9imod BLS-HV60MG

9imod BLS-HV60MG 60KG High Torque Brushless Waterproof Digital Servo Instruction Manual

Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your 9imod BLS-HV60MG 60KG High Torque Brushless Waterproof Digital Servo. Please read these instructions carefully before use to ensure optimal performance and longevity of the product. This servo is designed for various remote control models including 1/8, 1/10, and 1/12 scale crawler trucks, robots, boats, mechanical arms, and quadcopters.

Product Features

The 9imod BLS-HV60MG servo incorporates advanced design and materials for robust performance:

- **High Torque Output:** Delivers up to 60 kg/cm of torque at 14V, providing powerful steering capabilities for demanding applications.
- **Brushless Motor:** Equipped with a long-lifespan brushless motor for increased efficiency, durability, and smoother operation.
- **Waterproof Design (IP67):** Features an IP67 waterproof rating, allowing reliable operation in wet and dusty conditions.
- **Full Metal Gear:** Utilizes strength steel gears for enhanced durability and resistance to wear under high stress.
- **Full CNC Aluminum Case:** The robust aluminum casing provides excellent heat dissipation and structural integrity.
- **High Voltage (HV) Compatibility:** Designed to operate efficiently with 14V power systems, including 3S and 4S LiPo batteries.
- **High Precision and Fast Response:** Offers excellent linearity and quick response for precise control.
- **Low Noise Operation:** Engineered for quieter performance compared to traditional servos.



Image: Overview of the 9imod 60KG Brushless Servo highlighting its key features such as high torque, waterproof design, high voltage compatibility, high speed, high precision, and low noise.

Specifications

Detailed technical specifications for the 9imod BLS-HV60MG servo:

Parameter	Value
Model	BLS-HV60MG
Gear Material	Strength Steel
Case Material	AL6061T6 (Full CNC Aluminum)
Horn Gear Spline	25T
Bearing	Double Ball Bearings
Dead Band	2 µSec

Parameter	Value
Neutral/Refresh Rate	1500 µS
Operation Voltage Range	10-15V
Operation Travel	180° ±1°
Pulse Width	500 to 2500 µSec
Waterproof Level	IP67
Size (L x W x H)	40 x 20 x 40.5 mm (1.57 x 0.78 x 1.57 inches)
Net Weight	83g (2.92oz)
Stall Torque @ 10V	48 kg-cm
Stall Torque @ 12V	55 kg-cm
Stall Torque @ 14V	60 kg-cm
Speed @ 10V	0.15 sec/60°
Speed @ 12V	0.13 sec/60°
Speed @ 14V	0.11 sec/60°

GEAR MATERIAL	CASE MATERIAL
Strength Steel	AL6061T6

HORN GEAR SPLINE	BEARING
25T	Double Ball Bearings

DEAD BAND	NEUTRAL/ REFRESH RATE
2 µSec	1500µS

OPERATION VOLTAGE RANGE	OPERATION TRAVEL
10-15V	180° ±1

PULSE WIDTH	WATERPROOF LEVEL
500 to 2500 uSec	IP67

SIZE	NET WEIGHT
40*20*40.5mm	83g(2.82oz)

STALL TORQUE
48kg-cm@10V
55kg-cm@12V
60kg-cm@14V

60KG 14V
Brushless Servo Specification



DIRECT POWER SUPPLY WIRE


Image: Comprehensive specification table for the 9imod BLS-HV60MG servo, detailing its mechanical and electrical characteristics.

