Hobbypark HD3533MG

HobbyPark HD3533MG 35kg Waterproof RC Servo Instruction Manual

Model: HD3533MG

1. Introduction

Thank you for choosing the HobbyPark HD3533MG 35kg Waterproof RC Servo. This high-performance digital servo features a brushless motor, metal gears, and an aluminum case, designed for durability and precision in demanding RC applications. This manual provides essential information for proper installation, operation, and maintenance to ensure optimal performance and longevity of your servo.

The HD3533MG servo is engineered for reliability, offering high torque, fast response, and waterproof capabilities, making it suitable for various 1/8 and 1/10 scale RC vehicles including crawlers, trucks, buggies, and bashers.

2. Safety Information

WARNING: Choking Hazard - Small Parts. Not for children under 6 years.

- Always ensure proper voltage supply to avoid damage to the servo or other electronic components. Refer to the specifications section for voltage requirements.
- Disconnect power before performing any installation, maintenance, or adjustments.
- Keep the servo and its components away from extreme temperatures and direct sunlight.
- Ensure all connections are secure to prevent intermittent operation or short circuits.

3. What's in the Box

Upon opening your HobbyPark HD3533MG 35kg Waterproof RC Servo package, you should find the following items:

- 1x HobbyPark HD3533MG 35kg Waterproof RC Servo

- 1x Metal Servo Horn (25T)
- Assorted Servo Accessories (various plastic servo horns, mounting screws, rubber grommets, brass eyelets)

Image 3.1: Contents of the HobbyPark HD3533MG 35kg Waterproof RC Servo package, including the servo, metal servo horn, and various accessories.

4. Key Features

The HobbyPark HD3533MG servo offers a range of advanced features for superior performance:

- **Brushless Motor & High Torque:** Delivers ultra-high torque, fast response, and long-lasting performance.
- **Waterproof & Metal Gear Design:** IP67 waterproof rating with heavy-duty metal gears ensures durability in tough conditions.
- **CNC Aluminum Case:** Precision-machined aluminum housing enhances heat dissipation and durability.
- **Programmable Control Angle (90°-180°) & HV Support:** Adjustable rotation and high-voltage (HV) compatibility for maximum flexibility.
- **Wide Compatibility:** Ideal for 1/8 & 1/10 RC crawlers, SCX10, TRX4, trucks, buggies, bashers, and robotics.

Image 4.1: The HD3533MG servo is designed to be waterproof (IP67 rated) and dustproof, making it suitable for outdoor and harsh environments.

Image 4.2: Exploded view highlighting key features such as the aluminum anodized CNC machined case, stainless steel spline gear, waterproof seals, cooling grooves, programmable DC 4.8V-8.4V operation, and brushless motor.

