Hobbypark HD3012MG

HobbyPark HD3012MG Waterproof 30kg High Torque RC Steering Servo

Instruction Manual

Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your HobbyPark HD3012MG Waterproof 30kg High Torque RC Steering Servo. Please read this manual thoroughly before use to ensure proper function and longevity of the product.

Product Features

- **Waterproof Design for All-Weather Use:** Engineered with a waterproof housing, this servo maintains consistent performance in wet, muddy, and extreme conditions, making it suitable for outdoor RC activities.
- **Durable Metal Gear Construction:** Built with robust metal gears, this servo offers exceptional durability and resistance to wear, ensuring reliable operation even in high-stress scenarios.
- **Programmable for Custom Control:** Features a programmable interface, allowing users to fine-tune performance settings to meet the demands of various RC models, DIY robotics, and other creative projects.
- **30KG High Torque for Powerful Performance:** Equipped with 30kg/cm of torque, this servo motor ensures strong, precise performance, ideal for 1/8, 1/10, and 1/12 RC crawlers, trucks, cars, buggies, and robotic applications.
- **Wide Compatibility and Versatility:** Compatible with 1/8, 1/10, and 1/12 scale RC vehicles and robotic projects, this servo is an excellent choice for enthusiasts and professionals seeking reliable and adaptable performance.

What's in the Box

- 1x HobbyPark HD3012MG Servo
- 1x Metal Servo Horn
- Servo Accessories (as shown in product images)

Safety Information

Choking Hazard - Small parts. Not for children under 6 years.

Specifications

Feature	Detail
Model	HD3012MG
Operating Voltage	DC 4.8V-8.4V
Stall Torque (5.0V)	21 kg.cm (289 oz-in)
Stall Torque (6.0V)	26 kg.cm (358 oz-in)
Stall Torque (7.4V)	30 kg.cm (414 oz-in)
Stall Torque (8.4V)	35 kg.cm (483 oz-in)
Speed (5.0V)	0.21 sec/60°
Speed (6.0V)	0.19 sec/60°
Speed (7.4V)	0.16 sec/60°
Speed (8.4V)	0.14 sec/60°
Operating Travel	90-180°
Gear Type	Stainless Steel Gear
Bearing	2BB
Waterproof	Yes
Spline	Φ5.9 25T
Dead Band	3μs
Working Frequency	1520μs/333Hz
Servo Lead Length	300mm (±5mm)
Dimensions	40 x 20 x 40.3 mm (1.57 x 0.79 x 1.59 inches)
Weight	70g (±0.5g)

For detailed dimensions, refer to the diagram below:

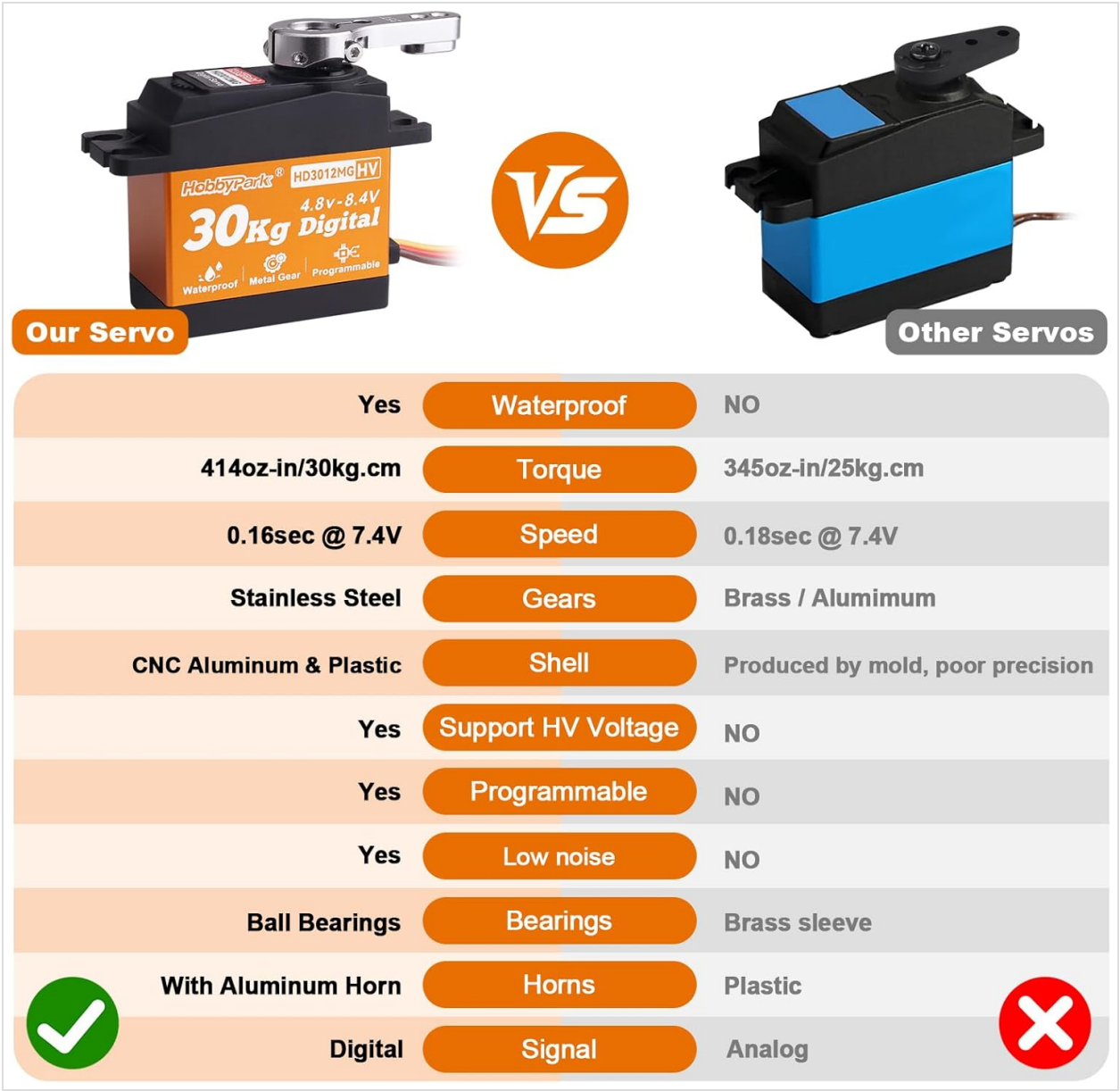

Image: Detailed dimensions and specifications of the HobbyPark HD3012MG servo.

Setup and Installation

Follow these general steps for installing your HobbyPark HD3012MG servo. Specific installation may vary depending on your RC model.

1. **Mounting the Servo:** Securely mount the servo into the designated servo tray or mounting location on your RC vehicle or robotic project. Use appropriate screws and mounting hardware to prevent movement during operation.
2. **Attaching the Servo Horn:** Select the appropriate servo horn from the included accessories. Attach it to the servo output shaft. Ensure the horn is centered before tightening the screw.
3. **Connecting the Linkage:** Connect the servo horn to the steering or control linkage of your model. Adjust the linkage length to ensure proper alignment and full range of motion without binding.
4. **Wiring:** Connect the servo's three-wire cable to the corresponding channel on your receiver or flight controller. The standard color code is typically:
    - Brown/Black: Ground (GND)
    - Red: Positive Voltage (VCC)
    - Orange/Yellow/White: Signal (SIG)

Ensure correct polarity to avoid damage.

5. **Initial Testing:** Before full operation, power on your RC system and test the servo's movement. Verify that it responds correctly to control inputs and moves freely without obstruction.

Image: Exploded view showing the internal components and sealed design of the HD3012MG servo.

