IFLIGHT
Flight Beyond Vision

COMMANDO 14

快速上手基础指南

USER MANUAL

V1.0 251210

目录
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免责声明

重要提示：请在使用本产品前仔细阅读本声明。一旦您使用本产品，即视为您已理解、同意并承诺严格遵守本声明的全部内容。违反本声明可能导致严重的财产损失、人身伤害及法律后果。

一、总则与责任豁免

1.1 本遥控器是用于操控航空模型、FPV 穿越机、无人机等飞行器的专用设备。用户须对使用本遥控器所操控的飞行器及其一切行为负全部责任。

1.2 iFlight 作为本遥控器的制造商，仅对遥控器本身的硬件负责。对于因以下（但不限于）任何情况导致的任何形式的直接或间接损失，包括但不限于人身伤害、财产损失、数据丢失、第三方索赔、商业中断等，本公司概不承担责任：

· 用户未遵守本说明书及本免责声明
· 用户操作不当、误操作或疏忽大意
· 用户对设备进行未经授权的改装、拆卸或维修
· 不可抗力（如自然灾害、战争、恐怖袭击等）因素
· 违反任何国家、地区法律法规的行为。

二、飞行空域与区域限制

用户绝对禁止在以下区域及情况下飞行。使用本产品即代表您承诺将主动查询并遵守飞行所在地的所有法律法规。

2.1 禁飞区与限制区：

· 严禁在机场、航空管制区、飞行航道及周边安全保护区域内飞行。
· 严禁在国家机关、军事管理区、国防设施、监狱、核设施等敏感区域上空及其周边飞行。
· 严禁在政府明令禁止或限制飞行的任何区域（如大型活动场所、重要庆典地、自然保护区核心区等）飞行
· 用户有义务在飞行前，通过官方渠道（如当地空管部门、民航局发布的 App 或网站）查询并确认目标飞行区域是否为合法空域。

2.2 公共安全与交通区域：

· 严禁在高速公路、铁路、城市主干道、桥梁、人行稠密的街道等公共交通道路上空飞行，以免干扰交通或发生事故。
· 严禁在人员密集的公共场所上空飞行，如：体育场馆、音乐节现场、集市、商场、学校、医院、居民区广场等，除非已获得相关管理部门的明确许可并采取了充分的安全措施。

2.3 人口与财产密集区：

· 严禁在未经许可的情况下，在人群正上方飞行或进行任何可能危及地面人员安全的飞行动作。
· 严禁在私人领地上空飞行，除非已获得该领地所有者的明确同意。

三、飞行操作安全规范

3.1 操作者状态:

· 严禁在服用可能影响判断力、反应速度的精神类药物(包括但不限于麻醉品、镇定剂)或饮酒后,在神志不清、精神疲劳等非正常状态下操作本设备及飞行器。

3.2 安全距离:

· 飞行器应与任何人、动物、建筑物、车辆及障碍物保持足够的安全距离。

3.3 飞行前检查:

· 每次飞行前,必须检查遥控器、飞行器、电池及其他设备的完整性和工作状态,确保一切正常。

3.4 干扰与环境:

· 避免在恶劣天气(如大风、雨、雪、雾、雷电)下飞行。

· 避免在高压线、通讯基站、Wi-Fi 信号源等强电磁干扰源附近飞行。

· 注意飞行器的最大通信距离,防止信号丢失导致失控。

3.5 隐私尊重:

· 严禁利用飞行器侵犯他人隐私,如偷窥、偷拍私人场所或未经允许拍摄个人活动。

四、设备使用与保管

4.1 本产品禁止用于任何非法或危险用途,包括但不限于运送危险品、撞击物体、骚扰他人、进行间谍活动等。

4.2 请将本产品保管在儿童无法触及的地方。未成年人使用本产品,必须在具有完全行为能力的成年人全程监护和指导下进行。

4.3 请按照说明书要求进行充电,使用原厂或认可的配件,避免因充电头、数据线故障等引发火灾、爆炸等风险。

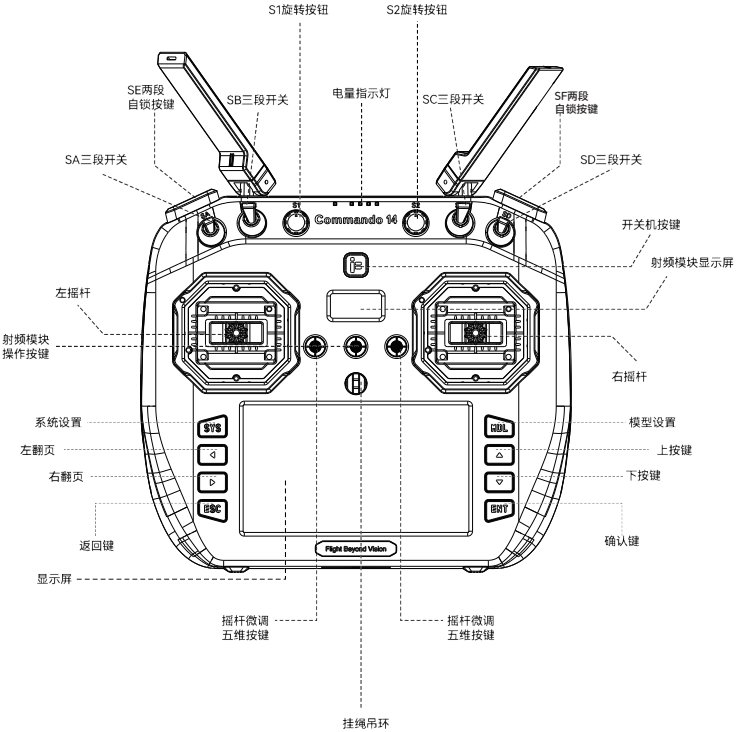
五、法律遵从与最终解释

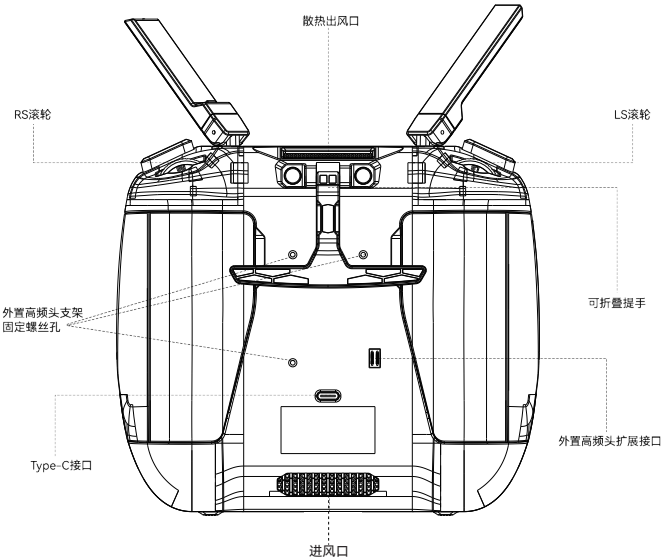
5.1 用户有责任了解并遵守飞行所在地所有关于航空模型、无人机飞行的法律、法规及管理规定。本声明的内容不能取代当地法律,若本声明与当地法律冲突,应以更严格的法律规定为准。

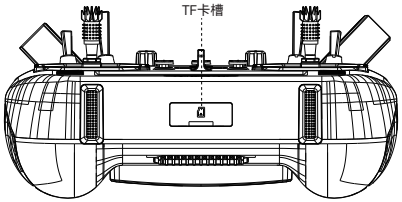
5.2 iFlight 保留随时更新和修改本免责声明的权利,恕不另行通知。有关产品的最新资料,请访问 https://www.iflight.com/ 或咨询客服。

一、简介

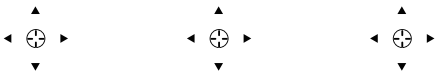
Commando 14 遥控器采用高性能 H750 主控芯片并运行 EdgeTX 开源系统。配备可多维度调节的 CNC 金属摇杆，支持左右手油门切换。内置 ELRS 双频双 1W 射频模块，支持 900MHz 与 2.4GHz 频段，并配备双频双天线与主动散热系统以保障链路稳定。集成 4.3 英寸高亮主屏与 0.96 英寸副屏，方便用户随时设置或观察遥控器状态。内置 3S 5000mAh 电池，最高支持 PD 60W 快充。支持外接射频模块，同时适配多款模拟器，满足多种使用场景。




散热出风口
RS滚轮
LS滚轮
可折叠提手
外置高频头支架
固定螺丝孔
外置高频头扩展接口
Type-C接口
进风口

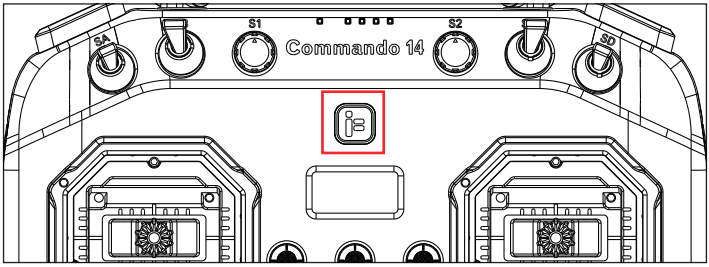

TF卡槽

五维按键的定义


左摇杆微调
射频模块操作按键
右摇杆微调

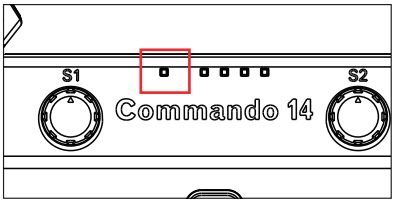
二、开关机

1、短按一次可检查电量。2、短按一次，再长按 3 秒可开启、关闭遥控器。



Commando 14 电量指示灯	
亮 4 颗灯	电量为 100%-80%
亮 3 颗灯	电量为 80%-60%
亮 2 颗灯	电量为 60%-40%
亮 1 颗灯亮	电量为 40%-20%
亮 1 颗灯，并处于慢闪状态	电量为 20%-5%
亮 1 颗灯，并处于快速闪烁状态	电量低于于 5%

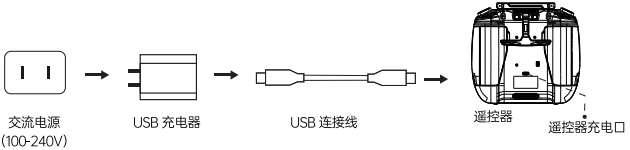
EDGETX 系统状态指示灯



Commando 14 系统状态指示灯	
蓝色	绑定模式
绿色	正常运行
红色	警告：开关未复位、油门不在最低位

三、充电

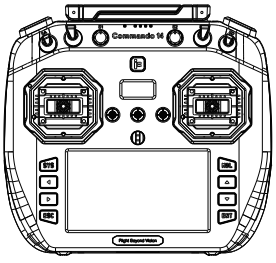
Commando 14 内置了 3S 5000mAh Li-ion 电池以及 Type-C 口快速充电功能。推荐使用 60W 或以上功率，支持 PD 快充协议，并符合 FCC/CE 标准的 USB 充电头和优质数据线。输入电压范围 5-20V，电流 0-3A，最大功率 60W。标称电池电压为 10.95V, 最大充电电压为 12.6V。请用户定期检查电池的电压和状况，切勿在无人看守的情况下为其充电。请务必始终在远离可燃材料的安全区域中充电。对于不按照安全规范使用或滥用本产品造成的一切不良后果，均由使用者自行承担责任。



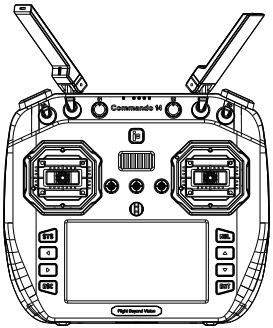
注：

1. 每隔 1 个月左右充放电一次以保持电池活性。
2. 长期不使用时，请将遥控器放置干燥阴凉处，建议将电压保持在储存电压 11.6V 左右。
3. 禁止私自改装电池，或遥控器内部线路。否则造成的一切不良后果，均由使用者自行承担责任。

