Hobbywing 81030000

Hobbywing EZRUN Combo-A1 Brushless ESC and Motor System Instruction Manual

For 1/16 & 1/18 Scale RC Vehicles

1. Introduction

This manual provides detailed instructions for the installation, programming, operation, and maintenance of your Hobbywing EZRUN Combo-A1 brushless electronic speed controller (ESC) and motor system. This combo is designed for 1/16 and 1/18 scale on-road and off-road remote-controlled vehicles, offering enhanced performance and reliability.
The EZRUN Combo-A1 includes an EZRUN 18A ESC, an EZRUN 12T/2030 (7800KV 2S Max) Motor, and an LED Program Card for easy configuration.

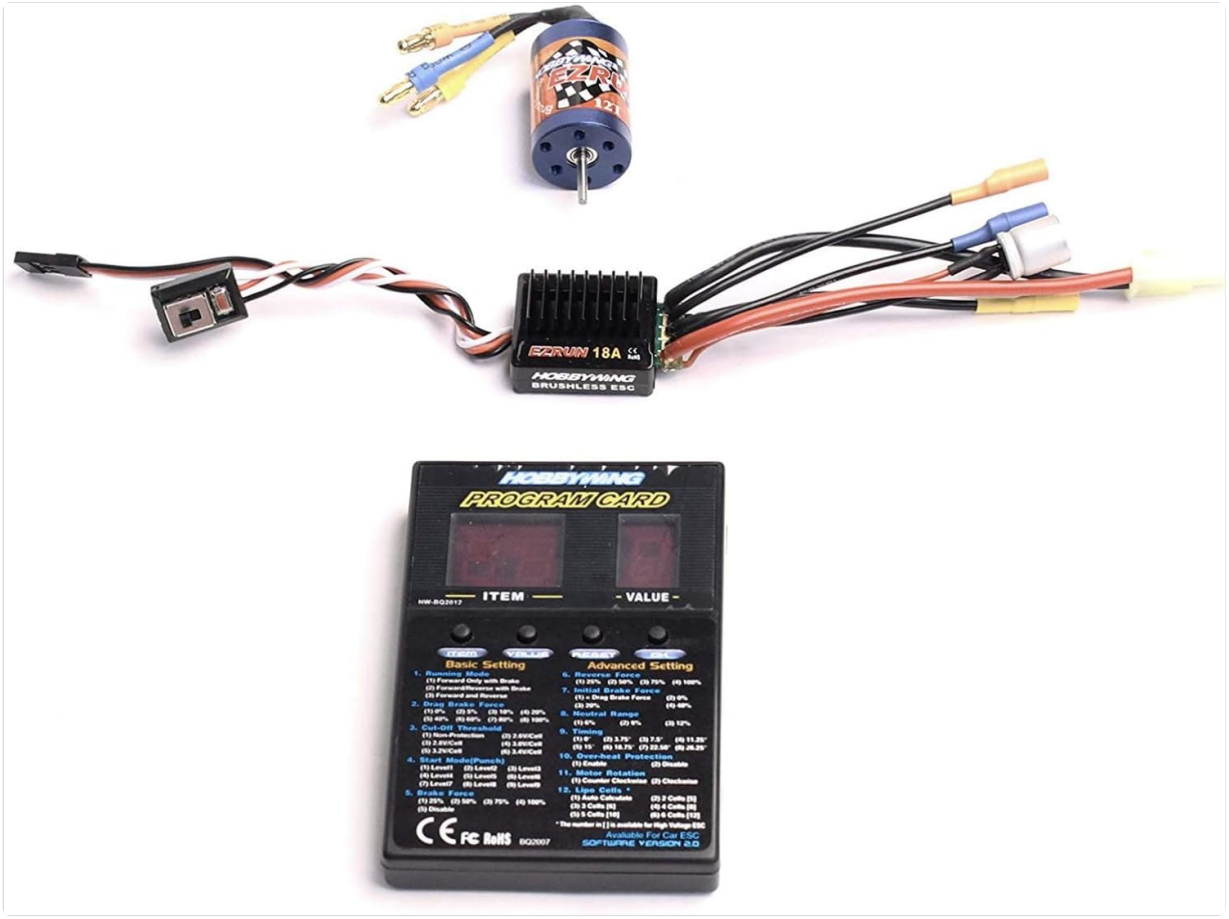

Image 1.1: Overview of the Hobbywing EZRUN Combo-A1 components, including the brushless motor, the EZRUN 18A Electronic Speed Controller (ESC), and the Hobbywing LED Program Card. The motor features gold-plated connectors, and the ESC has various wires for battery, motor, and receiver connections.

2. Safety Information

Electronic Speed Controller (ESC) and high-power systems for RC models can be very dangerous. Please read this manual carefully before use.

