ELRS 915M/2.4G GemX 双子座接收机

使用说明书

V1.0

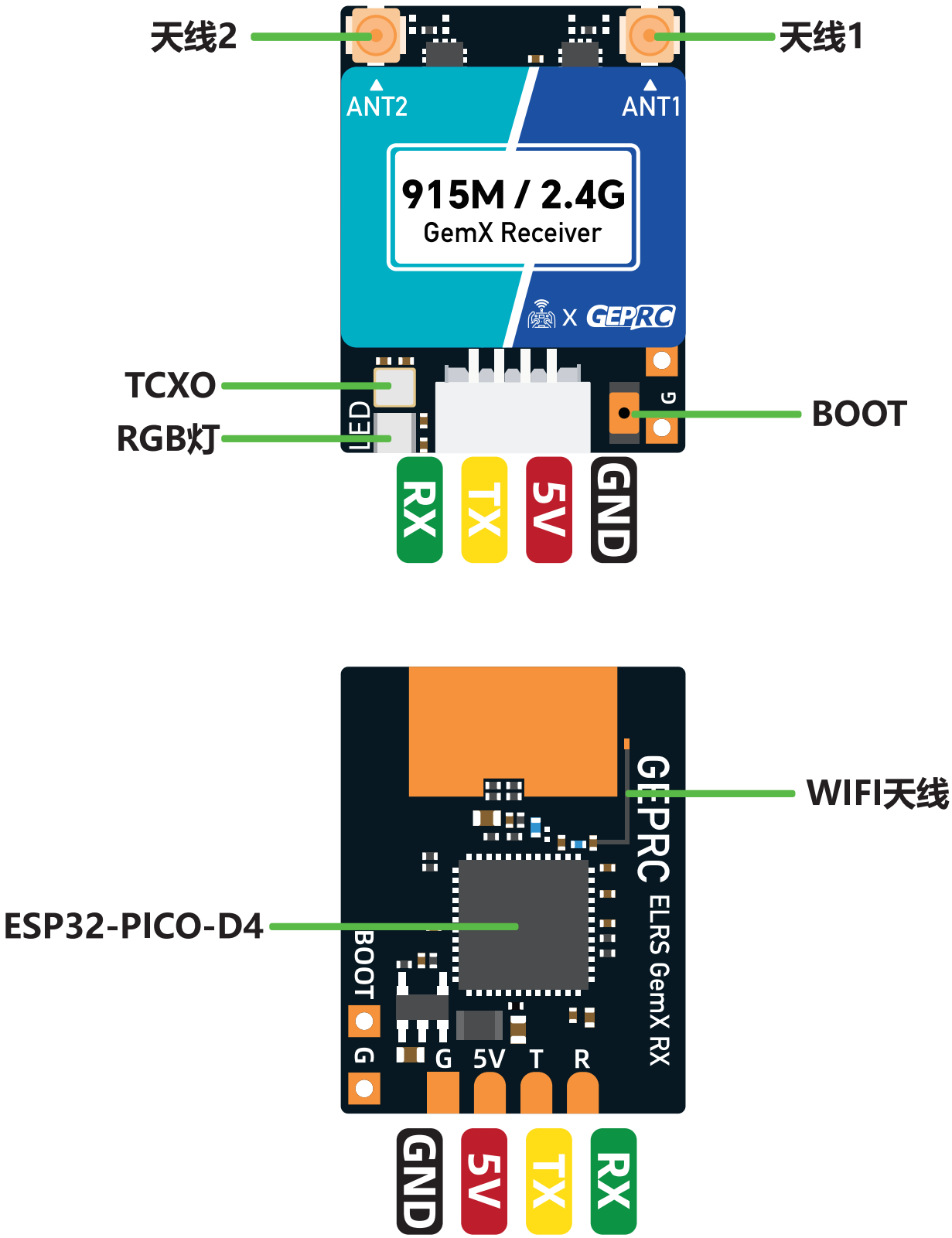
产品简介

GEPRC ELRS 915M/2.4G GemX 双子座接收机 是基于ExpressLRS开源项目所研发的新一代双频接收机系统。它基于Semtech第三代LR1121射频芯片设计，支持150-960MHz(sub-GHz)和2.4GHz频段，提供先进的双频段同时通信的能力。
采用双LR1121芯片设计的ELRS 915M/2.4G GemX 双子座接收机，搭配915M/2.4G双频天线，可随时切换为915M双子座、2.4G双子座、915M+2.4G双频 工作模式（需双频高频头支持），且完全兼容现有的915M和2.4G ELRS高频头。

