



# 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.

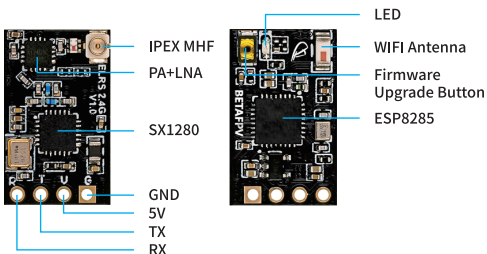
Github Project Link: <https://github.com/ExpressLRS>

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

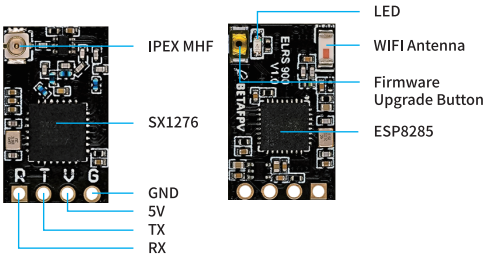
## Specifications

- 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.

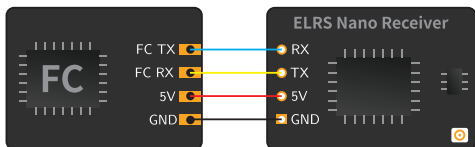
Indicator status	Meaning
Solide on	Connected successfully
Flash double quickly	Binding status
Flash slowly	Connection fail
Flash qucikly	WIFI upgrade status

## 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.