

SKYDROID 云卓

云卓科技（福建）有限公司



云卓 G20

用户手册

V2.0

注意

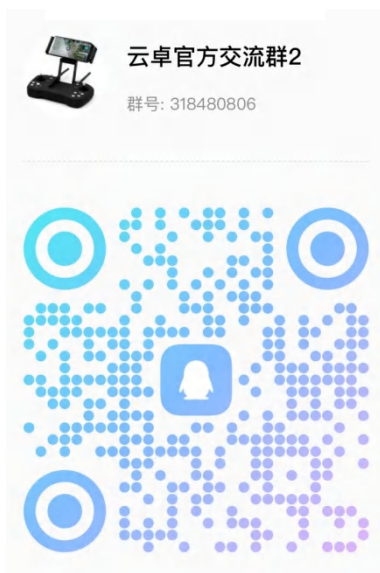
本产品使用以下词条因操作不当可能带来的潜在危险加以分级说明。

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.本条款仅适用于云卓科技（福建）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.云卓产品将由云卓科技（福建）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、拆机或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。

目录

一、概述	1
1. 产品特性	1
2. 主要用途及适用范围	1
3. 使用环境条件	1
4. 工作条件	1
二、部件名称	2
1. 遥控器	2
2. 接收机	4
三、准备遥控器	7
1. 遥控器充电	7
2. 天线正确打开	8
3. 遥控器电量灯语	8
4. 室内拉距测试	9
四、使用、操作	14
1. 遥控器开机与关机	14
2. 系统桌面	14
3. 调节亮度	15
4. 调节音量	17
5. 语言设置	19
6. 与电脑传输文件	22
7. 设备助手介绍	24
8. 遥控器对频	29
9. 图数传连接	30
10. 如何在 G20 遥控器 QGroundControl 地面站显示数传图传	33
10.1 QGC 数传设置	34
10.2 QGC 图传设置	38
11. 第三方航电系统连接示意图	42
12. 使用热点共享数传图传	43
13.1 共享数传	45
13.2 共享图传	46
13. 参数	47

14. 相关软件下载..... 48

五、 保养保修.....48

六、 运输储存.....49

一、概述

1. 产品特性

(1) G20 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 9KM。

(2) G20 支持 SIM 卡、网口、USB 接口、type-c 接口,提供 SDK 开发包，支持视频悬浮，支持主流航电系统的地面站。

(3) 1920*1200 分辨率、7 寸高亮显示屏，超大的屏占比，搭配云卓摄像头，可实时传输高清画面。内置双风扇，有效降温，让遥控器时时高效工作。

(4) 采用高能量密度的锂离子电池，满电可工作 6~8 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。

(5) 采用气象硅胶，ABS 外壳，握持处磨砂处理，使得拥有极致的手感的同时，也满足了无人机户外使用的恶劣条件，G20 在机身，控制开关，各外设接口处均做防尘保护措施，确保设备在恶劣环境中的稳定流畅运行。

2. 主要用途及适用范围

G20 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~55°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

G20 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。

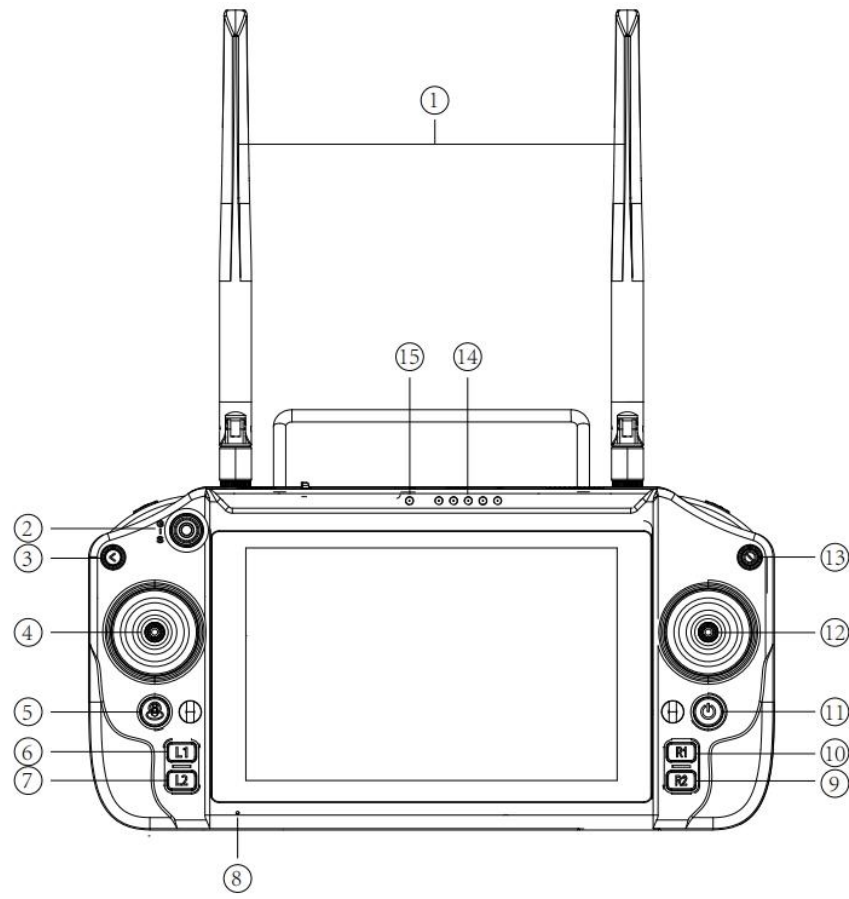
如在地面端充电时遇到冒烟、有异味、漏液的情况时，请勿继续给地面端充电，请移送至本公司进行维修。

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。

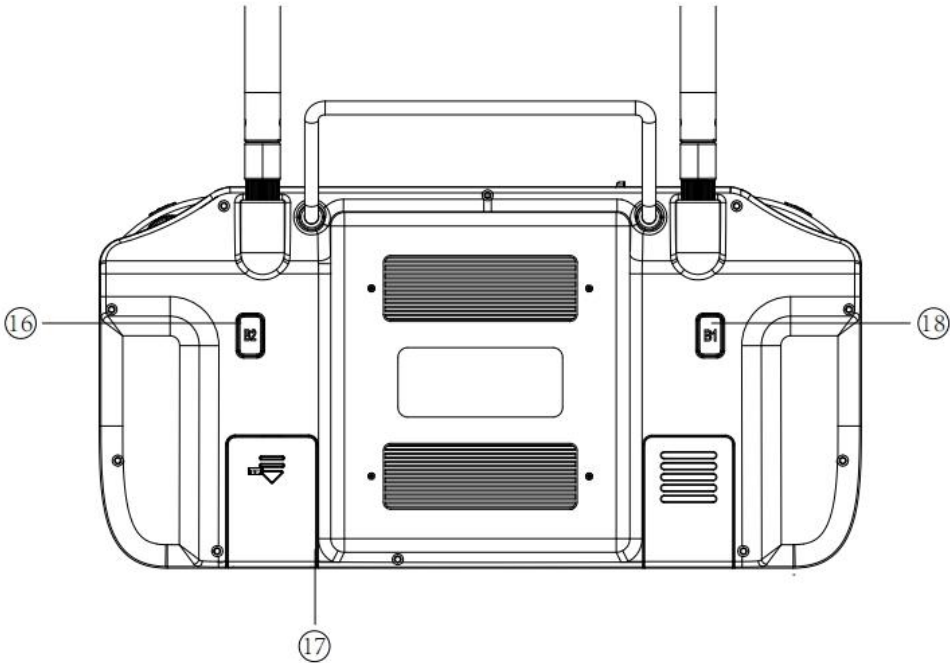
请勿在超过 60℃ 的环境下对本产品进行充电。

二、部件名称

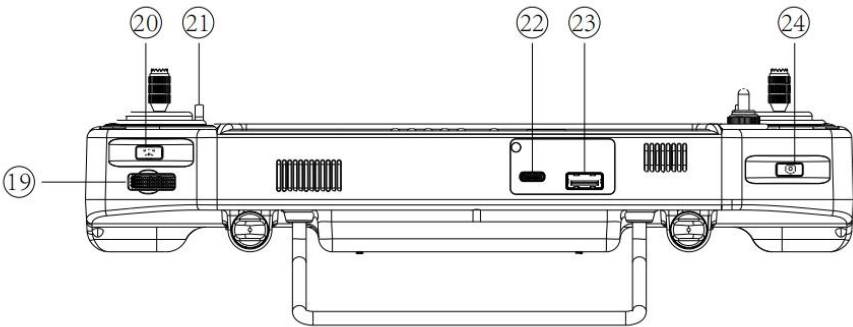
1. 遥控器



序号	注解	序号	注解
1	2.4G/5.8G 天线	9	按键 R2
2	三档开关(飞行模式)	10	按键 R1
3	返回键	11	开机键
4	左摇杆 X1、Y1	12	右摇杆 X2、Y2
5	按键 H	13	暂停键
6	L1 按键	14	充电指示灯
7	L2 按键	15	对频指示灯
8	麦克风		

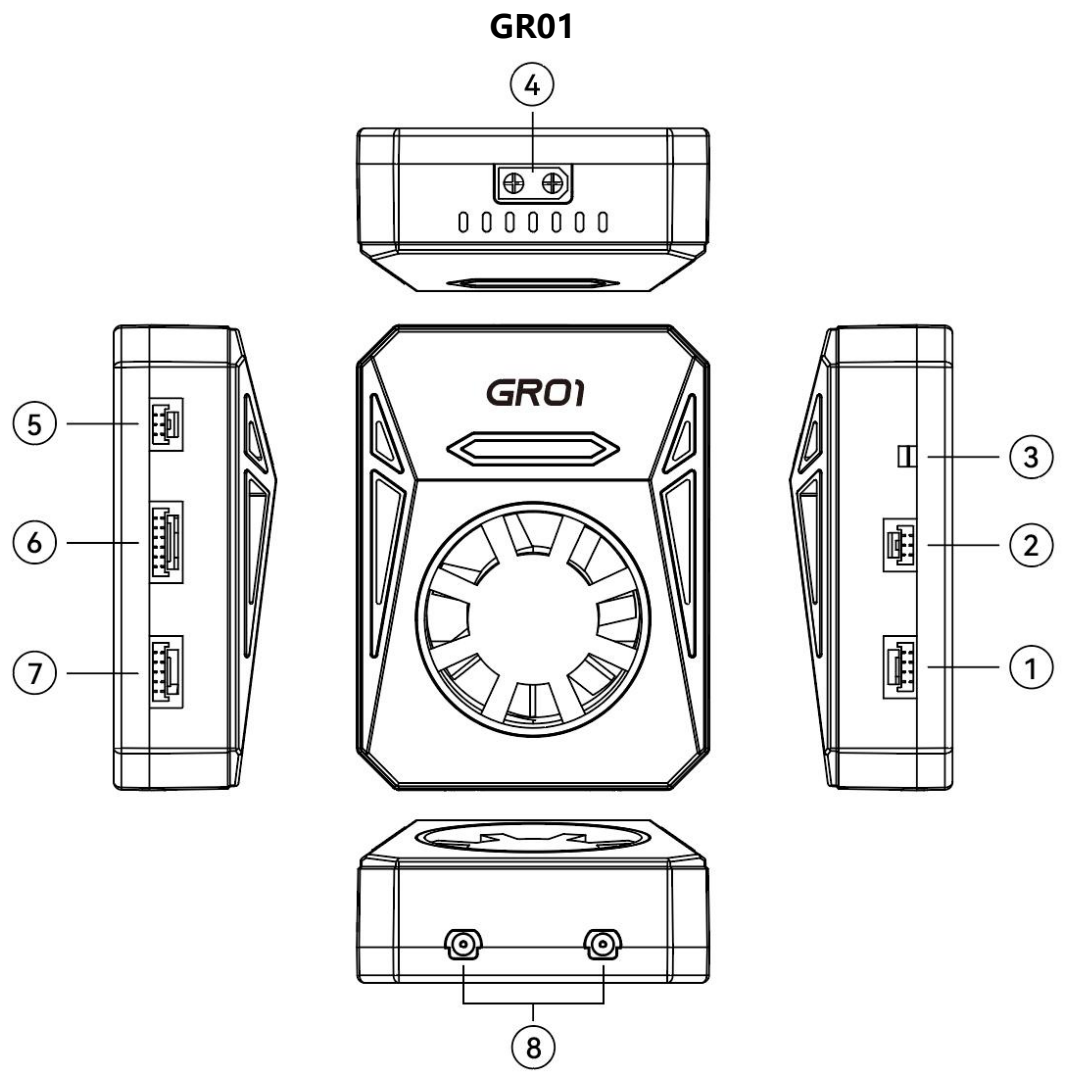


序号	注解	序号	注解
16	按键 B2	18	按键 B1
17	SIM 卡插口		



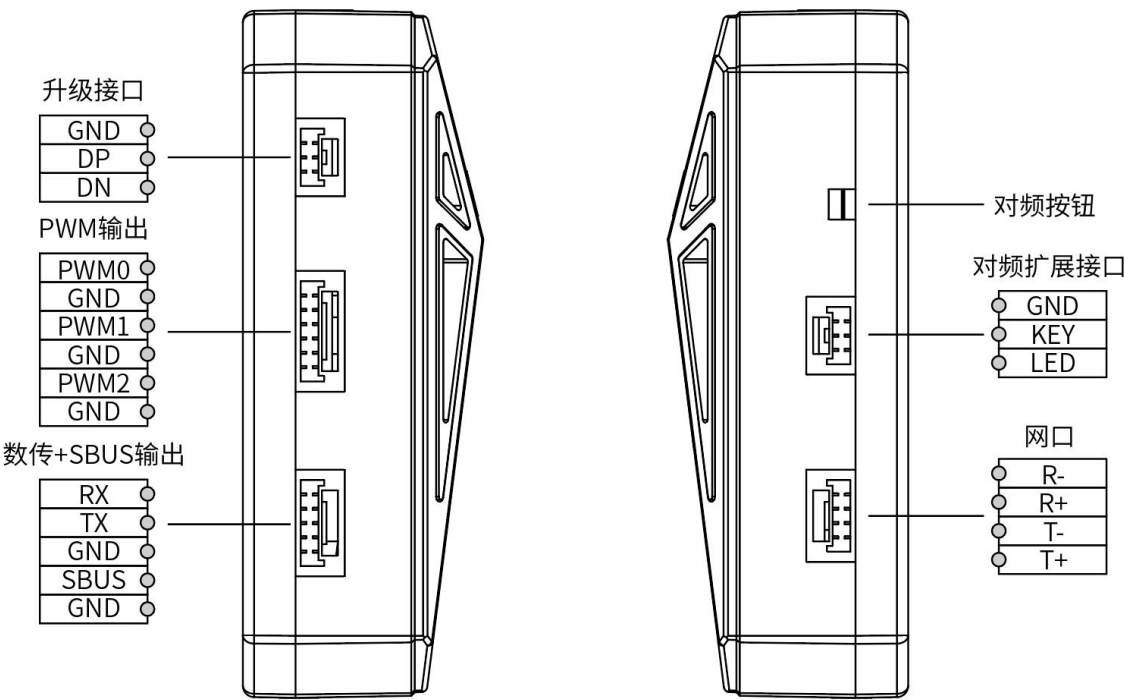
序号	注解	序号	注解
19	波轮(云台俯仰)	22	TYPE-C 接口
20	播撒按键(SPRAY)	23	USB 接口(升级接口)
21	挂绳接口	24	拍照按键(CAMERA)

2. 接收机



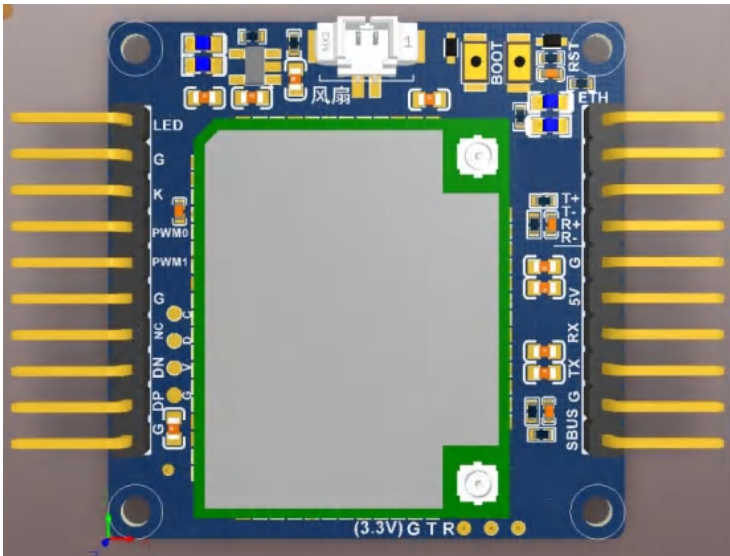
序号	注解	序号	注解
1	网口	5	升级接口
2	对频扩展接口	6	PWM 输出
3	对频按钮	7	数传接口+SBUS 输出
4	电源输入口 (7.2V~80V)	8	天线接口

接收机接口定义：



注： GR01 的 PWM0~2 对应遥控器通道 9~11

G12 RX

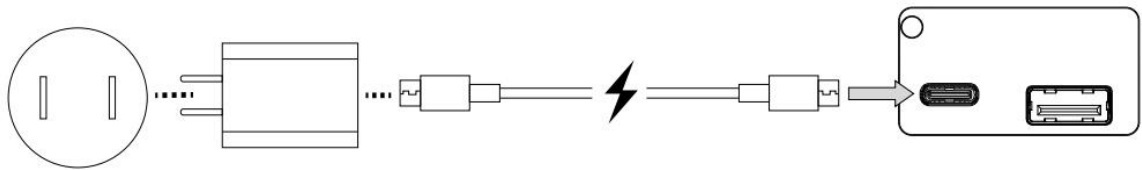


名称	注解	名称	注解
		ANT	天线
LED	对频指示灯	ETH0_TX+	网口 0
GND	地线	ETH0_TX-	
KEY	对频按钮	ETH0_RX+	
PWM0	PWM9 口 (9 通道)	ETH0_RX-	
PWM1	PWM10 口 (10 通道)	GND	供电+数传口
GND	地线	5V_IN	
NC	空引脚	UART_RX	
DN	升级口	UART_TX	
DP		GND	SBUS 接口
GND		SBUS	
		ANT	天线

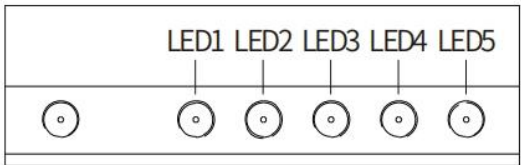
三、准备遥控器

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 遥控器充电灯语

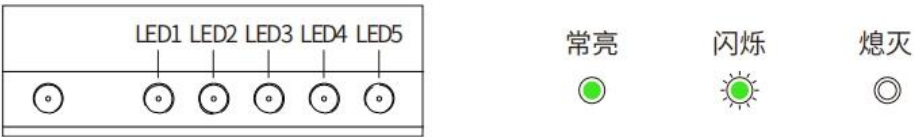


电量	LED1	LED2	LED3	LED4	LED5
0%~20%					
21%~40%					
41%~60%					
61%~80%					
81%~99%					
100%					

2. 天线正确打开

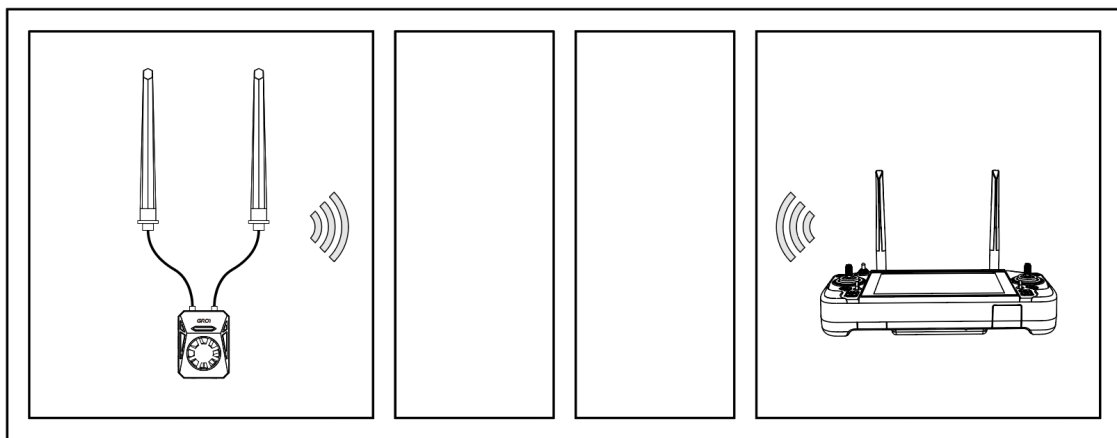


3. 遥控器电量灯语



4.室内拉距测试

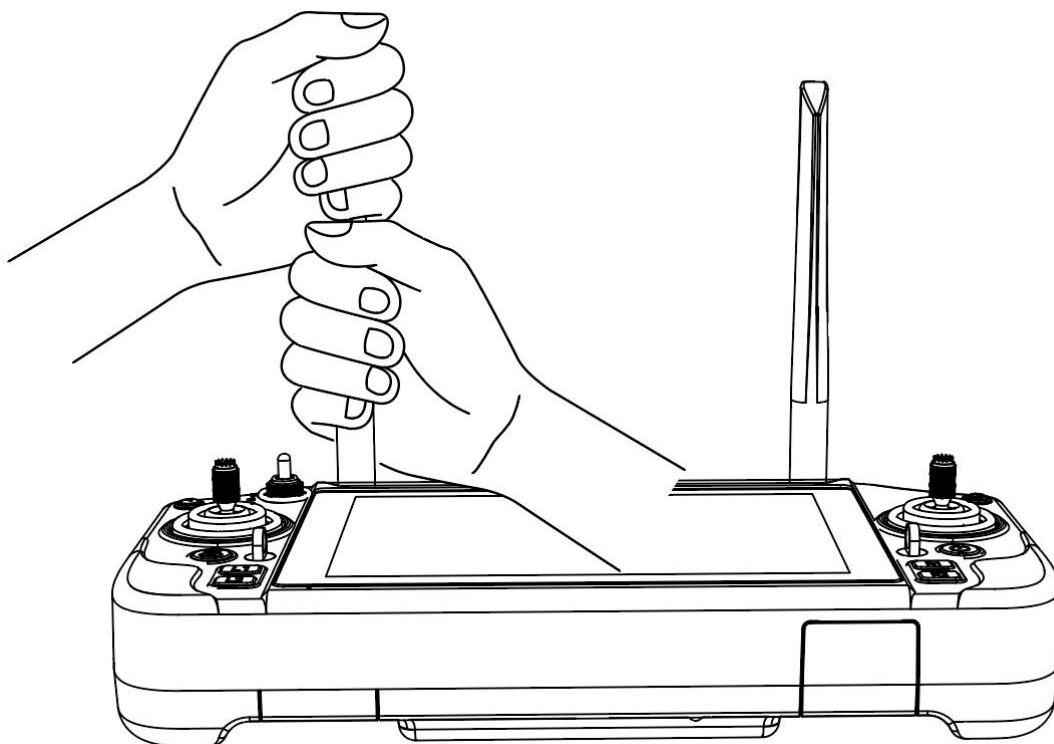
(1) 测试场景：遥控器与接收机隔着 3-4 堵墙。



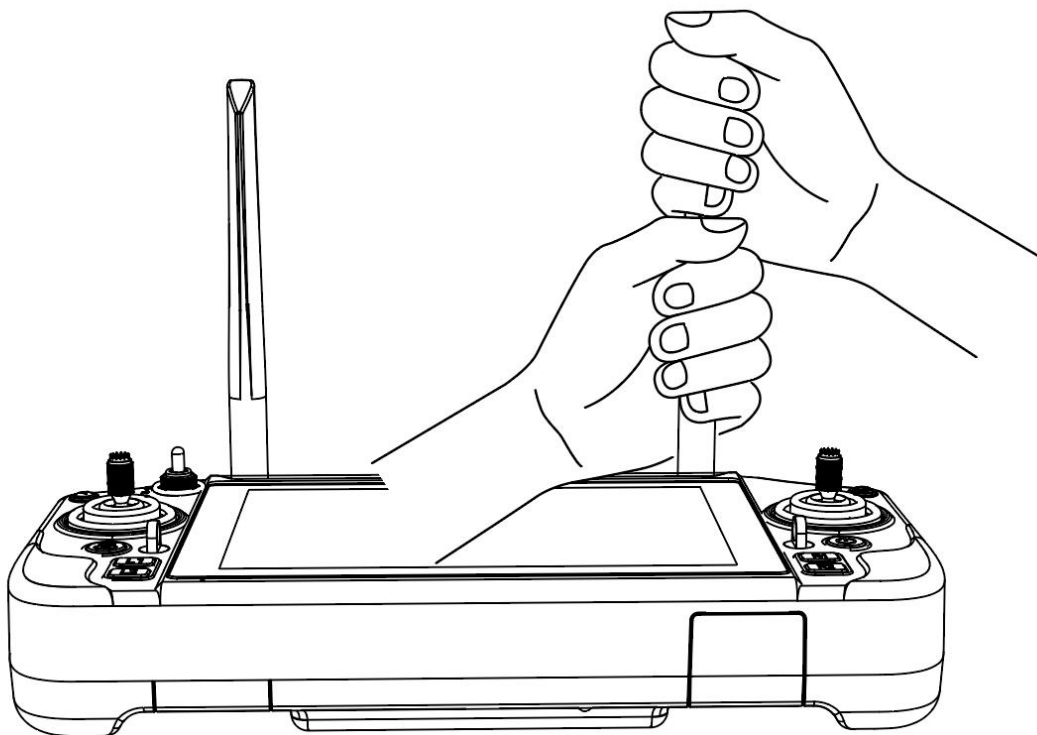
(2) 没有对天线进行遮挡的情况下，信号强度如下图所示。



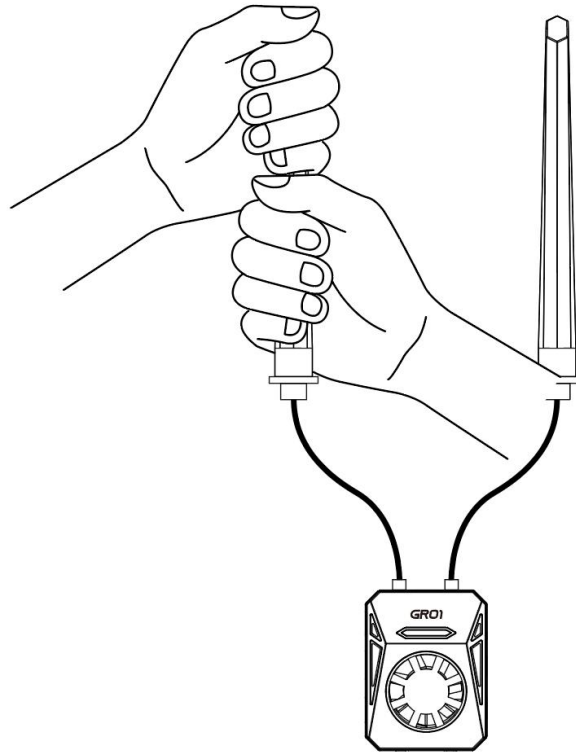
(3) 当紧握住遥控器左侧天线时，信号强度如下图所示。



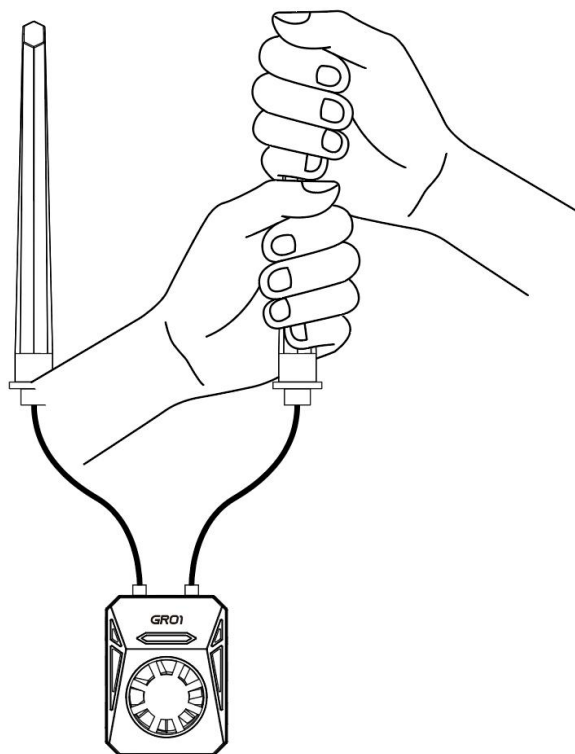
(4) 当紧握住遥控器右侧天线时，信号强度如下图所示。



(5) 当紧握住接收机左侧天线时，信号强度如下图所示。



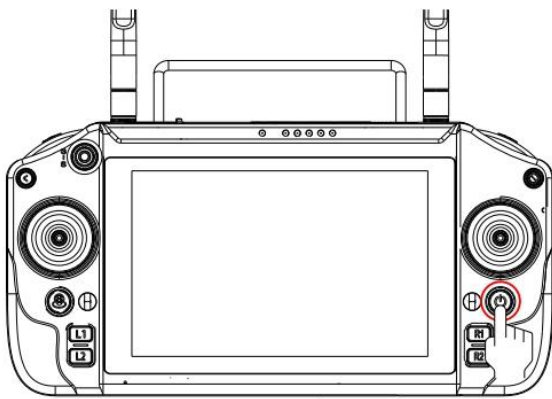
(6) 当紧握住接收机右侧天线时，信号强度如下图所示。



四、使用、操作

1. 遥控器开机与关机

长按电源键 3 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。

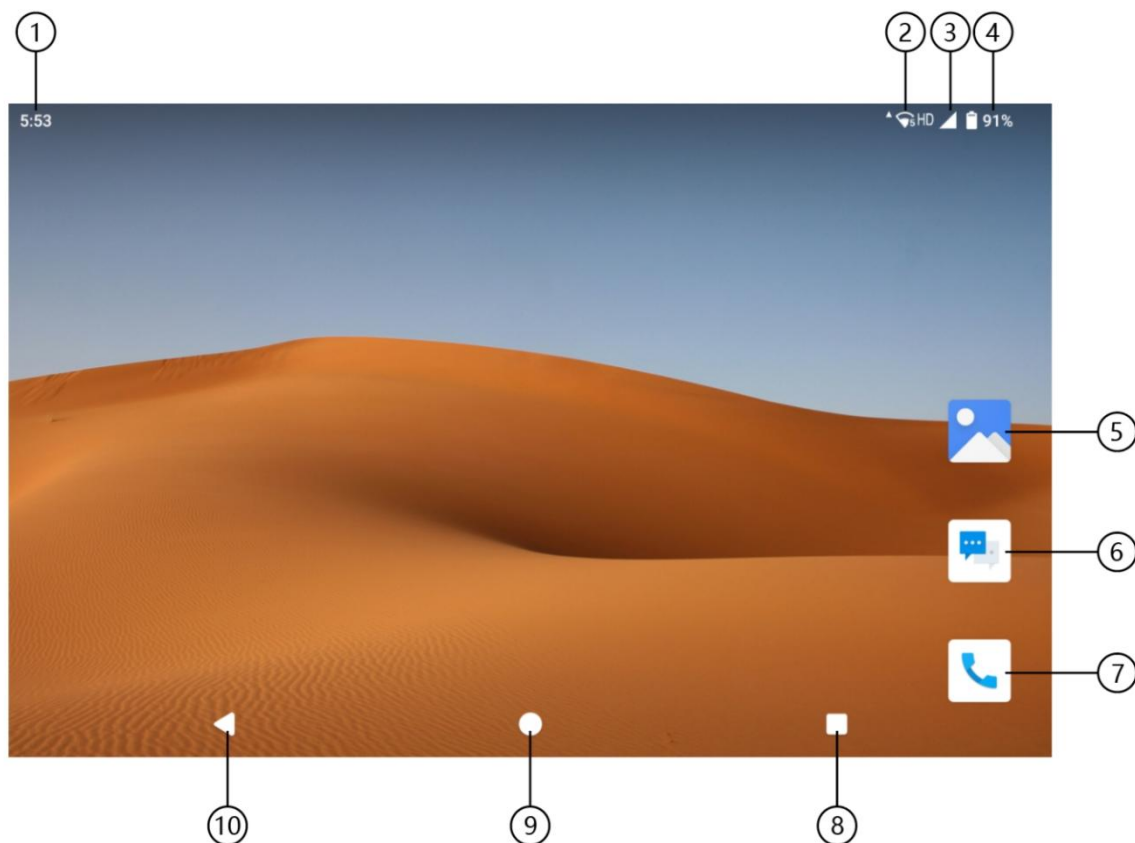


开机



关机

2. 系统桌面



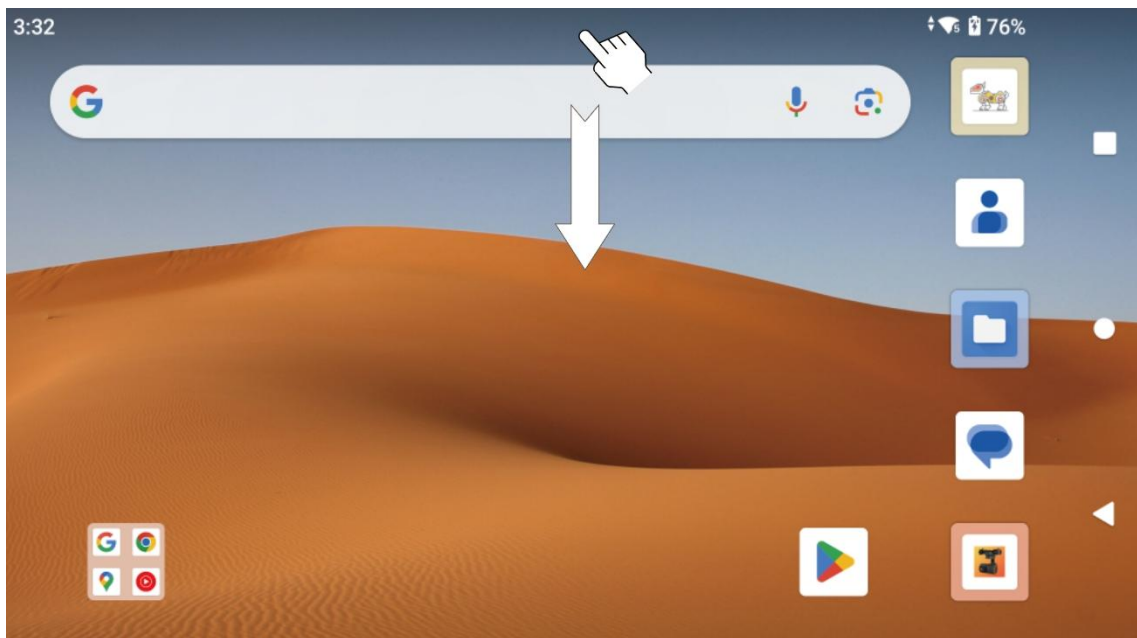
序号	注解	序号	注解
1	时间	6	短信
2	WIFI 信号状态显示	7	电话
3	SIM 卡状态显示	8	任务中心
4	电量显示	9	回到桌面
5	图库	10	返回操作

