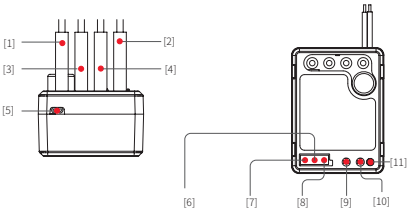
FLYSKY HW-709 接收机 Receiver

产品介绍 Introduction

HW-709 采用 ANT 协议，是一款集无线接收和电调驱动的二合一小型接收机，外置单天线，可输出 PWM 信号，双向传输，采用自动对码，设计小巧紧凑，可适配多种车型使用。

HW-709 based on ANT protocol is a small two-in-one receiver with ESC function and wireless reception function. It has an external single antenna, outputting PWM signal, it can implement two-way transmission, adopting automatic binding. And it has a compact design, which can be adapted to various model cars.

接收机概览 Overview



[1] 电源正极
[2] 电源负极
[3] 动力马达 "M+"
[4] 动力马达 "M-"
[5] 电源开关
[6] CH1 电源正极 (BEC)
[7] CH1 电源负极 (BEC)
[8] CH1 信号脚
[9] 电调 LED 指示灯
[10] 接收机 LED 指示灯
[11] 天线

[1] Power anode
[2] Power cathode
[3] Motor "M+"
[4] Motor "M-"
[5] Power switch
[6] CH1 power anode (BEC)
[7] CH1 power cathode (BEC)
[8] CH1 signal pin
[9] LED for ESD
[10] LED for receiver
[11] Antenna

产品规格 Specifications

- 产品型号：HW-709
- 适配发射机：FS-HW-G4P、FS-MG41、FS-G7P 等（具体参见官网“发射接收配对表”）
- 适配模型：1/16、1/18 平路、越野、短卡、卡车或攀爬车
- PWM 通道：1
- 发射功率：<20dBm
- 无线频率：2.4GHz ISM
- 无线协议：ANT
- 天线类型：单天线
- 输入电源：NiMH (5~7Cell)/2S 锂电
- 持续 / 峰值电流：25A / 120A
- 数据输出：PWM
- BEC 输出：6V/1A
- 适用电机：280/370 有刷电机 ⩾ 12T 或 RPM < 30000 @7.4V
- 支持电机类型：有刷电机
- 遥控距离：>300m（空旷无干扰地面距离）
- 在线更新：无
- 外形尺寸：34*25*15.5mm
- 温度范围：-10°C ~ +60°C
- 湿度范围：20%~95%
- 机身重量：23.9g（配 3.5mm 子弹母头）
  22.1g（配小 TAMIYA 公头）
- 认证：CE，FCC ID: N4ZHW-709

- Product Name: HW-709
- Compatible Transmitters: FS-HW-G4P、FS-MG41、FS-G7P, etc. (Refer to **TX-RX FORM** on the official website for details.)
- Models : 1/16,1/18 On-road, Buggies, SCT, Trucks or Rock Crawlers
- PWM Channels: 1
- Maximum Power: < 20dBm (e.i.r.p.) (EU)
- RF: 2.4GHz ISM
- 2.4G Protocol: ANT
- Antenna: Single antenna
- Input Power: NiMH (5~7Cell)/ 2S Lithium batteries
- Continuous/Peak Current: 25A/120A
- Data Output: PWM
- BEC Output: 6V/1A
- Applicable Motor: 280/370 Brush motor ⩾ 12T or RPM < 30000 @7.4V
- Motor Type: Brush motors
- Distance: >150m(Ground distance without inference)
- Online Update: NO
- Dimensions: 34*25*15.5mm
- Temperature Range: -10°C ~ +60°C
- Humidity Limit: 20%~95%
- Weight: 23.9g（With 3.5mm bullet female connector）
  22.1g（With small TAMIYA male connector）
- Certification: CE, FCC ID: N4ZHW-709

对码 Binding

本款接收机上电即自动进入对码状态。

1. 将发射机进入对码状态（发射机进入对码状态的方式可能不同，请根据发射机的使用说明书进行操作）；
2. 接收机上电等待 1 秒没有连接将自动进入对码；
3. 对码成功后，接收机 LED 指示灯常亮；

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 10s 内对码没有完成，接收机指示灯进入慢闪状态。

The receiver automatically enters the binding state once it is powered on.

1. First put the transmitter into bind mode (See the transmitter's user manual for instructions on how to activate bind mode.).
2. When the receiver is powered on and waits for 1 second, it will automatically enter the binding state if it is not connected.
3. After the binding is successful, the LED indicator of the receiver is solid on.

