

GoolRC FS-R4D-ESC

GoolRC Flysky FS-R4D-ESC Receiver User Manual

Model: FS-R4D-ESC

1. INTRODUCTION

The GoolRC Flysky FS-R4D-ESC is an advanced 2-in-1 two-way proprietary receiver, integrating both Electronic Speed Control (ESC) and LED light set control. Designed for compact installations, it features an external single antenna and is compliant with the ANT protocol. This unit provides PWM signal output and car light control signals, supporting two-way transmission for enhanced control and feedback. It is suitable for a variety of RC vehicle models including 1/10 crawlers, on-road cars, off-road short course trucks, and general trucks.

Key features include automatic binding, configurable ESC parameters directly from the transmitter, and multiple protection mechanisms such as battery voltage protection, over-voltage protection, overheating protection, and locked rotor protection.

2. PRODUCT OVERVIEW

Familiarize yourself with the components and interfaces of the FS-R4D-ESC receiver.

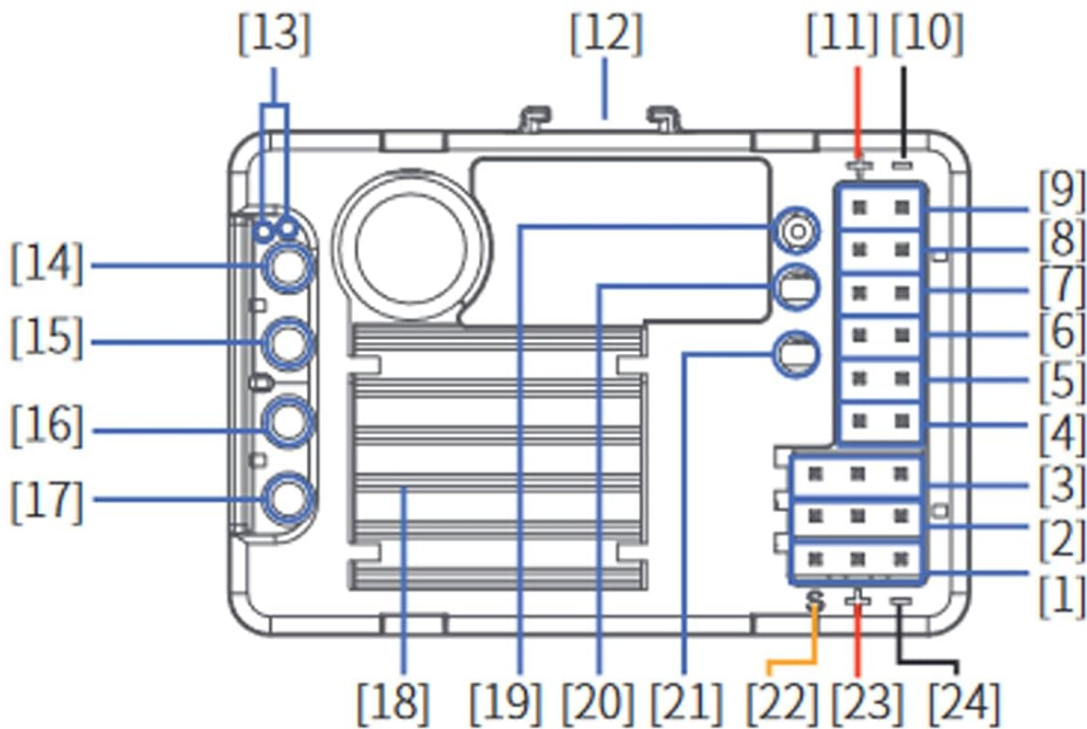


Figure 2.1: Front view of the FS-R4D-ESC receiver showing the main unit, connected wires for power, motor, and signal, and the external antenna.



Figure 2.2: Top-down view of the FS-R4D-ESC receiver, highlighting the heatsink and various port labels for connections.

Receiver Overview



[1] CH1 Interface	[9] Roof Light Interface	[17] Motor Cable "-"
[2] CH3 Interface	[10] Car Light Interface "-"	[18] Heatsink
[3] CH4 Interface	[11] Car Light Interface "+"	[19] Antenna
[4] Left Turn Signal Light	[12] Tab for Hanging Power Switch	[20] Receiver LED
[5] Right Turn Signal Light	[13] Power Switch Cable	[21] ESC LED
[6] Headlight Interface	[14] Motor Cable "+"	[22] CH Interface Signal Pin
[7] Tail Light Interface	[15] Power Cable "+"	[23] CH Interface "+"
[8] Ambient Light Interface	[16] Power Cable "-"	[24] CH Interface "-"

The car light interface is a standard 2.54mm*2 Pins.