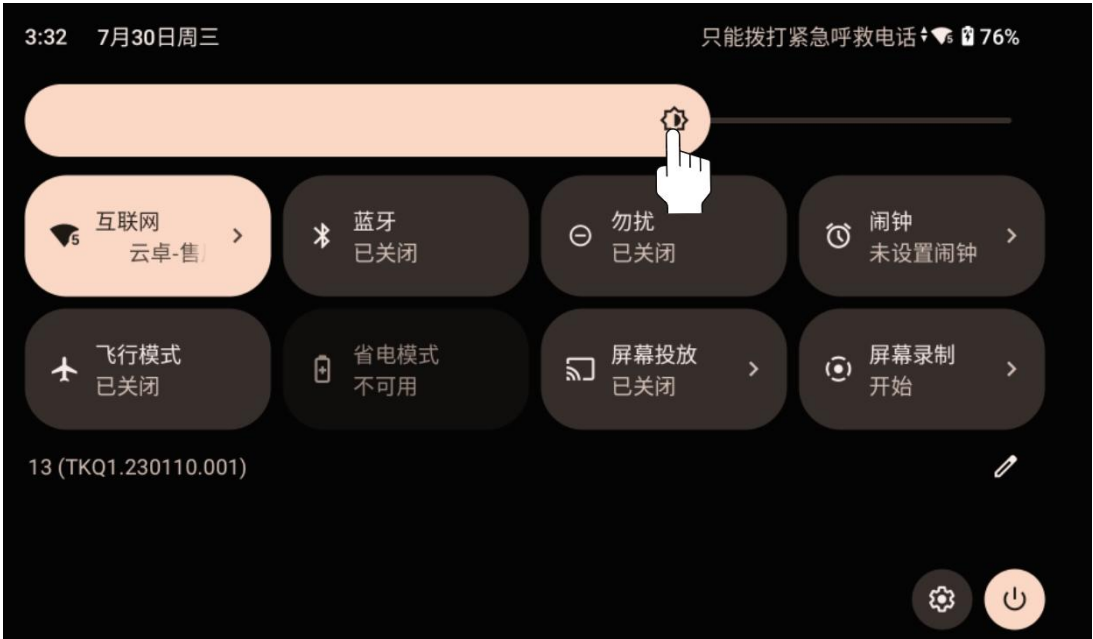
从屏幕底部边缘向上滑动可进入应用界面

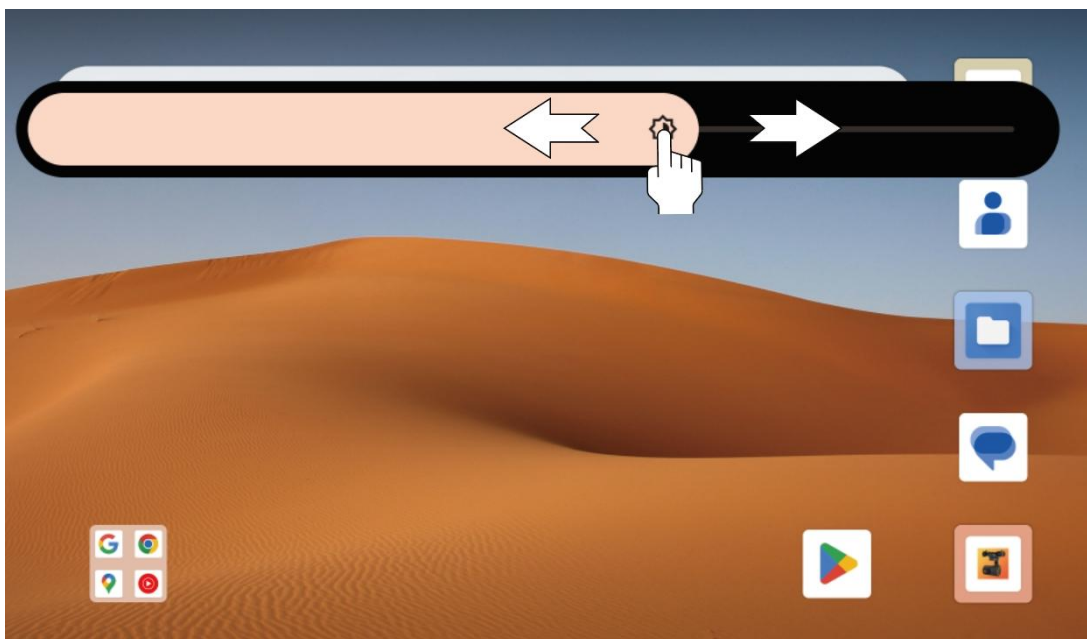


3. 调节亮度

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。

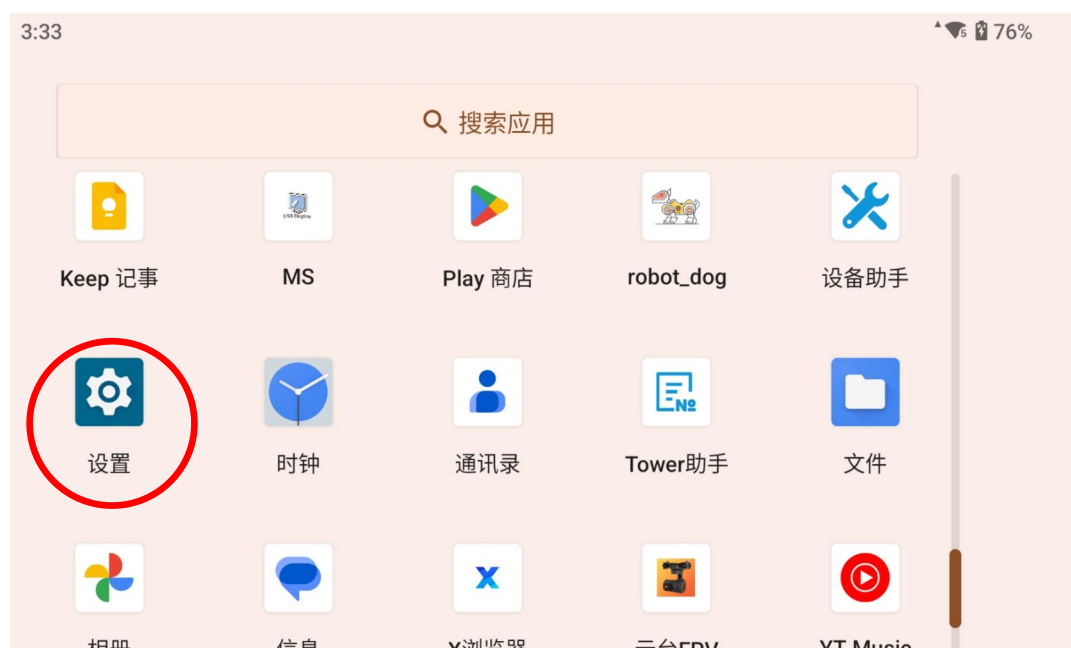






4. 调节音量

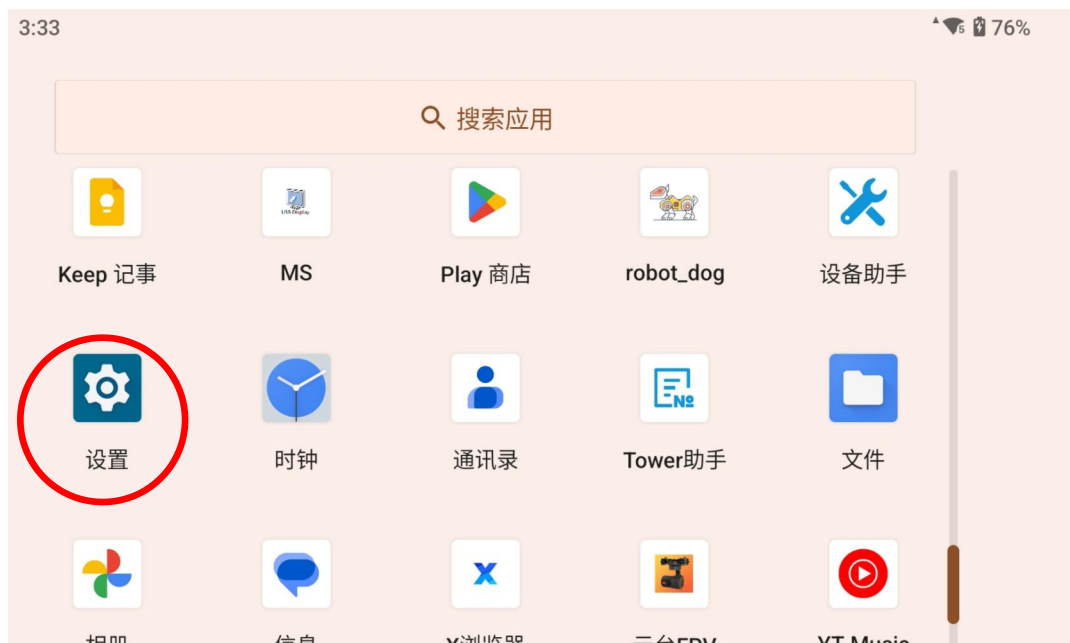
进入应用界面，点击设置，找到声音选项，拖动滑动条可调节音量大小。



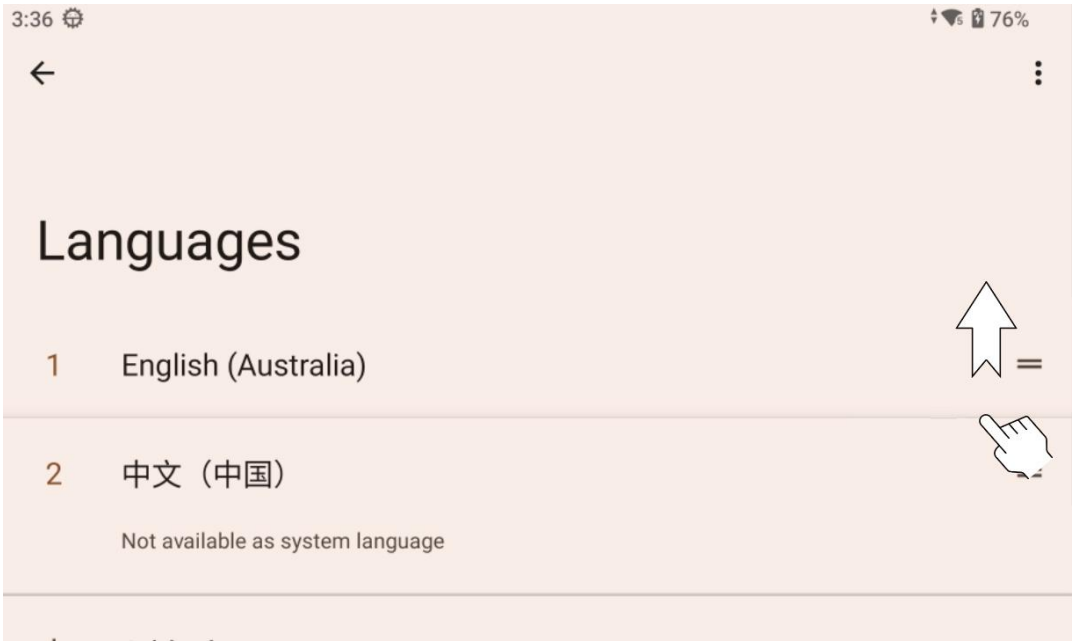


5. 语言设置

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。

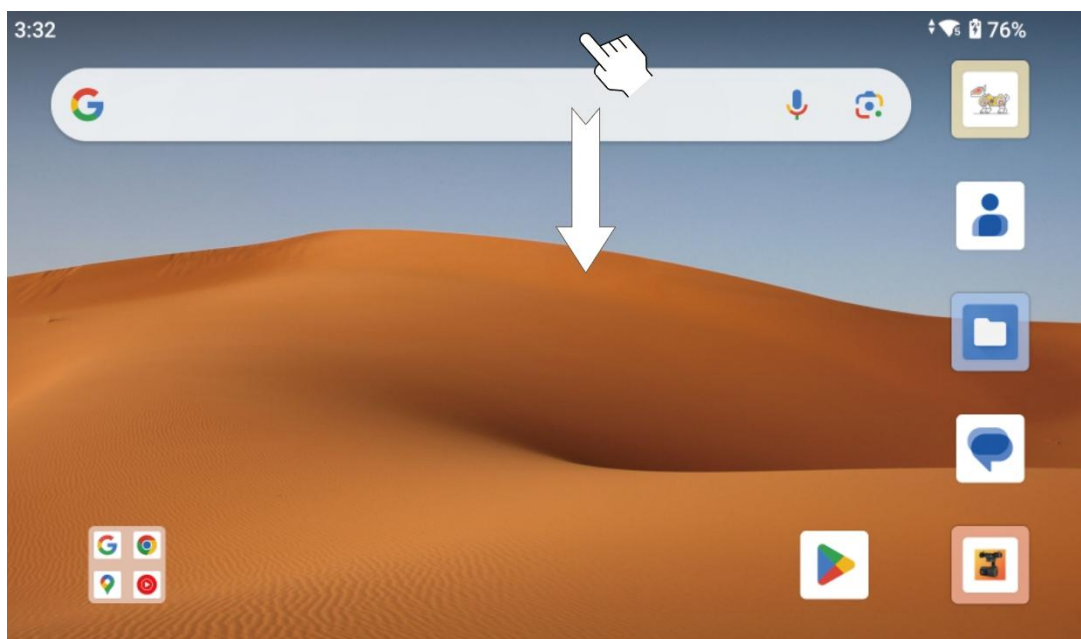






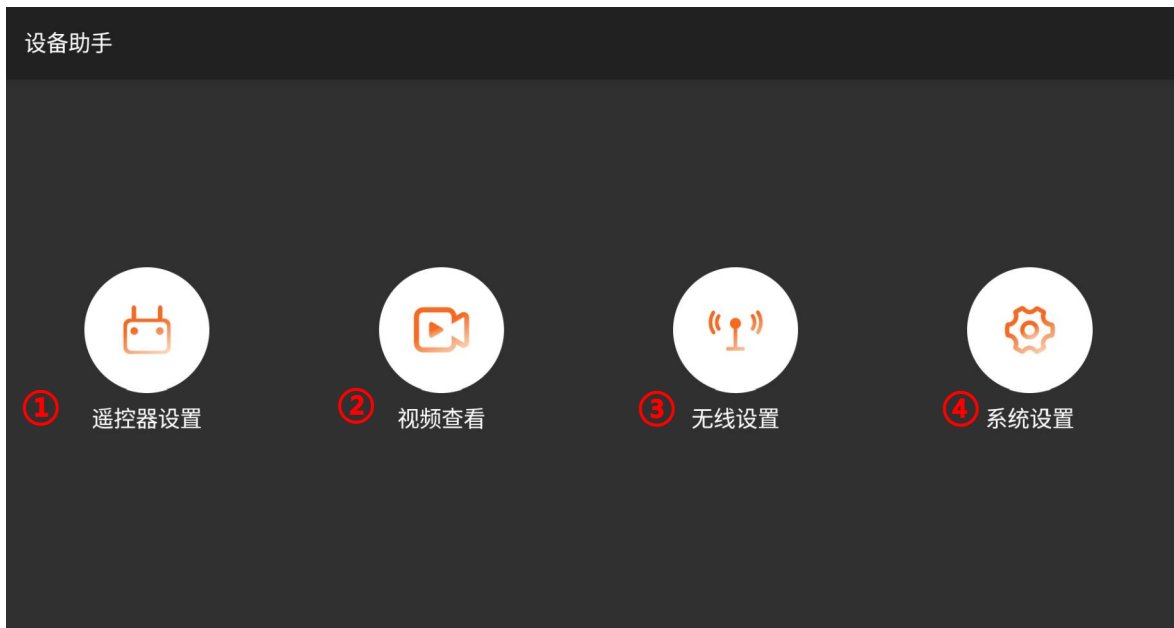
6. 与电脑传输文件

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



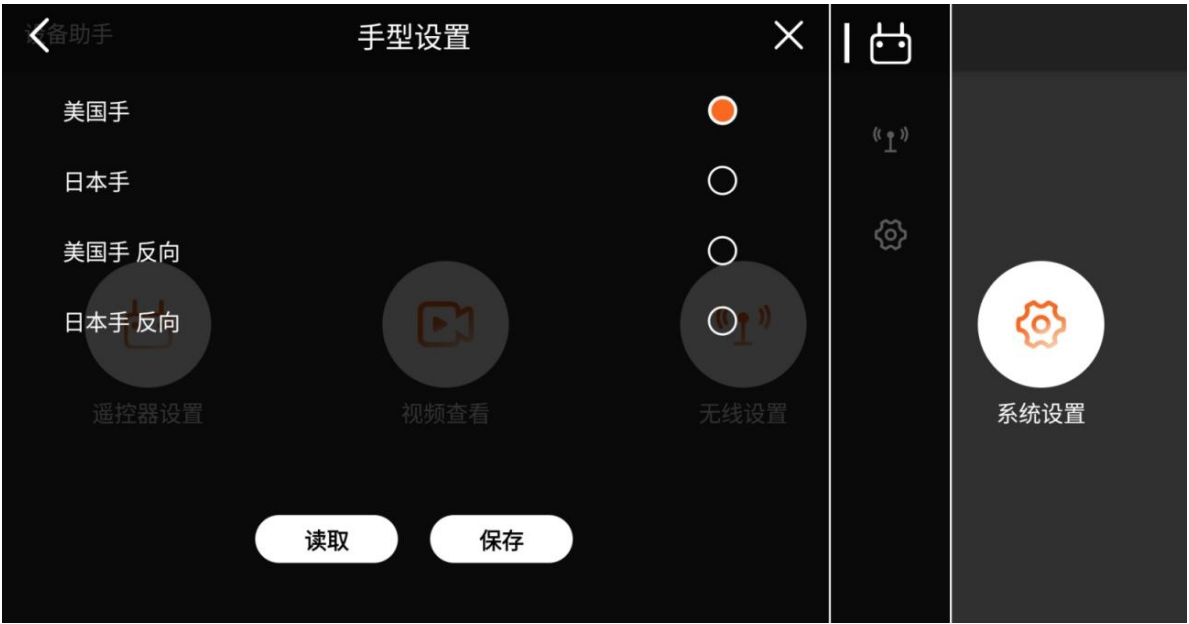
①遥控器设置：可设置遥控调参，设置手型（默认美国手），查看舵量。



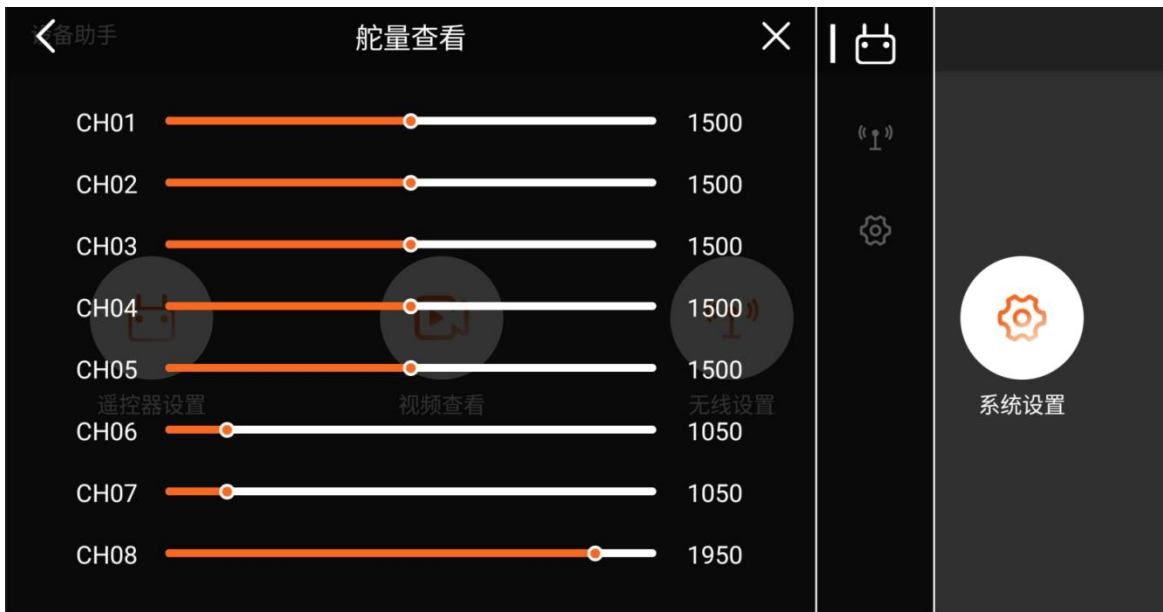
遥控调参：可自定义按键通道、设置反向和修改舵量最大最小值



手型设置：可设置遥控器手型，默认美国手



舵量查看：可查看遥控器各个通道的实时舵量值



②视频查看：可查看相机回传视频

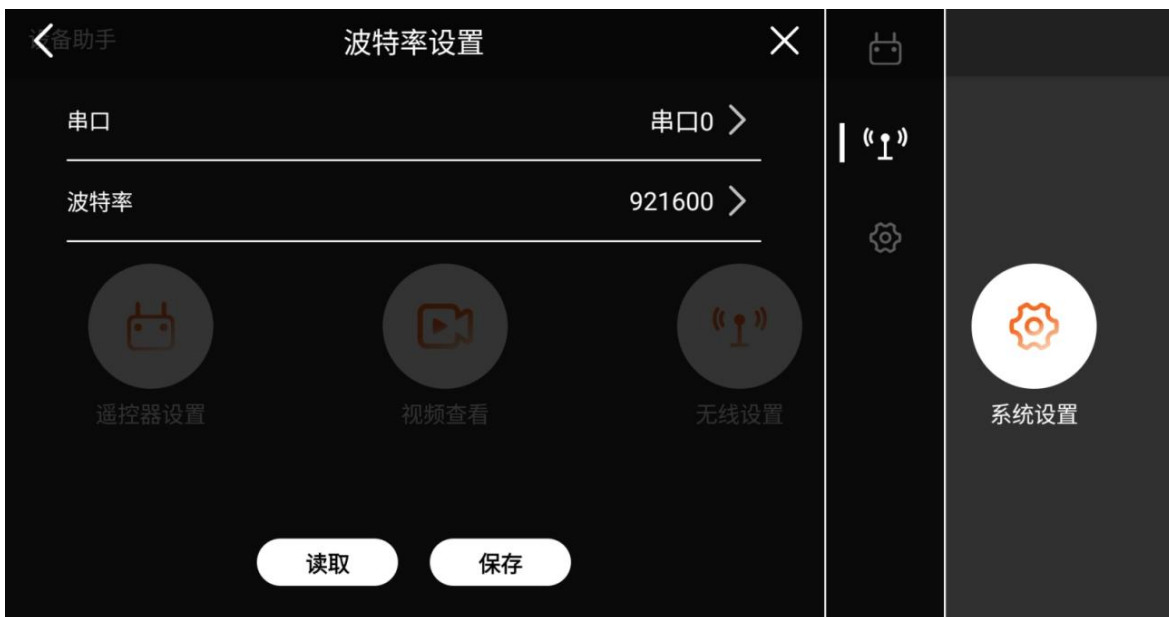
③无线设置：可以进行对频，修改接收机串口波特率等操作



对频设置：点击开始对频即开始对频，点击新增接收机可以跟新的接收机开始对频而最初对频的记忆会保留。



波特率设置：修改接收机串口波特率。



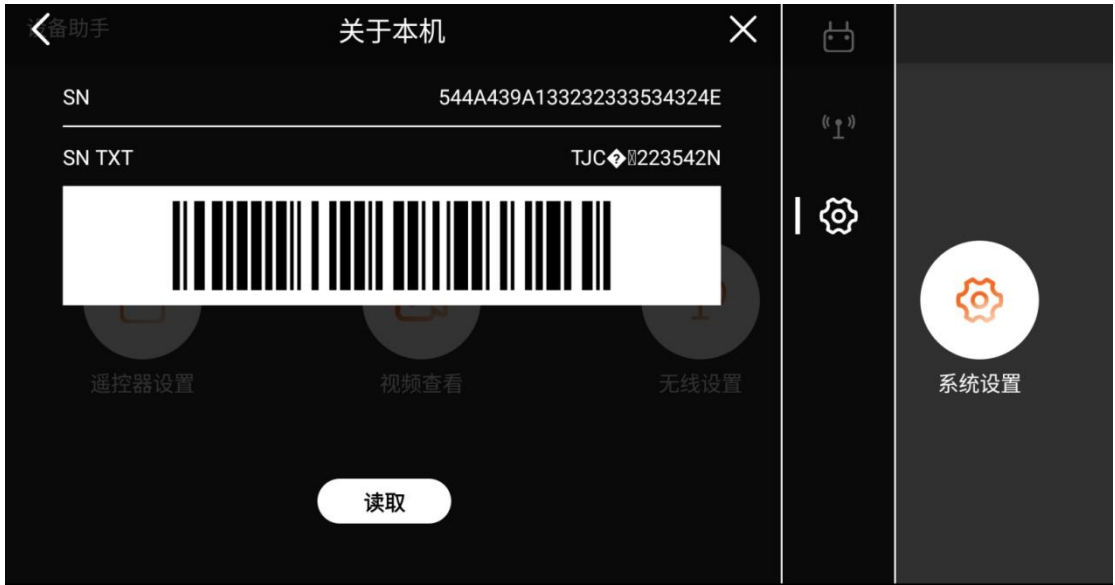
④系统设置：升级固件和查看遥控器 SN。

升级设备：

- 1.升级遥控器 MCU 固件：升级遥控器摇杆单片机的固件；
- 2.升级接收机无线模块：无线升级接收机的射频固件（必须先升级接收机，接收机需要通电并和遥控器连接后方能升级）；
- 3.升级遥控器无线模块：升级遥控器的射频固件；
- 4.升级安卓无线驱动：升级安卓的无线驱动。



关于本机：遥控器查看 SN



8. 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-->无线设置-->对频设置-->点击开始对频-->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-->无线设置-->对频设置-->点击开始对频-->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-->无线设置-->对频设置-->点击开始对频-->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。

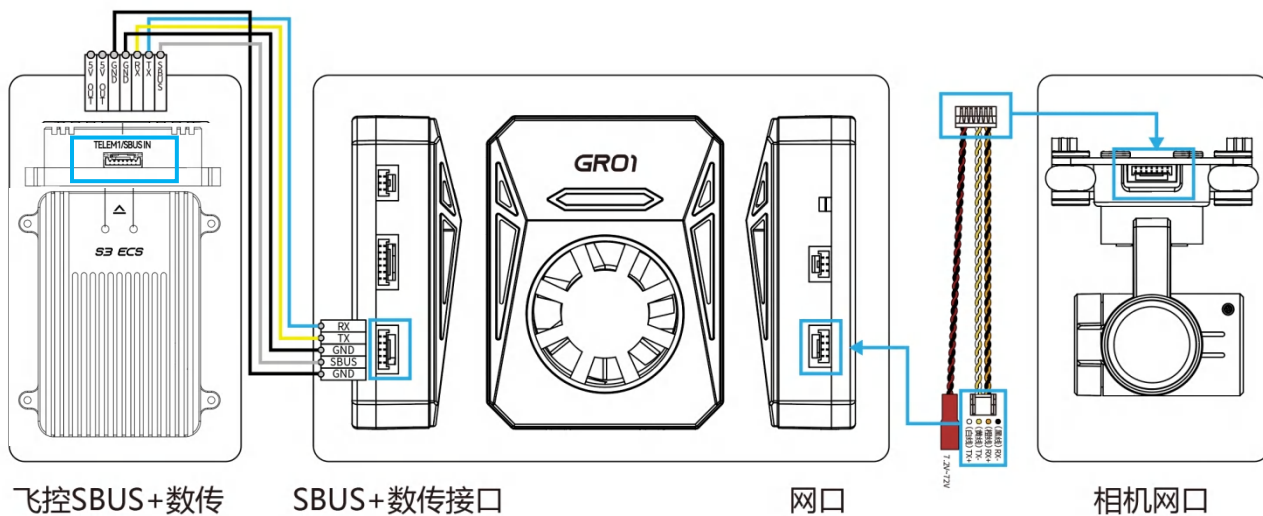
方式二：

- 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-->无线设置-->对频设置-->点击开始对频-->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。

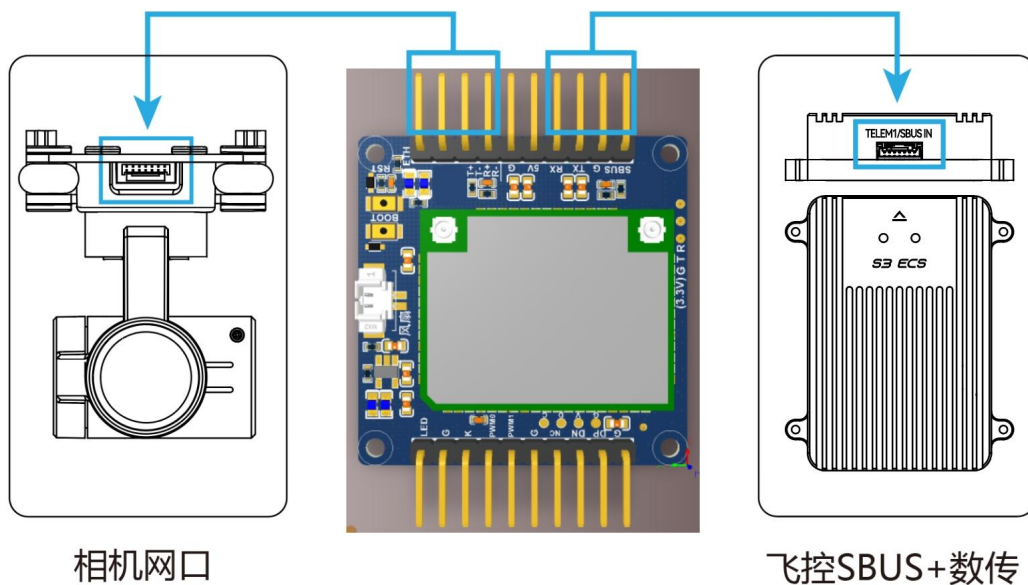
9. 图数传连接

接收机 1：GR01



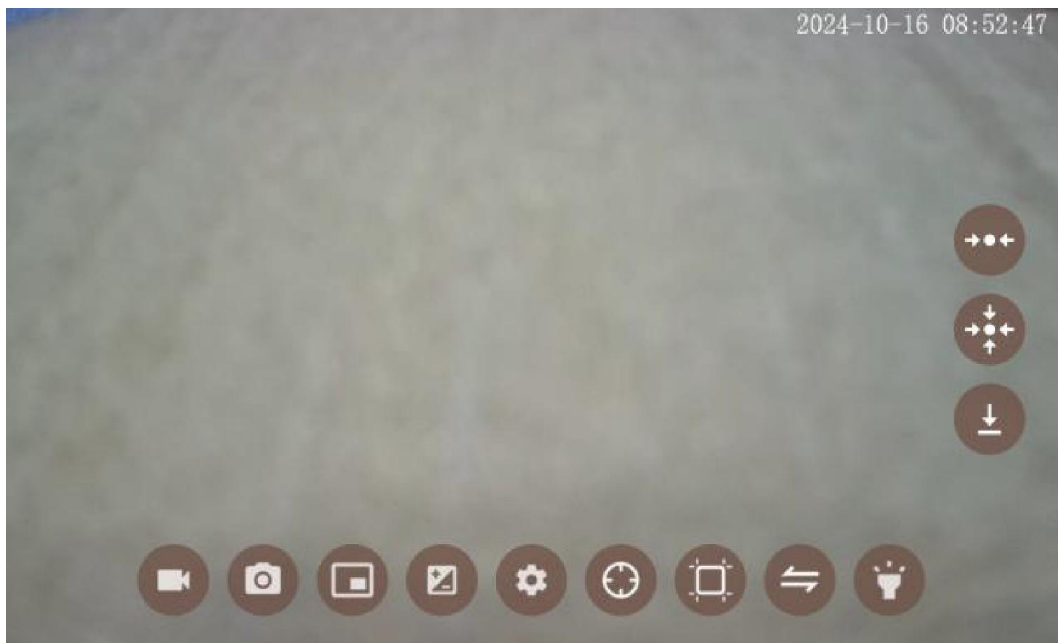
按照上图接线，接收机的 SBUS+数传接口连接航电系统 SBUS+数传接口，接收机的网口连接相机网口（**注意：**设备供电和其他接线请参考对应说明书）。

接收机 2：G12 RX



按照上图接线，接收机的 SBUS+数传接口连接航电系统 SBUS+数传接口，接收机的网口连接相机网口。

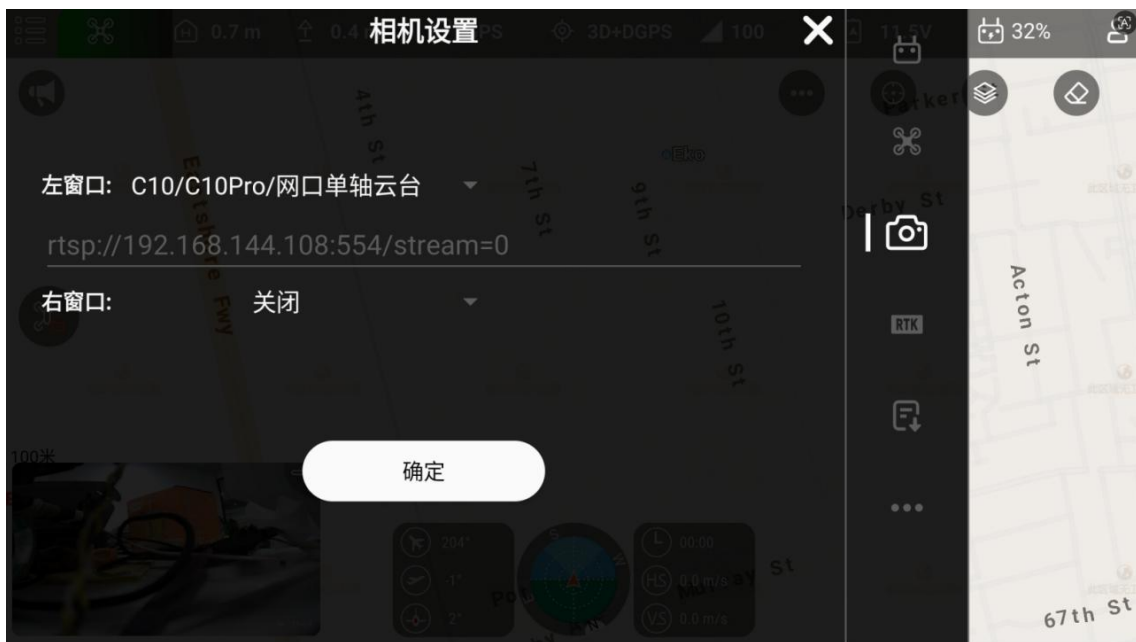
(1) 图传



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;
若使用第三方摄像头, 摄像头网段需要设置为 144 网段 (192.168.144.XXX), 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。

