deVention

DEVO F4

DEVO F4

4-channel micro computer system

DEVO F4 transmitter Users Manual

Note:Please read the manual throughly before use and keep it in a safe place for the future reference.

Contents

Part one: General information

Part two: Helicopter

Part three: Airplane

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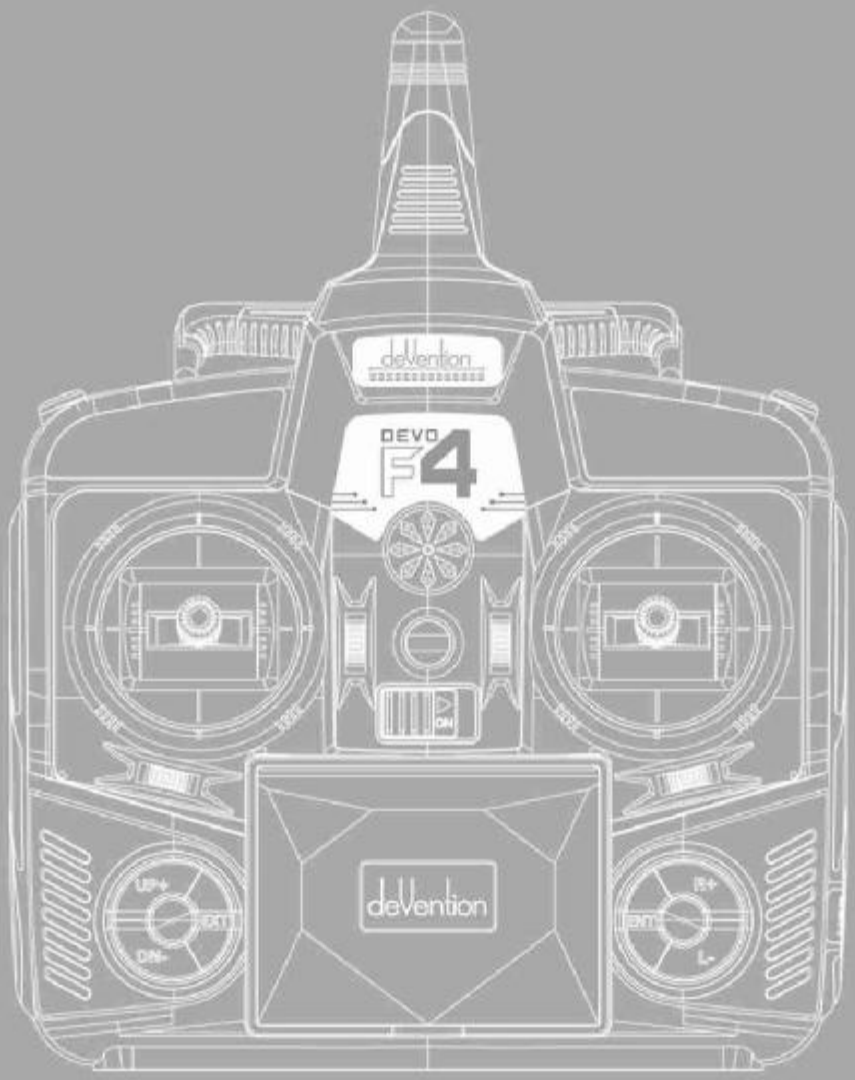
DEVO F4

Part one General information

DEVO F4 adopts 2.4 GHz Direct Sequence Spread Spectrum (DSSS) technology and 5.8ghz FPV and features automatic ID binding, automatic ID assignment, and also features fixed ID set by yourself. The usage of wireless copy function keeps you away from the trouble in wire link-up. Two mode types of helicopter and airplane are available to meet your requirements for different models. 3.5"LCD display and 5.8G real time Image monitor, it offers you convenient operation, FPV makes the flight more easier. Online update via USB ensures a transmitter in hand not to be out of date and makes it full of vigour.



1.0 General information

1.1 Important statements

(1) The transmitter is suitable for experienced pilots beyond 14 years old.
(2) Flying the model aircraft in approved ground is a must.
(3) We are not responsible for any safety caused by operation, usage or control once the transmitter is sold out.
(4) We consign our distributors to offer technical support and service after sale. Please contact the local distributors for problem solutions caused by usage, operation, maintenance, etc.

1.2 Safety needing attention

(1) Far away from obstacle and people.

RC aircraft in flights is uncertain of flight speed and status, which potential risk exists in when flying. Please keep your radio controlled aircraft far away from people, high buildings, high-tension line, etc, and avoid operating in rain, storms, thunder and lightening.

(2) Away from humidity environment

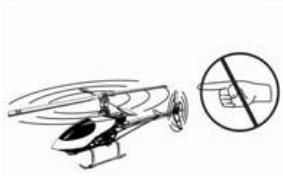
Radio controlled aircraft should be kept away from humidity and vapor because it is composed of complicated precise electronic elements and mechanical parts.

