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› DollaTek 540 21T Brushed Motor and 60A ESC Combo Instruction Manual

## DollaTek 540 21T 60A ESC Combo

# DollaTek 540 21T Brushed Motor and 60A ESC Combo Instruction Manual

For 1/10 RC Racing Cars

## 1. INTRODUCTION

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This manual provides essential information for the proper installation, operation, and maintenance of your DollaTek 540 21T 4 Pole Brushed Motor and 60A Brushed Electronic Speed Controller (ESC) Combo. This combo is designed for 1/10 scale RC racing cars, offering reliable performance and durability. Please read this manual thoroughly before use to ensure optimal performance and safety.

## 2. SAFETY PRECAUTIONS

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- Always disconnect the battery from the ESC when not in use to prevent accidental operation.
- Ensure all connections are secure and correctly polarized to avoid damage to components.
- Motors and ESCs can become hot during operation. Allow components to cool before handling.
- Keep the product away from water unless specifically designed for waterproof use. This ESC is waterproof, but proper sealing of other electronic components is crucial.
- Operate RC vehicles in open areas, away from people, pets, and obstacles.
- Adult supervision is recommended for users under 14 years of age.

## 3. PACKAGE CONTENTS

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The package includes the following items:

- 1 x 540 21T Brushed Motor
- 1 x 60A Brushed ESC

## 4. PRODUCT OVERVIEW

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The DollaTek 540 21T Brushed Motor features high purity copper windings for maximum efficiency and a precision-balanced rotor for reliability and high RPM. The 60A Brushed ESC provides excellent configuration, acceleration, and linearity characteristics, along with strong resistant current capacity and good heat dissipation. It is also 100% waterproof.



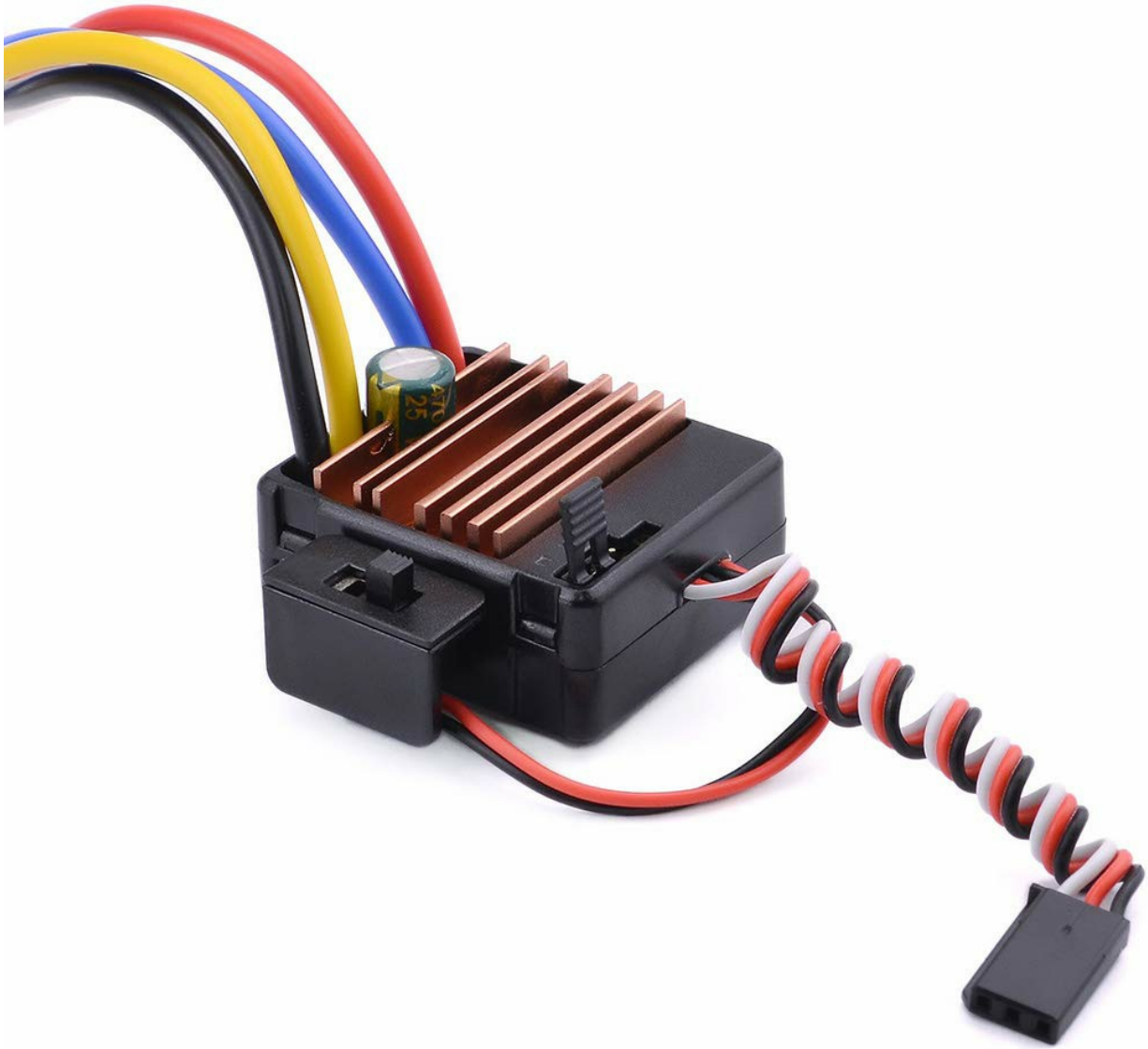
**Figure 4.1:** Front view of the DollaTek 540 21T Brushed Motor, showing the 'SURPASS HOBBY BRUSHED MOTOR' label.