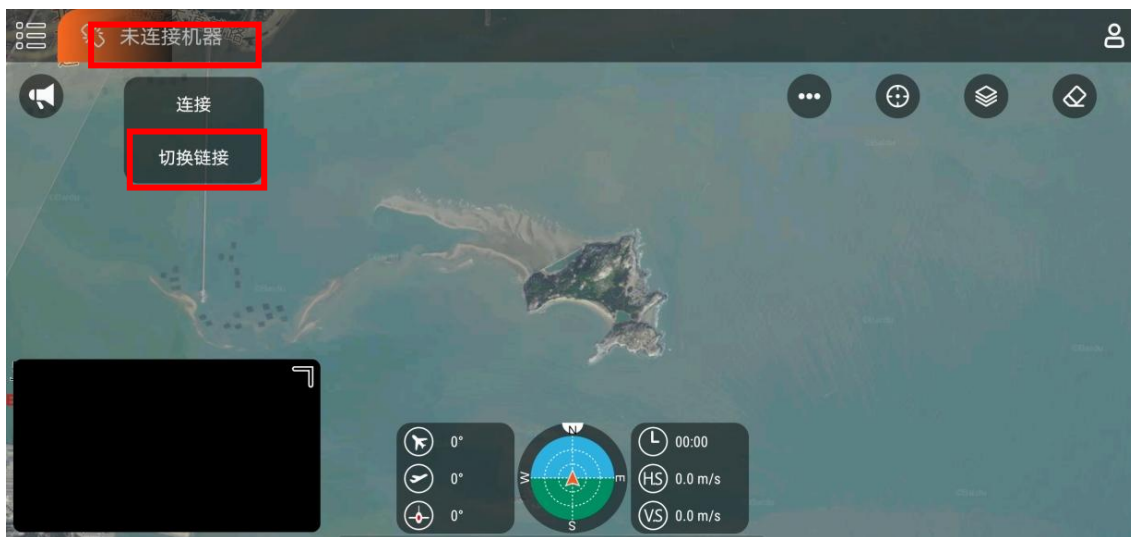
注: 第三方摄像头 RTSP 地址需要找厂家获取。

若使用 FLY GCS 则在三->->设置视频窗口--C10

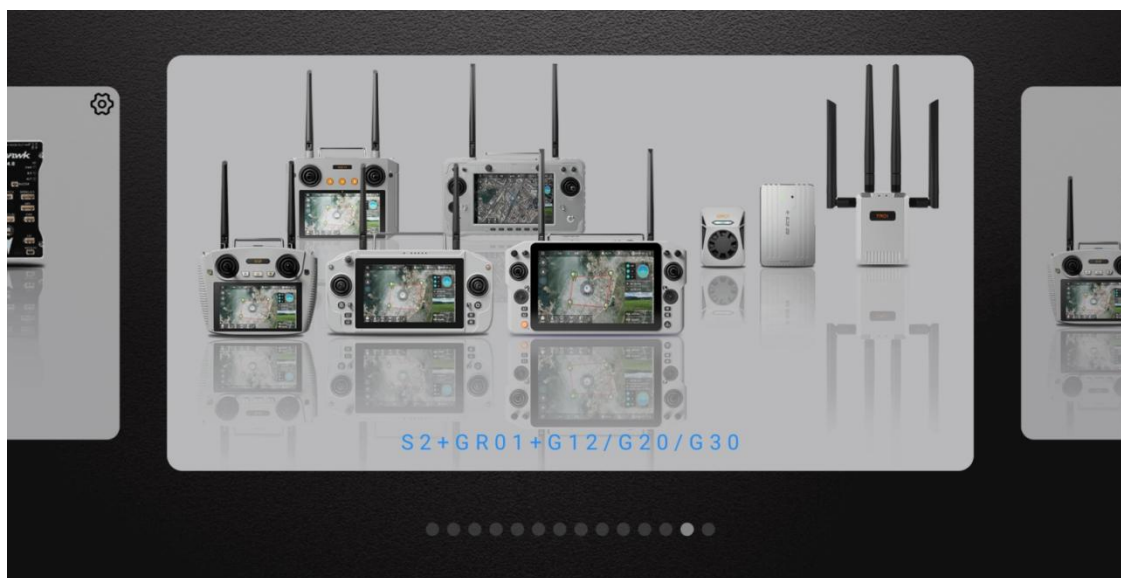


(2) 数传

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 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航电系统数传口波特率一致；(S3 航电系统的波特率为 921600)
- ②数传接线定义是否正确（RX 接 TX，TX 接 RX）。

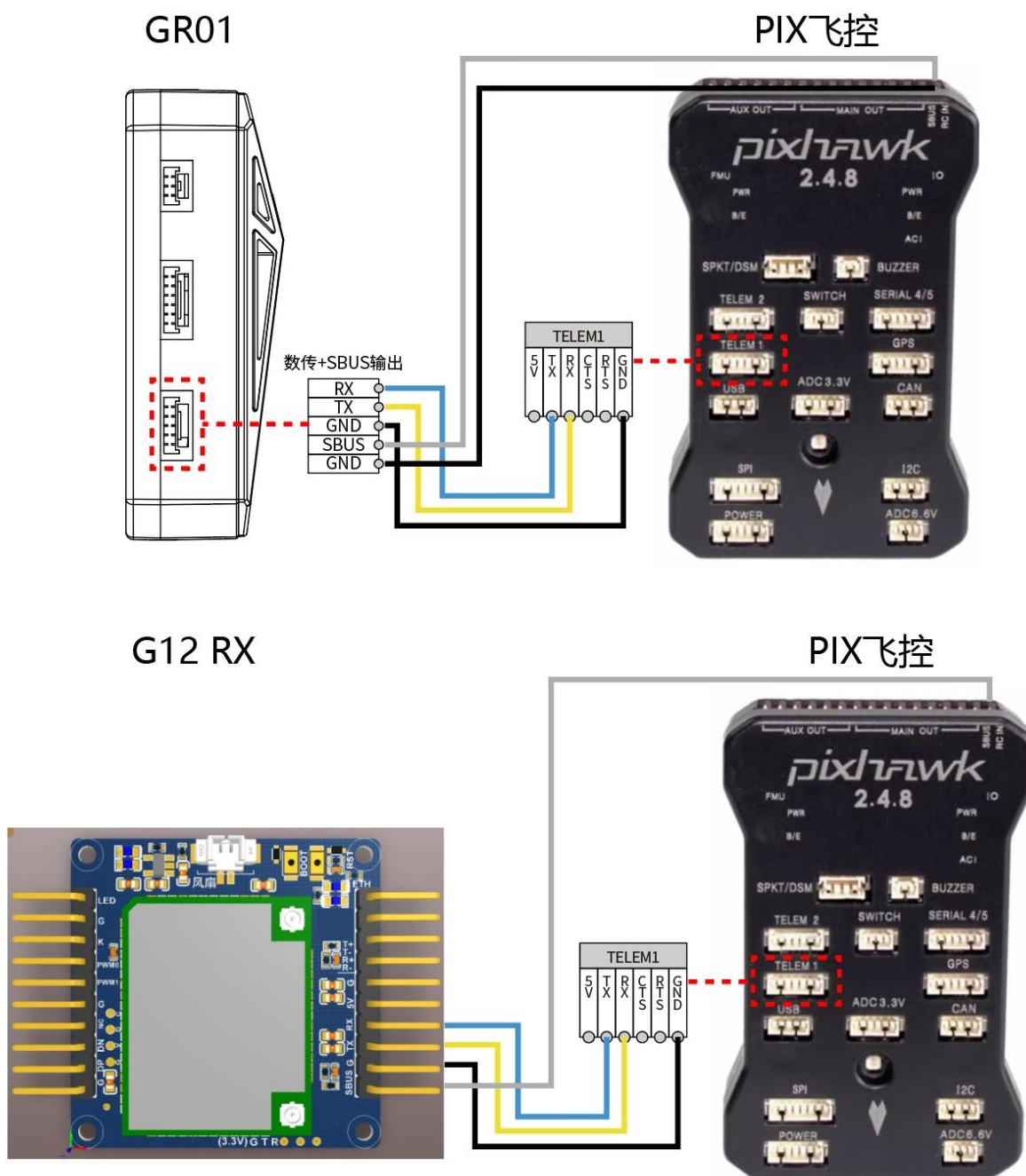
10. 如何在 G20 遥控器 QGroundControl 地面站显示数传图传

开源航电系统数传线连接接收机数传口，以 QGroundControl 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>。

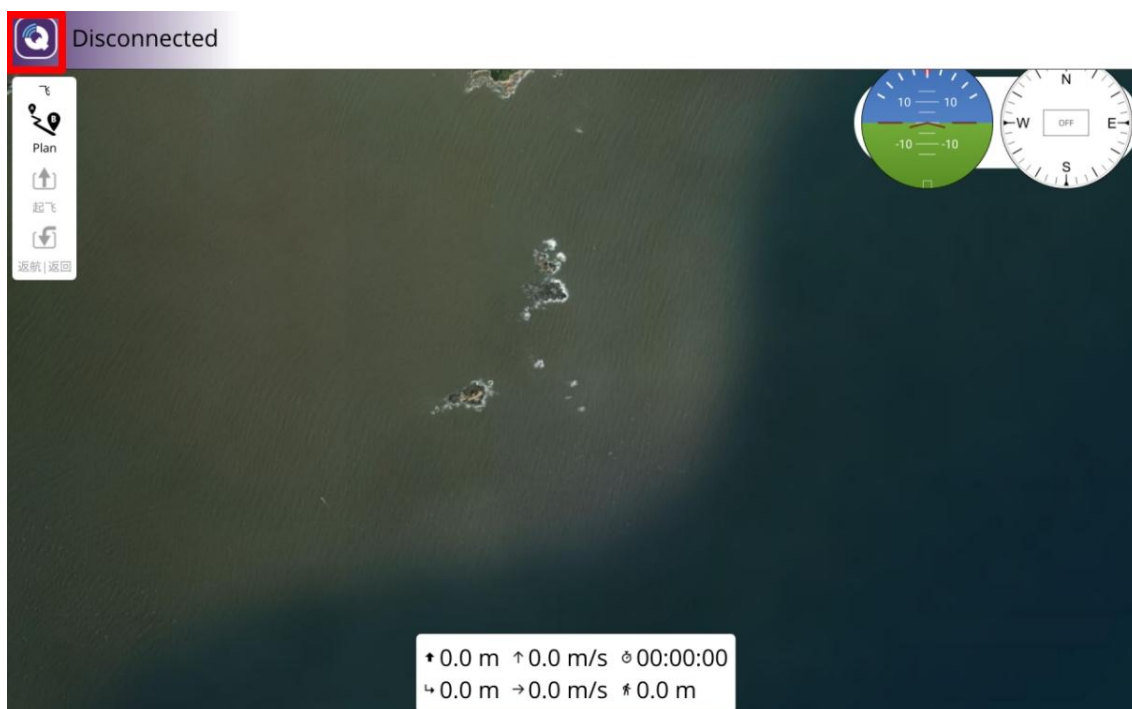
注意：S3 航电系统只能用云卓 FLY 地面站，不要使用 QGC 连接。

开源 PIX 航电系统 SBUS+数传连接示意图：

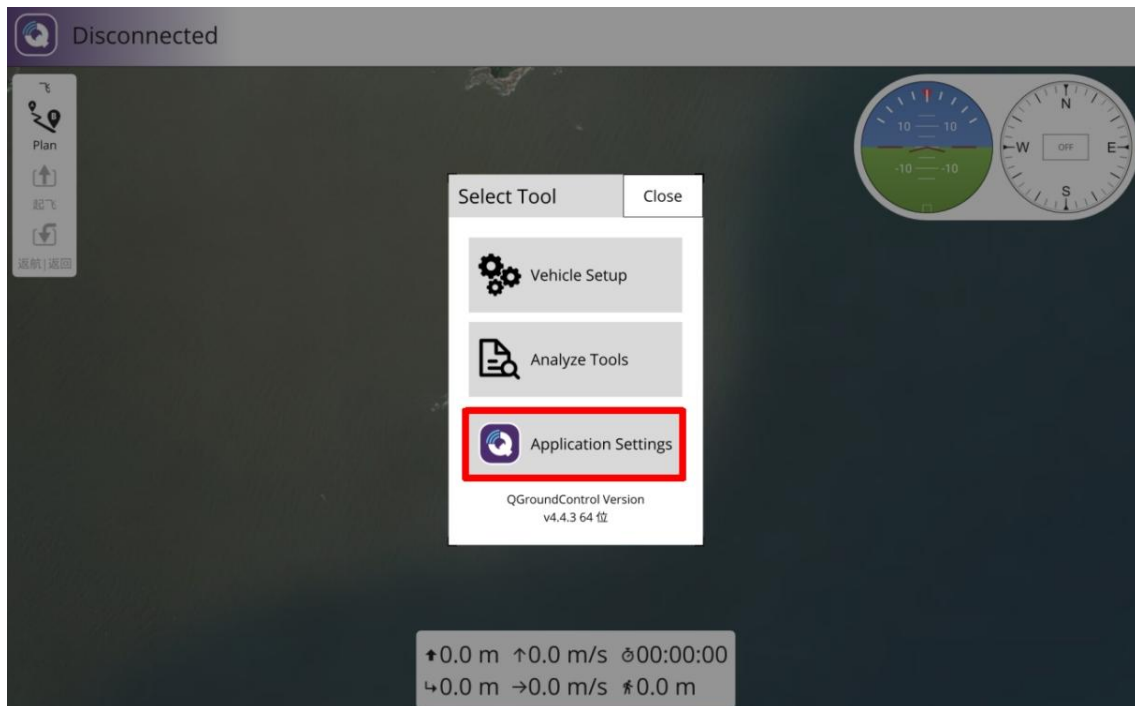


10.1 QGC 数传设置

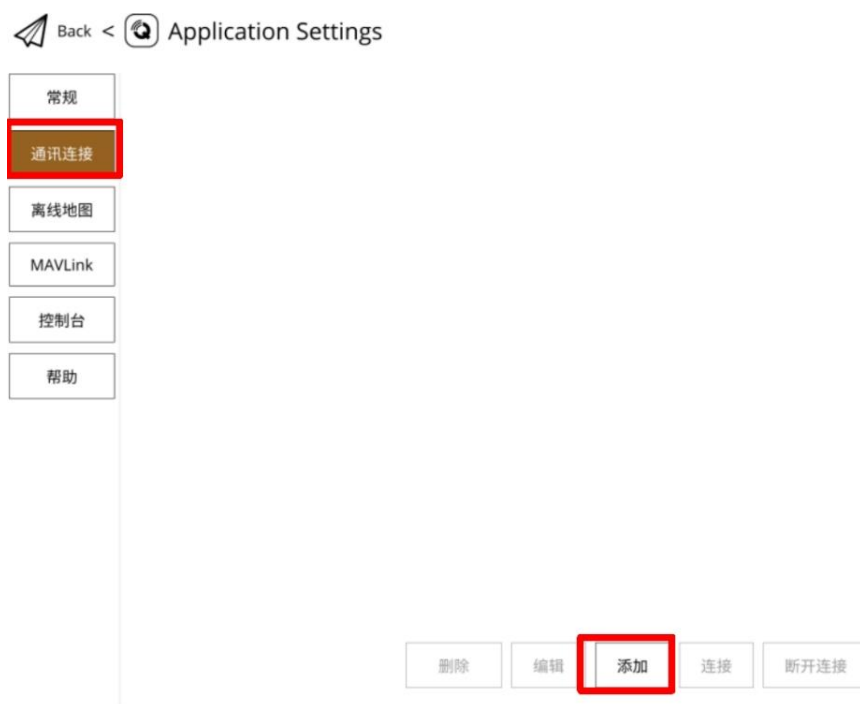
(1) 点击 QGC 左上角的 Q 图标。



(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

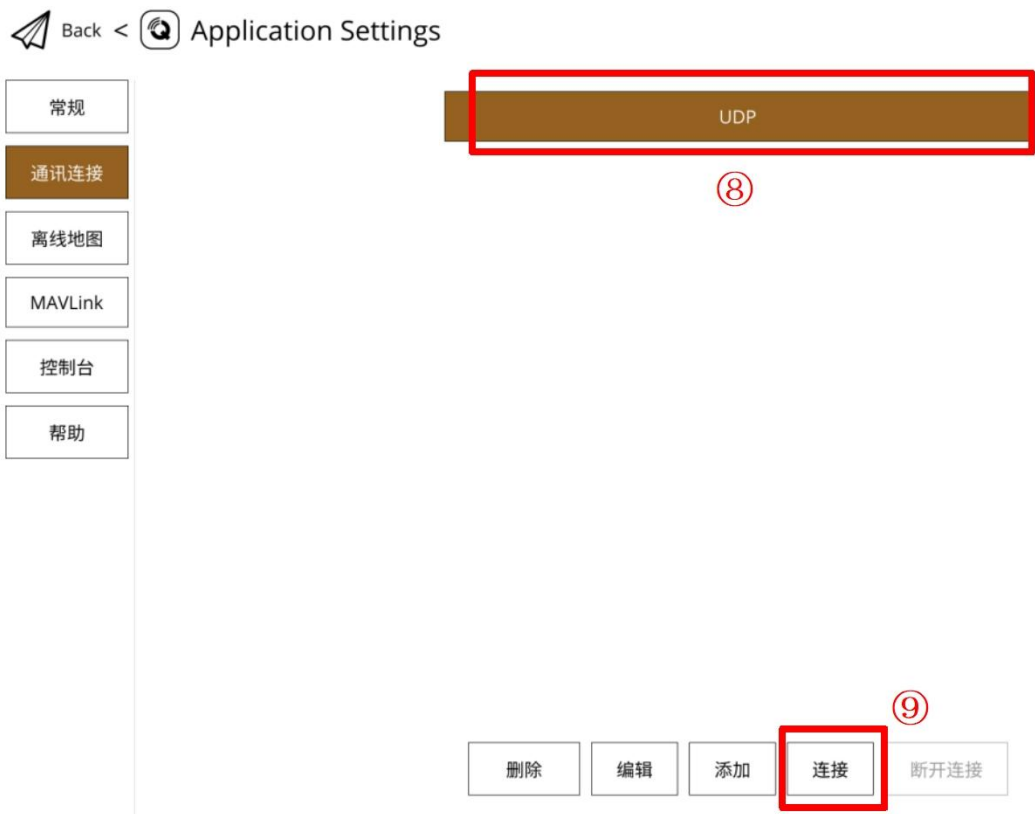
Server Addresses (optional)

⑤ ⑥

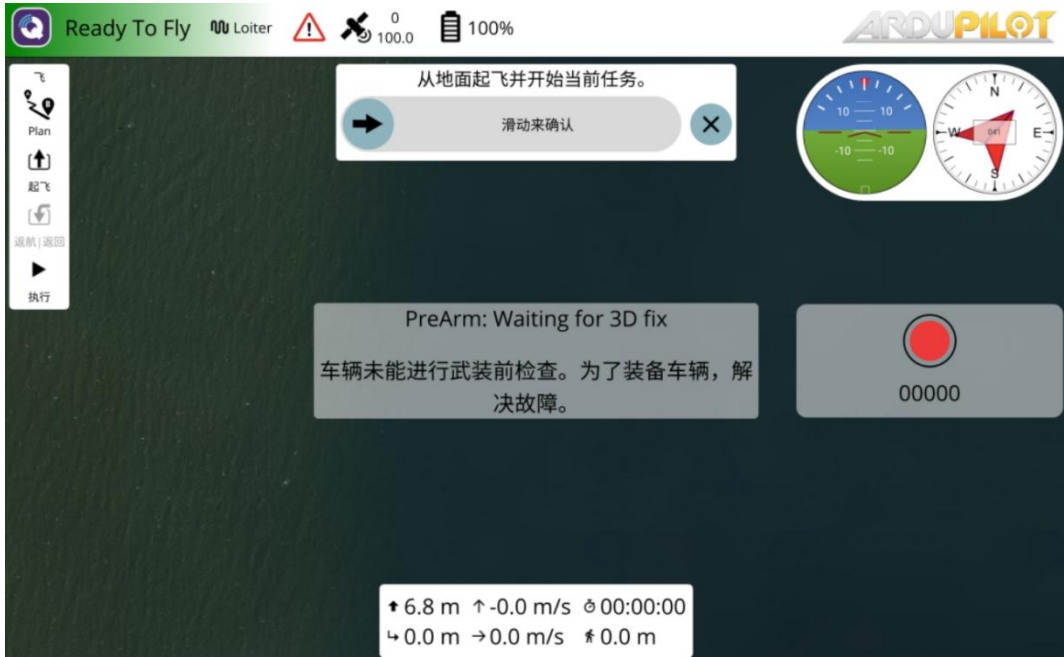
⑦

- ⑧ 点击选择刚才命名的 UDP;

⑨ 再点击连接。

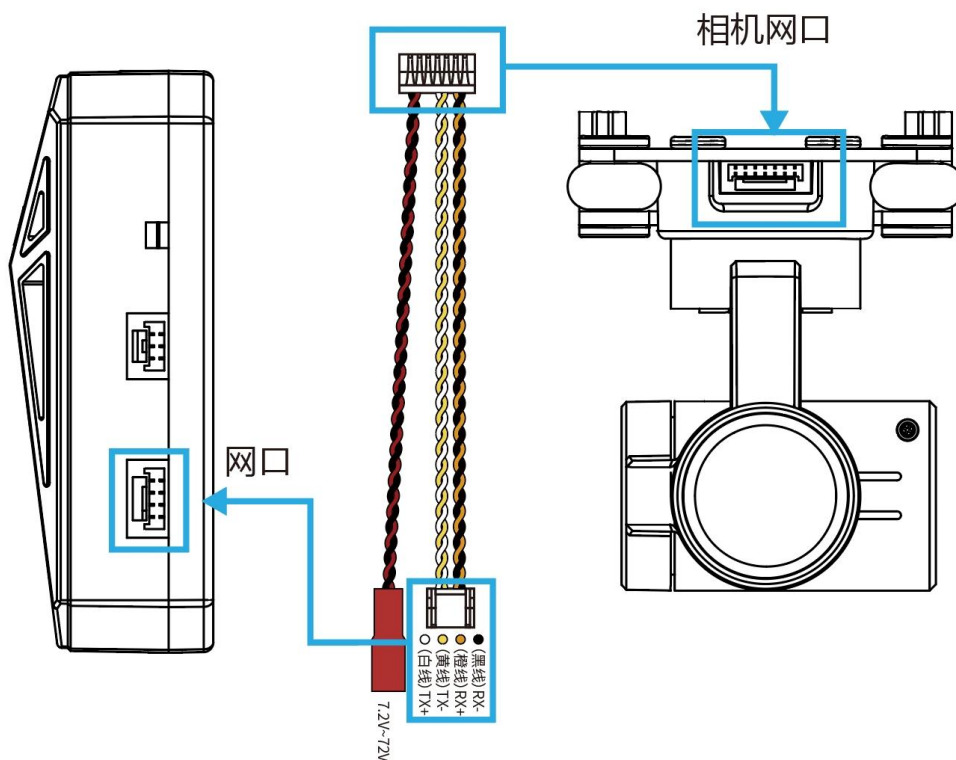


(5) 正常连接上航电系统数传。



10.2 QGC 图传设置

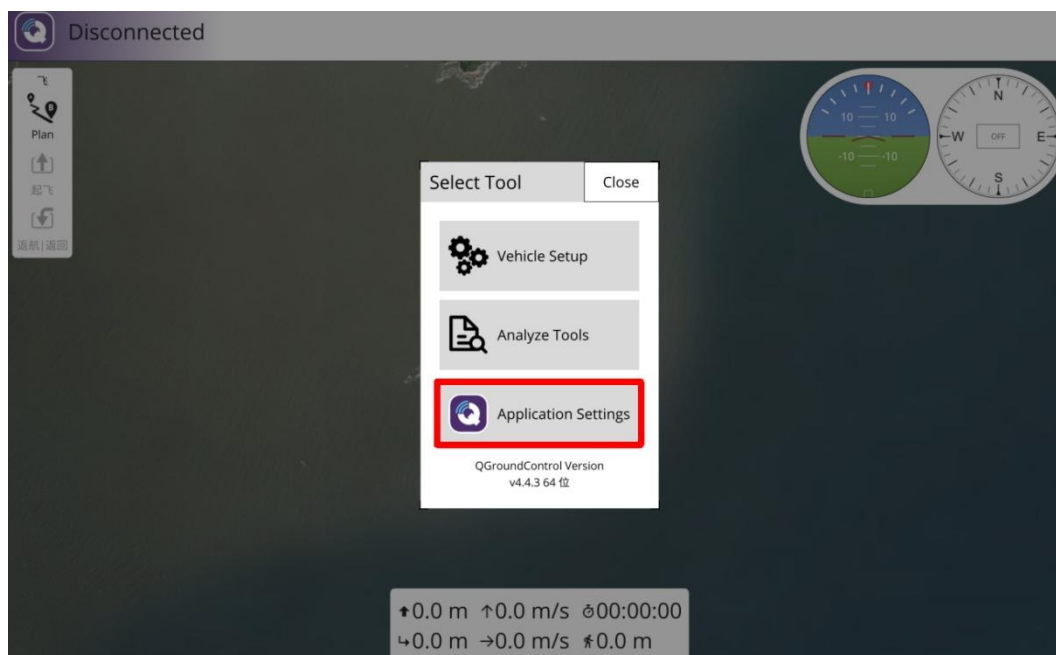
以 G12 遥控器 QGC 地面站为例做参考连接 C10PRO 摄像头图传 (设备助手后台需要关闭)。



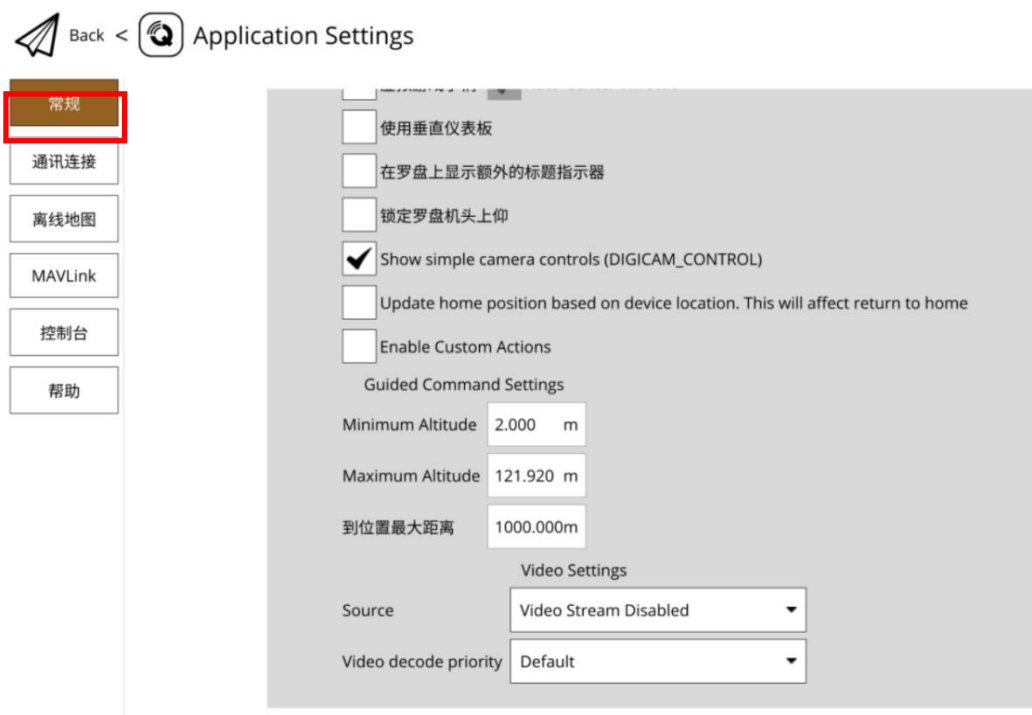
(1) 打开 QGC，点击 QGC 左上角的 Q 图标。



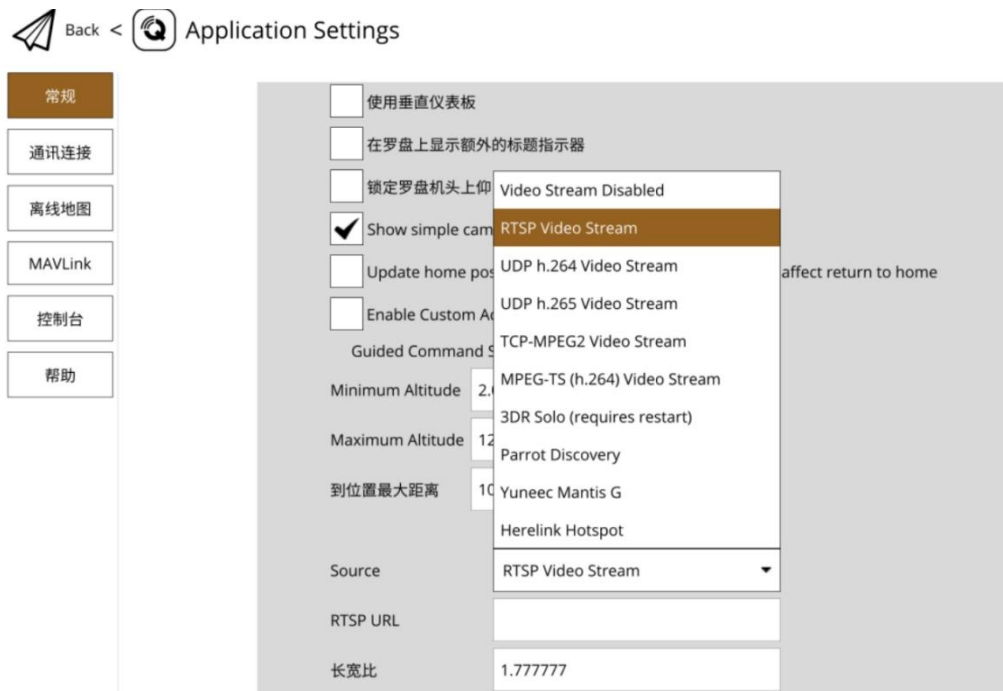
(2) 在弹出的弹窗上，选择 Application Settings。



(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

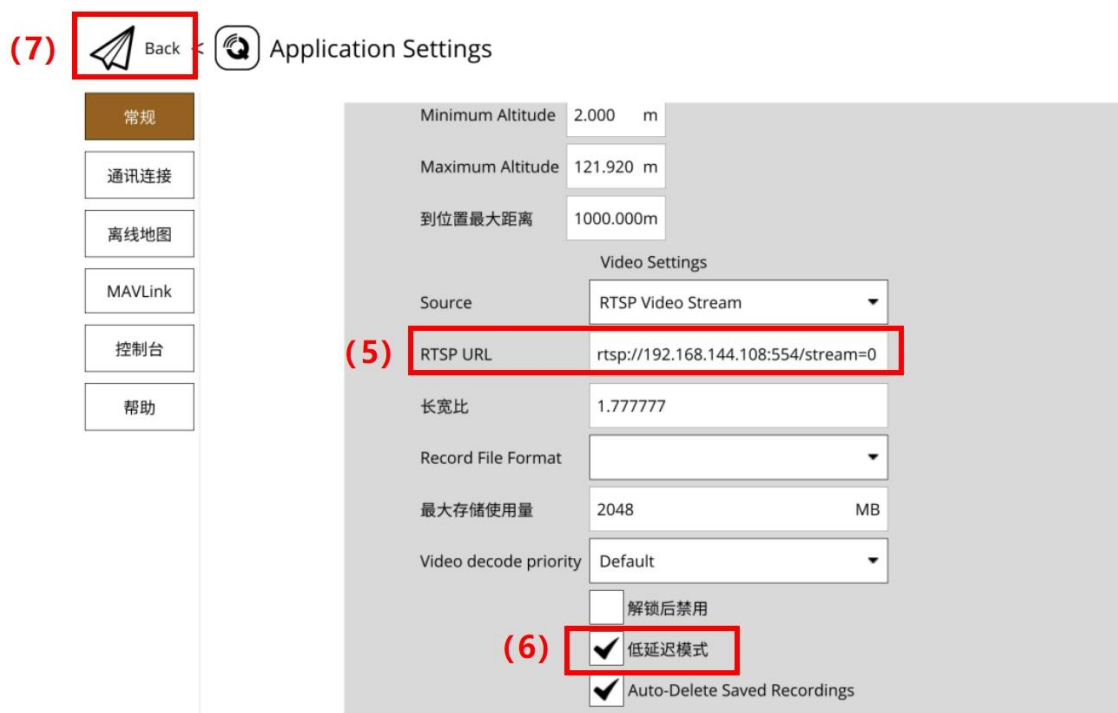
C20 是 rtsp://192.168.144.108:554/main

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。

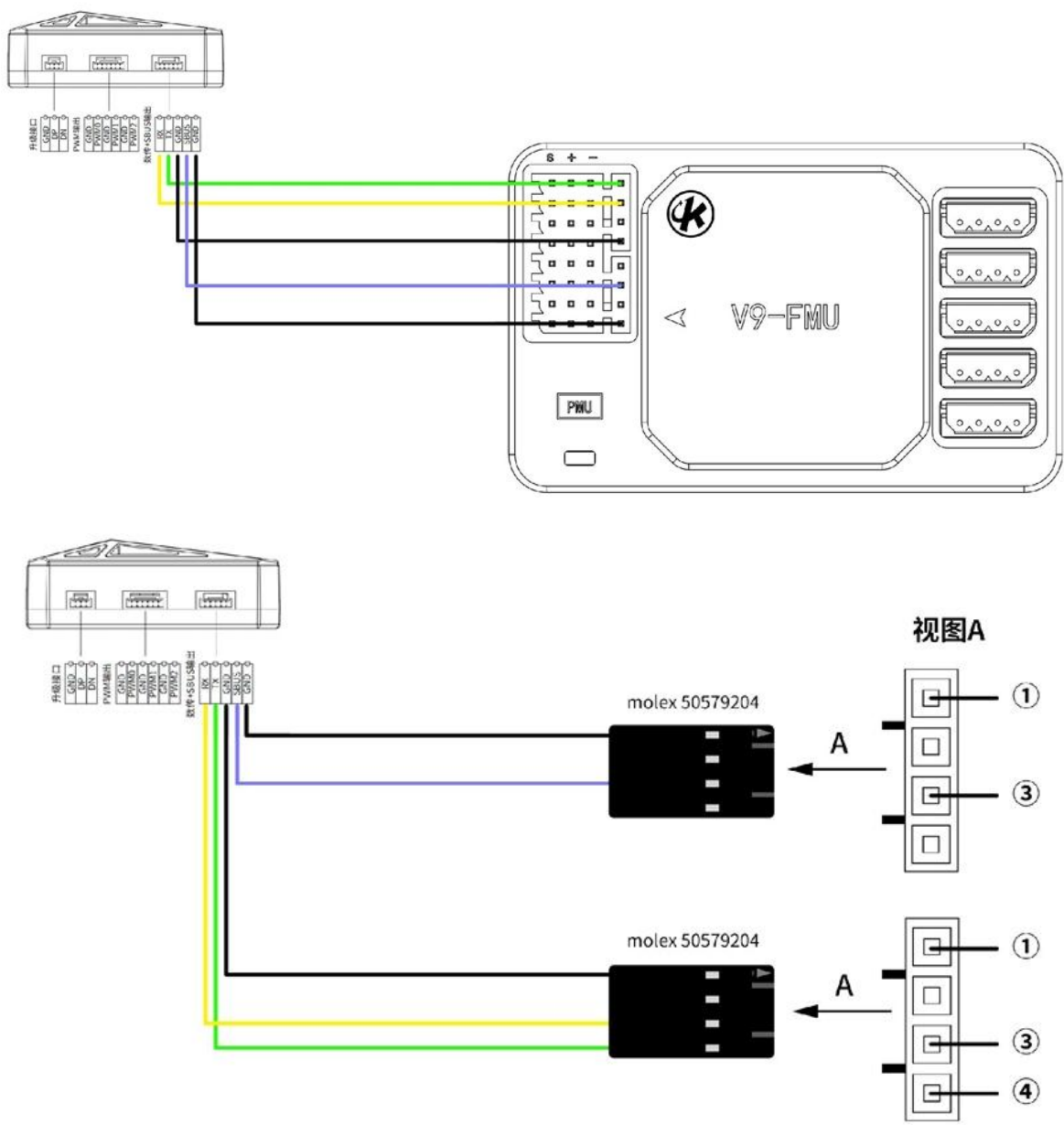


(8) 正常连接上图传。



11. 第三方航电系统连接示意图

微克 V9 数传连接 GR01 示意图:



12. 使用热点共享数传图传

注意：此教程以使用开源航电系统为例，如使用第三方航电系统详询航电系统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：

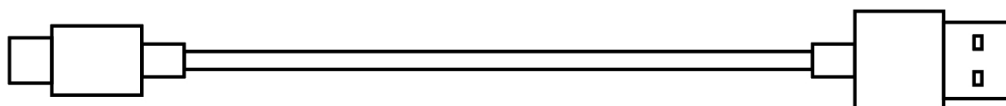
通过网线将电脑网口与遥控器的 TYPE-C 端口连接起来，打开设置->网络和互联网->热点和网络共享->打开“以太网网络共享”





(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”。



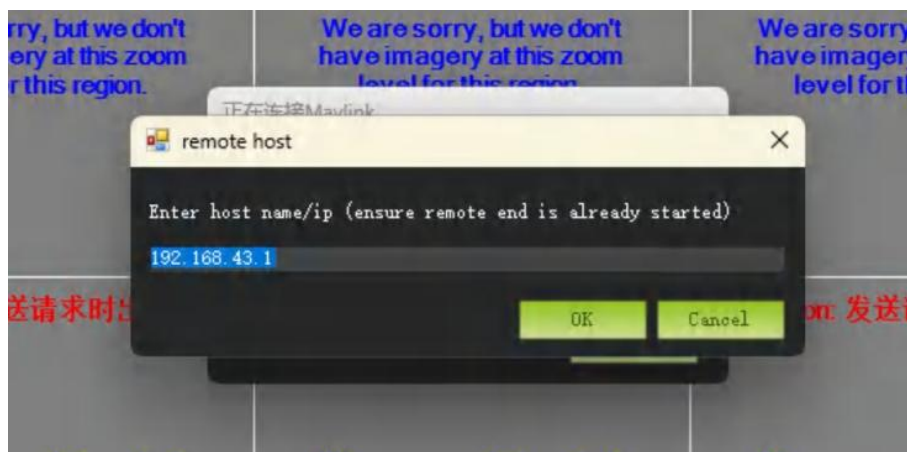
注意：电脑端需要设置自动获取 IP 地址：打开电脑设置->网络和 Internet->点击更改适配器选项->选择以太网（热点连接需要选择 WLAN）->右键属性->双击选择 Internet 协议版本 4（IPV4）->自动获得 IP 地址->自动获得 DNS 服务器地址->确定。

13.1 共享数传

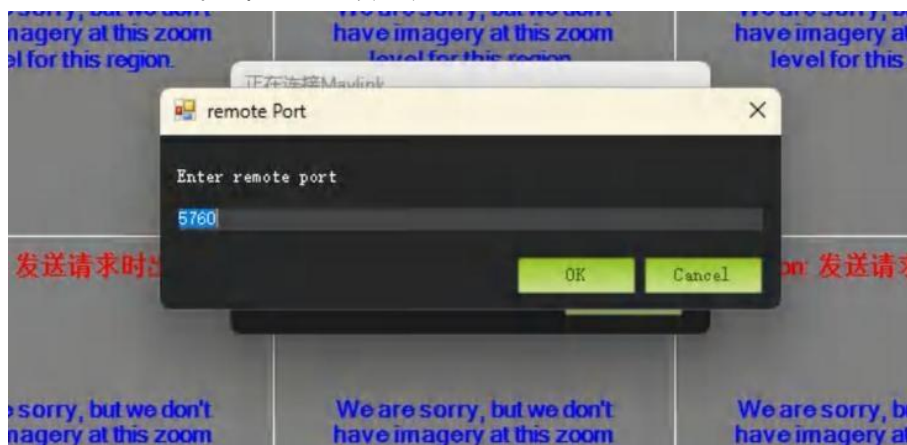
上述三种方式三选一连接成功后，打开 Mission Planner，连接方式选择 TCP。



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。



13. 参数

G20 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	电脑类型	Android 13
尺寸	277(L)*138(W)*96(H)mm	重量	1.2kg
电池	20000mA/H	续航时间	6~8 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	9KM	工作温度	-10℃~55℃
充电接口	TYPE-C	外部接口	USB 口、SIM 卡槽、TYPE-C

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 ~ 80V(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: 打开手 的上传/下载模式后会影通 讯距离, 建议近距离使用)
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℃~60℃
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: 打开手 的上传/下载模式后会影通 讯距离, 建议近距离使用)
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℃~60℃
射频功率	23dBm@CE/FCC	信道带宽	1.25MHz/2.5MHz/5MHz/ 10MHz/20MHz/40MHz

14. 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、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>

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, 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

Skydroid Technology (Fujian) Co.,Ltd



Skydroid G20

User Manual

V2.0

Attention:

This product uses the following terms to classify the potential hazards that may be caused by improper operation.

Note: If not follow the instructions, it may cause property damage, major accidents and serious injuries.

Warning: Before operating the product, please read the entire user manual to familiarize yourself with its functions. Improper operation may cause serious injury to yourself or others, or result in product damage and property loss. This product is relatively complex and requires a period of familiarization before safe use. Basic knowledge is also necessary for operation. Without a strong safety awareness, improper operation may lead to product damage, property loss, or even serious injury to yourself or others. This product is not suitable for children. Do not use any parts not provided or recommended by Skydroid; strictly follow Skydroid's instructions when using the product.

After-Sales Service Terms

1. These terms apply only to products manufactured by Skydroid Technology (Fujian) Co.,Ltd , and also to products sold by authorized Skydroid distributors .
2. For products with non-human-caused quality issues verified by our company within one week from the date of purchase , Skydroid shall bear the round-trip courier fees for the returned products . For products with quality issues verified by our company more than one week but within one year from the date of purchase , the user and Skydroid shall each bear the courier fee for sending the product back for repair.
3. When returning a product for repair, the purchase certificate , warranty card , or online platform transaction record shall be provided.
4. If a Skydroid product has non-human-caused quality issues under normal use within seven days from the date of purchase , with no appearance damage , the user may negotiate with the distributor for a free replacement of the same-model product by presenting the warranty card and purchase certificate . Distributors are requested to notify Skydroid immediately for

record-filing when receiving the product to be replaced.

5.Skydroid Technology (Fujian) Co.,Ltd provides lifelong after-sales service for Skydroid products . For non-human-caused quality issues , free warranty service is offered within one year from the date of purchase . For products with human-caused damage , modification , disassembly, or those beyond the one-year free warranty period , the user shall bear the round-trip shipping fees and repair costs .

6.To protect your rights and ensure timely and effective service , please fill out the warranty card completely and request a purchase certificate when buying a Skydroid product. The user shall provide the warranty card and purchase certificate to enjoy the after-sales service under these 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 . Specific after-sales details will be determined based on the actual situation .

Contents

I. Overview	1
1. Product features	1
2. Main use and application scope	1
3. Environment conditions	2
4. Working conditions	2
II. Component names	3
1. Remote controller	3
2. Receiver	5
III. Prepare the remote controller	8
1. remote controller charging	8
2. Open antennas correctly	9
remote controller battery level indicator	9
4. Indoor flying range test	10
IV. Use and operation	15
1. remote controller power on and off	15
2. System desktop	15
3. Adjusting brightness	16
4. Adjusting volume	18
5. Language settings	20
6. Transferring files via computer	23
7. Device helper introduction	25
8. Remote controller frequency pairing	30
9. Image/data transmission connection	32
10. How to display data/image transmission on the G20 remote controller QGroundControl ground station?	35
10.1 QGC data-transmission setting	37
10.2 QGC image-transmission setting	41
11. Diagram of third-party flight control connection	45
12. Remote Controller Hotspot Sharing for Image Transmission and Data Transmission	46
12.1 Data Transmission Sharing	47
12.2 Image Transmission Sharing	49

13. Parameters 50

14. Related software downloads..... 52

V、Maintenance and Warranty 53

VI、Transportation and Storage..... 53

I. Overview

1. Product features

(1) G20 adopts Qualcomm 6nm processor, equipped with Android 13 (64-bit) embedded system, smooth operation, ecological openness, and can install the majority of apps available on the market. G20 adopts 2.4/5.8G dual-frequency wireless module with new high-power, high-bandwidth, support for automatic frequency-hopping and MCS independent dynamic adjustment, the figure of the image/data transmission range up to 9KM.

(2) G20 supports SIM card ,LAN port, USB interface, type-c interface, and provides SDK development package. It also supports video floating and ground station of the mainstream flight control.

(3) The G20 remote controller has a built-in 7-inch high-brightness display with a resolution of 1920*1200 and with an ultra-large screen-to-body ratio. Besides, with the Skydroid camera, it can transmit high-definition images in real time. Additionally, built-in dual fans to effectively cool down the temperature, so that the remote controller works efficiently at all times.

(4) It uses a high-energy-density lithium-ion battery, which supports 6-8 hours of operation on a full charge. The consistent "wilderness survival" design philosophy ensures you have no worries about the device' s reliability.

(5) Using meteorological silicone, with an ABS casing and a matte finish on the grip area makes the ultimate feel at the same time, but also to meet the harsh conditions of outdoor use of the drone. The G20 incorporates dustproof protection measures on its body, control switches, and all peripheral interfaces to ensure stable and smooth operation in harsh environments.

2. Main use and application scope

G20 is used for video/ image transmission (an optional camera is required), data transmission and control of unmanned equipment such as helicopters, fixed-wing, multi-rotor, vehicles and boats.

3. Environment conditions

Warning:

- a) Ambient temperature:-10°C to +55°C.
- b) Storage temperature:-20°C ~ +50°C.
- c) Relative humidity:Not exceed 85%.
- d) Atmospheric pressure:86kPa~106kPa.
- e) The use of the location does not allow explosive hazardous media, the surrounding medium should not contain corrosive metals and damage the insulation of the gas and conductive media, not allowed to be filled with water vapour and the presence of serious mould.
- f) The use of the location should have a defence against rain, snow, wind, sand, ash facilities.

4. Working conditions

Power supply and precautions

G20 series ground terminal has a built-in integrated rechargeable lithium battery, and is compatible with the market standard TYPE-C interface, please use the original charger to charge.

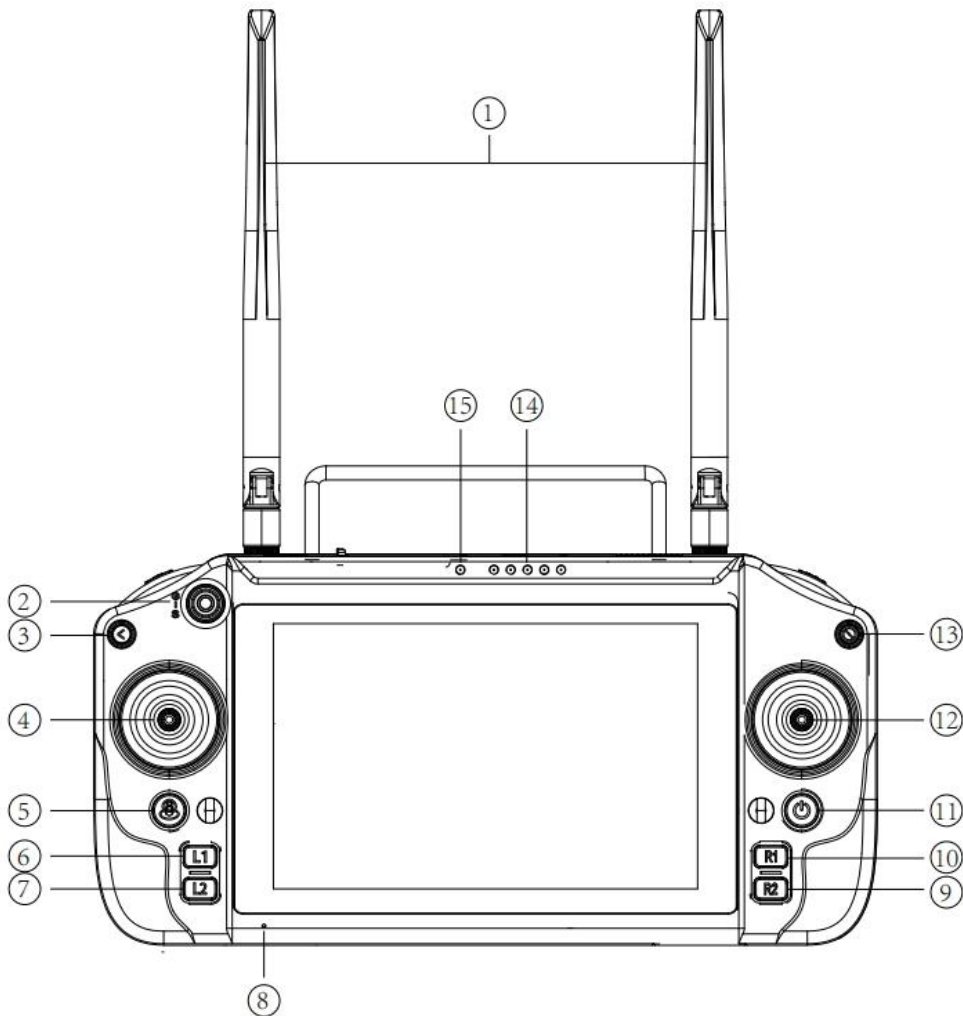
If you encounter smoke, odour or night leakage when charging the ground terminal, please do not continue to charge the ground terminal and return to our factory for maintenance.

Please do not charge the product in an area where babies can touch it to avoid the risk of electric shock.

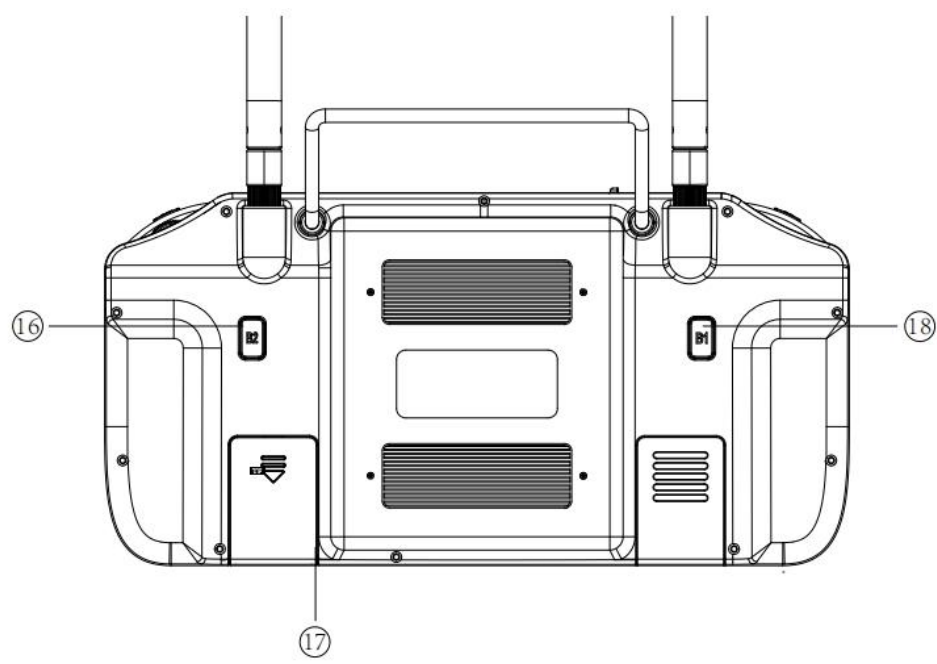
Please do not charge the product at temperatures exceeding 60°C.

II. Component names

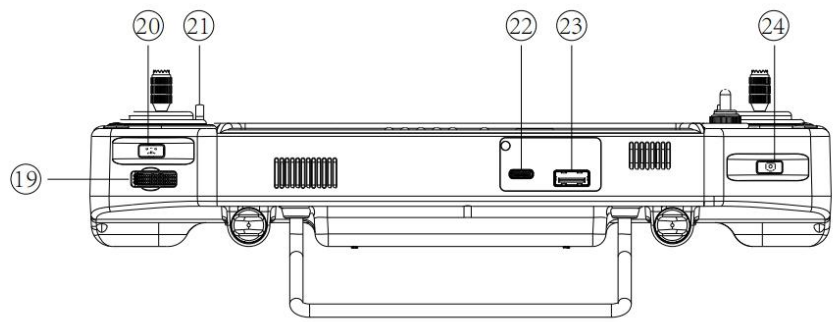
1. Remote controller



NO.	Annotation	NO.	Annotation
1	antenna	9	R2 button
2	Three-position switch (flight mode)	10	R1 button
3	back button	11	power-on button
4	X1、Y1 left joystick	12	X2、Y2 right joystick
5	H button	13	pause button
6	L1 button	14	charging indicator
7	L2 button	15	frequency pairing indicator
8	speaker		

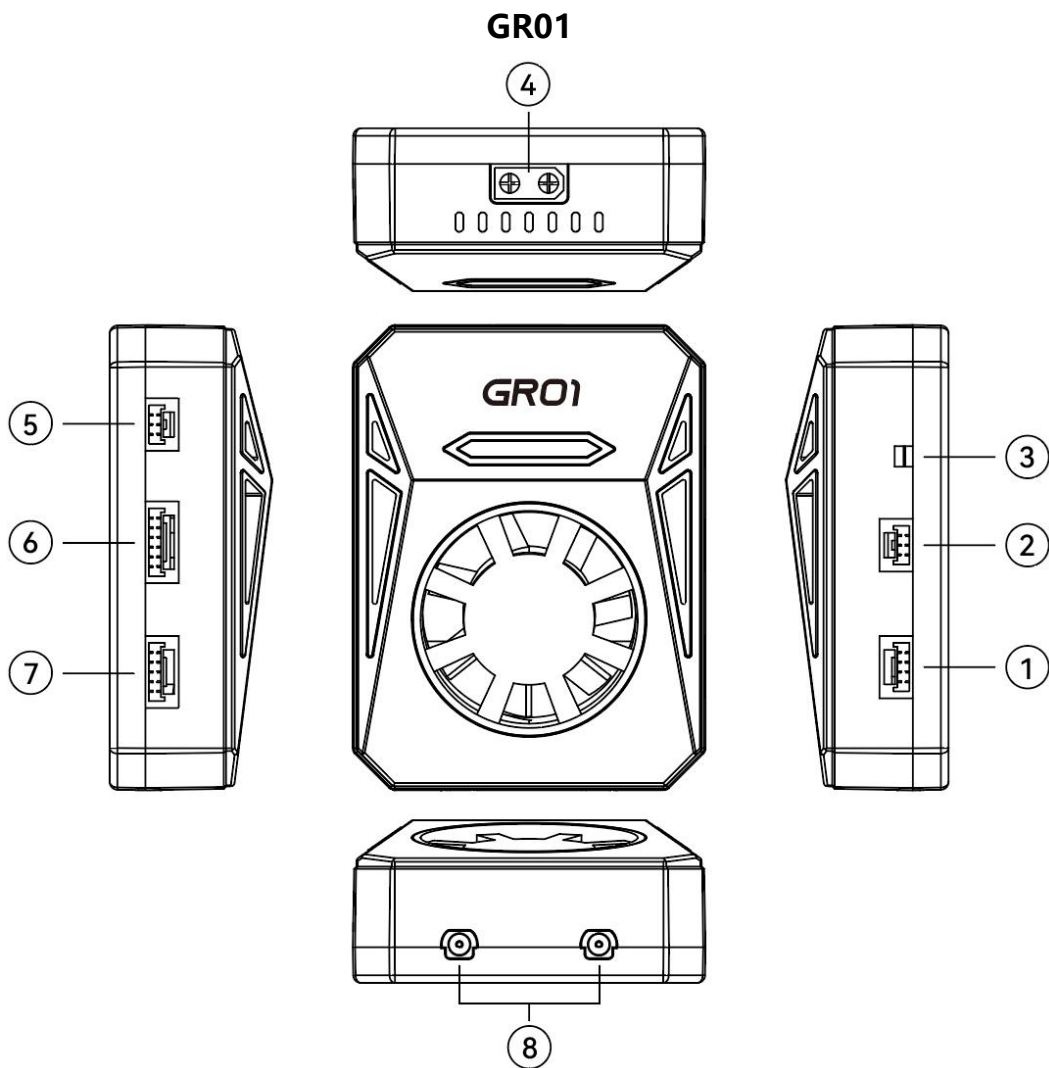


NO.	Annotation	NO.	Annotation
16	B2 button	18	B1 button
17	SIM card slot		



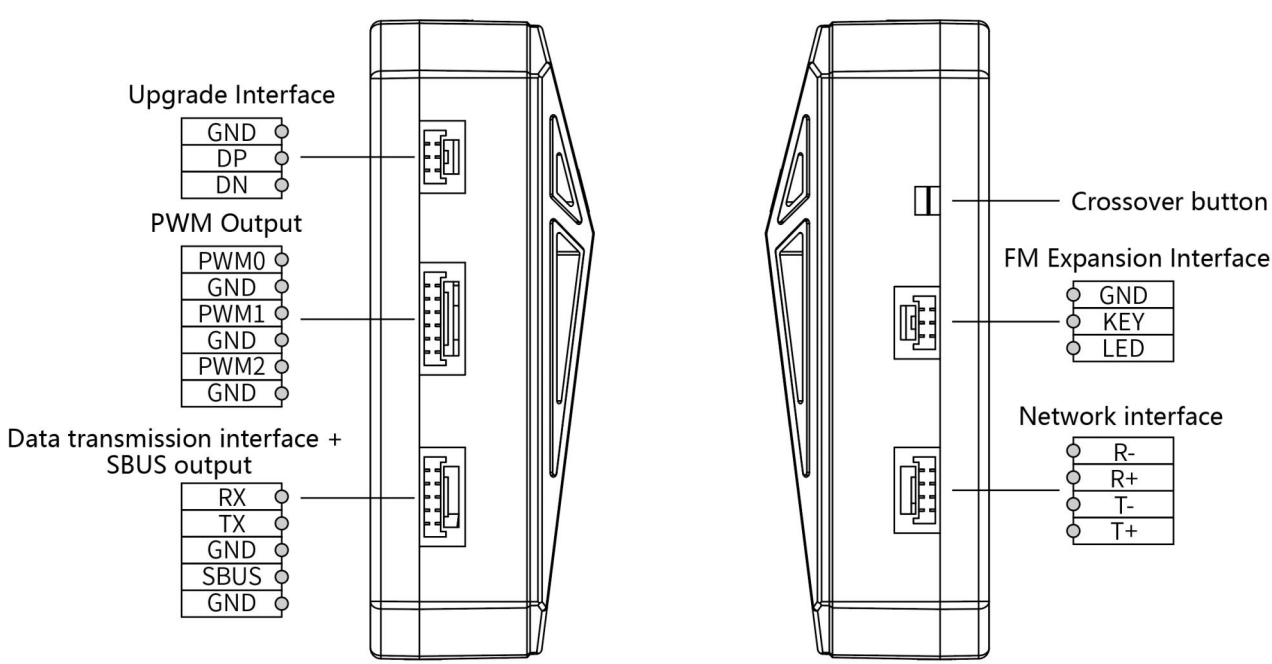
No.	Annotation	No.	Annotation
19	Jog wheel (gimbal pitch)	22	TYPE-C interface
20	(SPRAY) Spray button	23	USB interface (upgrade interface)
21	lanyard interface	24	(CAMERA) button

2. Receiver



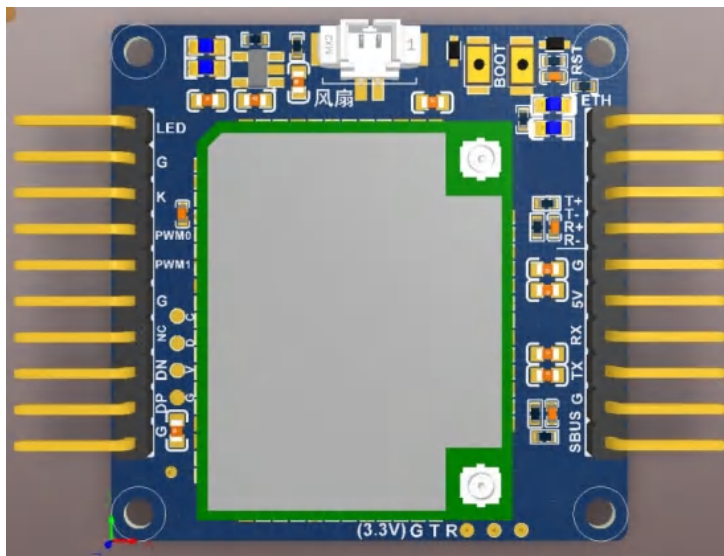
No.	Annotation	No.	Annotation
1	LAN port	5	upgrade interface
2	frequency pairing extension interface	6	PWM output
3	frequency pairing button	7	data transmission interface+SBUS output
4	power supply input interface (7.2V ~ 80V)	8	antenna interface

Receiver Interface Definition:



Note: PWM0 - 2 of GR01 correspond to remote control channels 9 - 11.

G12 RX



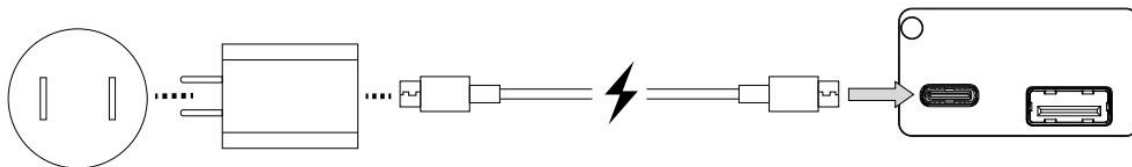
No.	Annotation	No.	Annotation
		ANT	antenna
LED	frequency pairing indicator	ETH0_TX+	LAN port
GND	GND	ETH0_TX-	
KEY	frequency pairing button	ETH0_RX+	
PWM0	PWM9 channel	ETH0_RX-	
PWM1	PWM10 channel	GND	power supply+data transmission port
GND	GND	5V_IN	
NC	NC	UART_RX	
DN	upgrade port	UART_TX	
DP		GND	SBUS interface
GND		SBUS	
		ANT	antenna

Note: PWM0 - 2 of GR01 correspond to remote control channels 9 - 11.

III. Prepare the remote controller

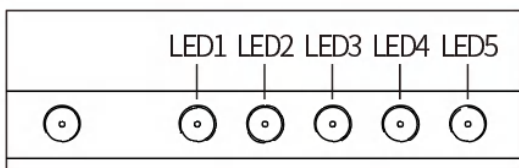
1. remote controller charging

About 3-4 hours to fully charge with the original charger.



Please use the original charger to charge, in order to keep the remote control battery in the best condition, please ensure that the battery is fully charged once a month.

Remote control charging light:

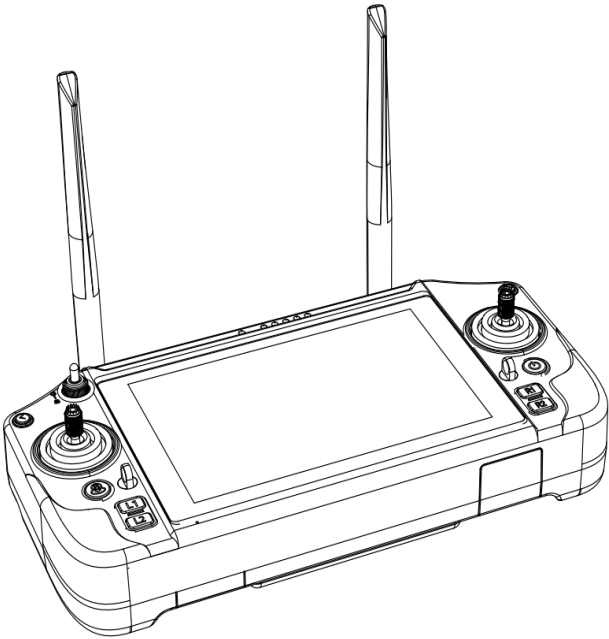


always on flashing off

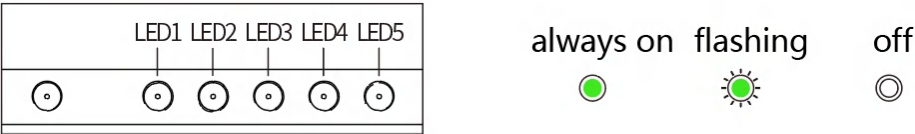
● ☀ ○

Battery level	LED1	LED2	LED3	LED4	LED5
0%~20%	☀	○	○	○	○
21%~40%	☀	☀	○	○	○
41%~60%	☀	☀	☀	○	○
61%~80%	☀	☀	☀	☀	○
81%~99%	☀	☀	☀	☀	☀
100%	●	●	●	●	●

2. Open antennas correctly



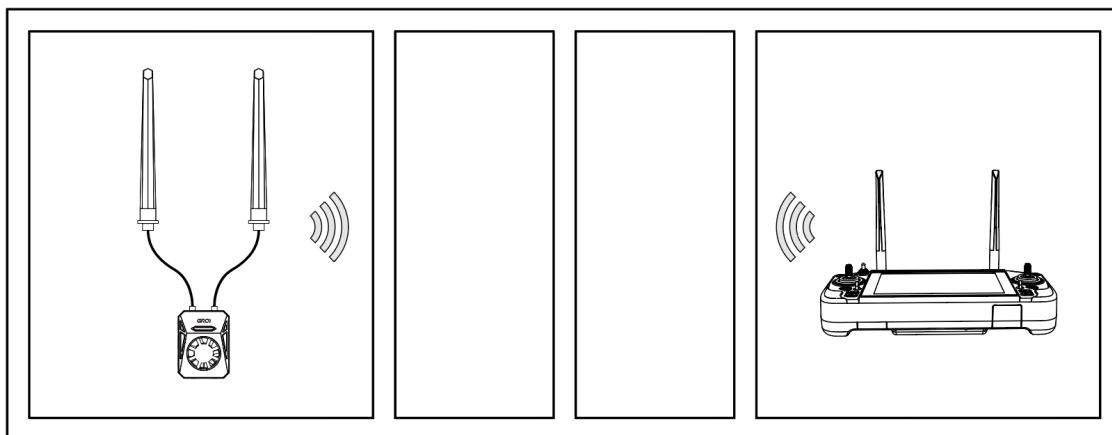
remote controller battery level indicator



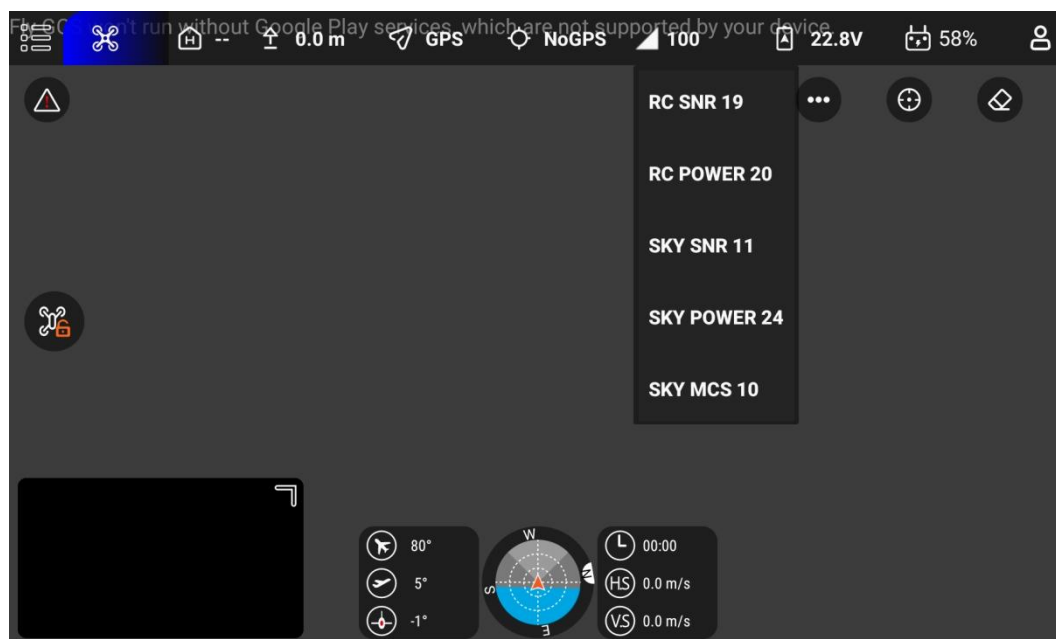
Battery level	LED1	LED2	LED3	LED4	LED5
91%~100%					
81%~90%					
71%~80%					
61%~70%					
51%~60%					
41%~50%					
31%~40%					
21%~30%					
11%~20%					
0%~10%					

4. Indoor flying range test

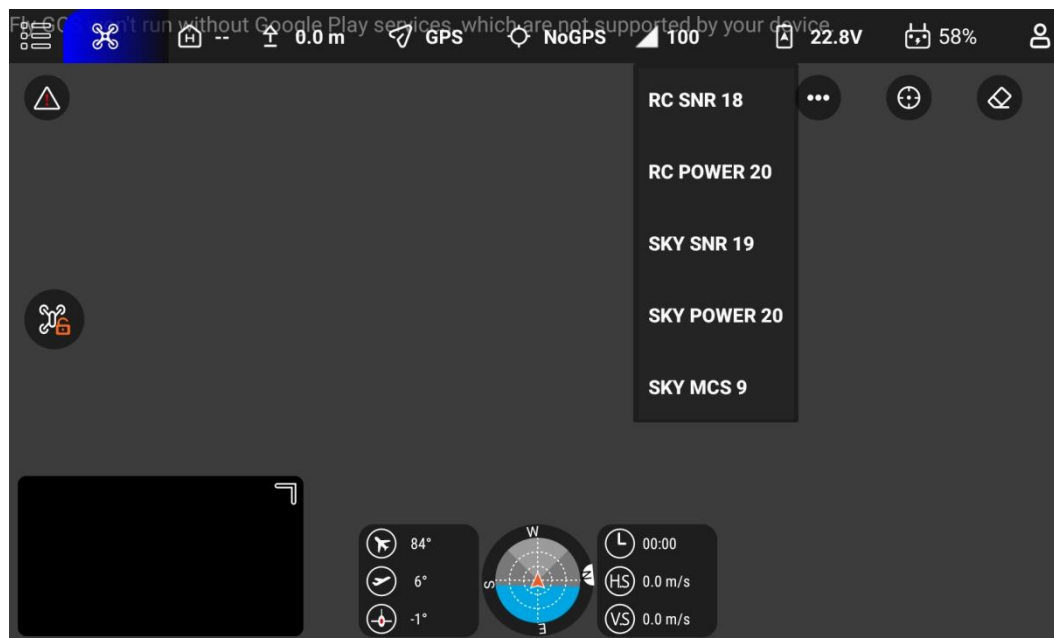
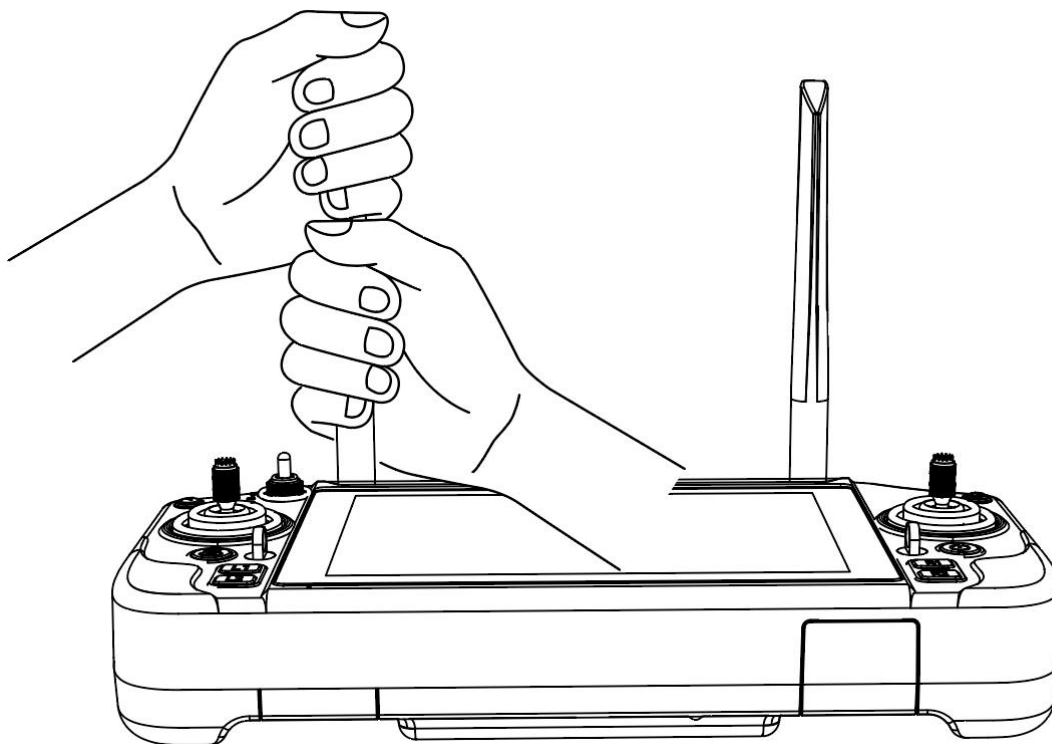
(1) Test scenario: The remote controller and the receiver are separated by 3-4 walls.