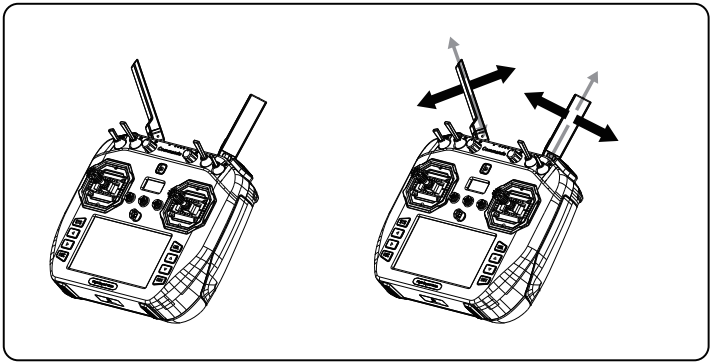
四、调整天线



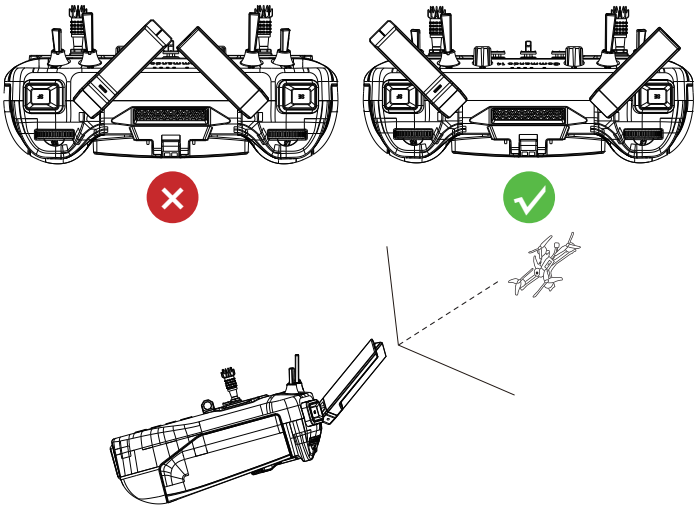
折叠状态



展开状态

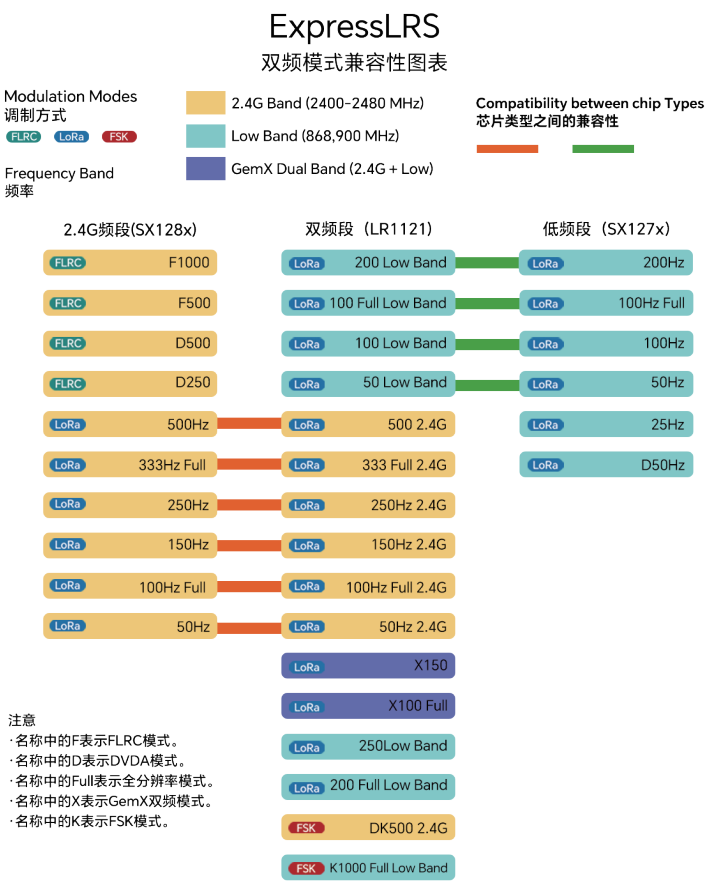


图中的黑色箭头代表天线信号强的方向,灰色箭头代表天线信号弱的方向。当天线展开时,天线前、后、左、右信号最强，上下信号较弱。飞行时需要将天线展开，以获得最大信号范围。



五、内置射频模块设置

1、内置射频模块兼容性

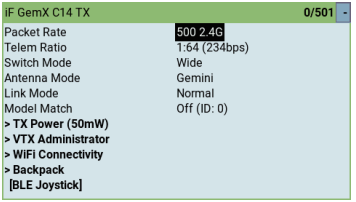


注意

·名称中的F表示FLRC模式。
·名称中的D表示DVDA模式。
·名称中的Full表示全分辨率模式。
·名称中的X表示GemX双频模式。
·名称中的K表示FSK模式。

2、数据包模式及刷新率设置

短按 SYS 按键进入系统菜单，选择 ExpressLRS LUA 脚本。



用户可在遥控器的 LUA 脚本页面中，根据使用的接收机类型，选择对应的刷新率以及数据包模式。可根据下图选择所需模式。

ELRS不同模式的区别

调制方式

调制方式	用途	优势	劣势
LORA	常规飞行、抗干扰 复杂无线电环境	距离最远，抗干扰最强	最高仅支持500Hz刷新率
FLRC	竞速飞行 追求极致响应速度	响应速度最快 支持250-1000Hz高刷新率 延迟最低	信号距离比LORA短
FSK	竞速飞行 追求极致响应速度	响应速度最快 支持500-1000Hz高刷新率 延迟最低	信号距离比LORA、FLRC短

数据包模式

数据包模式	用途	优势	劣势
FLRC模式（2.4GHz） (F500/F1000)	竞速飞行 追求极致响应速度	响应速度最快 支持250-1000Hz高刷新率 延迟最低	信号距离比LORA短
DVDA多重数据包模式 (D50/D250/D500)	抗干扰 复杂无线电环境	多重数据包模式 当启用DVDA模式时 以最高刷新率重复发 2次或4次同样的数据包 提高信号稳定性	信号距离比LORA短
Full全分辨率模式 (100Hz Full/ 200Hz Full/333Hz Full)	AUX通道全分辨率模式	在头追、旋钮、起落架等 对精度要求较高的场景下 支持最高 2048 级通道分辨率	刷新率相对较低
DK模式 (DK500 2.4GHz)	在使用LR1121芯片时 使用FSK调制方式达到的 高刷模式	具有500Hz高刷 多重数据包模式	信号距离比LORA、FLRC短
K模式 (K1000)	在使用LR1121芯片时 使用FSK调制方式达到的 高刷模式	具有1000Hz高刷	信号距离比LORA、FLRC短
X 双频模式 (2.4GHz+900MHz) (X100 Full/X150)	同时使用2.4GHz+900MHz 双频段	两个频段同时工作 抗干扰能力更强	刷新率较低 (仅支持X100 Full/X150Hz)

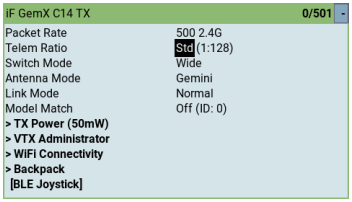
刷新率

刷新率	用途	优势	劣势
高刷新率 (500-1000Hz)	竞速飞行 追求极致响应速度	高刷新率 响应速度最快	灵敏度低 信号距离相对较短
普通刷新率 (100-250Hz)	常规飞行，抗干扰 复杂无线电环境	响应速度较快 信号距离远	/
低刷新率 (25-100Hz)	远航，抗干扰 复杂无线电环境	刷新率越低 系统灵敏度越高 可以接收更微弱的信号 信号距离最远	刷新率低 响应速度相对较慢

频率

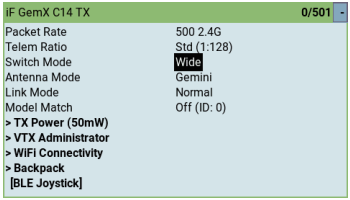
频率	用途	优势	劣势
2.4GHz Band (2400-2480 MHz)	竞速、花飞、室内	设备轻量化 天线短小 超高刷新率	穿透力弱 信号距离相对较短
Low Band (868/900 MHz)	远航、拍摄、山区	超远距离、强穿透力	天线尺寸较大、刷新率低
GemX Dual Band (2.4GHz +Low Band)	城市、复杂干扰环境 远航、拍摄、山区	2.4GHz+900MHz 双频段同时工作 抗干扰能力最强	天线尺寸较大、刷新率较低

3、遥测比例设置



Telem Ratio 遥测比例是发送遥测数据的频率。较大的数字意味着较慢的遥测更新，例如 1:8 表示每 8 帧发送一次遥测数据，而 1:128 是每 128 帧发送一次。更频繁的遥测会导致控制链路的延迟，但更少的遥测更有可能会提示遥测丢失警告。这取决于用户的要求，如果需要更频繁的遥测信息更新，则需要设置一个较小的数字。建议设置为 STD，ELRS 系统会根据刷新率自动调节遥测比例。

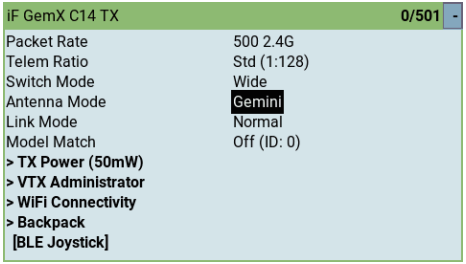
4、通道模式设置



Commando 14 遥控器支持 Wide 和 Hybrid 两种通道模式切换，具体区别可查阅 ELRS 官网。

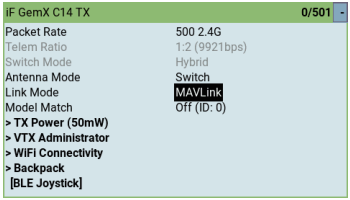
https://www.expresslrs.org/software/switch-config/

5、天线模式设置



ELRS 天线模式	
模式	含义
Switch	切换模式：射频模块两路同时工作，自动切换，ELRS 系统根据信号质量，选择 Ant1 或 Ant2 中信号最好的一路。
Ant1	单天线模式：只使用第 1 根天线进行收发。
Ant2	单天线模式：只使用第 2 根天线进行收发。
Gemini	Gemini 双子星模式，接收机与遥控器射频模块双路射频芯片异频工作，数据包在两个独立频率上传输，增强抗干扰性能，提升连接质量。 注： 1. 必须使用支持 Gemini 模式的接收机和发射模块，才能开启 Gemini 模式。 2. 2.4GHz 为 40MHz 频率间隔，900MHz 为 13MHz 频率间隔。

6、MAVLink 模式设置



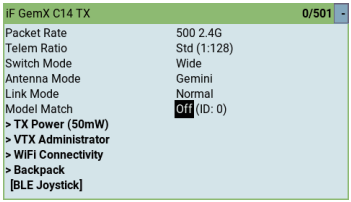
用户可使用 MAVLink 模式，回传飞控数据至地面站。需要对频前开启 MAVLink 模式后再对频。

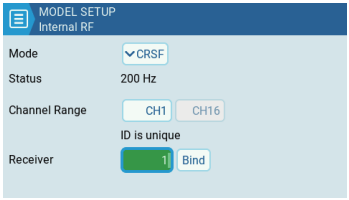
具体使用方式可查询 ELRS 官网。

https://www.expresslrs.org/software/mavlink/#hand-set-telemetry

注 Commando 14 遥控器目前仅支持 WiFi 连接电脑地面站传输 MAVLink 协议数据，暂不支持 USB 传输。

7、模型编号



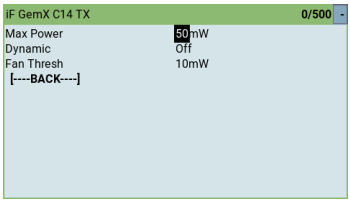


启用“模型编号”功能后，接收器仅会在接收器的编号与模型匹配的编号相同时才会输出控制信号，从而避免错误地控制到其他飞机。

具体使用方式可查询 ELRS 官网。

https://www.expresslrs.org/software/model-config-match/

8、内置射频模块发射功率、风扇启动功率设置



ELRS 发射功率、动态功率、发射启动功率设置		
选项	含义	用途
Max Power	发射功率 / 最大功率	设置射频模块的射频功率，当关闭动态功率时，设置的数值为实时功率。当开启动态功率时，设置的数值为动态功率的上限。
Dynamic	动态功率	动态射频功率：ELRS 系统会根据当前信号质量，动态选择合适的发射功率。当信号较好时，会适当降低发射功率，当距离较远或信号变差时，会提升发射功率，直至达到 Max Power 功率上限。
Fan Thresh	散热风扇启动功率	散热风扇启动功率：当 Fan Thresh 的值大于 Max Power 时，启用散热风扇。例如 Fan Thresh 设置为 100mW,Max Power 设置为 500mW, 则启用散热风扇。

9、对频

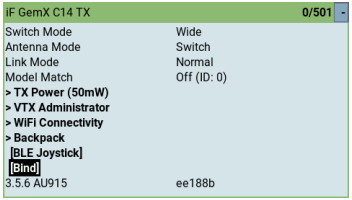
一、传统方式对频

以单频 2.4G 为示例，其他频率请按照双频模式兼容性图表选择对应的模式。

短按 SYS 按键进入系统菜单，选择 ExpressLRS LUA 脚本。

将飞行器或接收机连续通电三次，接收机灯双闪代表接收机进入对频状态。

在 LUA 脚本中，选择 BIND。



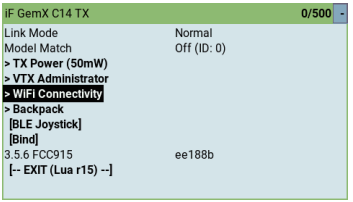
接收机灯常亮，代表完成对频。

二、绑定短语对频

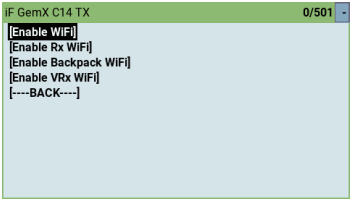
射频模块设置方式：

短按 SYS 按键进入系统菜单，选择 ExpressLRS LUA 脚本。

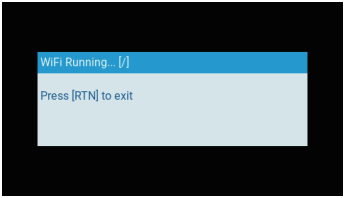
在 LUA 脚本中，选择 WiFi Connectivity。



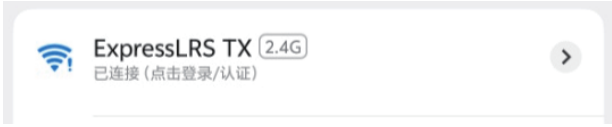
选择 Enable WiFi。



出现 WiFi Running...[/] 页面，代表内部射频模块已开启 WIF 功能。



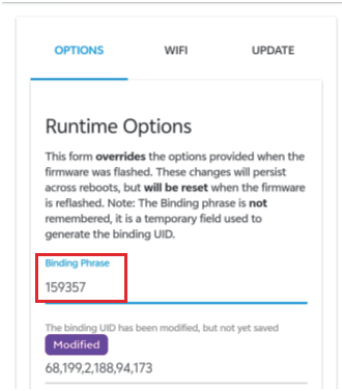
使用手机、电脑、或平板电脑，连接名为 ExpressLRS TX 的 WiFi., 密码为 expresslrs

