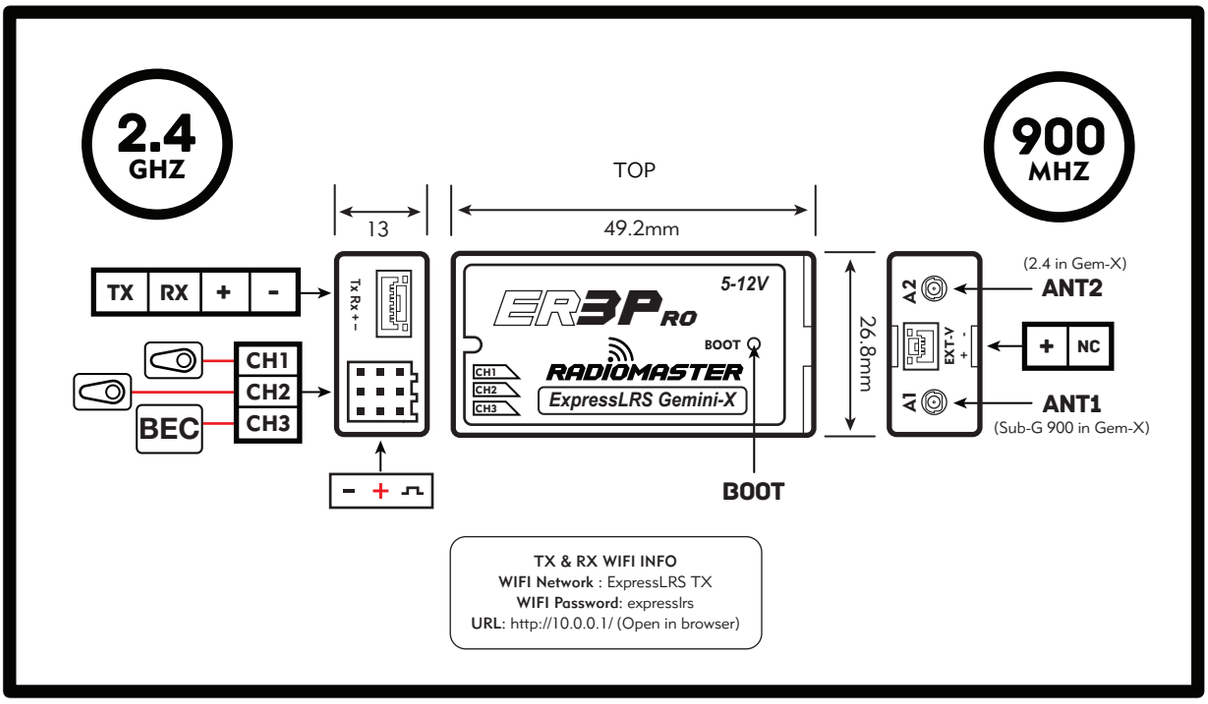
ER3 PRO Receiver User Manual



The ER3 PRO is a compact receiver designed for installations where space is limited but link reliability and system access remain important. Despite its small footprint, it retains a full-featured RF and telemetry interface, making it well suited for clean, space-constrained builds.

At its core is the ExpressLRS system, built around dual Semtech LR1121 transceivers and a dual-band Gemini X RF architecture operating on both 2.4 GHz and Sub-G 900 MHz.

Combined with up to 100mW telemetry output power, it provides a stable control link and enhanced telemetry performance for applications where reliable telemetry data is important.

With 3 PWM outputs, serial protocol support, and dedicated telemetry interfaces, the ER3PRO integrates easily into a wide range of aircraft and vehicle platforms. Locking connectors on the UART and voltage telemetry ports help ensure secure, reliable connections in demanding operating environments.

Serviceability is built in. Robust MMCX antenna connectors provide secure attachment and easy replacement, while the durable injection-molded housing delivers long-term protection in a compact form factor.