Product Dimension

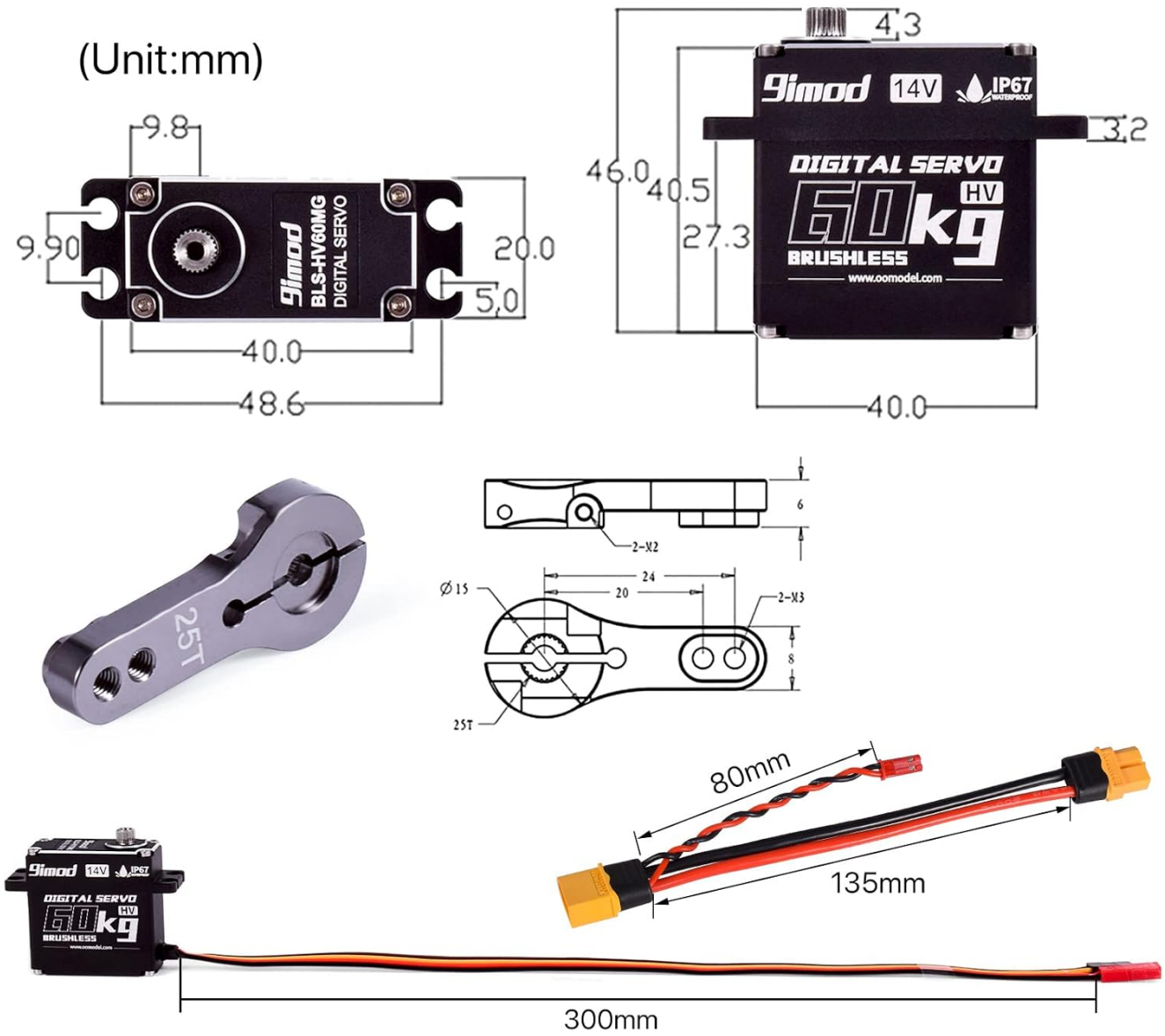


Image: Dimensional drawings of the 9imod BLS-HV60MG servo and its 25T metal servo horn, illustrating physical measurements and included accessories.

