

## STASRC 130A Sensored Brushless ESC and Program Card

# STASRC Surpass Hobby Pocket-RC 130A Sensored Brushless ESC and Program Card User Manual

Instructions for Setup, Operation, and Maintenance for 1/10 RC Cars

## 1. INTRODUCTION

This manual provides detailed instructions for the STASRC Surpass Hobby Pocket-RC 130A Sensored Brushless Electronic Speed Controller (ESC) and its dedicated Program Card. This system is designed for 1/10 scale remote control cars, offering precise control and robust performance. Please read this manual thoroughly before operating the product to ensure correct usage and optimal performance.

## 2. SAFETY INFORMATION

No specific safety warnings are applicable beyond general precautions for handling electronic components and RC models. Always ensure proper ventilation, avoid short circuits, and disconnect power when not in use or during maintenance. Keep out of reach of children under 12 months, as recommended by the manufacturer.

## 3. PRODUCT FEATURES

- **High Performance:** 130A continuous current, 240A peak current.
- **Sensored Operation:** Provides smooth and precise motor control.
- **Wide Voltage Range:** Supports 6V to 11V input voltage.
- **Overheating Protection:** Integrated motor and ESC overheating protection functions to enhance reliability and durability.
- **Adjustable Parameters:** Customizable throttle and brake PWM frequencies for fine-tuning performance.
- **Removable Cooling Fan:** High-performance fan (23000rpm/7.2V) for efficient heat dissipation, easy to clean and maintain.
- **Compact Design:** ESC dimensions of 44.5x39.5x31mm (including fan) and a weight of 88.2g (including wire).
- **Dedicated Program Card:** For easy and precise adjustment of ESC parameters.

## Removable cooling fan

High-performance removable cooling fan, easy to clean and maintain, improving fan durability.

High-performing removable cooling fan (23000rpm/7.2V)

Aluminum heat sink



Image 3.1: Diagram illustrating the motor and ESC overheating protection features. This system helps prevent damage under high load conditions.



Products dimension: 70x43x13mm  
Power supply mode: ESC BEC  
Weight: 24g



### CUSTOMIZING THE ESC

To begin, connect the ESC battery wires to a charged battery, then connect the BEC wire 3pin wire to the program card "S+-" port (3pin port). Turned on the ESC, the programming card will automatically read the ESC settings, and the setting items of the programming card will display 1 to 15 successively, indicating that the connection is successful. You can start programming ESC. (if it is not displayed, it means that the connection is unsuccessful, please try to turn off ESC repeatedly, reconnect the programming card and turn on ESC again until it is successful)

**TIPS!** Program card is done using the 4 buttons below on the led, The function of each button start from right hand side are ITEM, VALUE-, VALUE+, OK.

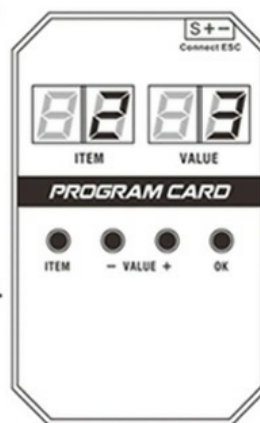
**Please refer to the menu below to program the function settings you need.**

"ITEM" button-----go to next item to select.

"VALUE -" button-----go to previous value select.

"VALUE+" button-----go to next value select.

"OK" button-----go to confirm your select.



FP-100010-01

Image 3.2: The ESC allows independent adjustment of throttle and brake PWM frequencies, enabling precise control and customization for various driving conditions.

## Motor and ESC overheating protection

While the ESC provides extremely violent work output, it also has multiple instant overheating protection functions, which reduces the probability of ESC and motor damage under high load, thereby greatly improving reliability and durability. To effectively avoid ESC burnout due to overheating of the power system.



MOTOR OVERHEATING PROTECTION



ESC OVERHEATING PROTECTION



*Image 3.3: The ESC features a high-performance removable cooling fan and an aluminum heatsink, designed for easy maintenance and improved durability.*

## 4. PACKAGE CONTENTS

The product package includes the following items:

- 1x SURPASS 130A Sensored Brushless ESC
- 1x ESC Program Card



Image 4.1: The complete package including the 130A Sensored Brushless ESC and the Program Card.

