

SEQURE SQESC 28120

SEQURE 120A Brushless ESC (Escape32) User Manual

INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the SEQURE 120A Brushless Electronic Speed Controller (ESC) with Escape32 firmware. This high-performance ESC is designed for various RC applications, including crawler cars, climbing cars, and model ships, offering robust power delivery and advanced control features.

PRODUCT FEATURES

- **Output Capacity:** Continuous Current 120A, Peak Current 150A. Input Voltage: DC 7V-33.6V (2-8S LiPo).
- **Functions:** Forward, backward, and brake, specifically designed for 1/10 RC crawler cars, climbing cars, and RC boats.
- **BEC Output:** Adjustable outputs of 5V/10A, 6V/10A, 7.2V/10A, 8.2V/10A, and 12V/10A, capable of directly powering external devices like receivers and servos.
- **Signal Protocol Support:** Compatible with Dshot (All), PWM, Oneshot, Multishot, and other signal protocols.
- **Safety Protection:** Includes low voltage protection, temperature protection, locked rotor protection, and current protection.
- **Programming Tool:** Visual programming parameter adjustment tool supports motor timing, throttle calibration, current detection, motor steering, and telemetry signal settings.
- **Processor:** Adopts a 32-bit high-performance STM32G071 processor with a working frequency up to 64MHz and maximum 128KHz PWM frequency.
- **Heat Dissipation:** Equipped with a high-power MOSFET and CNC metal radiator for effective heat dissipation under high current loads, ensuring stable and continuous operation.
- **RGB LED Light:** Onboard RGB LED color light settings allow for customized multiple LED colors.

SPECIFICATIONS

The following table details the technical specifications of the SEQURE 120A Brushless ESC:

Parameter	Value
Model Name	SQESC 28120
Processor	STM32G071
Input Voltage	DC 7V-33.6V (2-8S LiPo)
Continuous Current	120A
Maximum Current	150A
BEC Output	5V/10A, 6V/10A, 7.2V/10A, 8.2V/10A, and 12V/10A (Adjustable via soldering)
Support Firmware	Escape32
Signal Protocols	Dshot (All), PWM, Oneshot, Multishot, etc.
Programmable Parameter Adjustment	Supported
Accelerator Calibration	Supported
Boost Timing Setting	Supported
Current Detection	Supported
Telemetry Signal	Supported
Steering Setting of the Motor	Supported
RGB LED Lights	Supported
Power Cable	14AWG
Application Scenarios	RC crawler cars, climbing cars, Tracklayers, RC boat models
Product Dimensions	50mm (L) x 20mm (W) x 20.5mm (H) (approx. 1.9 x 0.78 x 0.8 inches)
Item Weight	1.76 ounces

For a visual overview of the product parameters, refer to the image below:

PARAMETERS OF PRODUCT

Model Name	SQESC 28120
Processor	STM32G071
Input Voltage	DC 7V-33.6V (2-8S Lipo)
Persistent Current (Excellent Heat Dissipation)	120A
Maximum Current (Excellent Heat Dissipation)	150A
BEC	5V/10A, 6V/10A, 7.2V/10A, 8.2V/10A, and 12V/10A Adjust voltage through soldering corresponding joints
Support Firmware	ESCAPE32
Signal Protocols	Dshot(All), PWM, Oneshot, Multishot, etc
Programming Parameter Adjustment	Support
Accelerator Calibration	Support
Boost Timing Setting	Support
Current Detection	Support
Telemetry signal	Support
Steering Setting of the Motor	Support
RGB LED Lights	Support
Power Cable, if any	14AWG
Application Scenarios	RC crawler cars, climbing cars, Tracklayers, RC boat models

Figure 1: Detailed product parameters for the SEQUIRE 120A Brushless ESC.

The ESC features a robust design with a metal aluminum radiator for efficient heat dissipation, ensuring stable performance even under demanding conditions.

