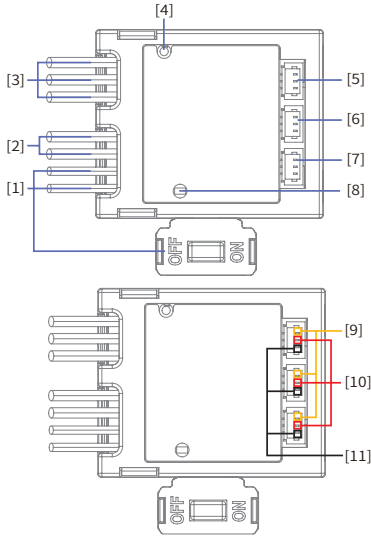


产品介绍 Introduction

FS-R4ABL-ESC-BS 采用 2A-BS 协议，是一款集 10A 无刷电调和 LED 车灯控制于一体的 4 通道二合一接收机。它配备外置单天线，支持双向传输，采用上电自动对码技术，具备 FOC 功能，能够输出 PWM 信号和车灯控制信号，并可搭配车灯驱动板使用，适配多种攀爬车。

The FS-R4ABL-ESC-BS, which is compliant with the 2A-BS protocol, is a 4-channel 2-in-1 receiver that integrates a 10A brushless ESC (Electronic Speed Controller) function and an LED light control function. It features an external single antenna and supports two-way communication. The receiver utilizes automatic binding technology upon power-on and is equipped with field-oriented control (FOC) functionality. It provides both PWM signal output and LED light control signals, ensuring compatibility with LED light units for expanded application scenarios. Additionally, it is compatible with a variety of RC crawlers.

接收机概览 Receiver Overview



- | | |
|------------|------------------------|
| [1] 电源开关 | [7] CH1 |
| [2] 电池接口 | [8] LED |
| [3] 电机接口 | [9] S (通道 / 车灯扩展接口信号端) |
| [4] 天线 | [10] + (通道 / 车灯扩展接口正极) |
| [5] 车灯扩展接口 | [11] - (通道 / 车灯扩展接口负极) |
| [6] CH3 | |

- | | |
|-----------------------------------|--|
| [1] Power Switch | [7] CH1 |
| [2] Battery Interface | [8] LED |
| [3] Motor Interface | [9] S (Signal Pin of LED Light Expansion/CH Interface) |
| [4] Antenna | [10] + (Anode of LED Light Expansion/CH Interface) |
| [5] LED Light Expansion Interface | [11] - (Cathode of LED Light Expansion/CH Interface) |
| [6] CH3 | |

注：电机接口为 2.0*3Pin 母座端子；电池接口为 Molex51005 母座接口；CH1、CH3 和车灯扩展接口为标准 1.0mm*3Pin 端子座。

Notes:

The spec of motor interface: PH2.0*3Pin female connector

The spec of battery interface: Molex51005 female connector

The spec of CH1, CH3 and LED light expansion interfaces: 1.0mm*3Pin connector

产品规格 Product Specifications

- 产品型号：FS-R4ABL-ESC-BS
- 适配发射机：FS-MG6-BS、FS-MG44-BS 等 2A-BS 协议的发射机
- 适配模型：1/18、1/24 攀爬车
- 适配电机：FS-MD1212 无刷电机 (1212-3450KV)
- 工作电压（电机）：2S LiPo
- 通道个数：4
- 车灯组数：6（车灯扩展接口连接 车灯驱动板）
- 无线频率：2.4GHz ISM
- 发射功率：<20dBm
- 无线协议：2A-BS
- 天线类型：外置单天线
- 工作电压：2-3S LiPo
- BEC 输出：5V/1A
- 持续 / 峰值电流：10A/40A
- 遥控距离：> 150 米（空旷无干扰地面距离）
- 数据输出：PWM
- 通道分辨率：4096 级
- 温度范围：-10°C ~ +60°C
- 湿度范围：20% ~ 95%
- 防水等级：PPX7
- 固件更新：不支持
- 外形尺寸：33.0*27.4*14.0mm
- 机身重量：18g
- 认证：CE, FCC ID: 2A2UNR4ABL00