(3) Proper operation

Use original spare parts to upgrade, modify or maintain your equipment in order to assure its safety. Please operate your equipment within the range of functions permitted. It is forbidden to use out of the safety laws or regulations.

(4) Safety operation

Operate your equipment according to your body status and flight skills. Fatigue, listlessness and mis-operation will increase the possibilities of accidental hazard.



(5) Away from heat sources

The inside of the transmitter is composed of precise electronic components and mechanical parts. Keep it far away form heat sources and sunshine to avoid distortion, or even damage caused by high temperature.

1.3 Attention before flight

(1) Ensure the battery packs of both transmitter and receiver are fully saturated.

(2) Ensure both the throttle stick and the throttle trim of your DEVO F4 stay at the lowest positions before operation.

(3) Strictly obey the order of TURN-ON and TURN-OFF before operation. When starting your flight, turn on your transmitter first, and connect the battery to the aircraft last. When turning off the aircraft, disconnect the battery first, and turn off your transmitter last. An upset in the order may cause your aircraft out of control. Cultivate a correct habit of turn-on and turn-off.

(4) Ensure whether the directions and actions of all the servos in your RC aircraft are correct when executing commands of the transmitter. Using broken servos will result in unforeseen dangers.

2.0 Features

2.1 Transmitter DEVO F4

(1) The DEVO F4 adopts 2.4 GHz Direct Sequence Spread Spectrum (DSSS) technology and features automatic ID binding and ID assignment. It can also be customizedly set as fixed ID code.

(2) 5.8G real time image transmission.

(3) USB online update makes you always enjoy the latest firmware.

(4) Adjustability of hi-frequency output power enjoys more personality and friendly environment.

(5) Wireless data transmission between two DEVO F4 helps experience the training function.

(6) Up to 15-model data can be saved.

(7) Super large LCD display features direct and convenient setting.

(8) Shape design accords with human engineering and provides comfortable holding.

(9) Both the length and tension of the sticks can be adjustable.

(10) DEVO F4 can be freely switched among Modes 1, 2, 3, and 4.

(11) Suitable for 4 channel Helicopter/Aeroplane.

2.2 Features of DEVO-RX601

(1) Adopts 2.4GHz Direct Sequence Spread Spectrum (DSSS) that features fast reaction and strong anti-jamming protection.

(2) Double receiving circuits and signal switch automatically effectively assure the stability of receiving signal.

(3) The single chip Microco as CPU provides super-strong analyzing ability.

(4) The Receiver maintains the frequency and the ID memories when its changing a new battery pack with the transmitter powered on .

(5) It can be customizedly set as fixed ID and automatic ID assignment.

3.0 Specification

3.1 DEVO F4 transmitter Specification

- Encoder ····· 4-channel micro computer system
- Frequency ····· 2.4GHz DSSS
- Output power ····· ≤ 100 mW
- Current drain ····· ≤ 500 mA (100 mW)
- Power supply ····· 7.4V 800mAh or 5#Battery 4x1.5V or NiMH 4x1.2V 1600-2000mAh
- Output pulse ····· 1000 – 2000 Ms (1500Ms Neutral)
- Image Receive ····· 5.8G
- Channel select ····· 4-8 channel

3.2 Receiver specification

- Type ····· 2.4GHz 6 channels
- Sensitivity ····· - 105 dbm
- Frequency interval ····· ≥ 4 M
- Weight ····· 5 g
- Dimension ····· 33X2.0X13.0mm
- Receiver Battery ····· 4.8-6V 1,300mAh