基本参数

产品名称：	GEPRC ELRS 915M/2.4G GemX 双子座接收机
固　　件：	GEPRC 900/2400 Gemini Xrossband RX
芯　　片：	ESP32-PICO-D4, LR1121x2
尺　　寸：	18x23.6x5.7mm
重　　量：	1.7g(仅接收机)
刷 新 率：	25Hz-1000Hz
晶　　振：	温补晶振
天线接口：	ipex1
回传功率：	100mW
工作电压：	5V
工作频段：	915MHz Gemini、2.4GHz Gemini、915M+2.4G双频模式

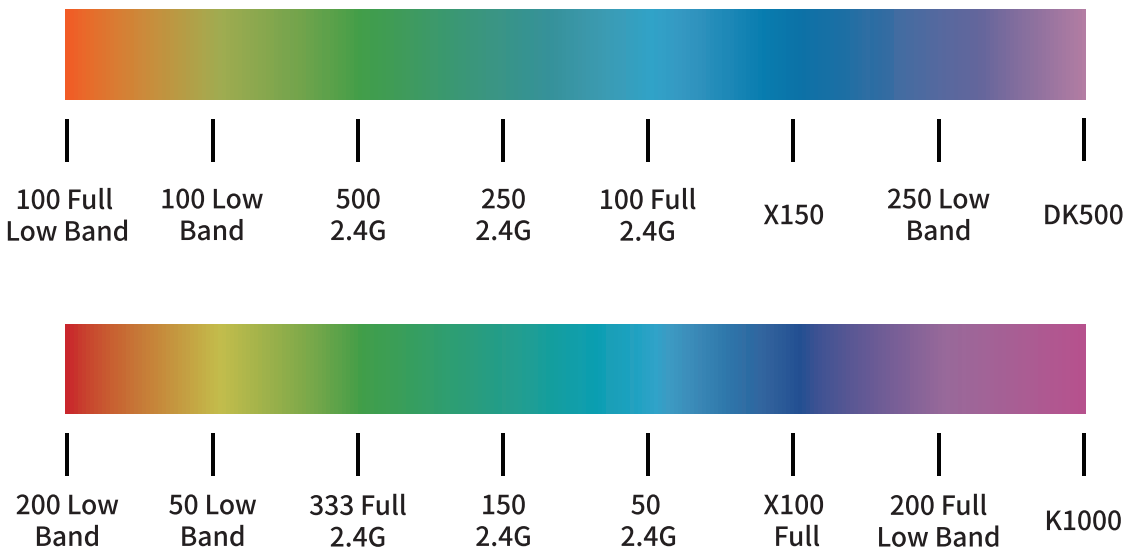
接收机示意图


天线2
天线1
ANT2
ANT1
915M / 2.4G
GemX Receiver
X GEPRC
TCXO
RGB灯
LED
G
BOOT
RX
TX
5V
GND
WIFI天线
ESP32-PICO-D4
GEPRC ELRS GemX RX
BOOT
G
G 5V T R
GND
5V
TX
RX

状态灯含义

指示灯颜色	LED灯状态	含义
彩虹	渐变	启动中
绿色	快闪	WIFI模式
红色	快闪	未检测到射频芯片
橙色	双闪	对频状态
橙色	三闪	已对上频，但与模型匹配中的设置不一样
橙色	慢闪	无发射机信号
	常亮	已连接，颜色代表不同的刷新率