Metal Aluminum Radiator Dissipates the heat quickly Ensures continuous & stable work

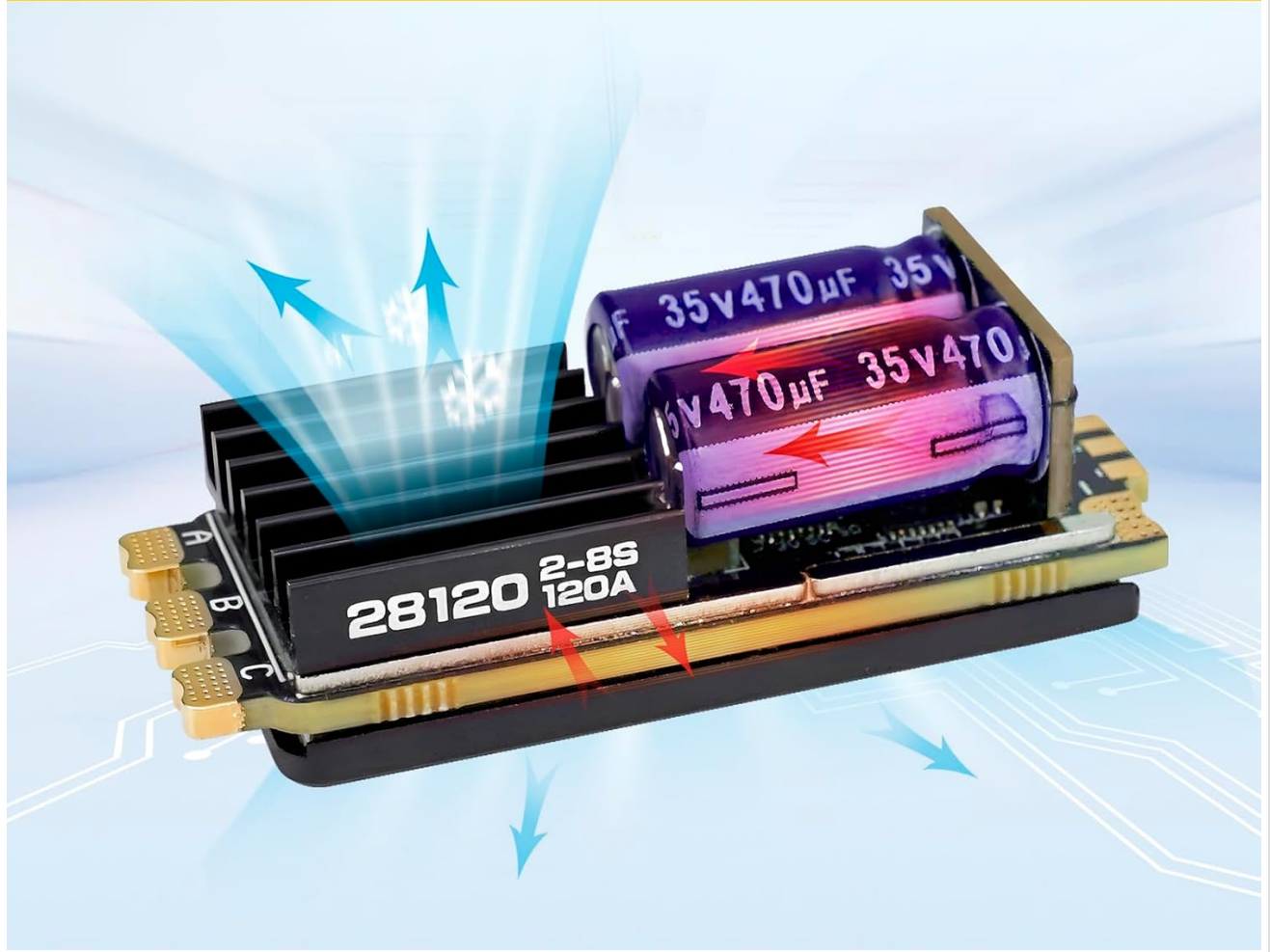


Figure 2: Metal Aluminum Radiator for efficient heat dissipation.

