FLIPSKY 75100

FLIPSKY FSESC75100 FOC 75V 100A Single ESC Instruction Manual

Model: FSESC75100

Brand: FLIPSKY

IMPORTANT SAFETY INFORMATION AND WARNINGS

Please read and understand all safety information before operating the FLIPSKY FSESC75100. Failure to follow these instructions may result in product damage, property damage, or personal injury.

- **Firmware Version:** It is recommended to maintain firmware version 5.2 as shipped from the factory. Upgrading to newer firmware versions may potentially damage the ESC.
- **Absolute Maximum Current:** Ensure the Absolute Maximum Current setting in the configuration software is limited to below 250A.
- **Phase Filtering (Firmware 5.3+):** If using firmware version 5.3 or above (VESC_TOOL 3.01), the phase filter function **must** be turned off by selecting "false" in VESC_tool. Operating without disabling the phase filter will result in ESC damage.
- **Configuration Wizard:** When using the VESC_tool wizard interface, do not restore default parameters if you have made specific adjustments, especially regarding phase filtering.
- **Electrical Sensitivity:** This controller is highly sensitive to electrical spikes, incorrect wiring, reverse polarity, and ground faults. Exercise extreme caution during installation and connection to prevent damage.

PRODUCT OVERVIEW

The FLIPSKY FSESC75100 is a robust Electronic Speed Controller (ESC) designed for high-power applications in electric skateboards, scooters, and ebikes. It features an aluminum PCB for superior heat management and supports advanced control modes.

Key Features

- Supports BLDC square wave mode control and FOC sine wave mode.
- Programmable via VESC_tool, offering overheat and overcurrent protection.
- Compatible with various sensors: ABI, HALL, AS5047, AS5048A.
- Wide voltage input: 14-84V (4-20S).
- High current capability: 100A continuous, 120A burst.

- Maximum ERPM: 150000.

- Control Interface Ports: USB, CAN, UART.

- Input Set Support: PPM, ADC, NRF, UART.

- Features regenerative braking capability.

Product Components

Image: Front view of the FLIPSKY FSESC75100, showcasing its compact design and main connections.

Image: Front and back views of the FSESC75100, highlighting the aluminum casing and connection points for power and motor phases.

SPECIFICATIONS

Feature	Detail
Model	FSESC75100
Dimensions (L*W*H)	103mm * 58mm * 18.5mm (+5.9mm USB Type)
Voltage Range	14-84V (4-20S LiPo)
Continuous Current	100A
Burst Current	120A
BEC Output	5V @ 1.5A
Max ERPM	150000

Feature	Detail
Wire Size	12AWG
Item Weight	0.27 Kilograms (9.6 ounces)
Material	Aluminum (PCB and Casing)
Control Interface Ports	USB, CAN, UART
Supported Sensors	ABI, HALL, AS5047, AS5048A
Input Set Support	PPM, ADC, NRF, UART