Figure 2.3: Detailed diagram illustrating the various interfaces and connection points on the FS-R4D-ESC receiver, with numbered labels for identification.

2.1 Interface Descriptions

No.	Interface	Description
1	CH1 Interface	Channel 1 connection port.
2	CH3 Interface	Channel 3 connection port.
3	CH4 Interface	Channel 4 connection port.
4	Left Turn Signal Light	Output for left turn signal LED.
5	Right Turn Signal Light	Output for right turn signal LED.
6	Headlight Interface	Output for headlight LED.

No.	Interface	Description
7	Tail Light Interface	Output for tail light LED.
8	Ambient Light Interface	Output for ambient light LED.
9	Roof Light Interface	Output for roof light LED.
10	Car Light Interface "-"	Negative terminal for car light connections.
11	Car Light Interface "+"	Positive terminal for car light connections.
12	Tab for Hanging Power Switch	Mounting point for power switch.
13	Power Switch Cable	Cable for connecting the power switch.
14	Motor Cable "+"	Positive terminal for motor connection.
15	Power Cable "+"	Positive terminal for power input.
16	Power Cable "-"	Negative terminal for power input.
17	Motor Cable "-"	Negative terminal for motor connection.
18	Heatsink	Component for dissipating heat.
19	Antenna	External antenna for signal reception.
20	Receiver LED	Indicator light for receiver status.
21	ESC LED	Indicator light for ESC status.
22	CH Interface Signal Pin	Signal pin for channel interfaces.
23	CH Interface "+"	Positive terminal for channel interfaces.
24	CH Interface "-"	Negative terminal for channel interfaces.

Note: The car light interface is a standard 2.54mm*2 Pins.

3. SPECIFICATIONS

Feature	Detail
Product Model	FS-R4D-ESC
Compatible Transmitters	FS-HW-G4P, FS-MG4, FS-G7P, FS-MG7, etc. (Refer to TX-RX compatibility)
Model Type Adaptation	1/10 crawler, on-road car, off-road short course truck, truck
Number of Channels	4
Number of Light Interfaces	6
RF Frequency	2.4GHz ISM
2.4G Protocol	ANT
Antenna	Single External Antenna

Feature	Detail
Input Power	LiPo (2-3S) / NiMH (5-9Cell)
BEC Output	6V/3A
Continuous/Peak Current	40A/200A
Motor Type	Brushed Motor
Applicable Motors	550, 540, 390, 370 or 280 Brushed Motor
Data Output	PWM
Resolution	4096
Temperature Range	-10°C to +60°C
Humidity Limit	20%-95%
Distance	>150m (Ground Distance without interference)
Waterproof Rating	IPX7
Online Update	None
Dimensions	44*30*16.7mm
Weight	43g (Without pin header)
Certification	CE, FCC ID: 2A2UNR4DESC

4. SETUP AND INSTALLATION

Proper installation is crucial for optimal performance and safety. Always ensure your vehicle's power is off before connecting or disconnecting components.

4.1 Connecting the Receiver

- Motor Connection:** Connect your brushed motor to the "Motor Cable +" (14) and "Motor Cable -" (17) ports. Ensure correct polarity.
- Power Supply:** Connect your LiPo (2-3S) or NiMH (5-9Cell) battery to the "Power Cable +" (15) and "Power Cable -" (16) ports.
- Transmitter Binding:** The FS-R4D-ESC supports automatic binding. Refer to your specific Flysky transmitter's manual (e.g., FS-G7P, FS-MG7) for detailed binding procedures. Ensure the receiver and transmitter are in close proximity during the binding process.
- Channel Connections:** Connect your steering servo to CH1 (1), and throttle to CH2 (not explicitly labeled but standard for ESCs, usually integrated with motor control). Use CH3 (2) and CH4 (3) for additional functions as needed.
- LED Light Connections:** Connect your vehicle's LED lights to the corresponding light interfaces (4-9). Ensure correct polarity for each light. The car light interface (10, 11) is a standard 2.54mm*2 Pins.
- Antenna Placement:** Position the external antenna (19) in a way that maximizes signal reception and minimizes interference. Avoid bending or coiling the antenna wire excessively.

FS-R4D-ESC

FS-R4D-ESC is an ANT-compliant 2-in-1 two-way proprietary receiver, integrated with Electronic Speed Control (ESC) and LED light set control. Its features are as follows:

- Compact design;
- External single antenna;
- Output of PWM signals and car light control signals;
- Two-way transmission;
- Automatic binding;
- ESC parameters configurable at the transmitter side;
- Battery voltage protection and over-voltage protection;
- Overheating protection;
- Locked rotor protection;
- Adaptation to a variety of vehicle models;



Compatible with Transmitters:
Adapts transmitters with ANT protocol, such as Flysky FS-G7P FS-MG7 Radio Transmitter.