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

电调保护功能 ESC protection

本款接收机具有低压保护、过热保护及信号丢失保护功能。

- **低压保护**

  电池类型选择锂电模式时：低压保护值为 3.2V/Cell。即使用 2S Lipo 时，低压保护值为 6.4V；当电池类型选择镍氢模式时：低压保护值为 4.5V（总电池电压）。当电调检测到电池电压达到低压保护值持续 2 秒钟以后，电调输出功率将减半，即以 50% 的输出功率运行，8 秒种后将彻底切断输出，此时电调红色 LED 单次循环闪烁。触发低压保护后请更换电池或将电池充满电后再使用。

  注：若使用过程中比较容易触发电调低压保护，请优先查看电调电池类型选择是否有误，如使用镍氢电池却设置了锂电模式；若电池类型选择正确，那么极可能是电池放电能力不足导致，请更换更大放电倍率的电池进行测试。

- **过热保护**

  当电调内部温度达到厂家预设值（110°C /230 °F）并持续时间 2 秒时，电调将直接切断输出，此时电调红色 LED 将持续慢速闪烁。

  注：若电调极易触发过热保护，一般是搭配不合理，即电调无法满足车辆配置要求，请减小车辆负载或更换更大功率电调。

- **信号丢失保护**

当电调检测到油门信号丢失 0.1 秒后会自动切断输出，此时电调红色 LED 快闪。

This receiver has multiple prompt functions such as low voltage protection, overheat protection and signal loss protection.

- **Low voltage protection**

When the battery type is LiPo mode: the low-voltage protection value is 3.2V/cell. That is, when 2S lipo is used, the low-voltage protection value is 6.4V. When the battery type is NiMH mode: the low-voltage protection value is 4.5V(total battery voltage). When the ESC detects that the battery voltage reaches the low-voltage protection value for 2 seconds, the output power of ESC will be halved, that is, the ESC will operate at 50% of the output power. The ESC will cut off the output completely after 8 seconds, and the red LED of the ESC will blink in cycle. After triggering the low-voltage protection, please replace the battery or fully charge the battery before use.

Note: If it is easy to trigger the low voltage protection during use, please check whether select wrong battery type, for example, LiPo mode is set when using the NiMH cell. If the battery type is selected correctly, it is probably caused by the insufficient discharge capacity of the battery. Please replace the battery with a higher discharge rate to test.

- **Overheat protection**

When the internal temperature of ESC reaches the preset value (110°C /230 °F) of the manufacturer and lasts for 2 seconds, the ESC will directly cut off the output and the red LED of the ESC will continue to flash slowly.

Note: If ESC is easy to trigger the overheat protection, it maybe be caused by unreasonable configuration, that is, the ESC cannot meet the vehicle configuration requirements, please reduce the vehicle load or replace the ESC with higher power.

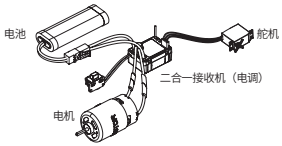
- **Signal loss protection**

When the ESC detects that throttle signal is lost for 0.1s, it will automatically cut off the output and the red LED of the ESC will flash quickly.

电调功能使用说明 ESC function instructions

1. 连接相关设备：

连接前请确认接收机电源开关处于关闭（OFF）状态，将电机与动力马达 M+/M- 接口相连接，舵机接到 CH1 口上（"-""+""S " 相对应），电池与动力马达输入正负极对应相接。



2. 正常开机，识别油门中点：

上面第一步相关设备连接好后，先打开发射机，并将发射机油门扳机置于中点位置（自然状态）。最后一步打开接收机电源开关，当电调电池类型设置为锂电时，如使用 2S 锂电，电机会“滴 - 滴”鸣叫两声；若设置为镍氢模式，则电机只鸣叫一声；约 1 秒后电机会“滴—”长鸣一声表示自检完成，方可运行。

注：

1. 接收机的电调功能必须等到自检完成后方可运行（大约 3 秒），否则可能无法正常动作；
2. 若开机后无动力输出，且电调红色 LED 快闪，说明发射机际油门不在中点位置。微调油门中点直到电调红色 LED 不闪即可；
3. 若运行时发现电机转向不对，将接电机的两根线互换位置即可；
4. 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。
5. 关于电调的电池类型、拖刹力度和运行模式的设置详见相关发射机说明书章节。

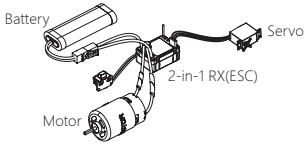
3. 行驶过程中指示灯（LED）状态说明：

1. 油门扳机处于中点区域时，电调红色 LED 熄灭。
2. 前进时，电调红色 LED 快闪；当油门处于正向最大（100% 油门）时，红色 LED 常亮。
3. 倒车时，电调红色 LED 快闪。

电调功能使用说明 ESC function instructions

1. Connect related equipment

Make sure the receiver is off before connection. Connect the motor with M+ and M- of the receiver. Connect the steering servo to the CH1 interface marked with "ST" (- + S connected correspondingly). Connect the battery with the power anode and cathode of the receiver correspondingly.