SETUP AND INSTALLATION

Physical Dimensions

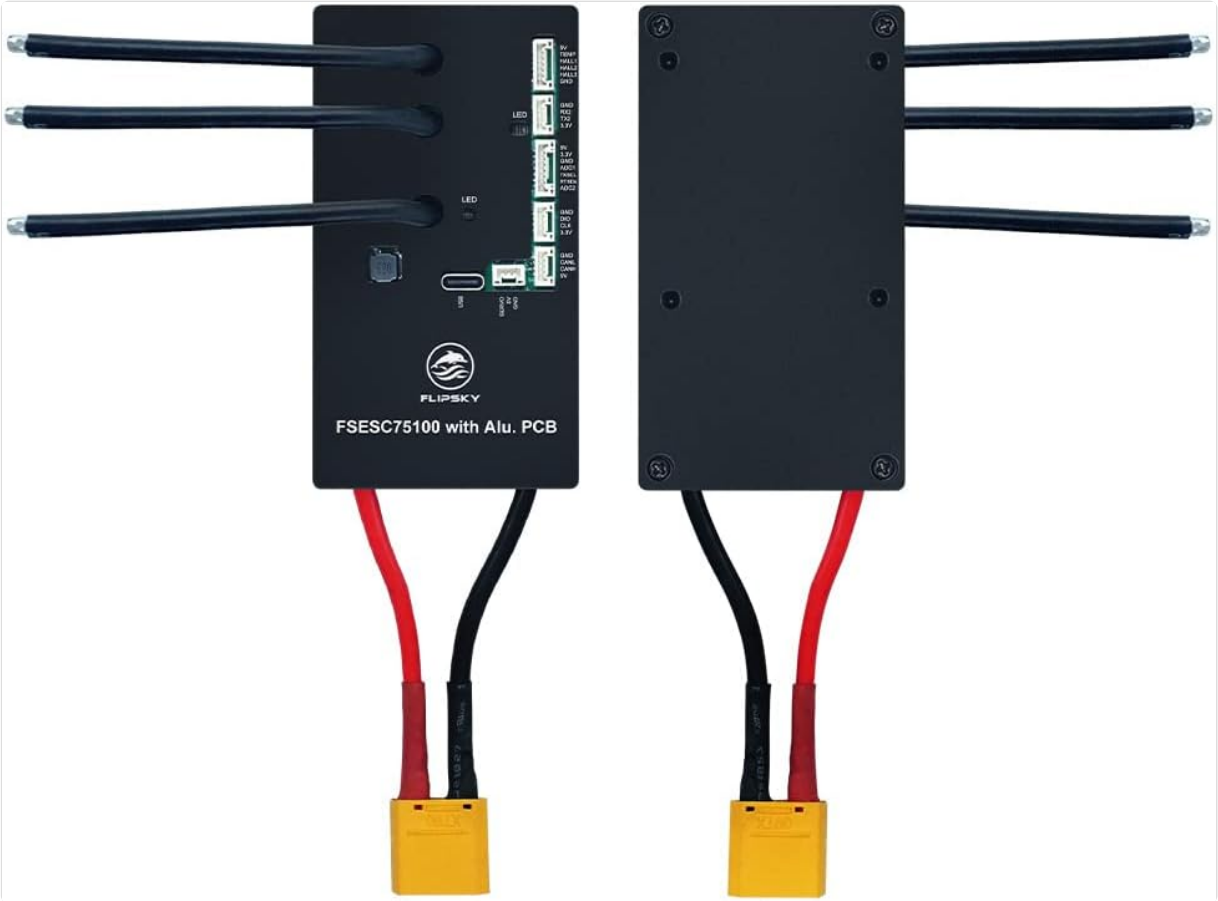Consider the following dimensions for proper mounting and integration into your electric vehicle.

Image: Physical dimensions of the FSESC75100, indicating length (103mm), width (58mm), and height (18.5mm) for installation planning.

