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9imod 40kg (180°)

9imod 40KG High Torque Waterproof Brushless Digital Servo (180°) Instruction Manual

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your 9imod 40KG High Torque Waterproof Brushless Digital Servo. Designed for 1/8, 1/10, and 1/12 scale RC vehicles, this servo offers precise control and durability. Please read this manual thoroughly before use to ensure proper function and longevity of the product.

Product Features

- **40KG Brushless Servo Motor:** Features a built-in brushless motor and stable motherboard, providing precise angle control without deviation, with an angle range of 0 to 180 degrees. Includes a 25T Servo Horn and accessories.
- **Waterproof Design:** Equipped with double ball bearings for reduced noise and stable torque. Enhanced with anti-burning and rotor blocking protection, 5S overload protection, and 70°C overheat protection.
- **High Torque & Fast Performance:** Ideal for heavy-duty RC vehicles, offering a maximum torque of up to 43kg.cm (597.16oz-in) and a speed of 0.08sec/60° at 8.4V. Features full metal gears for quiet operation and light weight.
- **Digital Control:** Provides high torque, high speed, fast response, stable performance, strong anti-interference ability, and efficient heat dissipation. Allows 360-degree rotation when powered off, suitable for robotic joint activities.
- **Wide Application:** Compatible with RC off-road vehicles, crawlers, mechanical arms, robots, remote control boats, and giant scale aircraft.
- **DIY Project Compatibility:** Suitable for 1/8, 1/10, 1/12 scale crawlers, trucks, buggies, robotic arms, and other applications requiring standard servos.

What's in the Box

- 1 x Brushless Servo
- 1 x 25T Adjustable metal servo arm

Safety Information

To prevent damage to the product or injury, please observe the following safety guidelines:

- Ensure the power supply voltage matches the servo's specifications (6.0V-8.4V). Exceeding this voltage can cause permanent damage.
- Avoid exposing the servo to extreme temperatures or direct sunlight for prolonged periods.
- Do not attempt to disassemble or modify the servo. This will void the warranty and may lead to malfunction.
- Keep the servo away from small children to prevent accidental ingestion of small parts.
- Always disconnect power before performing any maintenance or installation.
- While the servo is waterproof, avoid prolonged submersion or use in highly corrosive liquids.

Setup and Installation

Follow these steps for proper installation of your 9imod 40KG Digital Servo:

1. **Mounting the Servo:** Securely attach the servo to your RC vehicle's chassis using appropriate screws and mounting hardware. Ensure it is firmly in place to prevent movement during operation.
2. **Attaching the Servo Horn:** Select the appropriate 25T metal servo arm. Align the servo arm with the servo's output shaft and press it firmly into place. Use the provided screw to secure the servo arm to the shaft. Ensure the servo is centered before attaching the horn for optimal calibration.
3. **Connecting to Receiver/Controller:** Connect the servo's three-wire connector to the designated servo channel on your RC receiver or flight controller. The wires are typically color-coded: brown/black for ground, red for positive voltage, and orange/yellow/white for signal. Refer to your receiver's manual for specific port assignments.
4. **Power Supply:** Ensure your power supply (battery) provides the correct voltage range (6.0V-8.4V) for the servo. An external BEC (Battery Eliminator Circuit) might be necessary if your ESC (Electronic Speed Controller) does not provide sufficient voltage or current.
5. **Initial Calibration:** Before operating, power on your RC system (transmitter first, then receiver/vehicle). The servo should move to its neutral position. Adjust the trim settings on your transmitter if necessary to achieve perfect centering.

Case Material	Control System
Alloy AL6061+Nylon	PWM Control (1500usec in the central point)

Operation Voltage	Temperature
6.0V~8.4V	-20°C ~ +60°C

Direction	Diver type
Re-clock wise/ Pulse Travel 500-2500 usec	Mos Drive

Motor Type	Potentiometer Type
Brushless motor	Direct Drive

Amplifier Type	Ball Bearing
Digital Control	2BB

Connector Wire Length	Dead band width
300MM JR Plug	2 usec

Pulse width signal	Aerial template control
500-2500 ms: 180 degrees	900-2100 milliseconds: 120 degrees

Gun remote control	Weight
1000-2000 ms: 90 degrees	69.2g (without servo horn)

Standing Torque:
0.1sec/60° 35kg-cm@6.0V
0.085sec/60°40kg-cm@7.4V
0.08sec/60° 43kg-cm@8.4V



25T Metal Servo arm
INCLUDED

Figure 1: Internal components and construction of the 9imod 40KG Digital Servo, highlighting its durable metal gears and waterproof design.