2. Normal boot, identification throttle neutral point

After connecting related equipment as step 1, turn on the tranmitter first, move the throttle trigger to the neutral position. Turn on the **Power switch** of receiver at last. When the battery of ESC is LiPo, the motor will emit "beep-beep" twice if use 2s LiPo; when the battery of ESC is NiMH cells, the motor will emit "beep" only once. After about 1 second, the motor will long emit "beep" sound, indicating self-inspection is completed, then can run it.

Notes:

1. The ESC function can be run after completing self-inspection (about 3 seconds) if the receiver is powered on, otherwise it cannot be operated normally.
2. If there is no power output and the red LED of the ESC flashes quickly after power on, it means that the actual throttle of transmitter is not at the neutral position. Adjust the throttle to the neutral position until the red LED of the ESC does not flash.
3. If the rotation direction is not correct during running, exchange the two wires connecting the motor and the receiver.
4. To make sure everything is ok, please turn on the transmitter first and then the receiver, turn off the receiver first and then the transmitter.
5. Please refer to the relevant sections for details about the battery type, drag brake force and running mode of the ESC.

3. Description of LED status during driving

1. The red LED of ESC extinguishes when the throttle trigger is at the neutral position.
2. The red LED of the ESC quickly flashes when the vechel moves forward; the red LED of the ESC is solid on when the throttle is at the end position of forward(100% throttle).
3. The red LED of the ESC quickly flashes when the vechel is reversing.

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，保护模型和操作人员的安全。 该接收机默认为油门通道固定为失控进入刹车状态，其他通道失控后保持最后输出，如若在发射机上进行设置，则按照设置值输出。

This function is used to protect the safety of the model and the operator when the receiver cannot normally receive the signal from the transmitter and is out of control. The receiver defaults that the throttle channel is fixed to be out of control and enters the brake state. The receiver will maintain the output of the last signal when the signal is lost. If you set it on the transmitter, it will output according to the set value.

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。
- 请查看各动力设备以及车架说明书，确保动力搭配合理，避免因错误的搭配导致动力系统损坏。
- 勿使系统的外部温度超过 90°C /194 °F，高温将会毁坏动力系统。
- 关闭时，请务必先关闭接收机电源，然后关闭发射机。如果关闭发射机电源时接收机仍然在工作，将导致遥控设备失控。失控保护设置不合理可能引起事故。
- 使用完毕后，若长时间不玩车，切记断开电池与电调的连接。如电池未断开，即使电调开关处于关闭状态，电调也会一直消耗电能（只是非常小），长时间连接电池最终会被过放，进而导致电池或电调出现故障。我们不对因此而造成的任何损害负责！
- 确保接收机安装在远离电机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。

Attention:

- Make sure the product is installed and calibrated correctly, failure to do so may result in serious injury.
- Please carefully check each power device and car frame instructions to ensure the power matching is reasonable before use. Avoid damaging power system due to incorrect matching.
- Do not let the external temperature of the system exceed 90°C /194 °F , because high temperature will damage the power system.
- Make sure the receiver's battery is disconnected before turning off the transmitter, failure to do so can result out of control. Unreasonable setting of the Failsafe may cause accidents.
- After use, remember to disconnect the battery and the ESC. If the battery isn't disconnected, the ESC will consume electric energy all the time even if it is off. It will discharge completely if connect the battery for a long time, thus resulting in the failure of the battery or the ESC. We are not responsible for any damage caused by this!
- Make sure the receiver is mounted away from motors or any device that emits excessive electrical noise.
- Keep the antenna of the receiver 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.

认证相关 Certification

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, [Flysky Technology co., ltd] declares that the Radio Equipment [HW-709] is in compliance with RED 2014/53/EU.
The full text of the EU DoC is available at the following internet address: www.flysky-cn.com.

RF Exposure Compliance

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

FCC ID: N4ZHW-709

微信公众号 Bilibili Website Facebook

本说明书中的图片和插图仅供参考，可能与实际产品外观有所不同。 产品设计和规格可能会有所更改，恕不另行通知。
Figures and illustrations in this manual are provided for reference only and may differ from actual product appearance. Product design and specificatiions may be changed without notice.

Manufacturer：ShenZhen FLYSKY Technology Co., Ltd
Address: 16F, Huafeng Building, No. 6006 Shennan Road, Futian District, Shenzhen, Guangdong, China
Http://www.flysky-cn.com