Wishiot GH-S37D

Wishiot Mini Super Light 3.7g Digital Servo GH-S37D Instruction Manual

Model: GH-S37D

1. Product Overview

The Wishiot Mini Super Light 3.7g Digital Servo GH-S37D is a compact and lightweight digital servo designed for precise control in various remote-controlled applications, including aircraft, helicopters, and boats. Its small size and low weight make it ideal for models where space and weight are critical factors. This servo provides reliable performance with a digital control system.

Figure 1: The Wishiot GH-S37D Digital Servo shown with its included accessories, such as various servo horns and mounting screws. The servo features a blue translucent casing and a standard 3-pin connector.

Package Contents:

- 1 x Wishiot Mini Super Light 3.7g Digital Servo GH-S37D
- Assorted Servo Horns
- Mounting Screws

2. Specifications

Refer to the table below for detailed technical specifications of the GH-S37D Digital Servo.

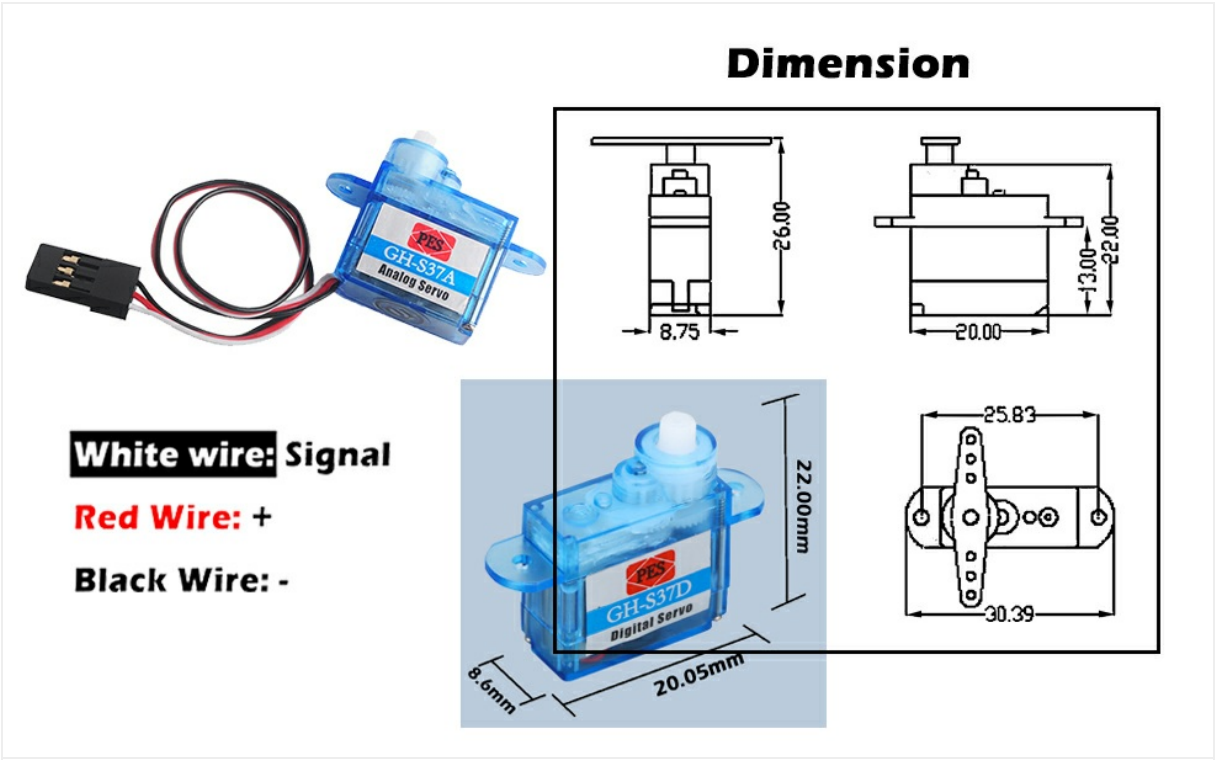

Figure 2: A detailed specification table for the GH-S37D servo, outlining its performance characteristics and physical dimensions.

Parameter	Value
Torque (3.6V)	0.5 kg/cm
Torque (4.8V)	0.7 kg/cm
Operating Voltage	3.6V - 4.8V
Operating Speed (3.6V)	0.12 sec/60 degrees
Operating Speed (4.8V)	0.1 sec/60 degrees
Operating Temperature	0 - 60°C (32 - 140°F)
Teeth Material	Plastic
Standard Signal	1000 to 2000 microseconds
Dead Band Width	4 usec
Working Degree	90 degrees
Cable Length	150 mm
Weight	3.7 g
Dimensions (L x W x H)	20.05 x 8.75 x 22 mm (approx. 0.8 x 0.34 x 0.87 inches)
Servo Type	Digital Servo

Figure 3: Technical drawing illustrating the precise dimensions of the GH-S37D servo in millimeters.