刷新率对应的RGB灯颜色如下图所示：

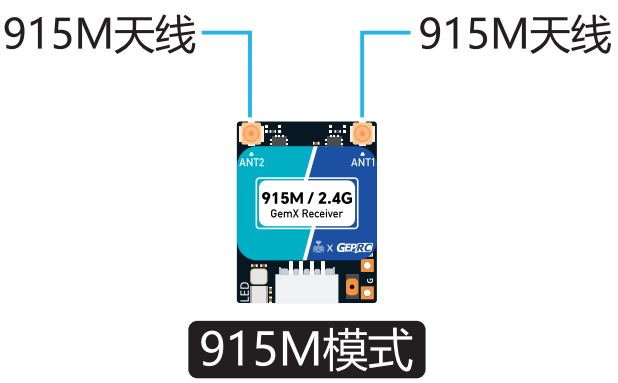


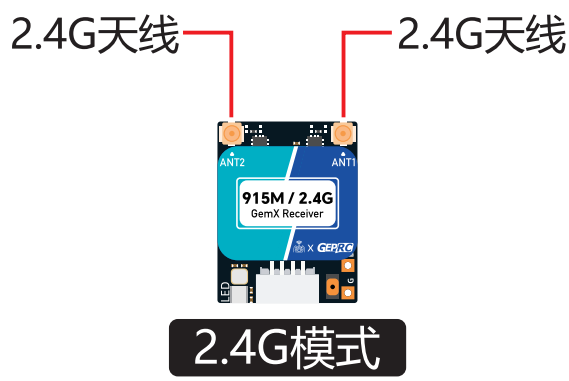
其中Low　Band是工作在915M模式下的刷新率，2.4G是在2.4G模式下的刷新率，X是工作在915M+2.4G双频模式下的刷新率，FULL是在该模式下实现16通道全分辨率输出的模式，DK500模式以1000Hz的频率发送数据包，但使用DVDA 发送重复的数据包，K1000 模式针对 Mavlink 和 Ardupilot 用户，在915M频段参数下载理论上可以在10 秒内完成。

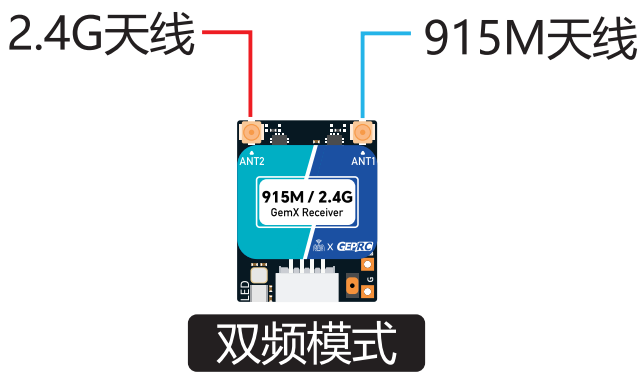
天线安装

接收机出厂标配双频T型天线，安装双频天线时无需考虑频段切换的问题。当自行更换为单频天线时，需注意以下几点：

1.工作在915M模式时，需安装2根915M天线；
2.工作在2.4G模式时，需安装2根2.4G天线；
3.工作在915M+2.4G双频模式时，ANT1必须安装915M天线，ANT2必须安装2.4G天线。