- Product Model: FS-R4ABL-ESC-BS
- Compatible Transmitters: The FS-MG6-BS, FS-MG44-BS and Other 2A-BS Protocol Transmitters
- Compatible RC Models: 1/18, 1/24 Crawlers
- Applicable Motors: FS-MD1212 Brushless Motor (1212-3450KV)
- Operating Voltage (for the motor): 2S LiPo
- Number of Channels: 4
- Number of LED Lights: 6 (The LED light unit connects to the LED light expansion interface.)
- RF: 2.4GHz ISM
- Maximum Power: <20dBm (e.i.r.p.) (EU)
- RF Protocol: 2A-BS
- Antenna: Single External Antenna
- Operating Voltage: 2-3S LiPo
- BEC Output: 5V/1A
- Continuous/Peak Current: 10A/40A
- Distance: > 150m (Ground Distance without Interference)
- Data Output: PWM
- Resolution: 4096
- Temperature Range: -10°C ~ +60°C
- Humidity Range: 20% ~ 95%
- Waterproof: PPX7
- Firmware Update: Not Supported
- Dimensions: 33.0*27.4*14.0mm
- Weight: 18g
- Certifications: CE, FCC ID: 2A2UNR4ABL00

对码 Binding

本款接收机支持双向对码，通电自动进入对码状态：

- 接收机上电即进入等待连接状态，等待与已

This receiver is compatible with two-way binding, and is to automatically enter the binding mode upon power-on.

- The receiver will enter the waiting-for-connection status upon power-on, waiting for the connection to the bound transmitter.

对码 Binding

对码的发射机建立通信；

- 若 2 秒 未与已对码的发射机建立通信，则自动进入对码状态，此状态持续 10 秒；
- 若与发射机对码成功，即进入正常通信状态；否则退出对码状态，回到等待连接状态。

注：对码时，接收机 LED 灯快闪；等待连接时，接收机 LED 灯慢闪；正常通信时，接收机 LED 灯常亮。

对码步骤如下：

- 将发射机进入对码状态；
- 接收机通电等待 2 秒没有连接后自动进入对码状态，此时接收机 LED 灯快闪；
- 对码成功后，接收机 LED 灯常亮；
- 检查发射机、接收机是否正常工作。如需重新对码，请重复以上步骤。

注：对码时请先将发射机进入对码状态，再将接收机进入对码状态，若 10 秒内对码没有完成，接收机 LED 灯进入慢闪状态。

- If the receiver does not connect the bound transmitter within 2 seconds, it will automatically enter the binding state. This state lasts for 10 seconds.
- If the binding with the transmitter is successful, it will enter the normal communication status, otherwise, it will exit the binding state and return to the waiting-for-connection status.

Note: In case of binding, the receiver LED flashes quickly. In case of waiting-for-connection, the receiver LED flashes slowly. In case of normal communication, the receiver LED is solid on.

The binding steps are as below.

- Put the transmitter into binding mode.
- Turn on the receiver, and it will wait 2 seconds for connection. If without connection, the receiver will enter the binding mode automatically. At this time, the receiver LED will be flashing fast.
- After the binding is successful, the receiver LED is solid on.
- Verify that the transmitter and receiver are working properly. If you need to re-bind, repeat the above steps.

Note: Set the transmitter to its binding state first, and then set the receiver to its binding status. If the binding is not finished within 10 seconds, the receiver LED will enter a slow flashing status.