设置

1 The recommended ELRS LUA settings on the remote-control end are:

IMPORTANT

Standard servos:	Performance servos:
Packet Rate: 100Hz Full	Packet Rate: 333Hz Full
Telem Ratio: Std (1:32) (default)	Telem Ratio: Std (1:128)
Switch Mode: 8ch	Switch Mode: 8ch

2. The maximum input voltage for the **EXT-V** (external voltage input) telemetry reading is 70V. Do not exceed 70V or the receiver will be damaged.

3. The **EXT-V** input on the **ER3 PRO** is accessed through the 2-pin JST-GH connector. Solder the red wire to the positive (+) terminal of the battery or ESC. The ER3 PRO features independent ADC channels for EXT-V and receiver supply voltage (V-PWM).

4. Please ensure that the power supply current of the ESC BEC matches the power consumption requirements of the servo used. If using high-voltage and high-torque servos, it is recommended to use a **2S 8.4V** battery for direct power supply or a suitable high-current UBEC.

5 **Calibration** of the telemetry voltage will be required on your radio. **Navigate** to the **TELEMETRY** page on your radio and locate the **RxBt** sensor. Edit the **SENSOR** settings and adjust the offset until the displayed reading matches the actual voltage of the battery in the model. If there is a large difference, adjustment of the ratio may also be required. ***For best results calibrate the voltage of your radio using a fully charged battery of the correct cell count intended for use in the model.**

SPECIFICATIONS

• Item:	ER3 PRO PWM - Dual-Band GEMINI and GEMINI-X Receiver
• Size:	49.2*26.8*13mm
• Weight:	13.5g (without antenna)
• Input Voltage:	DC 5.0 – 12.0V (power to the receiver)
• Wireless Protocol:	ExpressLRS
• Output Channels:	3 × PWM
• Serial Output:	CRSF / SBUS
• Telemetry Power:	Up to 100mW (LUA Adjustable)
• Detection Range:	DC 4.0 – 70V (monitor main flight battery)
• Bus Interface:	CRSF
• Antenna Connector:	MMCX
• Antenna Type:	2x 2.4GHz & 2x Dual-Band (25cm)
• Version:	ExpressLRS 4.1.0 or Higher

FIRMWARE

Device Category: RadioMaster Dual 2.4GHz/900MHz
Device: ER3Pro Dual Band True Diversity + 3×PWM RX ELRS FW

PASSPHRASE BINDING

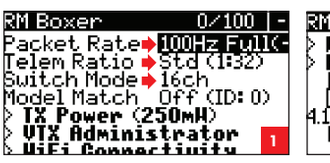
(***Note:** Bind phrases are not secret and can be read.)

1. **OPEN** the ExpressLRS LUA and navigate to the Wifi Connectivity page. Select the **Enable WIFI** option and connect to your radios wifi with a mobile phone, tablet or PC (See TX WIFI info above). **OPEN** the ExpressLRS web page at (http://10.0.0.1/) and choose a unique bind phrase. **Save and Reboot**.
2 Power **ON** the receiver and wait 60 seconds for the LED to blink rapidly to indicate WIFI mode. Connect your phone, tablet or PC to the receivers WIFI (See RX WIFI info above). **OPEN** the ExpressLRS web page at (http://10.0.0.1/) and enter the matching bind phrase previously entered on your radio. **Save and Reboot**. Once both radio and receiver have the same bind phrase set they will automatically bind.

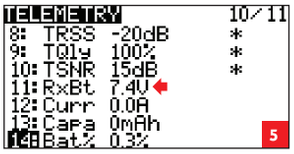
TRADITIONAL BINDING

1. The first time you power on your receiver, the LED is doing a quick **double blink**, which indicates the receiver is in bind mode. If this is not the case, hold down the boot button for 10 seconds to reset the receiver.
2 Power **ON** your transmitter/radio and use the **[BIND]** button on the ExpressLRS Lua script, which sends out a binding pulse.
3. If the receiver has a **solid light**, it's bound!

***Note:** To bind receiver a second time or to another radio, power cycle the receiver 3 times. On the third power cycle, the LED will double blink indicating bind mode. If you cannot successfully enter bind mode with the 3 power cycle method, you can hold down the boot button for 10 seconds to reset the receiver to bind mode or use the passphrase method. WARNING: All previous settings in the receiver will be erased and need to be re-entered when using the reset button.