3. Setup and Wiring

Proper connection of the servo to your control system is crucial for correct operation. The GH-S37D servo uses a standard 3-pin connector.

3.1 Wire Color Code:

- **White Wire:** Signal (PWM input)
- **Red Wire:** Positive Power (+)
- **Black Wire:** Negative Power / Ground (-)

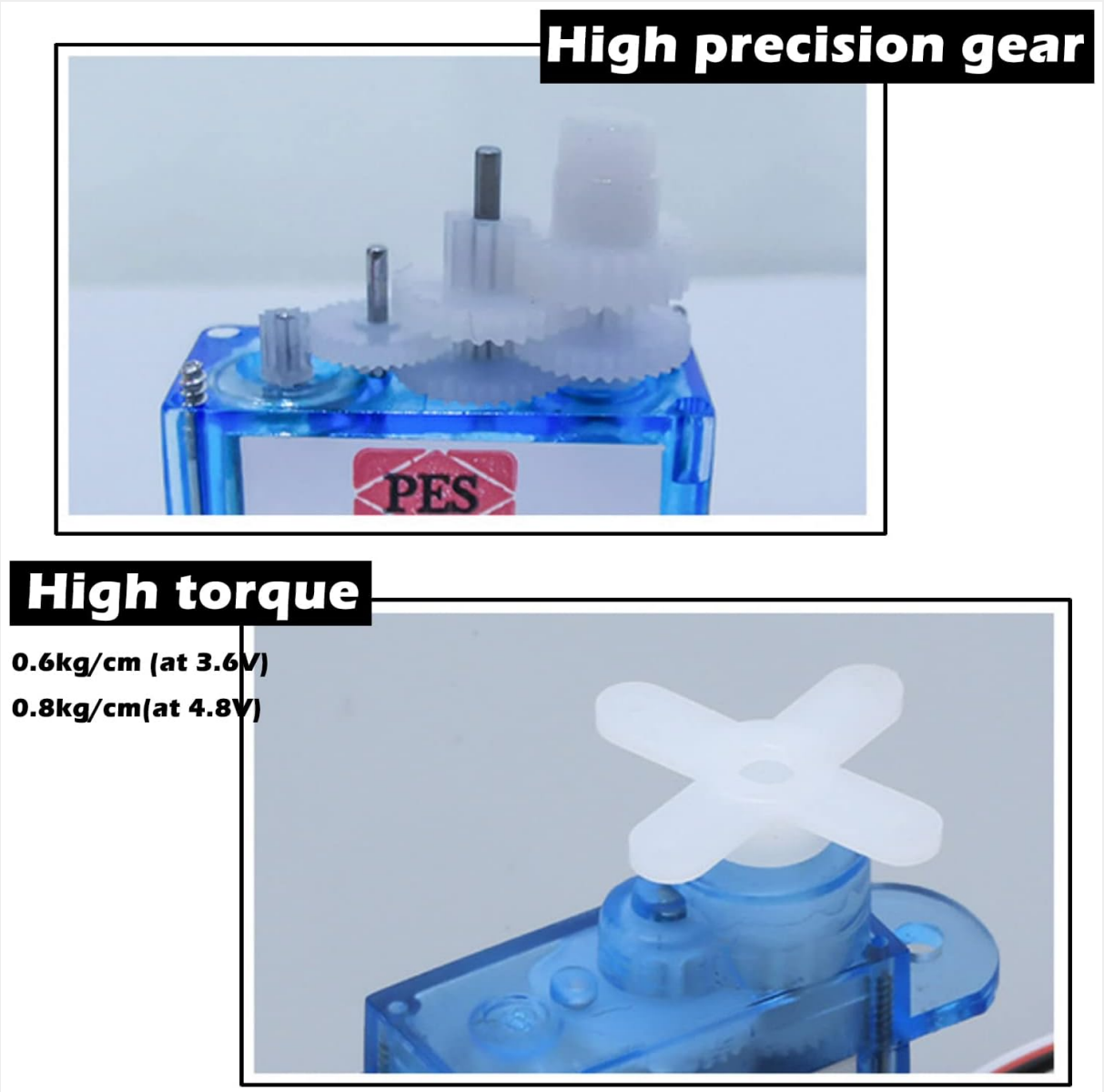

Figure 4: The GH-S37D servo with its three-wire connector, clearly indicating the white (signal), red (positive), and black (negative) wires.

3.2 Connecting to a Servo Tester:

To test the servo or for basic control without a full RC system, you can connect it to a servo tester. Ensure the polarity is correct.