4.0 Definition of DEVO F4

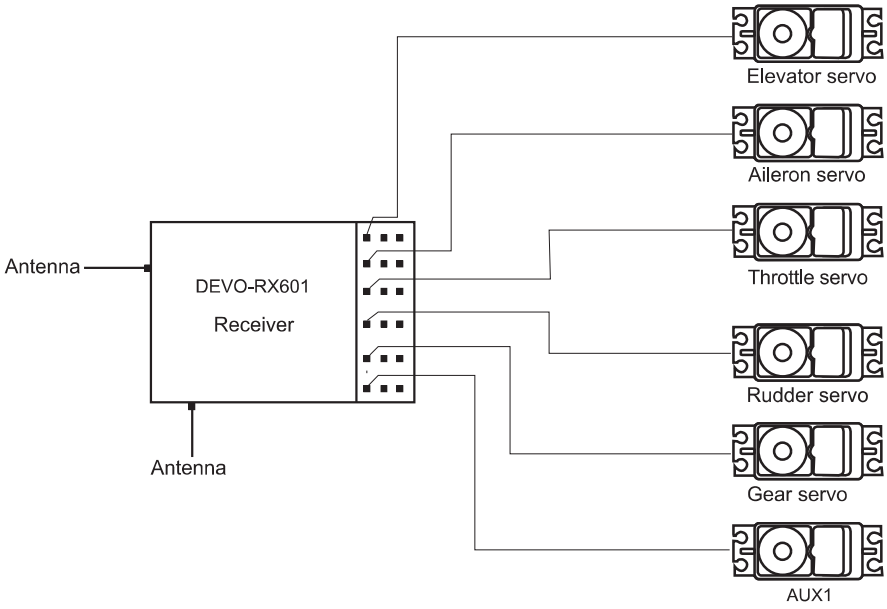
4.1 Panel definition

4.2 Rear definition

(1) Power Connector: input DC at 8-12V, 1000mA; Polarity: ⊕—•—⊖

(2) Digital Signal Converter socket (DSC): used for simulator flight practice via computer (You need software and its dongle which are available in hobby shops), and for training.

4.3 Wiring Diagram



4.4 Function keys in panel

There are 6 functional keys in the panel of DEVO F4. Below are the details:

(1) EXT: Reset key. Press EXT to exit the main menu.
(2) ENT: Confirmation key. Press ENT to access the system or the function mode.
(3) UP+: Moves cursor up to the forward function item.
(4) DN-: Moves cursor down to the next function item.
(5) R+: Moves cursor up to increase the setting value.
(6) L-: Moves cursor down to decrease the setting value.

5.0 Control Stick Adjustment

Stick adjustment control has two parts:the stick length and degree of tightness.

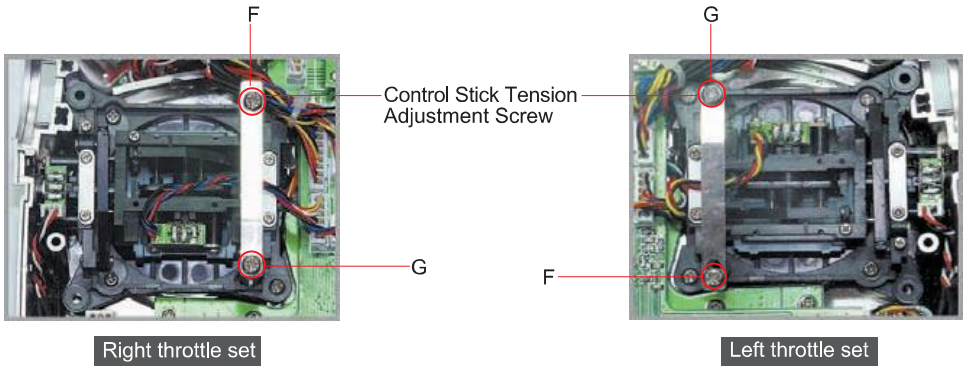
5.1 The stick length adjustment

(1) Prolong the stick length: Counter clockwise rotate the stick head until the length you hope, and then counter clockwise tighten the stick sleeve.
(2) Shorten the stick length: Clockwise rotate the stick sleeve until the length you hope, and then clockwise tighten the stick head.

5.2 Stick Tension Adjustment

Use a cross screwdriver to ajust the rear cover screw show as below. Clockwise will increase stick tension and counter-clockwise reduce it.

Find the tension adjuster spring for left and right hand throttle stick as shown below. Using a cross head screwdriver adjust the screw ringed in red below; clockwise will increase stick tension and counter-clockwise reduce it. Replace the transmitter rear cover after completion.



Right throttle set

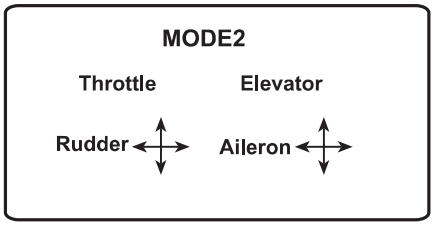
Left throttle set

6.0 Neck Strap Usage

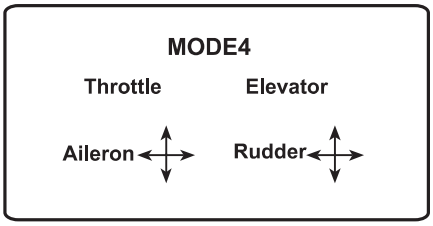
There is a concealed hook in the face panel of DEVO F4. It will pop up as you press the hook. The neck strap can be connected to the hook. The Hook located at the center helps to get optimal balance of the transmitter.