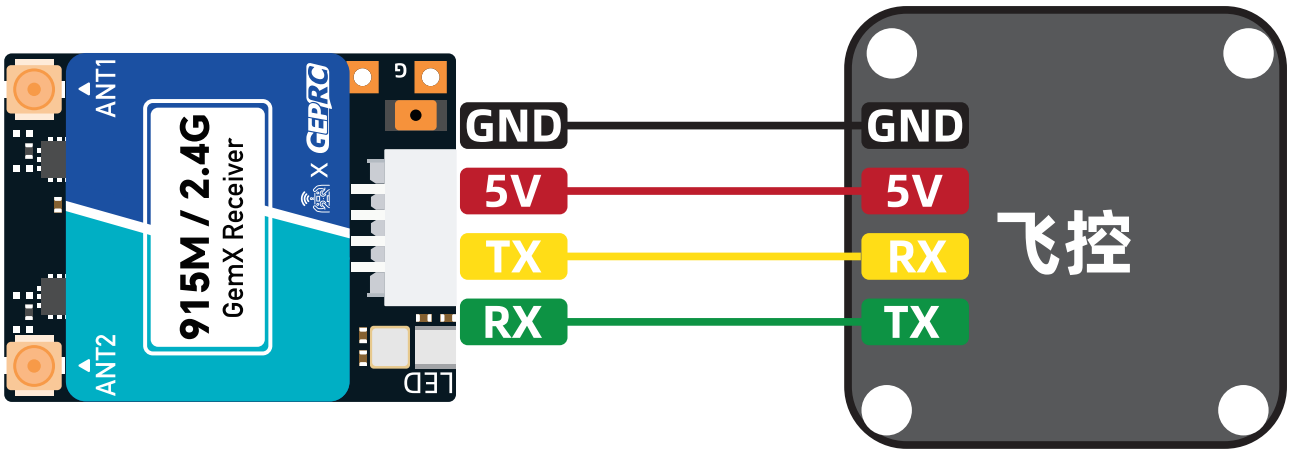






使用方法

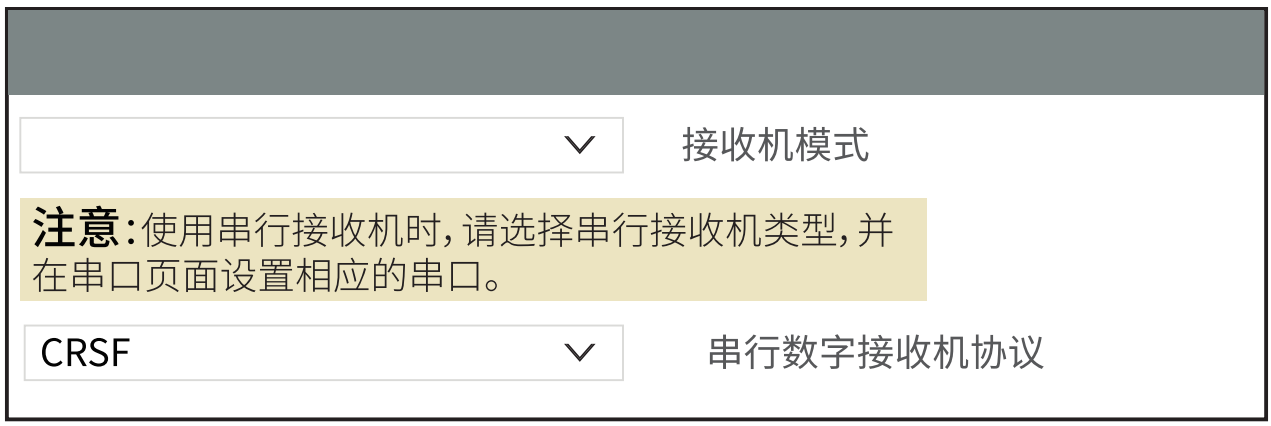
接收机和飞控连接示意图:



打开Betaflight 地面站，转到端口界面，根据焊接情况，开启对应端口的“串行数字接收机”开关(以端口2为例)，然后保存重启。

标识符	设置/MSP	串行数字接收机
USB VCP	115200 ▼	
UART1	115200 ▼	
UART2	115200 ▼	

设置接收机模式为“串行数字接收机”，并把串行数字接收机协议设置为“CRSF”。



对频操作

ELRS 915M/2.4G GemX 双子座接收机出厂固件版本为3.5以上，建议在对频前将高频头升级到最新版本。

1.接收机连续通断电三次（需要RGB灯亮起后才可断电），或者通电后按住BOOT键持续7秒；

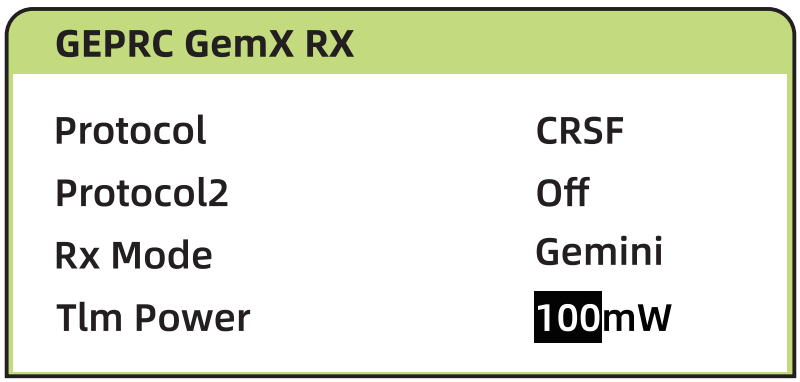
2.观察接收机RGB灯，变为橙色双闪状态，表示接收机已进入对频状态；

3.可使用915M、2.4G单频高频头，或915M+2.4G双频高频头进行对频，待接收机RGB灯由双闪变为慢闪，再变为常亮状态，即对频成功。

回传功率

1.进入ELRS脚本文件，点击下方的“**Other Devices**”选项，然后选择“**GEPR GemX RX**”选项，进入接收机参数设置；

2.在接收机参数设置中，调整“**Tlm Power**”的数值，可以修改接收机的回传功率。



关于ELRS

由于ExpressLRS项目更新的速度比较快，说明书中许多内容没法及时更新，更多内容欢迎访问ELRS项目库和官方网站介绍。

github地址：https://github.com/ExpressLRS/ExpressLRS

官方网站：https://www.expresslrs.org

产品清单

1 x ELRS 915M/2.4G GemX 双子座接收机
2 x 915M/2.4G 双频T型天线
1 x 热缩管
1 x 4pin 硅胶连接线
1 x 使用说明书

联系我们

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ELRS 915M/2.4G Gemini Xrossband Receiver

User Manual

V1.0

Product Introduction

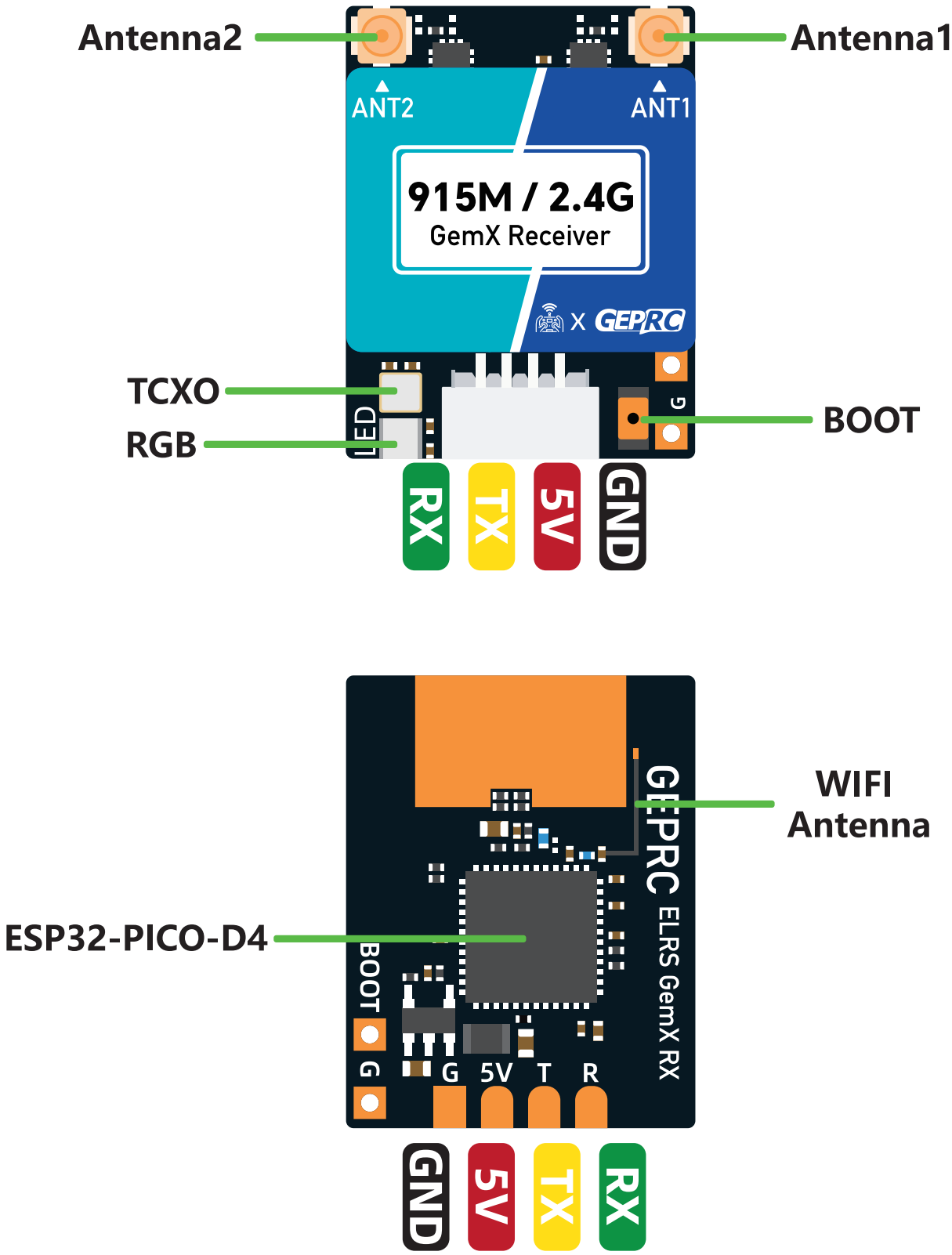
The GEPRC ELRS 915M/2.4G Gemini Xrossband Receiver is a new dual-band system developed from the ExpressLRS open-source project. It is designed based on Semtech's third-generation LR1121 RF chip, supporting 150-960MHz (sub-GHz) and 2.4GHz bands for simultaneous dual-band transmission.

