

Futaba®

6EXA



INSTRUCTION MANUAL

for Futaba 6EXA 6-channel, FM radio control system for aircraft

Futaba Corporation

Technical updates available at: <http://www.futaba-rc.com>

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INTRODUCTION

Thank you for purchasing the Futaba® 6EXA digital proportional R/C aircraft system. If this is your first "computer" radio, rest assured that it is designed to make initial setup and field-tuning of your airplane easier and more accurate than would be if using a "non-computer" radio. Although this is a *beginner* or *sport* system with the requirements of those flyers in mind, in order to make the best use of your Futaba 6EXA and to operate it safely, **you must carefully read all of the instructions.**

Suggestion: If, while reading the instructions, you are unclear of some of the procedures or functions and become "stuck," continue to read on anyway. Often, the function or procedure will be explained again later in a different way providing another perspective from which to understand it. Another suggestion is to connect the battery, switch and servos to the receiver and actually operate the radio on your workbench as you make programming changes. Then, you'll be able to see the effects of your programming inputs.

SERVICE

If any difficulties are encountered while setting up or operating your system, please consult the instruction manual first. For further assistance you may also refer to your hobby dealer, or contact the Futaba Service Center at the web site, fax number or telephone number below:

www.futaba-rc.com

Fax: (217) 398-7721

Telephone (8:00 am to 5:00 pm Central time Monday through Friday): (217) 398-8970, extension 2

If unable to resolve the problem, pack the system in its original container with a note enclosed and a **thorough, accurate** description of the problem(s). Include the following in your note:

- Symptoms.
- Any unusual mounting conditions.
- An inventory of items enclosed.
- The items that require repair.
- Your name, address, and telephone number.
- Include the warranty card if warranty service is requested.

Send your system to the authorized Futaba R/C Service Center at the address below:

**Futaba Service Center
3002 N Apollo Drive Suite 1
Champaign, IL 61822**



This product is to be used for sport and recreational flying of radio-control models only. Futaba is not responsible for the results of use of this product by the customer or for any alteration of this product, including modification or incorporation into other devices by third parties. Modification will void any warranty and is done at the owner's risk.

Protect the environment by disposing of rechargeable batteries responsibly. Throwing rechargeable batteries into the trash or municipal waste system is illegal in some areas. Call 1-800-8-BATTERY for information about Ni-Cd battery recycling in your area.

CONTENTS AND SPECIFICATIONS

Transmitter:

T6EXA Transmitter with programmable mixing and 6-model memory.

Transmitting on 72 MHz band.

Operating system: 2-stick, 6-channel system

Modulation: FM

Power supply: NT8S600B 9.6V, 600 mAh Ni-Cd battery

Current drain: 250mA

Receiver:

R127DF narrow band, FM seven-channel receiver.

Receiving on 72 MHz band.

Type: FM, Dual conversion

Intermediate frequencies: 455kHz, 10.7MHz

Power requirement: 4.8V or 6V Ni-Cd battery

Current drain: 14mA @ 4.8V

Size: 1.39x2.52x0.82" (35.3x64.0x20.8mm)

Weight: 1.5oz (42.5g)

Receiver Battery:

NR-4J 4-cell (4.8 Volt)

Capacity: 600mAh

Weight: 3.4oz/95g

Servos:

Four S3004 ball bearing servos with mounting hardware and servo arm assortment

Control system: Pulse width control, 1.52ms neutral

Power requirement: 4.8V (from receiver)

Output torque: 44.4oz-in [3.2kg-cm]

Operating speed: 0.23sec/60°

Size: 1.59x0.78x1.41" [40.4x19.8x36mm]

Weight: 1.3oz [37.2g]

*Specifications and ratings are subject to change without notice.

Other components:

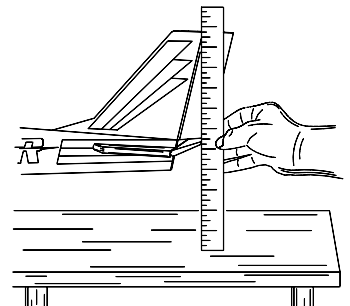
- SWH-13 switch harness with charging jack
- 9" [150mm] aileron extension cord (to facilitate quick connecting and disconnecting of aileron servo with removable wing)
- Flap control lever
- AC overnight battery charger
- Frequency clip
- Neck strap
- Servo mounting tray
- Instruction manual

GLOSSARY

It will be helpful to understand the following terms **before** reading the rest of the manual. The terms are not in alphabetical order, but are in a logical order that prepares the reader for understanding the next term.

Reversing (servo reversing) – A function that allows the user to determine the direction of response of each servo. If, after hooking up the servos, a control on the model responds in the wrong direction, the user may change the servo's direction so the control responds correctly.

Throw – When speaking of a control surface (such as an elevator or aileron), the throw is the distance the surface moves. Control surface throw is usually measured at the trailing edge of the surface and is expressed in inches or millimeters. The model in the diagram has 1/2" [13mm] of up elevator throw. Throw can also refer to the distance a servo arm (or wheel) travels.



Dual rate (D/R) – On the 6EXA the dual rate switch allows you to instantly switch, in flight, between two different control throws for the aileron and elevator. Often, different control throws are required for different types of flying. ("Low" throws may be required for flying at high speeds where the model's response becomes more sensitive, and "high" throws may be required for aggressive aerobatic maneuvers or landing or flying at lower speeds where the model's response becomes less sensitive.)

End point adjustment (E.P.A.) – Sets the overall, maximum distance the servo rotates in either direction. (No matter where the dual rates are set, the servo will never travel beyond the limit set by the end point adjustment.)

Exponential – Normally, servos respond proportionally to control stick input from the transmitter (e.g., if the stick is moved halfway, the servo will move halfway). However, with "exponential," the servo can be made to move more or less than initial stick movement (less servo movement is more common). Exponentials are commonly used to "soften," or decrease initial servo travel for the ailerons and elevators. This way, initial control stick inputs from the pilot result in small servo movement for a smoother flying airplane. (Dual rates adjust the **amount** of servo travel. Exponentials determine **where** most of the travel will occur.)

Mixing – Two (or more) servos can be made to operate together either by mechanically joining the wires (with a Y-connector) or by electronically "joining" them through programming functions in the transmitter. When servos are electronically joined via programming, they are said to be "mixed." Unlike joining servos with a Y-connector, when servos are mixed electronically they can be made to move in opposition. Additionally, each servo's end points can be independently set.