RADIOMASTER RANGER

Features

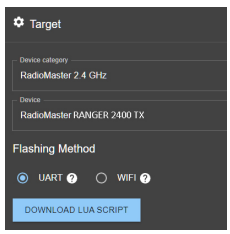
Rugged CNC Case
High efficiency cooling system
OLED Display
Wifi and Bluetooth support
Built in Accelerometer
Packet rates up to F-1000Hz
Directional Nav key and customizable shortcut buttons
Up to 1 Watt Power output
Futaba CRSF Cable included
* Packet rates over 500hz requires EdgeTX 2.7.1 or later

How to update Firmware

Please install ELRS configurator follow
https://www.expresslrs.org/3.0/quick-start/installing-configurator/

Important note on the ExpressLRS LUA Script

You must ensure you are using the Correct matching version of the ExpressLRS Lua script with your Module. When updating the Firmware on your module also take the time to ensure your LUA script on the radio is also updated. In the ExpressLRS configurator click the "Download LUA Script" button to download the newest script. The .LUA file you download should be copied to /SCRIPTS/TOOLS directory of the SD card on your handset. Previous versions of the script can be erased from your SD card if no longer needed.



Module Firmware Update

Step 1: Connect Ranger via usb-cable to PC, then open ELRS-configurator.
Step 2: Select target
Device Category: RadioMaster 2.4 Ghz
Device: RadioMaster Ranger
Step 3: please follow option below
https: //www.expresslrs.org/3.0/quick-start/firmware-options/
Step 4: click BUILD & FLASH , wait flash finished.

Important note on Radio Firmware

For the best performance and compatibility we recommend using EdgeTX 2.7.1 or later with your Ranger ExpressLRS Module. EdgeTX and ExpressLRS have been working together to ensure compatibility and support for the latest features.
Visit http://edgetx.org/ to learn more. The Best way to update your radio is with EdgeTX Buddy found here: https://buddy.edgetx.org/

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Specifications

Regulatory Domain: ISM2400
MCU:ESP32(main),ESP8285(aux, as ESP backpack)
RF chip: SX1281IMLTRT
Frequency Range: 2400 MHz to 2480 MHz
Maximum receiver refresh rate: 500Hz/F-1000Hz
Minimum receiver refresh rate: 25Hz
RF Output Power: 30dBm for FCC, 20dBm for CE
JR standard 5pin socket
Nano standard 8pin socket
Built-in RGB Lights
Built-in OLED screen
G-sensor support
XT30 Power supply voltage: DC 6V ~ 16.8V
Weight: 155 grams (with antenna)
Dimension: 90*51*24mm

How to bind

Ranger module require ELRS V3.0.0 or later. Please ensure your receiver is using V3.0.0 or later first.
There are two ways to bind with RX.

Bind by Ranger

1: Long press Ranger 5-way button, then press up/down to "BIND" menu, press right to enter.
2: Re-power 3 times your ELRS RX, make sure it on bind mode (LED double blink).
3: Press middle button to bind.

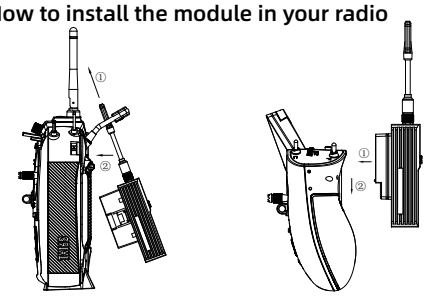
Bind by Radio LUA

1: Enter radio ELRS LUA
2: Re-power 3 times your ELRS RX, make sure it on bind mode (LED double blink).
3: Press "Bind" on LUA menu.

Bind with Bindphrase

Learn more here https://www.expresslrs.org/3.0/quick-start/binding/

How to install the module in your radio



RADIOMASTER RANGER

How and when to use your Moxon or T-Antenna

Type: MOXON
The Moxon directional antenna is intended for long range and has a more narrow field of operation. It is important to keep the Moxon antenna pointed in the general direction of your aircraft.
Antenna polarization: vertical/horizontal polarization
Type: T-Antenna
The T-Antenna is an omnidirectional antenna. It is intended for short to medium range and is suitable for most conditions.
Antenna polarization: vertical/horizontal polarization

How to use Futaba CRSF cable

Please make sure your Futaba radio fw can support CRSF function.
https://futabausa.com/product-support/software-downloads/
Follow futaba manual to select servo test port to CRSF.
Connect Ranger via CRSF cable.
Connect a XT30 2s-3s lipo battery to Ranger.