The ELRS 915M/2.4G Gemini Xrossband Receiver features dual LR1121 chips, allowing easy switching between 915M Gemini, 2.4G Gemini, and dual-band 915M+2.4G modes (requires dual-band TX module support) when paired with 915M/2.4G antennas. It is fully compatible with existing 915M and 2.4G ELRS TX modules.

Specifications

Model:	GEPRC ELRS 915M/2.4G Gemini Xrossband Receiver
Firmware:	GEPRC 900/2400 Gemini Xrossband RX
Chips:	ESP32-PICO-D4，LR1121x2
Dimension:	18x23.6x5.7mm
Weight:	1.7g (only receiver)
Refresh Rate:	25Hz-1000Hz
Crystal Oscillator:	TCXO
Antenna Connector:	ipex1
TLM Power:	100mW
Operating Voltage:	5V
Frequency Bands:	915MHz Gemini,2.4GHz Gemini, 915M+2.4G Dual-Band

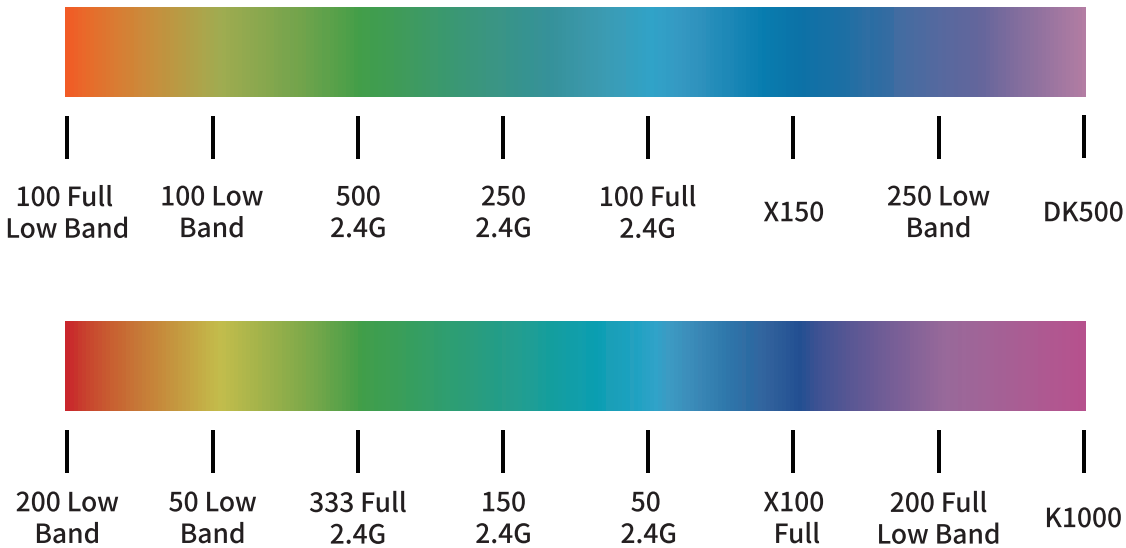
Receiver diagram



LED Status indication

RGB Color	Status	Description
Rainbow	Fade effect	Power on
Green	Quick flash	WIFI upgrading mode
Red	Quick flash	No RF chip detectde
Orange	Double flash	Binding mode
Orange	Triple flash	Connected,but mismatched model-match configuration
Orange	Slow flash	Waiting for connection
	Solid on	Connected and color indicates packet rate

