

Miuzei CNGM-MS69

Miuzei 45 kg RC Digital Servo Motor (Model CNGM-MS69) Instruction Manual

Model: CNGM-MS69 | Brand: Miuzei

	Introduction	Features	Specifications	What's in the Box	Setup &
Installation	Operation	Maintenance	Troubleshooting	Applications	Warranty & Support

1. INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your Miuzei 45 kg RC Digital Servo Motor, model CNGM-MS69. Designed for high-performance applications, this waterproof servo features a high-torque metal gear system, making it suitable for various RC models, robotics, and DIY projects. Please read this manual thoroughly before use to ensure optimal performance and longevity of your product.

2. KEY FEATURES

- **High-Quality Construction:** Features a high-precision metal casing with hard anodization for enhanced efficiency and extended lifespan. The CNC central shell improves heat dissipation, ensuring stable servo operation.
- **High Performance:** Equipped with high-precision potentiometers and a high-resolution digital chip, providing stable performance, rapid response, strong anti-interference capabilities, low noise, and efficient heat dissipation.
- **Waterproof Design:** Upgraded 45 kg, 270° digital RC servo with IP66 waterproof rating, suitable for use in various challenging environments.
- **Wide Application:** Versatile for use in robots, mechanical arms, climbing cars, remote control vehicles, aircraft, and other DIY projects.
- **High Torque & Speed:** Offers a stall torque of 45 kg/cm at 6.0V and 50 kg/cm at 8.4V, with operating speeds of 0.1 sec/60° (8.4V idle) and 0.13 sec/60° (4.8V idle).
- **Overvoltage & Overheat Protection:** Incorporates stable protection mechanisms to prevent permanent damage to the servo from voltage spikes or excessive heat.

Servo à engrenage **MÉTALLIQUE**

- ⚙ Engrenage en acier durable
- ⌚ Couple élevé, double roulement à billes
- 🔧 Boîtier en aluminium usiné CNC
- ⚙ Moteur numérique de haute qualité
- ✓ Qualité assurée, longue durée de vie



Figure 1: Internal metal gears of the Miuzei 45 kg servo, showing durable steel gears and CNC machined aluminum casing.



Figure 2: Miuzei 45 kg servo labeled IP66, shown submerged in water, demonstrating its waterproof capability.



Figure 3: Miuzei 45 kg RC Digital Servo integrated into a robotic arm, illustrating stable protection features like overvoltage and overheat protection.

3. TECHNICAL SPECIFICATIONS

Parameter	Value
Brand	Miuzei
Model Number	CNGM-MS69
Material Type	Metal
Item Dimensions (L x W x H)	40 x 20 x 38 mm

Parameter	Value
Weight	60 g
Operating Voltage Range	4.8 V - 8.4 V
Operating Speed (Idle, 8.4V)	0.1 sec/60 degrees
Operating Speed (Idle, 4.8V)	0.13 sec/60 degrees
Stall Torque (6.0V)	45 kg/cm
Stall Torque (8.4V)	50 kg/cm
Control Angle	270° (at PWM 500 ~ 2500 usec)
Continuous Current (4.8V)	2400 mA
Continuous Current (8.4V)	3500 mA
Dead Band Width	2 usec

Quick Response High Precision Ensure Stable Performance

Servo Size

40,0x20,5x37,5mm

Totzonbreite

2 usec

Cable length

500mm

Operat Voltage

4,8V-6,0V-8,4V

No Load speed

0.13sek/60° at 4.8V

0.12sek/60° at 6.0V

0.10sek/60° at 8.4V

Peak Stall Torque

40kg.cm at 4.8V

45kg.cm at 6.4V

51.5kg.cm at 8.4V

Rotation Angle

270°(at 500 ~ 2500usec)

Rotation Angle

135°(at 1000 ~ 2000usec)