This image displays the front of the 540 21T brushed motor, highlighting its compact cylindrical design and the branding on its casing.



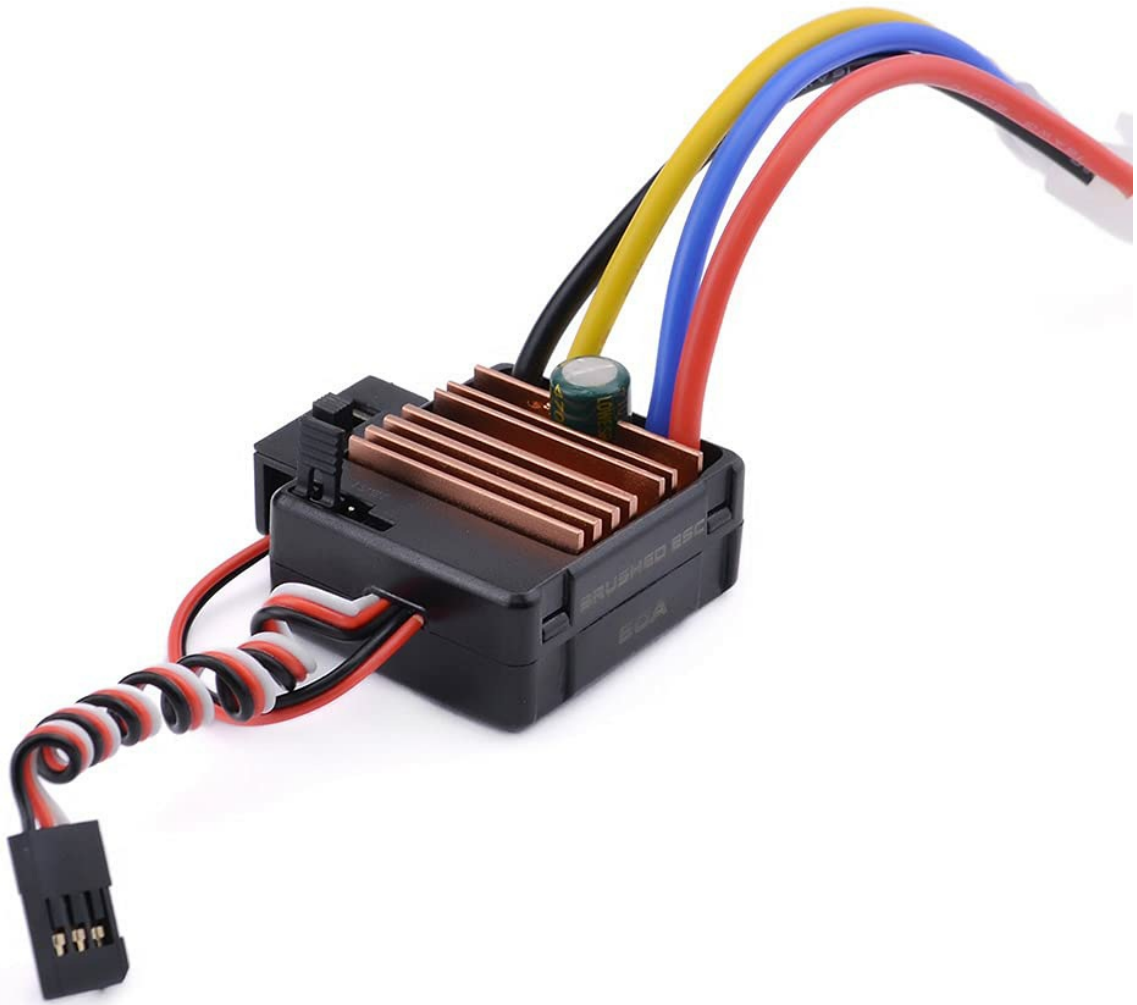
**Figure 4.2:** Side view of the DollaTek 540 21T Brushed Motor, showing the output shaft and copper contacts.