FS-G7P



FS-MG7

Figure 4.1: Overview of FS-R4D-ESC features and examples of compatible Flysky transmitters like FS-G7P and FS-MG7.

5. OPERATING INSTRUCTIONS

Once the receiver is properly installed and bound to your transmitter, you can begin operation.

1. **Power On Sequence:** Always turn on your transmitter first, then power on the vehicle (receiver/ESC).
2. **ESC Calibration:** If necessary, calibrate the ESC with your transmitter's throttle range. Refer to your transmitter's manual for specific calibration steps. The FS-R4D-ESC allows ESC parameters to be configured from the transmitter side.
3. **LED Light Control:** Use the designated channels on your transmitter to control the connected LED lights (headlights, tail lights, turn signals, etc.).
4. **Driving:** Operate your RC vehicle using the transmitter's controls. The integrated ESC will manage motor speed and direction.
5. **Power Off Sequence:** Always power off the vehicle (receiver/ESC) first, then turn off your transmitter.

6. MAINTENANCE AND CARE

To ensure the longevity and reliable performance of your FS-R4D-ESC receiver, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the receiver and ESC unit to remove dirt, dust, and debris. Use a soft brush or compressed air. Avoid using liquid cleaners directly on the electronics.
- **Moisture Protection:** While the unit has a PPX7 waterproof rating, prolonged submersion or exposure to corrosive liquids should be avoided. Ensure all connections are dry before operation.
- **Connection Checks:** Periodically inspect all wire connections for looseness, damage, or corrosion. Secure any loose connections.
- **Storage:** When not in use, store the receiver in a dry, cool place away from direct sunlight and extreme temperatures.
- **Antenna Care:** Do not cut, bend sharply, or damage the antenna wire, as this can significantly reduce range and signal quality.

7. TROUBLESHOOTING

If you encounter issues with your FS-R4D-ESC receiver, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No power to receiver/ESC	Battery not connected, low battery voltage, faulty power switch, incorrect polarity.	Check battery connection and charge level. Ensure power switch is on. Verify correct power cable polarity.
No response from motor/servos	Not bound to transmitter, incorrect channel connection, faulty motor/servo, ESC not calibrated.	Perform binding procedure. Check all channel connections. Test motor/servos separately if possible. Calibrate ESC.
Limited range or signal loss	Damaged antenna, interference, transmitter battery low.	Inspect antenna for damage. Avoid operating near strong electromagnetic interference sources. Replace transmitter batteries.
LED lights not working	Incorrect light connection, faulty LED, channel not activated on transmitter.	Check LED light connections and polarity. Test LEDs directly if possible. Ensure the corresponding channel on the transmitter is active and configured.
Overheating of ESC	Motor too large/inefficient, excessive load, poor ventilation.	Ensure motor is within applicable motor specifications. Reduce load. Improve airflow around the ESC.

If the problem persists after trying these solutions, please contact GoolRC customer support for further assistance.

8. SAFETY INFORMATION

Please read and understand all safety warnings before operating the FS-R4D-ESC receiver. Failure to do so may result in injury or damage to property.

- **Battery Safety:** Always use batteries within the specified voltage and type (LiPo 2-3S / NiMH 5-9Cell). Incorrect battery usage can lead to fire or explosion.
- **Motor Safety:** Brushed motors can become very hot during operation. Avoid touching the motor immediately after use.
- **Waterproof Rating:** While PPX7 waterproof, this rating means it can withstand immersion up to 1 meter for 30 minutes. It is not designed for continuous underwater operation or high-pressure water jets. Always dry the unit thoroughly after exposure to water.

- **Children:** This product is not a toy. It is recommended for users aged 16 years and up due to the complexity and potential hazards of RC electronics. Adult supervision is advised for younger users.
- **Interference:** Operate your RC vehicle in open areas away from power lines, radio towers, and other sources of electromagnetic interference.
- **Modifications:** Do not attempt to modify or disassemble the receiver/ESC unit. Unauthorized modifications can void the warranty and lead to malfunction.

9. WARRANTY AND SUPPORT

GoolRC products are designed and manufactured to high-quality standards. For warranty information and technical support, please refer to the official GoolRC website or contact your retailer. Keep your purchase receipt as proof of purchase.

For more information and product updates, visit the official GoolRC store:[GoolRC Store on Amazon](#).

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question