

devention
DEVO 6



DEVO 6

6-channel micro computer system

Users Manual of DEVO-6 transmitter

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

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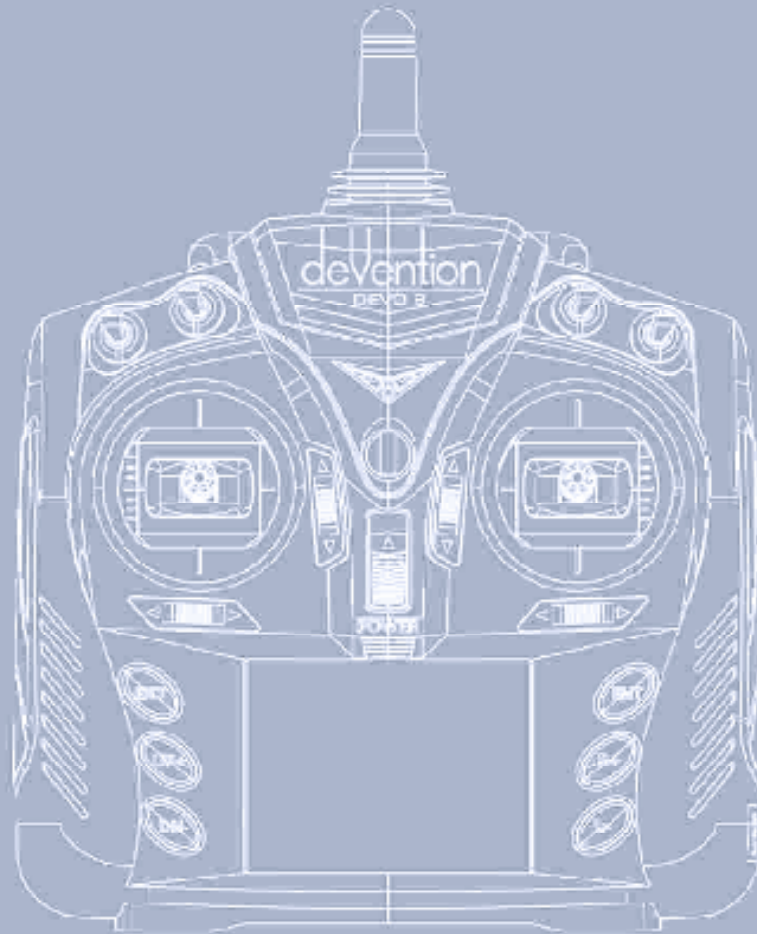
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DEVO 6

Part one

General information

DEVO-6 adopts 2.4 GHz Direct Sequence Spread Spectrum (DSSS) technology and features automatic ID binding, automatic ID assignment, and also features fixed ID set by you yourself. The usage of wireless copy function keeps you away from the trouble in wire link-up. Three mode types of helicopter, airplane and glider are available to meet your requirements for different models. Touch screen with wide area is used and it offers you convenient operation. Online update via USB ensures a transmitter in hand not to be out of date and makes it full of vigour.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 radio controlled helicopter modelers 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 as soon as 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 helicopter in flights is uncertain of flight speed and status, which potential risk exists in when flying. Please keep your RC helicopter far away from people, high buildings, high-tension line, etc, and avoid operating in rain, storms, thunder and lightening.



- (2) Away from humidity environment

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



- (3) Proper operation

Please 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

Please 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 many 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 transmitter stay at the lowest positions before operation.

Welcome to use the DEVO-6 transmitter

- (3) Please 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 helicopter last. When turning off the helicopter, disconnect the battery first, and turn off your transmitter last. An upset in the order of connection may cause your helicopter out of control. Please cultivate a correct habit of turn-on and turn-off.
- (4) Ensure whether the directions and actions of the servos are correct when executing commands of the transmitter. Using a broken servo will result in unforeseen dangers.

2.0 Features

2.1 Features of DEVO-6

- (1) The DEVO-6 adopts 2.4 GHz Direct Sequence Spread Spectrum (DSSS) technology and features both automatic ID binding and ID assignment. It can also be customizedly set as fixed ID code.
- (2) USB online update makes you always enjoy the latest program.
- (3) Adjustability of hi-frequency output power enjoys more personality and friendly environment.
- (4) Wireless data transmission between two DEVO-6 helps experience the training function.
- (5) Up to 12-model data can be saved.
- (6) DEVO-6 adjusting the gyro sensitivity makes hovering flight and fancy flight in an easy way.
- (7) Ultra big size TFT touch screen with graphic interface 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 amendable.
- (10) DEVO-6 can be freely switched among Modes 1, 2, 3, and 4.
- (11) DEVO-6 is suitable for Helicopter, and Airplane. In the Helicopter mode, there are three flight modes, each of which can be freely set and its parameters can be personalizedly adjusted to meet the requirement for F3C or 3D aerobatic flight.

2.2 Features of RX601

- (1) Adopt 2.4GHz Direct Sequence Spread Spectrum (DSSS) that features fast reaction and strong anti-jamming protection.
- (2) Double receiving circuits effectively assure stability of receiving signal.
- (3) The single chip 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 set as a custom fixed ID and automatic ID assignment.

