

Applications for Servo Lab

- Test servos in models or on the bench. Eliminate unknowns that may be caused by transmitter or receiver.
- Precisely set control surface throws without having to hold a transmitter stick with one hand.
- Match multiple servos driving a single control surface. With Y harnesses, you can drive up to four standard servos at the same time.
- Measure pulse width from transmitter through receiver to servos. Verify transmitter center points and endpoints.
- After determining trim settings in flight, zero out transmitter trims by mechanically adjusting linkages and electrically recentering servos.
- Bench-check electronic propulsion systems—battery, Electronic Speed Control (ESC) and motor—without a transmitter or receiver. Attach the ESC's BEC plug to Servo Lab's SVO OUT connector. Servo Lab substitutes for the transmitter throttle stick. **CAUTION:** When you first apply power to Servo Lab, it defaults to 1.5ms pulse width (equivalent to **half throttle** in this application).

Servo Lab specifications

Model	Servo Lab
Nominal input voltage	4.5VDC to 6.0VDC
Output signal	Square wave simulating receiver servo pulse, with 1.0ms to 2.0ms width (with extensions beyond each extreme)
Output signal current	4mA (will drive up to four standard servos)
Display	3 digit LED, 0.4 in. (10mm) high; 0.01ms resolution
Dimensions	2.75 in. (69mm) H x 1.8 in. (46mm) W x 0.7 in. (18mm) D

FMA limited warranty for servo testers

FMA, Inc. warrants this product to be free of manufacturing defects for the term of 1 year from the date of purchase. Should any defects covered by this warranty occur, the product shall be repaired or replaced with a unit of equal performance by FMA or an authorized FMA service station.

Limits and exclusions

This warranty may be enforced only by the original purchaser, who uses this product in its original condition as purchased, in strict accordance with the product's instructions. Units returned for warranty service to an FMA service center will be accepted for service when shipped postpaid, with a copy of the original sales receipt or warranty registration form, to the service station designated by FMA.

This warranty does not apply to:

- Consequential or incidental losses resulting from the use of this product.
- Damage resulting from accident, misuse, abuse, neglect, electrical surges, reversed polarity on connectors, lightning or other acts of God.
- Damage from failure to follow instructions supplied with the product.
- Damage occurring during shipment of the product either to the customer or from the customer for service (claims must be presented to the carrier).
- Damage resulting from repair, adjustment, or any alteration of the product by anyone other than an authorized FMA technician.
- Installation or removal charges, or damage caused by improper installation or removal.

Call (301) 668-7614 for more information about service and warranty repairs.



Servo Lab

Servo tester and transmitter pulse width meter for use with radio control systems

Features

- Simulates receiver output with 1ms to 2ms pulses to a servo. Large 3-digit LED display can be read from across the shop.
- Measures transmitter pulse width with 0.01ms precision.
- Has three modes:
 - Manual Mode: You set servo position using buttons on Servo Lab. Servo remains at that position until you change pulse width on Servo Lab.
 - Cycle Mode: Servo Lab automatically moves servo from one extreme to the other. You set cycle time using buttons on Servo Lab.
 - Receiver Mode: Measure transmitter pulse width on receiver channel connected to Servo Lab.
- Operates from 4.5V to 6.0V. Can be powered from NiCd, NiMH and regulated LiPo RC flight batteries and from ESCs in electric aircraft.
- Works with all types and brands of RC servos, both analog and digital.

Precautions

- Follow all instructions in this manual to assure safe operation.
- Observe frequency control. If someone else is operating a radio controlled model on the same channel as your transmitter, **do not turn on your transmitter—even for a short time.** Your transmitter has a channel number marked somewhere on its case. When a model receives signals from two transmitters on the same channel at the same time, it cannot be controlled and will crash—possibly causing personal injury or property damage. **For safety, most RC flying fields have formal frequency control rules. Follow them carefully.**
- Do not operate your radio control transmitter within 3 miles of a flying field. Even at a distance, your transmitter can cause interference.

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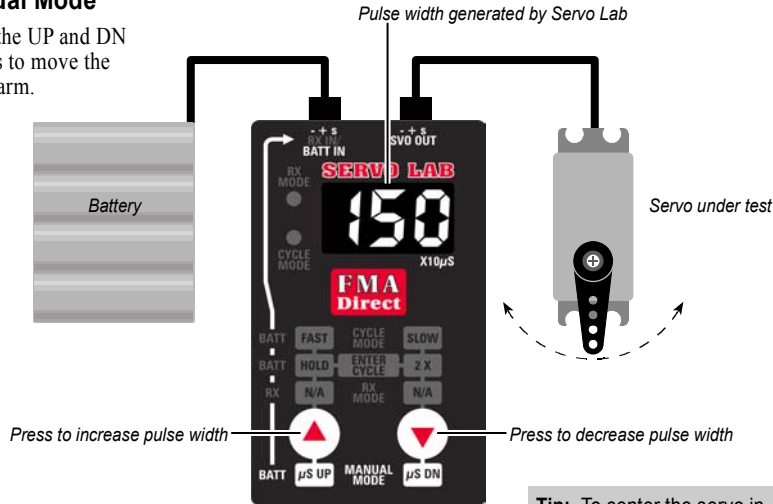
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Using the Servo Lab

Plug a servo into the SVO OUT connector (**observe polarity!**), then plug a battery into the BATT IN connector (**observe polarity!**). Servo Lab starts in Manual Mode.

