HOBBYWING EZRUN-WP-SC8

Hobbywing EZRUN WP-SC8 Waterproof 120A Brushless ESC Speed Controller User Manual

Model: EZRUN-WP-SC8
Brand: HOBBYWING

1. Product Overview

The Hobbywing EZRUN WP-SC8 is a high-performance, waterproof 120A brushless Electronic Speed Controller (ESC) designed for 1/8 and 1/10 scale remote-controlled (RC) short course trucks, monster trucks, and buggies. This ESC features an integrated design with a built-in switch mode BEC (Battery Eliminator Circuit) providing a strong 6V/3A output, eliminating the need for an external UBEC even when using 4S LiPo batteries.
Its main electronic components are tightly sealed, offering splash-waterproof and dustproof capabilities, making it suitable for various terrains and conditions. The ESC includes multiple protection features to ensure safe operation and longevity of your RC vehicle's components.

Figure 1: Top view of the Hobbywing EZRUN WP-SC8 ESC, showing the integrated cooling fan.

2. What's in the Box

Upon opening the product packaging, you should find the following items:

- Hobbywing EZRUN WP-SC8 Waterproof 120A Brushless ESC
- Integrated Cooling Fan (pre-installed or separate)

3. Setup

Proper setup is crucial for the safe and efficient operation of your ESC. Please follow these instructions carefully.

3.1 Safety Precautions

- Always disconnect the battery from the ESC before performing any installation, maintenance, or adjustments.
- Ensure all connections are secure and correctly polarized to prevent damage to the ESC or other

components.

- Avoid operating the ESC in extreme temperatures or conditions beyond its specified limits.

3.2 Component Identification

The EZRUN WP-SC8 ESC features several connection points:

- **Battery Wires:** Thick red (+) and black (-) wires for connecting to the battery pack.
- **Motor Wires:** Three thick wires (typically black, white, red or blue, yellow, orange) for connecting to the brushless motor.
- **Receiver Wire:** A thin three-wire cable (usually black, red, white or brown, red, orange) for connecting to the throttle channel of your RC receiver.
- **Cooling Fan Port:** A small connector for the cooling fan.

Figure 2: Side view of the ESC, illustrating the various wires for motor, battery, and receiver connections.

3.3 Connection Steps

1. **Motor Connection:** Connect the three motor wires from the ESC to the corresponding wires on your brushless motor. For sensorless motors, the order typically does not matter for initial setup, but if the motor runs in reverse, swap any two of the three wires.
2. **Receiver Connection:** Plug the thin three-wire cable from the ESC into the throttle channel (usually

channel 2) of your RC receiver. Ensure the polarity is correct (signal, positive, negative).

3. **Battery Connection:** Connect your battery pack to the thick red (+) and black (-) wires of the ESC. Double-check polarity before making the final connection. The ESC supports 2-4S LiPo or 6-12 cell NiMH/NiCd battery packs.
4. **Cooling Fan:** If the cooling fan is not pre-installed, connect it to the designated fan port on the ESC.

3.4 Battery and Motor Compatibility

The EZRUN WP-SC8 ESC is compatible with sensorless brushless motors. The maximum motor KV rating depends on the battery voltage:

- **2S LiPo or 6 NiMH:** Motor KV ≤ 6000
- **3S LiPo or 7-9 NiMH:** Motor KV ≤ 4000
- **4S LiPo or 10-12 NiMH:** Motor KV ≤ 3000

4. Operating Instructions

Once the ESC is correctly installed and connected, follow these steps for operation:

4.1 Powering On/Off

1. Turn on your RC transmitter first.
2. Connect the battery to the ESC. The ESC will emit a series of tones indicating battery cell count and readiness.
3. After use, disconnect the battery from the ESC first, then turn off your transmitter.

4.2 Throttle Calibration

It is recommended to calibrate the ESC's throttle range with your transmitter for optimal performance. Refer to your transmitter's manual for specific calibration procedures, which typically involve:

1. Turning on the transmitter and setting throttle trim to neutral.
2. Holding the ESC's set button (if available) while powering on the ESC.
3. Setting neutral, full throttle, and full brake positions on the transmitter as prompted by the ESC's LED/tones.

4.3 Protection Features

The EZRUN WP-SC8 ESC incorporates several protection mechanisms:

- **Low Battery Voltage Protection:** Automatically reduces or cuts off power to prevent over-discharge of the battery.
- **Over Temperature Protection:** Reduces power or shuts down the ESC if its internal temperature becomes too high.
- **Throttle Control Protection:** Safeguards against abnormal throttle signals.
- **Stall Protection:** Protects the motor and ESC if the motor becomes jammed or stalled.

5. Maintenance

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

- **Cleaning:** After each use, especially in dirty or wet conditions, gently clean the ESC. Due to its waterproof design, you can carefully rinse off dirt with low-pressure water, but avoid submerging it for

extended periods or using high-pressure sprays. Ensure the ESC is completely dry before its next use.

- **Inspection:** Periodically inspect all wires and connectors for signs of wear, fraying, or corrosion. Ensure the cooling fan is free of debris and spins freely.
- **Storage:** Store the ESC in a cool, dry place away from direct sunlight and extreme temperatures. Always disconnect the battery before storing.

6. Troubleshooting

If you encounter issues with your EZRUN WP-SC8 ESC, refer to the following common problems and solutions:

- **ESC not powering on:**
  - Check battery connection and ensure it is fully charged.
  - Verify the ESC's power switch is in the 'ON' position.
- **Motor not responding or stutters:**
  - Ensure motor wires are securely connected to the ESC.
  - Verify the receiver wire is correctly plugged into the throttle channel and the transmitter is on.
  - Perform throttle calibration.
  - Check for proper motor and battery compatibility (KV rating, cell count).
- **Vehicle stops unexpectedly during operation:**
  - This often indicates a protection feature has activated. Check battery voltage (low voltage protection).
  - Feel the ESC and motor for excessive heat (over-temperature protection). Allow components to cool down.
  - Ensure the motor is not stalled or jammed.
- **ESC overheating:**
  - Check motor gearing; excessive gearing can cause overheating.
  - Ensure adequate airflow to the ESC's cooling fan.
  - Verify motor and battery compatibility.

7. Specifications

Detailed technical specifications for the Hobbywing EZRUN WP-SC8 ESC:

Figure 3: Bottom/side view of the ESC, highlighting the 'WATERPROOF' label and model information.

Feature	Specification
Brand Name	HOBBYWING
Model Name	WP SC8
Manufacturer Part Number	EZRUN-WP-SC8
Continuous Current	120A
Instantaneous Current	760A

Feature	Specification
Power Input	2-4S LiPo or 6-12 Cells NiMH/NiCd
BEC Output	6V / 3A (Switching Mode)
Resistance	0.0004 ohms
Supported Motor Type	Sensorless Brushless Motor
Applicable Models	1/8 and 1/10 Scale Short Course Trucks, Monster Trucks, Buggies
Dimensions (L x W x H)	53.5mm x 36mm x 36mm
Weight	98g
Power Source	Battery Powered
Included Components	Cooling Fan

8. Warranty and Support

For warranty claims or technical support, please contact your original retailer or the official HOBBYWING customer service. Keep your proof of purchase for warranty validation.
For the most up-to-date information, firmware updates, or additional resources, please visit the official HOBBYWING website.

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