A side view of the brushed motor, illustrating the motor shaft extending from one end and the electrical contact points at the base.



**Figure 4.3:** Top view of the DollaTek 60A Brushed ESC, showing the heat sink and connected wires.

This image shows the electronic speed controller from above, featuring its prominent copper heat sink for thermal management and the various colored wires for connection.



**Figure 4.4:** Angled view of the DollaTek 60A Brushed ESC, highlighting the heat sink, wires, and power switch.  
An angled perspective of the ESC, providing a clearer view of its integrated power switch, the heat sink, and the arrangement of its input/output wires.



**Figure 4.5:** Side view of the DollaTek 60A Brushed ESC with key dimensions (37mm, 32mm, 18mm) indicated.

This image presents the ESC from the side, with overlaid measurements indicating its length (37mm), width (32mm), and height (18mm), useful for installation planning.

## 5. SPECIFICATIONS

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### Motor Specifications:

**Engine Size:** 540

**Engine Turns:** 21T

**Motor Current:** 1.82A

**Motor Input Voltage (Nominal):** 7.4V

**Maximum Motor Input Voltage:** 11.1V

**Motor Diameter:** 35 mm

**Motor Length:** 55 mm

**Shaft Length:** 12 mm

**Shaft Diameter:** 3.17 mm

**Material:** Copper

## ESC Specifications:

**DC Current:** 60A

**Burst Current:** 80A

**Power Supply:** LiPo 2S

**SBEC:** 6V/3A

**Item Size (wireless):** 38 x 32 x 18 mm

**Item Weight:** 39 g

**Waterproof:** Yes

## 6. SETUP

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### 6.1 Motor Installation

1. **Mounting:** Securely mount the 540 21T motor into your RC vehicle's motor mount using appropriate screws. Ensure the motor is firmly seated to prevent movement during operation.
2. **Pinion Gear:** Install the pinion gear onto the motor shaft. Ensure the pinion gear is aligned with the spur gear and secured with a grub screw.
3. **Gear Mesh:** Adjust the motor position to achieve proper gear mesh between the pinion and spur gears. There should be a small amount of play (like a thin piece of paper) between the teeth to prevent binding and excessive wear.

### 6.2 ESC Connection

1. **Motor Connection:** Connect the two motor wires from the ESC to the motor's terminals. Brushed motors typically do not have a specific polarity for connection, but ensure a secure connection.
2. **Battery Connection:** Connect the ESC's battery connector to your LiPo 2S battery. Ensure correct polarity (red to positive, black to negative). Incorrect polarity can cause severe damage.
3. **Receiver Connection:** Plug the ESC's signal cable (usually a three-wire servo plug) into the throttle channel (CH2) of your RC receiver.