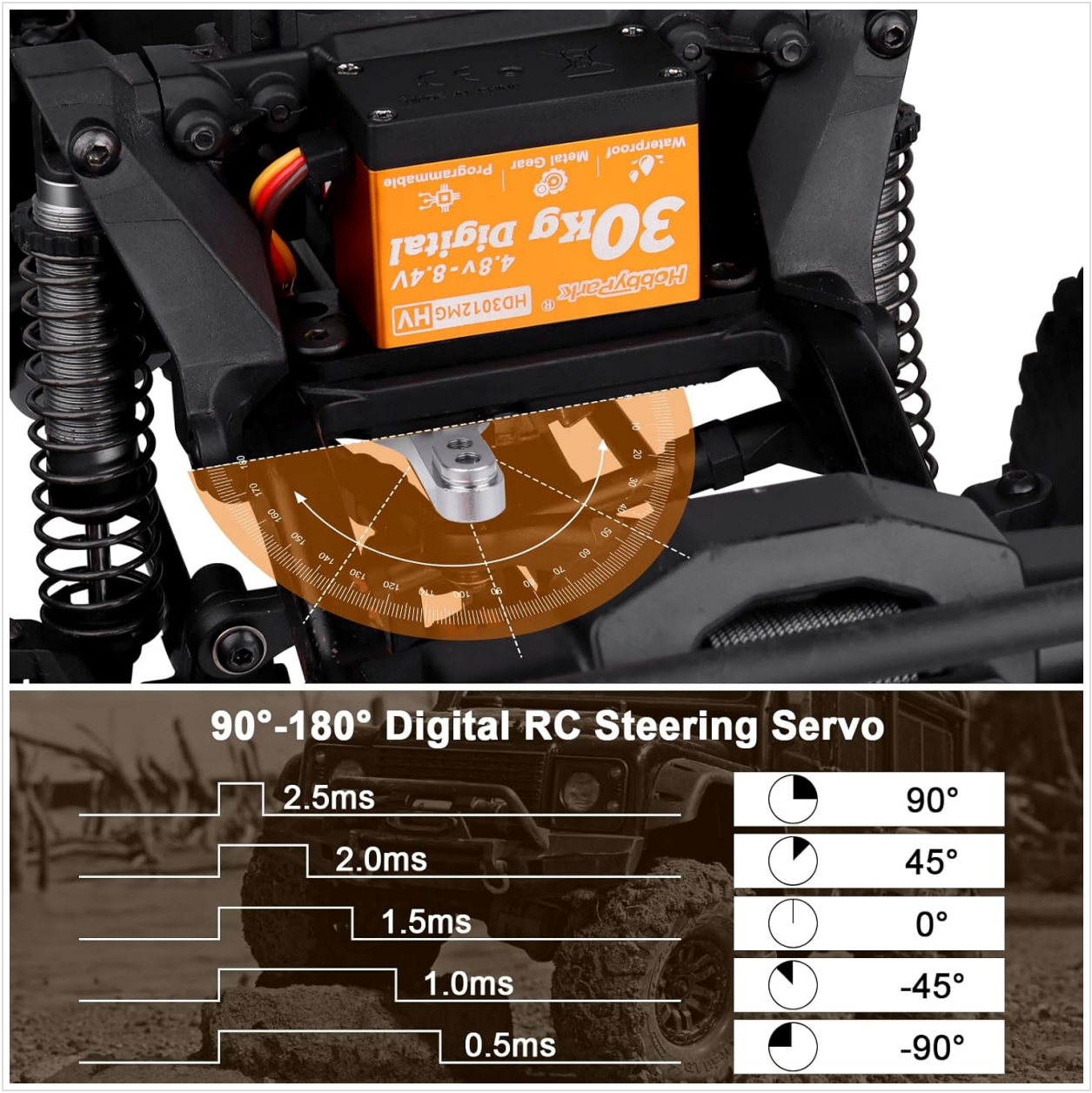

Image: The HD3012MG servo mounted within an RC car chassis, demonstrating a typical installation.

Your browser does not support the video tag.

Video: Demonstration of the HobbyPark 30kg servo's waterproof capabilities, torque testing, and fast response in an RC vehicle. This video highlights the servo's performance characteristics and suitability for various RC applications.

Operating Instructions

The HobbyPark HD3012MG servo operates based on standard PWM (Pulse Width Modulation) signals from your RC receiver or control board. It supports a control angle of 90-180 degrees, depending on the pulse width input.

- **Standard Operation:** The servo will move to a position corresponding to the pulse width received. A typical pulse width of 1.5ms centers the servo, while shorter or longer pulses move it to either extreme.
- **Programmability:** This servo is programmable, allowing for fine-tuning of parameters such as travel limits, speed, and dead band. To program the servo, you will need a compatible HobbyPark servo programmer and software running on a Windows computer. Follow the instructions provided with the programmer for detailed steps.

Image: Steps for programming the HobbyPark servo using a dedicated programmer and computer software.

Image: Illustration of how different pulse widths (0.5ms to 2.5ms) correspond to various control angles (from -90° to +90° or 0° to 180°) for the digital RC steering servo.

Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your servo.

- **Cleaning:** Periodically clean the exterior of the servo to remove dirt, dust, and debris. While waterproof, excessive buildup can hinder performance or cause overheating.
- **Gear Inspection:** Check the metal gears for any signs of wear, damage, or foreign objects. If necessary, carefully clean the gear train.
- **Wiring Check:** Inspect all wiring connections for looseness, fraying, or damage. Secure any loose connections and replace damaged wires immediately.
- **Lubrication:** The internal gears are pre-lubricated. Avoid applying excessive external lubricants unless specifically recommended by the manufacturer for internal gear maintenance.
- **Storage:** Store the servo in a dry, cool environment away from direct sunlight and extreme temperatures.

Troubleshooting

If you encounter issues with your HobbyPark HD3012MG servo, refer to the following common troubleshooting steps:

- **Servo Not Responding:**
  - Check all wiring connections to ensure they are secure and correctly plugged into the receiver/controller.
  - Verify that the receiver/controller is powered on and receiving power.
  - Test with a different servo or on a different channel to rule out issues with the receiver/controller.
  - Ensure the battery supplying power to the RC system is adequately charged.
- **Erratic or Jerky Movement:**
  - Check for any physical obstructions or binding in the linkage that might be preventing smooth movement.
  - Inspect the servo gears for damage or debris.
  - Ensure the power supply to the servo is stable and sufficient (voltage drops can cause erratic behavior).
  - Check for radio interference.
- **Servo Overheating:**
  - Ensure the servo is not under constant load or binding.
  - Verify that the operating voltage is within the specified range (4.8V-8.4V).
  - Check for proper ventilation around the servo.
- **Loss of Centering:**
  - Recalibrate your radio system's trim settings.
  - Check for wear in the servo gears or linkage.

If these steps do not resolve the issue, contact HobbyPark customer support for further assistance.

Warranty and Support

For warranty information and customer support, please refer to the documentation included with your purchase or visit the official HobbyPark website. You can also visit the HobbyPark Store on Amazon for product details and contact options.