Wiring Connections

Carefully connect the ESC to your motor, battery, and control interfaces. Refer to the detailed wiring diagram below for correct pin assignments and connection points.
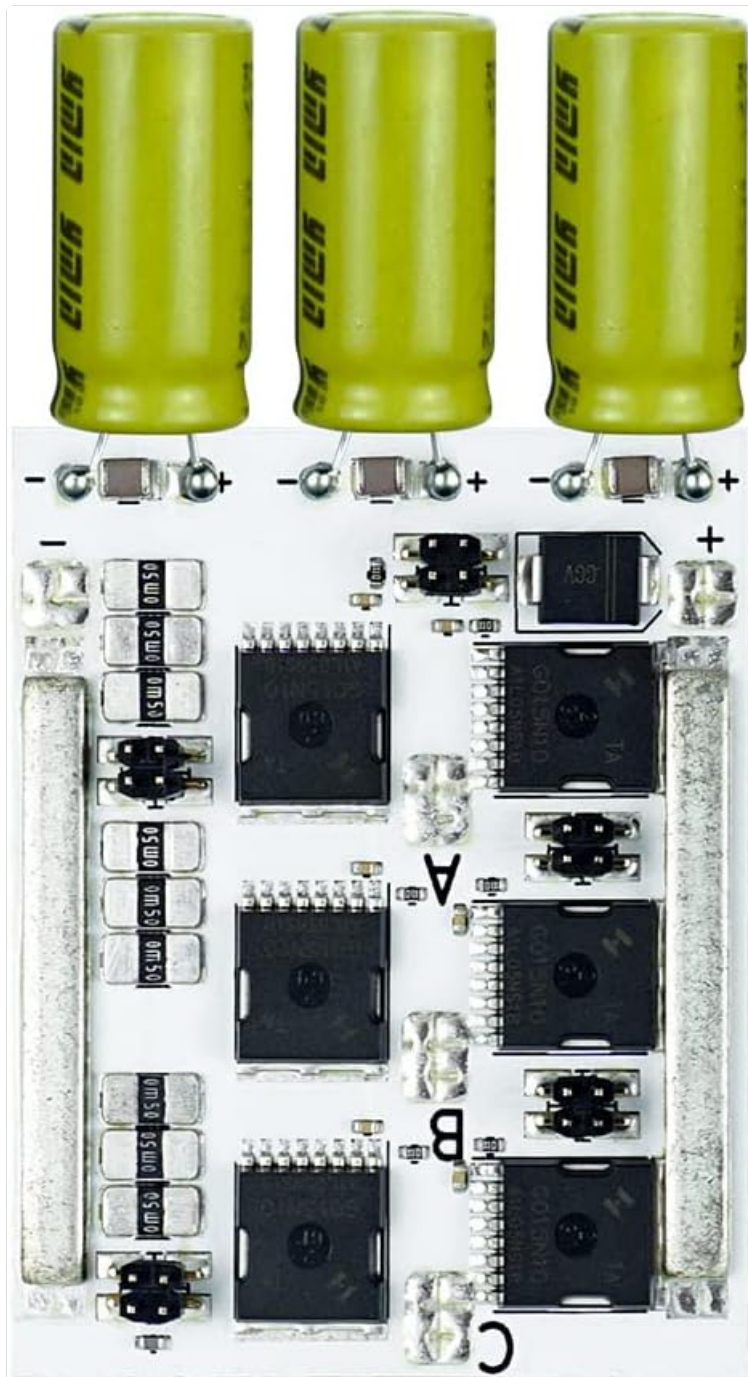
Image: Detailed wiring diagram for the FSESC75100, showing connections for motor, battery, USB, PPM, CAN, SWD, COMM, UART2, and HALL sensors, along with external display integration.
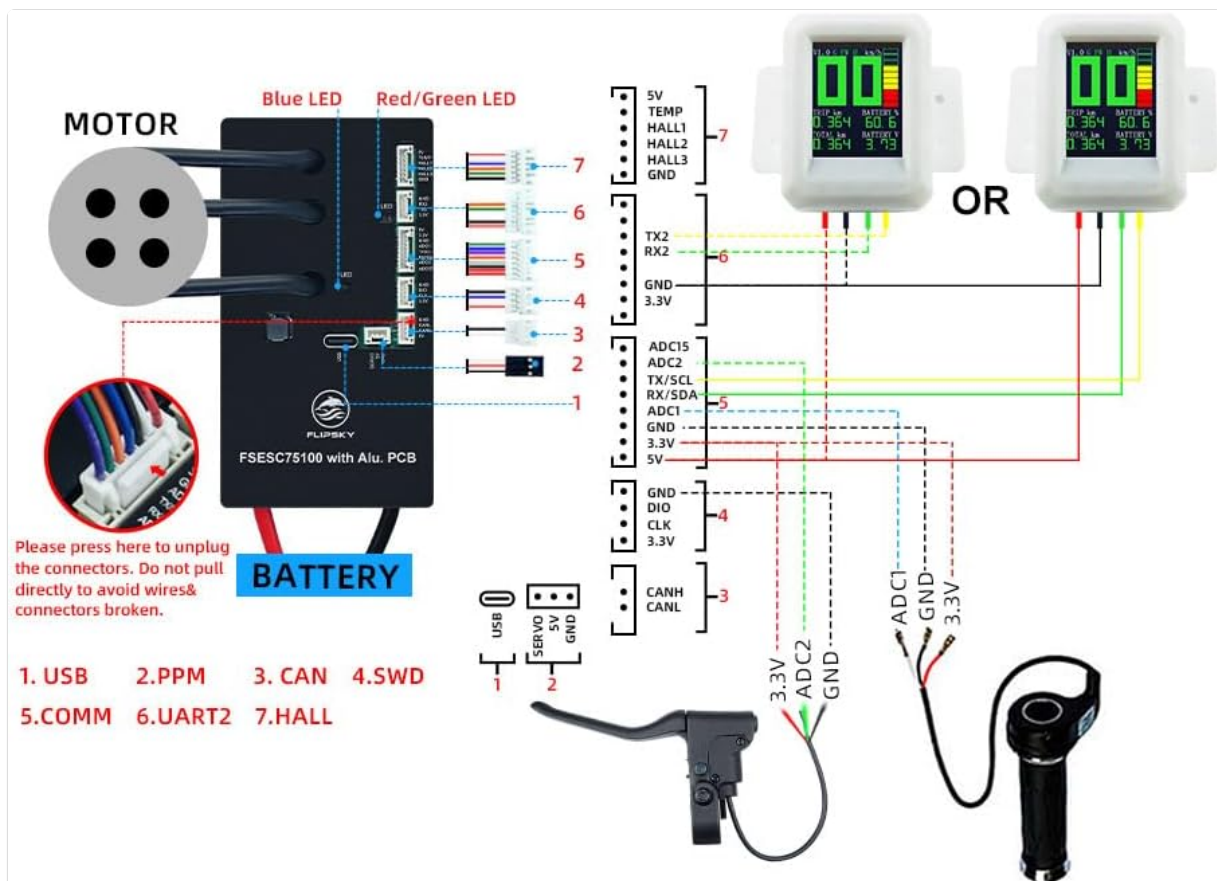
Port Descriptions