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3. Features

- Compatible with sensorless brushless motors.
- Equipped with top-quality components for high current endurance.
- Offers excellent start-up, acceleration, and linearity characteristics.
- Features plenty of programmable items, making it suitable for various chassis, tires, and race tracks.
- Includes multiple protection features: Low voltage cut-off protection, Over-heating protection, and Throttle signal loss protection.
- Internal timing can be easily adjusted to optimize the ESC for different motors.
- Easily programmed using the SET button, LED Program Box, Professional LCD Program Box, and

USB Link Software.

- ESC firmware can be updated via the USB adapter in the LCD Program Box.
- The included motor features an aluminum shell, high-quality magnets, copper wires with high-temperature endurance, and high-quality bearings.

4. Setup and Installation

Proper installation is crucial for optimal performance and safety. Follow these steps carefully:

1. **Mounting the ESC:** Securely mount the EZRUN 18A ESC in your vehicle using double-sided tape or screws. Ensure it has adequate airflow for cooling.
2. **Mounting the Motor:** Install the EZRUN 12T/2030 motor into your vehicle's motor mount. Ensure proper gear mesh between the motor pinion and the spur gear.
3. **Connecting the Motor to ESC:** Connect the three motor wires to the corresponding three wires on the ESC. While specific order is not critical for sensorless motors, maintaining consistency (e.g., A to A, B to B, C to C) is good practice. If the motor spins in the wrong direction, you can reverse two of the motor wires or adjust the motor rotation setting via the program card.
4. **Connecting the ESC to Receiver:** Plug the ESC's throttle cable (usually a black, red, and white wire bundle) into the throttle channel (typically Channel 2) of your RC receiver.
5. **Connecting the Battery:** Connect your battery pack to the ESC's battery input wires. Ensure correct polarity (red to positive, black to negative). Incorrect polarity can cause severe damage.
6. **Radio System Setup:** Turn on your transmitter, then turn on the ESC. Calibrate the ESC to your radio system's throttle range according to the ESC's specific calibration procedure (refer to the general Hobbywing ESC manual if not detailed here). This typically involves holding the throttle at full, neutral, and full reverse during power-up.

5. Programming with the LED Program Card

The included LED Program Card allows for easy adjustment of various ESC parameters. Connect the program card to the ESC's fan/program port (if available) or the throttle cable port (after disconnecting from the receiver) and power the ESC. The card will display the current settings, which can be changed using the "ITEM" and "VALUE" buttons.

