E-flite EFLA1080B

E-flite 80-Amp Pro Switch-Mode BEC Brushless ESC

USER MANUAL

1. Product Overview

The E-flite 80-Amp Pro Switch-Mode BEC Brushless ESC (Electronic Speed Control) is designed for high-current applications in RC aircraft. It features an integrated switch-mode BEC (Battery Eliminator Circuit) which eliminates the need for a separate receiver battery, reducing overall weight and simplifying wiring. This ESC is capable of handling up to 80 amps of continuous current with proper airflow and 100 amps burst current for 15 seconds. It supports 3- to 6-cell Li-Po or 9- to 18-cell Ni-MH/Ni-Cd input voltages.

Image 1.1: Front view of the E-flite 80-Amp Pro ESC, showing the blue heatsink and connected power and motor wires.

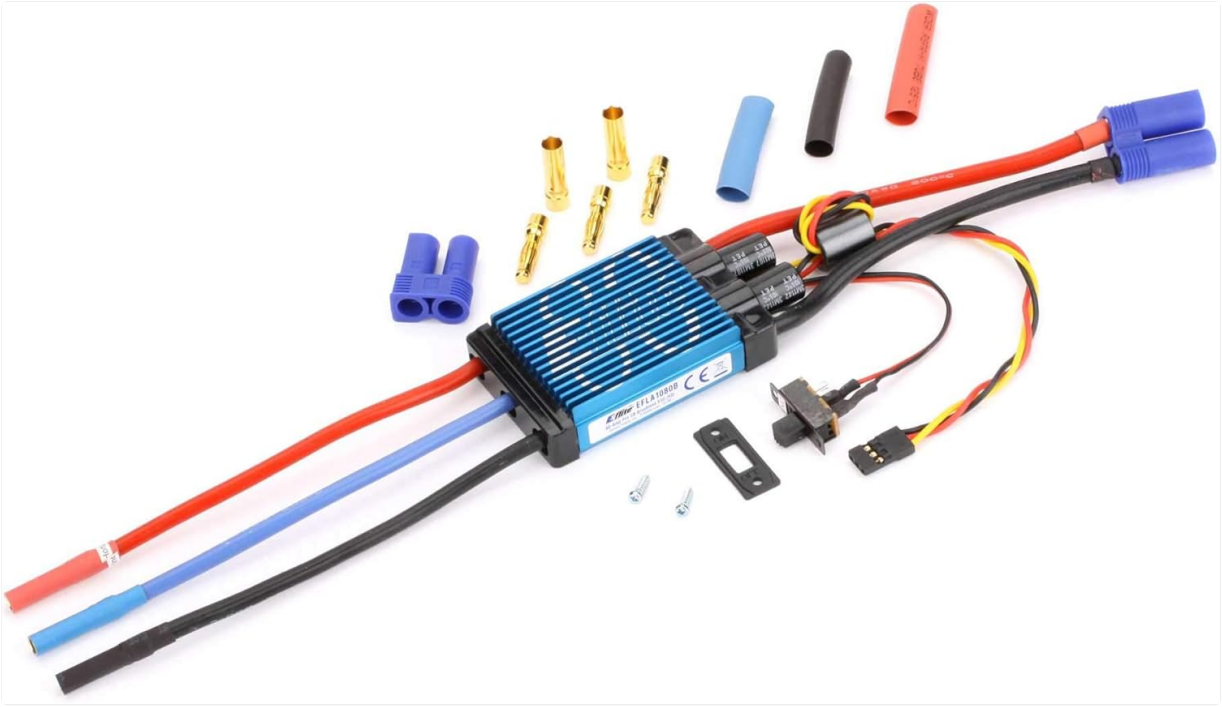

Image 1.2: The E-flite 80-Amp Pro ESC displayed with its included accessories, including EC5 battery connectors, 4.0mm female gold bullet motor connectors, and a power switch.

2. Key Features

- Up to 80 amps continuous current with proper air flow and 100 amps burst current (15 seconds).
- 5V switch-mode BEC capable of 5 amps continuous current with 6 amps max burst on any recommended input voltage.
- Drive up to 7 analog or 6 digital standard-size servos with the BEC on any recommended input voltage.
- 3- to 6-cell Li-Po, 9- to 18-cell Ni-MH/Ni-Cd input voltage compatibility.
- Programmable motor braking.
- Safe power-arm mode prevents accidental starts.
- Programmable low voltage cutoff with settings for 3-cell Li-Po (9.2V), 4-cell Li-Po (12V), 5-cell Li-Po (15V), 6-cell Li-Po (18V) or 74% of battery starting voltage.
- Programmable throttle input range (1.1ms–1.9ms or 1.2ms–1.8ms).
- Programmable soft start-up rate - .25 second or 1 second.
- Auto motor shut down if signal is lost or there is interference.
- Programmable timing—5 user-selectable ranges—use with a large variety of brushless motors.
- Two operating modes—Airplane or Heli.
- Pre-wired connectors—E-flite EC5 on battery input and 4.0mm female gold bullets on motor output leads.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your ESC. Always ensure your aircraft's power system components are compatible and correctly connected.