7.0 Stick Mode Switch

There are total four stick modes from MODE 1 through MODE 4. The left-hand throttle includes MODE 2 and MODE 4, and the right-hand throttle includes MODE 1 and MODE 3. Below is the sketch map:

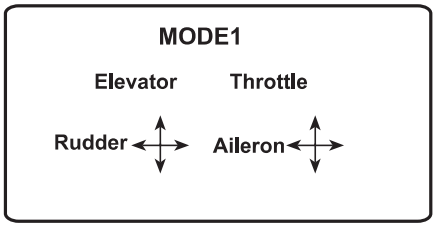


MODE 2

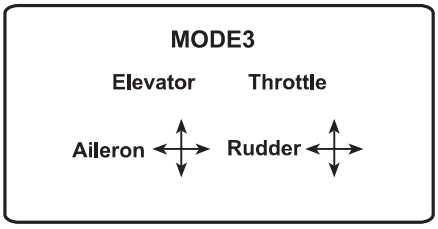


MODE 4

MODE 2 and MODE 4 are listed in left-hand throttle.



MODE 1



MODE 3

MODE 1 and MODE3 are listed in right-hand throttle.

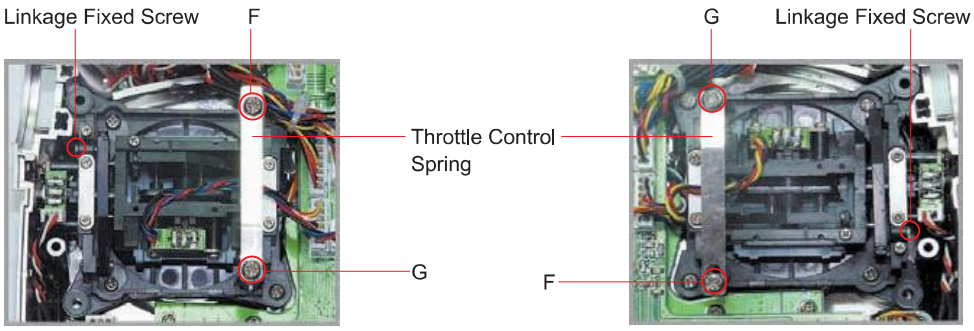
8.0 Switches between left-hand and right-hand throttles

Switching between left and right-handed throttle modes requires both a MECHANICAL and ELCTRONIC switch. It will work correctly only after both parts are completed. Please follow the steps below:

8.1 Right-hand throttle switched to left-hand throttle

(1) Mechanical step

Remove the left lateral and right lateral non-slipping blocks, respectively, remove the 6 screws, and then rear cover to expose the base plate. The photo below shows the internal views of right and left hand throttle setups. Using a cross-head screwdriver loosen and remove, in order, the Linkage Fixed Screw, Screw F, Screw G and the Throttle Control Spring from the right throttle set, remount the parts removed into the left throttle set in the corresponding (rotated) positions shown below. Adjust the tension using Screw F to match your preferred setting. Replace the rear cover.



(2) The ELECTRONIC step

Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to System Menu, press ENT to System Menu; Press UP or DN to move the cursor→to point to Stick Mode, press ENT to Stick Mode Selection Menu; Press UP or DN to move the cursor→to point to Mode 2 or Mode 4, press ENT to confirm, press EXT to exit. All saved model date will automatically be switched to be compatible with Mode 2 or Mode 4.

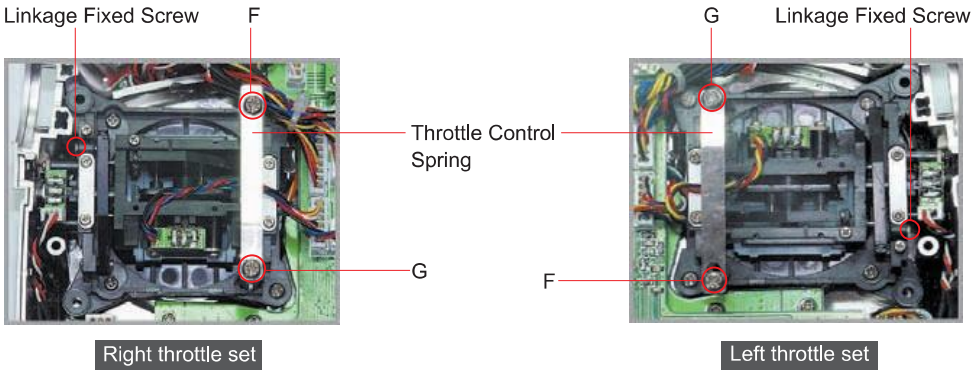
Once both the MECHANICAL and ELECTRONIC steps are successfully completed the transmitter is now ready for normal operation.

8.2 Left-hand throttle switched to right-hand throttle

(1) Mechanical step

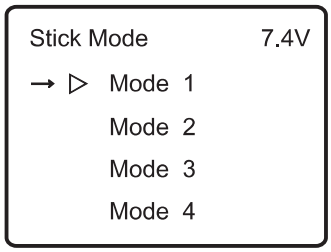
Refer to the above “Mechanical switch” to open the transmitter cover.

