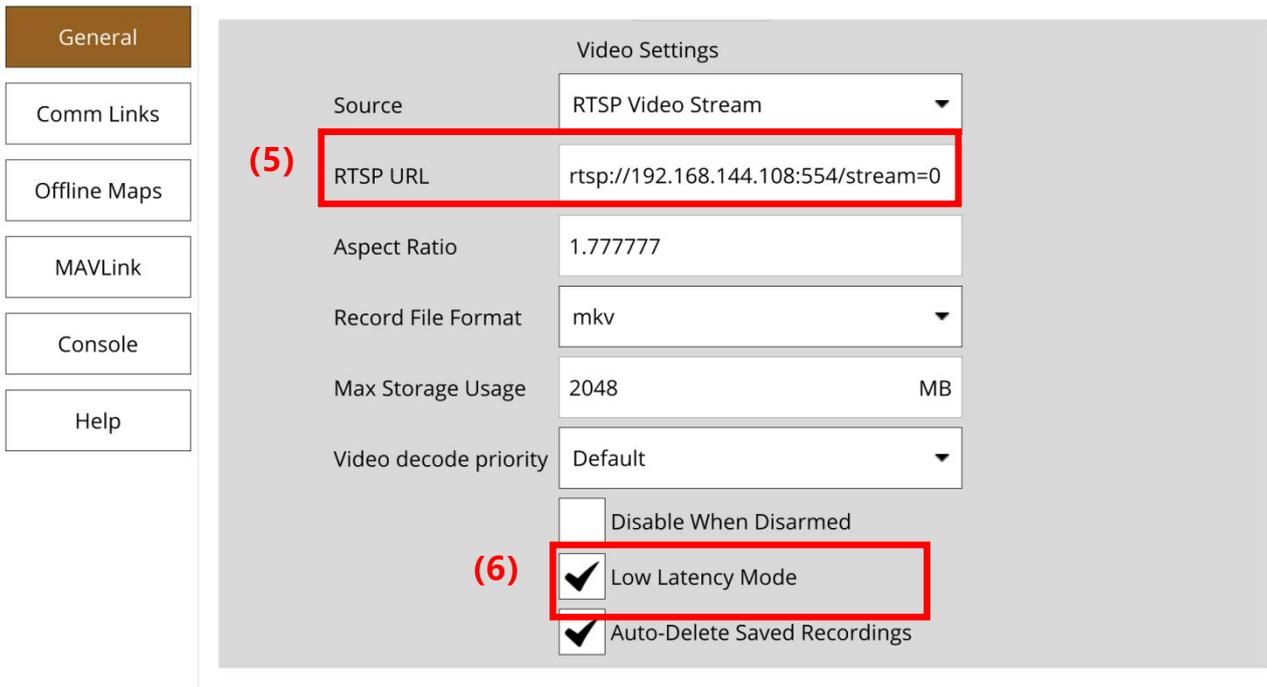
C20: rtsp://192.168.144.108:554/main

Third-party cameras (only support stream-pulling display): after setting to Custom, enter the corresponding RTSP pull address in the field below.

Note: The camera's IP subnet must be set to the 144 subnet.