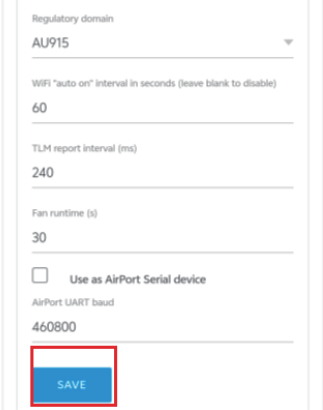


连接 WiFi 后会自动跳转网址，若未跳转可手动输入网址 http://10.0.0.1/

在 Binding Phrase 中输入数字或英文，注意！在设置绑定短语时，建议输入的数字和英文不要过于简单或常见，否则在信号范围内，相同绑定短语的设备将连接在一起，有概率连接到其他用户的 ELRS 设备。

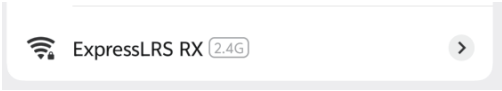
点击 SAVE，即可保存。



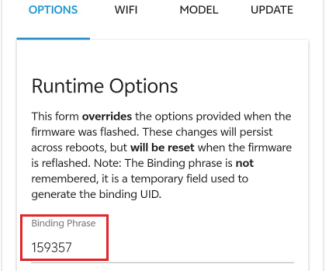


接收机设置方式：
将飞行器或接收机通电，长按BOOT按键2秒，或静置接收机60秒，接收机灯快速闪烁，代表进入WIFI模式。

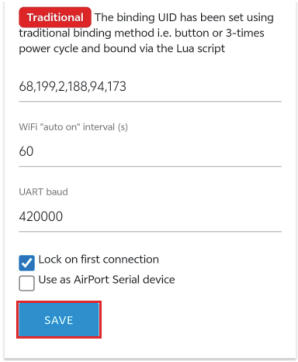
使用手机、电脑、或平板电脑，连接名为 ExpressLRS RX 的 WiFi., 密码为 expresslrs



连接 WiFi 后会自动跳转网址，若未跳转可手动输入网址 http://10.0.0.1/
在 Binding Phrase 中输入和射频模块相同的绑定短语，点击保存



保存后将接收机重新上电，即完成绑定短语对频。

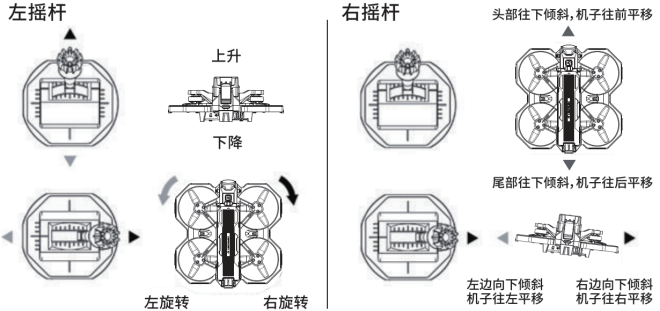


注意：

1. 由于 ELRS 对频速度较快，先使接收机进入对频模式，再让遥控器进入对频模式。
2. 对频完成后，建议给接收机重新上电。
3. 对频时，接收机与遥控器距离要在 1 米以上。
4. 接收机固件版本与射频模块固件版本需保持一致，如遇到无法对频情况，可尝试把接收机和射频模块固件升级到最新固件，再尝试对频。
5. 如遇到无法对频情况，可尝试重启遥控器与接收机。
6. 部分飞控板载 SPI 接收机默认最高仅支持 250Hz。

六、基础飞行操作说明

基础飞行操作说明 遥控器摇杆操控方式以Mode 2为例，如下图所示

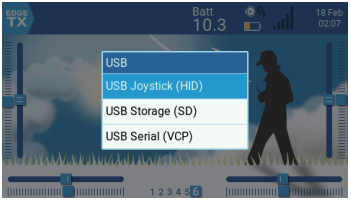


⚠ 打杆图示仅做示意，打杆操作时勿将摇杆迅速地打满，应缓慢有效地进行打杆。

七、USB功能

一、有线模拟器模式：

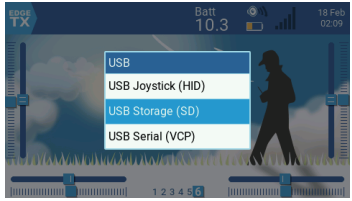
1. 开机。
2. 用 Type-C 数据线连接遥控器和电脑。
3. 插入 Type-C 数据线后会弹出选择框，代表已经进入 USB 模式。
4. 选择 USB joystick（HID）模式，即可连接上模拟器。



5. 直接拔出 Type-C 数据线即可退出模拟器模式。

二、SD 卡模式

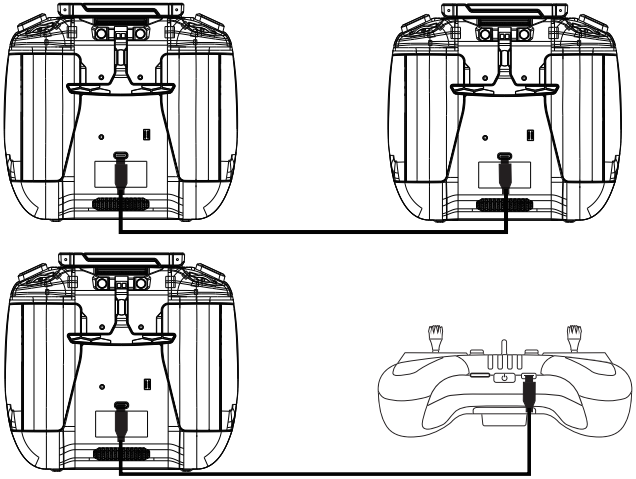
1. 开机。
2. 用 Type-C 数据线连接遥控器和电脑。
3. 插入 Type-C 数据线后会弹出选择框，代表已经进入 USB 模式。
4. 选择 USB Storage（SD）模式，电脑即可识别到 SD 卡。



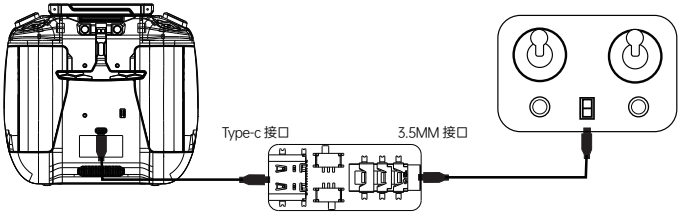
5. 直接拔出 Type-C 数据线即可退出 SD 卡模式。

八、教练模式

1、连接 Commando 14 或 Commando 8 遥控器



2、连接其他遥控器

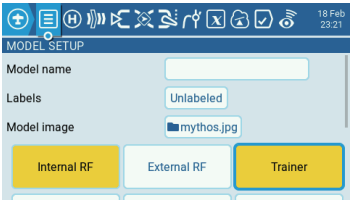


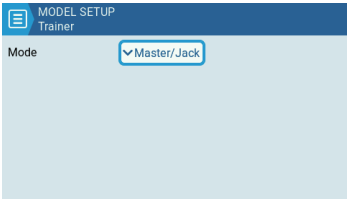
EDGETX 系统设置：

教练控：

短按MDL，进入模型设置页面，在MODEL SETUP中选择Trainer，进入教练模式设置。

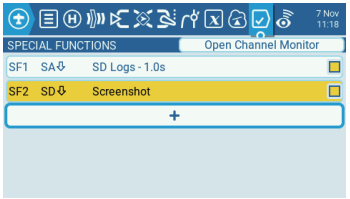
将教练控的 Mode 设置为 Master/Jack。

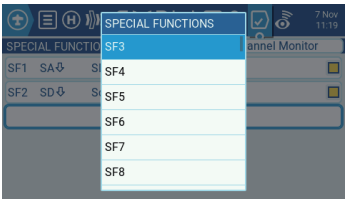




在 SPECIAL FUNCTIONS 页面中，新建一个逻辑开关

将光标移动到 +，点击 ENT

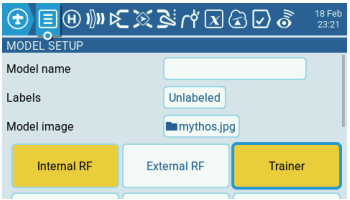




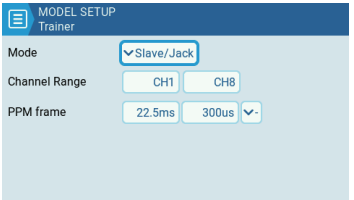
将 Function 设置为 Trainer，Value 设置为 Axis，并打开 Enable。

学员控：

短按MDL，进入模型设置页面，在MODEL SETUP中选择Trainer，进入教练模式设置。

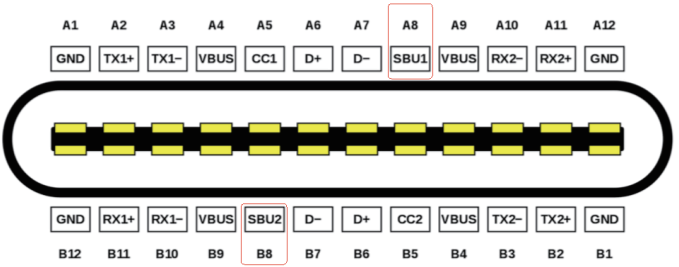


将学员控的 Mode 设置为 Slave/Jack。



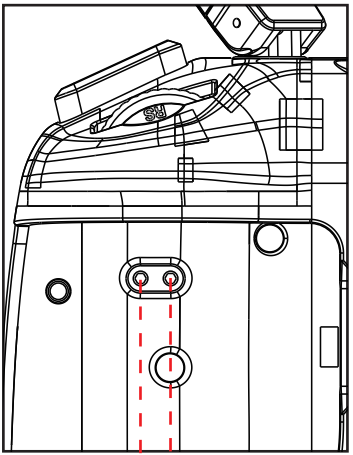
教练控按下对应的开关后，即可启用教练模式功能。

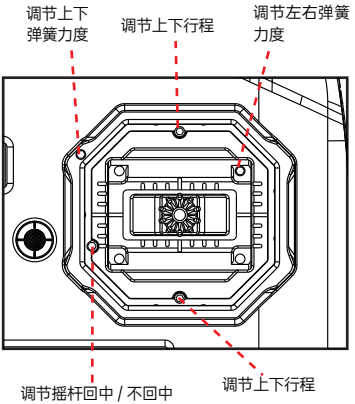
注：Type-C 口必须带有 SBU1 和 SBU2 引脚连线，建议购买选配的数据线。可联系客服咨询。
注：目前不支持有线连接 Commando 8 Lite、Commando 8 Nano，仅支持 EDGETX 或 OPENTX 系统的遥控器。



九、摇杆折叠与调节

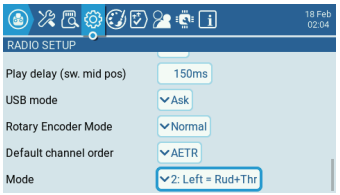
摇杆调节：





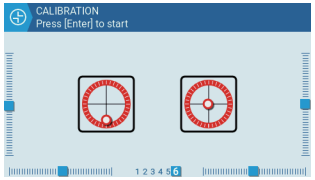
1. 油门左右手切换：需要将左手油门切换为右手油门时，拧松左手摇杆的调节摇杆回中切换螺丝，直至左手摇杆回中。调节左手摇杆调节弹片螺丝至合适力度。拧紧右手摇杆回中切换螺丝，直至右手不回中。调节右手摇杆调节弹片螺丝至合适力度。

2. 摇杆模式切换：Commando 14 默认出厂摇杆模式为 Mode2（美国手），用户可根据自己的使用习惯进行摇杆模式切换。短按SYS按键进入系统菜单，通过翻页按键（PAGE）进入 RADIO SETUP 页面，在 Mode 选项中，选择对应的摇杆模式。

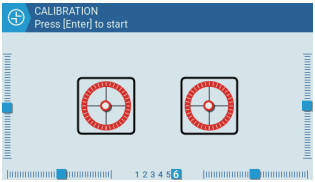


3. 摇杆校准：短按 SYS 按键进入系统菜单，通过翻页按键（PAGE）进入 HARDWARE 页面，在 Inputs 页面中选择 Calibration 进行摇杆校准，具体操作流程如下图所示。

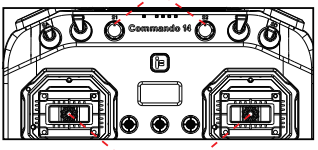
1、在 Calibration 页面，按下右按键（Enter）确定开始进入校准过程。



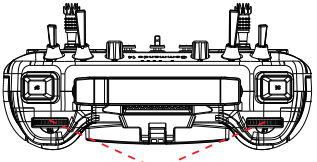
2、将摇杆、旋钮、滚轮放至物理中位，按下右按键 (Enter) 校准中心点。



将滚轮旋转至物理中位

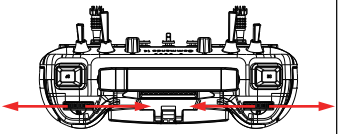


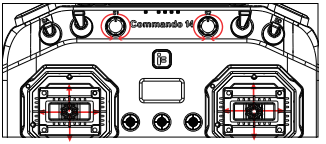
将摇杆放置物理中位



将滚轮旋转至物理中位

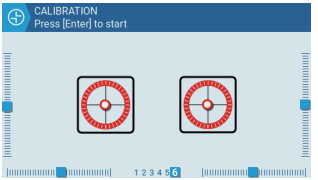
3、移动摇杆、旋钮、滚轮，使其达到最大与最小行程，完成后按键确定，校准完成。





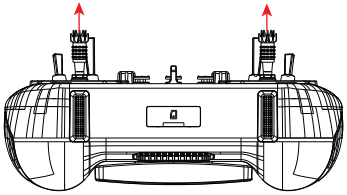
将摇杆移动至上：下、左、右最大行程。采用十字校准方式

注意：请勿将摇杆移动至角落，请勿打圈校准

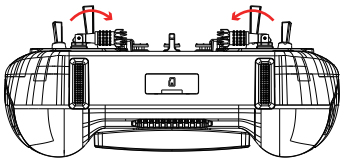


摇杆折叠：

1、向外拉出摇杆头



2、向内折叠

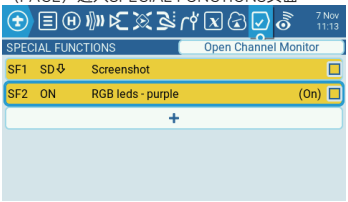


十、摇杆灯带调节

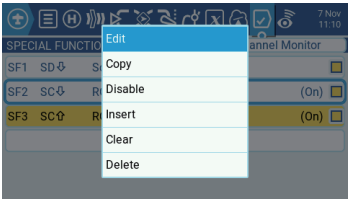
Commando 14 摇杆灯带由 EDGETX 系统控制，默认状态常开，用户可根据自己喜好调节灯带颜色、状态、或关闭灯带。

