MKS HBL980

MKS HBL980 Brushless Titanium Gear High Speed Digital Servo

USER MANUAL

Introduction

This manual provides essential information for the proper installation, operation, and maintenance of your MKS HBL980 Brushless Titanium Gear High Speed Digital Servo. The HBL980 is designed for high-performance applications requiring precision and durability, featuring a brushless motor, titanium gears, and high-voltage compatibility.

Safety Information

- Always ensure the servo is connected to a power source within its specified operating voltage range (6.0V ~ 7.2V DC). Exceeding this voltage can cause permanent damage.
- Verify correct polarity when connecting the servo to avoid damage to the servo or receiver.
- Avoid applying excessive force to the servo horn or gears, as this can lead to mechanical failure.
- Keep the servo away from water, moisture, and extreme temperatures to prevent malfunction.
- Ensure all connections are secure to prevent intermittent operation or signal loss.

Package Contents

Carefully unpack your MKS HBL980 servo and verify that all components are present. The package typically includes the servo unit and various accessories for mounting and operation.

The MKS HBL980 Brushless Digital Servo is packaged in a clear plastic case. Visible identifiers on the packaging include 'HBL980(Aluminum upper case)', '1S-HBL980-GY-C', and '20110720001'.

Included accessories typically consist of various servo horns (e.g., cross-shaped, round), mounting screws, and rubber grommets for vibration isolation.

Setup

1. **Mounting the Servo:** Securely mount the servo in your model using the provided screws and grommets. Ensure the servo is firmly fixed to prevent movement during operation, which can affect performance.
2. **Connecting to Receiver/Flight Controller:** Connect the servo's three-wire connector to the appropriate channel on your receiver or flight controller. The standard color code is typically brown/black for ground, red for positive voltage, and orange/yellow/white for signal.
3. **Attaching the Servo Horn:** Select the appropriate servo horn for your application. Attach it to the servo output shaft and secure it with the small screw provided. Ensure the horn is centered before making final linkages.
4. **Power Supply:** Connect your receiver/flight controller to a suitable power source (e.g., BEC, dedicated servo battery) that can supply the required voltage and current for the HBL980 servo.

Operating

The MKS HBL980 operates using standard Pulse Width Control (PWC) signals. It is a high-speed digital servo designed for precise and rapid response.

- **Control System:** +Pulse Width Control
- **Working Frequency:** 760µs / 560hz
- **Required Pulse:** 3.5 ~ 7.2 Volt Peak to Peak Square Wave

- **Operating Voltage:** 6.0 ~ 7.2 V DC
- **Dead Band:** 0.0008ms (Default) for minimal control slop.

Ensure your radio system and receiver are configured to output the correct pulse width and frequency for optimal performance of this digital servo.

Maintenance

- **Cleaning:** Periodically clean the servo's exterior to remove dust and debris. Avoid using solvents that may damage the plastic casing.
- **Gear Inspection:** Regularly inspect the titanium gears for any signs of wear or damage. While titanium gears are highly durable, extreme impacts can cause issues.
- **Wiring:** Check the servo wire and connector for fraying or damage. Replace if necessary to maintain reliable signal transmission.
- **Storage:** Store the servo in a dry, cool environment away from direct sunlight and corrosive materials.

Troubleshooting

- **Servo Not Responding:**
  - Check power connections and ensure the operating voltage is within the specified range.
  - Verify the servo is correctly plugged into the receiver/flight controller.
  - Test with a different servo or receiver channel to isolate the problem.
- **Erratic Movement/Jitter:**
  - Ensure the power supply is stable and can provide sufficient current. Low voltage or current can cause erratic behavior.
  - Check for signal interference.
  - Inspect servo linkages for binding or excessive friction.
- **Loss of Centering:**
  - Check for mechanical play in the servo gears or horn.
  - Ensure the servo is securely mounted and not shifting.

Specifications

Feature	Specification
Dead Band	0.0008ms (Default)
Control System	+Pulse Width Control
Working Frequency	760µs / 560hz
Required Pulse (RX)	3.5 ~ 7.2 Volt Peak to Peak Square Wave
Operating Voltage	6.0 ~ 7.2 V DC
Operating Temperature Range	-10 to + 60 Degree C
Operating Speed (6.0V)	0.04 sec/60° at no load

Feature	Specification
Operating Speed (7.4V)	0.036 sec/60° at no load
Stall Torque (6.0V)	62.5 oz/in (4.5 kg.cm)
Stall Torque (7.4V)	77.77 oz/in (5.6 kg.cm)
360° Modifiable	NO
Motor Type	Brushless Motor
Potentiometer Drive	Indirect Drive
Bearing Type	Dual Ball Bearings
Gear Type	Titanium Gears
Programmable	NO
Connector Wire Length	24.0cm (9.4")
Dimensions	40x20x40mm (1.57x0.79x1.50")
Weight	70.2g (2.48 oz)
Product Dimensions (Packaged)	3.75 x 2.75 x 1.75 inches
Item Weight (Packaged)	5.4 ounces
ASIN	B01APCULWO
Manufacturer	MKS

Warranty and Support

MKS products are manufactured to high standards. For warranty information or technical support, please refer to the official MKS website or contact your authorized MKS dealer. Keep your purchase receipt as proof of purchase.