The compact dimensions of the ESC are designed for easy integration into various RC models.

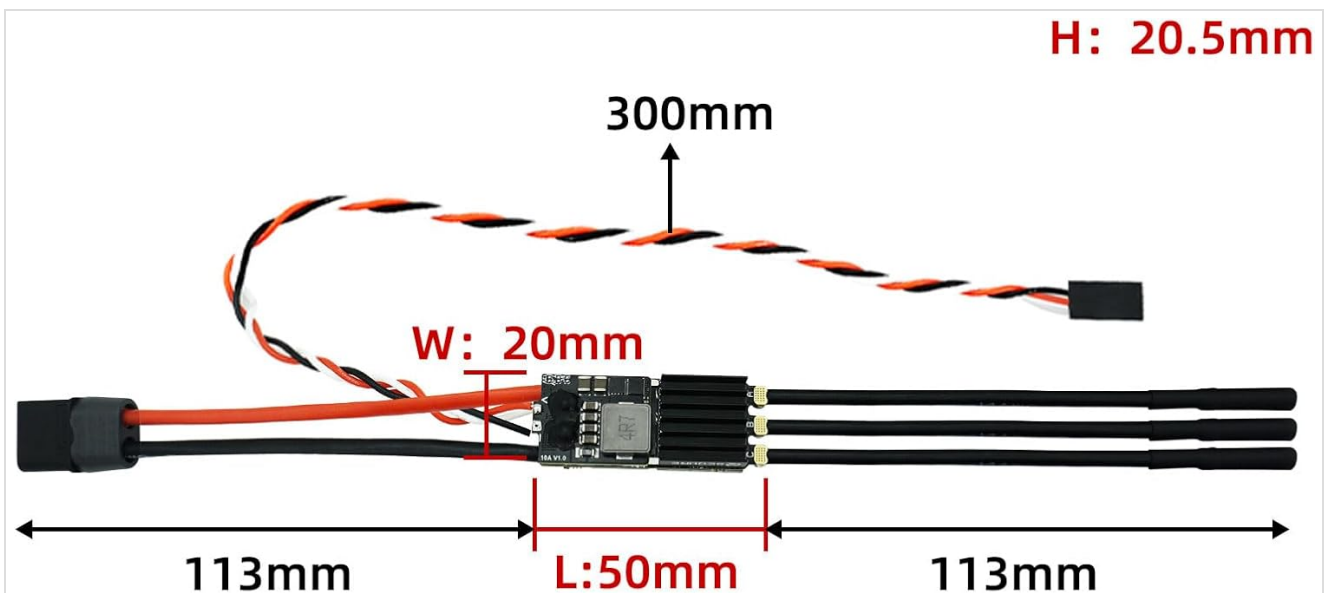


Figure 3: Physical dimensions of the SEQUIRE 120A Brushless ESC.

SETUP

Proper installation and wiring are crucial for the safe and optimal performance of your SEQUIRE 120A ESC. Follow these steps carefully:

1. Wiring Connections

Connect the ESC to your motor, battery, and receiver as illustrated below. Ensure all connections are secure and correctly polarized.