调节方式：

1、短按MDL按键进入系统菜单，通过翻页按键（PAGE）进入SPECIAL FUNCTIONS页面

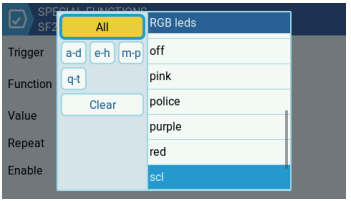


2、选择RGB灯带，按ENT键后选择Edit



3、进入灯带状态调节页面

4、用户可在 Value 页面中调节灯带颜色，状态，或关闭

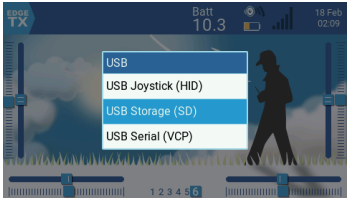


十一、固件刷写

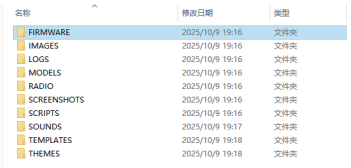
EDGETX 系统固件刷写：

一、SD 卡刷模式

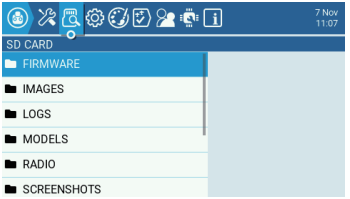
1、开机。
2、用 Type-C 数据线连接遥控器和电脑。
3、插入 Type-C 数据线后会弹出选择框，代表已经进入 USB 模式。
4、选择 USB Storage（SD）模式，电脑即可识别到 SD 卡。



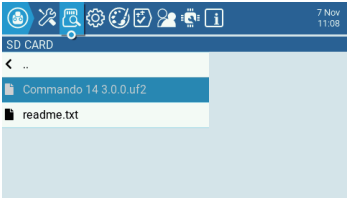
5、将固件导入 TF 卡的 FIRMWARE 文件夹中，文件格式为 .uf2

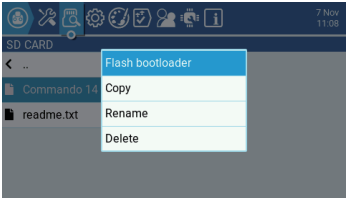


6、短按 SYS 按键，到 SD CARD 页面



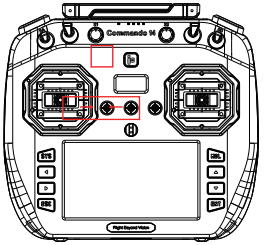
7、在 SD CARD 页面中，选择对应的固件，点击 Flash bootloader 后，完成固件升级。



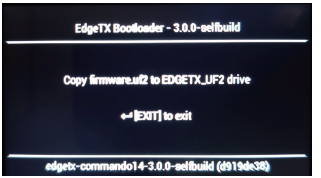


二、Bootloader 模式

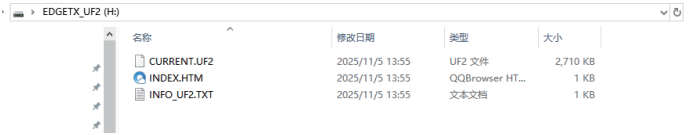
1、关机状态下，将左摇杆微调按键向右按，右摇杆微调按键向左按的同时，短按再长按开机键，进入 Bootloader 模式。



2、用 Type-C 数据线连接遥控器和电脑，连接成功后，电脑会出现 EDGETX_UF2 盘符。



3、将文件名格式为 .uf2 的固件导入到 EDGETX_UF2 目录下，等待进度条跑完即可完成固件刷写。



三、DFU 模式

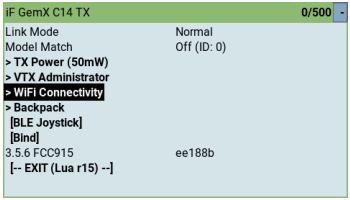
1. 使用 USB 线连接电脑
2. 按下左摇杆微调按键，同时短按再长按开关机按键，即可进入 DFU 模式

内置 ELRS 射频模块固件刷写模式进入方式：

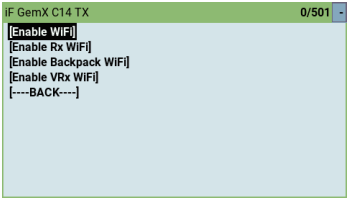
WiFi 模式刷写：

短按 SYS 按键进入系统菜单，选择 ExpressLRS LUA 脚本。

在 LUA 脚本中，选择 WiFi Connectivity。



选择 Enable WiFi。



出现 WiFi Running...[/] 页面，代表内部射频模块已开启 WIF 功能。

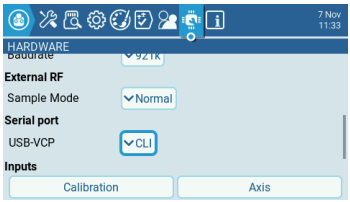
使用手机、电脑、或平板电脑，连接名为 ExpressLRS TX 的 WiFi., 密码为 expresslrs

具体使用方式可查询 ELRS WEB FLASHER 官网。

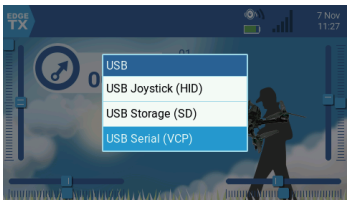
https://expresslrs.github.io/web-flasher/

EDGETX 直通刷写模式进入方式：

短按 SYS 按键，进入系统设置，在 HARDWARE 页面的 Serial port USB-VCP 中，选择 CLI

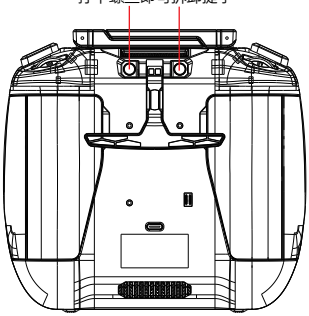


使用 USB 线连接 Commando 14 遥控器，弹出选项框后，选择 USB Serial(VCP)

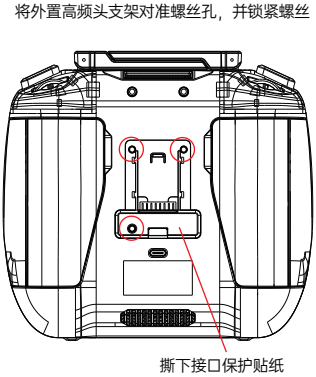


十二、外置射频模块支架安装

1、部分射频模块的天线位置可能和遥控器提手会产生结构干涉，用户需要根据实际需求选择是否拆卸提手。

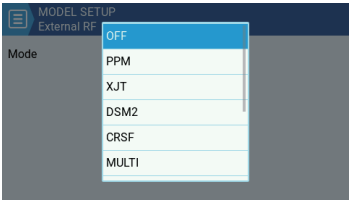


2、安装射频模块支架



3、安装外置射频模块

4、射频模块切换：Commando 14 默认出厂默认为开启内置射频模块，连接外部射频模块后，需要进行切换。短按 MDL 按键进入模型设置，在 MODEL SETUP 页面，关闭 Internal RF，并开启 External RF，选择对应的协议后，即可使用。



十三、使用小贴士

	建议	操作方式
ELRS 设置技巧	选择合适的射频功率	在 ELRS Lua 脚本中，根据飞行距离和环境选择功率。近距离（如场地练习）使用 50-100mW 以减少干扰和功耗；远距离飞行使用 500mW-1000mW。
	理解并设置刷新率 (Packet Rate)	高刷新率（如 500Hz）带来更低的操作延迟，适合竞速或花飞穿越机。 低刷新率（如 25/50/100Hz）能提供更远的信号距离。用户可根据飞行器类型和需求进行选择。
	启用“动态功率” (Dynamic Power)	启用此功能后，遥控器会根据信号质量（SNR）自动调节射频功率，在保证链路稳定的同时，有效节约电能，延长遥控器续航时间。
	AUX1 高位与解锁开关同步	在使用 ELRS 设备时，必须将 AUX1 设置为解锁开关，且高位（2000us）为解锁，以确保 ELRS 系统工作正常。
SDLOG 功能应用	启用日志记录	在模型设置→SD Logs 中开启日志记录。这将把遥控器的所有操作（摇杆、开关位置、ELRS 遥测数据等）以 CSV 文件形式记录在 SD 卡中。 建议和解锁开关设置为同一通道，解锁时同时录制 SDLog, 以便数据分析。
延长使用续航	启用自动关机功能 降低射频功率，或开启自动功率	1. 在系统设置→RADIO SETUP→Power Auto off 中，可设置自动关机的时间，当遥控器通道未动，且无连接接收机的情况下，达到对应的时间即可自动关机。 2. 在 ELRS LUA 中设置合适的发射功率，或开启自动功率。

十四、故障排查指南

故障现象	可能原因	排查与解决方法
遥控器无法开机	1. 电池电量耗尽 2. 内部电源线路故障	1. 使用 Type-C 线连接 PD 充电器充电 30 分钟后再尝试开机 2. 联系售后服务进行检修
摇杆操作无响应或响应异常	1. 摇杆未进行校准 2. 通道分配设置错误 3. 摇杆硬件连接松动或损坏障	1. 进入 EdgeTX 系统设置，执行摇杆校准程序 2. 检查模型设置中的通道映射，确保各通道与控制动作正确对应 3. 联系售后服务进行检修
屏幕无显示或显示异常	1. 屏幕亮度设置过低 2. 液晶屏损坏	1. 进入系统设置，调高屏幕亮度 2. 联系售后服务进行检修
ELRS 信号连接失败或距离过短	1. 射频模块与接收机未对频 2. 射频功率设置过低 3. 天线未安装或损坏 4. 固件版本不匹配	1. 参照 ELRS 对频流程，完成射频模块与接收机的对频操作 2. 在 ELRS Lua 脚本中检查并设置合适的射频功率 3. 确保两根天线已牢固安装，无物理损伤 4. 使用 ExpressLRS Configurator 将内置射频模块与接收机固件更新至同一版本 5. 天线需要远离碳纤维板、金属，等导体。
对频成功，但飞控未收到接收机信号	1. 接线错误，或飞控串口损坏 2. 开启了模型编号（Model Match）但未正确使用模型编号 3. 飞控协议选择错误	1. 检查接收机与飞控之间接线，或更换接收机、飞控对换测试。 2. 正确使用模型编号（Model Match）功能，或关闭该功能。 3. 在 LUA 脚本中检查接收机输出协议，并在飞控中选择正确的协议。
遥控器无法充电或充电缓慢	1. 未使用支持 PD 协议的充电头 2. Type-C 数据线仅支持数据传输 3. 充电接口或电池故障	1. 更换支持 PD 协议的充电头（建议 60W 或以上的充电头） 2. 更换可支持大电流充电的 Type-C 线缆 3. 联系售后服务进行检修

信号差	1. 天线损坏或天线频率不匹配 2. 射频模块或接收机损坏 3. 遥控器射频功率过小 4. 环境干扰 5. 接收机天线安装错误	1. 检测或更换天线，确保天线频率正确，性能正常 2. 检测接收机表面元件有无脱落或损伤 3. 检查遥控器射频功率 4. 检测接收机 RSSI dBm，当接收机距离遥控器 30CM 左右时，通常在 -25 以内，高于 -30 的 Bm 为性能异常。 5. 更换遥控器或接收机，观察 RSSI dBm、LQ 数值是否正常。 6. 检查天线安装位置，天线需要远离机身碳板、金属等导体。
外接射频模块无法工作	1. 模型设置中未开启外部射频模块 2. 协议选择错误 3. 模块仓针脚接触不良	1. 在模型设置页面，启用并配置 External RF 模块 2. 根据外接射频模块类型（如 CRSF），选择正确的通信协议 3. 检查模块仓针脚是否有异物或弯曲
遥控器工作时发热明显	1. 射频模块持续高功率运行 2. 散热风扇通风孔被堵塞	1. 确保散热风扇工作正常，必要时清理风扇及通风孔灰尘 2. 若长时间高功率使用，属正常现象，持续观察即可
遥控器反复提醒遥测信号丢失（Telemetry Loss）	1. 遥测比例过低，导致数据包刷新写过慢 2. 接收机或遥控器内置射频模块损坏	1. 可以尝试提高遥测比例（例如从 1: 128 调整为 1:32） 2. 更换接收机或遥控器，观察 Rssi dBm 和 LQ

十五、产品规格

Commando 14 产品规格

产品类型：航模遥控器
通道数量 14CH（4 个摇杆通道、4 个三段开关通道、2 个按键开关通道、2 个旋钮通道、2 个滚轮通道）
遥控器系统：EDGETX 3.0.0
无线射频模块：ELRS　GemX Dual Band（2.4GHz/900MHz）1W
天线：线极化全向双频双天线（2.4GHz+900MHz）
电池：10.95V 5000mAh 54.75Wh（3S1P）
充电功率：支持 5-20V 3A，PD 60W MAX
操作系统屏幕尺寸：4.3 寸 IPS 全视角高亮度 1000nit 屏幕
射频模块屏幕尺寸：0.96 寸彩屏
折叠尺寸：180*168.2*81.4mm ±5mm（摇杆折叠、天线折叠）
展开尺寸：180*217.4*85.3mm ±5mm（摇杆展开、天线展开）
重量：950g±10

警告

- Commando14出厂时已预装稳定的固件。除非您有经验并且有信心更新系统固件，不正确的更新可能会导致遥控器无法操作。
- 主控固件刷写，高频头固件刷写，详情请见使用视频。

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DISCLAIMER

Warning: Please read this disclaimer carefully before using this product. By using this product, you acknowledge that you have fully understood, agreed to, and accepted all terms of this disclaimer. Any violation of the terms herein may result in serious property damage, personal injury, or legal consequences.