The RGB light color corresponding to the packet rate is shown in the figure below:



Low Band is for 915M mode refresh rates, and 2.4G is for 2.4G mode. X covers refresh rates in dual-band mode. FULL provides full 16-channel resolution. DK500 sends data at 1000Hz and uses DVDA to send duplicate packets. K1000 is aimed at Mavlink and Ardupilot users, with parameter downloads in around 10 seconds on 915M.

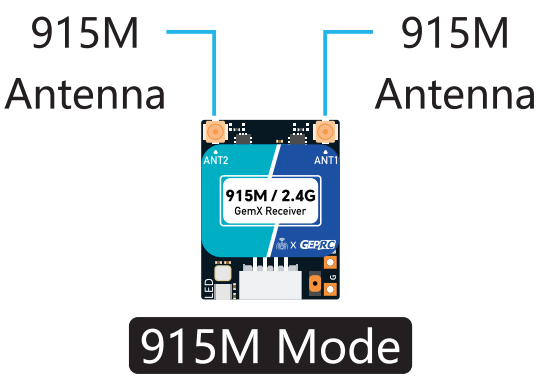
Antenna Installation

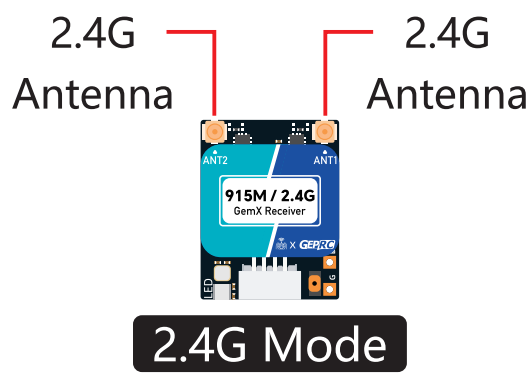
The receiver comes with a T-shaped dual-band antenna, there's no need to switch bands! For single-band antennas, follow these guidelines:

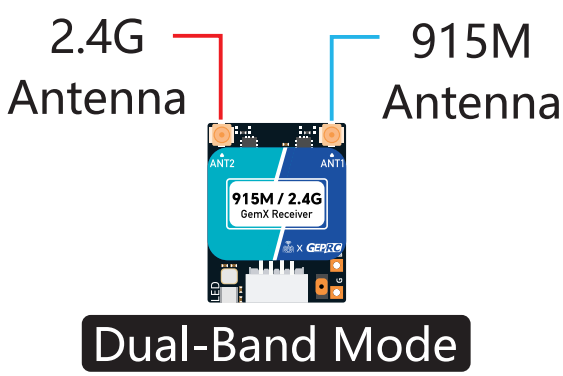
1.Install two 915M antennas for 915M mode;

2.Install two 2.4G antennas for 2.4G mode;

3.In dual-band mode, install the 915M antenna on ANT1 and the 2.4G antenna on ANT2.