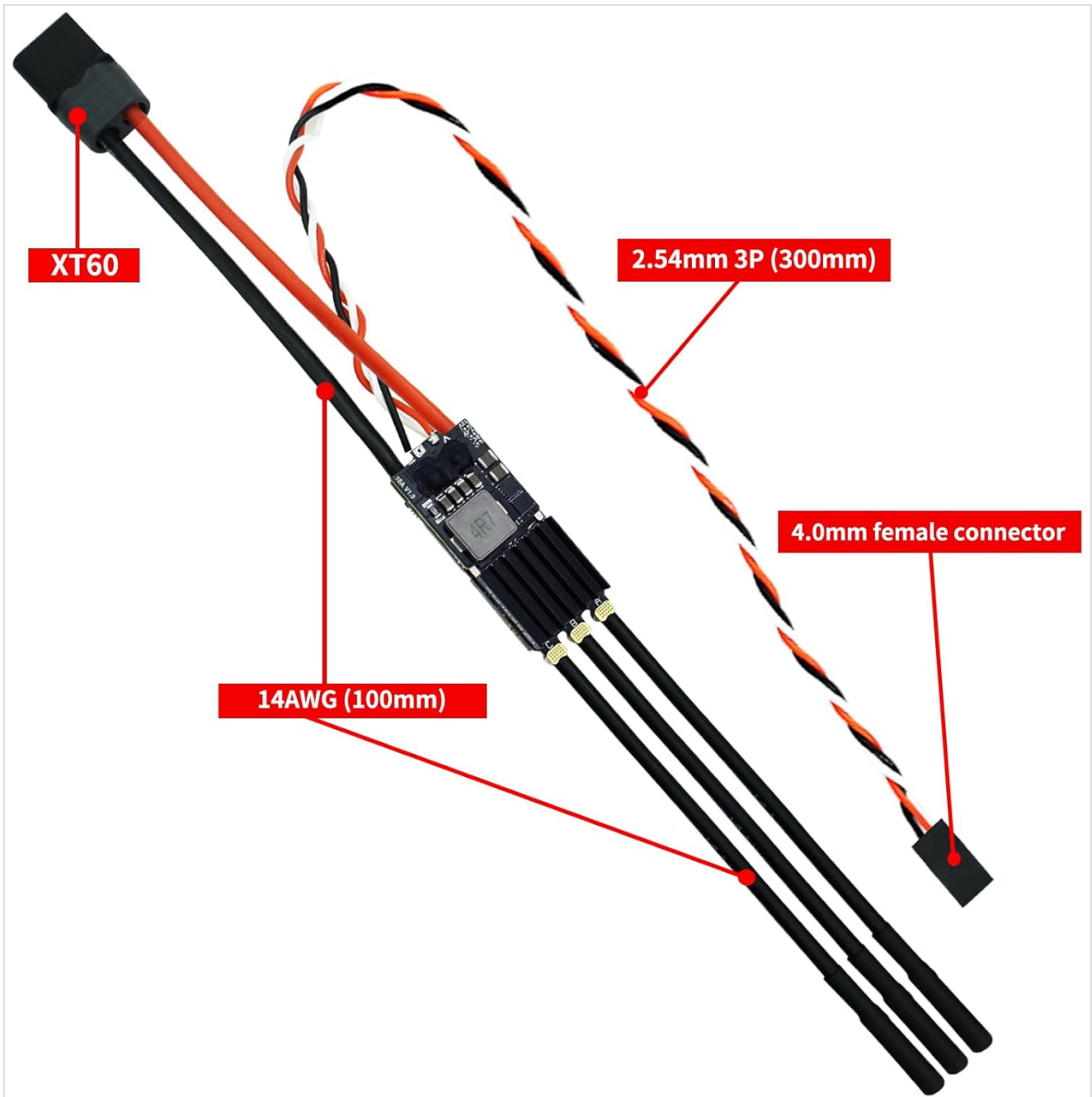


Figure 4: ESC Wiring Diagram. Connect the XT60 to the battery, 4.0mm female connectors to the motor, and the 2.54mm 3P (300mm) cable to the receiver.

- **Battery Connection:** Use the XT60 connector for connecting to your LiPo battery (2-8S).
- **Motor Connection:** Connect the three 4.0mm bullet connectors to your brushless motor. Ensure correct phase matching for proper motor rotation.
- **Receiver Connection:** Plug the 2.54mm 3P (300mm) cable into the throttle channel of your RC receiver.
- **Power Cable:** The ESC is equipped with 14AWG power cables for robust current handling.

2. BEC Voltage Adjustment

The built-in BEC (Battery Eliminator Circuit) provides adjustable output voltages to power your receiver and servos. The available output options are 5V, 6V, 7.2V, 8.2V, and 12V, all at 10A. To adjust the BEC voltage, you must solder the corresponding joints on the ESC board. Refer to the diagram below for specific soldering points.