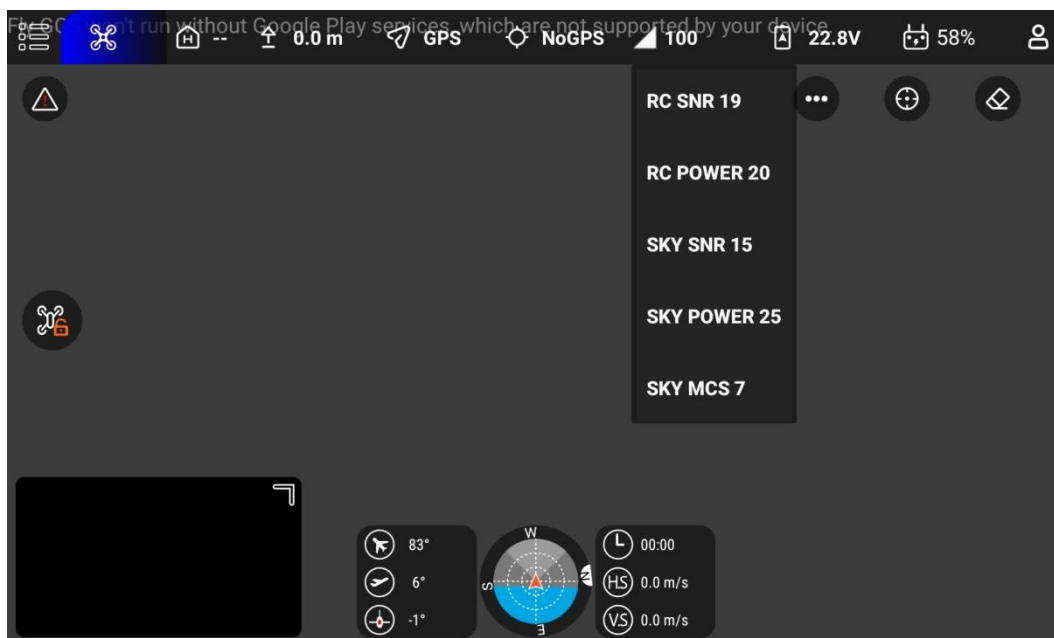
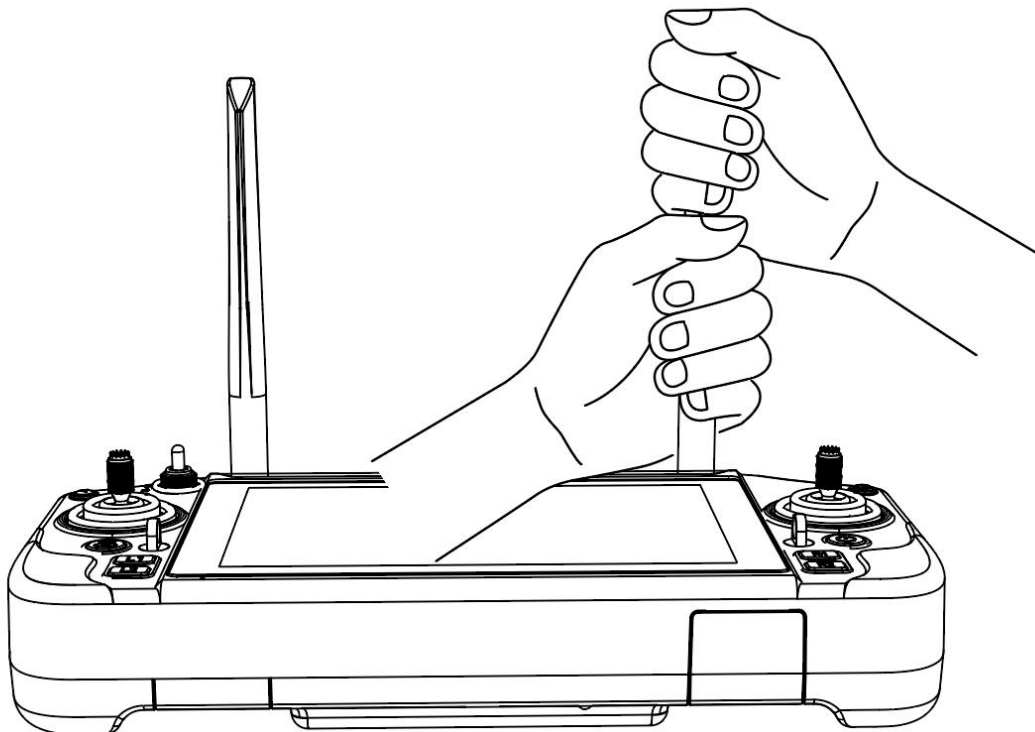
(2) The signal strength is shown in the figure below when the antennas are not blocked.



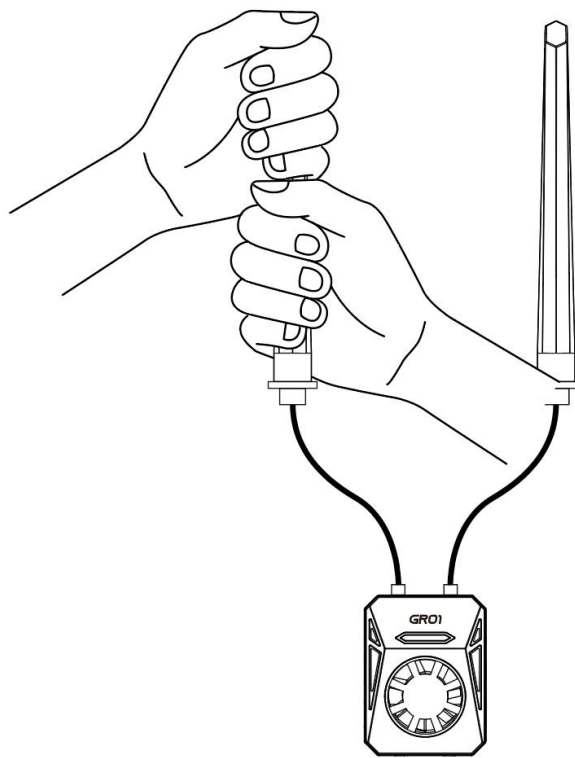
(3) The signal strength is shown in the figure below when the left antenna of the remote controller is held firmly.



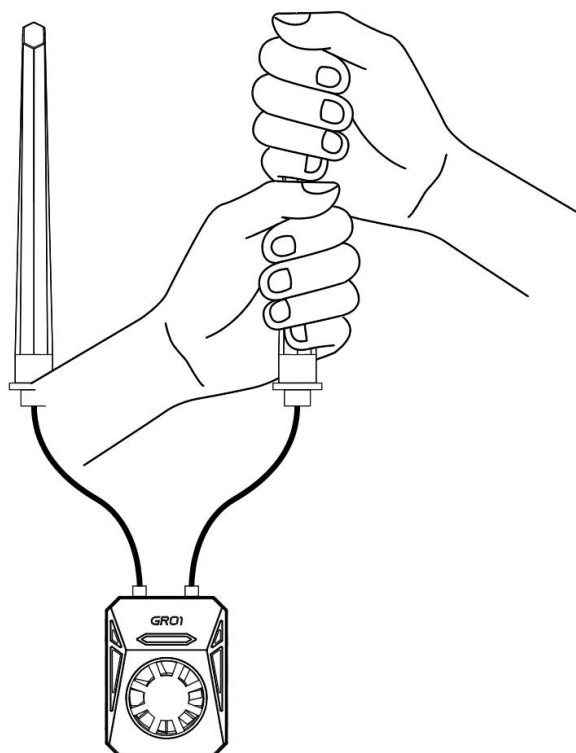
(4) The signal strength is shown in the figure below when the right antenna of the remote controller is held firmly.



(5) The signal strength is shown in the figure below when the left antenna of the receiver is held firmly.



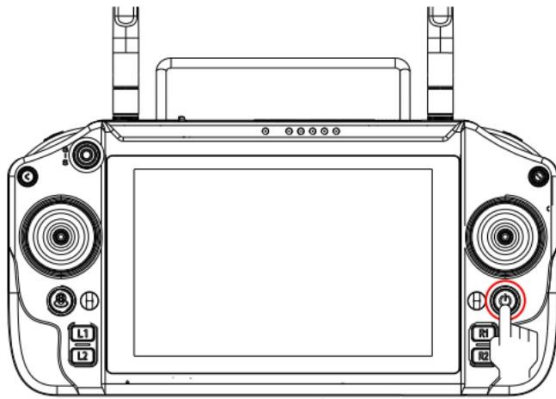
(6) The signal strength is shown in the figure below when the right antenna of the receiver is held firmly.



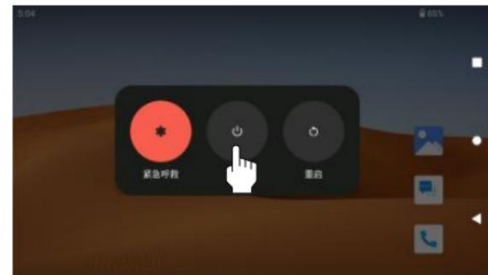
IV、Use and operation

1. remote controller power on and off

Long press the power button for 3 seconds to turn on the remote controller, long press the power button for 2 seconds, and then tap the screen to turn off the remote controller.

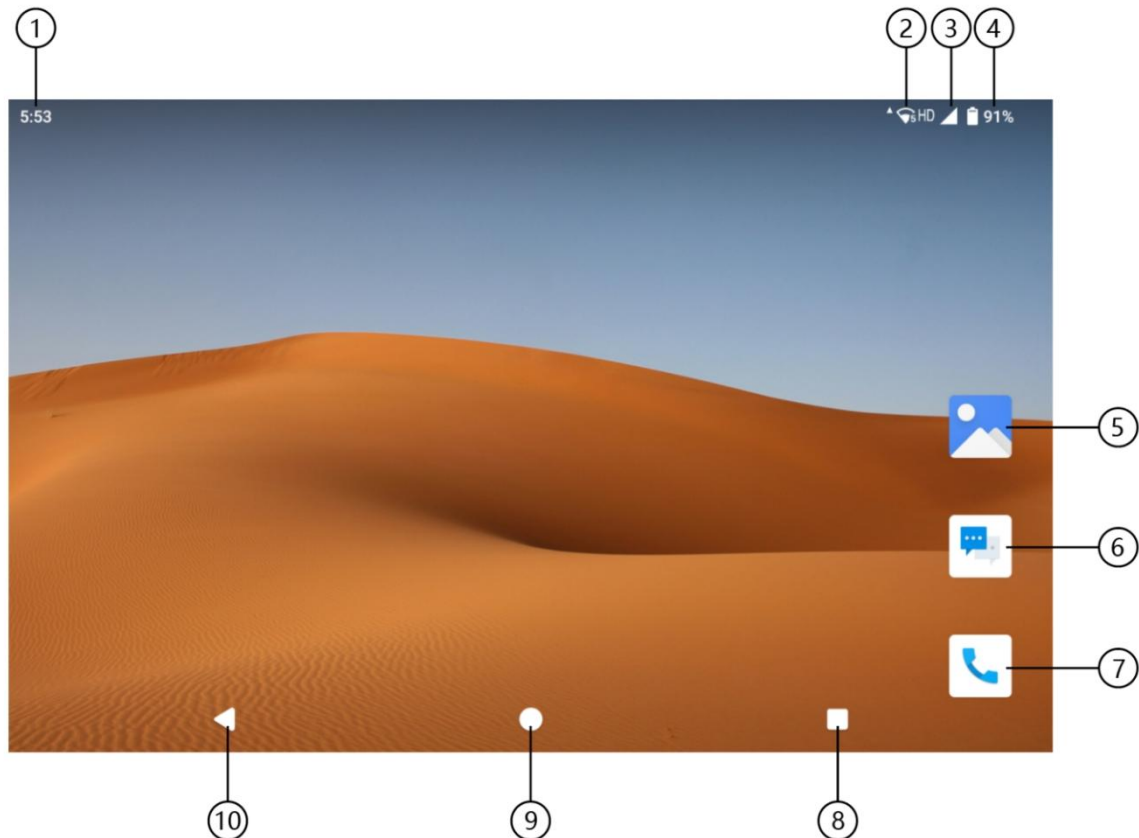


switch on



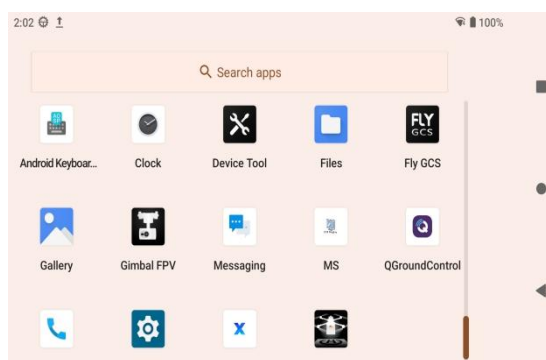
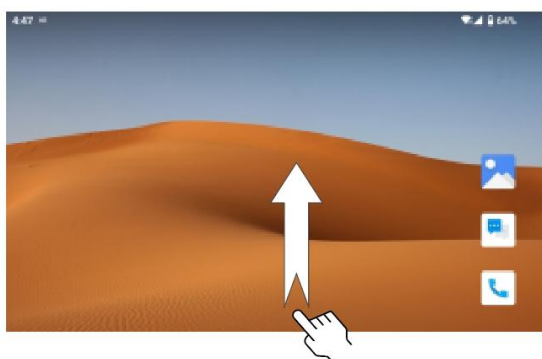
off

2. System desktop



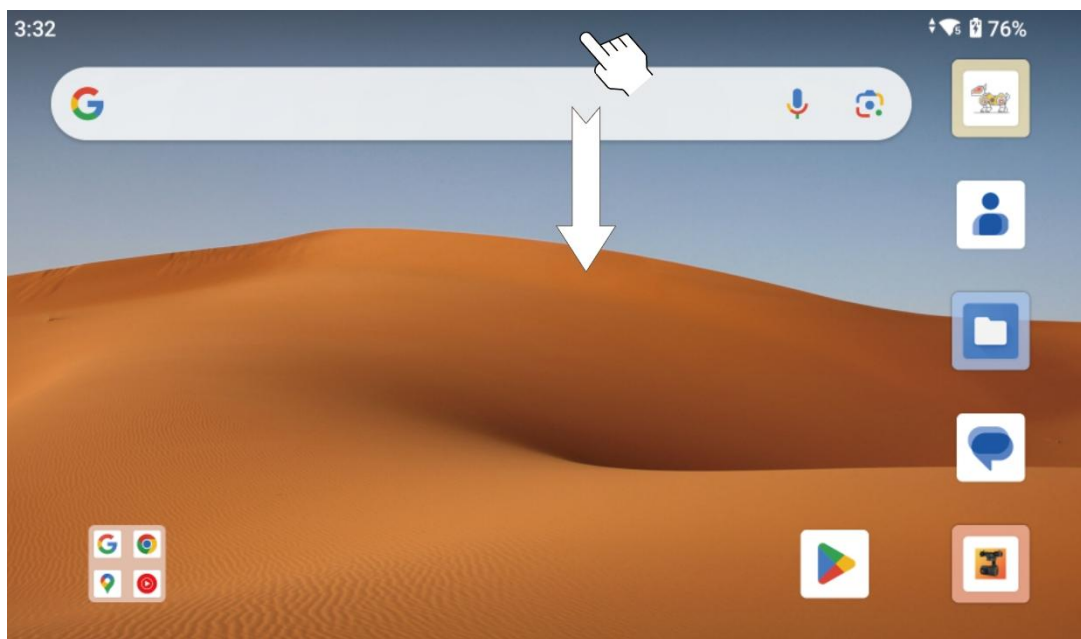
No.	Annotation	No.	Annotation
1	time	6	SMS
2	WIFI signal status display	7	call
3	SIM card status display	8	task center
4	battery level display	9	back to desktop
5	gallery	10	back to operation

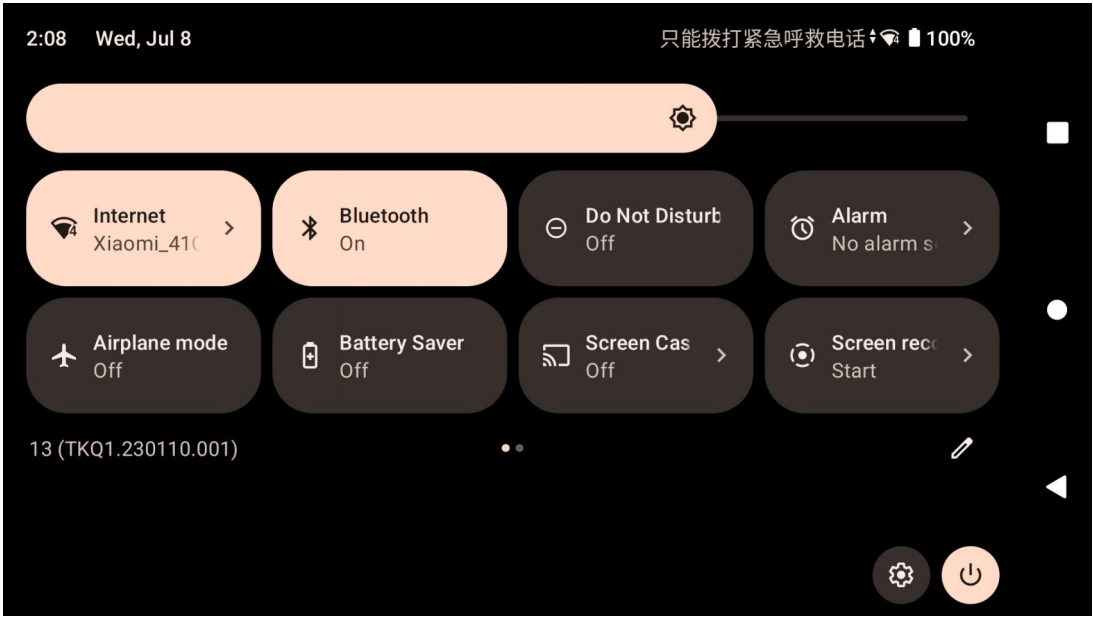
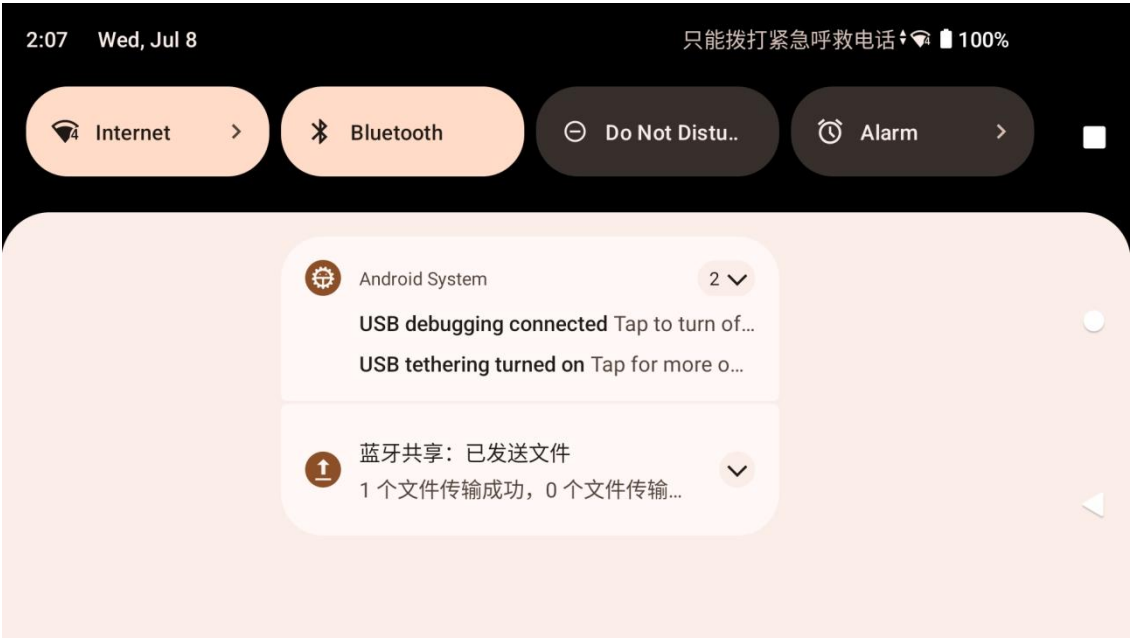
Swipe up from the bottom edge of the screen to access the Apps screen.

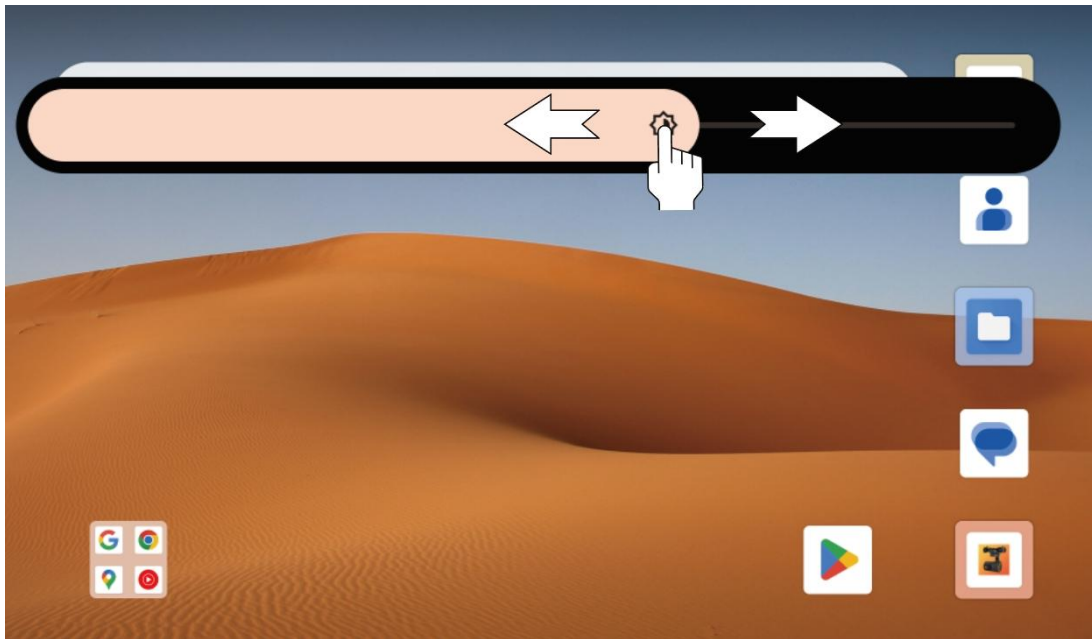


3. Adjusting brightness

Swipe down from the top of the screen to enter the control centre, drag the slider to adjust the screen brightness.

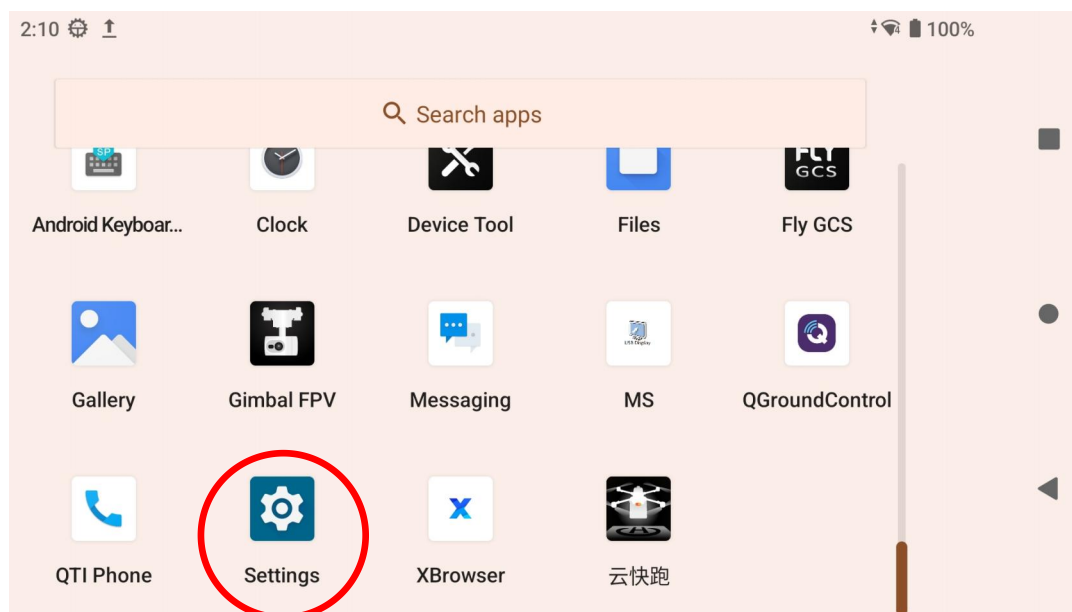


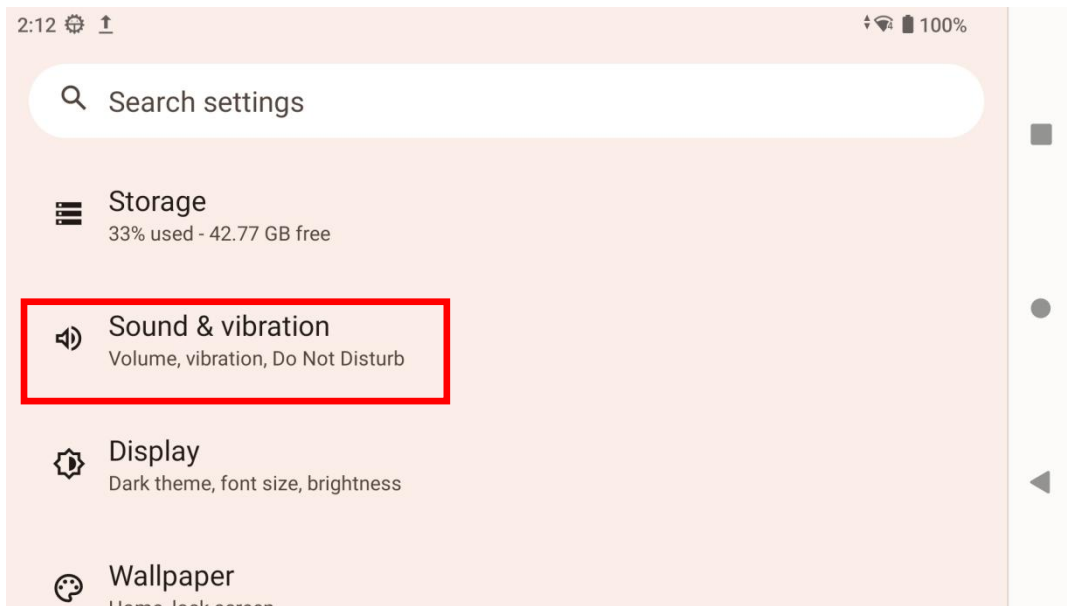




4. Adjusting volume

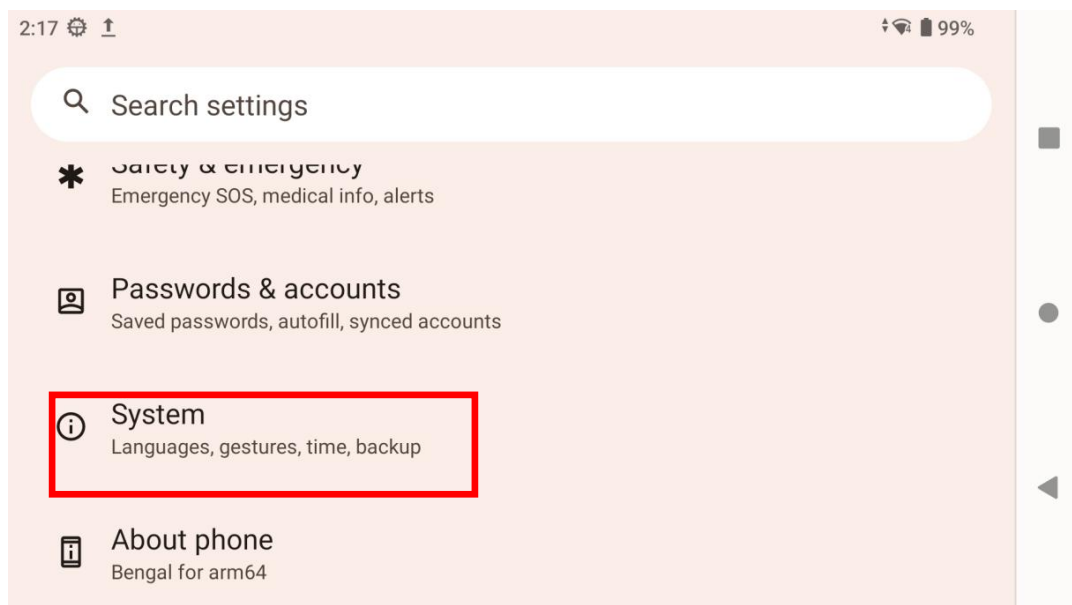
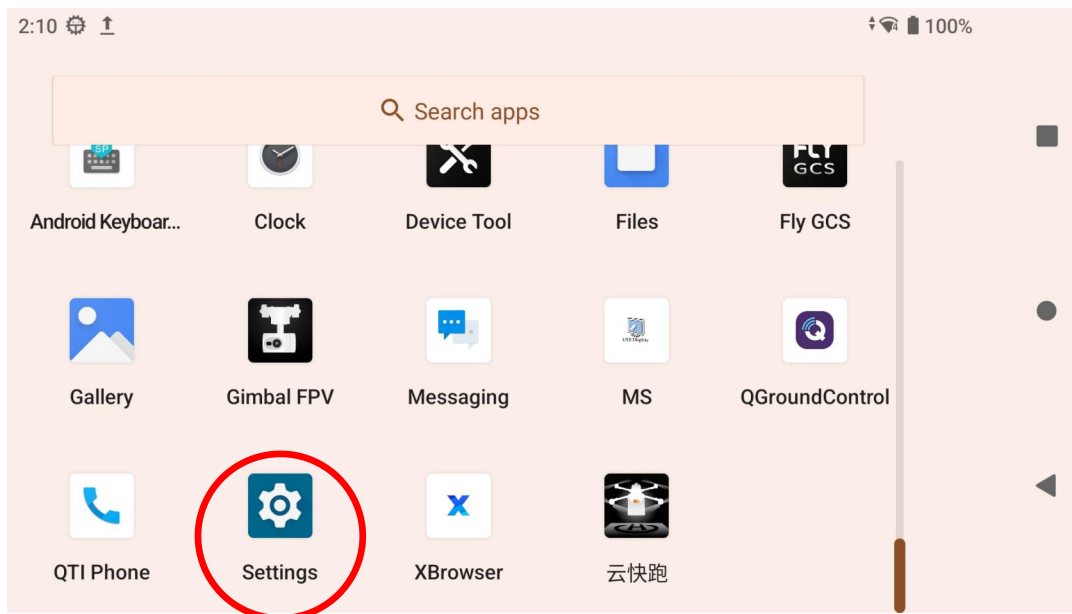
Enter the app interface, tap Settings, find Sound & vibration, drag the slider to adjust the volume level.