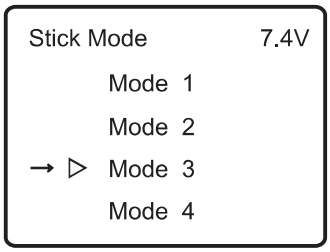
The photo below shows the internal views of right and left hand throttle setups. Using a cross-head screwdriver loosen and remove, in order, the Linkage Fixed Screw, Screw F, Screw G and the Throttle Control Spring from the left throttle set, remount the parts removed into the right throttle set in the corresponding (rotated) positions shown below. Adjust the tension using Screw F to match your preferred setting. Replace the rear cover.



(2) The data step

Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to System Menu, press ENT to System Menu; Press UP or DN to move the cursor→to point to Stick Mode, press ENT to Stick Mode Selection Menu; Press UP or DN to move the cursor→to point to Mode 1 or Mode 3, press ENT to confirm, press EXT to exit.





All saved model date will automatically be switched to be compatible with Mode 1 or Mode 3.

Once both the MECHANICAL and ELECTRONIC steps are successfully completed the transmitter is now ready for normal operation.

Note: Pay careful attention to the force used when removing, replacing and adjusting the screws. Excessive force may damage them or the base plate.

9.0 Training function

Two DEVO F4 transmitters can be made to work together in order to offer a teacher-trainer function, meeting the requirements for a beginner. The setup of training mode is described below:

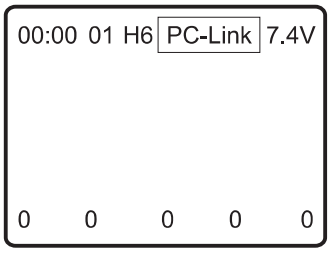
(1) Model data transmission

First step is to use the DEVO F4's wireless data transmission feature to transfer the teacher's main model data to the trainee's DEVO F4 transmitter. This step guarantees that the model data in each transmitter is identical. Refer to item “2.4 model wireless copy” in the Helicopter section later in this manual. Two DEVO F4 transmitters are needed for wireless data transmission.

(2) Training connection

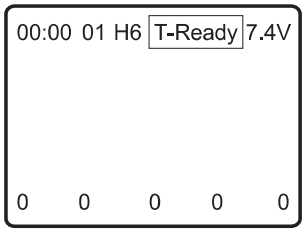
Insert the signal wire from the trainer’s transmitter into the DSC socket of the trainee’s transmitter. Turn on the transmitter and a linkage icon, PC-Link will be shown on the boot screen.

Insert one end of the signal wire (included) into the DSC socket of the trainee's transmitter and turn it on. PC-Link will be shown in the trainee's DEVO F4 display (see image right).



linkage icon

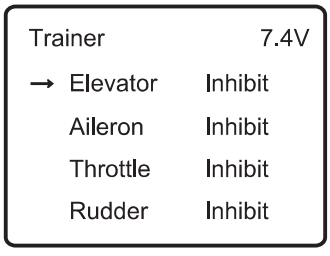
Turn on the power of the trainer's DEVO F4. Select the same model as the trainee (as transferred in the previous section) and briefly fly the aircraft to confirm the settings are good. Turn off the aircraft and turn off the trainer's DEVO F4 power. Insert the other end of the signal wire into the trainer's DEVO F4 DSC port and turn on the power once more, T-Ready will be shown in the trainee's DEVO F4 display (see image left).



(3) Traniner Function Channel Setup

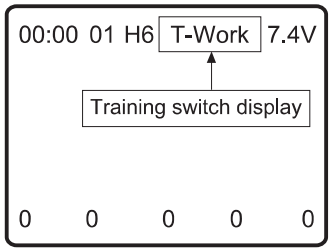
The trainee can aquire the control part or whole channel operation by setting the trainer’s function channel. Here is the setup:

Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to Function Menu, press ENT to Function Menu; Press UP or DN to move the cursor→to point to Trainer, press ENT to Trainer Function setting; Press UP or DN to move the cursor→to point to the desired setting channel, there are Elevator, Aileron, Throttle, Rudder channels available. Press R+ or L- to set Active or Inhibit for the choosed Channel.



(4) Training mode usage

Trainer toggle keys is R+ button, as illustration.



On a flight, if the Trainer press the button R+, it means the Trainer turn over the command to the Trainee to operate. Meanwhile, the starting up picture will be showing T-Work. The showing throttle date is the trainee operated. If the Trainer press the R+ again, it means the trainer retract the command and operate by the trainer.

