



Nano接收机

使用说明书



Welcome to ExpressLRS!

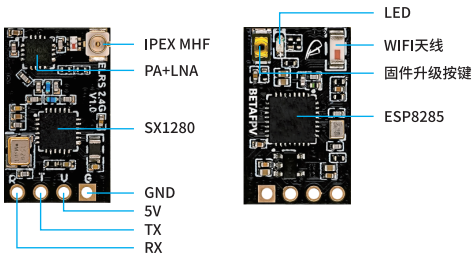
BETA FPV Nano接收机,是基于开源项目ExpressLRS开发的新一代遥控无线系统。ERLS系统具有遥控距离长,连接稳定,低延迟,刷新率高,配置灵活等特点。

项目Github地址:<https://github.com/ExpressLRS>

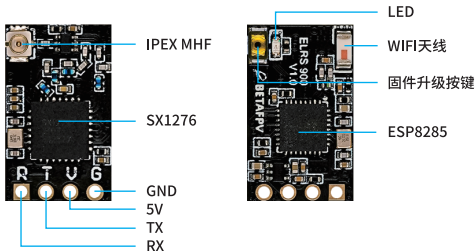
基本参数

- 重量:0.7g(只有接收机)
- 尺寸:12mm*19mm
- TLM功率(回传功率):20dBm
- 频段(Nano接收机2.4GHz版本):2.4GHz ISM
- 频段(Nano接收机915MHz/868MHz版本):915MHz FCC /868MHz EU
- 工作电压:5V
- 天线接口:IPEX MHF

Nano接收机2.4G版本的产品框图如下所示



Nano接收机915MHz/868MHz的产品框图, 如下所示



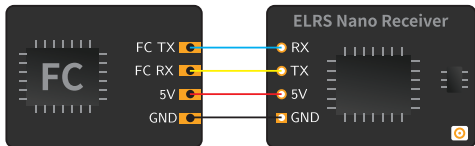
接收器状态指示灯含义

指示灯状态	含义
常亮	绑定成功或连接建立
双闪	绑定模式
慢闪	无TX模块信号连接
快闪	WIFI模式

基本配置

Nano接收机目前只支持Crossfire串行信号。下面以使用Betaflight固件的飞控为例，介绍其连线和端口配置。

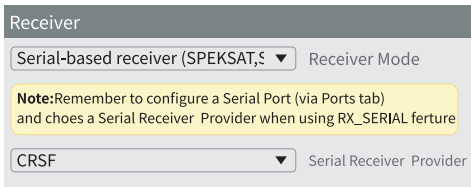
Nano接收机和飞控之间的连线，如下图所示。



将飞控连接到Betaflight Configurator，进行基本配置。首先在“端口”页面，开启飞控串口（以UART3为例）为“Serial Rx”。

Identifier	Configuration/MSP	Serial Rx
USB VCP	<input checked="" type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART1	<input type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART2	<input type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART3	<input type="checkbox"/> 115200 ▼	<input checked="" type="checkbox"/>

在”配置“页面,设置接收机模式 (Receiver Mode)为”串行数字接收机“,设置串行数字接收机协议 (Serial Receiver Provider)为”CRSF“。



对频

Nano接收机通过连续三次上电,进入对频状态。

1. 连续给接收机上电、断电三遍;
2. 接收机上LED两次快速闪烁,表示接收机处于对频模式;
3. 使用遥控器或者高频头,和接收机进行对频;如果接收机LED变为常亮,表示对频成功。

注意:对频一次,接收机会记住对频信息,以后重启会自动连接成功,无需重新对频。

■ 更多信息

由于ExpressLRS项目还处于更新活跃期, 更多详细的信息, 如常见问题, 最新的说明书等, 请到BETAFPV官方支持(技术支持->ExpressLRS遥控系列)下获取。

<https://support.betafpv.com/hc/zh-cn>

- 最新说明书;
- 如何升级固件;
- 常见问题。



Nano Receiver

User Manual



Welcome to ExpressLRS!