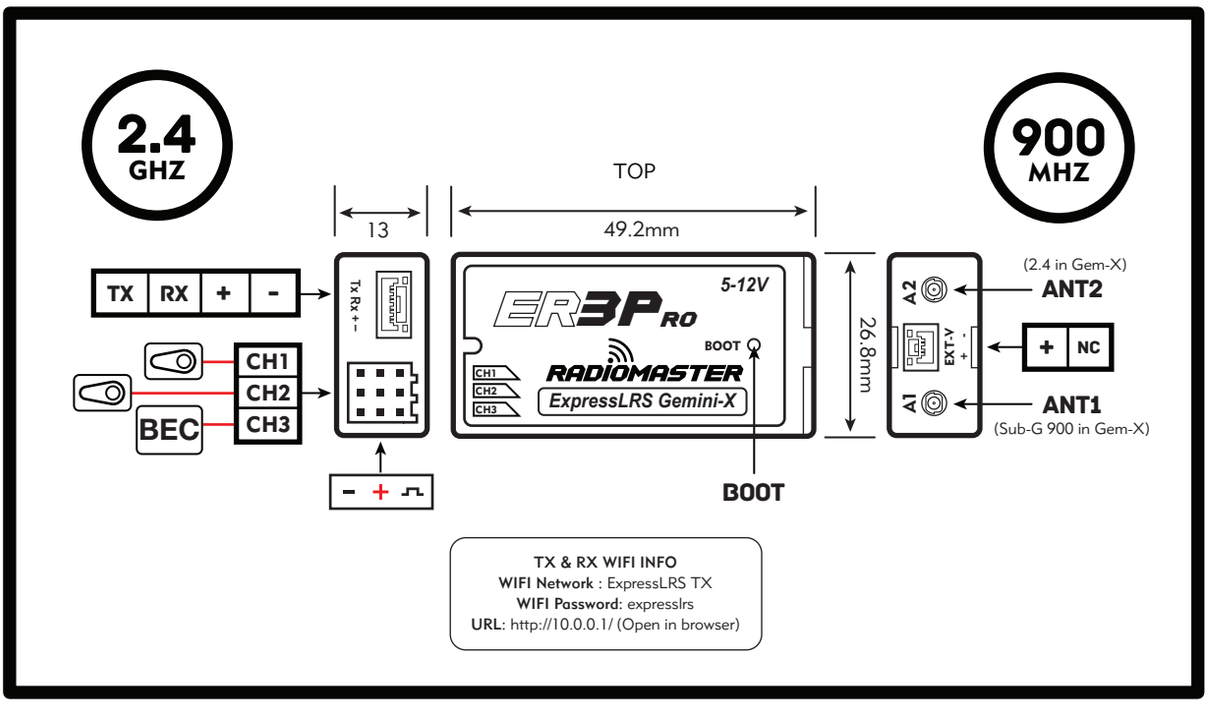






CH1: CH1
CH2: CH2
CH3: CH3

ER3 PRO 接收机用户手册



ER3 PRO 是一款紧凑型接收机，专为安装空间有限但仍需保证链路可靠性和系统访问性的场景而设计。尽管体积小巧，它仍保留了完整的射频和遥测接口，非常适合整洁、空间受限的安装方案。

其核心是 ExpressLRS 系统，搭载两颗 Semtech LR1121 收发器，采用双频段 Gemini X 射频架构，同时工作于 2.4 GHz 和 Sub-G 900 MHz。

配合最高 100mW 的遥测发射功率，它能提供稳定的控制链路和增强的遥测性能，适合对遥测数据可靠性有较高要求的应用。

ER3 PRO 提供 3 路 PWM 输出、支持串行协议、并配备专用遥测接口，可轻松集成到各种飞行器和车辆平台。UART 和电压遥接口采用锁定式连接器，可在严苛的使用环境下保证连接牢固可靠。