● BEC: 5V/10A, 6V/10A, 7.2V/10A, 8.2V/10A, 12V/10A adjustable

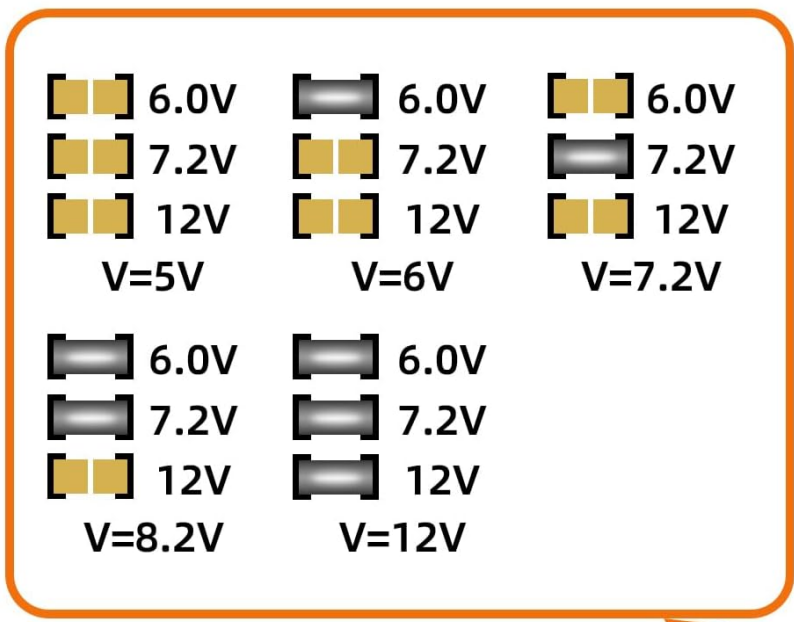


Figure 5: BEC Voltage Adjustment via Soldering. Carefully solder the designated pads to select the desired output voltage.

Caution:

- Ensure proper soldering techniques to avoid short circuits or damage to the ESC.
- Always disconnect the battery before making any soldering adjustments.
- Verify the selected voltage matches the requirements of your receiver and servos to prevent damage.

3. Initial Power-On and Throttle Calibration

After all connections are made, perform an initial power-on and throttle calibration:

1. Ensure your transmitter is turned on and the throttle stick is at its lowest position.
2. Connect the battery to the ESC. The ESC will automatically detect the throttle signal.
3. Follow the instructions provided by your visual programming parameter adjustment tool for precise throttle

calibration. This ensures the ESC accurately interprets your transmitter's throttle input.

4. Programming Parameter Adjustment

The SEQUIRE 120A ESC supports a visual programming parameter adjustment tool. This tool allows you to configure various settings, including:

- Motor Timing
- Throttle Calibration (as mentioned above)
- Current Detection
- Motor Steering (Forward/Reverse)
- Telemetry Signal
- RGB LED Light Settings

Refer to the specific software documentation for the visual programming tool for detailed instructions on how to connect and adjust these parameters.

OPERATING INSTRUCTIONS

Once the ESC is properly set up and calibrated, you can begin operating your RC model. The ESC supports various signal protocols and operational modes.

1. Signal Protocols

The ESC supports a wide range of signal protocols, including Dshot (All versions), PWM, Oneshot, and Multishot. Ensure your flight controller or receiver is configured to output a compatible signal.

2. Motor Steering and Direction

The ESC allows for programmable motor steering settings. You can configure the motor to operate in forward, reverse, or with braking functionality, which is particularly useful for RC crawler cars and climbing cars.

- **Forward:** Standard operation.
- **Reverse:** Allows the motor to spin in the opposite direction.
- **Brake:** Provides braking action for controlled stops.

Adjust these settings using the visual programming parameter adjustment tool as needed for your specific application.

3. Boost Timing Setting

The ESC supports boost timing adjustments, which can optimize motor performance for specific applications. Adjusting boost timing can affect motor efficiency and power output. Experiment with these settings carefully, monitoring motor and ESC temperatures.

