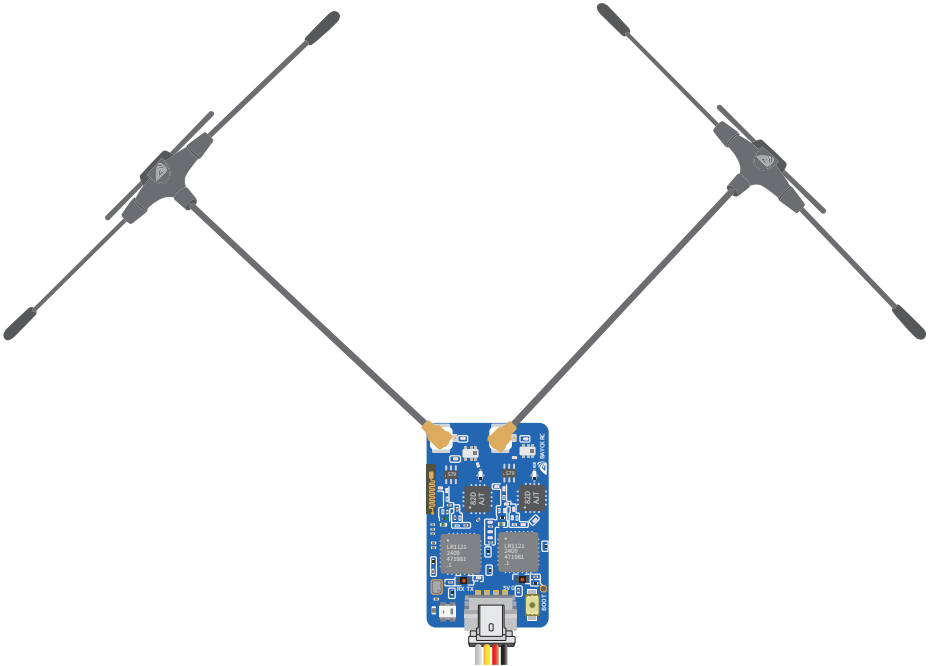




BAYCKRC 900/2400 Dual Band Gemini RX Manual Instructio

V1.0 2024.6

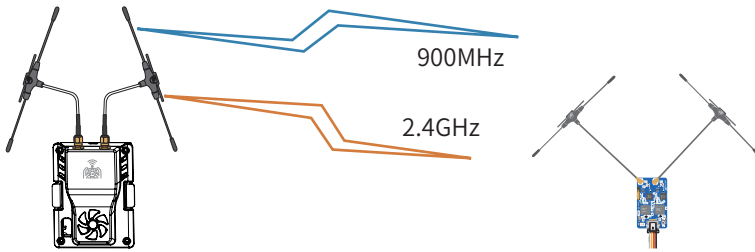


Introduce :

BAYCKRC 900/2400 Dual Band Gemini RX is receiver remote control system optimized and developed based on the ExpressLRS open Source project. It use LR1121(Semtech' s third-operation transceiver) and can be configured with 150-960Mhz (sub-Ghz)or 2.4Ghz,LoRA. The sub-Ghz range is fully compatible with current ELRS 433/868/900 ranger and have +100mW output capability(SX 1276 maximum output power +50mW) . It is also fully compatible with all 2.4ghz LoRa modes , but not support FLRC mode ,and 2.4Ghz D and F modes are not supported .

LR1211 adds 4 new RF Modes

- 1.Sub-GH 250Hz (-111dBm)····,yes , the ELRS organization is stepping up!
- 2.Sub-GHz 200Hz full speed (-111dBm), The mode is specifically for our Mavlink users. The packet rate is twice that of current 900 SX1276 hardware
- 3.Dual-band X150Hz (-112dBm) performs sub-Ghz and 2.4Ghz simultaneous transmission in Gemini Mode
- 4.Dual band X100Hz full band (-112dBm)simultaneous sub-Ghz and 2.4Ghz transmission in Gemini mode . Dual band Dual band fusion is to assign the second antenna to the 2.4g frequency band under 915 Gemini