## 5. SPECIFICATIONS

### 5.1. ESC Specifications

- **Continuous Current:** 100A
- **Peak Current:** 240A
- **Input Voltage:** 6V~11V
- **Dimensions (including fan):** 44.5 x 39.5 x 31 mm (1.75 x 1.56 x 1.22 inches)
- **Weight (including wire):** 88.2g (6.2 ounces)
- **Manufacturer:** SURPASS

### 5.2. Program Card Specifications

- **Dimensions:** 70 x 43 x 13 mm
- **Weight:** 24g
- **Power Supply Mode:** ESC BEC



Products dimension: 70x43x13mm  
Power supply mode: ESC BEC  
Weight: 24g

*Image 5.1: The Program Card displaying its dimensions and power supply method.*

## 6. SETUP AND INSTALLATION

Follow these steps to properly install and connect your ESC and Program Card:

1. **Connect Motor to ESC:** Connect the three motor phase wires (A, B, C) from your brushless motor to the corresponding output terminals on the ESC. Ensure a secure connection. For sensored motors, connect the sensor cable from the motor to the 'SENSOR' port on the ESC.
2. **Connect ESC to Receiver:** Plug the ESC's throttle cable (usually a 3-pin servo connector) into the throttle channel (CH2) of your RC receiver.
3. **Connect Battery:** Connect your battery pack to the ESC's power input connectors. Ensure correct polarity (red to positive, black to negative).
4. **Power On:** Turn on your RC transmitter first, then turn on the ESC using its power switch.



Image 6.1: Close-up view of the ESC showing the sensor port and motor phase connections (A, B, C).



Image 6.2: The ESC connected with its capacitor pack and the receiver connection wire.

## 7. OPERATING INSTRUCTIONS: USING THE PROGRAM CARD

The Program Card allows for easy adjustment of the ESC's parameters. Follow these steps to customize your ESC settings:

1. **Connect Program Card:** Begin by connecting the ESC battery wires to a charged battery. Then, connect the BEC wire (3-pin port) from the ESC to the 'S+' port (3-pin port) on the Program Card.
2. **Automatic Recognition:** Turn on the ESC. The Program Card will automatically read the ESC settings, and the setting items will display from 1 to 15 successively, indicating a successful connection.
3. **Troubleshooting Connection:** If the settings are not displayed, it means the connection is unsuccessful. Please turn off the ESC, reconnect the Program Card, and turn on the ESC again until the connection is successful.
4. **Navigating Parameters:** Use the four buttons on the Program Card to adjust settings:
  - **ITEM button:** Moves to the next item.
  - **VALUE - button:** Decreases the current item's value.
  - **VALUE + button:** Increases the current item's value.

- **OK button:** Confirms your selected value.

## Adjustable throttle and brake PWM frequency

The throttle and brake PWM frequencies are independently adjustable, which can meet the player's requirements for precise adjustment of the motor's forward power and braking force during competition, allowing players to enjoy the ultimate control experience.



	Value							
Neutral Range	<u>8K</u>	2K	4K	12K	16K	24K	32K	48K
Brake PWM Frequency	<u>1KHz</u>	400Hz	600Hz	800Hz	2K	4K		

Underscore letter indicate factory default settings

Image 7.1: Instructions for connecting the Program Card to the ESC and an overview of the button functions for parameter adjustment.



Image 7.2: The back of the Program Card detailing the list of adjustable parameters and their ranges, including Running Mode, Battery Type, Cutoff Voltage, Overheat Protection, Neutral Range, Motor Direction, and various throttle/brake settings.

## 8. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your ESC and Program Card:

- **Cleaning:** Periodically clean the ESC and Program Card to remove dust, dirt, and debris. Use a soft brush or compressed air. Avoid using liquids directly on electronic components.
- **Fan Inspection:** Check the cooling fan for obstructions or damage. The fan is removable for easier cleaning.
- **Cable Inspection:** Regularly inspect all wires and connectors for signs of wear, fraying, or damage. Replace any damaged components immediately.
- **Storage:** Store the ESC and Program Card in a dry, cool place away from direct sunlight and extreme temperatures when not in use.



Image 8.1: An exploded view demonstrating the removable cooling fan, which facilitates cleaning and maintenance of the heatsink.

## 9. TROUBLESHOOTING

If you encounter issues with your ESC, consider the following common troubleshooting steps:

- **No Power/No Response:**

- Ensure the battery is fully charged and properly connected with correct polarity.
- Check all connections between the ESC, motor, receiver, and battery for looseness or damage.
- Verify the ESC's power switch is in the 'ON' position.

- **Motor Not Spinning/Erratic Behavior:**

- Confirm the motor phase wires (A, B, C) are correctly connected.
- If using a sensored motor, ensure the sensor cable is securely connected.

- Check the throttle trim on your transmitter.
- Recalibrate the ESC with your transmitter if necessary.

- **Overheating:**

- Ensure the cooling fan is clean and operating correctly.
- Check for proper ventilation around the ESC in your RC car.
- Verify that the motor and gearing are appropriate for the vehicle and driving conditions.

- **Program Card Connection Issues:**

- Ensure the ESC is powered on and the BEC wire is correctly inserted into the 'S+-' port of the Program Card.
- If the display does not show settings, power cycle the ESC and reconnect the Program Card.

## 10. WARRANTY AND SUPPORT

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For warranty information or technical support, please refer to the documentation provided with your purchase or contact the manufacturer, SURPASS, directly through their official channels. Keep your proof of purchase for any warranty claims.

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