Setup

Follow these steps for proper installation of your 9imod BLS-HV60MG servo:

1. **Mounting:** Securely mount the servo into your RC model's servo tray using appropriate screws. Ensure the servo is firmly seated to prevent movement during operation.
2. **Servo Horn Attachment:** Select the correct 25T metal servo horn for your application. Attach the servo horn to the servo output shaft. Ensure it is centered before tightening the screw.
3. **Wiring Connection:** Connect the servo's signal cable to the appropriate channel on your receiver. The servo also includes a direct power supply wire (TYU/JST connectors) for high voltage applications. Connect this to your 3S or 4S LiPo battery or a suitable power source, ensuring correct polarity.
4. **Endpoint Adjustment:** Before operating, set the servo's endpoints on your radio transmitter. This prevents over-travel and potential damage to the servo or your model's steering linkage.
5. **Initial Test:** With the model powered on, slowly move the steering control to verify the servo's movement and ensure there are no binding points in the linkage.



Image: Illustration of the 9imod BLS-HV60MG servo's high voltage capability and direct power connection options for 3S and 4S LiPo batteries.

Operating Instructions

The 9imod BLS-HV60MG servo is designed for precise control in various RC applications:

- **Power Supply:** Ensure your power supply (battery) matches the servo's voltage requirements (10-15V). Using an inadequate power source may result in reduced performance or damage.
- **Control Input:** The servo responds to standard PWM signals from your RC receiver. Ensure your transmitter is properly bound and configured for the servo channel.
- **Operating Angle:** The servo provides an operating travel of 180° ±1°. Avoid forcing the servo beyond its mechanical limits, as this can cause damage to the internal gears or motor.
- **Waterproof Operation:** The IP67 rating allows for use in wet conditions. However, prolonged submersion or exposure to corrosive liquids should be avoided. Always ensure the servo's seals are intact before operating in water.



Image: Visual representation of the 9imod BLS-HV60MG servo's 180° operating travel.



Image: The 9imod BLS-HV60MG servo submerged in water, illustrating its IP67 waterproof performance.

Maintenance

Regular maintenance helps ensure the longevity and performance of your servo:

- **Cleaning:** After use, especially in dirty or wet conditions, clean the exterior of the servo with a soft, dry cloth. Avoid using harsh chemicals.
- **Gear Inspection:** Periodically inspect the servo gears for any signs of wear, damage, or debris. While the gears are steel, excessive force or impacts can still cause issues.
- **Lubrication:** The internal gears are pre-lubricated. If the servo is disassembled for inspection, apply a small amount of high-quality, plastic-safe grease to the gears before reassembly.
- **Wiring Check:** Regularly check all wiring connections for fraying, cuts, or loose contacts. Secure any loose connections.
- **Storage:** Store the servo in a dry, cool place away from direct sunlight and extreme temperatures.



Image: Exploded view of the 9imod BLS-HV60MG servo, detailing its internal metal gears, waterproof seal, and full aluminum casing.

Troubleshooting

If you encounter issues with your 9imod BLS-HV60MG servo, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Servo not responding	No power, incorrect wiring, faulty receiver/transmitter, damaged servo.	Check power connections and battery voltage. Verify signal wire connection to receiver. Test with a different servo or receiver.
Servo jitters or moves erratically	Interference, low battery voltage, faulty signal, mechanical binding.	Ensure adequate power supply. Check for radio interference. Inspect linkage for binding. Re-center servo horn.
Servo lacks power/torque	Low voltage, mechanical binding, worn gears.	Ensure battery is fully charged and providing sufficient voltage. Check for any obstructions in the linkage. Inspect gears for wear.
Servo makes excessive noise	Mechanical binding, worn gears, foreign debris.	Inspect linkage for binding. Check gears for wear or debris.

Problem	Possible Cause	Solution
Servo overheats	Overload, continuous stall, insufficient cooling.	Reduce load on the servo. Ensure no mechanical binding. Allow servo to cool between uses.

Warranty and Support

For warranty information or technical support, please contact the manufacturer, 9imod, directly through their official website or the retailer where the product was purchased. Keep your proof of purchase for any warranty claims.
Manufacturer: 9imod
ASIN: B0BNL9GYSM

Ask a question about this manual

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Details

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