2.4Ghz/900MHz Dual antenna Dual frequency

BAYCKRC 900/2400 Dual Band Gemini RX

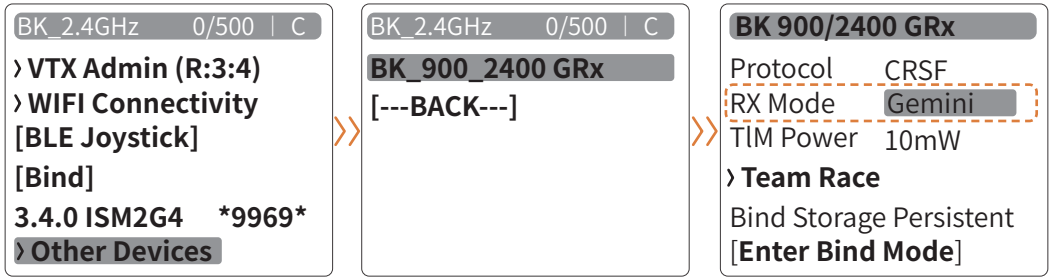
5 types receiving modes can be realized

- 1.900Mhz diversity mode (dual-antenna true diversity mode) ,used with 900Mhz Single packet transmitter
- 2.900Mhz Gemini mod(dual antenna Gemini Mode), used with 900Mhz Dual packet transmitter
- 3.2.4Ghz diversity mode(dual-antenna true diversity) , used with 2.4Ghz single packet transmitter
- 4.2.4Ghz Gemini mode(dual -antenna true diversity mode), used with 2.4ghz Dual packet transmitter
- 5.900Mhz&2.4Ghz dual band Gemini mode(dual-antenna Gemini Mode) , used with 900mhz&2.4Ghz dual antenna dual core packet transmitter. The transmitter must is the LR1122 (dual core dual frequency)

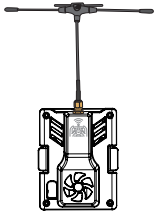
Official website introduction about Gemini:

BAYCKRC 900/2400 Dual Band Gemini RX , we use 2 LR1121, then can achieve the following 5 modes : <https://www.expresslrs.org/software/gemini/#how-does-a-gemini-rx-behave-when-paired-with-a-non-gemini-tx>

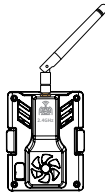
How to exchange RX mode



BAYCKRC 900/2400 Dual Band Gemini RX compatible with all transmitters



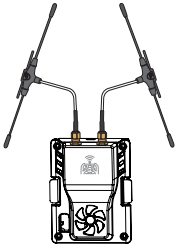
2.4GHz/900MHz single antenna dual frequency TX



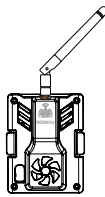
2.4GHz Micro



2.4GHz Nano



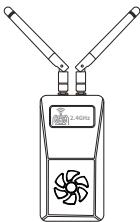
2.4GHz/900MHz Dual antenna Dual frequency TX



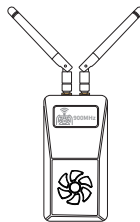
900MHz Micro



900MHz Nano



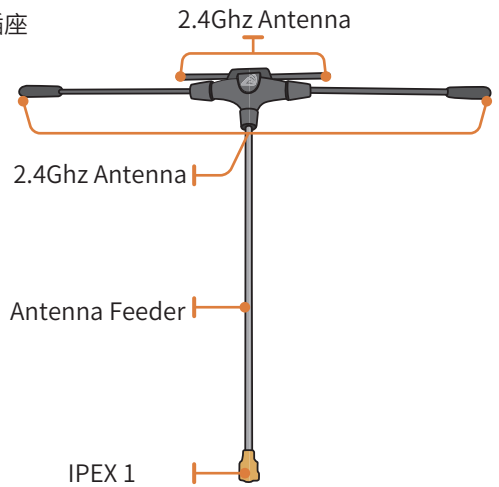
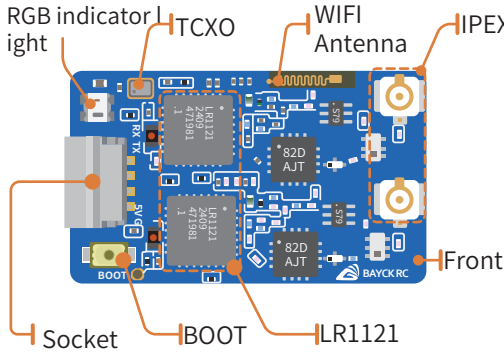
2.4GHz Gemini TX