Operating Instructions

Once installed and calibrated, your 9imod 40KG Digital Servo is ready for operation. This servo provides precise control for steering, throttle, or other functions in your RC model.

- **Power On Sequence:** Always turn on your RC transmitter first, then power on your RC vehicle/receiver. When powering off, turn off the vehicle/receiver first, then the transmitter.
- **Control Range:** The servo offers a 180° control angle. Ensure your transmitter's end-point adjustments (EPA) or travel adjustments (ATV) are set to prevent the servo from over-rotating and binding, which can cause damage.
- **Response and Torque:** This servo is designed for high torque and fast response. You will experience precise and powerful movements, especially beneficial for demanding applications like crawlers or large-scale vehicles.
- **Waterproof Functionality:** The IP67 waterproof rating allows for operation in wet conditions, such as snow or puddles. However, it is not designed for prolonged submersion. Always dry the servo thoroughly after

exposure to moisture.



Figure 2: Illustration of the 180° control angle and typical applications for the 9imod 40KG Digital Servo.

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Video 1: Demonstration of the 9imod 40KG High-Speed Brushless RC Servo operating in snowy conditions, showcasing its waterproof capabilities and performance in a 1/8, 1/10, or 1/12 scale RC car/truck/crawler/boat.

Maintenance and Care

Regular maintenance ensures the longevity and optimal performance of your servo.

- **Cleaning:** After use, especially in dirty or wet conditions, clean the exterior of the servo with a soft, dry cloth. If exposed to water, ensure it is thoroughly dried.
- **Gear Inspection:** Periodically inspect the metal gears for any signs of wear, damage, or debris. While the gears are robust, extreme impacts can cause issues.
- **Lubrication:** The internal gears are pre-lubricated. Avoid applying excessive external lubricants, as this can attract dirt. If disassembly is required for repair (not recommended for users), use appropriate servo grease.
- **Wiring:** Check all wiring connections for fraying or damage. Ensure the connector is securely plugged into the receiver.

- **Storage:** Store the servo in a cool, dry place away from direct sunlight and extreme temperatures.

Troubleshooting

If you encounter issues with your 9imod 40KG Digital Servo, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Servo not responding	No power, incorrect wiring, faulty receiver channel, damaged servo.	Check power connections and battery charge. Verify wiring polarity. Try a different receiver channel or test with another servo. If still unresponsive, the servo may be damaged.
Servo jitters or moves erratically	Interference, low voltage, loose connections, worn gears.	Ensure proper distance between servo wires and other electronics. Check battery voltage. Secure all connections. Inspect gears for wear.
Servo makes grinding noise	Gear damage, foreign object in gears, servo binding.	Inspect gears for damage or debris. Ensure the servo arm and linkage are not binding against any part of the chassis or other components. Adjust end-points on transmitter.
Servo overheats	Overload, continuous binding, excessive voltage.	Reduce load on the servo. Check for binding in the linkage. Verify power supply voltage is within specifications. Allow servo to cool down.

Product Specifications

Detailed technical specifications for the 9imod 40KG Digital Servo:

Feature	Specification
Brand	9imod
Model Number	40kg (180°)
Control System	PWM Control (1500usec in the central point)
Operation Voltage	6.0V-8.4V
Temperature Range	-20°C ~ +60°C
Motor Type	Brushless motor
Amplifier Type	Digital Control
Ball Bearing	2BB (Double Ball Bearing)
Connector Wire Length	300MM JR Plug
Dead Band Width	2 usec
Pulse Width Signal	500-2500 ms, 180 degrees

Feature	Specification
Weight	69.2g (without servo horn)
Product Dimensions	0.79 x 0.79 x 0.79 inches
Item Weight	3.52 ounces
Standing Torque (6.0V)	35kg-cm
Standing Torque (7.4V)	40kg-cm
Standing Torque (8.4V)	43kg-cm
Speed (6.0V)	0.1 sec/60°
Speed (7.4V)	0.085 sec/60°
Speed (8.4V)	0.08 sec/60°



Figure 3: Comprehensive specifications for the 9imod 40KG-180° Digital Servo.



Figure 4: The 9imod 40KG Digital Servo demonstrating its IP67 waterproof capabilities.

Warranty and Support

For warranty information or technical support, please contact the manufacturer directly through their official website or the retailer where the product was purchased. Keep your purchase receipt as proof of purchase.

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