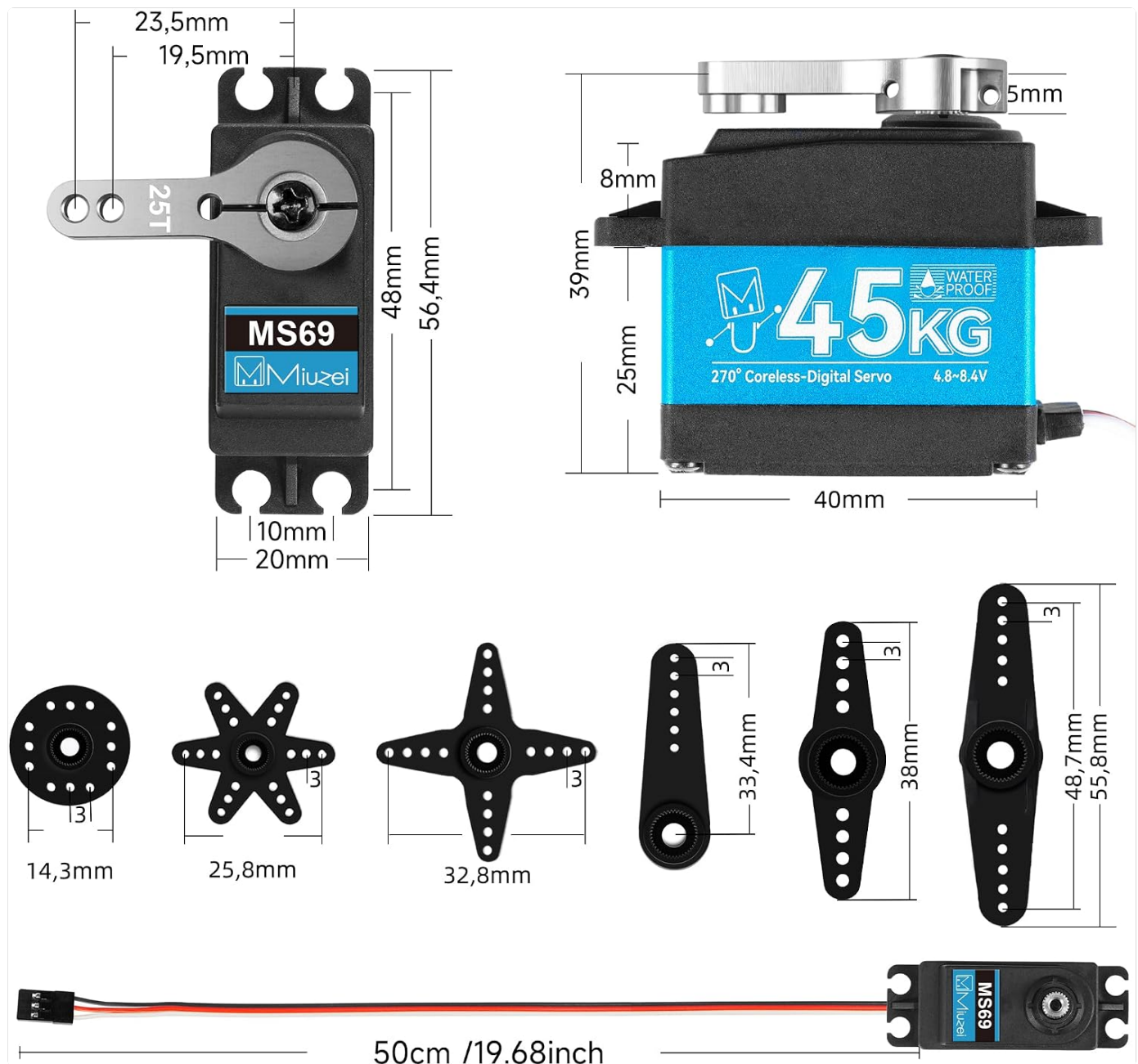


Figure 4: Miuzei 45 kg RC Digital Servo with specifications overlay, highlighting quick response and high precision.

4. WHAT'S IN THE BOX

The package for the Miuzei 45 kg RC Digital Servo Motor typically includes:

- 1x Miuzei 45 kg RC Digital Servo Motor (Model CNGM-MS69)
- 1x Servo Arm (25T Horn)
- Mounting Screws and Accessories



- **Black Wire:** Ground (GND) / Cathode
- **Red Wire:** Power (VCC) / Anode (4.8V - 8.4V)
- **White Wire:** Signal (PWM)

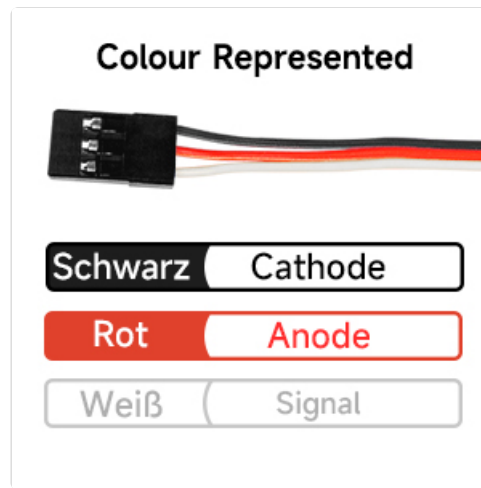


Figure 6: Wiring diagram for the Miuzei servo connector, showing black (cathode), red (anode), and white (signal) wires.

5.2 Mounting the Servo

Mount the servo securely using the provided screws and accessories. Ensure that the servo is firmly attached to the chassis or mounting point to prevent movement during operation, which could affect performance or cause damage.

1. Identify a suitable mounting location on your model or project.
2. Use the included mounting brackets and screws to secure the servo.
3. Attach the appropriate servo horn (25T) to the servo output shaft. Ensure it is centered before tightening the screw.