5. Setup and Installation

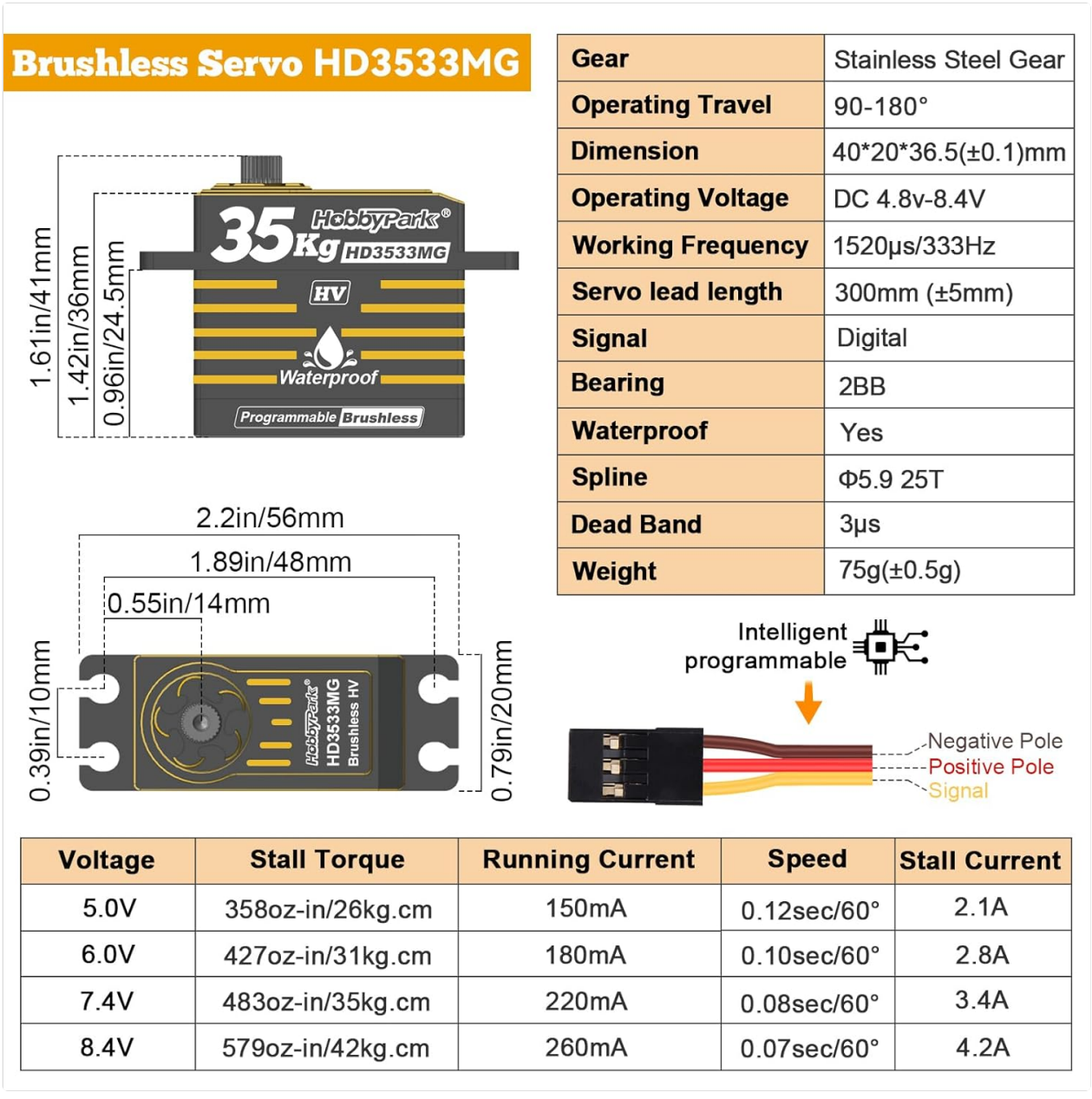
Proper installation is crucial for the performance and longevity of your servo. Follow these general guidelines:

1. **Mounting the Servo:** Securely mount the servo in your RC vehicle's designated servo tray using the provided mounting screws and rubber grommets. Ensure the servo is firmly attached to prevent movement during operation.
2. **Attaching the Servo Horn:** Select the appropriate servo horn (metal 25T horn is recommended for high torque applications) and attach it to the servo spline. Ensure the horn is centered before tightening the screw.
3. **Connecting Linkages:** Connect the servo horn to the steering or control linkage of your RC vehicle. Adjust the linkage length to achieve proper alignment and prevent binding.
4. **Wiring:** Connect the servo's 3-wire cable to the appropriate channel on your receiver. The standard color code is typically:
    - Orange/Yellow: Signal

- Red: Positive (+)
- Brown/Black: Negative (-)

Ensure correct polarity to avoid damage.

5. **Power Supply:** Verify that your RC vehicle's power system (battery and ESC/BEC) can provide the necessary voltage and current for the servo. The HD3533MG supports High Voltage (HV) operation from 4.8V to 8.4V.



Gear	Stainless Steel Gear
Operating Travel	90-180°
Dimension	40*20*36.5(±0.1)mm
Operating Voltage	DC 4.8v-8.4V
Working Frequency	1520μs/333Hz
Servo lead length	300mm (±5mm)
Signal	Digital
Bearing	2BB
Waterproof	Yes
Spline	Φ5.9 25T
Dead Band	3μs
Weight	75g(±0.5g)

Voltage	Stall Torque	Running Current	Speed	Stall Current
5.0V	358oz-in/26kg.cm	150mA	0.12sec/60°	2.1A
6.0V	427oz-in/31kg.cm	180mA	0.10sec/60°	2.8A
7.4V	483oz-in/35kg.cm	220mA	0.08sec/60°	3.4A
8.4V	579oz-in/42kg.cm	260mA	0.07sec/60°	4.2A

Image 5.1: Wiring diagram showing the negative, positive, and signal connections for the servo. Also includes detailed dimensions and performance data.