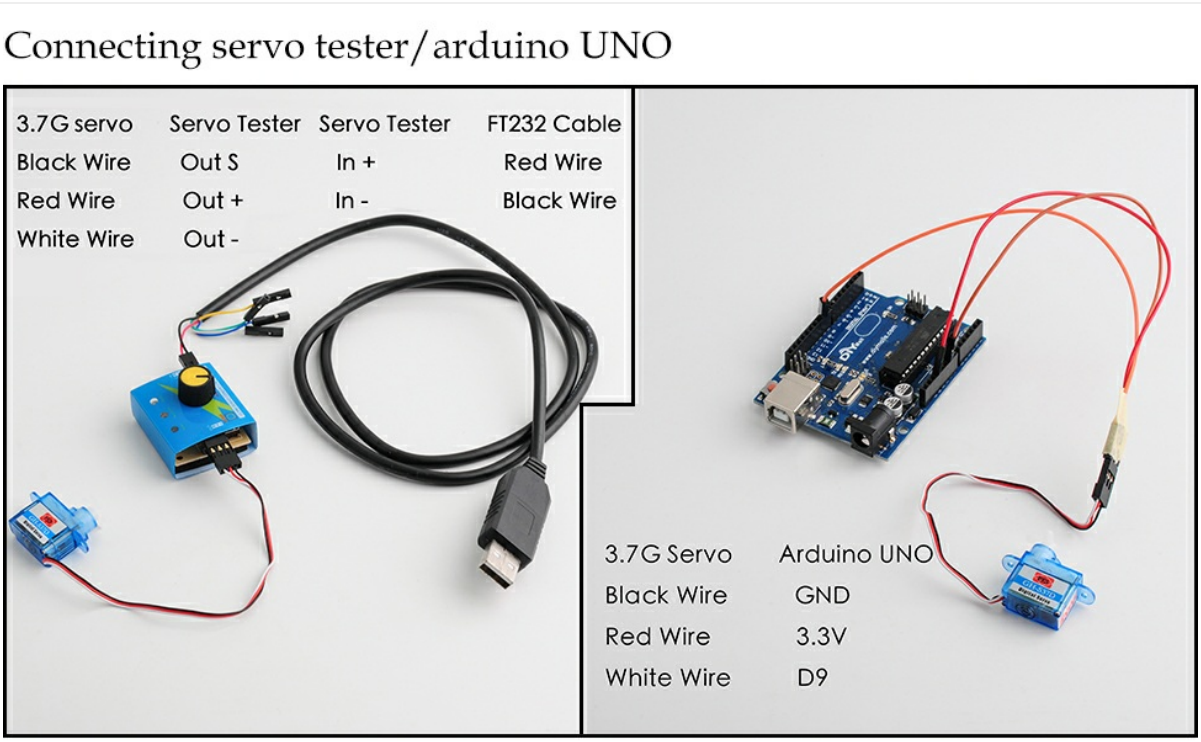

Figure 5: The GH-S37D servo connected to a servo tester for functional testing. The servo's black wire connects to 'Out -', red to 'Out +', and white to 'Out S' on the tester.

3.7G Servo Wire	Servo Tester Connection
Black Wire	Out -
Red Wire	Out +
White Wire	Out S

3.3 Connecting to a Microcontroller (e.g., Arduino UNO):

For custom projects, the servo can be controlled by a microcontroller. Below is a common connection scheme for an Arduino UNO.