6. OPERATING INSTRUCTIONS

The Miuzei 45 kg Digital Servo operates based on Pulse Width Modulation (PWM) signals from your control system (e.g., RC receiver, microcontroller).

- **Control Signal:** The servo responds to PWM signals, typically with a pulse width range of 500 to 2500 microseconds (μs) for a 270° rotation.
- **Voltage Supply:** Ensure the power supply is within the recommended range of 4.8V to 8.4V. Operating outside this range can damage the servo or lead to inconsistent performance.
- **Centering:** Before attaching linkages, ensure your control system sends a neutral (center) PWM signal (typically 1500 μs) to center the servo horn.
- **Angle Adjustment:** Adjust the pulse width from your controller to achieve the desired rotation angle within the 270° range.

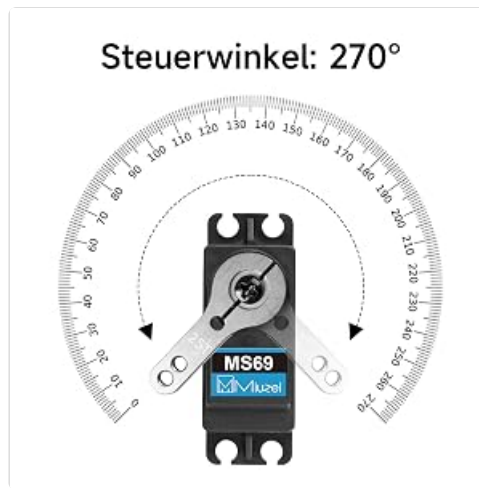


Figure 7: Miuzei 45 kg servo demonstrating a 270-degree rotation angle with a protractor overlay.

7. MAINTENANCE

Regular maintenance helps ensure the longevity and reliable performance of your servo motor.

- **Keep Clean:** Periodically clean the exterior of the servo to remove dust, dirt, and debris. While waterproof, excessive buildup can hinder heat dissipation.
- **Check Connections:** Ensure all wiring connections are secure and free from corrosion or damage. Loose connections can lead to intermittent operation.
- **Inspect Gears:** Although equipped with durable metal gears, inspect them occasionally for signs of wear or damage, especially after heavy use or impacts.
- **Avoid Overloading:** Do not exceed the specified stall torque. Continuous overloading can lead to overheating and premature wear of the motor and gears.
- **Storage:** Store the servo in a dry, cool place away from direct sunlight and extreme temperatures when not in use.

8. TROUBLESHOOTING

If you encounter issues with your Miuzei 45 kg Digital Servo, refer to the following common problems and solutions:

- **Servo Not Responding:**
 - Check power supply: Ensure voltage is within 4.8V-8.4V and connections are secure.
 - Check signal wire: Verify the signal wire is correctly connected and receiving a valid PWM signal from your controller.
 - Test with another servo/controller: If possible, test the servo with a known working controller or test another servo with your current setup to isolate the problem.
- **Erratic Movement or Jittering:**
 - Power supply issues: Insufficient current or voltage fluctuations can cause erratic behavior. Ensure a stable power source.
 - Signal interference: Check for sources of electrical interference near the servo or signal wires.

- Damaged gears: Inspect gears for any visible damage or debris that might be causing binding.

- **Servo Overheating:**

- Overloading: Reduce the load on the servo. Ensure it is not continuously operating at or above its stall torque.
- Binding: Check for any mechanical binding in the linkage or mechanism the servo is driving.
- Insufficient ventilation: Ensure adequate airflow around the servo for proper heat dissipation.

9. APPLICATION SCENARIOS

The Miuzei 45 kg Digital Servo is highly versatile and can be integrated into a wide range of projects:

- **RC Models:** Ideal for 1/10 and 1/8 scale RC cars, trucks, and buggies, especially those requiring high torque for steering or suspension.
- **Robotics:** Suitable for robotic arms, humanoid robots, and other robotic platforms where precise and powerful angular control is needed.
- **DIY Projects:** Can be used in various custom-built projects requiring controlled movement, such as camera gimbals, automated systems, or educational kits.
- **Aircraft & Boats:** Applicable in larger RC aircraft for control surfaces or in RC boats for rudder control, benefiting from its waterproof design.

Scénario d'application



Figure 8: Various application scenarios for the Miuzei 45 kg RC Digital Servo, including robots, RC cars, aircraft, and mechanical manipulators.



Figure 9: Miuzei 45 kg RC Digital Servo next to an RC buggy, demonstrating its use in remote control vehicles.

10. WARRANTY & SUPPORT

Miuzei products are manufactured to high-quality standards. For specific warranty information, please refer to the documentation provided with your purchase or contact the retailer. If you encounter any issues or require technical assistance, please reach out to Miuzei customer support through their official channels or the platform where the product was purchased.

Please retain your proof of purchase for warranty claims.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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