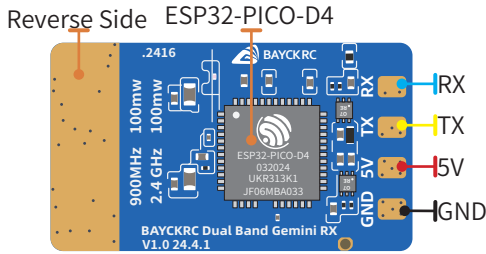
900MHz Gemini TX

The Micro and Nano versions of external transmitters are generally different in size, and the hardware difference lies in whether a display screen, cooling fan, and five-dimensional button are added. The Micro version is suitable for larger remote controllers, and the board control is generally a JR compartment. The Nano version is suitable for handle remote controllers, and the fixed position of the external transmitter is more compact.

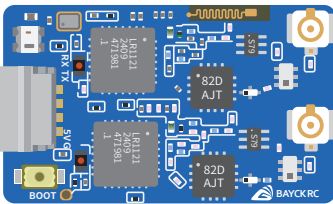
BAYCKRC900/2400 Dual Band Gemini RX interface and component definitions



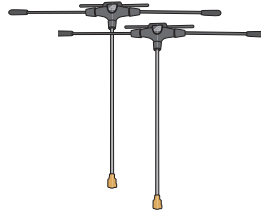
Noted: When using 900MHZ/2.4Ghz Antenna , please refer P7(Self -configured antenna Installation Method)



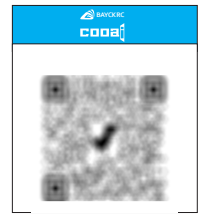
BAYCKRC 900/2400 Dual Band Gemini RX package list



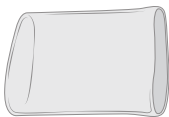
•1× BAYCKRC 900/2400 Dual Band Gemini RX



•2* T-shaped dual -band antenna



•1* service card



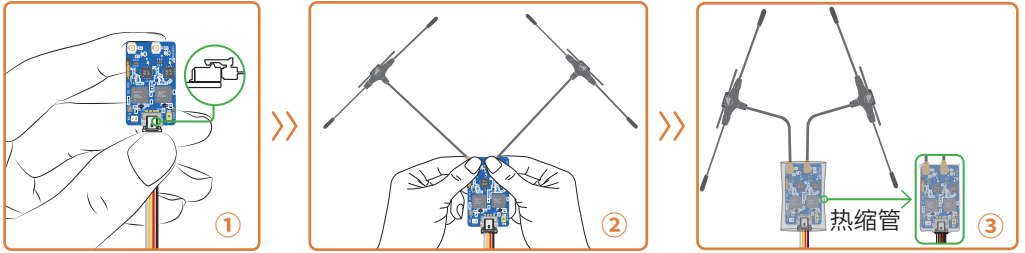
• 2* heating shrink tubing



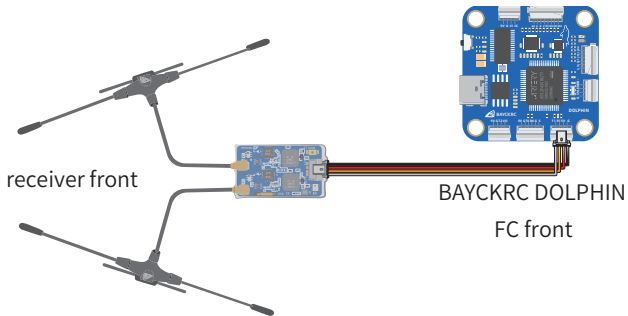
•pin 30AWG 80mm : 4 Pin 30AWG 80mm cable

*Note: This receiver default antennas size : 120mm and 80mm.