Image 5.2: Example of the HD3533MG servo installed in an RC vehicle, demonstrating its fit and connection to the steering linkage. The image also illustrates the 90°-180° digital RC steering servo control angle.

6. Operating Instructions

Once installed, the HobbyPark HD3533MG servo operates like any standard digital servo, controlled by your RC transmitter and receiver. This servo is programmable, allowing for adjustment of its control angle.

1. **Power On Sequence:** Always turn on your transmitter first, then your RC vehicle's receiver/ESC. When powering off, turn off the receiver/ESC first, then the transmitter.
2. **Centering:** Ensure the servo centers correctly when the steering trim on your transmitter is at neutral. Adjust mechanical linkages or transmitter sub-trim if necessary.
3. **End Point Adjustment (EPA)/Travel Adjustment (ATV):** For optimal performance and to prevent servo damage, set the EPA or ATV on your transmitter. This limits the servo's travel to prevent it from over-extending and binding against the vehicle's chassis or steering stops. The HD3533MG supports a programmable control angle from 90° to 180°.
4. **Testing:** Slowly move the steering wheel/stick on your transmitter to check the servo's response and full range of motion. Ensure smooth operation without any binding or excessive noise.

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Video 6.1: This video demonstrates the HobbyPark HD3533MG servo's waterproof capabilities, high torque performance, and fast response time in various RC applications, including an RC crawler navigating water and rough terrain.

7. Maintenance

Regular maintenance helps extend the life and maintain the performance of your HobbyPark HD3533MG servo:

- **Cleaning:** Periodically clean the exterior of the servo to remove dirt, dust, and debris. Use a soft, dry cloth. For stubborn dirt, a slightly damp cloth can be used, but avoid excessive moisture, especially around the output shaft.
- **Gear Inspection:** Occasionally inspect the metal gears for any signs of wear, damage, or foreign objects. While the gears are robust, extreme impacts can cause issues.
- **Lubrication:** The internal gears are pre-lubricated. Avoid disassembling the servo unless absolutely necessary, as this can compromise its waterproof sealing. If disassembly is required for repair, use appropriate servo grease for re-lubrication.
- **Wiring Check:** Regularly check the servo wire for any cuts, fraying, or loose connections. Repair or replace damaged wires immediately.
- **Water Exposure:** Although waterproof, it is good practice to dry the servo after exposure to water to prevent long-term corrosion of external components or connectors.

8. Troubleshooting

If you encounter issues with your HobbyPark HD3533MG servo, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
Servo not responding	No power, incorrect wiring, faulty receiver/transmitter, damaged servo.	Check battery connection and charge. Verify servo wiring to receiver. Test with another servo or receiver/transmitter. Inspect servo for physical damage.
Servo jitters or twitches	Interference, loose connection, low voltage, damaged potentiometer.	Ensure proper distance from other electronics. Secure all connections. Check battery voltage. If problem persists, servo may need replacement.
Servo makes grinding noise	Damaged gears, foreign object in gears, binding linkage.	Inspect gears for damage or debris. Check linkages for binding and adjust EPA/ATV.
Servo lacks power/torque	Low voltage, excessive load, damaged motor.	Ensure adequate power supply (e.g., 7.4V-8.4V for HV). Reduce load on servo. If motor is damaged, servo replacement may be necessary.

Problem	Possible Cause	Solution
Servo overheats	Excessive load, continuous operation under stress, insufficient cooling.	Reduce load on the servo. Ensure proper EPA/ATV settings to prevent binding. Allow servo to cool down between runs. The aluminum case provides good heat dissipation, but extreme conditions can still cause overheating.

9. Specifications

Detailed technical specifications for the HobbyPark HD3533MG 35kg Waterproof RC Servo:

Feature	Detail
Model Name	HD3533MG
Stall Torque (7.4V)	35kg.cm (483oz-in)
Speed (7.4V)	0.08sec/60°
Operating Voltage	DC 4.8V-8.4V (HV Compatible)
Motor Type	Brushless
Gear Material	Stainless Steel
Case Material	CNC Aluminum
Waterproof Rating	IP67
Control Angle	90°-180° (Programmable)
Spline	25T
Dimensions	40*20*36.5 (±0.1)mm (1.57 x 0.79 x 1.44 inches)
Weight	75g (±0.5g)
Bearing	2BB
Servo Lead Length	300mm (±5mm)