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产品特点

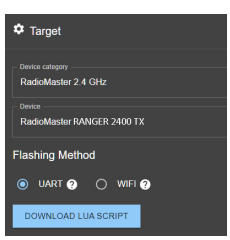
CNC铝合金外壳，强度高、散热性强
强劲涡轮散热，低音运行，双倍风压降温
OLED显示屏
支持WIFI和蓝牙连接
内置加速传感器
刷新率最大支持F-1000Hz
无线功率高达1W
五向主菜单按键以及2个自定义按键
高达1W射频输出功率
包含Futaba CRSF转接线
* 要使用超过500Hz的速率需要EdgeTX 2.7.1或更高固件版本的遥控器

更新Ranger模块的固件

请从ExpressLRS官网下载并安装ExpressLRS Configurator配置器软件，下载地址：
https://www.expresslrs.org/3.0/quick-start/installing-configurator/

关于ExpressLRS LUA脚本的重要说明：

您必须确保在您的遥控器中使用正确匹配版本的 ExpressLRS Lua 脚本。在更新Ranger模块的固件时，还要花时间确保遥控器上的 LUA 脚本也得到更新。在 ExpressLRS 配置器中单击 "Download LUA Script" 按钮以下载最新的脚本。您下载的 .LUA 文件应复制到遥控器内SD 卡的 /SCRIPTS/TOOLS 文件夹下。如果不再需要，可以从 SD 卡中删除旧版本的脚本。



更新Ranger模块的固件步骤：

1、使用USB线将Ranger模块连接至电脑，并在电脑上打开ExpressLRS Configurator软件
2、在Target（目标）中选择：
Device category（设备种类）：RadioMaster 2.4GHz
Device（设备型号）：RadioMaster Ranger
3、相关选项说明请参考以下链接内的说明：
https://www.expresslrs.org/3.0/quick-start/firmware-options/
4、点击BUILD & FLASH（构建并烧录），并耐心等待烧录完成

关于遥控器固件的重要说明：

为了获得最佳性能和兼容性，我们建议遥控器使用 EdgeTX 2.7.1 或更高版本的固件与 Ranger ExpressLRS 模块一起使用。 EdgeTX 和 ExpressLRS 一直在合作以确保对最新功能的兼容性和支持。访问 http://edgetx.org 了解更多信息。更新遥控器的最佳方法是使用 EdgeTX Buddy，可在此处找到：https://buddy.edgetx.org

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技术参数

无线电监管领域：ISM2400
主MCU：ESP32
辅助MCU：ESP8285（Backpack）
射频IC: SX1281IMLTRT
工作频段: 2400 MHz - 2480 MHz
最高数据包速率：500Hz/F-1000Hz
最低数据包速率： 25Hz
射频功率：30dBm(FCC), 20dBm(CE)
接口：标准5针JR接口、标准8针Nano接口
灯光：RGB氛围灯
屏幕：OLED
附加功能：G-sensor
外置供电：XT30电源插座DC 6V ~ 16.8V
重量： 155g（含天线）
尺寸：90*51*24mm

如何对频

Ranger 模块需要 ELRS V3.0.0 或更高版本。请确保您的接收机正在使用 V3.0.0 或更高版本

与接收机对频的两种方式：

在Ranger模块上对频：

1、长按 Ranger 五维按键，然后按上/下键进入 "BIND" 菜单，按右键进入
2、接收机重复通电三次，确保接收机进入对频模式（接收机灯循环双闪）
3、按下Ranger中间键开始对频

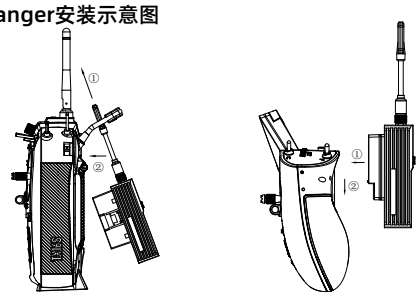
通过遥控器LUA脚本对频：

1、在遥控器上选择并打开ExpressLRS脚本
2、接收机重复通电三次，确保接收机进入对频模式（接收机灯循环双闪）
3、在ExpressLRS脚本中选择[BIND]开始对频

自定义对频码：

自定义对频码后，可以忽略以上对频过程，Ranger模块与接收机设定了相同的对频码后，将直接绑定，不再需要对频。
关于如何自定义对频码，请参考： https://www.expresslrs.org/3.0/quick-start/binding

Ranger安装示意图



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如何使用Moxon（莫克森天线）或 T型天线

Moxon天线（莫克森天线）：

Moxon 定向天线适用于长距离并且具有更窄的操作范围。 保持 Moxon 天线指向飞机的大致方向很重要。

天线极化方向： 垂直/水平极化

T型天线：

T型天线是一种全向天线，它适用于短到中等距离，适用于大多数情况。

天线极化方向： 垂直/水平极化

如何使用Futaba CRSF转接线

请确保您的 Futaba 无线电固件可以支持 CRSF 功能。
https://futabausa.com/product-support/software-downloads/
按照 futaba 手册选择舵机测试端口为 CRSF
通过 CRSF转接线连接 Ranger
将 XT30 2s-3s 锂电池连接到 Ranger