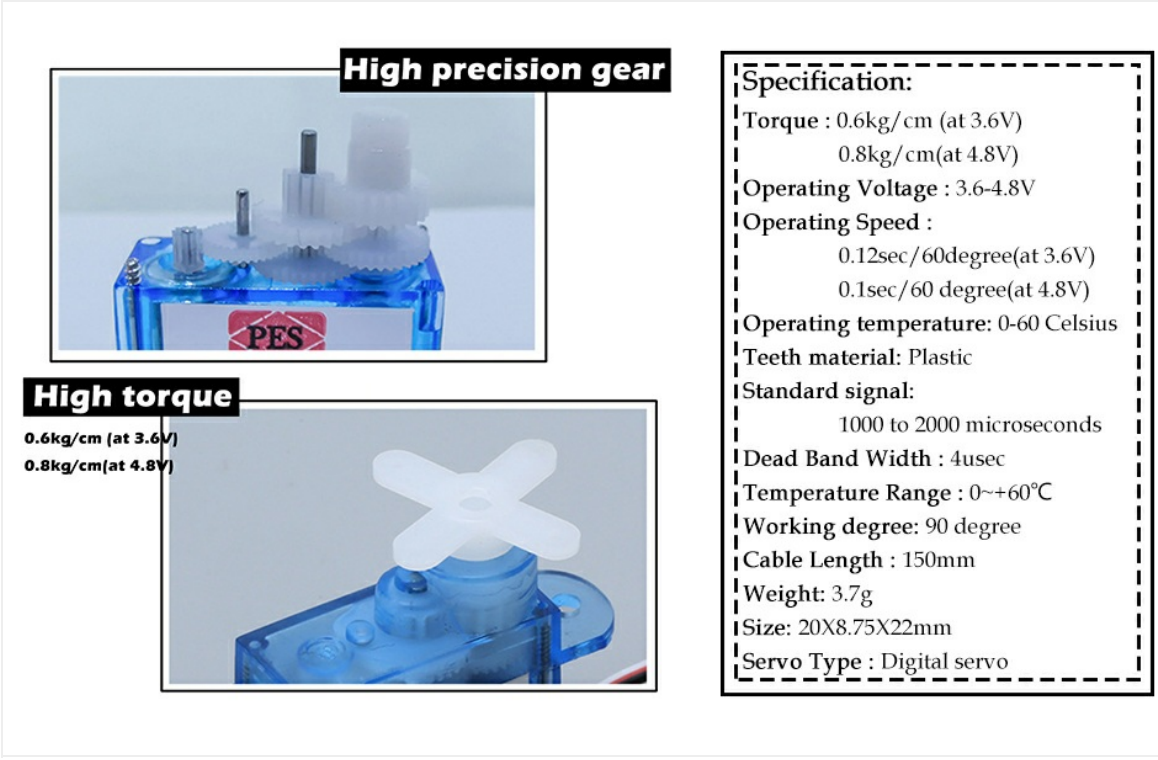

Figure 6: The GH-S37D servo wired to an Arduino UNO board. The servo's black wire connects to GND, red to 3.3V, and white to digital pin D9 on the Arduino.

3.7G Servo Wire	Arduino UNO Connection
Black Wire	GND
Red Wire	3.3V
White Wire	D9 (Digital Pin 9)

Note: Ensure your microcontroller can supply sufficient current for the servo, especially under load. An external power supply may be required for multiple servos or high-load applications.

4. Operation

The GH-S37D is a digital servo, meaning it receives a Pulse Width Modulation (PWM) signal to determine its position. The servo operates within a 90-degree range.

- **Control Signal:** The white signal wire receives PWM pulses, typically from a receiver or microcontroller. The pulse width dictates the servo's angular position.
- **Rotation:** The servo horn will rotate to the commanded position and hold that position against external forces within its torque limits.
- **Operating Range:** The standard signal range of 1000 to 2000 microseconds corresponds to the full 90-degree working range of the servo.

Figure 7: A close-up view of the high-precision plastic gears inside the servo, responsible for its movement and torque transmission.

5. Maintenance

To ensure the longevity and optimal performance of your GH-S37D servo, follow these maintenance guidelines:

- **Keep Clean:** Protect the servo from dust, dirt, and moisture, which can interfere with the gears and electronics.
- **Avoid Overloading:** Do not apply excessive force to the servo horn or attempt to rotate it beyond its mechanical limits, as this can damage the internal gears or motor.
- **Check Connections:** Periodically inspect the wiring for any signs of wear, fraying, or loose connections.
- **Storage:** Store the servo in a dry, cool environment when not in use.

6. Troubleshooting

If you encounter issues with your GH-S37D servo, consider the following troubleshooting steps:

- **Servo Not Moving:**
  - Verify power supply: Ensure the servo is receiving the correct voltage (3.6V-4.8V) and sufficient current.
  - Check wiring: Confirm all connections (signal, positive, negative) are secure and correctly polarized.
  - Test signal source: Use a servo tester or known working control system to check if the signal source is functioning correctly.
- **Erratic Movement or Jittering:**
  - Check for interference: Ensure the servo wires are not running too close to high-current wires or motors that could cause electrical interference.
  - Power supply issues: Insufficient or unstable power can cause erratic behavior. Try a different power source or add a capacitor to stabilize voltage.
  - Signal quality: A noisy or weak signal from the receiver/microcontroller can lead to jitter.
- **Servo Not Holding Position:**
  - Overload: The load on the servo might exceed its torque capabilities. Reduce the load or

consider a higher torque servo.

- Mechanical binding: Check for any physical obstructions preventing smooth movement of the servo horn or the mechanism it controls.

7. Warranty and Support

For any questions, technical assistance, or mass customization inquiries regarding your Wishiot GH-S37D Digital Servo, please contact Wishiot customer support.
You can typically find a "Contact Seller" or "Ask a question" link on the product's purchase page or by visiting the official Wishiot store on the platform where you purchased the product.