保护功能 Protection

本接收机具有电池低电量、电池电压过低和过高保护功能。

- 检测到低电量时 (2S 低于 6.4V/3S 低于 9.6V)，CH2 输出减半。
- 电压过低保护：当检测到电池电压过低时，CH2 无输出，所有车灯慢闪提示。
- 电压过高保护：当检测到电池电压过高时，所有通道无输出，所有车灯快闪提示。

本接收机电调具有过热保护功能。

- 过热保护：当检测到整机温度过高时，CH2 无输出，所有车灯快闪提示；当温度正常后，通道恢复输出。

可将电池电压 (高、中、低、过低) 回传到发射机端。

- 用于发射机端指示接收机电池电量状态。

The receiver features low battery, low and high voltage protection functions.

- Low Battery: When a low battery is detected (2S below 6.4V or 3S below 9.6V), the output of CH2 will be reduced by half.
- Low Voltage Protection: When the voltage is detected to be low, CH2 will not output and all the LED lights will flash slowly for prompt.
- High Voltage Protection: When the voltage is detected to be high, all channels will not output. All the LED lights will flash fast for prompt.

The receiver ESC has an overheating protection function.

- Overheating Protection: When the internal temperature of the ESC is detected to be too high, CH2 will not output and all the LED lights will flash fast for prompt. When the temperature is normal, the channel will resume output.

The receiver can return the battery voltage (high, medium, low, ultra-low) back to the transmitter side.

- The transmitter can indicate the battery power status of the receiver.

车灯控制 LED Light Control

本接收机支持 6 组车灯：左转灯、右转灯、日行灯、前大灯、刹车灯和倒车灯（此 6 组车灯通过车灯驱动板与本接收机建立连接）。

车灯状态由发射机的相应控件控制，以 FS-MG44-BS 为例：

左、右转向灯亮灭状态由手轮控制；日行灯和前大灯亮灭状态由 CH4 按键控制；刹车灯和倒车灯亮灭状态由扳机控制。具体如下所述：

车灯	车灯状态	控制状态	控件	触发条件	备注
左转灯	慢闪	左转	手轮	逆时针打手轮	/
右转灯	慢闪	右转	手轮	顺时针打手轮	
日行灯 前大灯	常灭	/	CH4	短按 CH4 按键	短按一下 CH4 按键日行灯亮起，接着短按一下前大灯亮起，再次短按一下日行灯与前大灯同时关闭。 操作 CH4 按键，日行灯与前大灯依此状态循环。
	常亮				
刹车灯	常亮	刹车	扳机	前推扳机	当电调运行模式设置为正转 / 反转模式时（无刹车），前推扳机刹车灯不亮。
倒车灯	常亮	倒车	扳机	前推扳机	/

注：

- 接收机开机后，所有车灯常亮一秒后灭；
- 方向通道（CH1）和油门通道（CH2）具有自动识别中位的功能，当调过微调后，需重新给接收机上电以完成中位自动识别；
- 方向通道设置反向后对左、右转向灯无影响。

This receiver features 6 sets of LED lights: turn signal left light, turn signal right light, headlight, brake light and back light. And these 6 sets of lights are connected to this receiver through the LED light unit.

The state of all the LED lights is controlled by the corresponding controls of the transmitter, take the FS-MG44-BS as an example.

The turn signal left light and turn signal right light are controlled by steering wheel. The daytime running light and headlight are controlled by CH4 button. The brake and back light are controlled by throttle trigger.

车灯控制 LED Light Control

Details are as follows:

LED Lights	LED Light State	State	Control	Trigger Condition	Notes
Turn Signal Left Light	Slow Flashing	Turn Left	Steering Wheel	Turn the steering wheel counterclockwise.	/
Turn Signal Right Light	Slow Flashing	Turn Right	Steering Wheel	Turn the steering wheel clockwise.	
Daytime Running Light/ Headlight	OFF	/	CH4	Short press the CH4 button	Short press the CH4 button to turn on the daytime running light; then short press the CH4 button again to turn on the headlight; short press the CH4 button again to turn off both the daytime running lights and the headlights simultaneously. The state of the daytime running lights and headlights will cycle through the described sequence accordingly each time you operate the CH4 button.
	Solid ON				
Brake Light	Solid ON	Brake	Trigger	Push the trigger forward.	When the running mode of ESC is set to Forward/Reverse mode (no brake), the Brake Light will not on when pushing the throttle trigger forward.
Back Light	Solid ON	Back up	Trigger	Push the trigger forward.	/