BETA FPV Nano receiver is based on ExpressLRS project, open source RC link for RC applications. ExpressLRS aims to achieve the best possible link performance in both speed, latency and range. This makes ExpressLRS one of the fastest RC links available while still offering long-range performance.

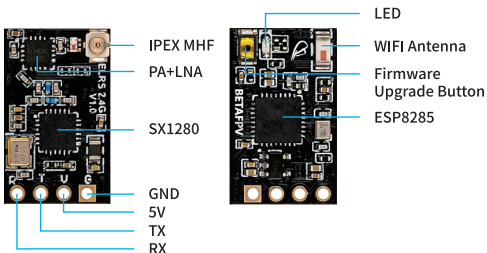
Github Project Link: <https://github.com/ExpressLRS>

Facebook Group: <https://www.facebook.com/groups/636441730280366>

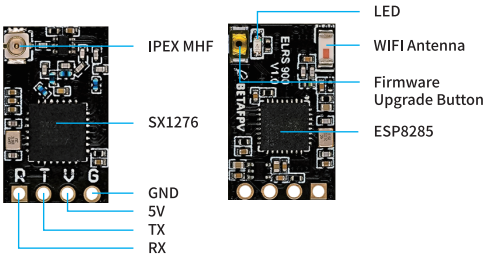
Specifications

- Weight: 0.7g (receiver only)
- Size: 12mm*19mm
- Telemetry power: 20dbm
- Frequency bands (Nano receiver 2.4G version): 2.4GHz ISM
- Frequency bands (Nano receiver 915MHz/868MHz version): 915MHz FCC/868MHz EU
- Input voltage: 5V
- Antenna connector: IPEX MHF

Nano receiver 2.4G version diagram as show below.



Nano receiver 868MHz/915MHz version diagram as show below.



Nano receiver LED status indication as show below.

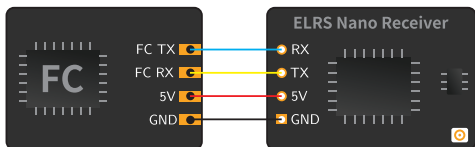
Indicator status	Meaning
Solide on	Connected successfully
Flash double quickly	Binding status
Flash slowly	Connection fail
Flash qucikly	WIFI upgrade status

Basic Configuration

<https://github.com/ExpressLRS/ExpressLRS/wiki/OpenTX-and-Betaflight-Setup>

ExpressLRS uses the Crossfire serial protocol (AKA CRSF protocol) to communicate between the receiver and the flight controller board. So make sure your flight controller board support the CRSF serial protocol. Next, we use the flight controller with Betaflight firmware to show how to setup the CRSF protocol.

The connection between ELRS Nano receiver and FC board is show as below.



Enable the corresponding UART (e.g. UART3 below) as a Serial Rx on Betaflight Configurator "Ports" tab.

Identifier	Configuration/MSP	Serial Rx
USB VCP	<input checked="" type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART1	<input type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART2	<input type="checkbox"/> 115200 ▼	<input type="checkbox"/>
UART3	<input type="checkbox"/> 115200 ▼	<input checked="" type="checkbox"/>

On the "Configuration" tab, select "Serial-based receiver" on the "Receiver" panel, and select "CRSF" as the protocol. Telemetry is optional here and will reduce your stick update rate due to those transmit slots being used for telemetry.

Receiver

Serial-based receiver (SPEKSAT,S ▼) Receiver Mode

Note:Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX_SERIAL feature

CRSF ▼ Serial Receiver Provider

Bind

Nano receiver could enter binding status by power on/off three times.

- Plug in and unplug nano receiver three times;
- Make sure the LED is doing a quick double blink, which indicates the receiver is in bind mode;
- Make sure the RF TX module or radio transmitter enter binding status, which sends out a binding pulse;
- If the receiver has a solid light, it's bound.

Note: Binding once and the receiver will store the binding information. Re-power and the connect successfully auto.

More Information

As ExpressLRS project is still in frequently update, please check BETAFPV Support (Technical Support -> ExpressLRS Radio Link) for more details and newest maunal.

<https://support.betafpv.com/hc/en-us>

- Newest user manual;
- How to upgrade the firmware;
- FAQ and troubleshooting.