3.1. Component Identification

- **Battery Input:** Red and black wires with an EC5 connector for connecting to your Li-Po or Ni-MH/Ni-Cd battery pack.
- **Motor Output:** Three wires (typically blue, yellow, black) with 4.0mm female gold bullet connectors for connecting to your brushless motor.
- **Receiver Lead:** A three-wire servo connector (typically black, red, white/orange) for connecting to the throttle channel of your receiver.
- **BEC (Battery Eliminator Circuit):** Integrated within the ESC, provides regulated 5V power to the receiver and servos.

3.2. Installation Steps

1. **Mounting the ESC:** Securely mount the ESC in your aircraft, ensuring adequate airflow for cooling. Avoid areas with excessive vibration or heat.
2. **Connecting to Motor:** Connect the three motor output wires from the ESC to the three wires of your brushless motor. The order of connection may affect motor rotation direction; if the motor spins in the wrong direction, swap any two of the three motor wires.
3. **Connecting to Receiver:** Plug the ESC's receiver lead into the throttle channel (typically channel 3) of your RC receiver. Ensure the polarity is correct (signal, positive, negative).
4. **Connecting to Battery:** Connect your battery pack to the EC5 battery input connector on the ESC. Ensure correct polarity (red to positive, black to negative). **Always connect the battery last, after all other connections are secure.**
5. **Initial Calibration:** Before first flight, perform a throttle range calibration with your transmitter. Refer to the Programming section for details.

4. Operating Instructions

Once installed and calibrated, the ESC is ready for operation. Always follow safety guidelines when operating RC models.

4.1. Power-Up Sequence

1. Ensure your transmitter is turned ON and the throttle stick is at its lowest position.
2. Connect the flight battery to the ESC. The ESC will emit a series of beeps indicating cell count and readiness.
3. The ESC will enter 'Safe Power-Arm Mode' to prevent accidental motor starts. The motor will not arm until the throttle stick is moved to full throttle and then back to zero, or until the ESC detects a valid low throttle signal.
4. Once armed, the motor is ready to operate.

4.2. Operating Modes

The ESC supports two primary operating modes:

- **Airplane Mode:** Standard fixed-wing operation with linear throttle response.
- **Heli Mode:** Optimized for helicopters, often featuring a softer start and different throttle curves.

Select the appropriate mode during programming based on your aircraft type.

5. Programming the ESC

The E-flite 80-Amp Pro ESC offers several programmable parameters to fine-tune its performance. Programming is typically done via the transmitter throttle stick or a dedicated programming card (not included, but often compatible with E-flite ESCs).

5.1. Throttle Range Calibration

This is essential for the ESC to learn the full throttle range of your transmitter.

1. Turn on your transmitter and set the throttle stick to its maximum (full throttle) position.
2. Connect the flight battery to the ESC.
3. The ESC will emit a series of beeps. Wait for a specific tone or sequence indicating it has detected the full throttle signal.
4. Move the throttle stick to its minimum (zero throttle) position.
5. The ESC will emit another tone or sequence, confirming the zero throttle position has been learned. The ESC is now armed and ready.

5.2. Programmable Parameters

The following parameters can be adjusted:

- **Low Voltage Cutoff (LVC):** Protects your battery from over-discharge. Settings include specific voltages for 3S, 4S, 5S, 6S Li-Po, or a percentage of the battery's starting voltage.
- **Motor Braking:** Enables or disables motor braking when the throttle is at zero. Useful for folding propellers or stopping the propeller quickly.
- **Throttle Input Range:** Adjusts the sensitivity of the throttle response (1.1ms–1.9ms or 1.2ms–1.8ms).
- **Soft Start-Up Rate:** Controls how quickly the motor spools up from a stop (0.25 second or 1 second). Useful for helicopters or large propellers to prevent sudden torque.
- **Timing:** Adjusts the motor timing for optimal efficiency and power with different brushless motors (5 user-selectable ranges). Consult your motor's specifications for recommended timing.
- **Operating Mode:** Select between Airplane or Heli mode.

Refer to the detailed programming instructions provided with your ESC or on the manufacturer's website for the exact sequence of beeps and stick movements required to access and change each parameter.

6. Maintenance

Regular maintenance ensures the longevity and reliable performance of your ESC.