可维护性也是设计的一部分。坚固的 MMCX 天线连接器便于拆装和更换，耐用的一体注塑外壳在紧凑机身下提供长期防护。

注意事项

1 1. 推荐的遥控器端 ELRS LUA 设置如下：

IMPORTANT

标准舵机：	高性能舵机：
Packet Rate: 100Hz Full	Packet Rate: 333Hz Full
Telem Ratio: Std (1:32) (default)	Telem Ratio: Std (1:128)
Switch Mode: 8ch	Switch Mode: 8ch

2. EXT-V（外部电压输入）遥测的最大输入电压为 70V。请勿超过 70V，否则将损坏接收机。

3. ER3 PRO 上的 EXT-V 输入通过 2-pin JST-GH 连接器接入。将红线焊到电池或 ESC 的正极（+）端。ER3 PRO 的 EXT-V 和接收机供电电压（V-PWM）使用相互独立的 ADC 通道。

4. 请确保 ESC BEC 的供电电流满足所使用舵机的功耗要求。如果使用高压、高扭矩舵机，建议使用 2S 8.4V 电池直接供电，或使用合适的大电流 UBEC。

5 需要在你的遥控器上校准遥测电压。进入遥控器的 TELEMETRY 页面，找到 RxBt 传感器。编辑 SENSOR 设置，调整 offset，使显示数值与模型中电池的实际电压一致。如果差异较大，可能还需要调整 ratio。
* 为了获得最佳效果，请使用与模型匹配的、充满电的正确节数电池进行校准。

规格参数

• 产品名称:	ER3 PRO PWM - Dual-Band GEMINI and GEMINI-X Receiver
• 尺寸:	49.2*26.8*13mm
• 重量:	13.5g (不含天线)
• 输入电压:	DC 5.0 – 12.0V (接收机供电电压)
• 无线协议:	ExpressLRS
• 输出通道:	3 × PWM
• 串口输出:	CRSF / SBUS
• 功率:	最高100mW (LUA 可调)
• 电压检测范围:	DC 4.0 – 70V (监测主电池)
• 总线类型:	CRSF
• 天线接口:	MMCX
• 天线类型:	2x 2.4GHz & 2x Dual-Band (25cm)
• 固件版本:	ExpressLRS 4.1.0 or Higher

固件下载

Device Category: RadioMaster Dual 2.4GHz/900MHz
Device: ER3Pro Dual Band True Diversity + 3×PWM RX ELRS FW

密码绑定

(*注：**Bind phrase** 并不保密，可以被读取。)

1. 打开 ExpressLRS LUA 脚本，进入 Wifi Connectivity 页面。选择 Enable WIFI，用手机、平板或电脑连接你遥控器的 WIFI（参见上方的 TX WIFI 信息）。在浏览器中打开 ExpressLRS 网页（http://10.0.0.1/），设置一个唯一的 bind phrase，Save and Reboot。

2. 打开接收机电源，等待 60 秒，LED 快速闪烁表示已进入 WIFI 模式。将手机、平板 2 电脑连接至接收机的 WIFI（参见上方的 RX WIFI 信息）。在浏览器中打开 ExpressLRS 网页（http://10.0.0.1/），输入与遥控器一致的 bind phrase，Save and Reboot。当遥控器和接收机设置的 bind phrase 一致时，将自动完成绑定。

传统绑定

1. 首次给接收机上电时，LED 会快速 双闪，表示接收机处于绑定模式。如果不是此状态，请长按 boot 按键 10 秒以复位接收机。
2 打开你的遥控器/发射机电源，使用 ExpressLRS Lua 脚本中的［BIND］按钮，发送绑定脉冲。
3. 如果接收机 LED 变为 常亮，即表示绑定成功！

*注：要对接收机进行二次绑定，或绑定到另一台遥控器，请对接收机进行 3 次断电上电循环。第三次上电时，LED 双闪表示进入绑定模式。如果 3 次断电上电的方式无法成功进入绑定模式，也可以长按 boot 按键 10 秒将接收机复位到绑定模式，或使用 passphrase 方式。警告：使用复位按键时，接收机内所有先前的设置都会被擦除，需要重新设置。