Manual Mode

Press the UP and DN arrows to move the servo arm.



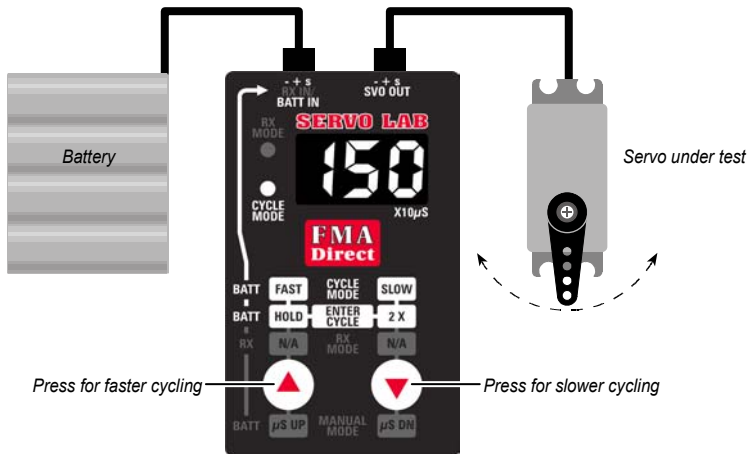
To enter Cycle Mode:
 a. Press and hold UP button.
 b. Press DN button twice.
 c. Release UP button.

Tip: To center the servo in Manual Mode, press the UP and DN buttons at the same time. With 1.5ms pulse width (150 on display), servo is at exact center of its throw.

To enter Manual Mode:
 Press UP and DN buttons at the same time.

Cycle Mode

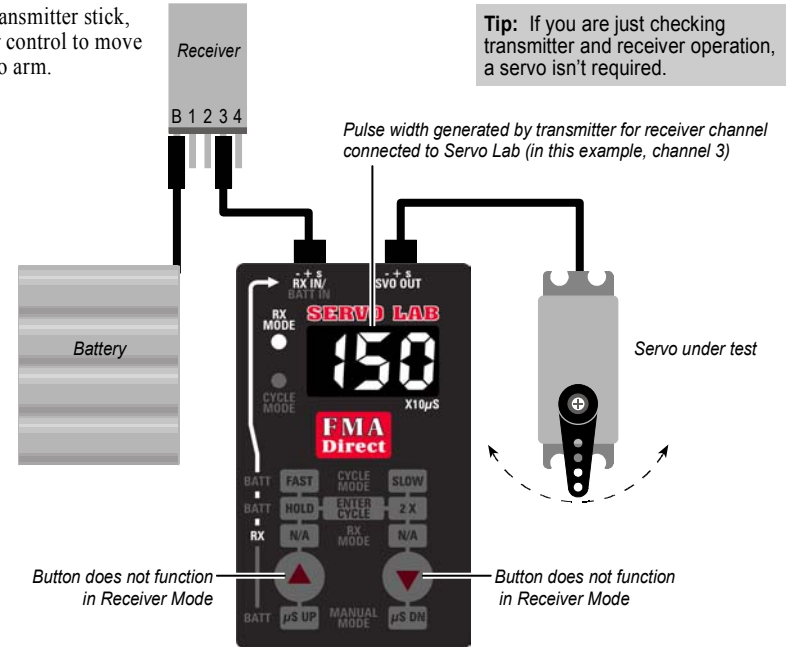
Servo Lab automatically cycles from 1.0ms to 2.0ms



Plug a servo into the SVO OUT connector (**observe polarity!**), plug a receiver channel into the RX IN connector (**observe polarity!**). Turn on the transmitter, then plug a battery into the receiver (**observe polarity!**). Servo Lab enters Receiver Mode. Display shows transmitter pulse width on connected receiver channel.

Receiver Mode

Move transmitter stick, slider or control to move the servo arm.



Tip: If you are just checking transmitter and receiver operation, a servo isn't required.

Background information

A PPM transmitter generates a waveform similar to the one shown below. The receiver separates channel pulses and sends each pulse to a different servo. In Manual Mode and Cycle Mode, Servo Lab simulates the receiver by generating a channel pulse of known width. In Receiver Mode, Servo Lab measures the pulse width generated by the transmitter for the receiver channel connected to it.