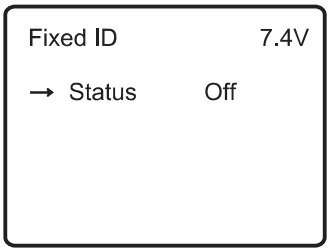
10.0 Customized fixed ID

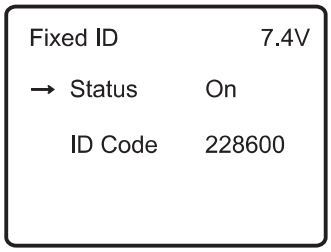
Using the Fixed ID function allows users to create a unique relationship between transmitter model data and the corresponding model's receiver. It significantly speeds up the binding process and also prevents mistakenly flying an aircraft with the incorrect transmitter model selected.

(1) Fixed ID setup

To start the Fixed ID setup it is important that the transmitter and receiver have successfully completed automatic ID binding process. Once the transmitter and receiver are paired a Fixed ID can be set as described below:

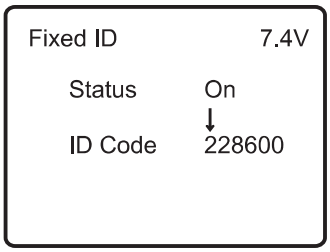
Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to Model Menu, press ENT to Model Menu; Press UP or DN to move the cursor→to point to Fixed ID, press ENT to the Fixed ID setting interface.

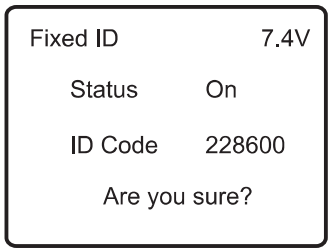


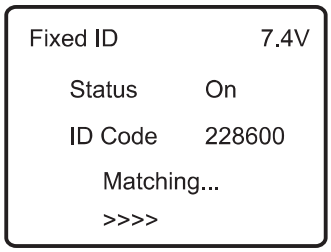


Press R+ or L- to set Status ON, and there is a Random Fixed ID display on the screen. Press DN to move the cursor → to point to ID Code, press ENT to move the cursor → to point to the first code of the Fixed ID.

Press R+ or L- to change the Code; Press DN to move to next Code. Press ENT after finished setting, there is an inqury “Are you sure? ”. Press ENT to confirm and execute the binding process. After finished binding the display will return to the Model Menu automatically.

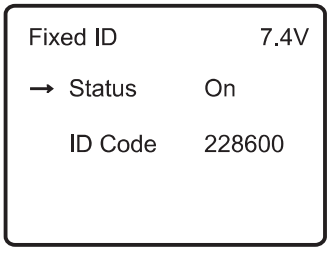


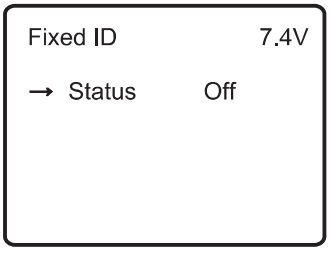




(2) Fixed ID Cancellation

Before the receiver electrify, press and ctrl the ID clear button, add a 5V Power source to other input terminal, if the Red indicator is twinkle slowly which means cleared ID memory already, then, Loosen the ID clear button.





Refer to the instructions of Fixed ID setting above to the following interface. Press UP to move the cursor → to point to Status ON.

When Fixed ID Status ON, press R+ or L- to change ON to OFF. Press EXT to exit.

11.0 Receiver installation requirement

Below is some advice on how to install your equipment.

(1) Using 10mm thick foam, wrap the receiver and attach it securely to the aircraft using a cable tie or strong rubber band. The foam will help protect the receiver

(2) It is suggested to use rubber grommets and copper washers to isolate the receiver from vibrations. Do not over tighten the screws in order that the grommets are not damaged otherwise vibration absorption will be reduced.

(3) When mounting the servos, make sure the servos' bellcranks can move freely over their whole travel range and ensure the control linkages don't touch or impede the movement of the servos.

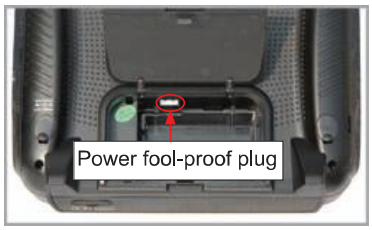
(4) If installing additional switches, please install them far away from the engine exhaust pipe and other high vibration sources. Ensure all the switches move freely over their entire range.

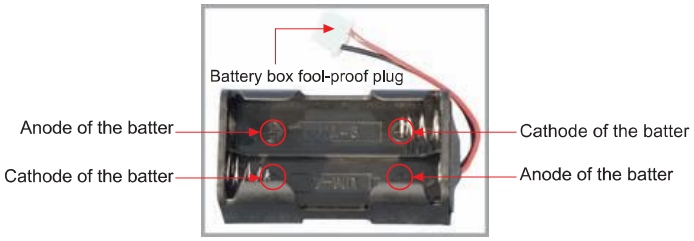
(5) Don't wrap the receiver antennas together or make them parallel; horizontal at 90° will give the best performance.