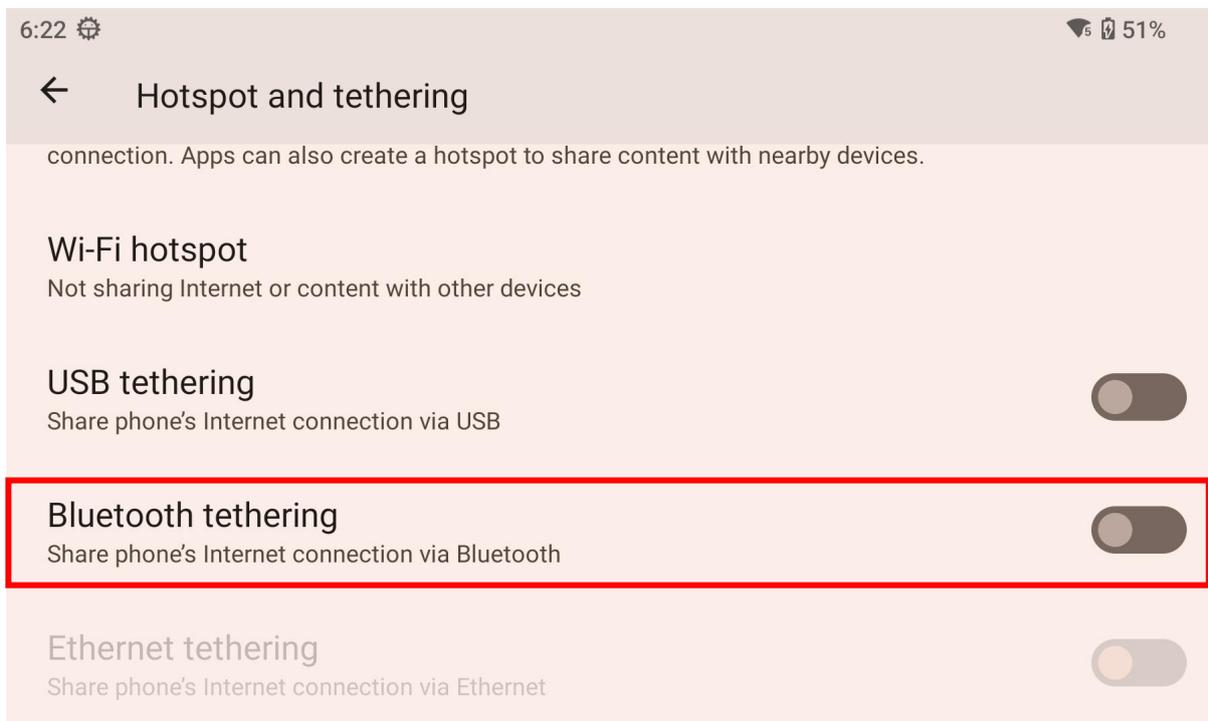
(6) Check "Low Latency Mode".

(7) Click the aircraft icon "Back" in the upper-left corner to return to the flight page.



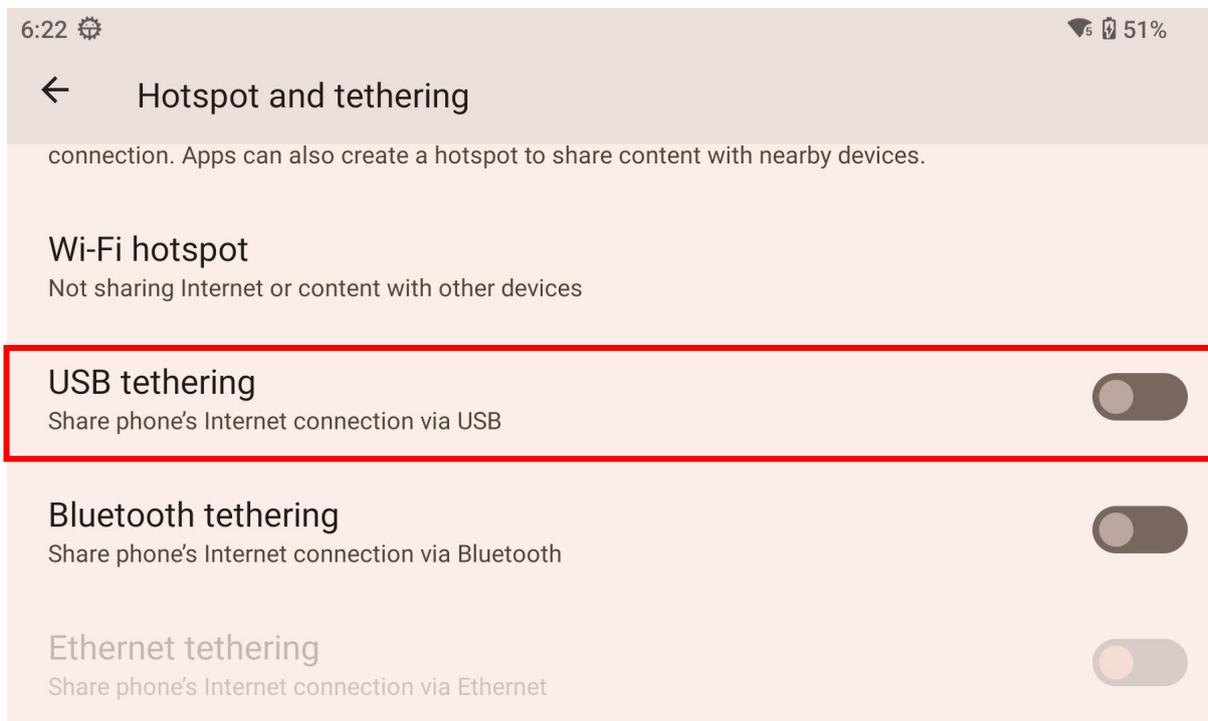
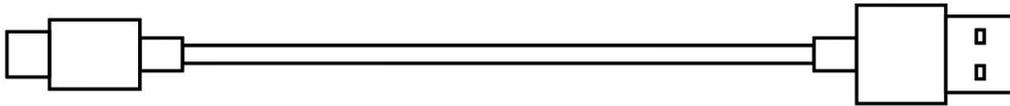
(2) Method 2:

Connect the computer's Ethernet port to the remote controller's Type-C port using an Ethernet cable. Then, open Settings → Network & Internet → Hotspot & Tethering → Turn on "Ethernet Tethering".



(3) Method 3:

Connect the computer's Type-A port to the remote controller's Type-C port using an A-to-C data cable. Then, open Settings → Network & Internet → Hotspot & Tethering → Turn on "USB Tethering".



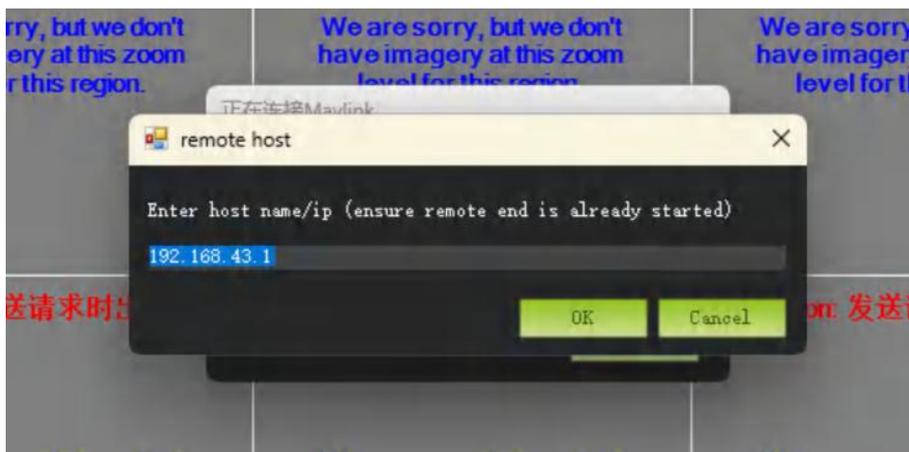
Note: The network connection on the computer side must be set to Obtain an IP address automatically, and the firewall should be disabled.

13.1 Sharing Data Transmission

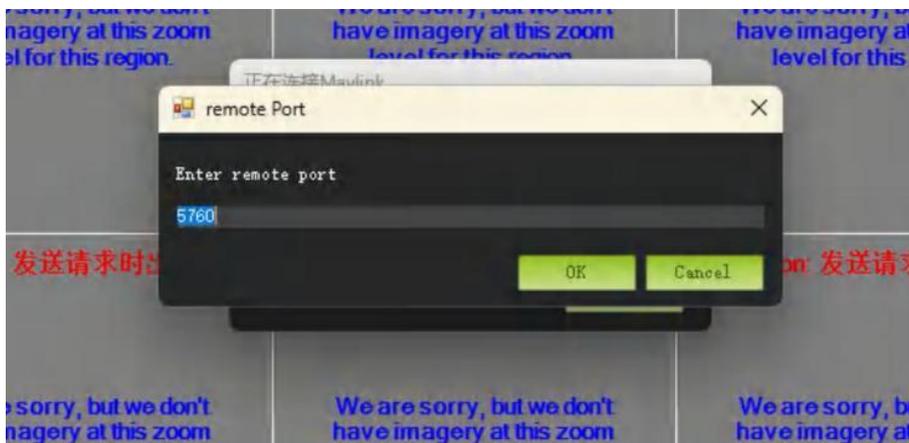
After successfully connecting using any one of the above three methods, open “Mission Planner” and select TCP as the connection method.



After clicking “Connect”, enter the IP address 192.168.43.1, then click “OK”.



Enter the port number 5760 and click “OK” to establish the data transmission connection.



13.2 Sharing Image Transmission

After successfully connecting using any one of the three methods described above, launch VLC Media Player on your computer.

From the Media menu, select "Open Network Stream", then enter the camera's stream address as shown in the figure below. This will enable the date transmission sharing.