Image: Close-up view of the FSESC75100 ports, labeling each connector for various functions like USB, Servo, Hall sensors, and communication interfaces.

- **USB Port:** For connecting to a computer for configuration and firmware updates via VESC_tool.
- **PPM Port:** Used for Pulse Position Modulation input, typically from a remote control receiver.
- **CAN Port:** Enables Controller Area Network communication, allowing multiple ESCs or other compatible devices to communicate.
- **UART Ports:** Universal Asynchronous Receiver-Transmitter for serial communication with external modules such as Bluetooth adapters or displays.
- **HALL Sensor Ports:** For connecting Hall effect sensors from the motor, providing precise motor position feedback for sensored operation.
- **Temperature Sensor Port:** For connecting an external temperature sensor to monitor ESC or motor temperature.
- **LED Indicators:** Blue and Red/Green LEDs provide visual status feedback during operation and configuration.

Important Connection Notes

- Always ensure all connections are firm and correctly seated to prevent intermittent operation or damage.
- When disconnecting wires, always press the release tab on the connector (if present) to avoid pulling directly on wires, which can cause damage.
- Strictly observe correct polarity for battery connections. Reverse polarity will cause immediate and irreversible damage to the ESC.

OPERATING INSTRUCTIONS

Initial Configuration with VESC_tool

The FSESC75100 is highly configurable using the VESC_tool software. This tool allows you to set up

motor parameters, current limits, and other operational settings.

