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FLYCOLOR Francy2 50A

FLYCOLOR Francy2 50A Brushless ESC Speed Controller User Manual

Model: Francy2 50A

1. Introduction

This manual provides essential instructions for the proper installation, operation, and maintenance of your FLYCOLOR Francy2 50A Brushless ESC Speed Controller. Please read this manual thoroughly before use to ensure safe and efficient operation of your RC aircraft.

2. Product Overview and Features

The FLYCOLOR Francy2 50A Brushless ESC is a high-performance electronic speed controller designed for RC airplanes and sailplanes. It features a powerful MCU and supports various digital signal protocols for precise motor control.





Image 2.1: The Francy2 50A Brushless ESC, highlighting its compact design against an RC airplane backdrop.

Key Features:

- **High Performance MCU:** Equipped with an ARM 32-bit Cortex MCU, operating at up to 64 MHz, offering enhanced processing capabilities.
- **Modular BEC:** Integrated BEC (Battery Eliminator Circuit) provides stable power output for your receiver and servos.
- **Wide Signal Support:** Supports regular 1-2ms pulse width input, Oneshot125 (125-250us), Oneshot42 (41.7-83.3us), and Multshot (5-25us). The input signal is automatically detected upon power-up.
- **Dshot Compatibility:** Supports all Dshot and Proshot digital signals, including Dshot1200, for lowest latency and digital protocols without throttle calibration (requires flight control support).
- **Compact and Lightweight:** Small dimensions and low weight facilitate easy integration into various aircraft models.
- **BLHeli-32 Firmware:** Firmware can be updated and parameters set via BLHeli-32 software, allowing for up to 20 configurable parameters and strong adaptability.

- **Adjustable Motor Timing:** Motor timing can be set between approximately 1° and 31° in precise increments.

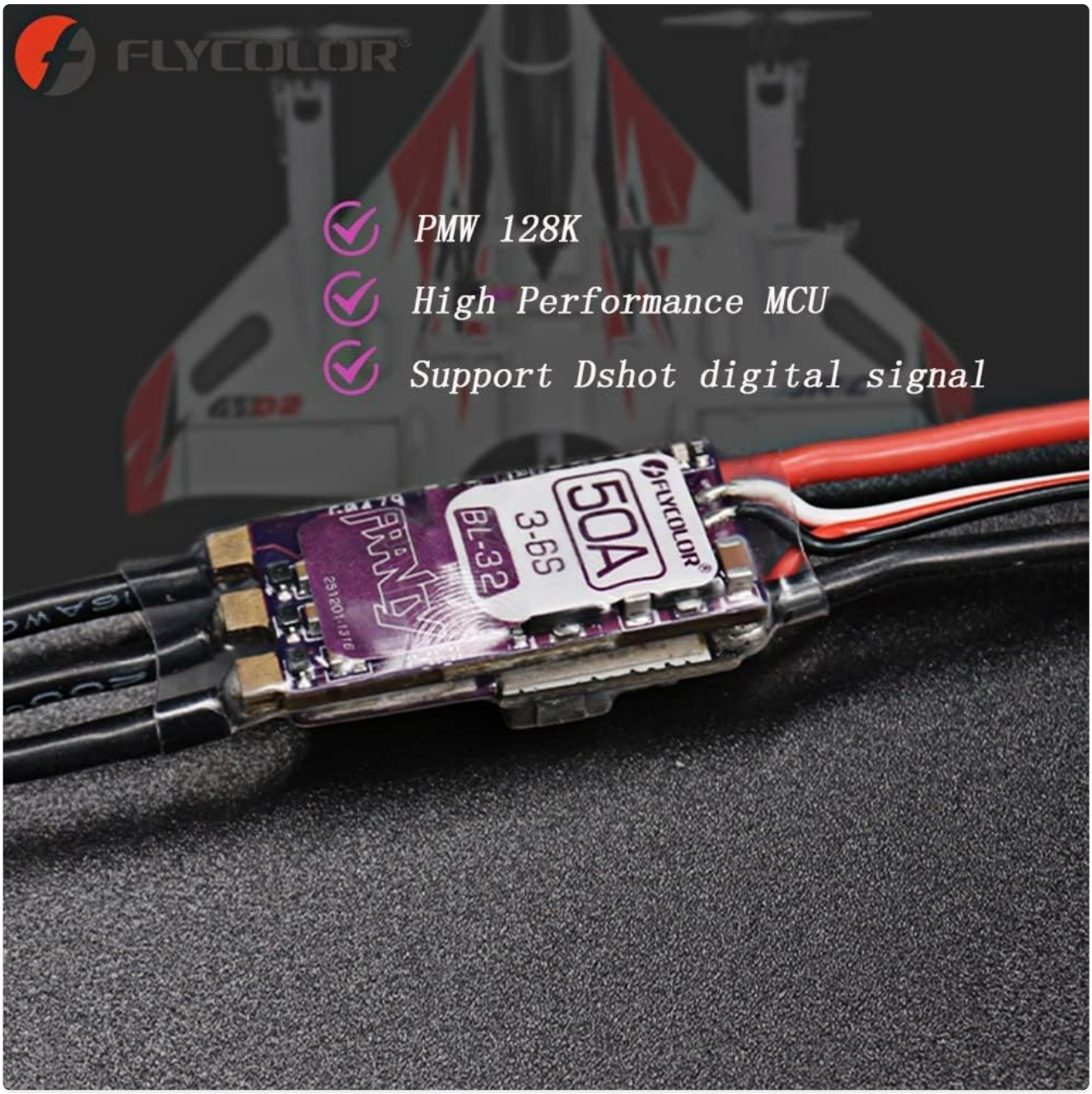

Image 2.2: Visual representation of key features including PMW 128K, High Performance MCU, and Dshot digital signal support.