- **Cleanliness:** Keep the ESC free from dirt, dust, and moisture. Use a soft brush or compressed air to clean the heatsink fins.
- **Connections:** Periodically inspect all wire connections (battery, motor, receiver) for signs of wear, corrosion, or loose contacts. Ensure connectors are securely seated.
- **Airflow:** Verify that the ESC has adequate airflow during operation to prevent overheating. Do not obstruct the heatsink.

- **Storage:** Store the ESC in a cool, dry place away from direct sunlight and extreme temperatures.
- **Physical Damage:** Check for any physical damage to the casing, wires, or connectors after each use, especially after a hard landing or crash.

7. Troubleshooting

If you encounter issues with your E-flite 80-Amp Pro ESC, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
Motor does not spin or stutters.	Incorrect motor/ESC wiring; throttle not calibrated; signal loss; low battery voltage; motor or ESC damage.	Check all connections. Perform throttle calibration. Ensure transmitter is on and bound. Check battery voltage. Inspect motor and ESC for damage.
ESC overheats.	Insufficient airflow; motor/propeller too large; excessive current draw; short circuit.	Improve ESC cooling. Use a smaller propeller or different motor. Check for binding in drivetrain. Inspect for short circuits.
ESC enters programming mode unexpectedly.	Throttle stick at full position during power-up; incorrect throttle trim/sub-trim.	Ensure throttle stick is at zero before connecting battery. Check transmitter throttle trim and sub-trim settings. Re-calibrate throttle range.
Motor spins in wrong direction.	Incorrect motor wire connection.	Swap any two of the three motor wires between the ESC and motor.
No power to receiver/servos.	BEC failure; loose receiver connection; ESC not armed.	Check receiver lead connection. Ensure ESC is armed. If problem persists, BEC may be faulty.

8. Specifications

Model Number	EFLA1080B
Current Rating	80 Amps (Continuous), 100 Amps (Burst)
Input Voltage	3-6 Cell Li-Po, 9-18 Cell Ni-MH/Ni-Cd
BEC Voltage	5V Switch-Mode
BEC Current	5 Amps (Continuous), 6 Amps (Max Burst)
Operation Modes	Airplane, Heli
Connector Type (Battery)	EC5
Connector Type (Motor)	4.0mm Female Gold Bullets

Dimensions (L x W x H)	7.1 x 3.7 x 0.9 inches
Item Weight	5.6 ounces
Manufacturer	Horizon Hobby

9. Warranty and Support

For warranty information and technical support, please refer to the official E-flite or Horizon Hobby website. It is recommended to register your product to receive updates and support.
Online Resources: Visit the E-flite Store on Amazon or the official Horizon Hobby website for the latest manuals, FAQs, and contact information.

Related Documents - EFLA1080B

	E-flite 80-Amp Pro Switch-Mode BEC Brushless ESC Instruction Manual Instruction manual for the E-flite 80-Amp Pro Switch-Mode BEC Brushless ESC (EFLA1080B), detailing features, specifications, programming, setup, troubleshooting, and warranty information for RC hobbyists.
	E-flite 40-Amp Pro Switch-Mode BEC Brushless ESC (V2) Instruction Manual Comprehensive instruction manual for the E-flite 40-Amp Pro Switch-Mode BEC Brushless ESC (V2) (EFLA1040B), detailing features, specifications, programming menus, safety warnings, and troubleshooting.
	E-flite 30-Amp Pro Switch-Mode BEC Brushless ESC (V2) - Instruction Manual This manual provides detailed instructions for the E-flite 30-Amp Pro Switch-Mode BEC Brushless ESC (V2) (EFLA1030BC), covering its features, specifications, programming options, safe operation, troubleshooting, and warranty information.
	E-flite 40-Amp Lite Pro Switch-Mode BEC Brushless ESC Instructions Comprehensive instructions for the E-flite 40-Amp Lite Pro Switch-Mode BEC Brushless Electronic Speed Controller (ESC), covering features, specifications, setup, programming, and troubleshooting for RC aircraft.
	E-flite 40-Amp Pro Switch-Mode BEC Brushless ESC Instructions Comprehensive user manual for the E-flite 40-Amp Pro Switch-Mode BEC Brushless ESC, detailing features, specifications, installation, programming menus, troubleshooting, and warranty information for RC aircraft enthusiasts.
	E-flite 60-Amp Pro Switch-Mode BEC Brushless ESC: User Manual & Programming Guide Comprehensive instructions for the E-flite 60-Amp Pro Switch-Mode BEC Brushless ESC, covering features, specifications, setup, and programming. Learn how to connect, mount, and configure this high-performance electronic speed controller for RC aircraft.