STASRC 100A

STASRC Surpass Hobby Flier 100A Brushless ESC Speed Controller

USER MANUAL

1. Introduction

Thank you for choosing the STASRC Surpass Hobby Flier 100A Brushless Electronic Speed Controller (ESC). This ESC is designed for high-performance remote-controlled applications, providing precise control for brushless motors. This manual provides essential information for the proper setup, operation, and maintenance of your ESC to ensure safe and optimal performance.

2. Safety Precautions

Always observe the following safety guidelines to prevent injury or damage to the product and surrounding equipment:

- **High Current Warning:** This ESC can handle high currents. Incorrect wiring or short circuits can cause severe damage, fire, or personal injury. Ensure all connections are secure and correct before powering on.
- **Battery Safety:** Use appropriate batteries (2-6S LiPo or 5-18NC NiXX) and handle them with care. LiPo batteries can be dangerous if mishandled, overcharged, or damaged.
- **Motor Safety:** Brushless motors can spin at very high RPMs. Keep hands, loose clothing, and objects away from the motor and propeller/rotor when the system is powered.
- **Water and Moisture:** Keep the ESC away from water, moisture, and conductive contaminants.
- **Ventilation:** Ensure adequate airflow around the ESC during operation to prevent overheating.
- **Children:** This product is not a toy. Keep out of reach of children.

3. Product Overview

The STASRC Surpass Hobby Flier 100A ESC features advanced technology for reliable and efficient performance:

- High-performance 32-bit processor for stronger computing power and faster running speed.

- Power output components (MOSFETs) utilize new generation manufacturing technology, ensuring low heat generation, large instantaneous current capability, and high reliability.
- Ultra-smooth start-up and precise throttle linearity.
- High efficiency for more energy-saving operation and longer battery life.
- Multiple protections: start-up protection, over-temperature protection, low-voltage protection, phase loss protection, and signal loss protection.
- Automatically identifies motor timing and supports high RPM motors, compatible with most motors on the market.
- SBEC 5V/6V two-speed adjustable, providing continuous 8A current supply for stronger power to the steering gear.

Image 1: The STASRC Surpass Hobby Flier 100A Brushless ESC. This image shows the compact design of the electronic speed controller with its various wires for connection to the motor, battery, and receiver.

4. Setup

Follow these steps for proper installation and wiring of your ESC:

1. **Motor Connection:** Connect the three motor wires from the ESC to the three wires of your brushless motor. The order of connection may affect motor rotation direction; this can be adjusted later if

needed.

2. **Battery Connection:** Connect the main power wires (red and black) from the ESC to your battery pack. Ensure correct polarity (red to positive, black to negative).
3. **Receiver Connection:** Connect the small signal cable from the ESC (typically a three-wire servo connector) to the throttle channel of your RC receiver. The BEC (Battery Eliminator Circuit) within the ESC will provide power to your receiver and servos.
4. **Mounting:** Securely mount the ESC in your model, ensuring good ventilation and protection from vibrations and impacts.
5. **Optional LCD Programming Card:** If using an optional LCD programming card (purchased separately), connect it to the designated programming port on the ESC for advanced settings configuration.

5. Operating Instructions

Once the ESC is installed, follow these steps for initial operation:

1. **Transmitter On:** Turn on your RC transmitter and ensure the throttle stick is at its lowest position.
2. **Connect Battery:** Connect the battery to the ESC. The ESC will emit a series of tones indicating cell count and readiness.
3. **Throttle Calibration (First Use Recommended):**
    - With the transmitter on and throttle at maximum, connect the battery to the ESC.
    - The ESC will emit a tone. Move the throttle stick to the lowest position.
    - Another tone will confirm successful calibration.
4. **Motor Operation:** Slowly advance the throttle stick on your transmitter. The motor should begin to spin smoothly.
5. **Adjusting BEC Voltage:** The SBEC output can be adjusted between 5V and 6V. This setting is typically changed via the optional LCD programming card or specific throttle stick sequences (refer to detailed programming instructions if not using the card).

6. Maintenance

Proper maintenance ensures the longevity and reliable performance of your ESC:

- **Cleaning:** Keep the ESC clean and free from dust, dirt, and debris. Use a soft brush or compressed air. Avoid using liquids.
- **Inspection:** Regularly inspect all wires, connectors, and solder joints for signs of wear, damage, or corrosion. Replace damaged components immediately.
- **Storage:** Store the ESC in a dry, cool environment, away from direct sunlight and extreme temperatures. Disconnect from batteries when not in use.
- **Heat Management:** Ensure the ESC's heat sink is clear of obstructions and that it receives adequate airflow during operation.

7. Troubleshooting

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

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Motor does not spin or stutters.	Incorrect motor wiring, throttle not calibrated, low battery, motor damaged.	Check motor connections. Perform throttle calibration. Charge or replace battery. Inspect motor for damage.
ESC beeps continuously or emits error codes.	Low voltage cutoff, signal loss, over-temperature, phase loss.	Check battery voltage. Ensure receiver is powered and connected. Allow ESC to cool. Check motor connections.
No power to receiver/servos.	BEC failure, incorrect receiver connection.	Verify receiver connection to ESC. Test with another BEC or external power source for receiver.
Motor spins in the wrong direction.	Incorrect motor wire connection.	Swap any two of the three motor wires between the ESC and motor.

8. Specifications (100A Model)

Detailed technical specifications for the STASRC Surpass Hobby Flier 100A Brushless ESC:

Continuous Current (A)	100A
Burst Current (A)	120A
Battery Cell (NiXX/Lipo)	5-18NC / 2-6Lipo
Weight (g)	80g
BEC Output	5V/6V 8A (Adjustable)
Size (mm) L*W*H	90x37x10
Connector (mm)	4
User Program	Yes (via optional LCD programming card)
Material Type	Plastic
Item Dimensions (inches)	3.3 x 0.45 x 1.92

9. Warranty and Support

STASRC products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Please retain your proof of purchase for warranty claims.