1. **Software Installation:** Download and install the latest VESC_tool software from the official VESC project website or FLIPSKY support resources.
2. **Connect ESC:** Connect the FSESC75100 to your computer using a USB-C cable.
3. **Launch VESC_tool:** Open the VESC_tool application and establish a connection to the ESC.
4. **Motor Setup Wizard:** Follow the guided motor setup wizard within VESC_tool to automatically detect and configure your motor's parameters.
5. **Critical Firmware Setting (Firmware 5.3+):** If your ESC is running firmware version 5.3 or newer (corresponding to VESC_TOOL 3.01 or later), navigate to the motor settings and **disable the phase filter function** by selecting "false". This step is crucial to prevent ESC damage.
6. **Absolute Maximum Current Limit:** In the VESC_tool settings, ensure that the "Absolute Maximum Current" parameter is set to a value below 250A to protect the ESC.
7. **Save Configuration:** After making all necessary adjustments, save the configuration to the ESC.
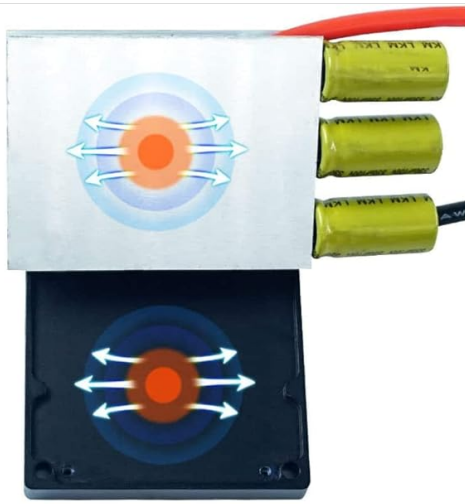
Control Modes

The ESC supports two primary motor control modes:

- **BLDC Square Wave Mode:** A traditional control method, generally simpler but can be less efficient and produce more motor noise.
- **FOC Sine Wave Mode:** Field-Oriented Control offers smoother, quieter, and more efficient motor operation. It is generally recommended for most applications.
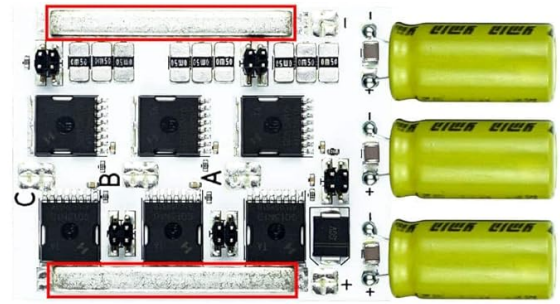
Select your preferred control mode within the VESC_tool software based on your motor type and application requirements.
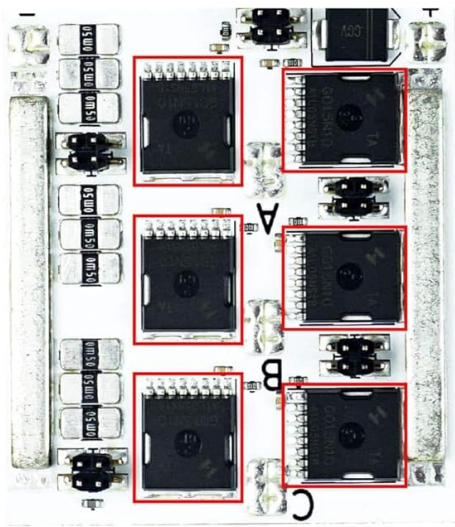
INTERNAL DESIGN AND HEAT MANAGEMENT

The FSESC75100 is engineered with an aluminum PCB and a robust metal casing to effectively manage heat generated during operation, ensuring reliability and longevity.

The combination of aluminum PCB and metal aluminum case play the role of protection and energy-saving for the esc by quickly dissipating heat, and prolongs the life of the esc.

There are 2mm nickel-copper strips for better overcurrent and heat dissipation.

Use 6pcs HYG015N10NS1TA high quality MOSFETS for good heat dissipation.

Support dual serial ports (parameters setting by bluetooth and uart control are available at the same time)

Image: Illustration of the heat dissipation mechanism within the FSESC75100, showing the aluminum PCB and metal case working together to transfer heat away from critical components.

The design incorporates 2mm nickel-copper strips to enhance overcurrent capacity and further improve heat dissipation. High-quality MOSFETs are utilized for efficient power handling.