12.0 Installation requirement for battery pack

As shown in the figure, open the battery cover and take out the battery box. Put the 4 cells NiMH 1.2V 1600-2000mAh/5# battery 4x1.5V/7.4V 800mAh Lipo battery into the fool-proofing plug correspondingly. Please check to make sure the polarities are correct.

Fool-proofing must insert correspondingly when battery pack connect to radio, see below:





Warning: 1. Don't put the polarities of batteries in the opposite directions.

2. Please use the orignal battery pack and charger(Optional parts).

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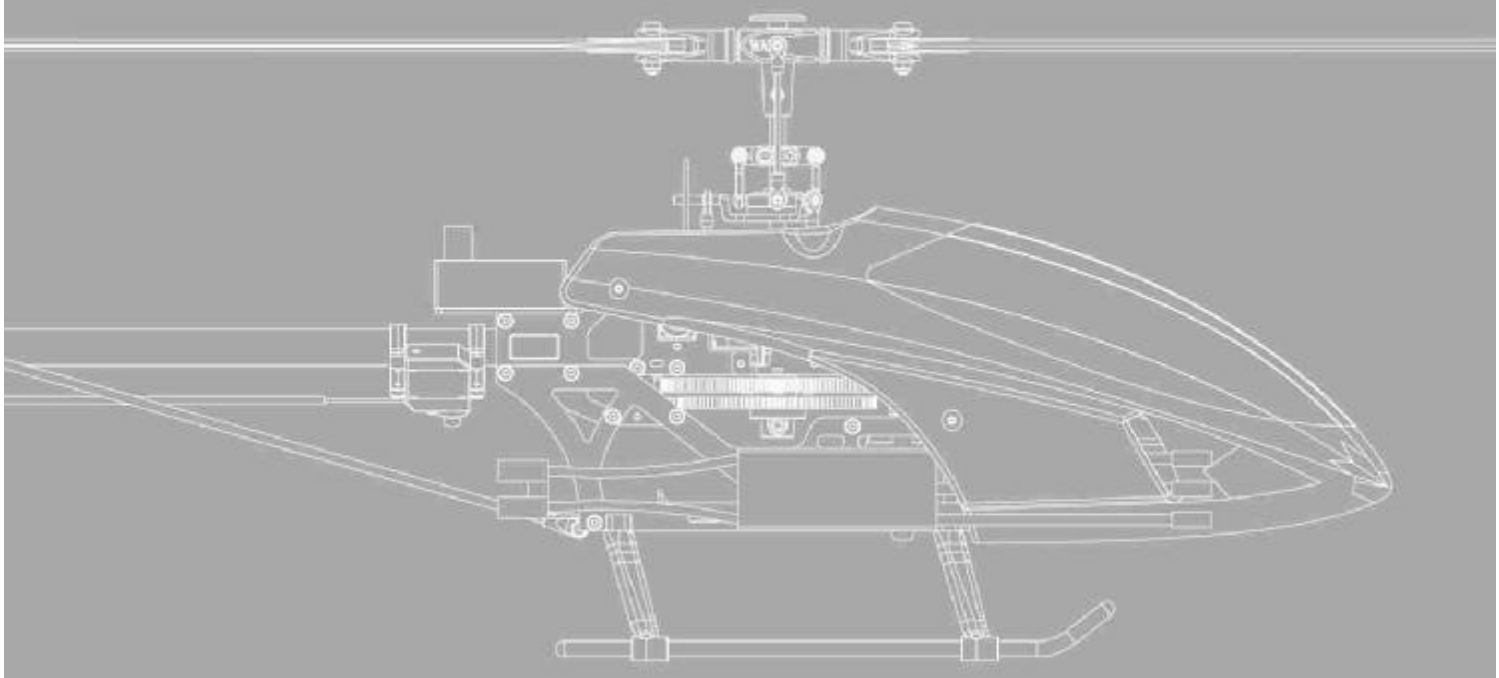
DEVO F4

Part two Helicopter

All the functional settings, which are relative to the operation system of DEVO F4 itself, are fully integrated in System Menu. They include Display, Buzzer, vibrator, Video Select, Stick Mode, Stick Direction, Stick calibration, and About.