1. General Provisions and Liability Exemption

1.1 This Transmitter is a specialized device designed for operating aircraft such as model aircraft, FPV drones, and drones. The user is solely responsible for the aircraft being operated and all actions performed with it.

1.2 As the manufacturer of this Transmitter, iFlight is responsible only for the hardware of the Transmitter itself. iFlight shall not be liable for any direct or indirect losses arising from, but not limited to, the following circumstances, including personal injury, property damage, data loss, third-party claims, or business interruption:

·Failure to comply with this manual or this disclaimer;
·Improper operation, mishandling, or negligence by the user;
·Unauthorized modification, disassembly, or repair of the device;
·Force majeure events (such as natural disasters, war, terrorist attacks, etc.);
·ny actions that violate national or regional laws and regulations.

2. Flight Airspace and Area Restrictions

Users are strictly prohibited from flying in the following areas or conditions. By using this product, you agree to proactively check and comply with all applicable laws and regulations at the flight location.

2.1 No-Fly Zones and Restricted Areas:

· Flight is strictly prohibited near airports, air traffic control zones, flight corridors, and surrounding safety protection zones.

· Flight is strictly prohibited over or near government agencies, military control zones, national defense facilities, prisons, nuclear facilities, and other sensitive areas.

· Flight is strictly prohibited in any areas where flying is officially restricted or banned, such as large event venues, major ceremonial locations, or core areas of nature reserves.

·The user is responsible for checking, via official sources (e.g., local air traffic authorities, aviation authority apps or websites), whether the intended flight area is legal.

2.2 Public Safety and Transportation Areas:

·Flight is strictly prohibited above highways, railways, major urban roads, bridges, and pedestrian-dense streets to avoid traffic interference or accidents.

·Flight is strictly prohibited above crowded public areas,such as stadiums, music festivals, markets, shopping malls, schools, hospitals, and residential plazas, unless explicit permission has been granted by the relevant authorities and adequate safety measures are in place.

2.3 Populated and Private Property Areas:

·Flight directly above people or in ways that may endanger persons on the ground is strictly prohibited without authorization.

·Flight over private property is prohibited unless explicit consent has been obtained from the property owner.

3. Flight Operation Safety Guidelines

3.1 Operator Condition:

·Operation of this device or any aircraft is strictly prohibited under the influence of substances that may impair judgment or reaction time, including but not limited to narcotics, sedatives, or alcohol, or in any abnormal state such as fatigue or mental instability.

3.2 Safety Distance:

·The aircraft must be kept at a safe distance from people, animals, buildings, vehicles, and obstacles at all times.

3.3 Pre-flight Inspection:

·Before each flight, the user must inspect the transmitter, aircraft, batteries, and all related equipment to ensure they are in normal working condition.

3.4 Interference and Environmental Conditions:

·Avoid flying in adverse weather conditions such as strong wind, rain, snow, fog, or lightning.

·Avoid flying near strong electromagnetic interference sources such as high-voltage power lines, communication towers, and Wi-Fi hotspots.

·Be aware of the maximum communication range to avoid signal loss and loss of control.

3.5 Privacy Protection:

·It is strictly prohibited to use the aircraft to invade others' privacy, including peeping, unauthorized filming of private locations, or recording personal activities without consent.

4. Equipment Use and Storage

4.1 This product must not be used for any illegal or dangerous activities, including but not limited to transporting hazardous materials, intentional impact, harassment, or espionage.

4.2 Keep this product out of reach of children. Minors may use this product only under the full supervision and guidance of a competent adult.

4.3 Follow the charging instructions and use only original or approved accessories. Improper chargers or cables may pose risks such as fire or explosion.

5. Legal Compliance and Final Interpretation

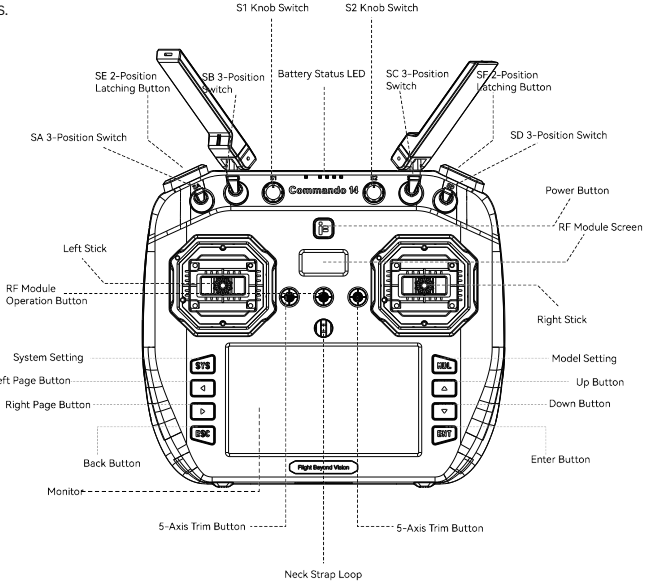
5.1 Users are responsible for understanding and complying with all laws, regulations, and administrative requirements regarding model aircraft and drone flights at the flight location. This disclaimer does not replace local laws. In the event of conflict, the stricter law shall apply.

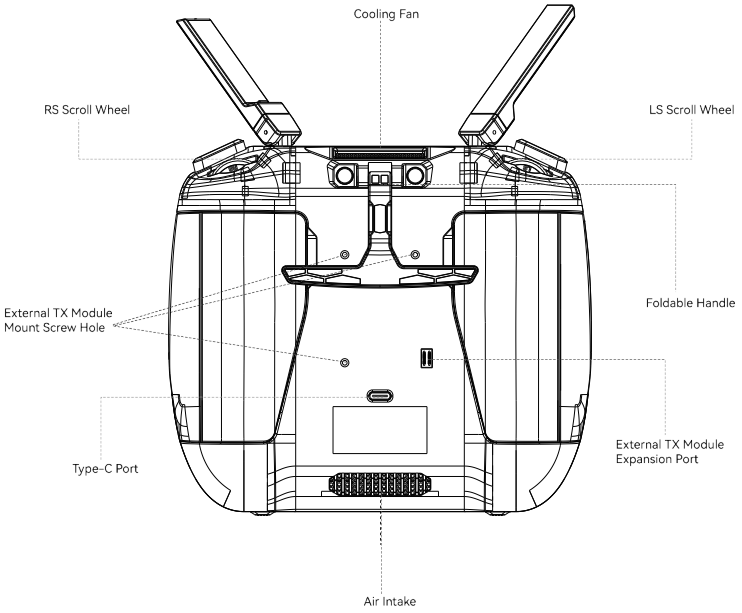
5.2 iFlight reserves the right to update or modify this disclaimer at any time without prior notice. For the latest product information, please visit the official website or contact customer support.

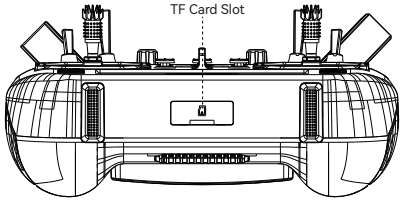
5.3 This manual and its contents are the property of Huizhou iFlight Innovation Technology Ltd. and its affiliates ("iFlight"). No person or organization may reproduce, scan, store, distribute, reprint, sell, transfer, or alter all or any part of this manual in any form without prior written permission from iFlight. This manual and its contents are intended solely for the operation and use of this product and must not be used for any other purpose.

I. INTRODUCTION

The iFlight Commando 14 is powered by a high-performance H750 processor with the EdgeTX system, offering an open and flexible platform for personalized customization. It features adjustable CNC metal gimbals with switchable left/right throttle. The built-in dual-band ELRS module supports 2.4GHz and 900MHz with up to 1W output, dual antennas, and active cooling for stable performance. It includes a 4.3-inch high-brightness main display and a 0.96-inch secondary screen, Commando 14 allows pilots to easily access settings and monitor system status at any time. A built-in 3S 5000mAh battery supports up to 60W PD fast charging. It also supports external RF modules and is compatible with multiple simulators, making it suitable for a wide range of applications.







5-Axis Button Definition

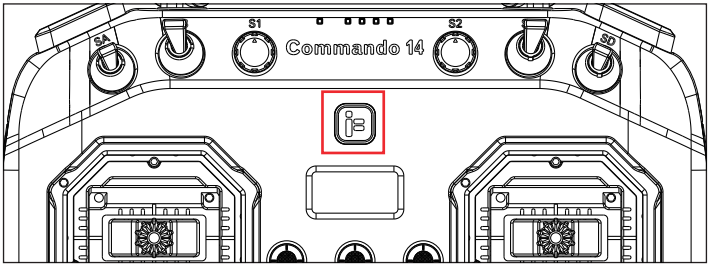
Left Stick Trim

RF Module Function Button

Right Stick Trim

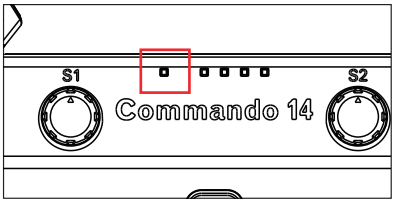
II. POWER ON AND OFF

1. Press once to check the battery level.
2. Short press, then long press 3 seconds to power on or off.



Commando 14 Battery Indicator Light	
4 LEDS On	100% - 80% Power
3 LEDS On	80% - 60% Power
2 LEDS On	60% - 40% Power
1 LEDS On	40% - 20% Power
1 LED On and Slow Flashing	20% - 5% Power
1 LED On and Fast Flashing	<5% Power

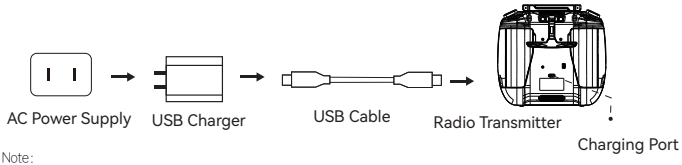
EDGETX System Status Indicator



Commando 14 System Status Indicator	
Blue	Binding Mode
Green	Normal Operation
Red	Warning: Switch Not Reset / Throttle Not in Minimum Position

III. CHARGING INSTRUCTIONS

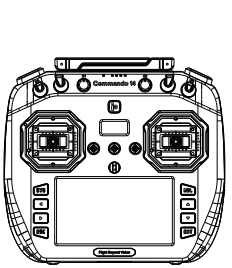
Commando 14 is equipped with a 3S 5000mAh Li-ion battery and supports Type-C fast charging. It is recommended to use a 60W or higher USB charger that supports PD fast charging and complies with FCC and CE standards, along with high-quality data cables. The input voltage range is 5-20V, current 0-3A, with a maximum power output of 60W. The nominal battery voltage is 10.95V, and the maximum charging voltage is 12.6V. Users should regularly check the battery voltage and condition. Never charge the device unattended, and always charge in a safe area, away from flammable materials. The user assumes full responsibility for any consequences resulting from improper use or failure to follow safety guidelines.



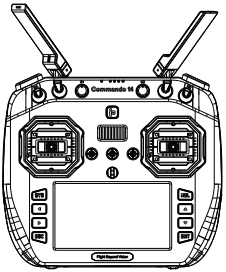
Note:

1. Charge and discharge the battery once every month to maintain its longevity and activity.
2. When not in use for an extended period, store the transmitter in a dry, cool place, and it is recommended to keep the battery voltage around 11.6V for optimal storage.
3. Do not modify the battery or internal circuitry of the transmitter. Any consequences resulting from unauthorized modifications will be the user's sole responsibility.