3. Specifications

Parameter	Value
Brand	FLYCOLOR
Model	Francy2 50A
Continuous Current	50A
Instantaneous Current (10S)	50A
BEC Output	5V/3A, 12V/2A
Lithium Battery Support	3-6S (for 5V/3A BEC), 4-6S (for 12V/2A BEC)

Parameter	Value
Dimensions (L x W x H)	33 x 16 x 10 mm (1.3 x 0.63 x 0.39 inches)
Weight (including wire)	16.5 g (0.58 oz)
MCU Frequency	Up to 64 MHz



Image 3.1: Detailed dimensions of the Francy2 50A ESC, showing its compact size.

4. Package Contents

The package includes the following item:

- 1x FLYCOLOR Francy2 50A Brushless ESC



Image 4.1: The Francy2 50A ESC with pre-soldered XT60 connector for battery input and 3.5mm bullet connectors for motor output.

5. Setup and Installation

Proper connection is crucial for the safe and correct operation of your ESC. Refer to the diagram below for connection details.

Connection Steps:

1. **Motor Connection:** Connect the three motor wires from your brushless motor to the three output wires of the ESC (typically black wires with 3.5mm bullet connectors). The order of connection may affect motor rotation direction; this can be adjusted in software if needed.
2. **Battery Connection:** Connect your LiPo battery (3-6S) to the XT60 connector on the ESC. Ensure correct polarity (red to positive, black to negative).

3. **Receiver/Flight Controller Connection:** Connect the signal cable (typically a three-wire servo connector: signal, positive, negative) from the ESC to the throttle channel of your receiver or flight controller. The BEC will provide power to your receiver/flight controller.