Image: Close-up view of the 6pcs HYG015N10NS1TA high-quality MOSFETs used in the FSESC75100, critical for power switching and motor control.

MAINTENANCE

Proper maintenance ensures the longevity and reliable performance of your FSESC75100.
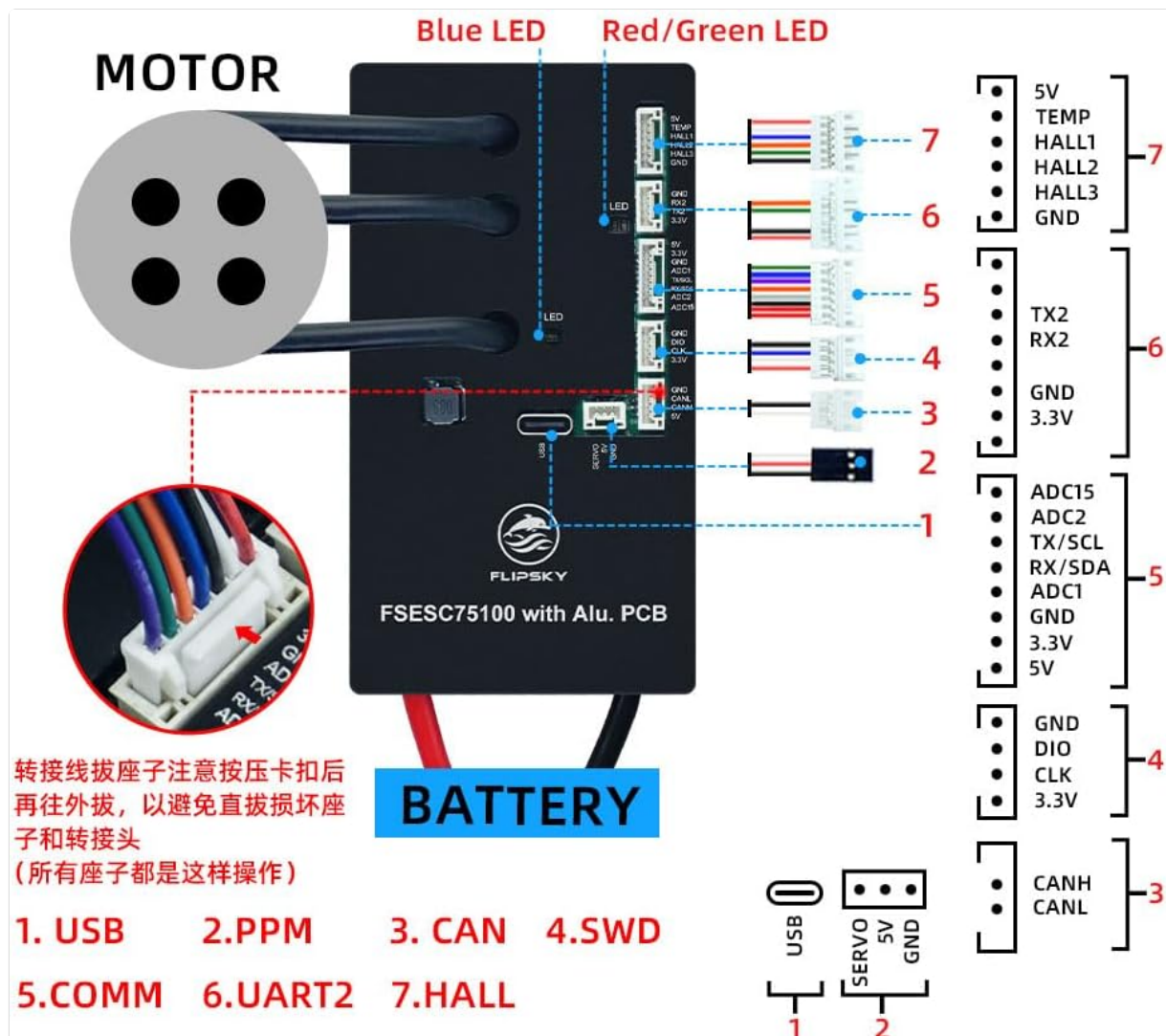
- **Cleaning:** Periodically inspect the ESC for dust, dirt, or debris accumulation. Gently clean with a soft brush or compressed air. Avoid using liquids directly on the ESC.
- **Cooling:** Ensure the ESC is mounted in a location with adequate airflow to facilitate heat dissipation. Do not obstruct the casing, as it acts as a heatsink.
- **Connection Checks:** Regularly check all electrical connections (motor, battery, sensors, control signals) for any signs of looseness, corrosion, or damage. Secure any loose connections immediately.
- **Environmental Protection:** Protect the ESC from direct exposure to water, excessive humidity, and extreme temperatures (both high and low) beyond its operating range.