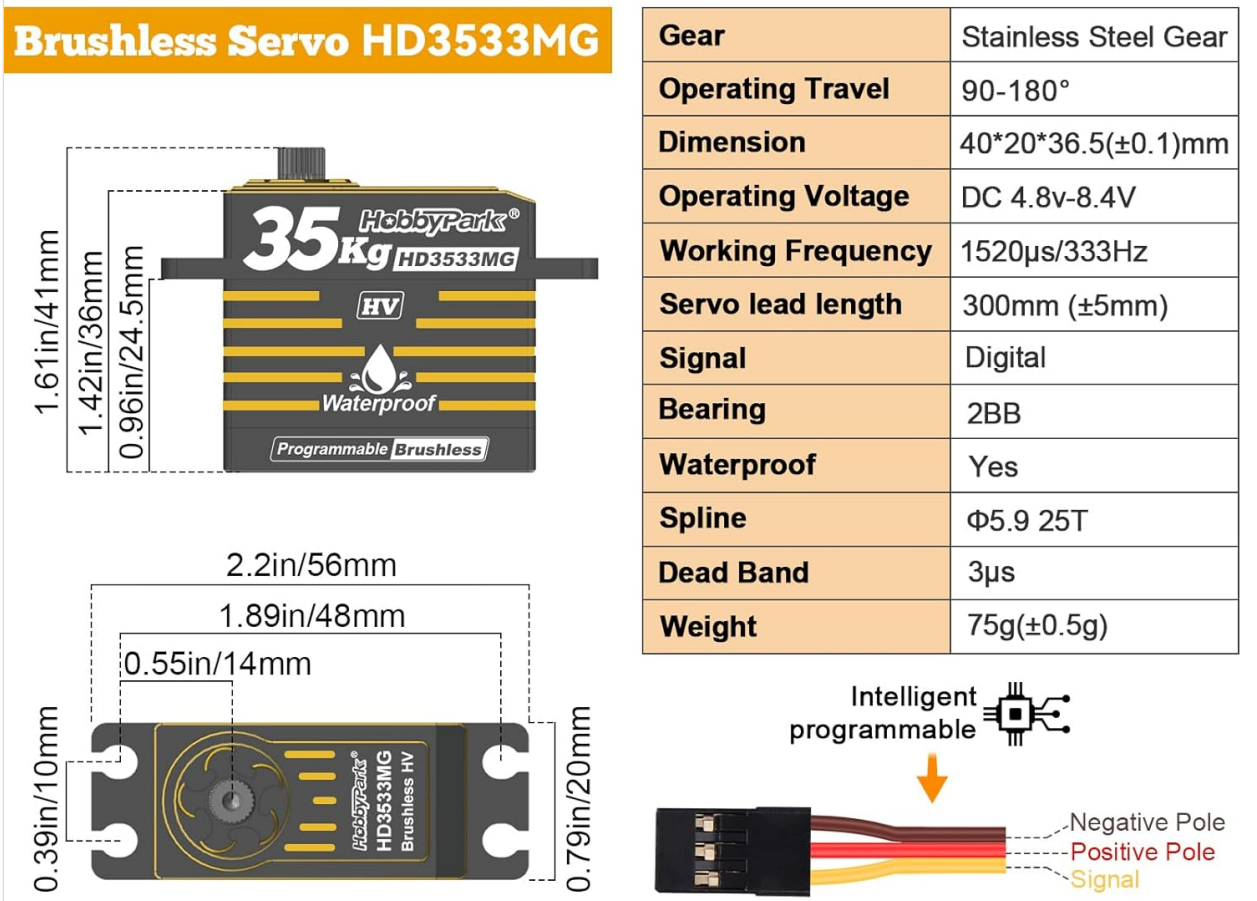

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Image 9.1: Visual representation of the servo's dimensions, operating parameters, and performance characteristics at different voltages.

Image 9.2: The HD3533MG servo is versatile and can be used in various application fields such as RC Cars, RC Planes & Helicopters, RC Boats/Submarines, Robotic Arms, RC Robots, and DIY Smart Projects.

10. Warranty and Support

HobbyPark is committed to providing high-quality products. For specific warranty information, please refer to the documentation included with your purchase or visit the official HobbyPark website. If you require technical assistance, have questions about compatibility, or need support, please contact HobbyPark customer service through their official channels or the retailer where the product was purchased.

Always check your specific model's manual for compatibility details or contact HobbyPark directly for assistance.