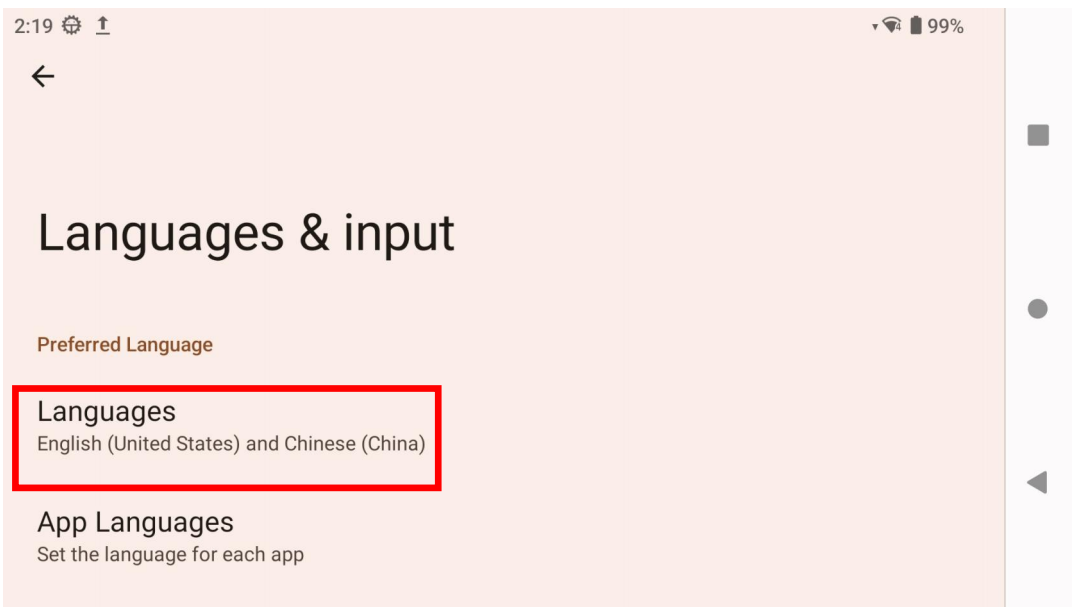
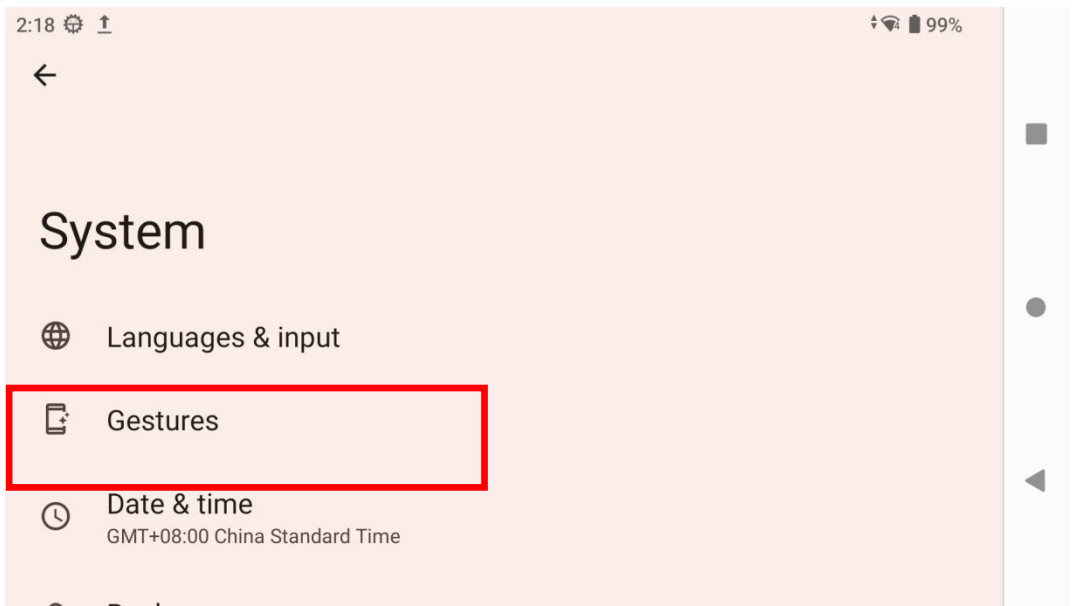


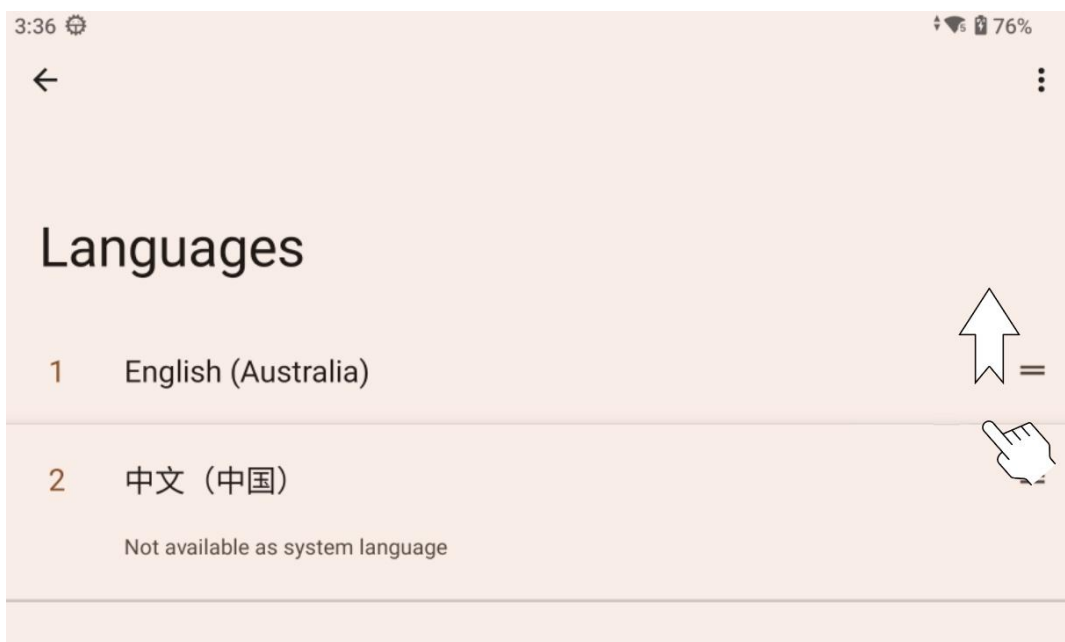
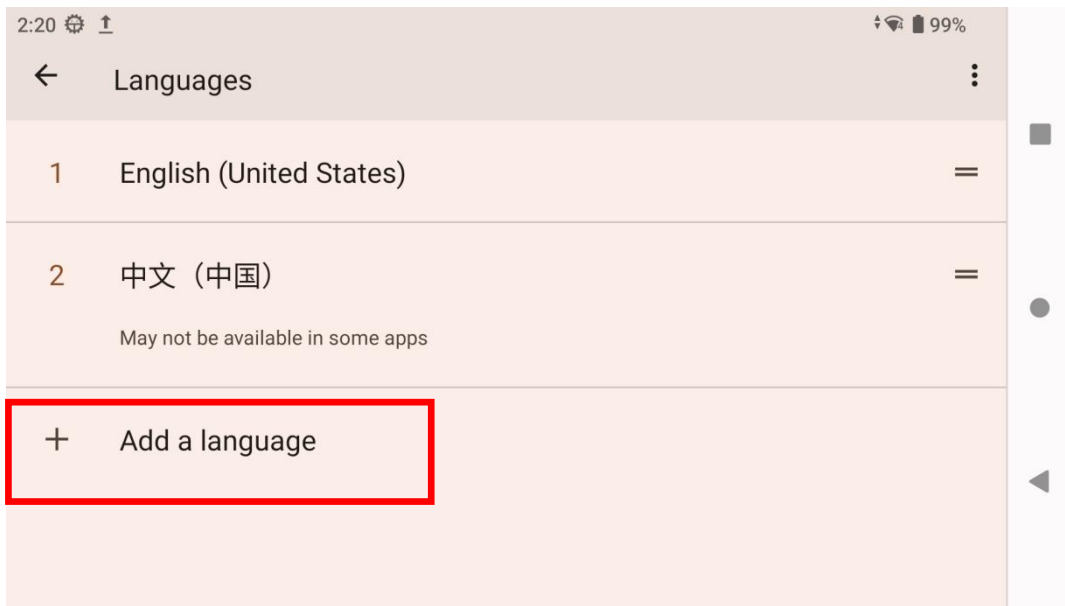


5. Language settings

Click Settings > select System > select Language&Input > click Languages > select Add a language > drag the language you want to set to the first place to modify the system language.

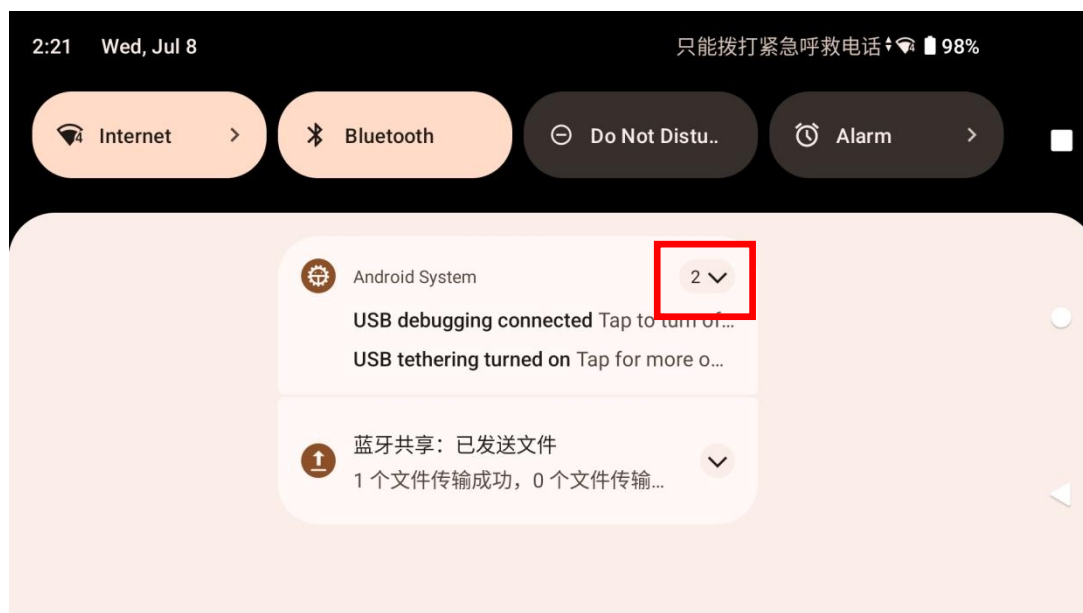
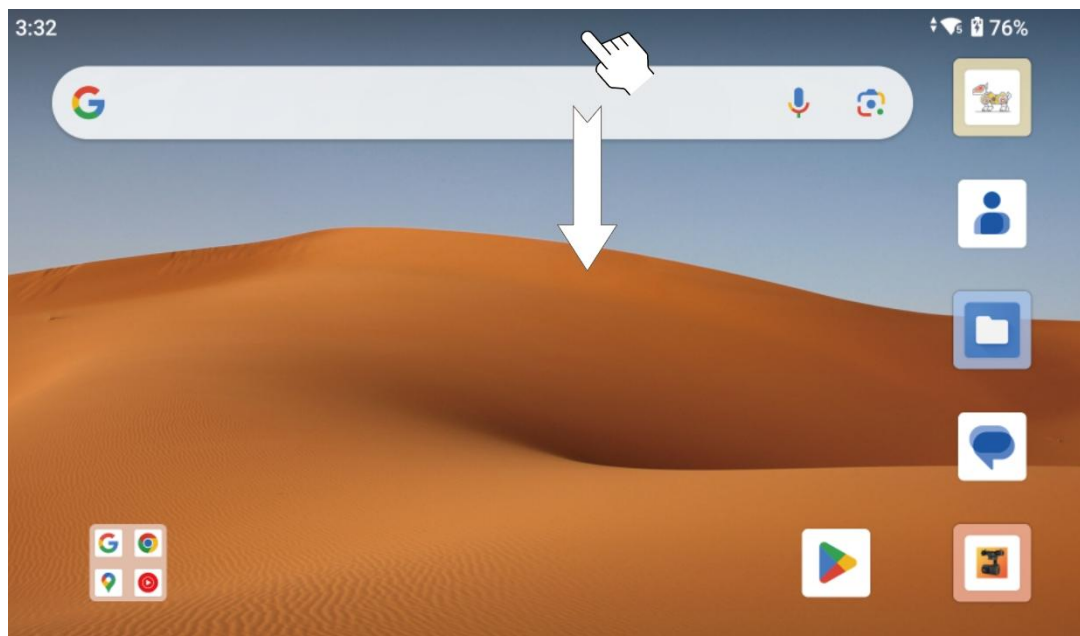


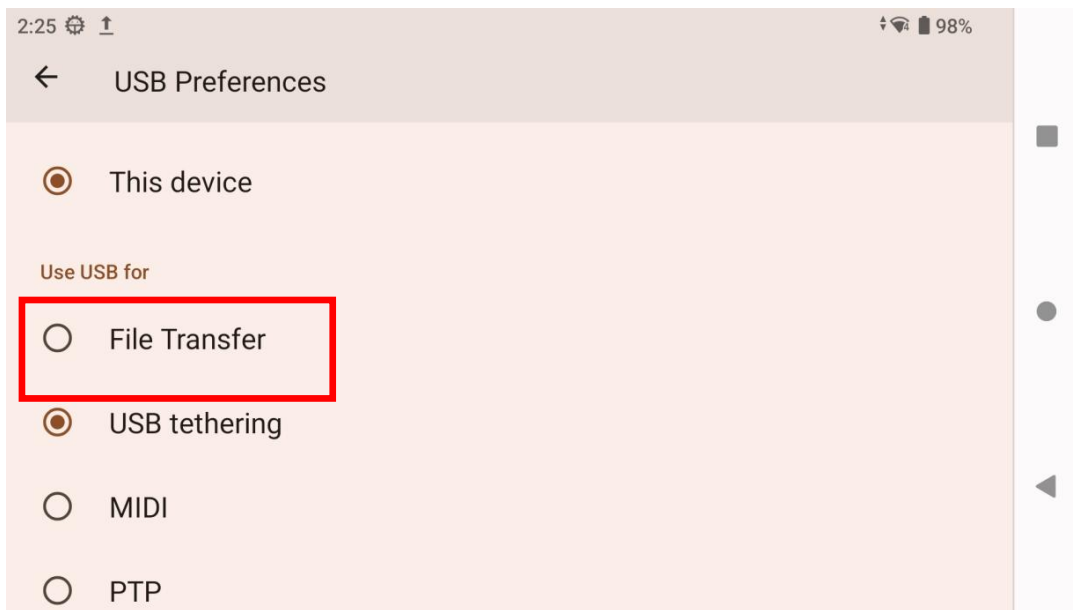
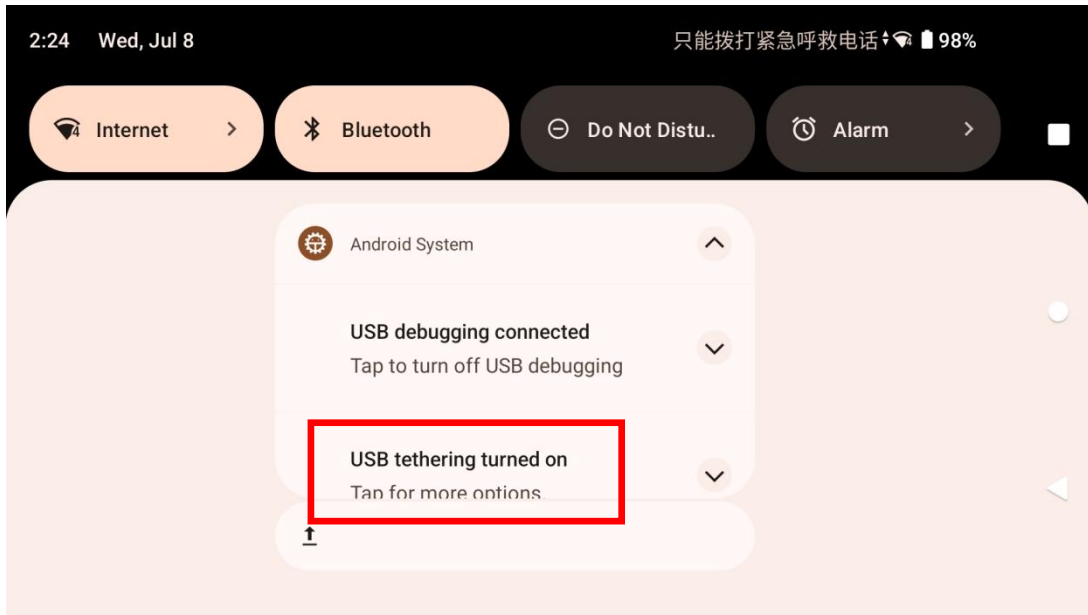




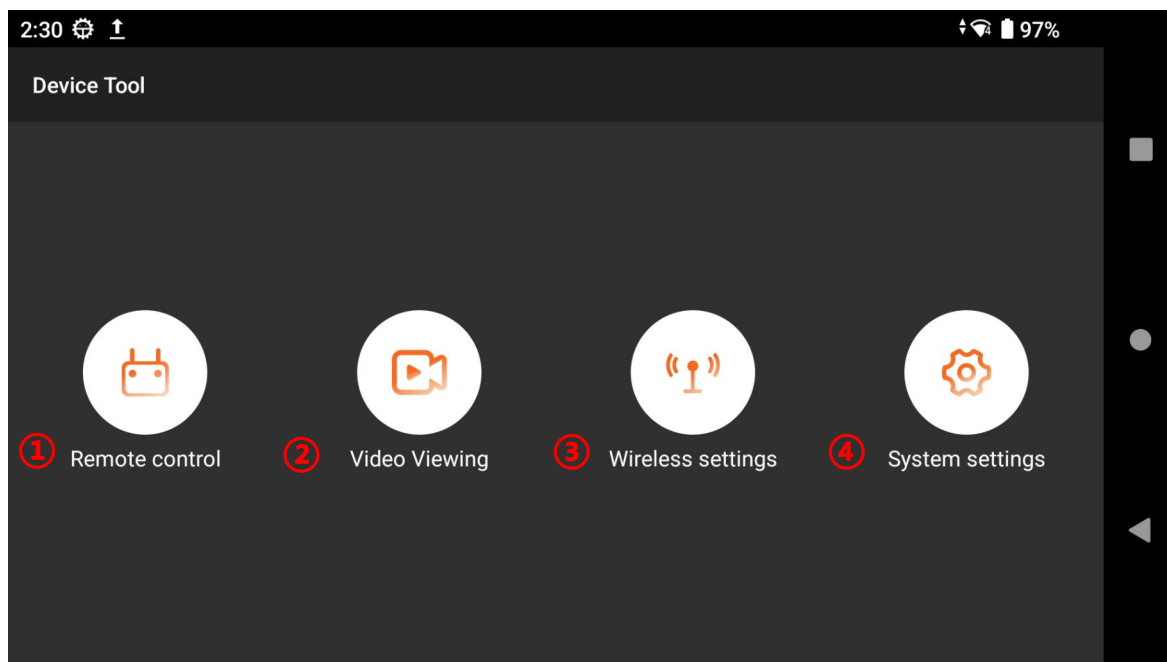
6. Transferring files via computer

Connect the remote controller to the computer using the type-c port, enter the control centre and click “View more” , select “File Transfer” .

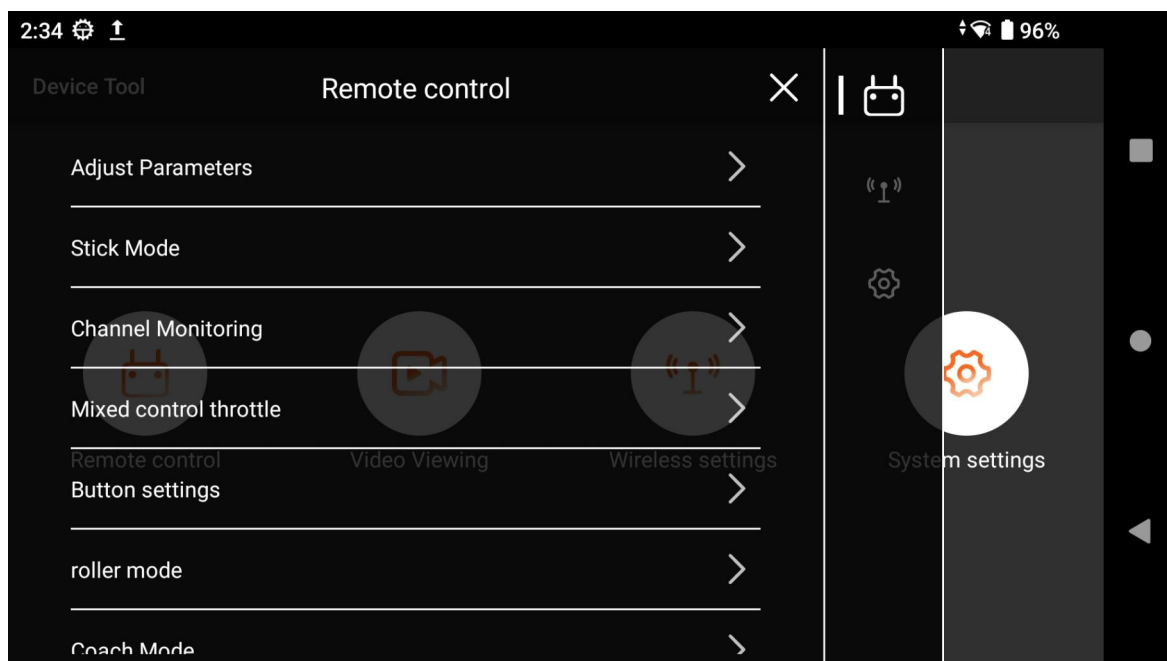




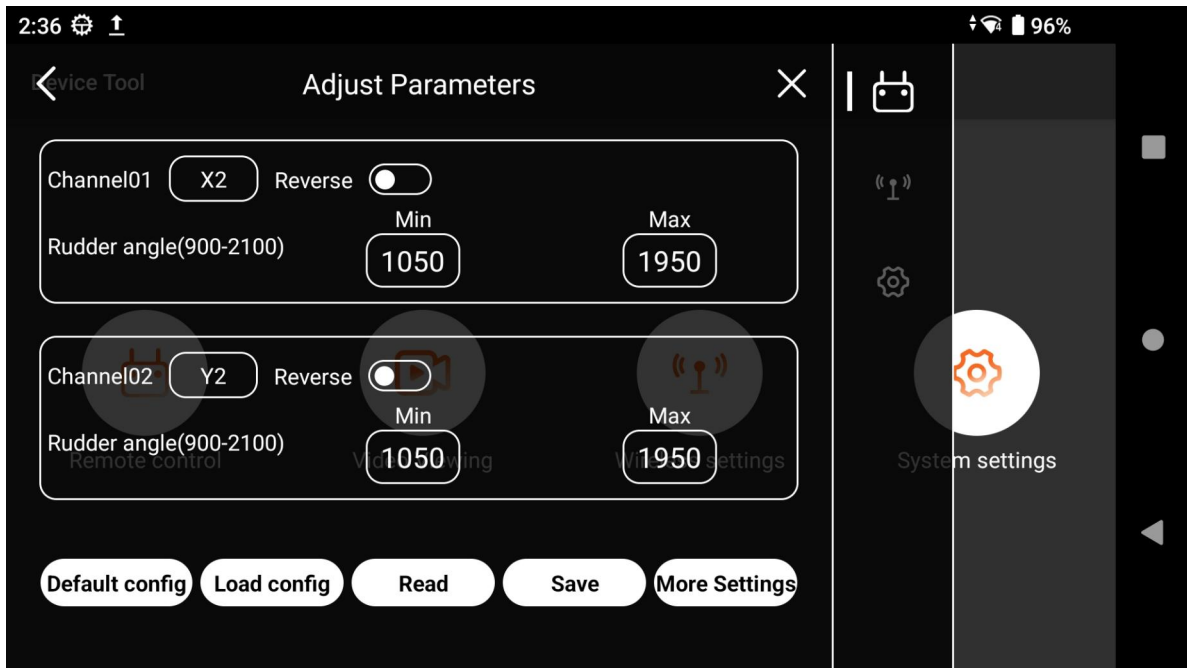
7. Device helper introduction



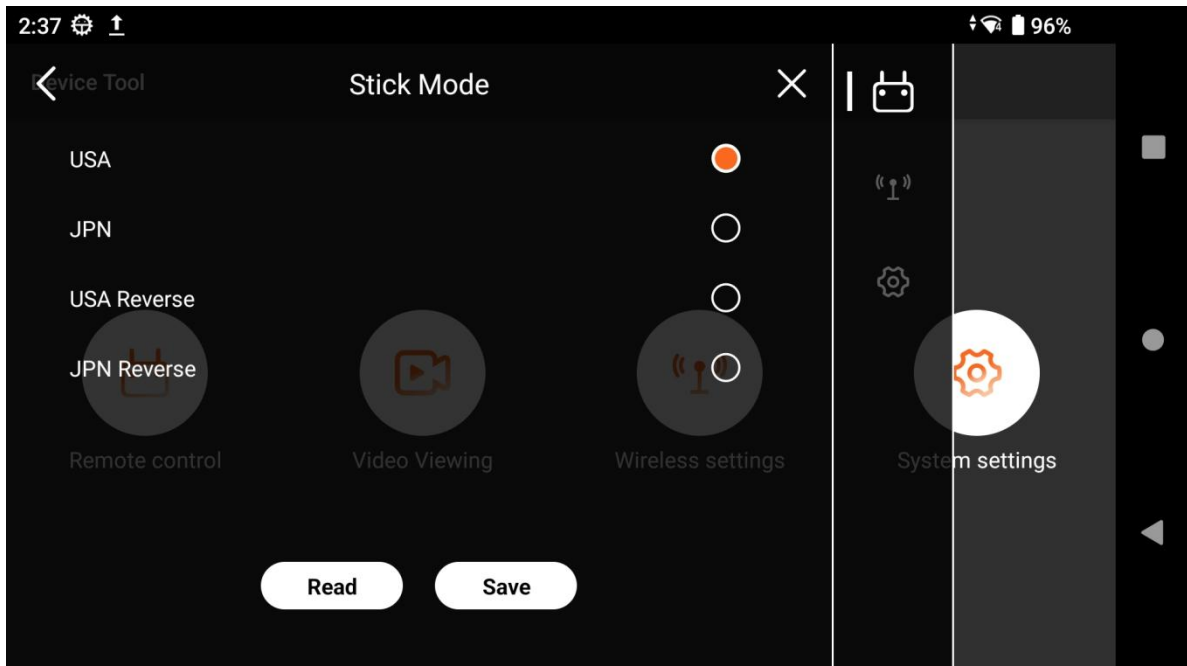
①Remote controller setting: you can set the remote control parameters, the hand shape (default American hand), and check the rudder value.



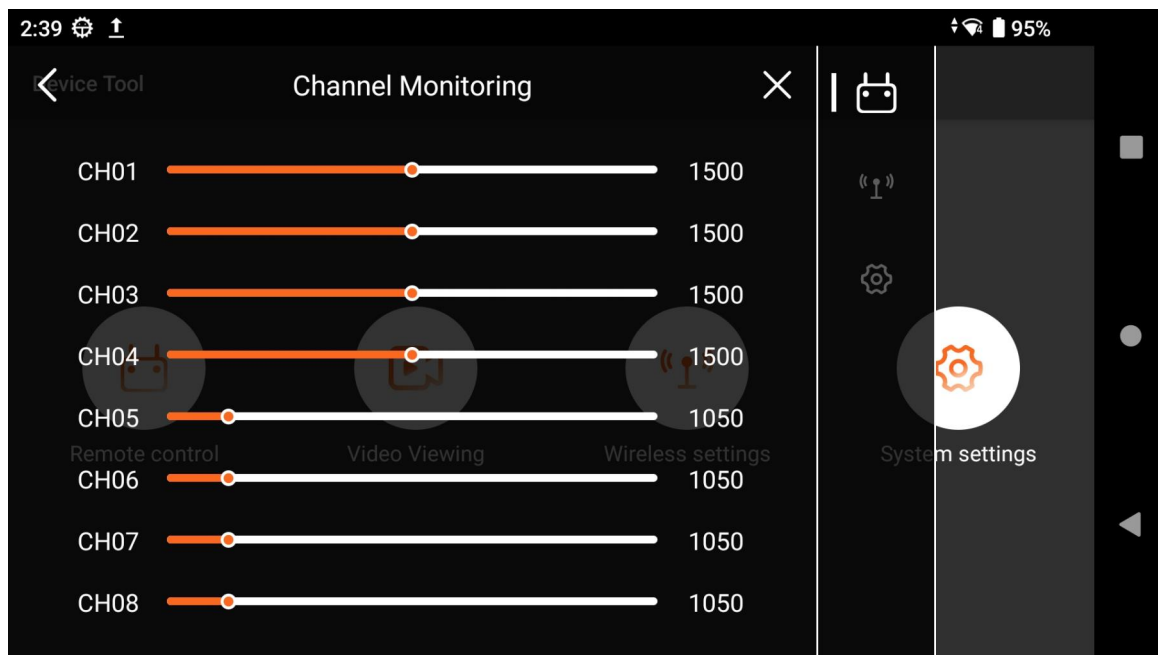
Remote control parameter adjustment: Customizable button channels, reverse settings, and modification of maximum and minimum rudder input values.



STICK MODE: you can set the hand shape of the remote controller, default American Style.

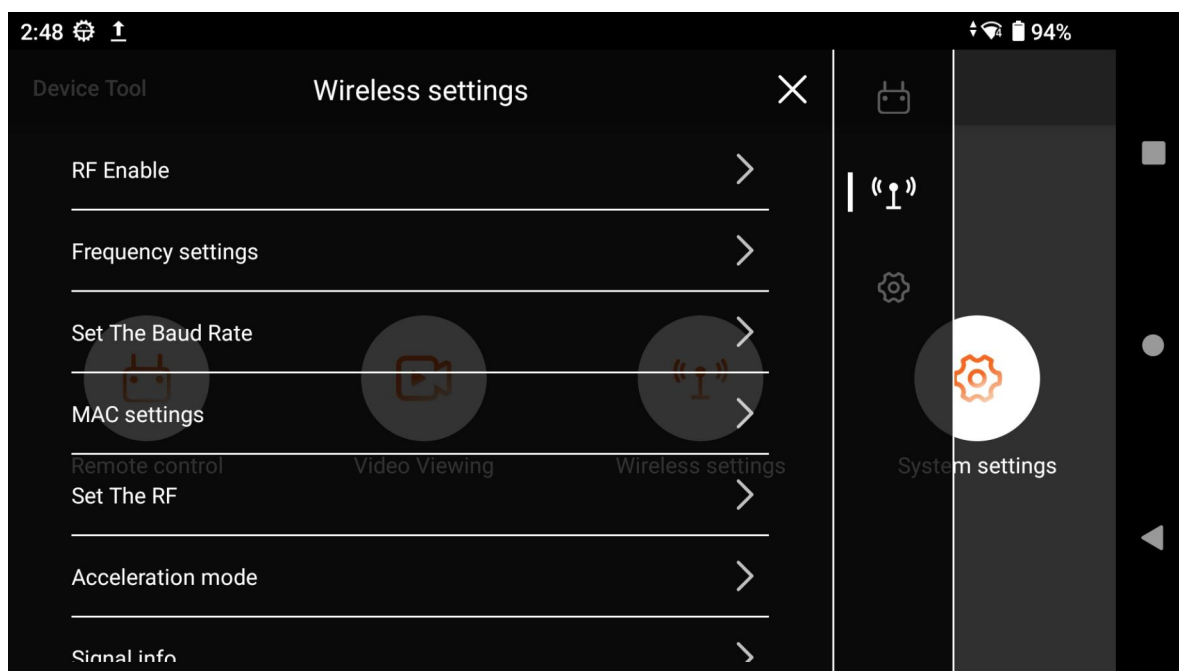


CHANNEL MONITORING: you can view the real-time rudder value of each channel of the remote controller.

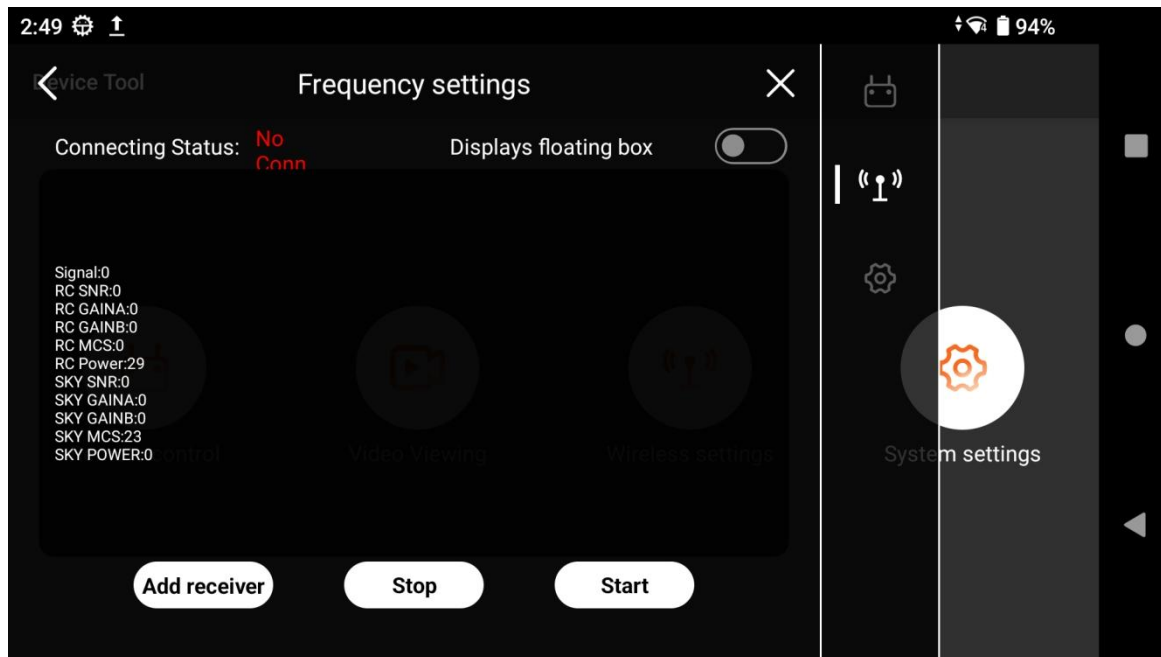


②VIDEO VIEWING: you can view the video returned by the camera.