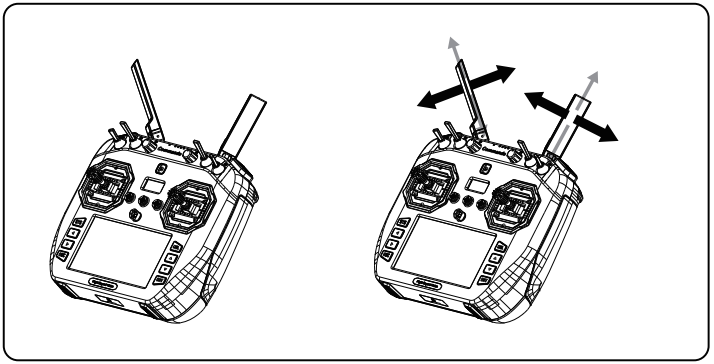
IV. ANTENNA ADJUSTMENT



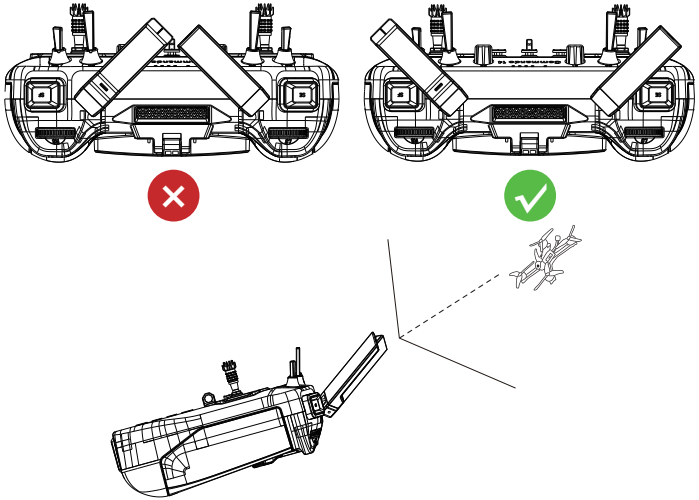
Folded



Unfolded

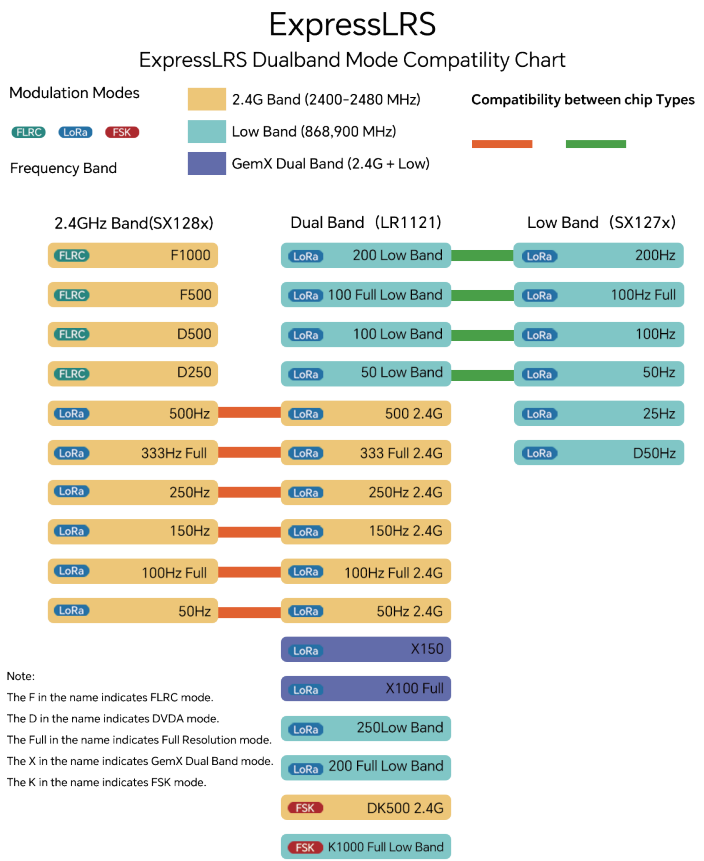


The black arrows in the diagram indicate strong signal directions, while the gray arrows indicate weak signal directions. When the antenna is placed horizontally, the signal is strongest in the front, back, top, and bottom, and weaker on the left and right sides. Make sure to unfold the antennas during flight to achieve the maximum signal range.



V. BUILT-IN RF MODULE SETTINGS

1.Built-in RF Module Compatibility



Note:

The F in the name indicates FLRC mode.

The D in the name indicates DVDA mode.

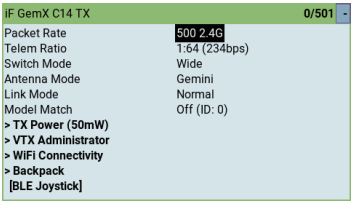
The Full in the name indicates Full Resolution mode.

The X in the name indicates GemX Dual Band mode.

The K in the name indicates FSK mode.

2. Packet Mode and Refresh Rate Settings

Short press the SYS button to enter the system menu and select the ExpressLRS LUA script.



On the LUA script page of the transmitter, users can choose the corresponding refresh rate and packet mode based on the type of receiver being used.

Select the desired mode according to the options shown below.

ELRS Mode Comparison

Modulation

Modulation	Use Case	Advantages	Disadvantages
LORA	General flight, anti-interference, and complex radio environments	Longest range and strongest interference resistance	Fast response speed supports 500-1000Hz high refresh rate, and low latency
FLRC	Racing flight, pursuing ultimate response speed	Fastest response speed, supports 250-1000Hz high refresh rate, and lowest latency	Shorter signal range compared to LoRa
FSK	Racing flight, pursuing ultimate response speed	Fast response speed, supports 500-1000Hz high refresh rate, and low latency	Shorter signal range compared to LoRa, FLRC

Packet Type

Packet Type	Use Case	Advantages	Disadvantages
FLRC Mode (2.4GHz) (F500/F1000)	Racing flight, pursuing ultimate response speed	Fastest response speed, supports 250-1000Hz high refresh rate, and lowest latency	Shorter signal range compared to LoRa
DVDA Mode (D50/D250/D500)	Anti-interference, and complex radio environments	Multi-packet mode, when DVDA mode is enabled, the same data refresh is sent 2 or 4 times at the highest refresh rate to enhance signal stabilit	Shorter signal range compared to LoRa
Full Resolution Mode (100Hz Full/ 200Hz Full/333Hz Full)	Full Resolution mode for AUX channels	Supports up to 2048 levels of channel resolution for high-precision scenarios such as head tracking gimbals, and landing gears	Lower refresh rate
DK Mode (DK500 2.4GHz)	High refresh rate mode achieved with FSK modulation using the LR1121 chip	Supports 500Hz high refresh rate and multi-packet mode	Shorter signal range compared to LoRa, FLRC
K Mode (K1000)	High refresh rate mode achieved with FSK modulation using the LR1122 chip	Supports 1000Hz high refresh rate	Shorter signal range compared to LoRa, FLRC
X Dualband Mode (2.4GHz+900MHz) (X100 Full/X150)	Dualband mode using 2.4GHz + 900MHz simultaneously	Both frequency bands operate simultaneously, providing stronger anti-interference capability	Lower refresh rate (only supports X100FULL/X150Hz)

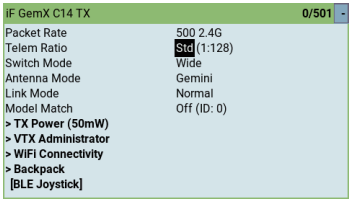
Refresh Rate

Refresh Rate	Use Case	Advantages	Disadvantages
High refresh rate (500-1000Hz)	Racing flight, pursuing ultimate response speed	High refresh rate, fastest response spee	Low sensitivity results in relatively shorter signal range
Normal refresh rate (100-250Hz)	General flight anti-interference, and complex radio environments	Fast response speed, long signal range	/
Low refresh rate	Long range flight, anti-interference, and complex radio environments	The lower the refresh rate, the higher the system sensitivity, allowing it to receive weaker signals and achieve the longest signal range	Low refresh rate, slower response speed

Frequency Band

Frequency Band	Use Case	Advantages	Disadvantages
2.4GHz Band (2400-2480 MHz)	Racing, freestyle, indoor	Lightweight, compact antenna, ultra-high refresh rate	Weaker penetration ability, shorter signal range
Low Band (868/900 MHz)	Long range, cinematic mountainous areas	Long range, strong penetration ability	Larger antenna size, low refresh rate
GemX Dual Band (2.4GHz +Low Band)	Urban, complex interference environments,Long range, cinematic, mountainous areas	2.4GHz+900MHz dual frequency bands operate simultaneously, providing stronger anti-interference capability	Larger antenna size, low refresh rate

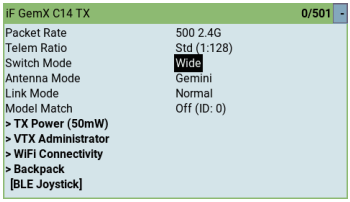
3. Telemetry Ratio Setting



The Telemetry Ratio determines the frequency at which telemetry data is transmitted. A larger number indicates slower telemetry updates. For example, 1:8 means telemetry data is sent once every 8 frames, while 1:128 means it is sent once every 128 frames. More frequent telemetry updates may cause higher latency in the control link, while less frequent telemetry increases the likelihood of telemetry loss warnings.

The choice depends on the user's needs. If more frequent telemetry updates are required, a smaller number should be set. It is recommended to set it to STD, where the ELRS system will automatically adjust the telemetry ratio based on the refresh rate.

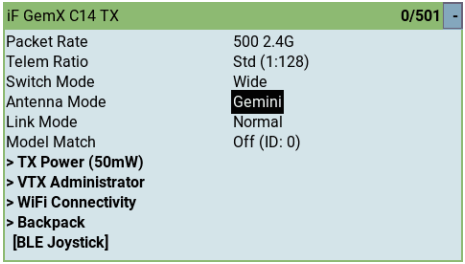
4. Channel Mode Setting



Commando 14 supports Wide and Hybrid two channel modes. For specific differences, please refer to the ELRS official website.

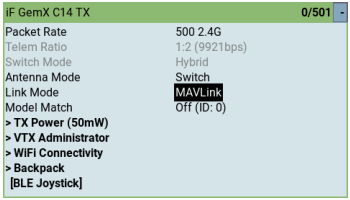
https://www.expresslrs.org/software/switch-config/

5. Antenna Mode Setting



ELRS Antenna Mode	
Mode	Meaning
Switch	Switch Mode: Both RF module channels work simultaneously and automatically switch between Ant1 or Ant2, depending on signal quality, with the ELRS system selecting the better signal.
Ant1	Single Antenna Mode: Only Ant1 is used for both transmission and reception.
Ant2	Single Antenna Mode: Only Ant1 is used for both transmission and reception.
Gemini	Single Antenna Mode: Only Ant1 is used for both transmission and reception. Note: 1. Gemini mode can only be enabled if both the receiver and transmitter module support Gemini mode. 2. The 2.4GHz band has a 40MHz frequency interval, while the 900MHz band has a 13MHz frequency interval.

6. MAVLink Mode Setting



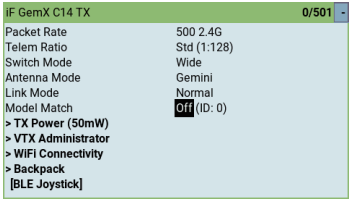
Users can enable MAVLink mode to transmit flight controller data to Betaflight. MAVLink mode must be enabled before binding the transmitter and receiver.

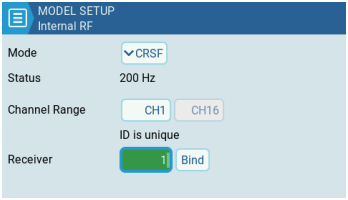
For detailed usage instructions, please refer to the ELRS official website.

https://www.expresslrs.org/software/mavlink/#hand-set-telemetry

Note: Commando 14 currently supports MAVLink data transfer to Betaflight via WiFi only and does not support USB connection.

7. Model Number





When the "Model Number" function is enabled, the receiver will only output control signals if the receiver's number matches the model number. This helps prevent mistakenly controlling other aircraft.

For detailed usage instructions, please refer to the ELRS official website.

https://www.expresslrs.org/software/model-config-match/

8. Built-in RF Module Transmit Power and Fan Startup Power Setting

ELRS Transmit Power, Dynamic Power, and Transmit Startup Power Settings		
Option	Meaning	Usage
Max Power	Transmit Power / Max Power	Sets the RF power of the RF module. When dynamic power is off, this value represents the real-time power. When dynamic power is on, this value represents the upper limit for dynamic power.
Dynamic	Dynamic Power	Dynamic RF Power: The ELRS system dynamically selects the appropriate transmit power based on current signal quality. When the signal is strong, transmit power is reduced; when the signal is weak or the distance increases, transmit power is increased, up to the Max Power limit.
Fan Thresh	Fan Startup Power	Fan Startup Power: The fan is activated when the Fan Thresh value exceeds the Max Power. For example, if Fan Thresh is set to 100mW and Max Power is set to 500mW, the fan will turn on.

9. Binding

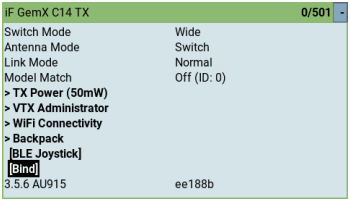
(1) Traditional Binding Method

Using single-band 2.4GHz as an example, other frequencies should be selected according to the dual-band compatibility chart.

Short press the SYS button to enter the system menu and select ExpressLRS LUA script.

Power the aircraft or receiver on continuously three times. When the receiver LED blinks twice, it indicates the receiver has entered the binding mode.

In the LUA script, select BIND.



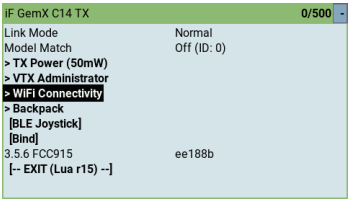
When the receiver LED stays solid, the binding is complete.

(2) Binding Phrase Binding

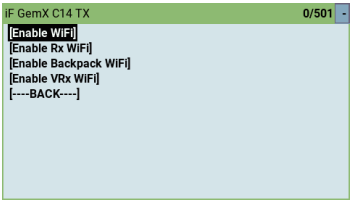
RF Module Setting:

Short press the SYS button to enter the system menu and select ExpressLRS LUA script.

In the LUA script, select WiFi Connectivity.

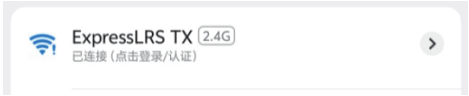


Select Enable WiFi.



When the WiFi Running...[/] page appears, it means the internal RF module has activated the WiFi functionality.

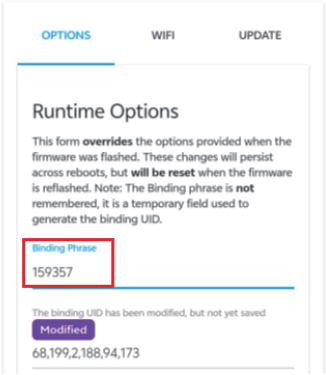
Use your phone, computer, or tablet to connect to the WiFi network named ExpressLRS TX, with the password expresslrs.

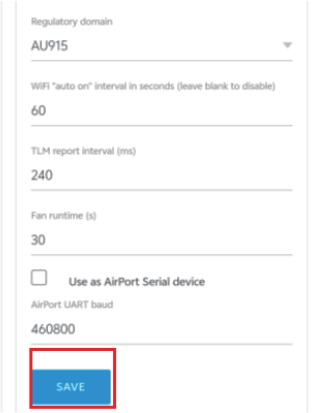


After connecting to the WiFi, the webpage will automatically open. If it doesn't, you can manually input the URL: http://10.0.0.1/

In the Binding Phrase field, enter a custom number or phrase.
Note: When setting the binding phrase, avoid using simple or common phrases, as devices with the same binding phrase within the signal range may connect together, which could result in connecting to another user's ELRS device.

