Miuzei 14kg servo

Miuzei RC Digital Servo 14kg Low Profile Servo Motor Instruction Manual

Model: 14kg servo | Brand: Miuzei

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Miuzei 14kg Low Profile Digital Servo Motor. Designed for high performance, this servo is suitable for various remote-controlled applications, including 1/10 and 1/12 scale RC drift cars, road racing vehicles, and helicopter models. Please read this manual thoroughly before use to ensure proper function and longevity of the product.

Image 1.1: Miuzei 14kg Low Profile Digital Servo Motor with included servo horn. This image displays the compact design of the servo and its accessory.

2. Specifications

The Miuzei 14kg Low Profile Digital Servo offers robust performance and precise control. Key technical specifications are detailed below:

Voltage Range	4.8V - 8.4V
Operating Speed (4.8V)	0.10 seconds/60 degrees
Operating Speed (8.4V)	0.06 seconds/60 degrees
Stall Torque (4.8V)	12.8 kg.cm
Stall Torque (8.4V)	16.5 kg.cm
Dead Band	3 usec
Motor Type	Core motor
Dimensions	40 x 20 x 28.5 mm

Connector Wire Length	300 mm
Servo Weight	50g
Bearing Type	Double Bearings (2BB)
Neutral Position	1500μs/330Hz
Remote Control Angle	90-120° ± 2°
PWM Pulse Range	500μs - 2500μs (180° ± 3°)
Waterproof Rating	IP66

Image 2.1: Detailed specifications and wiring diagram. This image provides a visual representation of the servo's dimensions and electrical connections.

3. Key Features

- **High Torque & Fast Response:** Delivers up to 16.5kg/cm torque at 8.4V with an operating speed of 0.06 seconds/60 degrees, ensuring quick and precise control for demanding steering tasks.
- **Low Profile Design:** With a height of 28.5mm, this servo is ideal for low-disc RC cars and other

applications where space is limited.

- **Durable Metal Gears & Double Bearings:** Constructed with aluminum metal gears and double bearings for enhanced durability, stability, and efficient operation under high loads, while resisting overheating.
- **Low Noise & Quiet Operation:** Features a lightweight design with high sensitivity, operating with minimal audible noise.
- **IP66 Waterproof Rating:** Provides protection against dust and strong jets of water, making it suitable for various environmental conditions.
- **Wide Applicability:** Versatile for use in remote-controlled drift vehicles, road vehicles, helicopters, and robot projects.

Image 3.1: Internal view of the metal gears and key feature icons. This image highlights the robust internal construction and main advantages of the servo.

Image 3.2: Comparison illustrating the low-profile design advantage. This image demonstrates how the Miuzei servo's compact size benefits specific RC vehicle types.

4. Package Contents

Upon opening the package, please verify that all components are present:

- Miuzei 14kg Low Profile Digital Servo Motor
- Servo Horn (25T)
- Mounting Screws and Accessories

Image 4.1: Servo dimensions and included accessories. This image details the physical size of the servo and the various horns and fasteners provided.

5. Setup and Installation

Follow these steps to properly install your Miuzei digital servo:

1. **Mounting the Servo:** Securely attach the servo to your RC vehicle's chassis using the provided mounting screws. Ensure the servo is firmly in place to prevent movement during operation.
2. **Attaching the Servo Horn:** Select the appropriate servo horn for your application and attach it to the servo output shaft. Ensure it is centered before tightening the screw.
3. **Connecting the Wiring:** The servo features a standard three-wire connector. Connect the wires to your receiver or flight controller as follows:
    - **Brown Wire:** Negative Pole (Ground)
    - **Red Wire:** Positive Pole (Power)
    - **Orange Wire:** Signal

    Refer to your receiver's manual for correct port identification.
4. **Power On and Test:** After installation, power on your RC system and test the servo's movement. Ensure it responds correctly to control inputs and moves freely without binding.

6. Operating Principles

The Miuzei digital servo operates based on Pulse Width Modulation (PWM) signals. The position of the servo arm is determined by the width of the pulse signal received from the receiver or flight controller.

- A pulse width of approximately 1500µs typically corresponds to the neutral (0°) position.
- Pulse widths below 1500µs (e.g., 500µs) will move the servo arm in one direction (e.g., -90°).
- Pulse widths above 1500µs (e.g., 2500µs) will move the servo arm in the opposite direction (e.g., +90°).

The servo is designed for a 180° range of motion, with precise control across this spectrum.

Image 6.1: Quick response and high precision diagram. This image visually explains the servo's angular movement and responsiveness.

Image 6.2: PWM control signal and rotation angle correspondence. This diagram illustrates how different pulse widths translate into specific servo positions.

7. Maintenance

Proper maintenance ensures the longevity and optimal performance of your servo:

- **Regular Cleaning:** Keep the servo free from dirt, dust, and debris. Use a soft, dry cloth to wipe the exterior. For stubborn dirt, a slightly damp cloth can be used, ensuring no moisture enters the servo casing.
- **Check Connections:** Periodically inspect all wiring and connections for any signs of wear, fraying, or loose contacts. Secure any loose connections.
- **Gear Inspection:** While the metal gears are durable, occasional inspection for wear or damage is recommended, especially after heavy use or impacts.
- **Avoid Overloading:** Do not subject the servo to forces exceeding its specified stall torque. Consistent overloading can lead to premature wear and failure.
- **Storage:** Store the servo in a cool, dry place away from direct sunlight and extreme temperatures when not in use.

8. Troubleshooting

If you encounter issues with your Miuzei digital servo, consider the following troubleshooting steps:

- **Servo Not Responding:**
  - Check power supply: Ensure the servo is receiving adequate voltage within its specified range (4.8V-8.4V).
  - Verify connections: Confirm that the brown, red, and orange wires are correctly connected to the receiver/controller.
  - Test with another channel/receiver: If possible, try connecting the servo to a different channel or a known working receiver to isolate the problem.

- **Erratic Movement or Jittering:**
  - Check for interference: Ensure there are no strong electromagnetic interference sources nearby.
  - Inspect wiring: Look for loose or damaged signal wires.
  - Verify power stability: Unstable power can cause erratic behavior. Ensure your battery and ESC (if applicable) are functioning correctly.
- **Servo Not Centering Properly:**
  - Recalibrate: Re-center the servo using your transmitter's trim adjustments or by recalibrating the control system.
  - Check for mechanical binding: Ensure no physical obstructions are preventing the servo arm from returning to its neutral position.
  - Inspect gears: Damaged gears can affect centering accuracy.
- **Weak Torque or Slow Response:**
  - Check voltage: Ensure the servo is receiving sufficient voltage. Lower voltage will result in reduced torque and speed.
  - Reduce load: Ensure the servo is not being asked to move a load beyond its capabilities.

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

9. Safety Precautions

- Always ensure the power supply voltage is within the specified range (4.8V-8.4V) to prevent damage to the servo.
- Avoid exposing the servo to extreme temperatures or direct sunlight for prolonged periods.
- Do not attempt to disassemble or modify the servo, as this may void the warranty and cause damage.
- Keep the servo away from small children due to small parts.

10. Warranty and Support

Miuzei products are manufactured to high-quality standards. For warranty information or technical support, please refer to the official Miuzei website or contact your retailer. Keep your purchase receipt as proof of purchase.
For additional resources and product information, visit theMiuzei Store on Amazon.