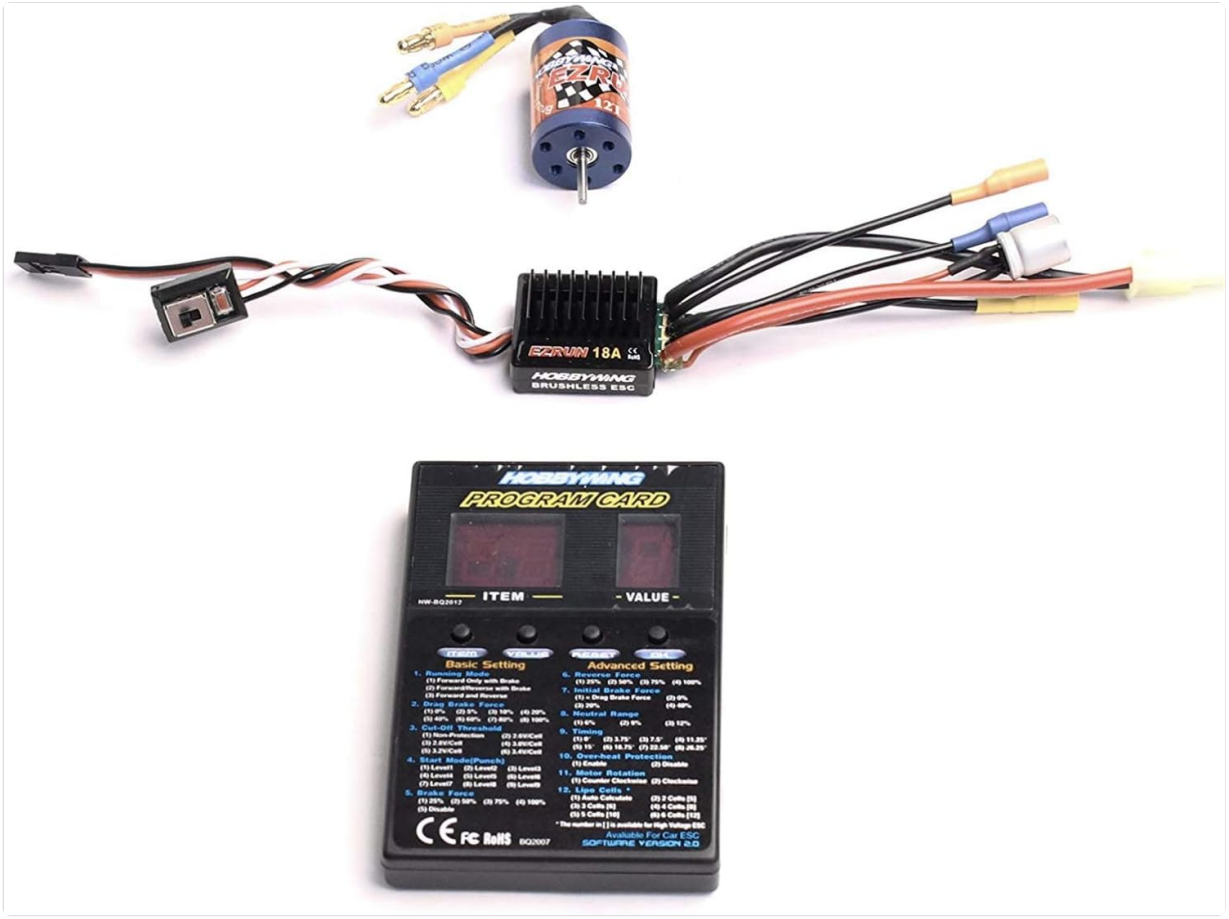


Image 5.1: Close-up of the Hobbywing LED Program Card, showing the "ITEM" and "VALUE" display areas and buttons for navigating and changing settings. The card lists various basic and advanced parameters for the ESC.

Basic Settings:

1. **Running Mode:**
    - (1) Forward Only with Brake
    - (2) Forward/Reverse with Brake
    - (3) Forward and Reverse
2. **Drag Brake Force:** Adjusts the automatic braking applied when the throttle returns to neutral. Options include 0%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 100%.
3. **Cut-Off Threshold:** Sets the voltage at which the ESC will reduce or cut power to protect the battery.
    - (1) Non-Protection
    - (2) 2.4V/Cell
    - (3) 2.6V/Cell
    - (4) 2.8V/Cell
    - (5) 3.0V/Cell
    - (6) 3.2V/Cell
    - (7) 3.4V/Cell
4. **Start Mode (Punch):** Controls the initial acceleration. Levels 1-9, with Level 1 being softest and Level 9 being most aggressive.
5. **Brake Force:** Adjusts the maximum braking power. Options include 25%, 50%, 75%, 100%, and Disable.

Advanced Settings:

6. **Reverse Force:** Sets the maximum reverse power. Options include 25%, 50%, 75%, 100%.
7. **Initial Brake Force:**
    - (1) Drag Brake Force
    - (2) 0%
    - (3) 20%
    - (4) 40%
8. **Neutral Range:** Defines the width of the throttle neutral zone. Options include 6%, 9%, 12%.
9. **Timing:** Adjusts motor timing for performance. Options include 0°, 3.75°, 7.5°, 11.25°, 15°, 18.75°, 22.5°, 26.25°.
10. **Over-heat Protection:**
    - (1) Enable
    - (2) Disable
11. **Motor Rotation:** Sets the motor's direction of rotation.
    - (1) Counter Clockwise
    - (2) Clockwise
12. **Lipo Cells:** Configures the number of LiPo cells connected.
    - (1) Auto Calculate
    - (2) 2 Cells
    - (3) 3 Cells
    - (4) 4 Cells
    - (5) 5 Cells
    - (6) 6 Cells

Note: The number in brackets indicates the maximum LiPo cells for this ESC. Available for Car ESC, Software Version 2.0.

6. Operating Instructions

1. **Power On:** Ensure all connections are secure. Turn on your radio transmitter first, then connect the battery to the ESC. The ESC will emit a series of tones indicating successful power-up and cell count detection.
2. **Driving:** Use the throttle trigger on your transmitter to control the vehicle's speed and direction. Gentle throttle inputs are recommended initially, especially with high-power systems.
3. **Power Off:** Disconnect the battery from the ESC first, then turn off your radio transmitter. This sequence prevents accidental throttle inputs.
4. **Monitoring:** Pay attention to the temperature of the ESC and motor during operation. If either component becomes excessively hot, stop operation and allow them to cool. Adjust gearing or ESC settings if overheating is a recurring issue.

7. Maintenance

- **Cleaning:** Regularly clean the ESC and motor to remove dirt, dust, and debris. Use a soft brush or

compressed air. Avoid using liquids directly on electronic components.

- **Inspection:** Periodically inspect all wires and connectors for damage, fraying, or loose connections. Ensure motor bearings are smooth and free of resistance.
- **Storage:** When not in use, store the ESC and motor in a dry, cool place away from direct sunlight and extreme temperatures. Disconnect batteries when storing.
- **Firmware Updates:** Check the Hobbywing website for any available firmware updates for your ESC. Updates can improve performance and add new features.

