PDI-933MG

JX Servo – digital servo with metal gears
User manual



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

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1. Product description

1.1 What it is for

JX Servo PDI-933MG is a 13 g digital servo designed for model aircraft and other RC projects. The servo converts the control signal from a receiver or flight controller (FC) into rotation of its output shaft and so moves control surfaces, flaps or other actuated mechanisms of the model.

For higher durability the servo has **metal gears** and uses an iron-core motor (DC core motor). The digital electronics of the servo hold the commanded position with a narrow dead band.



JX Servo PDI-933MG

1.2 Specifications and package contents

Product designation	JX Servo PDI-933MG
Type	digital servo, metal gears, DC core motor
Supply voltage	4.8–6 V
Torque	2.8 kg·cm (4.8 V) 3.5 kg·cm (6 V)
Speed	≤ 0.12 s/60° (4.8 V) ≤ 0.1 s/60° (6 V)
Travel	90° (1000–2000 µs)
Neutral / max. signal frequency	1520 µs / 330 Hz
Dead band	2 µs
Dimensions (without tabs)	23.2 × 12 × 30 mm
Weight	13 g
Output shaft	25T (25 teeth)
Cable and connector	220 mm, JR connector
Package contents	1× servo, 1× set of servo horns
Not included	receiver, transmitter, power supply (BEC), extension cables, pushrods

1.3 Parts of the servo



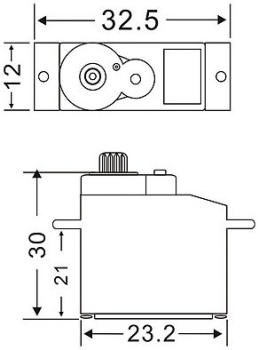
Parts of the servo

① Output shaft 25T – the servo horn is fitted onto it and secured with the centre screw.

② Mounting tabs with holes for fixing the servo in the model.

③ JR connector (3-pin).

④ Lead – brown wire (−), red wire (+), orange wire (signal).



Servo dimensions in mm (width including mounting tabs 32.5 mm)

2. Safety instructions

- Power the servo only with a voltage of **4.8–6 V**. A higher voltage (for example connecting a 2-cell Li-Po battery directly) will damage the servo.
- Check the connector polarity before connecting. Reversed polarity can destroy the servo as well as the receiver or flight controller.
- When switching on for the first time, hold the model securely and keep fingers and loose objects away from horns and pushrods – the servo may move unexpectedly.
- Do not let the servo push against an end stop or a blocked horn for long periods – it heats up, draws high current and may damage the gears, motor and power supply.
- Protect the servo from water, moisture, dust and sand. The servo is not waterproof.
- Route the cable so that it is not pinched, under tension or within reach of the propeller or sharp edges.
- The product is not a toy. Keep it and its small parts (horns, screws) out of the reach of children.

3. Connection and use

3.1 Connection

Connect the servo with the JR connector ③ to a receiver channel or to a servo output of the flight controller (FC). The brown wire is the negative pole (−), the red wire the positive pole (+) and the orange wire carries the control signal. Insert the connector so that the brown wire is on the pin marked − or GND.

- Power the servo from a 4.8–6 V source with sufficient current reserve – typically the BEC of the electronic speed controller (ESC) or a separate BEC. A flight controller's 5 V output for electronics may not be enough; check its documentation.
- If you need to extend the cable, use an extension cable with JR connectors and an adequate wire cross-section.

3.2 Installing in the model and fitting the horn

① Fix the servo in the model using the mounting tabs ② so that it is held firmly and does not vibrate.

② Connect the servo, switch on the transmitter and receiver and move the control for the relevant channel to its centre. The servo turns to its neutral position.

③ In the neutral position, fit a horn from the set onto the output shaft ① so that it is as close as possible to perpendicular to the pushrod. Secure the horn with the centre screw. Do not force the horn on or turn the shaft by hand against resistance – this may damage the gears.

④ Connect the pushrod and check that the controlled surface moves freely over its full range without binding or hitting anything.

3.3 Setting up in the transmitter or flight controller

- The servo works with a control signal in the range **1000–2000 µs**, which corresponds to a travel of 90°. The neutral position is 1520 µs.
- The maximum control signal frequency is **330 Hz**. If the flight controller or receiver allows the servo output frequency to be set, do not set a higher value.
- Set the end points (travel) in the transmitter or flight controller so that the servo does not hit the mechanical stop of the controlled surface in its end positions. Buzzing and heating of the servo in an end position indicate that the travel is set too large.
- Reverse the direction of rotation with the *Reverse* function in the transmitter or flight controller.

4. Maintenance and troubleshooting

- Before each use, check that the servo is firmly fixed in the model, the horn is secured with its screw and the pushrods have no play.
- After a crash or hard impact, check that the servo runs smoothly without skipping or clicking – the gears may be damaged.
- Store the servo in a dry place at room temperature and out of direct sunlight.

Problem	Possible cause and solution
Servo does not move	Check the polarity and seating of the connector, the power supply of the receiver or flight controller and the channel assignment in the transmitter.
Servo buzzes and gets warm at rest	The servo is pushing against a stop or the pushrod is under tension – reduce the travel, adjust the pushrod geometry.
Servo jitters or oscillates	Insufficient power supply (BEC voltage drop) or signal frequency too high – check the power supply and a frequency of max. 330 Hz.
Servo skips, clicks or has play	Damaged gears, typically after an impact. Do not use the servo any further.
Servo moves in the opposite direction	Reverse the direction with the *Reverse* function.

5. Information for the EU and Czech Market

5.1 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

5.2 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.

6. 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 5.1.
- 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.