Note: If using a third-party camera, you must set the camera's gateway to 192.168.144.11 in order to share the image transmission.



14. Parameters

G16 Remote Controller Parameters			
Display Screen	7-inch industrial touch screen + sunlight-readable screen	Resolution	1920*1200
Processor	Qualcomm 6nm processor	System	Android 13
Size	272×183×94mm	Weight	1.05kg
Battery	20000mAh	Battery Life	About 9-10 hours
RAM	4G	System Storage	64G
Operating frequency band	2.4G/5.8G	Channel Qty	16
Dynamic frequency adjustment	Automatic frequency hopping	Radio frequency power	23dBm@CE/FCC
Remote control range	5-30KM(ground-to-air, line of sight)	Operating temperature	-10°C~60°C
Charging interface	TYPE-C	External interfaces	USB-A port、SIM slot、TYPE-C, PPM

GR01Receiver Parameters			
Working frequency band	2.4G/5.8G	Serial port baud rate	57600/115200/921600
Power supply voltage	7.2 ~ 72V(XT30)	Operating current	12V/300mA
Data transmission port	channel 1	Air Interface Rate	The factory default settings are 200 kbps for the uplink (upload mode ≤ 17.7 Mbps) and 15 Mbps for the downlink (download mode: ≤ 30 Mbps). (Notice: Enabling the upload/download mode of the assistant will affect the communication range. It is recommended to use it at close range. The high-speed version requires wireless module version_2)
Network port	channel 1	Size	45.5×60×21.5mm
SBUS output	channel 1	Weight	37g
PWM interface	channel 3	Operating temperature	-10°C~60°C
RF power	23dBm@CE/FCC	Channel bandwidth	1.25MHz/2.5MHz/5MHz/10MHz/20MHz/40MHz

G12 Receiver Parameters			
Working frequency band	2.4G/5.8G	Serial port baud rate	57600/115200/921600
Power supply voltage	5V	Operating current	5V/720mA
Data transmission port	Channel 1	Air Interface Rate	The default upload speed at factory setting is 200 kbps. The upload mode can be enabled, and the maximum speed can reach 1.2 Mbps. The download speed is 15 Mbps (download mode: 30 Mbps) (Notice: Enabling the upload/download mode of the assistant will affect the communication range. It is recommended to use it at close range. The high-speed version requires wireless module version_2)
Network port	channel 1	Size	51×40.8×23.3mm
SBUS output	channel 1	Weight	45g
PWM interface	channel 2	Operating temperature	-10°C~60°C
RF power	23dBm@CE/FCC	Channel bandwidth	1.25MHz/2.5MHz/5MHz/10MHz/20MHz/40MHz

15. Download of Related Softwares

RCSDK (Data Transmission Communication, Remote Controller, Gimbal, and Camera Related Interfaces):

Applicable to H12, H12Pro, H16, H16Pro, H20, H30, G12, G16, G20, Trinity Camera (Serial Port Version), Trinity Camera (Ethernet Port Version), Serial Port Dual-Axis Gimbal, C10, C20, C10Pro, C12, and Electronic Gimbal C01.

<https://gitee.com/skydroid/rcsdk-demo>

Image Transmission Player (Compatible with Ethernet-based image Transmission / Serial Port-based image Transmission):

<https://gitee.com/skydroid/fpv-player-demo>

DEMO <https://gitee.com/skydroid/SkydroidDemo>

Skydroid FLY Download Link: <http://file.skydroid.xin/SkydroidFly.apk>

V、Maintenance and Warranty

Maintenance and Care During Long-Term Storage:

Store the remote controller in a dry and well-ventilated area, avoiding direct sunlight to prevent battery overheating. If storage is required for more than three months, recharge the remote controller to approximately 80% every month. The recommended storage temperature range is 22 °C to 28 °C. Do not store the battery in environments below -20 °C or above 45 °C.

VI、Transportation and Storage

WARNING

To prevent potential injury and loss, please strictly adhere to the following:

Keep children away from remote controller components, as cables and small parts may pose a hazard.

NOTE

1. Never allow the remote controller to become submerged in water. If it gets wet, wipe it immediately with a soft, dry cloth and turn off the power immediately.
2. Do not mechanically impact, crush, or puncture the battery. Avoid dropping the battery.

The user manual may be updated without prior notice. Please check our official website www.skydroid.xin regularly for the latest information.