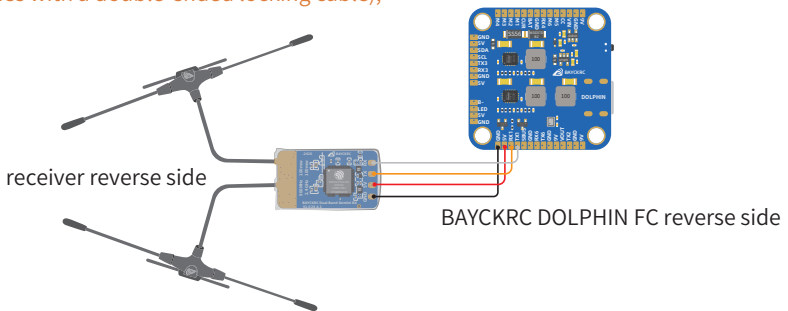
How to use the receiver



connect with FC

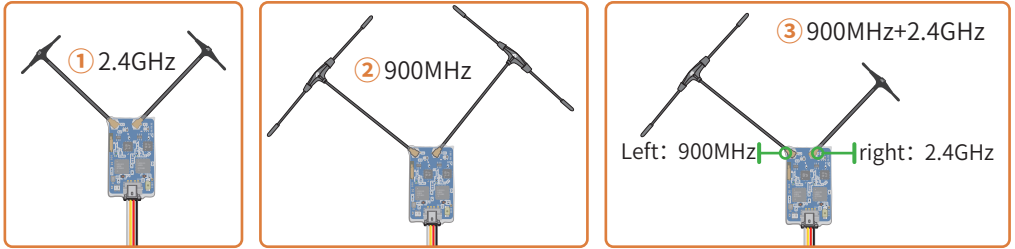


How to connect wire ① Use a locking cable to connect the flight controller (DOLPHIN flight controller comes with a double-ended locking cable);



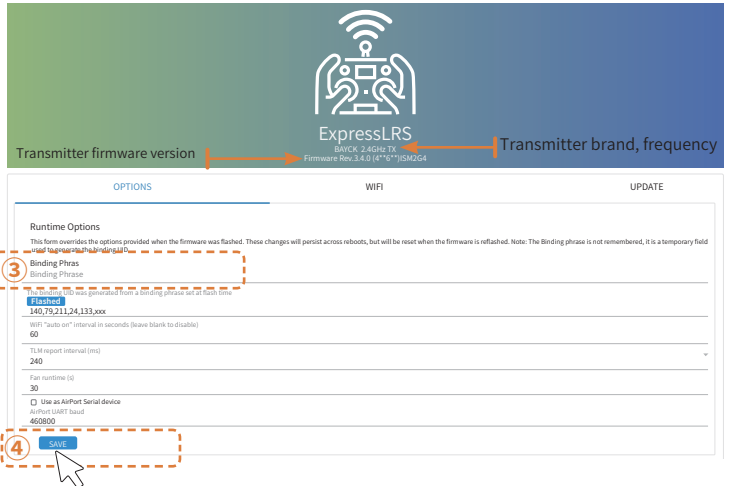
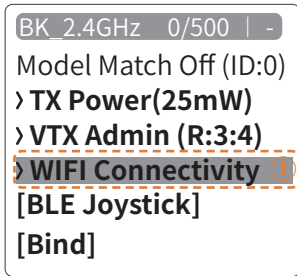
How to connect wire ② connect wire by welding.

How to install your own antenna



- ① If you want 2.4Ghz diversity type ,please use two 2.4Ghz antenna.
- ② If you want to 915 diversity type, please use two 915Mhz antenna .
- ③ If you want to dual bands, please use the 915Mhz antenna on the left, and the other one you need use the 2.4Ghz antenna.

Bind to 2.4GHz transmitter

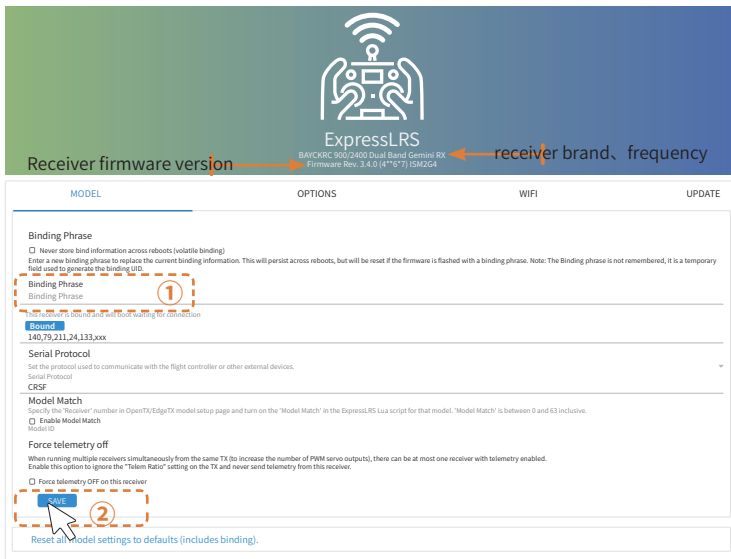


Currently, the default dual flash binding can only be used with the 900MUPLOADz MOD transmitter. S AVE MODEL CONFIGURATION FILEE If you use 2.4GHz, you need to set the binding key.