8. Troubleshooting

Problem	Possible Cause	Solution
Motor does not run or runs erratically.	Incorrect wiring, poor battery connection, ESC not calibrated, throttle signal loss.	Check all connections. Ensure battery is charged. Recalibrate ESC to transmitter. Check receiver and transmitter.
ESC or motor overheats.	Over-gearing, excessive load, insufficient airflow, incorrect timing.	Reduce pinion size or increase spur size. Reduce vehicle load. Ensure proper ventilation. Adjust ESC timing.
Vehicle has low power or short run time.	Low battery voltage, incorrect LiPo cell setting, damaged battery.	Charge battery fully. Verify LiPo cell setting on program card. Inspect battery for damage.
Program card does not connect or display.	Incorrect connection, ESC not powered, faulty card.	Ensure program card is correctly plugged into the ESC. Power on the ESC. Try another program card if available.

9. Specifications

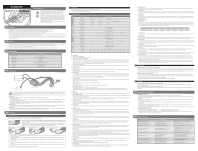
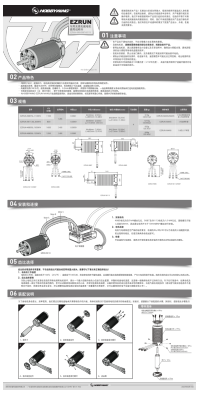
- **Product Dimensions:** 6.1 x 5.7 x 1.8 inches
- **Item Weight:** 7.4 ounces
- **Item Model Number:** 81030000
- **Manufacturer:** Hobbywing Technology
- **ESC:** EZRUN 18A Brushless ESC
- **Motor:** EZRUN 12T/2030 (7800KV, 2S Max)
- **Application:** 1/16 & 1/18 Scale On-road and Off-road RC Vehicles

10. Warranty and Support

This product is covered by the official Hobbywing manufacturer warranty. Please note that Hong Kong and Chinese stores are not authorized Hobbywing stores in North America, and items purchased from them may be deemed non-warranty.
For warranty claims or technical support, please contact Hobbywing North America. Typographical errors on our website or in documentation are sincerely apologized for, and while we strive for accuracy,

Hobbywing North America cannot be held responsible for such errors.
High-power systems for RC models can be dangerous. Hobbywing North America has no control over the correct use, installation, application, or maintenance of our products. No liability shall be assumed or accepted for any damages, losses, or costs resulting from the use of the product. Any claims arising from operation, failure, or malfunctioning will be denied. We assume no liability for personal injury, consequential damages resulting from our product or workmanship. As far as legally permitted, the obligation to compensation is limited to the invoice amount of the affected product.
For more information, please visit the official Hobbywing North America website or their return policy page: hobbywingdirect.com/pages/return-policy

Related Documents - 81030000

	Hobbywing EZRUN MINI28 Brushless ESC User Manual: Setup, Programming, and Troubleshooting Comprehensive user manual for the Hobbywing EZRUN MINI28 Brushless Electronic Speed Controller. Covers setup, calibration, detailed programmable item explanations, programming methods, LED status indicators, and troubleshooting guide for RC car enthusiasts.
	Hobbywing EZRUN MAX10 G2 ESC User Manual Comprehensive user manual for the Hobbywing EZRUN MAX10 G2 Brushless Electronic Speed Controller (ESC), detailing features, specifications, connections, setup, programming, LED status, and troubleshooting for RC vehicles.
	HOBBYWING EZRUN MAX6 G2 User Manual: Setup, Features, and Troubleshooting Comprehensive user manual for the HOBBYWING EZRUN MAX6 G2 Electronic Speed Controller (ESC). Covers features, specifications, connections, setup, programming, LED status, and troubleshooting for RC vehicles.
	Hobbywing EZRUN Series Splash-Proof Brushless Speed Controller User Manual User manual for the Hobbywing EZRUN Series Splash-Proof Brushless Speed Controller. Covers features, specifications, setup, programming, protection functions, troubleshooting, and optional accessories for RC vehicles.
	Hobbywing EZRUN MAX8 V3 150A Brushless ESC User Manual Comprehensive user manual for the Hobbywing EZRUN MAX8 V3 150A Brushless ESC, covering introduction, warnings, features, specifications, connections, setup, parameter settings, and troubleshooting for 1/8th scale RC vehicles.
	HOBBYWING EZRUN 4985/5687/56113 Sensorless Brushless Motor User Manual User manual for HOBBYWING EZRUN 4985, 5687, and 56113 sensorless brushless motors. Covers essential precautions, product features, detailed specifications, installation and connection guidance, gear ratio selection, and assembly instructions for RC vehicles.