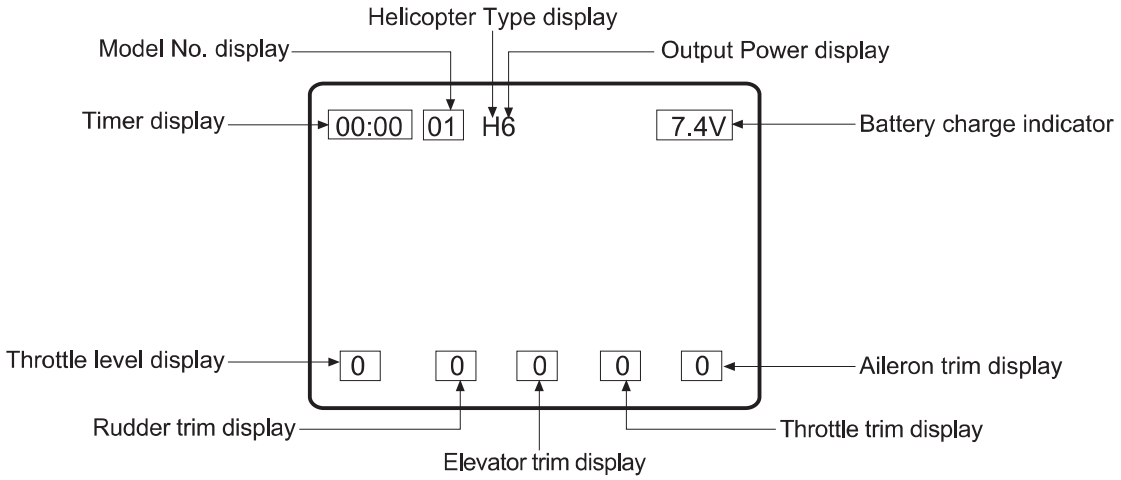
Setup your DEVO F4 transmitter for the best helicopter performance with the following sections. Included are specific functions for rotor-craft features. Throttle curves, Pitch curves and Cyclic response are covered below.



1.0 System Menu

This section describes the settings which are specific to the operation of the DEVO F4 itself. Settings for Display, Buzzer, Vibrator, Video Select, Stick Mode, Stick Direction, Stick Calibration and About can be accessed via the System Menu.

Below is the boot screen of helicopter:



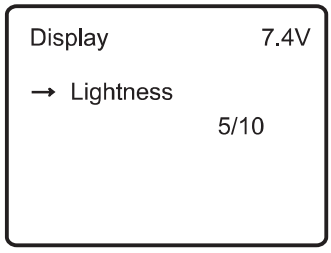
1.1 Display

Backlight intensity: the backlight intensity is adjustable using the UP or DN button. Power consumption will be increased when intensity is high and battery life will be reduced.

Setting:

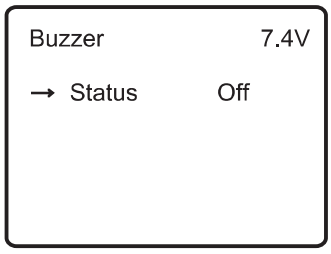
Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to System Menu, press ENT to System Menu; Press UP or DN to move the cursor→to point to Display, press ENT to the Lightness setting interface and use R or L to change the setting as desired.

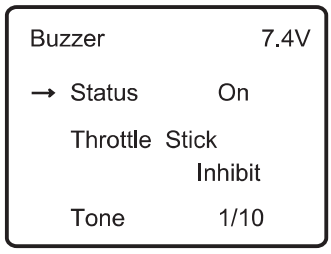
Press EXT to exit.



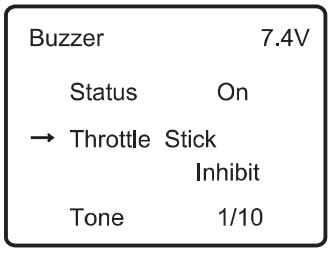
1.2 Buzzer Setting

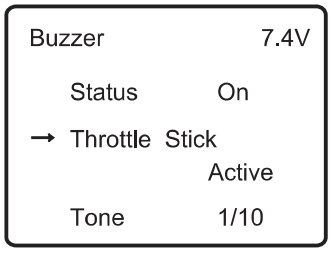
(1) Status: Press ENT to the Main Menu. Press UP or DN to move the cursor→to point to System Menu, press ENT to System Menu; Press UP or DN to move the cursor→to point to Buzzer, press ENT to the Buzzer setting interface. And then press UP or DN to move the cursor→to point to the Status, press R or L to toggle between ON and OFF settings. ON means start the Buzzer while OFF means the Inhibit.





(2) Throttle stick: With the “Status” item on, the option THSTK can be set to ON or OFF. If the Throttle Stick setting is ON/Active, a musical scale will be heared when moving the throttle stick. The position of the throttle stick can be judged by listening to the change in musical tone. Setting OFF, turns off the sounds.





Setting:

With the “Status” item on, press DN to move the cursor→to point to the “Throttle Stick”. Use R or L to change the display between Inhibit and Active. Active means tones will be played, Inhibit means there will be no tones played.