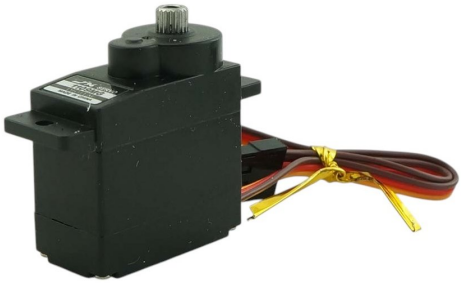
PDI-1109MG

JX Servo – digital micro servo
with metal gears, 10 g



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

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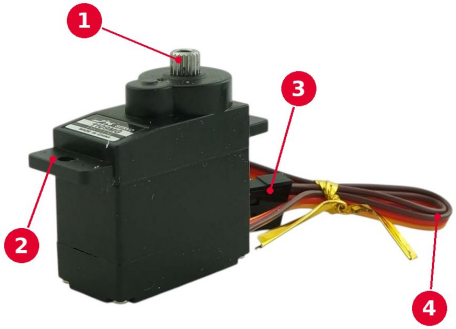
1. Product description

1.1 Intended use

JX Servo PDI-1109MG is a small 10 g digital servo with metal gears and an iron-core motor. It converts the control signal from the receiver of an RC system or from a flight controller (FC) into rotation of the output shaft, thereby moving control surfaces, flaps or other mechanisms of the model.

It is particularly suitable for smaller airplane and flying wing models and for other modelling projects that need a small servo with durable gears.



① splined output shaft for the servo horn · ② mounting tab with screw hole · ③ cable exit · ④ cable with JR connector

1.2 Specifications and package contents

Product designation	PDI-1109MG (JX Servo brand)
Manufacturer	Shantou Jianxian Electronic Technology Co., Ltd., China
Type	digital, iron-core motor, metal gears
Operating voltage	4.8–6.0 V DC
Speed	0.12 s/60° (4.8 V) 0.10 s/60° (6.0 V)
Stall torque	2.2 kg·cm (4.8 V) 2.5 kg·cm (6.0 V)
Dead band	1 µs
Working frequency	1520 µs / 300 Hz
Dimensions	23.2 × 12.0 × 24.8 mm
Weight	10 g
Cable	180 mm, JR connector

Package contents: 1× PDI-1109MG servo, 1× set of servo horns (according to the manufacturer: single-sided, double-sided and cross horn and a round disc) and mounting screws. The composition of the horn set may vary between production batches.

Not included: receiver, flight controller, power supply (BEC) or battery, extension cable, pushrods and pushrod connectors, servo tester.

2. Use

2.1 Connection

The servo is connected with a three-wire cable with a JR connector to a servo output of the receiver, flight controller or an electronic speed controller (ESC) with BEC. The wires use standard colour coding:

Wire	Function
brown	negative supply (−, GND)
red	positive supply (+)
orange	control signal

- The servo supply voltage must be within **4.8–6.0 V**. A higher voltage (e.g. 7.4 V or 8.4 V from some BECs) may damage the servo.
- Insert the connector in the correct orientation – the signal (orange) wire to the signal pin of the output. Reversing the supply can destroy both the servo and the receiver.
- The power supply (BEC) must deliver enough current for all servos in the model at the same time. Current rises sharply when a servo is stalled.
- Connect and disconnect the servo only with the model's power switched off.

2.2 Installation in the model

① Before fitting the horn, connect the servo to the receiver or FC, switch on the transmitter and the model and let the servo move to its **centre position**.

② Choose a horn from the supplied set according to the required arm length and fit it on the splined shaft so that, with the servo centred, it is as close as possible to perpendicular to the pushrod. Secure the horn with the centre screw.

③ Fasten the servo in the model by its mounting tabs with screws, or glue it into a prepared bay according to the model's design. The servo must sit firmly and without play.

④ Connect the pushrod to the control surface and check that the surface moves freely over its full range, without binding and without hitting a mechanical stop before the servo reaches its end position.

※ A longer horn arm increases control surface deflection but reduces the force the servo applies to the surface. A shorter arm increases force and precision.

2.3 Setup in the transmitter or flight controller

- **Centre** is fine-tuned in the transmitter with the *Subtrim* function (or in the flight controller by setting the output centre). Correct a larger offset first by moving the horn by one spline tooth, and only then with subtrim.
- **Travel** (*Endpoints* / *Limits*): set it so that the servo does not hit a mechanical stop of the control surface or pushrod at its end positions. A permanently overloaded servo heats up and gets damaged.
- **Direction** of rotation is reversed in the transmitter with the *Reverse* function if the surface moves the wrong way.
- **Refresh rate:** the manufacturer specifies a working frequency of 300 Hz. If the receiver or flight controller allows you to set the servo output frequency, do not set a higher value.

3. Safety, maintenance and troubleshooting

3.1 Safety instructions

- This product is not a toy. It is intended for modellers and persons familiar with RC equipment; keep it out of the reach of children. Small parts (screws) can be swallowed.
- Do not exceed the operating voltage of 4.8–6.0 V and check the polarity of the connection.
- Protect the servo from water, moisture, dust, sand and impacts. It is not waterproof.
- Keep your fingers away from moving parts of the model while the servo is powered – it may move unexpectedly.
- Do not force the output shaft by hand against the gears; you will damage the gears.
- Check the servo after a crash. Do not use a damaged servo with play, noise or irregular movement – its failure can lead to loss of control of the model.
- Before every flight or run, check that all control surfaces move correctly.
- When operating the model in which the servo is installed, follow the regulations of the country in which you operate the model – the law of the country of operation always prevails.

3.2 Maintenance and storage

- Regularly check the tightness of the horn screw, the servo mounting, the condition of the cable and connector and any play in the pushrods.

- Do not disassemble the servo or lubricate the gears – tampering with the servo is not covered by the warranty.
- Store in a dry place at room temperature and away from direct sunlight.

3.3 Troubleshooting

Problem	Possible cause and solution
Servo does not move	Check the connector orientation, the power supply of the output (BEC) and the channel assignment in the transmitter or flight controller.
Servo buzzes or heats up at rest	The control surface hits a stop or the pushrod is under tension. Adjust the travel (*Endpoints*) and the pushrod geometry.
Servo twitches or oscillates	Insufficient power supply, loose connector or too high an output refresh rate. Check the power source and settings.
Significant play or skipping	Damaged gears or loose horn. Tighten the horn; replace a damaged servo.

4. Information for the EU and Czech Market

4.1 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

4.2 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.

5. 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 4.1.
- 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.