

MG946R Servo

User manual



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1. Product overview



Fig.1. MG946R Servo

The Pilotix MG946R is a digital servo with a metal gear train and a 180° rotation range. It delivers 10.5 kg·cm of stall torque at 4.8 V and 13 kg·cm at 6.0 V, and turns 60° in 0.17 s at 6.0 V. The servo runs on 4.8–6.0 V and connects to a receiver or flight controller through a 3-pin servo plug.

2. Wiring guide

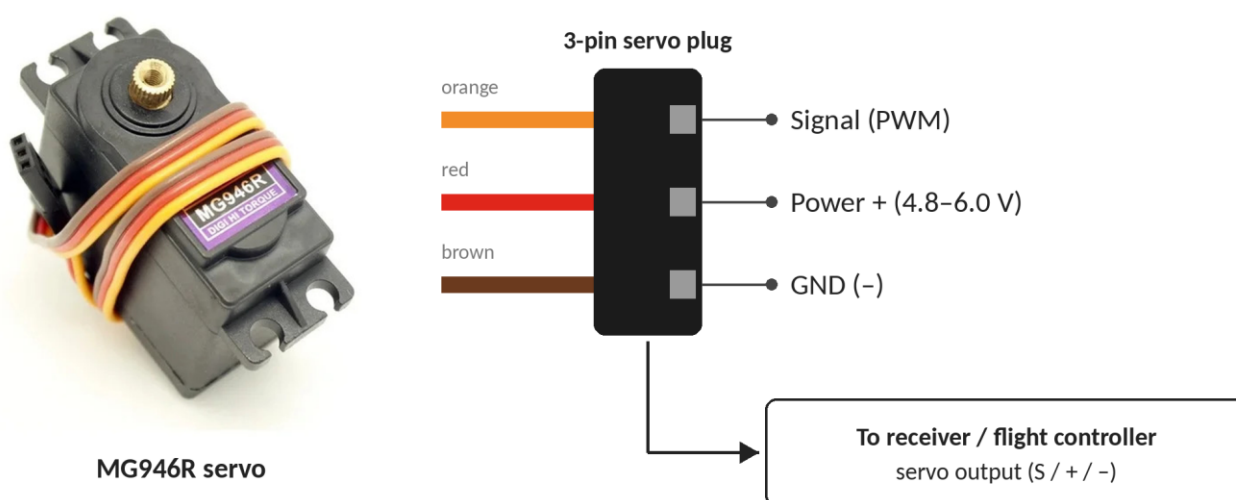


Fig.2. Wiring diagram

Plug the servo lead into a servo output on your receiver or flight controller. The lead is approximately 300 mm long and ends in a 3-pin servo plug.

The lead has three wires: orange is the signal (PWM), red is power positive and brown is ground (GND).

Match the brown wire to the ground (–) pin of the output.

Power the servo from a BEC or supply rated for 4.8–6.0 V that can deliver the servo's peak current under load. An undersized supply can sag under load and reset the receiver. On most flight controllers the servo rail is not powered by default; supply it from a separate BEC rated for the servo current.

Mount the servo through its four mounting lugs. Power the servo and let it move to the centre position before you fit a servo horn onto the output spline and secure it with the centre screw.

3. Safety & usage rules

- Voltage range: Supply 4.8–6.0 V only. Connecting the servo directly to a LiPo battery or a higher-voltage rail will destroy the control board.
- Power supply capacity: Size the BEC for the combined peak current of all servos. Sharing a weak 5 V rail between several servos and the receiver is a common cause of brownouts.
- Polarity: Check the wire order before powering up: brown to GND, red to positive, orange to signal. Reversed power polarity can damage the servo electronics.
- First power-up: Power the servo for the first time with the horn or linkage disconnected. This lets you check the direction and centre position without the risk of forcing the linkage.
- Mechanical end stops: Set linkages and endpoint travel so the servo never pushes against a mechanical stop. A blocked servo draws its maximum current continuously, overheats and can strip the gears or burn out the motor.
- Output shaft: Do not turn the output shaft by hand, especially while the servo is powered. Forcing the shaft against the motor can strip the gear train.
- Secure mounting: Fix the servo through all four mounting lugs and route the lead so it is not under tension. A loose servo puts extra load on the gears, and repeated flexing can break the wires.
- Heat: Let the servo cool down after sustained high-load operation. A hot servo loses torque and its motor wears faster.

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