TROUBLESHOOTING

This section addresses common issues and provides guidance for resolution.

- **ESC Damage After Firmware Upgrade:** If the ESC malfunctions after a firmware update, it is likely due to incompatibility or incorrect settings. It is strongly advised to stick to the factory firmware (version 5.2) unless specific instructions for a safe upgrade are provided by FLIPSKY.
- **ESC Damage Due to Phase Filtering:** If your ESC stops working or behaves erratically after a

firmware update to version 5.3 or higher, verify that the phase filter function is explicitly set to "false" in VESC_tool. This is a critical setting.

- **Unexpected Shutdowns or Overheating:**

    - Check for proper ventilation around the ESC.
    - Verify that motor and battery parameters configured in VESC_tool are within the ESC's specified limits (e.g., current, voltage).
    - Ensure the motor is not drawing excessive current due to mechanical binding or incorrect gearing.

- **Motor Stuttering or Irregular Operation:**

    - Review the ERPM limit and current limits in VESC_tool.
    - If using sensored mode, check all Hall sensor connections for proper seating and continuity.
    - Perform a motor detection in VESC_tool to re-calibrate motor parameters.

- **No Power or No Response:**

    - Confirm the battery is charged and properly connected with correct polarity.
    - Check all power and signal wires for breaks or loose connections.
    - Verify the power switch (if any) is in the ON position.

SUPPORT

For any technical questions, assistance with setup, or troubleshooting that cannot be resolved using this manual, please contact FLIPSKY customer support.

FLIPSKY is committed to providing support and aims to respond to inquiries within 24 hours.

Contact Information: Please refer to the official FLIPSKY website or your purchase documentation for the most current support contact details.

Related Documents - 75100

[Flipsky 75100 Pro V2.0 ESC with Aluminum PCB - Technical Datasheet](#)
Detailed specifications and wiring diagram for the Flipsky 75100 Pro V2.0 Electronic Speed Controller (ESC) with an aluminum PCB, featuring VESC 75 series compatibility, high voltage support, and multiple control interfaces.

	[Flipsky FT85BS ESC Manual V1.4](#) Detailed specifications, features, and wiring diagram for the Flipsky FT85BS ESC (Electronic Speed Controller) V1.4, designed for electric vehicles and robotics.
	[Flipsky FT85BS V2.0 ESC: Technical Specifications and Features](#) Detailed technical specifications, features, and application fields for the Flipsky FT85BS V2.0 ESC, an electronic speed controller for electric vehicles and robotics.
	[Flipsky VX4 Pro Remote Controller User Manual](#) Comprehensive user manual for the Flipsky VX4 Pro remote controller, detailing its features, wiring diagrams for PPM and UART control modes, and operation instructions for electric skateboards.
	[FLIPSKY VX2 2.4G Screen Remote Controller User Manual](#) Comprehensive user manual for the FLIPSKY VX2 electric skateboard remote controller. Learn about power operations, pairing procedures, connection status, acceleration/braking, cruise control, and parameter settings. Includes wiring diagrams and screen display explanations.
	[Flipsky VX5 Waterproof Remote Controller User Manual](#) User manual for the Flipsky VX5 waterproof remote controller, detailing its features, wiring diagrams for PPM and UART control modes, and screen display icon explanations.