Notes:

- After the receiver is turned on, all the LED lights will be on for one second and then go out.
- The steering channel (CH1) and throttle channel (CH2) are capable of automatic neutral identifying, after the trim is adjusted, the receiver should be powered again to recognize the neutral positions of these two channels automatically.
- If you have set the steering channel in reverse, the trigger condition for turn signal left light and turn signal right light will not be affected.

电调与电机介绍 ESC & Motor Instruction

本接收机电调功能支持在发射机端设置电调灵敏度设置 (0%、50%、75% 和 100% 四个等级) 及运行模式 (正转 / 反转、正转 / 反转 / 刹车), 具体详情请参阅发射机说明书的相关章节。

本接收机必须适配富斯标准电机 (FS-MD1212)。电机连接后, 接收机每次通电时, 电机会先通过声音提示连接的电池类型, 随后再提示油门中位校准信息。

- 当接收机连接的电池类型为锂电池时, 若连接 2S 锂电池, 电机快响 2 声提示, 若快响 3 声, 则代表连接的电池是 3S 锂电池。
- 当油门中位识别通过后, 电机长响 1 声提示。若未识别油门中位, 电机持续慢响提示, 且无动力输出。

注: 电调灵敏度默认 0%, 运行模式默认为正转 / 反转 / 刹车。

This receiver ESC function supports the settings of drag brake force (0%, 50%, 75% or 100%) and running mode (forward/reverse or forward/reverse/brake) at the transmitter side. See the relevant section of the transmitter manual for details.

This receiver must be compatible with the FlySky standard motor (FS-MD1212). After the motor is connected, each time the receiver is powered on, the motor will first audibly indicate the detected battery type, followed by throttle neutral position calibration prompts.

- When the connected battery type is lithium-ion, such as 2S LiPo, the motor fast beeps twice (3 beeps represent 3S LiPo).
- When the throttle neutral is recognized, the motor will long beep once. If the throttle neutral is not recognized, the motor will continue to beep slowly. There is no power output from the motor at this time.

Note: The drag brake force is set to 0% by default, and the running mode is set to forward/reverse/brake by default.

故障现象	可能原因	解决方法
上电后, 指示灯不亮, 电机无法启动。	1. 电调没有得到工作电压。 2. 接收机开关或电调损坏。	1. 检查电池与电调有无连接问题以及相关插头是否有虚焊情况。 2. 返厂检测处理。
上电后, 电机持续慢响, 无法启动。	发射机油门通道的中点偏移或改变。	调节发射机油门通道微调使之匹配电调现有中立点。
发射机做前进操作, 车子反而倒退。	发射机油门方向设置错误。	将发射机油门方向设置为相反方向。
电机转动过程中, 突然停转。	1. 油门信号丢失。 2. 电调进入电池低压 / 高压保护或过热保护。	1. 检查发射机和接收机。 2. 请检查电池电压以及电调温度。
启动时急加速, 有卡住或停顿的现象。	电池电压过高。	更换电池。

Troubles	Possible Causes	Solutions
The motor cannot start and the LED is not on after power on.	1.The ESC has no working voltage.	1. Check whether there is any connection problem between the battery and ESC and whether there is faulty welding of the relevant plug.
The motor cannot start and beeps slowly after power-on.	2. The power switch of receiver or ESC is damaged.	2. Return to factory for inspection and treatment.
When forward the car by the transmitter, it reverse.	The neutral of throttle channel of transmitter is shift or changed.	Adjust the throttle channel of the transmitter to match the existing neutral.
The motor suddenly stops rotating during rotation.	The throttle direction of transmitter is wrongly set.	Set throttle direction of transmitter to the opposite direction.
When the motor starts, it accelerates rapidly, and the motor is stuck or stops.	1. The throttle signal is lost. 2. The ESC enters low/high voltage protection or overheat protection of battery.	1. Check the transmitter and the receiver. 2. Check the battery voltage and the temperature of the ESC.
	The battery voltage is too high.	Replace the battery.