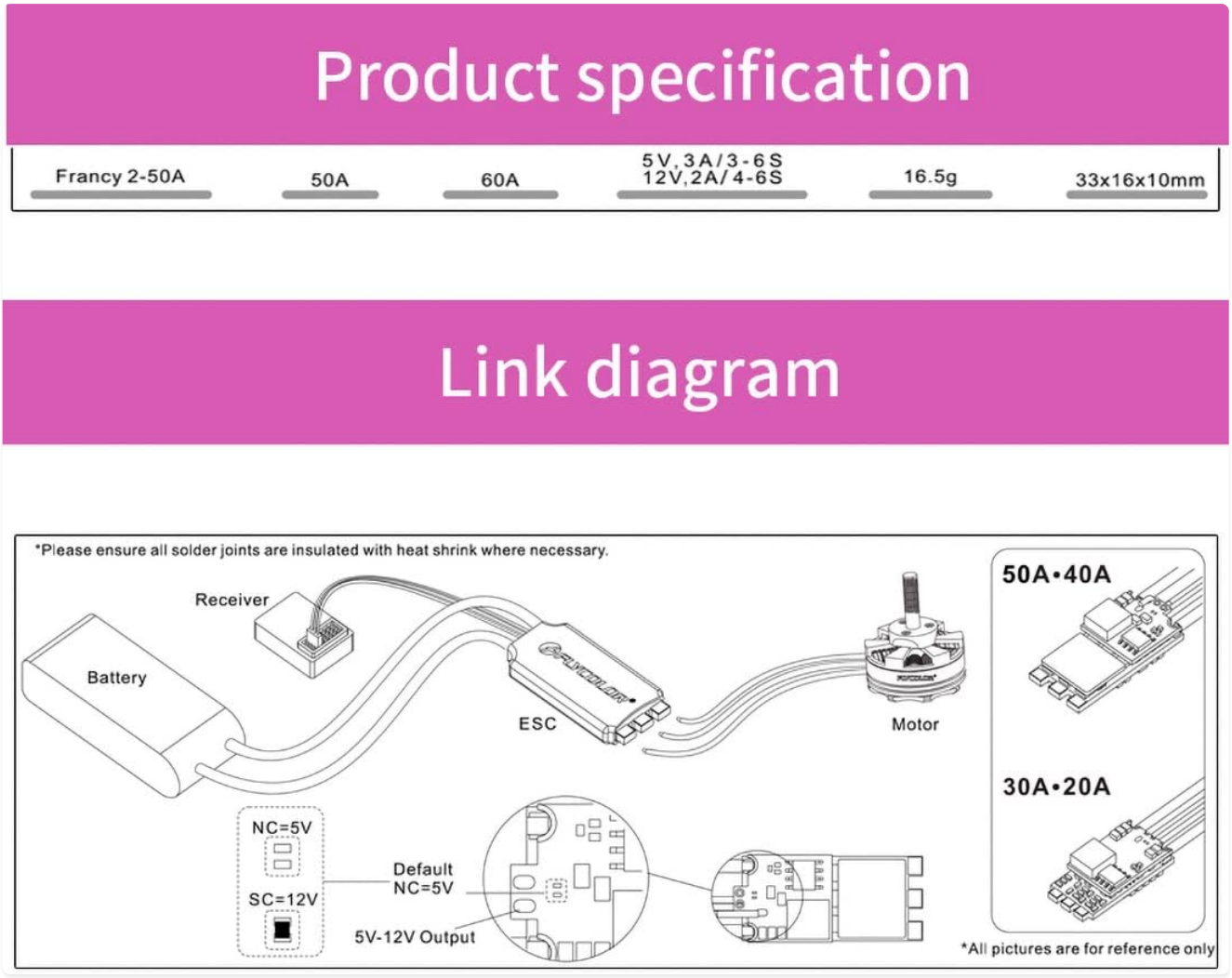

Image 5.1: A detailed link diagram illustrating the connections between the battery, ESC, motor, and receiver. Ensure all solder joints are insulated with heat shrink where necessary.

6. Operating Instructions

Once properly installed, the ESC will automatically detect the input signal upon power-up. Ensure your transmitter's throttle stick is at the lowest position before connecting the battery.

Initial Power-Up:

1. Ensure all connections are secure and correct.
2. Turn on your RC transmitter.
3. Connect the battery to the ESC. The ESC will emit a series of beeps indicating successful power-up and cell count detection.
4. Move the throttle stick up slowly to test motor response.




All Dshot and Proshot signals are supported
Supports regular 1-2ms pulse width input,
as well as Oneshot125 (125-250us),
Oneshot42 (41.7-83.3us) and Multshot (5- 25us).
The input signal is automatically detected by the ESC upon power up.
FLYCOLOR
50A
3-6S
BL-32
FLYCOLOR



Image 6.1: Illustrates the ESC's compatibility with various Dshot and Proshot signals, controlled via an RC remote.

7. Programming and Configuration

The Francy2 50A ESC utilizes BLHeli-32 firmware, allowing for extensive customization and parameter adjustments. To program the ESC, you will need the BLHeli-32 software and a compatible programming interface (e.g., a flight controller with passthrough or a dedicated BLHeli-32 programmer).

Key Programmable Parameters:

- **Motor Timing:** Adjustable from 1° to 31° in fine increments to optimize motor efficiency and performance.
- **Motor Direction:** Change motor rotation direction.
- **PWM Frequency:** Adjust motor PWM frequency for smoother operation or specific motor requirements.
- **BEC Voltage:** Configure BEC output voltage if multiple options are available.
- And up to 20 other parameters for strong adaptability.

For programming software, please contact customer service for guidance and access to the latest version.

8. Troubleshooting

This section addresses common issues you might encounter with your ESC.

Common Issues and Solutions:

- **Motor Not Spinning / Irregular Beeps:**
    - Check all wiring connections between the ESC, motor, and receiver/flight controller.
    - Ensure the battery is fully charged and connected with correct polarity.
    - Verify that the throttle channel on your transmitter is correctly calibrated and at its lowest position upon power-up.
    - If using Dshot, ensure your flight controller is configured for Dshot and the ESC is receiving the correct signal.
- **Motor Stuttering / Low Torque:**
    - Adjust motor timing in the BLHeli-32 software. Incorrect timing can lead to inefficient motor operation.
    - Check for any physical obstructions or damage to the motor.
    - Ensure the ESC is adequately cooled; overheating can cause performance issues.
- **Inability to Program ESC:**
    - Ensure you are using the correct BLHeli-32 software version and a compatible programming interface.
    - Verify that the programming connection is secure.
    - Some ESCs may ship with pre-production firmware that limits configuration. If you encounter this, contact customer support for assistance.
- **ESC Overheating:**
    - Ensure adequate airflow around the ESC.

- Check if the motor or propeller size is too large for the ESC's rating, causing excessive current draw.
- Verify that the battery voltage is within the supported range (3-6S).

9. Safety Information

Operating RC electronics requires caution. Please observe the following safety guidelines:

- Always connect the battery with correct polarity. Reverse polarity will damage the ESC.
- Ensure all connections are insulated to prevent short circuits.
- Never touch rotating propellers or motors when the battery is connected.
- Keep the ESC away from water, moisture, and extreme temperatures.
- Do not exceed the maximum current rating of the ESC.
- Always disconnect the battery from the ESC after use.
- Recommended age for use is 14 years and up.

10. Warranty and Support

Specific warranty details are not provided in the product information. For warranty claims or technical support, please contact the manufacturer, FLYCOLOR, or your point of purchase. Keep your proof of purchase for any warranty-related inquiries.
For programming software or further assistance, please reach out to customer service.

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