- ① Enter the transmitter ExpressLRS script through the remote control and turn on WIFI Connectivity;
- ② Connect the transmitter WIFI through a computer or mobile device and enter the default password: expresslrs;
- ③ Enter the http://10.0.0.1/ page and set your binding key, for example: 87654321;
- ④ SAVE.



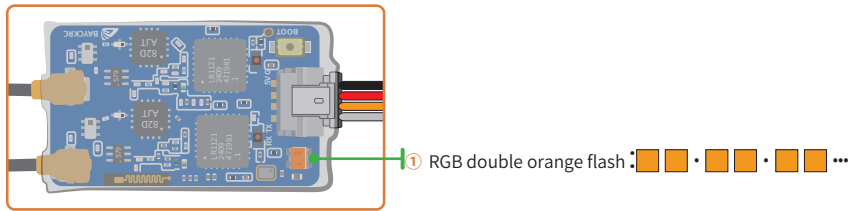
If your transmitter has a screen and a 5-dimensional button, you can turn on WIFI through the transmitter and then follow steps ②③④.



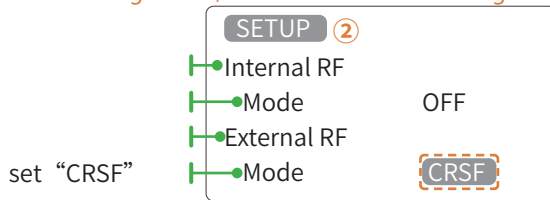
If the receiver is powered on and not operated for more than 60 seconds, the receiver will automatically enter the WIFI mode. Use a computer or mobile device to connect to the SMD-4 named ExpressLRS lmWport/ lEXFport, the default password is: expresslrs.

- ① Enter <http://1U0PLO.AD0 MO.D0EL .CO1NF/IGURATION page FILSAVE MODEL CONFIGURATION FILEE>, fill in the same frequency binding key as the transmitter, for example: 87654321;
- ② SAVE to save.

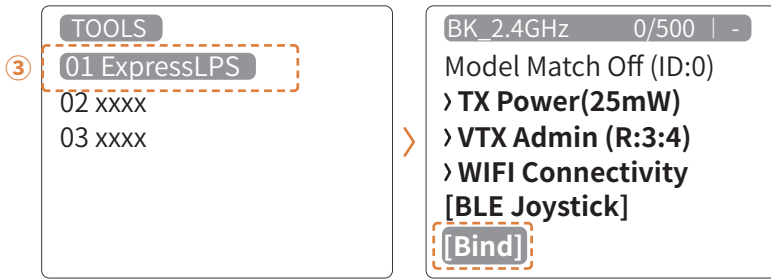
Bind to 915Mhz transmitter



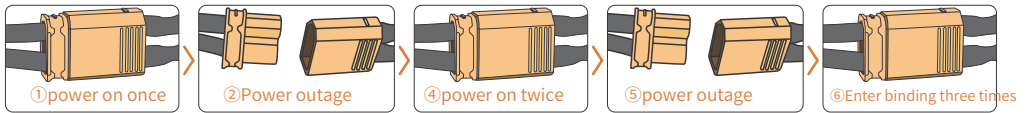
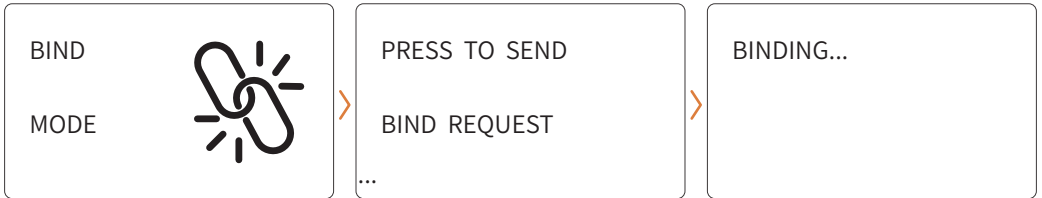
① When the receiver is powered on for the first time, it will automatically enter the binding mode by default. If the receiver has a binding record, it will not enter the binding mode again.