失控保护 Failsafe

此功能用于当接收机无法正常收到发射机的信号不受控制时，接收机按设置好的失控保护值进行通道输出以保护模型及人员安全。

- CH2 失控保护默认开启，失控后电调进入刹车模式；CH1、CH3 默认为未设置，未设置时保持最后输出。可在发射机端设置 CH1、CH3 失控保护值。
- 左转灯和右转灯同步慢闪提示。

The failsafe function is used when radio signal connection is lost between the transmitter and receiver. The receiver performs channel output according to the set fail-safe value to protect the safety of the model and personnel.

- By default, the failsafe for CH2 is enabled, and the ESC will enter the brake status when the receiver is out-of-control. By default, the CH1 and CH3 are not set, and these two channels will maintain the last output in case of out-of-control. You can set the failsafe value for CH1 and CH3 at the transmitter side.
- The turn signal right light and the turn signal left light will flash slowly and simultaneously as a prompt.

⚠ 注意事项:

- 使用前必须确保本产品与模型安装正确，否则可能导致模型发生严重损坏。
- 为了一切正常，请养成先开发射机再接收机通电以及先接收机断电再关闭发射机的习惯。
- 确保接收机安装在远离电机，电子调速器或电子噪声过多的区域。
- 接收机天线需远离导电材料，例如金属棒和碳物质。为了避免影响正常工作，请确保接收机天线和导电材料之间至少有 1 厘米以上的距离。
- 准备过程中，请勿连接接收机电源，避免造成不必要的损失。
- 若在发射机端调整油门通道微调后，接收机须重新通电以识别新的油门通道中位，否则可能会出现倒车异常的现象。

⚠ Precautions:

- Make sure the product is installed and calibrated correctly, failure to do so may result in serious injury.
- Normally, you must power on the transmitter and then receiver, and power off the receiver and then the transmitter.
- Make sure the receiver is mounted away from motors, electronic speed controllers or any device that emits excessive electrical noise.
- Keep the receiver's antenna at least 1cm away from conductive materials such as carbon or metal.
- Do not power on the receiver during the setup process to prevent loss of control.
- If the throttle trim is changed on the transmitter side, the receiver needs to be re-powered to recognize the new throttle neutral. Otherwise, an exception may occur during vehicle reversing.

认证相关 Certifications

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

EU DoC Declaration

Hereby, [ShenZhen FLYSKY Technology Co., Ltd.] declares that the Radio Equipment [FS-R4ABL-ESC-BS] is in compliance with RED 2014/53/EU. The full text of the EU Doc is available at the following internet address: www.flyskytech.com/info_detail/10.html

RF Exposure Compliance

This equipment complies with FCC/ISED RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Environmentally friendly disposal

Old electrical appliances must not be disposed of together with the residual waste, but have to be disposed of separately. The disposal at the communal collecting point via private persons is for free. The owner of old appliances is responsible to bring the appliances to these collecting points or to similar collection points. With this little personal effort, you contribute to recycle valuable raw materials and the treatment of toxic substances.



微信公众号



Bilibili



Website



Facebook



FCC ID: 2A2UNR4ABL00

Manufacturer: ShenZhen FLYSKY Technology Co., Ltd.

Address: 16F, Huafeng Building, No. 6006 Shennan Road, Futian District, Shenzhen, Guangdong, China

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