MG90D

Digital micro servo with metal gears
User manual



Read this entire manual carefully before first use and keep it for future reference.

www.rotorama.com

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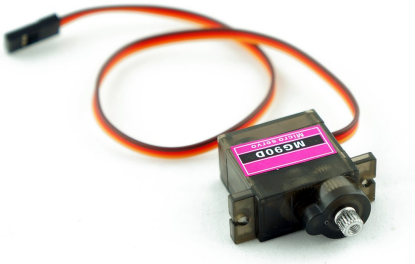
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1. Product description

1.1 Purpose

The MG90D is a small digital servo with metal gears. It converts the control signal from a receiver or a model's flight controller into rotation of the output shaft and, via a horn and a pushrod, moves control surfaces, flaps, landing gear or other mechanisms.

It is suitable for model aircraft as well as other RC projects that need a light servo weighing about 12 g. Metal gears withstand higher loads and impacts than plastic ones.

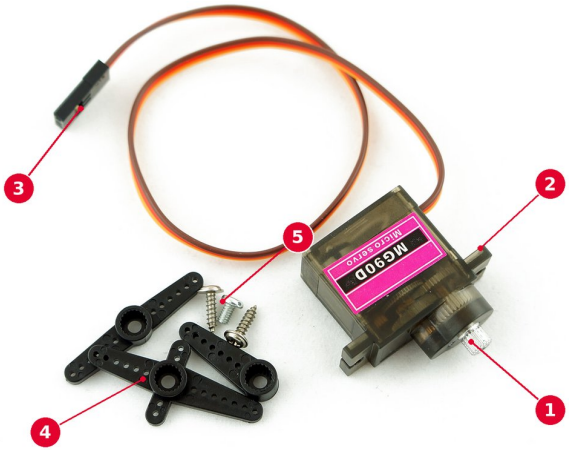


MG90D servo with connection lead

1.2 Specifications and package contents

Product designation	MG90D (shown on the servo label)
Type	digital servo
Gears	metal
Dimensions	22.8 × 12.4 × 28.5 mm
Weight	12 g
Supply voltage	4.8–6 V
Torque	1.8 kg·cm (4.8 V) 2.2 kg·cm (6 V)
Speed	≤ 0.1 s/60° (4.8 V) ≤ 0.08 s/60° (6 V)
Travel	90° (1000–2000 µs)
Lead length	24 cm
Package contents	1× servo 1× set of horns
Not included	receiver, power supply (BEC), pushrods and other parts for installation in the model

1.3 Parts overview



MG90D servo and accessories

① Splined output shaft for fitting the horn
② Mounting tabs for screwing the servo to the model
③ Lead connector (brown, red and orange wires)
④ Servo horns
⑤ Screws

2. Use

2.1 Safety instructions

- Power the servo only with a voltage in the range of **4.8–6 V**. A higher voltage may damage the servo – do not connect it directly to a multi-cell Li-Po battery without a regulated power supply (BEC).
- Connect and disconnect the connector only with the power switched off. Make sure the connector is oriented correctly.
- When power is switched on, the servo may move unexpectedly. Keep your fingers away from the horn, pushrods and moving parts of the model.
- Do not force the output shaft by hand or prevent the servo from moving – you may damage the gears.
- A servo pushing against a mechanical stop draws increased current and heats up. Set the travel so that the mechanism does not bind anywhere (chapter 2.4).
- Protect the servo from water, moisture, dust and sand.
- The product is not a toy. Keep it out of the reach of children – small parts (screws) may be swallowed.
- When operating a model with this servo, follow the regulations of the country in which you operate the model.

2.2 Connecting the servo

The servo is connected by a three-wire lead with connector ③ to a receiver output, to a servo output of the flight controller (FC) or to another servo signal source. The wires use the colours common for servos:

Wire	Function
brown	negative supply (−, GND)
red	positive supply (+), 4.8–6 V
orange	control signal (pulses 1000–2000 µs)

- Before connecting, check that the output you are connecting the servo to supplies a voltage in the range of 4.8–6 V.
- The brown wire must be on the contact marked −/GND and the orange wire on the signal contact (S). A reversed connector may damage both the servo and the receiver.
- The power supply must be sufficient for all connected servos at the same time. With an insufficient supply, the voltage may drop and the receiver or flight controller may restart.

2.3 Installation and fitting the horn

① Connect the servo to the receiver, switch on the transmitter and then the model's power. Set the servo channel to centre (neutral) – the servo moves to its centre position.

② Choose a suitable horn ④ and fit it on the splined shaft ① so that in the neutral position it is perpendicular to the pushrod. Secure the horn with the screw into the shaft.

③ Fix the servo in the model by its mounting tabs ② with screws. The servo must be firmly attached and must not wobble in its mount.

④ Attach the pushrod to a suitable hole in the horn. A hole closer to the shaft gives less travel and more force, a hole further from the shaft more travel and less force.

⑤ Switch off the model's power and only then the transmitter.

※ The pushrod and the controlled mechanism must move freely, without binding or play, throughout the servo's full travel.

2.4 Setting the travel

The servo works with control pulses of 1000–2000 µs, which correspond to a travel of 90°. Set the range of movement, centre and direction in the transmitter or in the model's flight controller (functions such as *Endpoints*, *Subtrim*, *Reverse*).

- Increase the travel gradually and check in the end positions that neither the servo nor the controlled mechanism hits a stop.
- A servo that buzzes and heats up in an end position is pushing against a stop – reduce the travel or move the pushrod on the horn.
- After every change of settings, check that the controlled surface or mechanism moves in the correct direction.

2.5 Maintenance and troubleshooting

- Regularly check the servo mounting, the horn screw and the pushrod connections.
- After a hard landing or impact, check that the servo moves smoothly and without skipping.
- Store the servo in a clean, dry place. Do not use solvents or oils on the plastic case.

Problem	Possible cause and solution
Servo does not move	Check the power supply and connector orientation, the channel assignment in the transmitter or flight controller and the receiver binding.
Servo jitters or twitches	Insufficient or fluctuating power supply, loose connector, mechanism binding or having play.

Problem	Possible cause and solution
Servo buzzes and heats up	The servo is pushing against a mechanical stop or is overloaded. Reduce the travel and eliminate binding of the mechanism.
Horn slips or shaft skips	Loose horn screw or gears damaged after an impact. Tighten the screw; do not use a servo with damaged gears.
Movement is reversed	Change the channel direction in the transmitter or flight controller (*Reverse*).

3. Information for the EU and Czech Market

3.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

3.2 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

4. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 3.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.