4. Safety Protections

The SEQUIRE 120A ESC incorporates several safety features to protect itself and your RC model:

- **Low Voltage Protection:** Prevents over-discharge of the battery by reducing or cutting power when the battery voltage drops below a safe threshold.
- **Temperature Protection:** Reduces power or shuts down the ESC if it reaches an unsafe operating temperature.
- **Locked Rotor Protection:** Detects if the motor is stalled and prevents damage by cutting power.
- **Current Protection:** Safeguards against excessive current draw.

Always monitor your model's behavior and temperatures during operation, especially after making parameter

adjustments.

The SEQUIRE 120A ESC is versatile and suitable for various RC applications, including:



Climbing car / RC model boat

Figure 6: Application scenarios for the SEQUIRE 120A Brushless ESC.

MAINTENANCE

Regular maintenance helps ensure the longevity and reliable performance of your SEQUIRE 120A ESC.

- **Cleaning:** Keep the ESC clean and free from dust, dirt, and moisture. Use a soft brush or compressed air to remove debris. Avoid using liquids directly on the ESC.
- **Connection Checks:** Periodically inspect all wiring connections (battery, motor, receiver) for signs of wear, corrosion, or looseness. Secure any loose connections.
- **Heat Management:** Ensure the metal aluminum radiator is clear of obstructions to allow for optimal airflow and heat dissipation. Avoid operating the ESC in enclosed spaces without adequate ventilation.
- **Firmware Updates:** Check the SEQUIRE official website or support channels for any available firmware updates for the Escape32. Follow update instructions carefully.
- **Storage:** When not in use, store the ESC in a dry, cool place, away from direct sunlight and extreme temperatures. Disconnect it from the battery.

TROUBLESHOOTING

If you encounter issues with your SEQUIRE 120A ESC, refer to the following common troubleshooting steps:

No Power / No Response

- **Check Battery:** Ensure the battery is fully charged and properly connected to the XT60 connector.
- **Check Connections:** Verify all power cables (14AWG) are securely connected and free from damage.
- **BEC Output:** Confirm the BEC voltage is correctly set and providing power to the receiver. Check receiver power indicator.

Motor Not Spinning / Erratic Behavior

- **Throttle Calibration:** Re-perform throttle calibration using your visual programming tool.
- **Motor Connections:** Ensure the three motor phase wires are correctly and securely connected to the 4.0mm bullet connectors.
- **Signal Protocol:** Verify that the ESC's signal protocol setting matches your receiver/flight controller output (Dshot, PWM, etc.).
- **Motor Steering:** Check motor steering settings in the programming tool.
- **Obstructions:** Ensure the motor is not physically obstructed or jammed.

Overheating

- **Airflow:** Ensure the ESC's metal radiator has adequate airflow. Remove any obstructions.
- **Load:** Reduce the load on the motor/ESC. This could be due to an oversized propeller, gearing, or excessive weight.
- **Timing:** If boost timing is adjusted, try reducing it.
- **Input Voltage:** Ensure the input voltage (2-8S LiPo) is within the specified range.

LED Indicators

Observe the RGB LED lights on the ESC. Different colors or flashing patterns may indicate specific status or error conditions. Refer to the visual programming tool's documentation for a detailed explanation of LED codes.

If the problem persists after attempting these steps, contact SEQUIRE customer support for further assistance.

WARRANTY AND SUPPORT

The SEQUIRE 120A Brushless ESC is manufactured with high-quality components and undergoes rigorous testing. For warranty information and terms, please refer to the purchase documentation or contact your retailer.

For technical support, troubleshooting assistance, or inquiries regarding your SEQUIRE product, please visit the official SEQUIRE website or contact their customer service department. You can often find support resources, FAQs, and contact information on the brand's official channels.

Manufacturer: SEQUIRE

ASIN: B0FB8T6ZPS

Recommended Age: 14 years and up

What's in the Box: 1 x electric speed controller with BEC