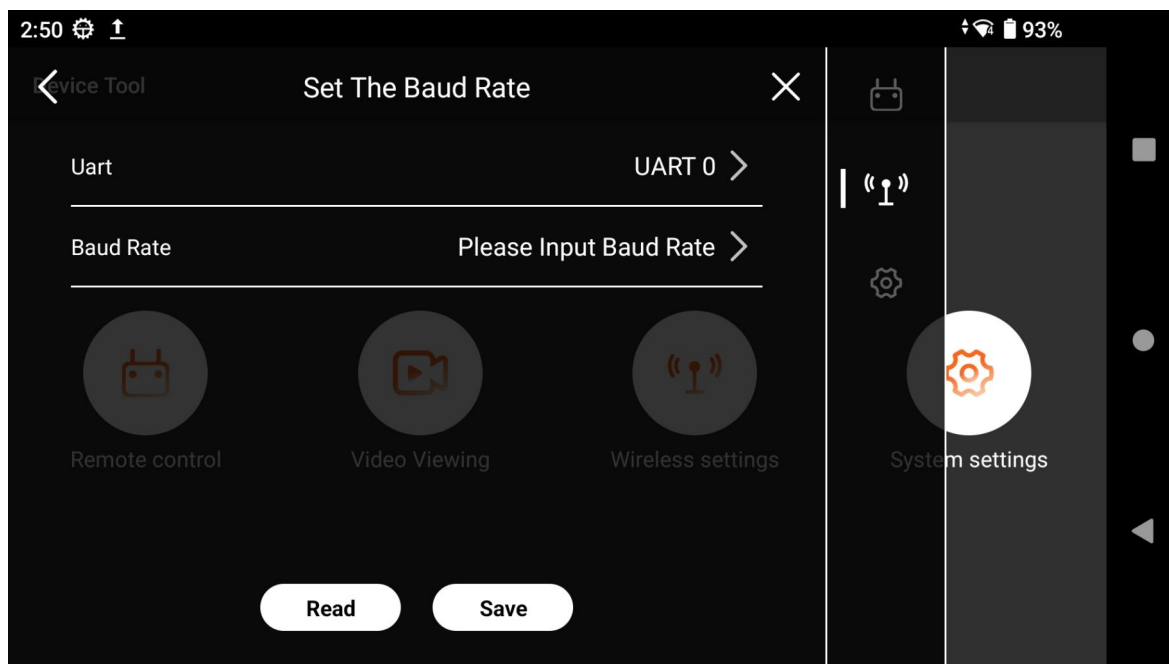
③WIRELESS SETTINGS: Allows for frequency pairing, modification of receiver serial port baud rate, and other operations.



FREQUENCY PAIRING: Click "Start Pairing" will begin the pairing process. Clicking "Add Receiver" will allow you to start pairing with a new receiver, and the initial pairing information will be retained.



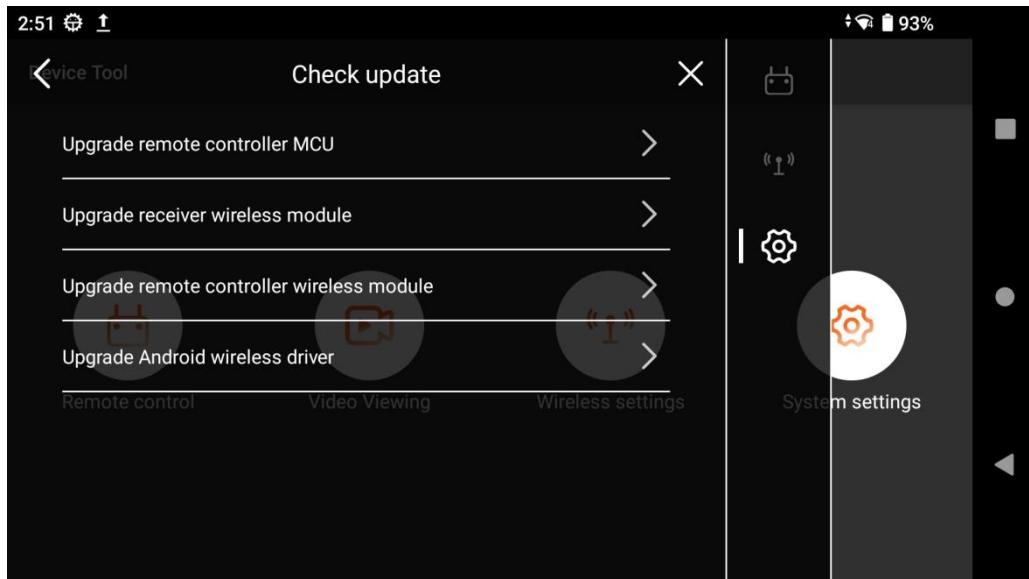
Baud rate setting: Modify the receiver's serial port baud rate.



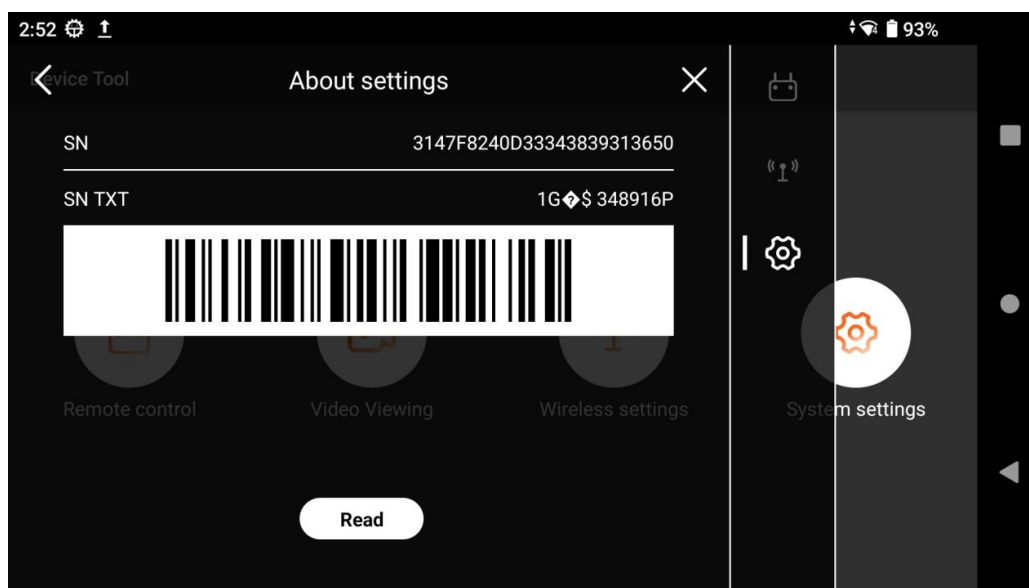
④System settings: upgrade firmware and view remote controller serial number.

Device Upgrades:

- 1.Upgrade Remote Controller MCU Firmware: Upgrade the firmware of the remote control joystick micro controller;
- 2.Upgrade Receiver Wireless Module: Wirelessly upgrade the receiver's RF firmware (the receiver must be upgraded first; it needs to be powered on and connected to the remote controller before upgrading);
- 3.Upgrade Remote Controller Wireless Module: Upgrade the remote controller's RF firmware;
4. Upgrade Android Wireless Driver: Upgrade the Android wireless driver.



SNS N: remote control to view SN.



8. Remote controller frequency pairing

GR01 receiver

Method 1:

- ①The remote controller is switched on, the receiver is powered on, the green light is always on after power on, the blue light flashes intermittently and the fan rotates intermittently.
- ②Long press the receiver frequency pairing button until the blue light flashes rapidly and then release.
- ③Open the Device Helper on the remote controller-wireless settings-frequency pairing setting-click "start to frequency pairing" -start frequency pairing, confirm the frequency pairing, and wait for the display to show successful frequency pairing.
- ④The receiver indicator light will be blue when the frequency pairing is successful.

Method 2:

- ①Power on the receiver quickly four times. The fourth power-on will automatically enter frequency pairing mode, and the blue light will flash rapidly.
- ②Open the device helper on the remote controller-> Wireless Settings -> Frequency Pairing Settings -> Click Start Pairing -> Confirm pairing and wait for the pairing success message.

③Once pairing is successful, the receiver indicator light will remain solid blue.

Note: Please keep the remote controller and receiver within 50cm during pairing.

G12 RX receiver

Method 1

①Power on the remote controller and the receiver. After powering on, the red light will be solid, and the green light will flash intermittently.

②Short-circuit the GND and KEY pins of the receiver until the green light flashes rapidly, then release the short-circuit pins.

③Open the Device Helper on the remote controller--> Wireless Settings --> Frequency Pairing Settings --> Click Start Pairing --> Confirm pairing and wait for the pairing success message.

④ Once pairing is successful, the receiver indicator light will be solid green.

Method 2

①Power on the receiver quickly four times. The fourth power-on will automatically enter frequency pairing mode, and the blue light will flash rapidly.

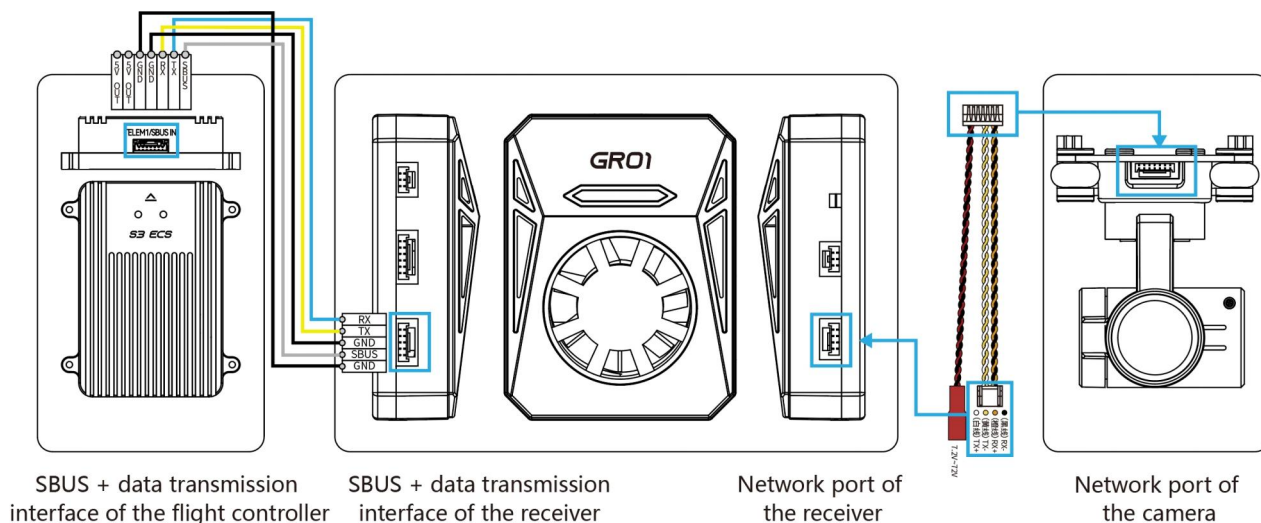
②Open the device helper on the remote controller-> Wireless Settings -> Frequency Pairing Settings -> Click Start Pairing -> Confirm pairing and wait for the pairing success message.

③Once pairing is successful, the receiver indicator light will remain solid blue.

Note: Please keep the remote controller and receiver within 50cm during pairing.

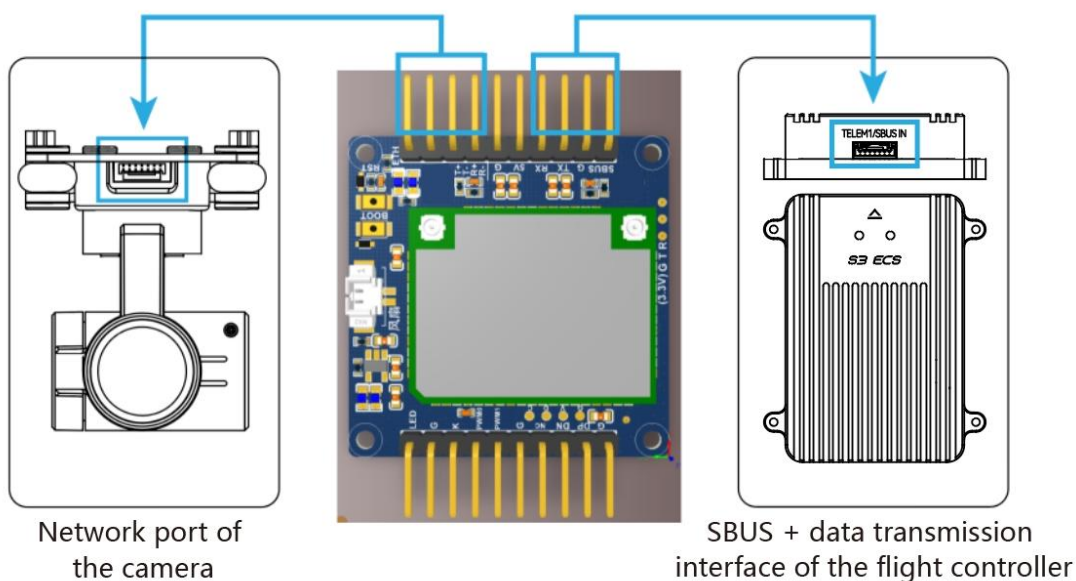
9. Image/data transmission connection

GR01 receiver



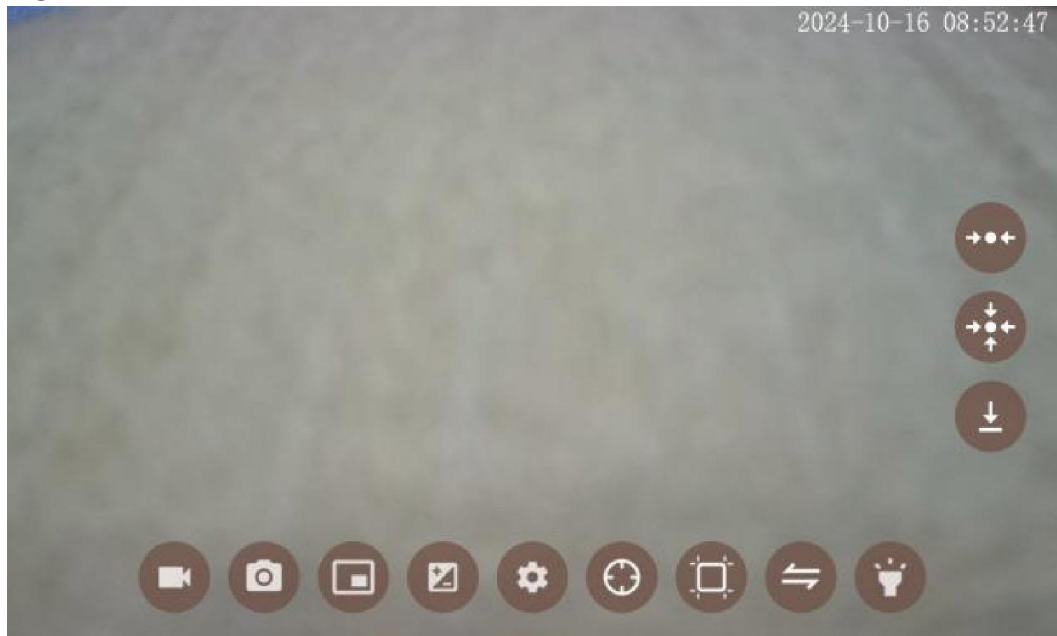
According to the wiring diagram above, the receiver's SBUS+ data transmission interface connects to the flight control SBUS+ data transmission interface, and the receiver's LAN port connects to the camera's LAN port(**Note:** Please refer to the corresponding instruction manual for equipment power supply and other wiring details.)

G12 RX receiver



According to the wiring diagram above, the receiver's SBUS+ data transmission interface connects to the flight control's SBUS+ data transmission interface, and the receiver's LAN port connects to the camera's LAN port.

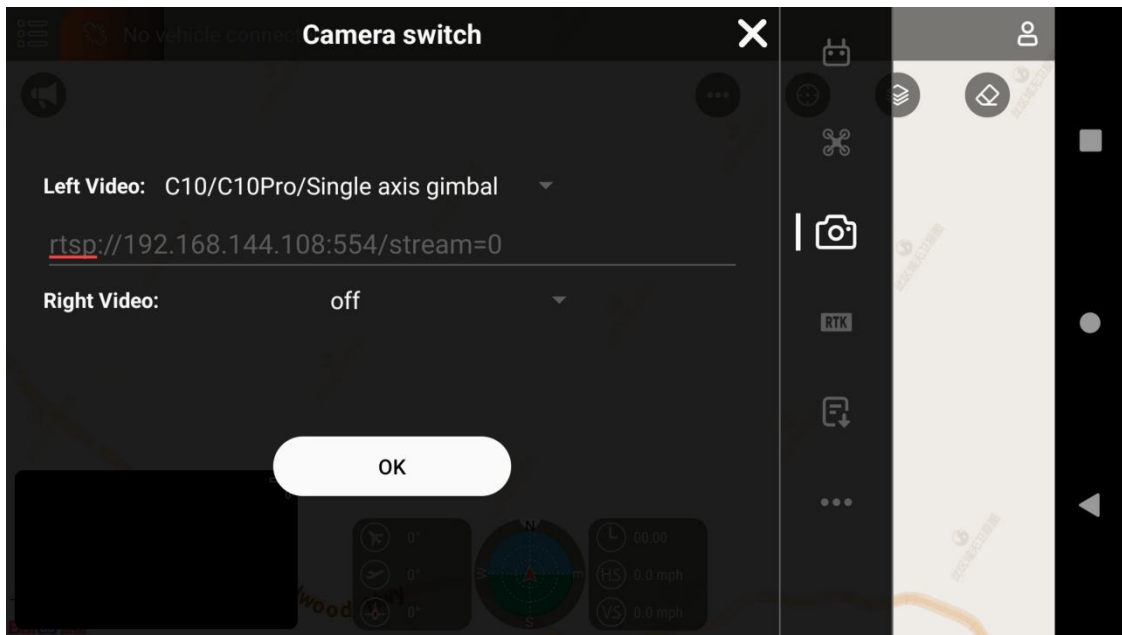
(1) Image-transmission



Take C10Pro as an example, the camera is powered and connected to the receiver's LAN port, open the gimbal FPV to see the image;

If you use a third-party camera, the camera network segment needs to be set to the 144 network segment (192.168.144.XXX), open the Device Tool - video viewing --click the setup button below - video stream address - customization, and enter the RTSP streaming address of the camera.

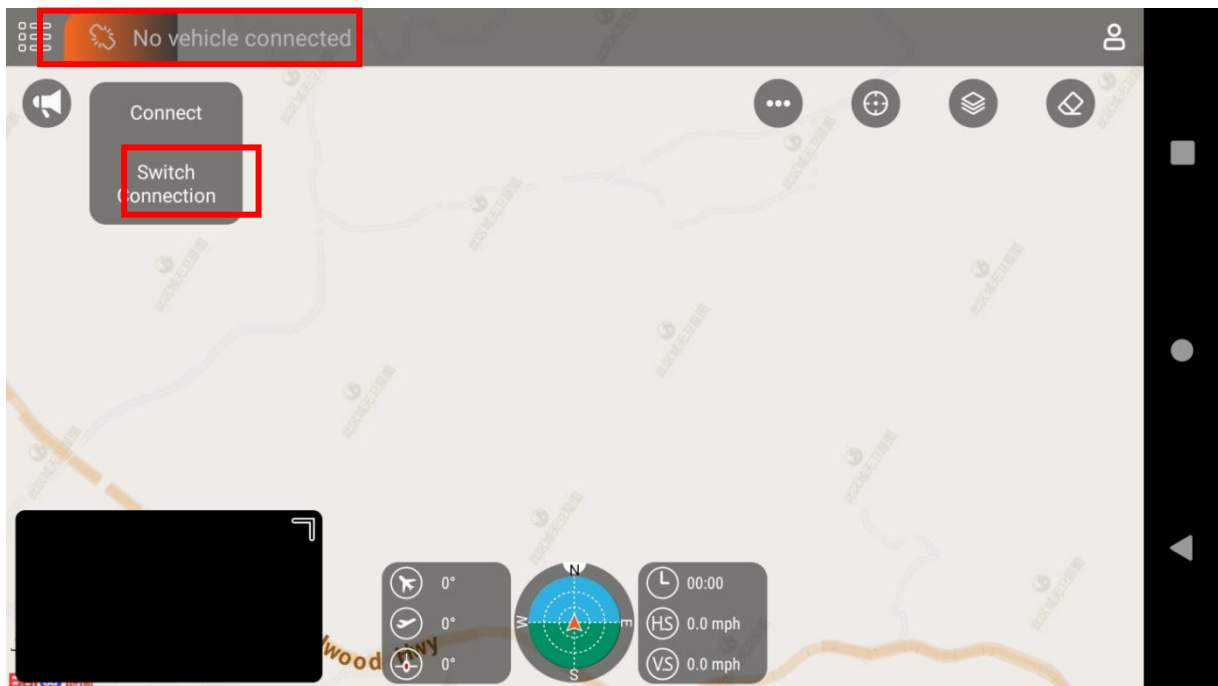
Note: Third party camera RTSP address needs to be asked the manufacturer for it.



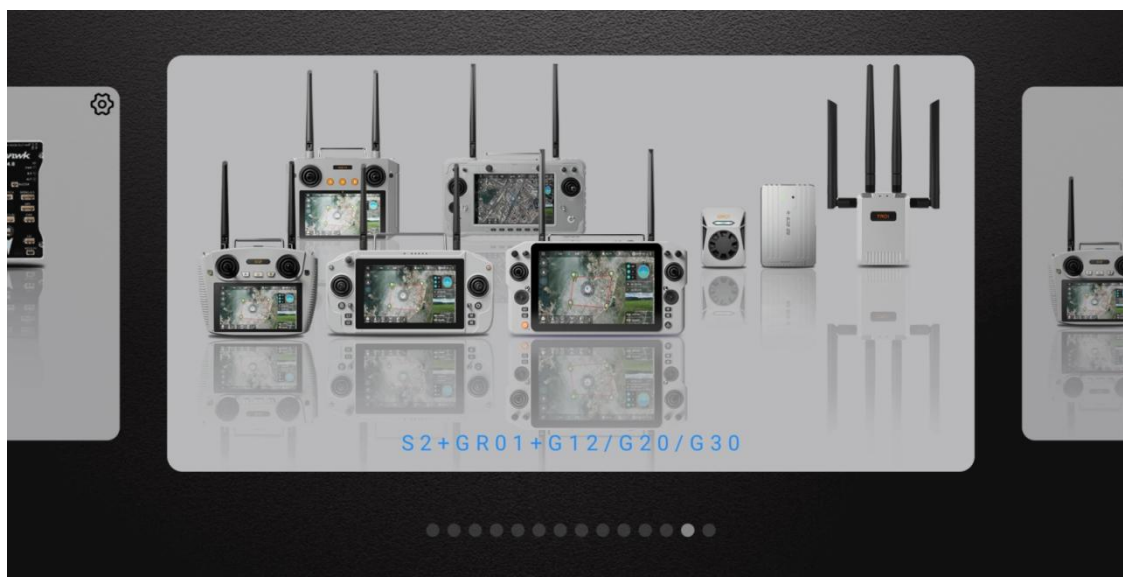
If FLY GCS is used, then in the Common Settings -  -Video Window - C10

(2) Data-transmission

Taking Skydroid FLY GCS as an example, enter the GCS, click on the upper left corner to enter the Switch Connection interface.



Select the S2+G20 combination, click to enter, and then click "Connect".



Note: If the connection fails, please check:

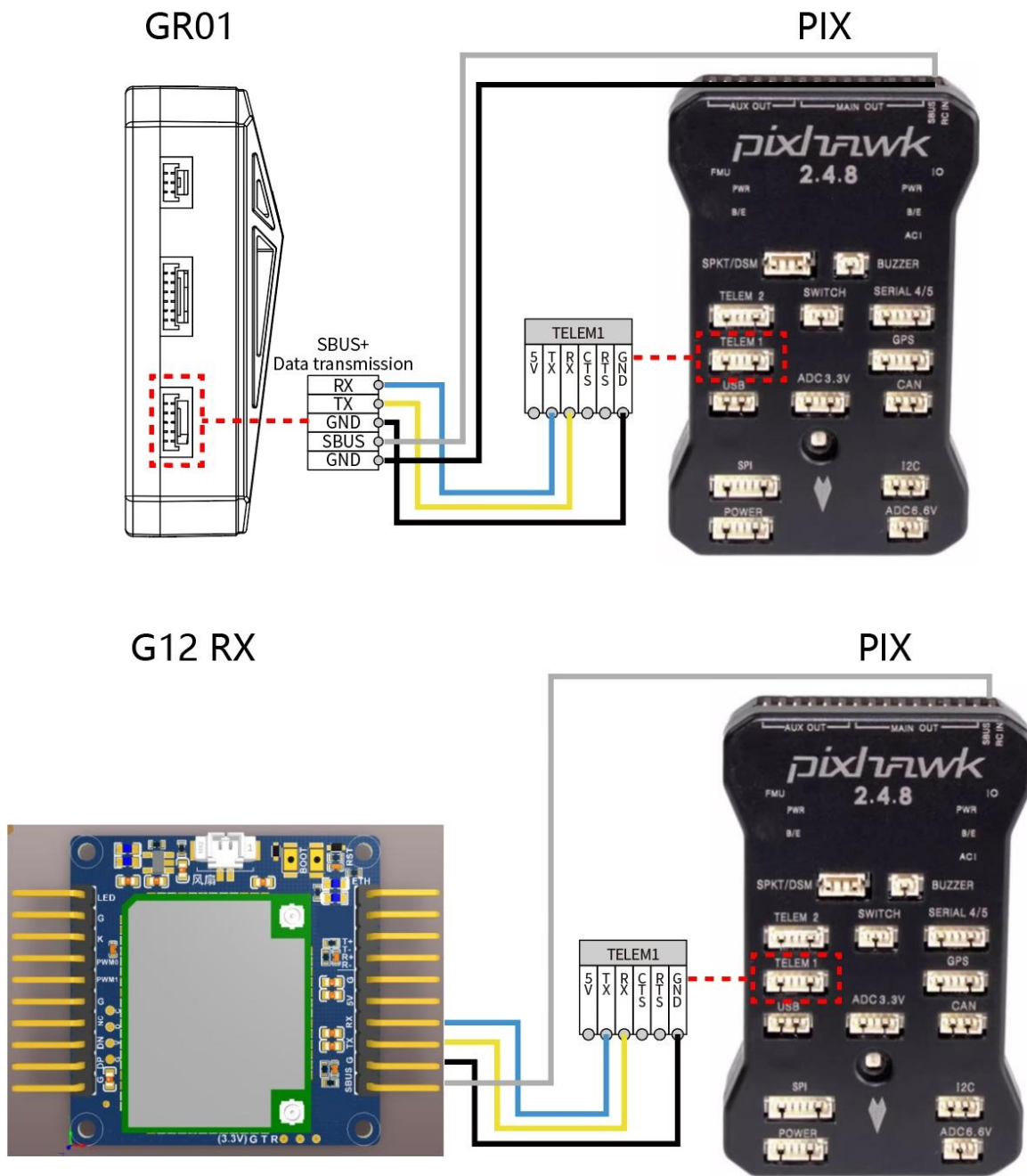
- ①Whether the baud rate of the receiver's serial port is the same as that of the flight controller's data transmission port;(Baud rate of S3 flight controller: 921600)
- ②Whether the wiring definition of the data transmission is correct (RX is connected to TX, TX is connected to RX).

10. How to display data/image transmission on the G20 remote controller QGroundControl ground station?

This guide demonstrates how to connect an open-source flight controller's data transmission cable to the receiver's data transmission port. Using the QGroundControl ground station (hereinafter referred to as QGC, current version V4.4.3 64-bit) as an example, the QGC can be downloaded from the official website: <http://qgroundcontrol.com>.

Note: The S3 flight controller can only use the Skydroid FLY ground station; do not use QGC for connection

Open-source PIX flight controller SBUS+ data transmission connection diagram:

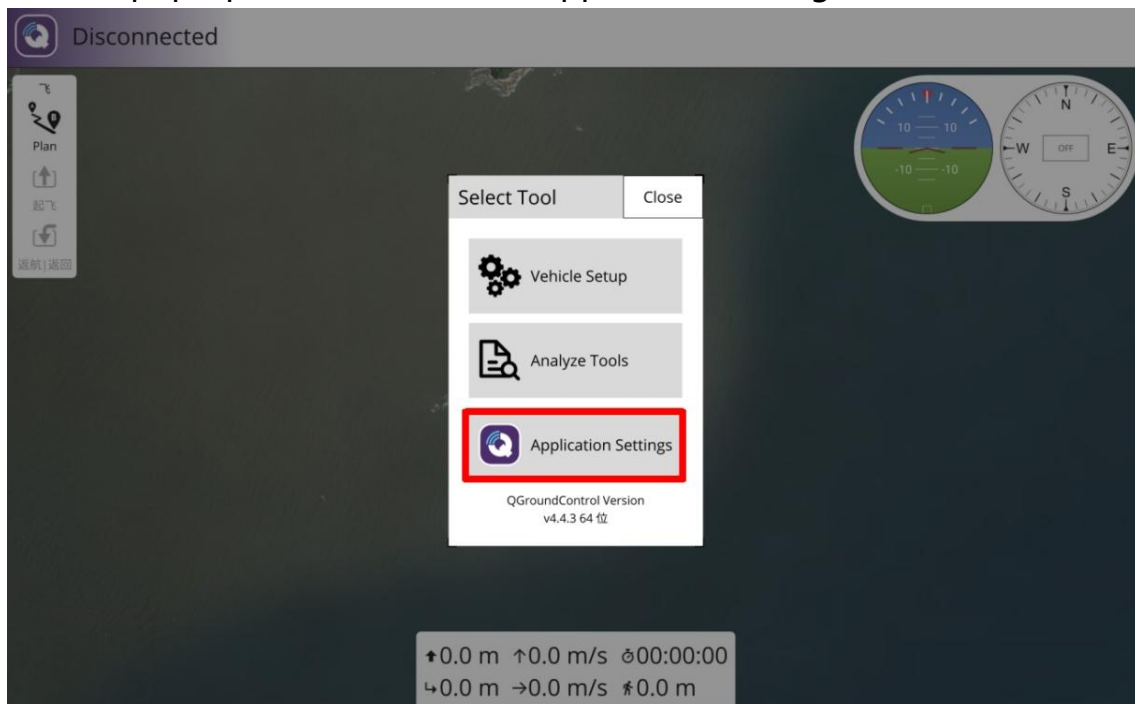


10.1 QGC data-transmission setting

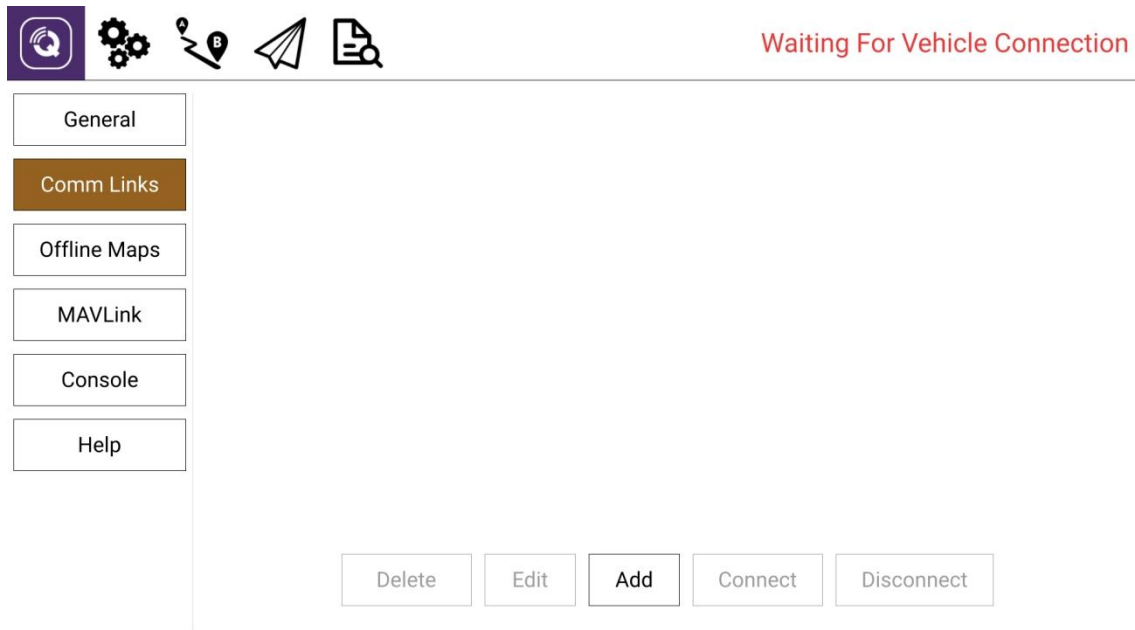
(1) Click on the upper left corner Q icon of QGC.



(2) On the pop-up window, choose "Application Settings" .



(3) Click on Communication Connections, then click Add.



(4) Data transmission settings:

- ① Add a name in NAME;
- ② Check "Automatically connect at start";
- ③ Set the Type (connection method) option to UDP;
- ④ Set the Port to 14551;
- ⑤ 127.0.0.1:14552; Enter the data transmission IP address in the Server Addresses box: 127.0.0.1:14552;
- ⑥ Click Add Server;
- ⑦ Click Confirm.