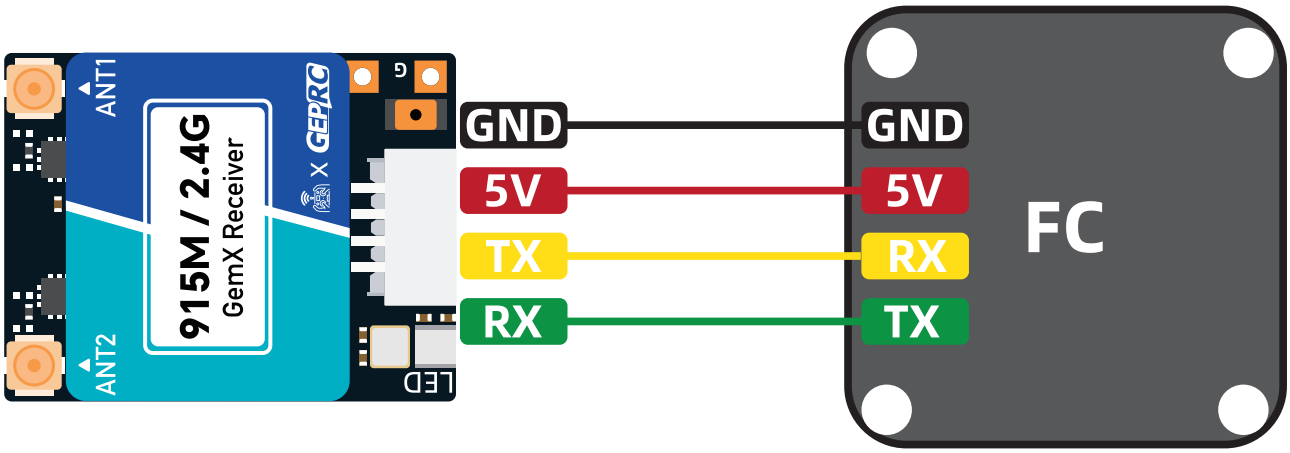






Instructions

Receiver and FC connection diagrem:



Open Betaflight Configurator, go to “Ports”tab and enable the corresponding UART as a Serial Rx (e.g. UART2 as shown below). Save and restart.

Identifier	Configuration/MSP	Serial RX
USB VCP	115200 ▼	
UART1	115200 ▼	
UART2	115200 ▼	

On the“Configuration”tab, click on“Serial-based receiver”on the“Receiver”panel, and select “CRSF”.

Receiver
Serial-based receiver(SPEKSAT,S ⌄ Receiver Mode
Note: Remenber to configure a Serial Port(via Ports tab)and choose a se Receiver Provider when using RX_SERIAL feature
CRSF ⌄ Serial Receiver Provider

Binding

For the ELRS 915M/2.4G GemX with firmware 3.5 or later, update the TX to the latest version before binding.

1.Power cycle the receiver three times (RGB light turn on before powering off) or hold the BOOT button for 7 seconds;

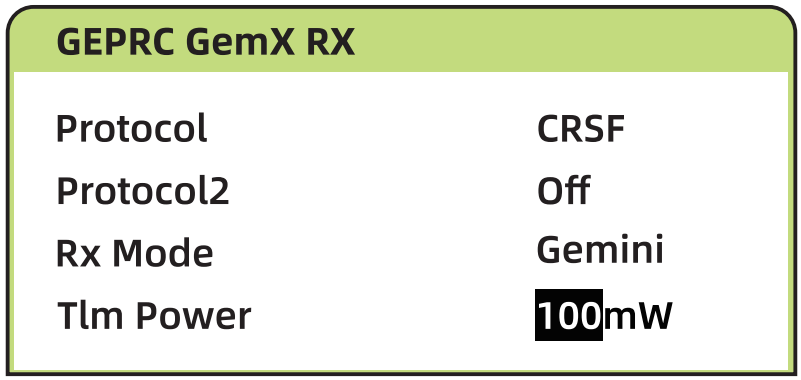
2.When the RGB light blink orange, it's in binding mode;

3.Use a 915M, 2.4G, or 915M+2.4G dual-band TX for binding. When the RGB light turns solid, binding is done.

TLM Power

1. Access the ELRS script file, click "**Other Devices**" in the lower part, and select "**GEPR GemX RX**" to enter receiver parameter Settings.

2. In the receiver parameter setting, adjust the value of "**Tlm Power**" to modify the receiver's TLM power.



About ELRS

ExpressLRS project is being constantly updated - the contents of this manual cannot be kept up-to-date in time. For more information, please visit the ELRS Project official.

github：https://github.com/ExpressLRS/ExpressLRS

Official website：https://www.expresslrs.org

Product list

1 x ELRS 915M/2.4G Gemini Xrossband Receiver
2 x 915M/2.4G Dual-band T-Antennas
1 x Heat shrink tube
1 x 4-pin silicone connect cable
1 x User manual

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