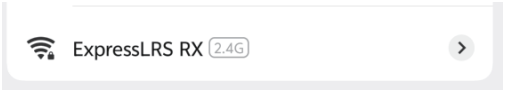
Click SAVE to save the settings.



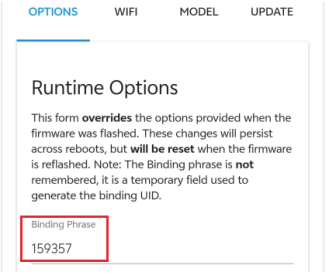


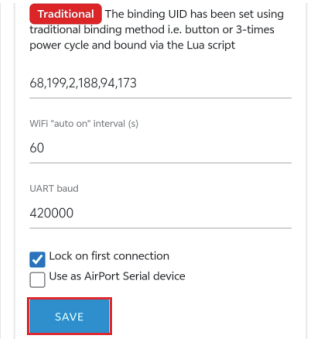
Receiver Setting:
Power on the aircraft or receiver, then long press the BOOT button for 2 seconds, or leave the receiver idle for 60 seconds. The receiver LED will blink quickly, indicating it has entered Wi-Fi mode.

Use your phone, computer, or tablet to connect to the WiFi network named ExpressLRS TX, with the password expresslrs.



After connecting to the WiFi, the webpage will automatically open. If it doesn't, manually input the URL: http://10.0.0.1/
In the Binding Phrase field, enter the same binding phrase used in the RF module, then click SAVE.



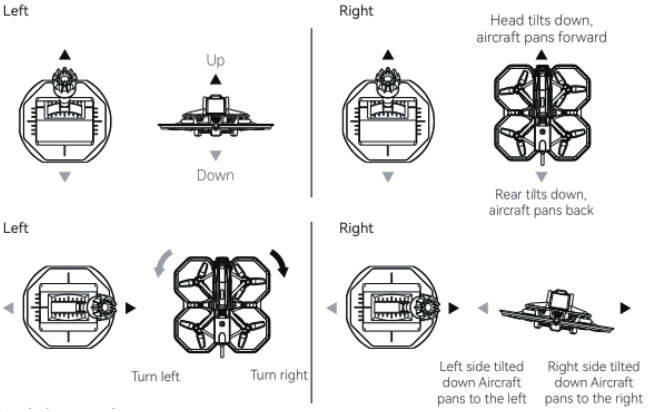


After saving, power on the receiver again after saving to finish binding.

Note:

1. Due to the fast binding speed of ELRS, first put the receiver into binding mode, and then place the transmitter into binding mode.
2. After binding is complete, it is recommended to re-power the receiver.
3. During binding, ensure the receiver and transmitter are at least 1 meter apart.
4. The receiver firmware version must match the RF module firmware version. If binding fails, try updating the receiver and RF module firmware to the latest versions before attempting to bind again.
5. If binding fails, try to reboot both the transmitter and receiver.
6. Some flight controllers with onboard SPI receivers only support up to 250Hz by default.

VI. BASIC FLIGHT OPERATION INSTRUCTIONS



Note: The joystick deflection diagrams are for illustrative purposes only. When operating the joysticks, avoid quickly maxing out the stick positions. You should move the joysticks slowly and effectively for smooth control.

VII. USB FUNCTIONS

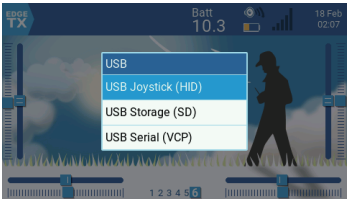
1. Wired Simulator Mode:

① Power on the transmitter.

② Connect the transmitter to the computer using a Type-C data cable.

③ After inserting the Type-C cable, a selection prompt will appear, indicating that the device has entered USB mode.

④ Select USB Joystick (HID) mode to connect to the simulator.



⑤ To exit simulator mode, simply unplug the Type-C data cable.

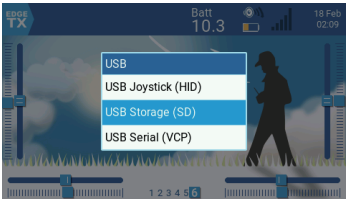
2.SD Card Mode:

① Power on.

② Connect the radio transmitter to the computer using a Type-C data cable.

③ After inserting the Type-C cable, a selection prompt will appear, indicating that the device has entered USB mode.

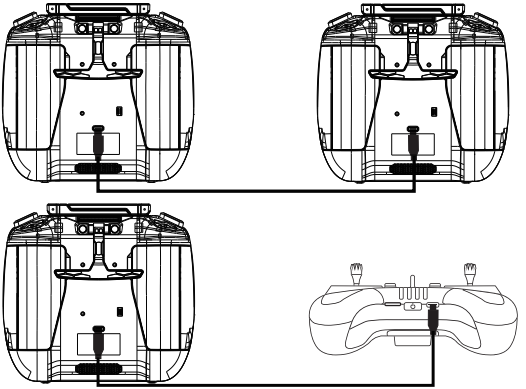
④ Select USB Storage (SD) mode, and the computer will recognize the SD card.



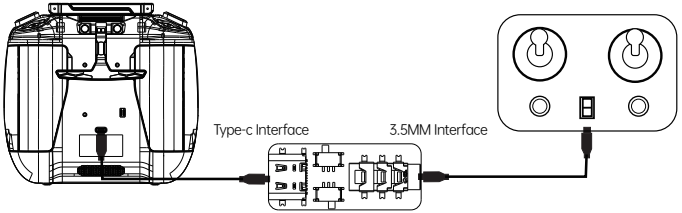
⑤ Unplug the Type-C data cable to exit.

VIII. TRAINER MODE

1. Connect the Commando 14 or Commando 8.

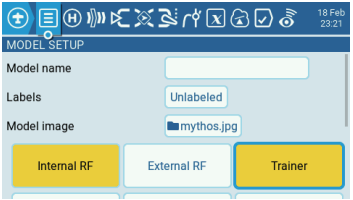


2.Connect the other remote controller.

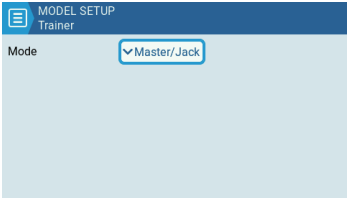


EDGE TX System Settings:
Master Mode:

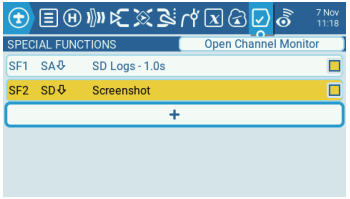
Short press MDL to enter the Model Setup page. In MODEL SETUP, select Trainer to enter the Trainer Mode settings.

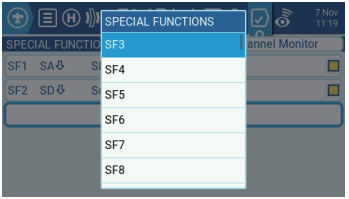


Set the Mode to Master/Jack.



In the SPECIAL FUNCTIONS page, create a new logical switch.Move the cursor to the + sign, then press ENT.

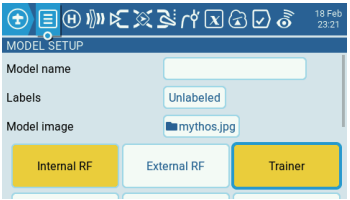




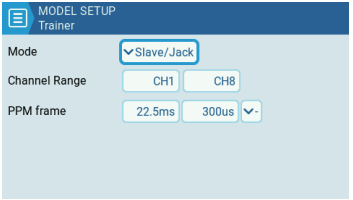
Set the Function to Trainer, the Value to Axis, and enable it by turning on Enable.

Slave Mode:

Short press MDL to enter the Model Setup page. In MODEL SETUP, select Trainer to enter the Trainer Mode settings.

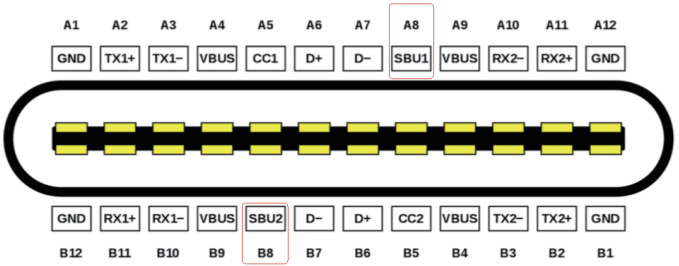


Set the Mode to Slave/Jack.



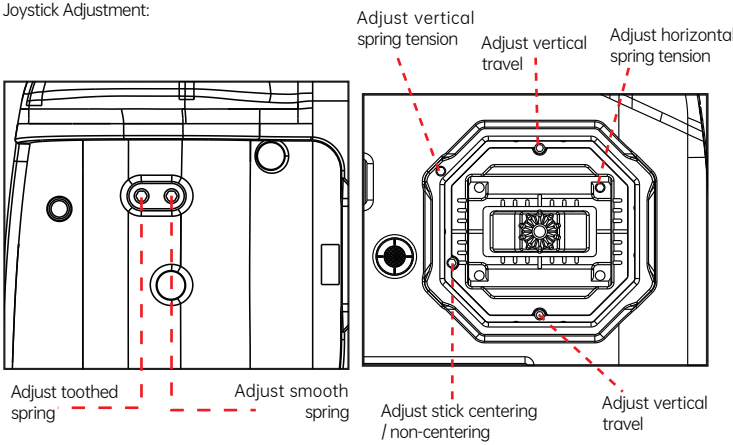
After the trainer mode presses the corresponding switch, the function will be enabled.

Notes:
1. The Type-C port must have SBU1 and SBU2 pins connected. It is recommended to purchase the optional data cable. Please contact customer service for more information.
2. Currently, wired connection to Commando 8 Lite or Commando 8 Nano is not supported. Only radio transmitters with EDGETX or OPEN TX systems are supported.



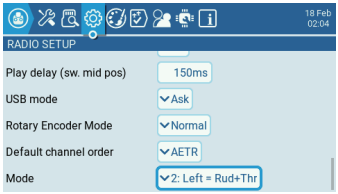
IX. JOYSTICK FOLDING & ADJUSTMENT

Joystick Adjustment:

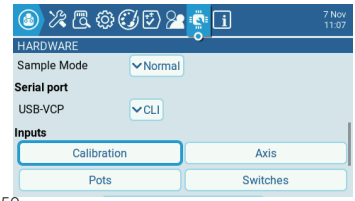


1. Throttle Switching: When switching the throttle from the left stick to the right stick, loosen the centering-switch screw on the left joystick until the left stick can return to center. Adjust the tension screw for the left joystick's spring plate to the desired strength. Then tighten the centering-switch screw on the right joystick until the right stick no longer returns to center. Adjust the tension screw for the right joystick's spring plate to the desired strength.

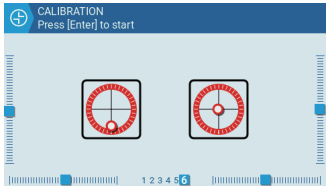
2. Joystick Mode Switching: Commando 14 is set to Mode 2 by default. Users may switch to other modes according to their personal preference. Short press the SYS button to enter the system menu, then use the PAGE button to navigate to the RADIO SETUP page. Under the Mode option, select the desired joystick mode.



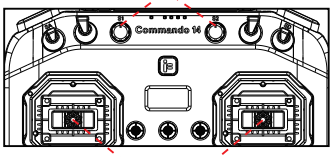
3. Calibration: Press the SYS button briefly to enter the system menu, then use the PAGE button to navigate to the HARDWARE page. In the Inputs section, select Calibration to start the calibration process. The detailed procedure is shown in the illustration below.



1. On the Calibration page, press the Right button (Enter) to begin.

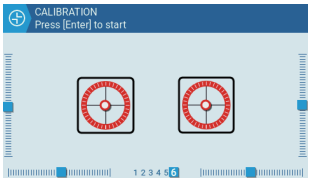


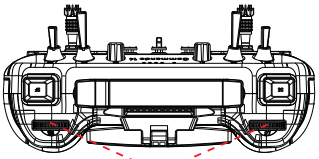
Rotate the scroll wheel to its physical center position.



Place the sticks at their physical center positions.

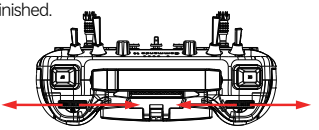
2. Center all sticks, pots, and sliders, then press the Right button (Enter) to calibrate the center points.

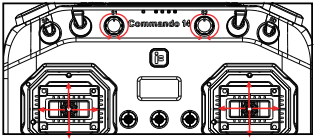




Rotate the scroll wheel to its physical center position.

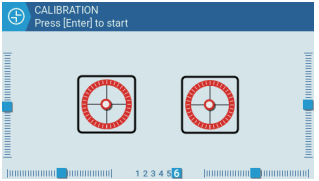
3. Move all sticks, knobs, and scroll wheel through their full range to both the maximum and minimum positions. Once completed, press the button to confirm. Calibration is now finished.





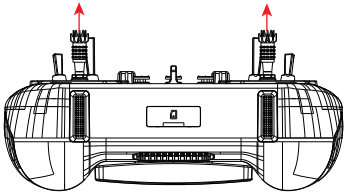
Move the sticks to their maximum positions up, down, left, and right, using a cross calibration pattern.

Note: Do not move the sticks to the corners and avoid circular movements during calibration.