Waiting For Vehicle Connection

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

Create New Link Configuration

General

Name: ①

Type: ③

☒ Automatically Connect on Start ②

☐ High Latency

UDP Link Settings

OK Cancel



Waiting For Vehicle Connection

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

Create New Link Configuration

UDP Link Settings

Listening Port: ④

Target Hosts:

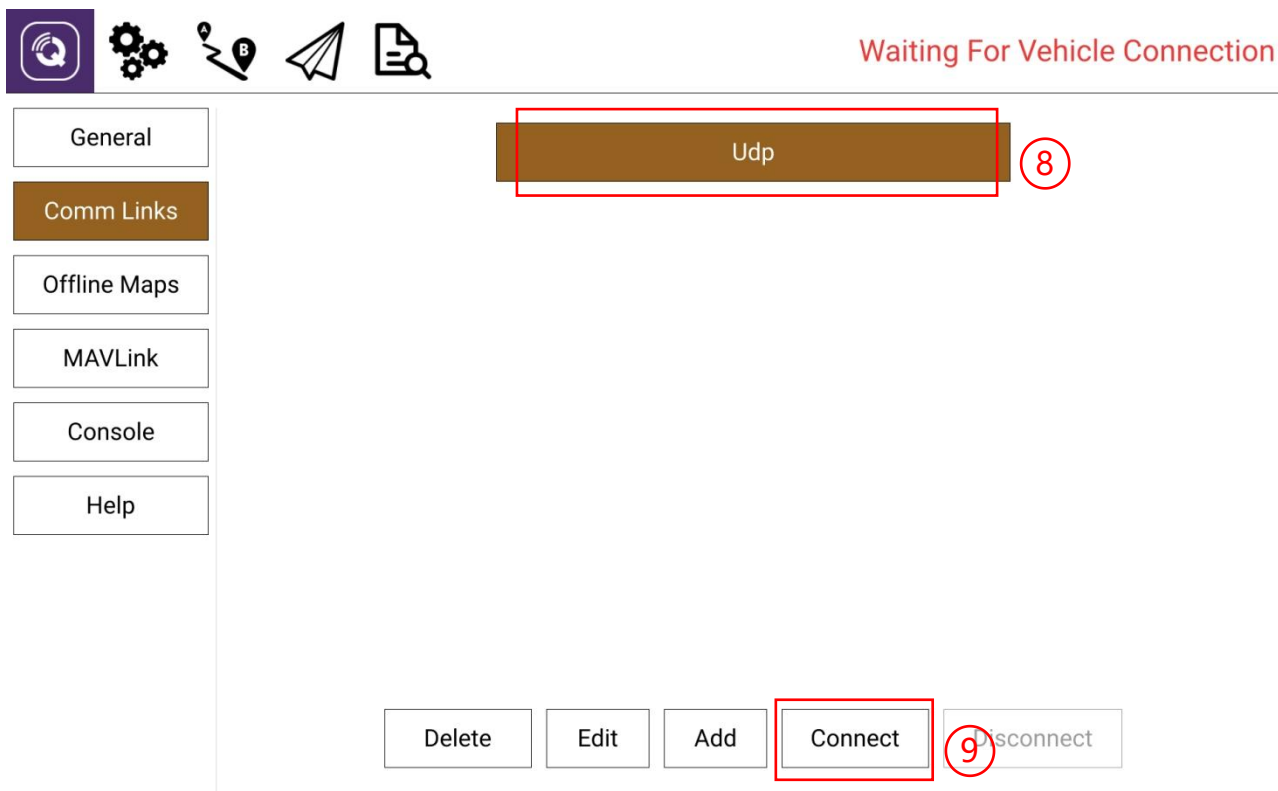
⑤

⑥

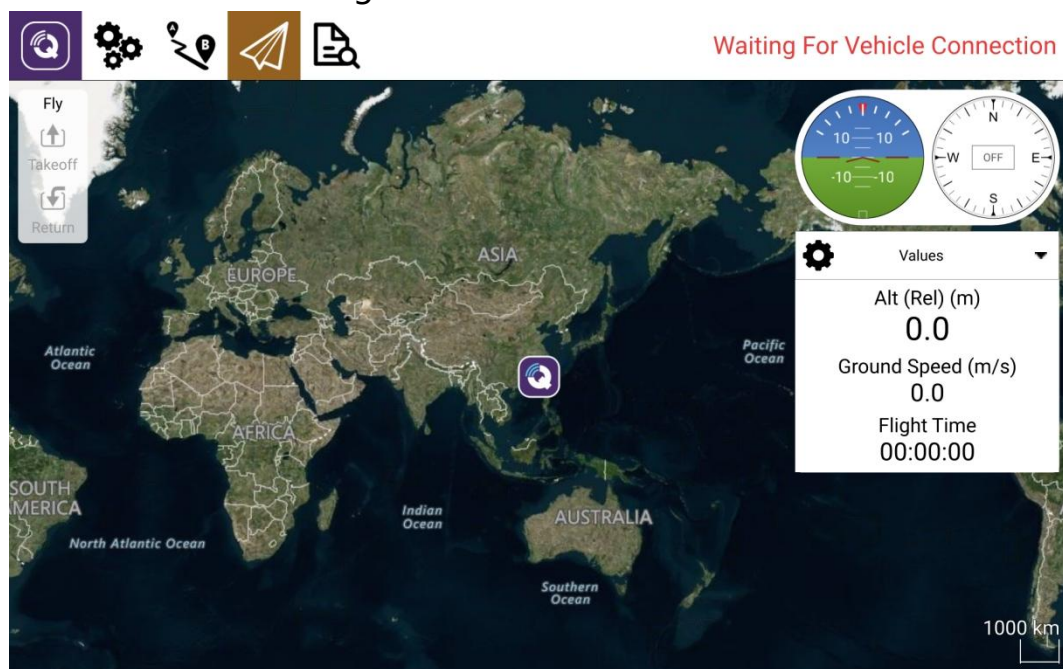
⑦ OK Cancel

⑧ Click to select the UDP you just named;

⑨ Then click Connect.

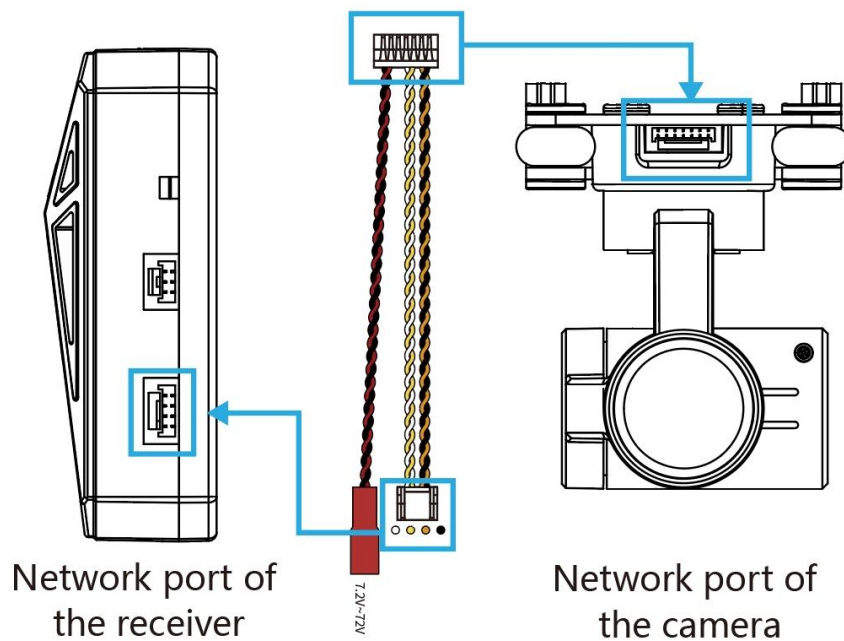


(5) Normal connection to flight controller data transmission

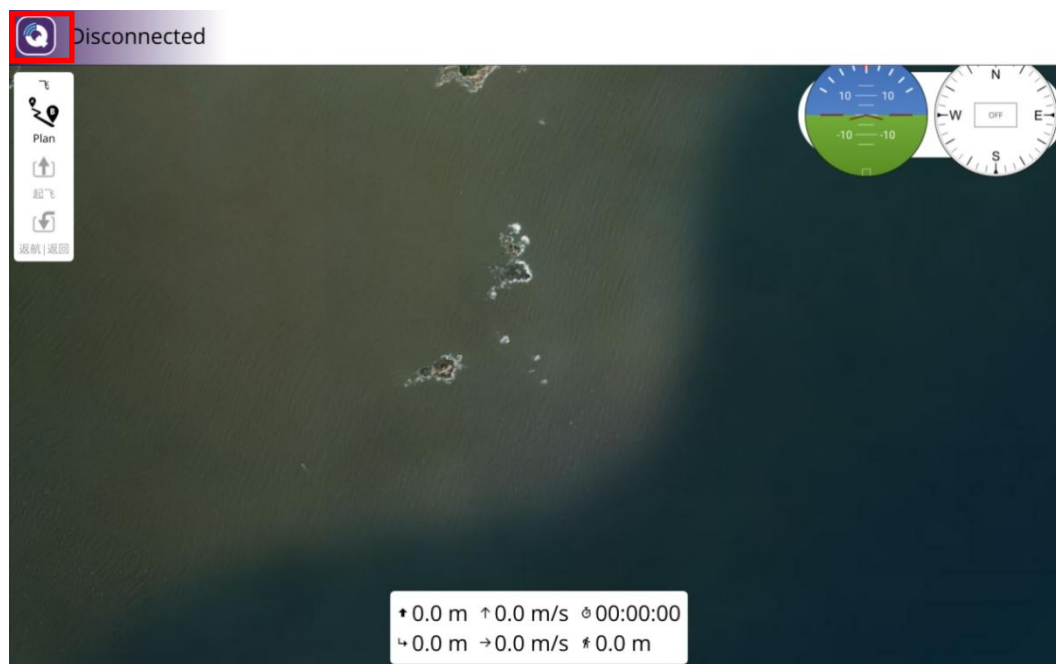


10.2 QGC image-transmission setting

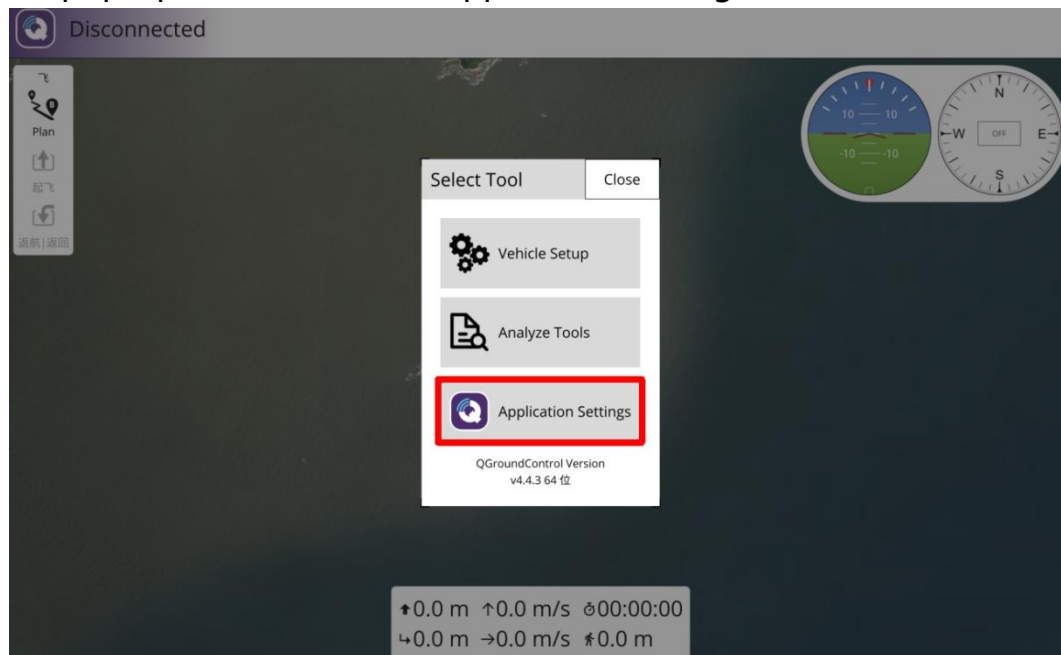
Using the G12 remote controller QGC ground station as an example, connect to the C10PRO camera for image transmission (the device helper needs to be closed on the background).



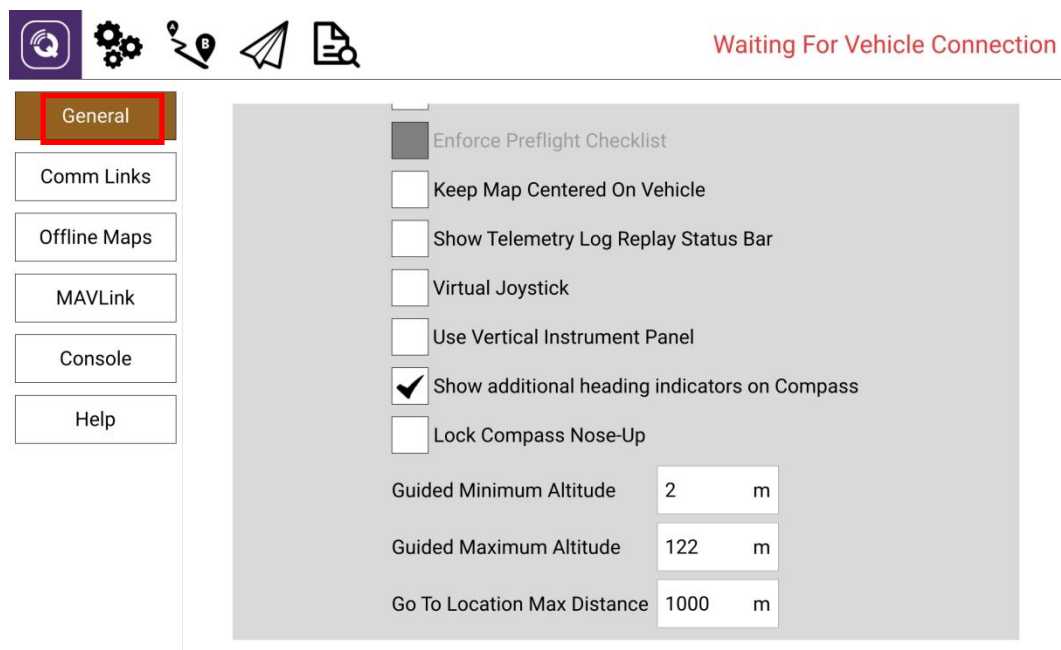
(1) Open QGC, click the upper left corner' s Q icon.



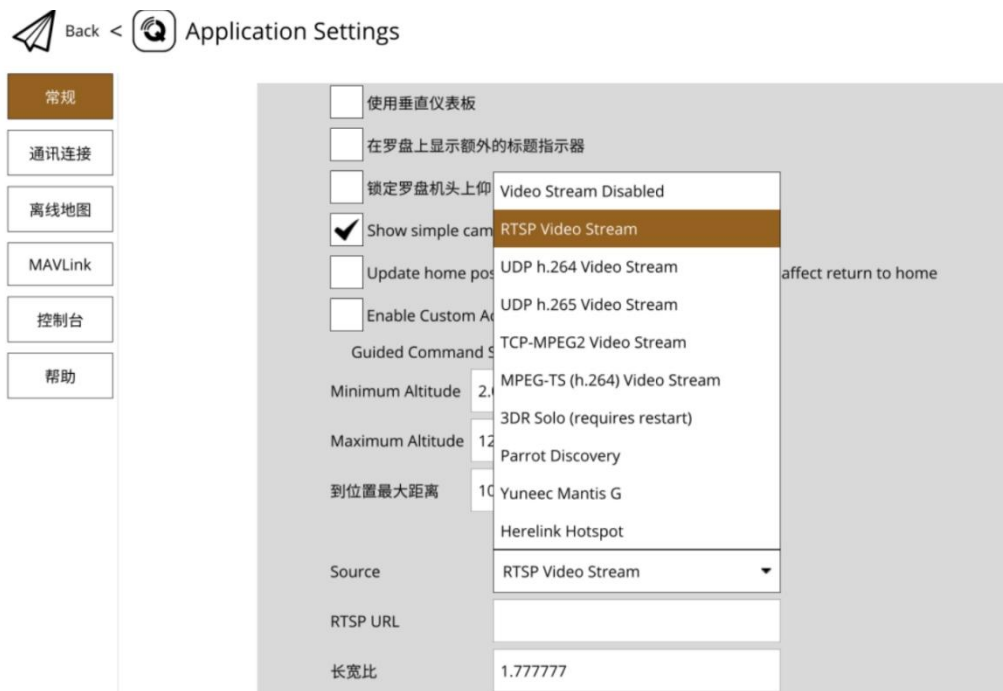
(2) On the pop-up window, choose Application Settings.



(3) Click General.



(4) Change the "Source" (video source) to RTSP Video Stream.



(5) Enter the RTSP address of the LAN port camera in the RTSP URL field.
The RTSP address for the C10PRO/3-in-1 camera LAN port version (requires connection to C10PRO) `rtsp://192.168.144.108:554/stream=0`.

The C12 dual-sensor RTSP addresses are:

`rtsp://192.168.144.108:554/stream=1`

`rtsp://192.168.144.108:555/stream=2`

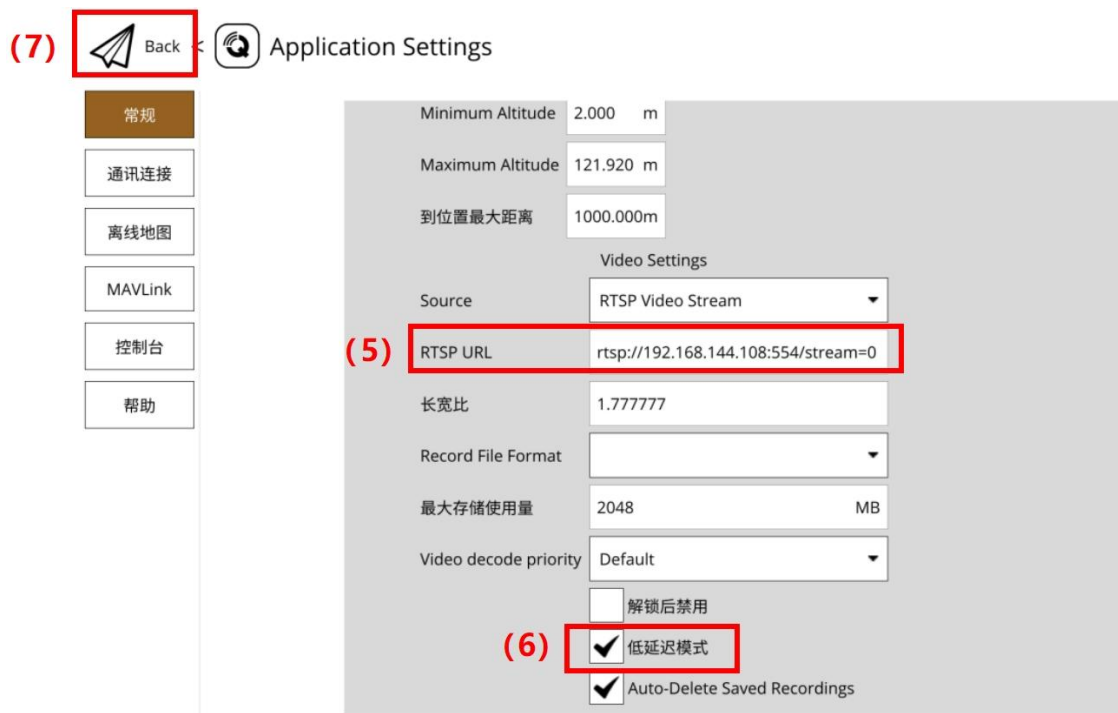
C20 是 `rtsp://192.168.144.108:554/main`

Third-party cameras only support pull streaming. After customizing the settings, enter the corresponding RTSP pull streaming address for the camera below.

Note: The camera network segment needs to be set to 144.

(6) Check the low latency mode

(7) Click the drone icon in the upper left corner to return to the flight page.

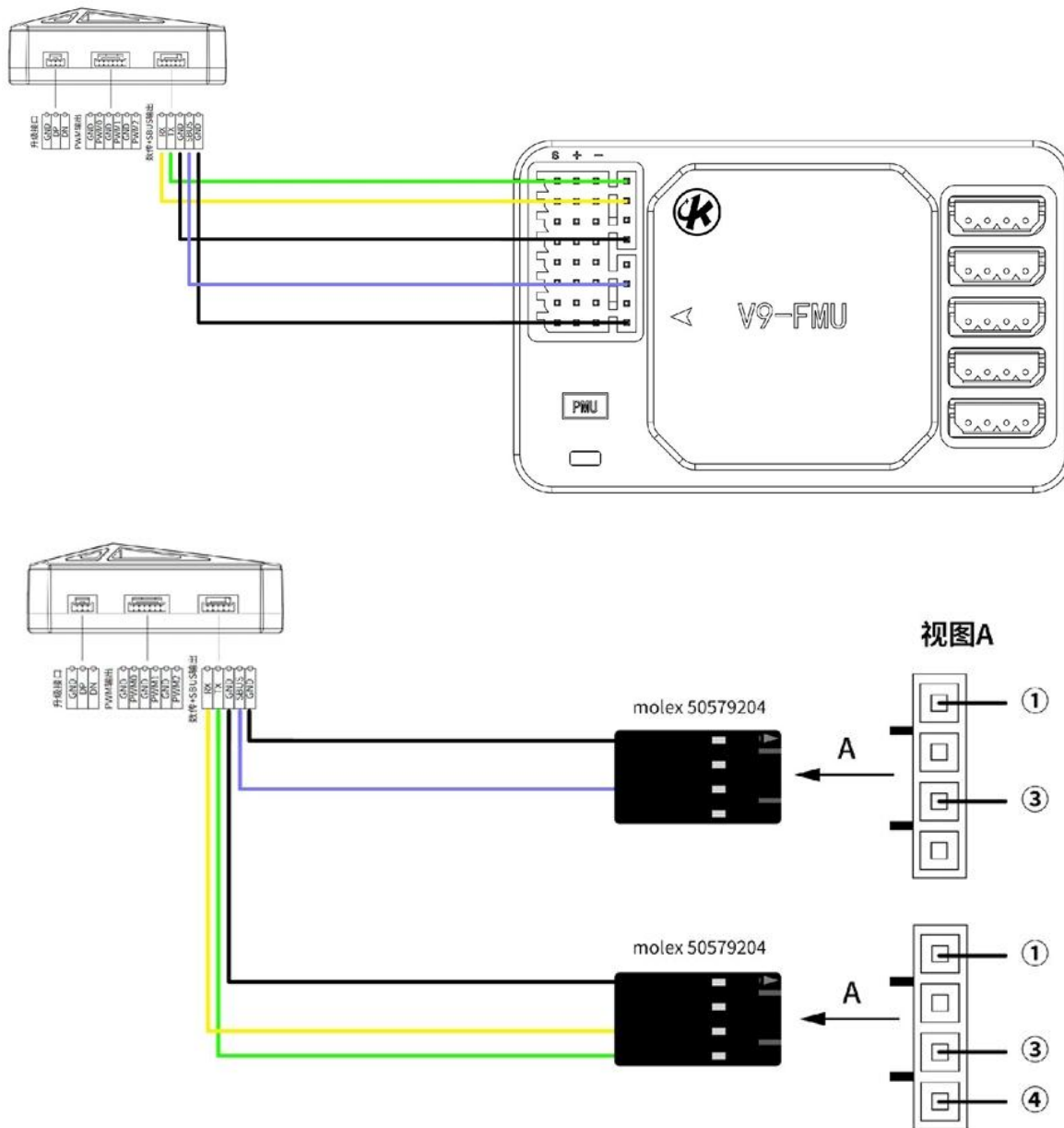


(8) Connect to image-transmission normally.



11. Diagram of third-party flight control connection

Diagram of V9 data-transmission with GR01

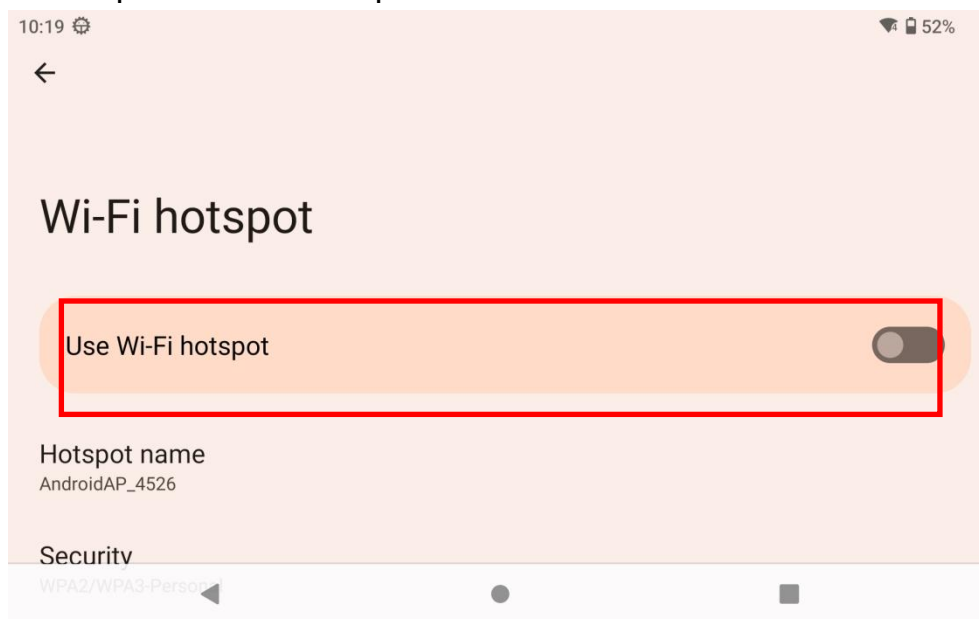


12. Remote Controller Hotspot Sharing for Image Transmission and Data Transmission

Note: This tutorial uses an open-source flight controller as an example. If using a third-party flight controller, please consult your flight controller's technical support to confirm whether this connection is supported.

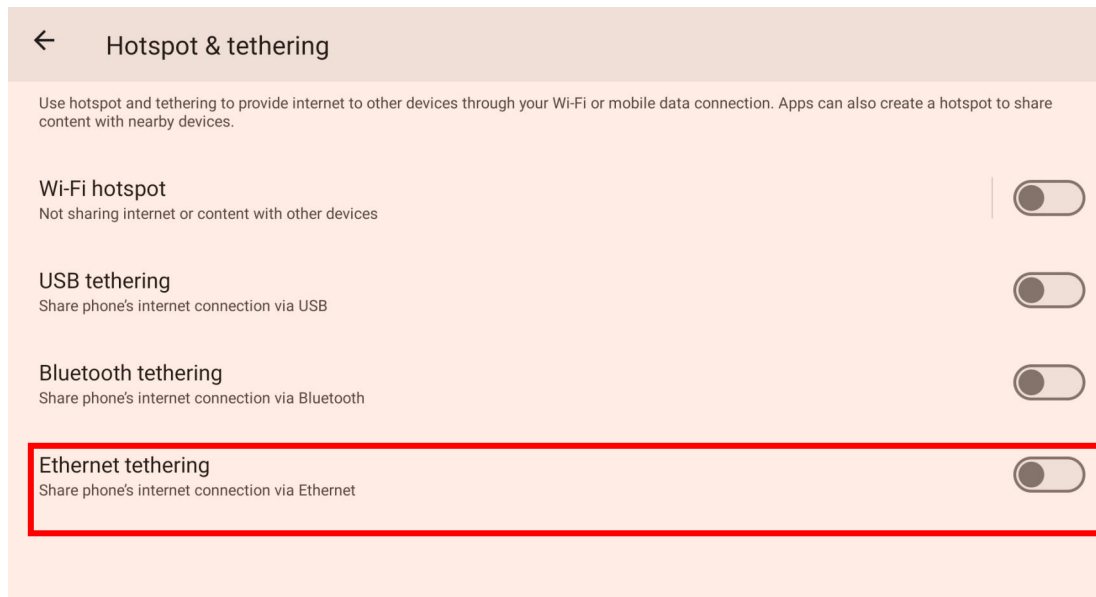
The steps to enable a hotspot on the remote controller are as follows:

(1) Method 1: Open "Settings" -> "Network & Internet" -> "Hotspot & Network Sharing" -> "WLAN Hotspot" -> Turn on "Use WLAN Hotspot", and connect the computer to the hotspot of the remote controller.



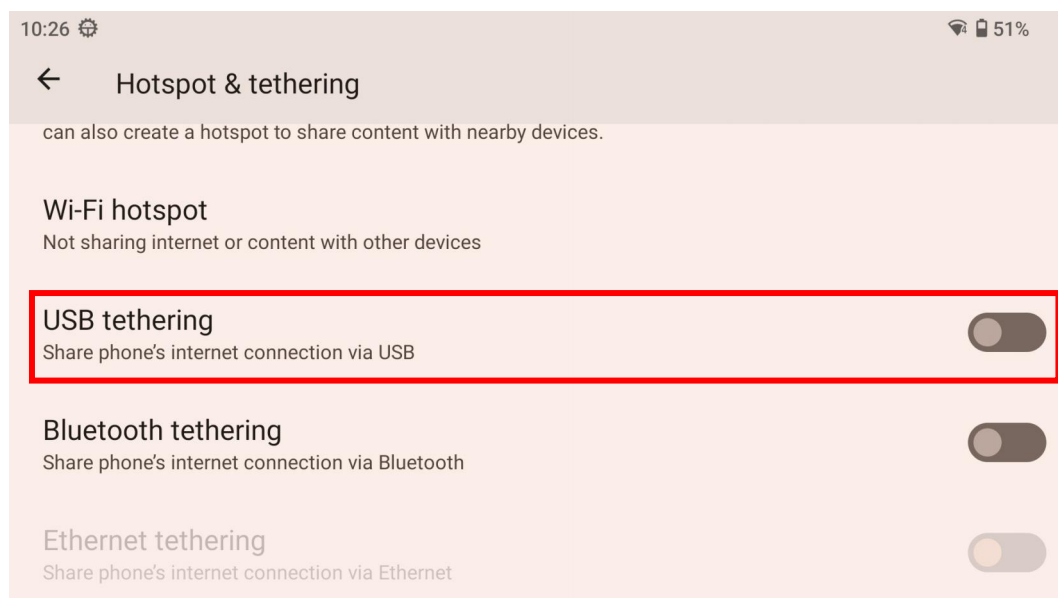
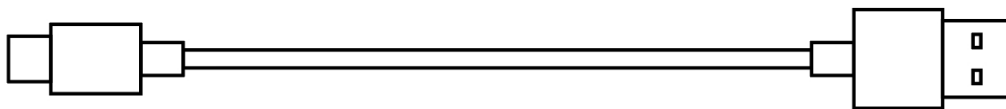
(2) Method 2: Connect the LAN port of the computer to the TYPE-C port of the remote controller with a network cable. Open "Settings" -> "Network & Internet" -> "Hotspot & Network Sharing" -> Turn on "Ethernet Network Sharing".





(3) Connect the TYPE-A port of the computer to the TYPE-C port of the remote controller with an A to C data cable.

Open "Settings" -> "Network & Internet" -> "Hotspot & Network Sharing" -> Turn on "USB Network Sharing".

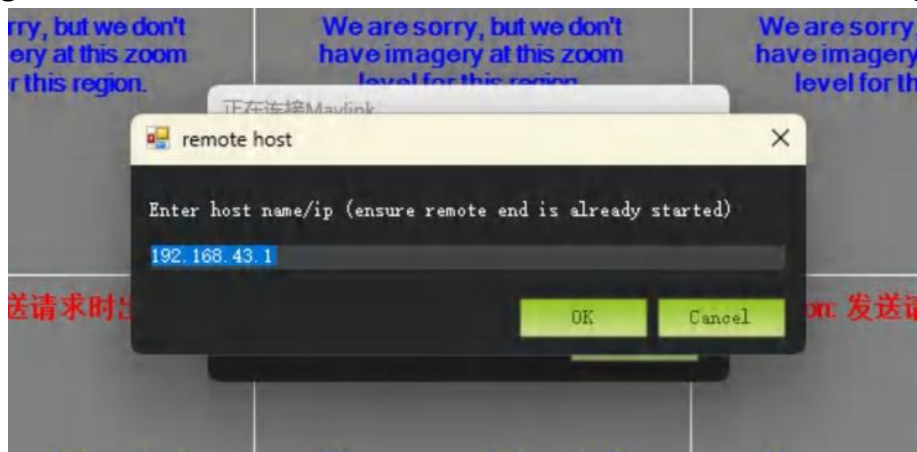


12.1 Data Transmission Sharing

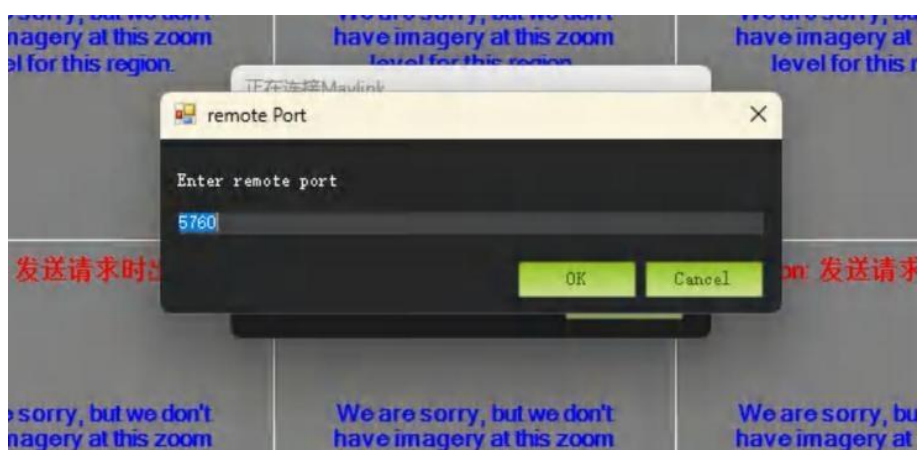
After successfully connecting using one of the above three methods, open Mission Planner. Select TCP as the connection method.



After clicking "Connect", enter the IP address 192.168.43.1. After entering, click "OK".



Enter the port number 5760 and click "OK", then you can connect to the data transmission.



12.2 Image Transmission Sharing

After successfully connecting using one of the above three methods, launch the VLC player on the computer. In the "Media" menu, select "Open Network Stream", and then enter the camera's stream address. As shown in the following figure, you can achieve the sharing of images.

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



13. Parameters

G20 Remote Controller Parameters			
Display	7-inch industrial touch display +sunlight readable display	Resolution	1920*1200
Processor	Qualcomm 6nm processor	Computer type	Android 13
Dimension	277(L)*138(W)*96(H) mm	Weight	1.2kg
Battery	20000mA/H	Endurance time	6~8 hours
RAM	4G	ROM	64G
Operating frequency band	2.4G/5.8G	Channel	16
Dynamic frequency modulation	Automatic frequency hopping	RF power	23dBm@CE/FCC
Remote control range	9KM	Operating temperature	-10°C~55°C
Charging interface	TYPE-C	External interfaces	USBport、SIM card slot、TYPE-C

GR01 receiver parameters			
operating frequency band	2.4G/5.8G	serial port baud rate	57600/115200/921600
power supply voltage	7.2 ~ 80V(XT30)	operating current	12V/300mA
data-transmission port	1 channel	transfer rate	Default Uplink:200 kbps(Upload mode:≤ 17.7Mbps)Downlink:15 Mbps(Download mode: ≤30 Mbps)Note:Enabling the upload/download mode of the assistant will affect communication distance .It is recommended for short-range use only.
LAN port	1 channel	dimension	45.5×60×21.5mm
SBUS output	1 channel	weight	37g
PWM interface	3 channel	operating temperature	-10°C~60°C
RF power	23dBm@CE/FCC	channel bandwidth	1.25MHz/2.5MHz/5MHz/10MHz/20MHz/40MHz

G12 RX receiver parameters			
operating frequency band	2.4G/5.8G	serial port baud rate	57600/115200/921600
power supply voltage	5V	operating current	5V/720mA
data-transmission port	1 channel	transfer rate	Default Uplink:200 kbps (Upload mode:≤17.7 Mbps)Downlink:15 Mbps (Download mode:≤30 Mbps)Note:Enabling the upload/download mode of the assistant will affect communication distance .It is recommended for short-range use only.
LAN port	1 channel	dimension	51×40.8×23.3mm
SBUS output	1 channel	weight	45g
PWM interface	2 channel	operating temperature	-10℃~60℃
RF power	23dBm@CE/FCC	channel bandwidth	1.25MHz/2.5MHz/5MHz/10MHz/20MHz/40MHz

14. Related software downloads

RCSDK (for data link communication; interfaces for remote controller , gimbal, and camera):

Applicable to H12 , H12Pro , H16 , H16Pro , H20 , H30 , G30/G30Pro , G20 , 3-in-1 Camera (Serial Port Version) , 3-in-1 Camera (LAN Port Version) , Serial Port 2-Axis Gimbal , C10 , C20 , C10Pro , C12 , Electronic Gimbal C01.

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

Image-transmission player (supports LAN-port image transmission/serial-port image transmission):

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

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

V、Maintenance and Warranty

Maintenance for Long-Term Storage:

Store the remote controller in a dry and well-ventilated place, and minimize direct sunlight exposure to prevent the battery from overheating. If the remote controller needs to be stored for more than three months, the recommended storage temperature range is 22°C to 28°C. Never store the battery in an environment that is below -20°C or above 45°C.

VI、Transportation and Storage

Warning:

To avoid potential injury and damage, please strictly comply with the following items: Keep children away from the remote controller components, as wires and small parts may pose a hazard to children.

Caution

- 1) Do not immerse the remote controller in water. If it gets wet, please wipe it promptly with a soft, dry cloth and turn off the power immediately.
- 2) Do not subject the battery to mechanical impact, crushing, or piercing; do not drop the battery.

For any updates to this manual, no separate notice will be given. Please continue to pay attention to the official website

<https://skydroidglobal.com>