② If you use an external transmitter, as shown in the figure: •Enter the remote control settings page and set Internal RF→ Mode: OFF; •Turn on the external module External RF→ Mode: “CRSF” .



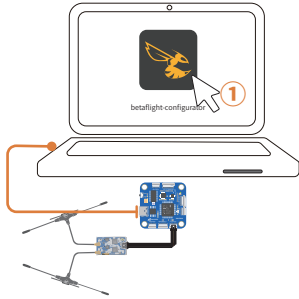
③ **Enter remote control** SYS → TOOLS → ExpressLPS → Bind, blind the frequency to the receiver



You can also enter the receiver's frequency binding mode by powering on and off three times as shown in the figure above

.Note: It is recommended to use a low-voltage battery for frequency binding to avoid damage to electronic components caused by continuous plugging and unplugging under high voltage

BF Setting



标识符	设置/MSP	串行数字接收机
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>
UART 1	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>
UART 2	<input type="checkbox"/> 115200	<input type="checkbox"/>
UART 3	<input type="checkbox"/> 115200	<input type="checkbox"/>
UART 4	<input type="checkbox"/> 115200	<input type="checkbox"/>
UART 6	<input type="checkbox"/> 115200	<input type="checkbox"/>

Take the BAYCKRC DOLPHIN flight control as an example, connect the flight control to the computer's USB:

- ① Open the Betaflight Configurator software and enter the "Port" page;
- ② Open the port corresponding to the serial digital receiver (take the wiring diagram UART1 as an example); BF download: <https://github.com/betaflight/betaflight-configurator/releases/tag/10.10.0>

接收机

receiver

串行数字接收机 (SPEKSAT, SBU) receiver Mode ③







Note: When using a serial receiver, please select the serial receiver type and set the corresponding serial port on the serial-port page.

CRSF ④

预览

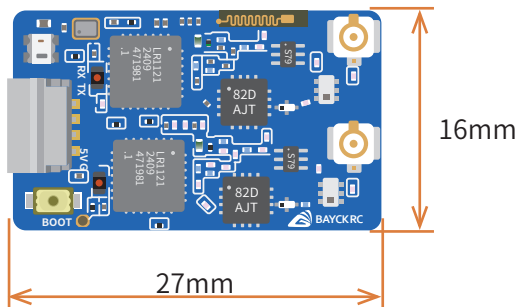
- ③ On the "Receiver" page, set the mode to "Serial Digital Receiver";
- ④ Set the receiver protocol to "CRSF";
- ⑤ After the settings are completed, you can use the preview to verify whether the remote controller's stick movements are consistent with the attitude diagram; for detailed instructions, please refer to the 2.2.4.6 CRSF Protocol Receiver section in the "BAYCK DOLPHIN Flight Controller Manual".

RGB Indicator light

RGB Indicator light	状态说明
	Rainbow color gradient, power-on self-test
	The green and orange lights flash alternately, entering the WiFi upgrade mode
	Red quick flash, no RF chip detected
	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	

Specifiction

BAYCKRC 900/2400 Dual Band Gemini RX Dimensions



BAYCKRC 900/2400 Dual Band Gemini RX Parameters

Model	BAYCKRC 900/2400 Dual Band Gemini Rx
Name	ExpressLRS Receiver
RF Freq	900Mhz/2.4Ghz
Antenna	T Type
IC	LR1121+ESP32 PICO+TCXO
Color	blue
TX Power	2*100mW
Input Power	3.6V-5.5V
Connector	IPEX 1
Size	27mm×16mm
Weight	1.8g (only receiver)

addendum

ExpressLRS Website: <https://www.expresslrs.org/>

Quick Guide :<https://www.expresslrs.org/quick-start/getting-started/>

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

Web Flasher: <https://expresslrs.github.io/web-flasher/>

Compilation tool download address: <https://github.com/ExpressLRS/ExpressLRS-Compiler/releases>
900 MHz/2.4GHz Distance Data : <https://www.expresslrs.org/info/long-range/>

Open source address: <https://github.com/ExpressLRS/ExpressLRS/pull/2540>