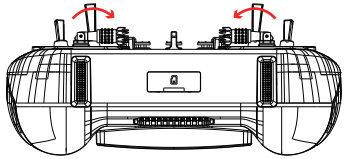


Joystick Folding:

1. Pull the stick end outward.



2. Fold it inward.

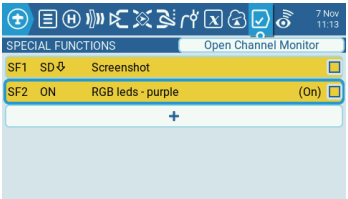


X. JOYSTICK LED STRIP ADJUSTMENT

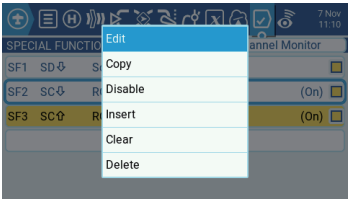
Commando 14 joystick LED strips are controlled by the EdgeTX system. By default, the LEDs are always on. Users can adjust the LED color, status, or turn off the LEDs according to their preference.

Adjustment Procedure:

1. Short press the MDL button to enter the system menu, then use the PAGE button to navigate to the SPECIAL FUNCTIONS page.

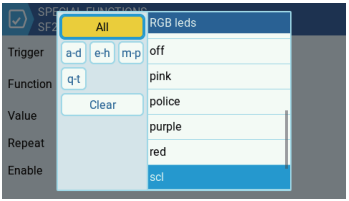


2. Select RGB LED Strip, press ENT, then choose Edit.



3. Enter the LED status adjustment page.

4.Users can adjust the LED strip color, status, or turn it off on the Value page.

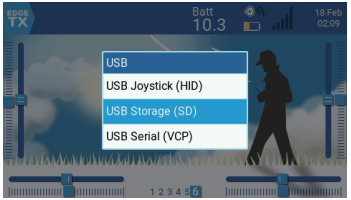


XI. FIRMWARE FLASHING

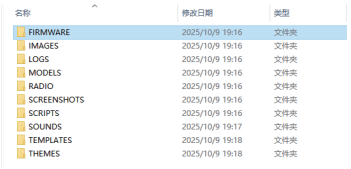
EdgeTX System Firmware Flashing:

1. SD Card Flashing Mode

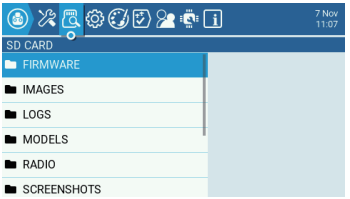
(1) Power on transmitter.
(2) Connect the transmitter to your computer using a Type-C data cable.
(3) After connecting the Type-C cable, a prompt will appear, indicating it has entered USB mode.
(4) Select USB Storage (SD) mode, the computer will then recognize the SD card.



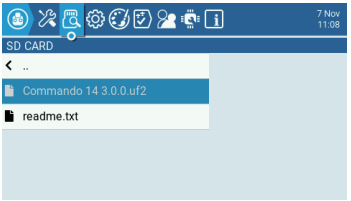
(5) Copy the firmware file (in .uf2 format) into the FIRMWARE folder on the SD card.

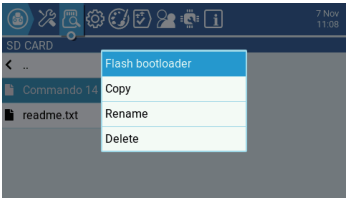


(6) Press the SYS button briefly to go to the SD CARD page.



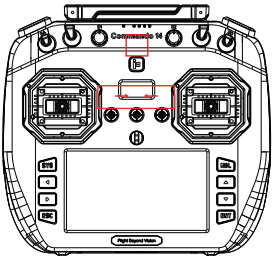
(7) On the SD CARD page, select the corresponding firmware and click Flash bootloader to complete the firmware upgrade.



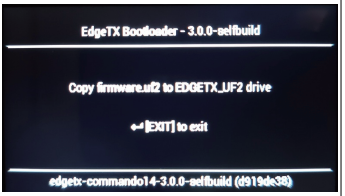


2. Bootloader Mode

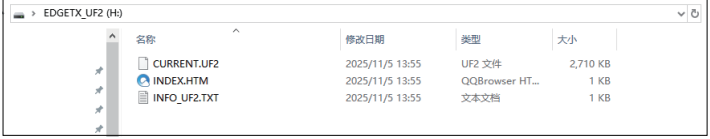
(1) With the transmitter powered off, press the left stick trim button to the right and the right stick trim button to the left, then short press and long press the power button to enter Bootloader mode.



(2) Connect the transmitter to computer using a Type-C data cable.



(3) After connecting the Type-C cable, a prompt will appear, indicating that the transmitter has entered USB mode.



3. DFU Mode

(1) Connect to a computer via USB cable.

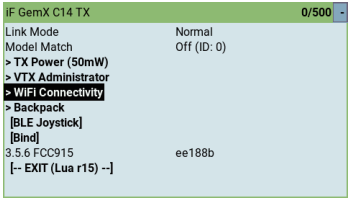
(2) Hold the left stick trim button, then short press and hold the power button to enter DFU mode.

Built-in ELRS RF Module Firmware Flashing:

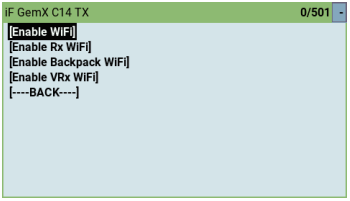
WiFi Mode Flashing:

Short press the SYS button to enter the system menu and select the ExpressLRS LUA script.

In the LUA script, select WiFi Connectivity.

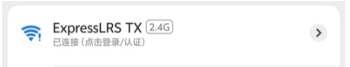


Select Enable WiFi.



When the WiFi Running...[/] page appears, the internal RF module WiFi is active.

Connect your phone, computer, or tablet to the WiFi named ExpressLRS TX, password: expresslrs.

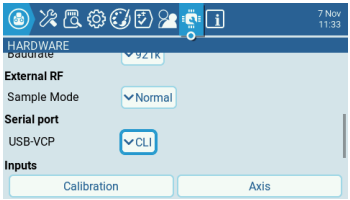


For detailed usage, please refer to the ELRS Web Flasher official website.

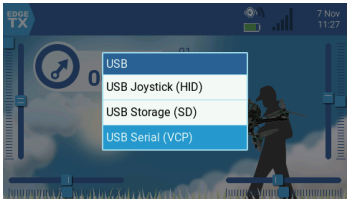
https://expresslrs.github.io/web-flasher/

EdgeTX Direct Flashing Mode:

Press the SYS button to enter the system menu. In the HARDWARE page, set Serial Port USB-VCP to CLI.



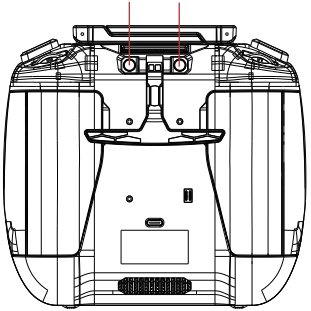
Connect the Commando 14 to a computer via USB cable. When the prompt appears, select USB Serial (VCP).



XII. EXTERNAL RF MODULE BRACKET INSTALLATION

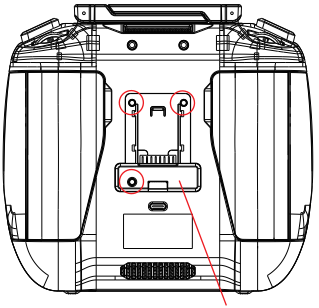
(1) Some RF module antennas may interfere with the transmitter handle. Users can choose to remove the handle based on actual needs.

① Unscrew the screws to remove the handle



(2) Install the external RF module bracket .

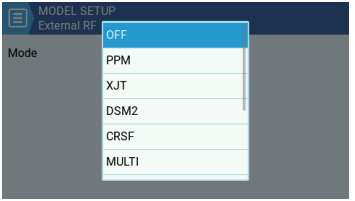
① Remove the protective sticker from the connector.



② Align the external RF module bracket with the screw holes and tighten the screws.

③ Install the external RF module onto the bracket.

④ RF Module Switching: Commando 14 is set to Mode 2 by default. After connecting an external RF module, switching is required. Press the MDL button to enter Model Setup. On the MODEL SETUP page, disable Internal RF and enable External RF, then select the corresponding protocol to use the external module.



XIII. USAGE TIPS

	Recommendations	Operation
ELRS Settings Tips	Select Appropriate RF Power	In the ELRS LUA script, choose the power based on flight distance and environment. For short-range flights (e.g., practice at a field), use 50-100 mW to reduce interference and save power. For long-range flights, use 500–1000 mW.
	Understand and Set Packet Rate	High packet rates (e.g., 500 Hz) reduce control latency, suitable for racing or freestyle flights. Low packet rates (e.g., 25/50/100 Hz) can provide longer signal range. Choose based on the type of aircraft and flight requirements.
	Enable Dynamic Power	When enabled, the transmitter automatically adjusts RF power based on signal quality (SNR). This ensures a stable link while saving energy and extending transmitter battery life.
	Synchronize AUX1 High Position with Arm Switch	When using ELRS devices, AUX1 must be assigned as the arm switch. The high position (2000us) should correspond to the armed state to ensure proper ELRS system operation.
SDLOG Function Application	Enable Logging	Go to Model Setup → SD Logs and enable logging. This records all transmitter actions (sticks, switch positions, ELRS telemetry, etc.) as CSV files on the SD card. It is recommended to assign the same channel as the arm switch, so that SDLOG records automatically when arming, facilitating data analysis.
Extend Battery Life	1. Enable Auto Power-Off 2. Adjust RF Power or Enable Auto Power	1. In System Settings → RADIO SETUP → Power Auto Off, set the auto-off time. When transmitter channels are idle and no receiver is connected, the transmitter will automatically power off after the set time. 2. Set the appropriate transmit power in the ELRS LUA script, or enable auto power.

XIV. TROUBLESHOOTING GUIDE

Issue	Possible Cause	Solution
Transmitter will not power on	1. Battery is depleted. 2. Internal power circuit failure.	1. Connect a PD charger via Type-C cable and charge for 30 minutes, then try powering on again. 2. Contact after-sales service for inspection and repair.
Sticks unresponsive or respond abnormally	1. Sticks not calibrated. 2. Channel mapping incorrect. 3. Stick hardware loose or damaged.	1. Perform stick calibration in EdgeTX system settings. 2. Check channel mapping in Model Setup and ensure correct correspondence to controls. 3. Contact after-sales service for inspection and repair.
Screen not displaying or abnormal display	1. Screen brightness too low. 2. LCD damage.	1. Adjust screen brightness in system settings. 2. Contact after-sales service for inspection and repair.
ELRS signal fails or short range	1. RF module not bound to receiver. 2. RF power set too low. 3. Antenna not installed or damaged. 4. Firmware mismatch.	1. Follow ELRS binding procedure to bind RF module and receiver. 2. Set appropriate RF power in ELRS LUA script. 3. Ensure antennas are properly installed and undamaged. 4. Update internal RF module and receiver firmware to the same version using ExpressLRS Configurator. 5. Keep antennas away from carbon fiber, metal, or other conductive materials.
Bound but flight controller does not receive signal	1. Wiring error or flight controller serial port damaged. 2. Model Match enabled but used incorrectly. 3. Flight controller protocol mismatch.	1. Check wiring between receiver and flight controller, replace for testing if necessary. 2. Use Model Match correctly or disable it. 3. Check receiver output protocol in LUA script and select the correct protocol in the flight controller.

Transmitter cannot charge or charges slowly	1. Charger does not support PD protocol. 2. Type-C cable only supports data. 3. Charging port or battery malfunction.	1. Use a PD-compatible charger (recommended 60 W or above). 2. Use a Type-C cable that supports high-current charging. 3. Contact after-sales service for inspection and repair.
Weak signal	1. Antenna damaged or frequency mismatch. 2. RF module or receiver damaged. 3. Transmitter RF power too low. 4. Environmental interference. 5. Receiver antenna installed incorrectly.	1. Inspect or replace antennas, ensure correct frequency and performance. 2. Inspect receiver for damaged components. 3. Check and adjust transmitter RF power. 4. Measure RSSI dBm at 30cm from transmitter, typical values below -25 dBm. Values above -30 dBm indicate abnormal performance. 5. Replace transmitter or receiver if necessary and monitor RSSI and LQ values. 6. Install antennas away from carbon fiber, metal, and other conductive materials.
External RF module not working	1. External RF module not enabled in Model Setup. 2. Protocol selection incorrect. 3. Module pins not making contact.	1. Enable and configure the External RF module in Model Setup. 2. Select the correct protocol according to the module type (e.g., CRSF). 3. Check module pins for debris or bending.
Transmitter gets hot during operation	1. RF module operating at high power continuously. 2. Fan or vents blocked.	1. Ensure fan is working and vents are clean. 2. Prolonged high-power operation is normal, monitor for safety.
Repeated Telemetry Loss warnings	1. Telemetry ratio too low, causing slow data packet refresh. 2. Receiver or internal RF module damaged.	1. Increase telemetry ratio (e.g., from 1:16 to 1:32). 2. Replace receiver or transmitter, monitor RSSI and LQ values.

XV. SPECIFICATIONS

Commando 14 Specifications

Model: Commando 14
Product Type: Model Aircraft RC Transmitter
Channel: 14 CH (4 stick channels, 4 three-position switch channels, 2 button switch channels, 2 knob channels, 2 wheel channels)
Transmitter System: EdgeTX 3.0.0
RF Power: ELRS GemX Dual Band (2.4GHz / 900MHz) 1W
Antenna: Linearly polarized omnidirectional dual-band dual-antenna (2.4GHz + 900MHz)
Battery: 10.95V, 5000mAh, 54.75Wh (3S1P)
Charging Power: Supports 5–20V 3A, PD 60W MAX
Transmitter Screen: 4.3-inch IPS full-view 1000-nit high-brightness
TX Module Screen: 0.96-inch color display
Folded Dimensions: 180*168.2* 81.4mm ±5mm (sticks and antennas folded)
Unfolded Dimensions: 180*217.4*85.3mm ±5mm (sticks and antennas extended)
Weight: 950g ±10

Warning	The Commando14 is pre-installed with stable firmware. Unless you are experienced and confident in updating the system firmware, incorrect updates may led to radio inoperable. For instructions on updating the main controller firmware and TX module firmware, please refer to the tutorial video.

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