### 6.3 ESC Calibration

Calibrate the ESC with your radio transmitter to ensure proper throttle range recognition. Refer to your radio system's manual for specific calibration procedures, which typically involve:

- Turning on the transmitter and setting throttle trim to neutral.
- Holding the throttle at full forward, then powering on the ESC.
- Waiting for a confirmation beep, then moving the throttle to full reverse.
- Waiting for another beep, then returning the throttle to neutral.
- Waiting for a final confirmation beep to indicate successful calibration.

## 7. OPERATING INSTRUCTIONS

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1. **Power On:** Ensure all connections are correct. Turn on your radio transmitter first, then connect the battery to the ESC.
2. **Initial Check:** Verify that the steering and throttle respond correctly to your transmitter inputs.
3. **Driving:** Gradually apply throttle. The ESC provides smooth acceleration and braking.

4. **Waterproof Feature:** The ESC is waterproof. However, ensure other electronic components in your RC vehicle are protected from water exposure. After running in wet conditions, clean and dry the ESC thoroughly.
5. **Power Off:** Always disconnect the battery from the ESC first, then turn off your radio transmitter.

### Key Features in Operation:

- **Low Voltage Cut-off Protection:** The ESC will reduce or cut power to the motor if the battery voltage drops below a safe level, protecting your LiPo battery from over-discharge.
- **Overheating Protection:** If the ESC's temperature becomes too high, it will reduce power or shut down to prevent damage.
- **Throttle Signal Loss Protection:** In case of signal loss from the transmitter, the ESC will automatically cut power to the motor to prevent runaway.

## 8. MAINTENANCE

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- **Cleaning:** After each use, especially in dirty or wet conditions, clean the motor and ESC. Use a soft brush or compressed air to remove dirt and debris. For the ESC, ensure it is dry before storage.
- **Inspection:** Regularly inspect all wires and connectors for signs of wear, fraying, or corrosion. Ensure all solder joints are secure.
- **Motor Brushes:** The motor features a replaceable brush radiator design. Periodically check the motor brushes for wear. Replace them if they appear significantly worn to maintain optimal performance.
- **Storage:** Store the motor and ESC in a cool, dry place away from direct sunlight and extreme temperatures. Disconnect batteries during storage.

## 9. TROUBLESHOOTING

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Problem	Possible Cause	Solution
Motor does not run or runs erratically.	<ul style="list-style-type: none"> <li>◦ Incorrect ESC calibration.</li> <li>◦ Loose or incorrect wiring connections.</li> <li>◦ Low battery voltage (ESC low voltage cut-off activated).</li> <li>◦ Transmitter not turned on or signal loss.</li> <li>◦ Motor brushes worn out.</li> </ul>	<ul style="list-style-type: none"> <li>◦ Recalibrate the ESC with your transmitter.</li> <li>◦ Check all motor, battery, and receiver connections.</li> <li>◦ Recharge or replace the battery.</li> <li>◦ Ensure transmitter is on and within range.</li> <li>◦ Inspect and replace motor brushes if necessary.</li> </ul>
ESC overheats.	<ul style="list-style-type: none"> <li>◦ Excessive load on the motor.</li> <li>◦ Poor ventilation.</li> <li>◦ Incorrect gear ratio.</li> </ul>	<ul style="list-style-type: none"> <li>◦ Reduce load or use a motor with a lower turn count.</li> <li>◦ Ensure adequate airflow around the ESC.</li> <li>◦ Adjust gear ratio (e.g., smaller pinion gear).</li> </ul>
Vehicle loses power suddenly.	<ul style="list-style-type: none"> <li>◦ Low battery voltage (ESC low voltage cut-off).</li> <li>◦ ESC overheating protection activated.</li> <li>◦ Throttle signal loss.</li> </ul>	<ul style="list-style-type: none"> <li>◦ Recharge or replace the battery.</li> <li>◦ Allow ESC to cool down. Check for causes of overheating.</li> <li>◦ Check transmitter and receiver connection/range.</li> </ul>

## 10. WARRANTY AND SUPPORT

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DollaTek products are manufactured to high standards. For any issues or support inquiries, please contact your retailer or the manufacturer directly. Keep your purchase receipt as proof of purchase for warranty claims.