3.0 Specification

3.1 DEVO-6 Transmitter Specification

- Encoder 6-channel micro computer system
- Frequency 2.4GHz DSSS
- Output power ≤ 100 mW
- Current drain ≤ 230 mA (at 100 mW)
- Power supply 5# Dry cell 4 X1.5V, or NiMH 4 X1.2V 1,600 - 2,000 mAh
- Output pulse 1000 – 2000 Ms (1500Ms Neutral)

3.2 Receiver specification

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

4.0 Definition of DEVO-6

4.1 Panel defir



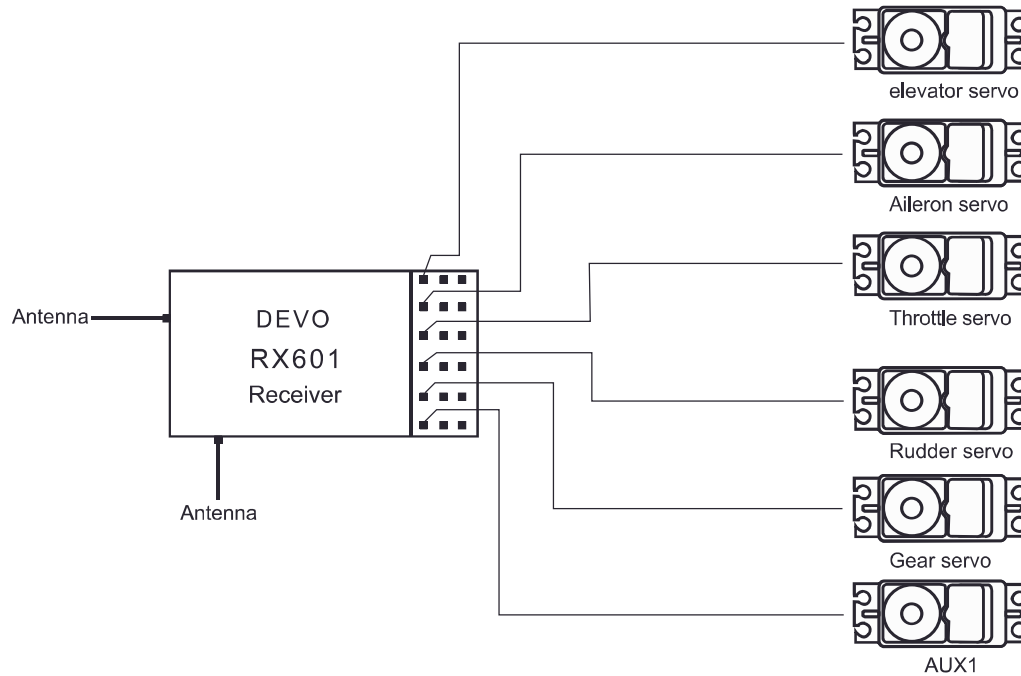
4.2 Rear definit



(1) Charge socket (CHG): input DC at 8-12V, 200 mA; Polarity:

(2) Digital Signal Converter socket (DSC): 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-6. Below are the details:

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

5.0 Control stick adjustment

The control stick adjustment includes two parts: length adjustment and tension adjustment.

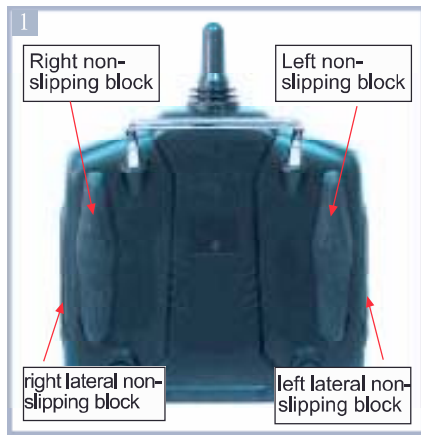
5.1 Control stick length adjustment

- (1) Prolong the stick length: CCW rotate the stick head until the length you hope, and then CCW tighten the stick sleeve;
- (2) Shorten the stick length: Clockwise rotate the stick sleeve until the length you desire, and then clockwise tighten the stick head.

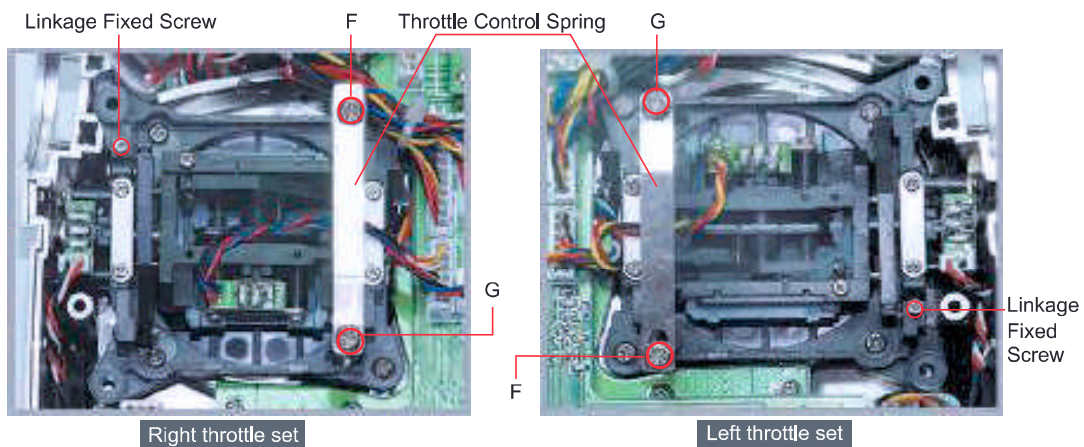


5.2 Control stick adjustment

- 1 Remove the left lateral , right lateral leftard right non-slipping blocks, respectively.
- 2 Remove the fixed screws A, B, C, D, and E, and then remove the base plate.



Below are shown the inside views of left and right throttle sets, respectively. Use cross screwdriver to loosen and remove Linkage Fixed Screw, Screw F, Screw G, and Throttle Control Spring in right throttle set, respectively, and then mount them in the corresponding positions in left throttle set. And then adjust the stick tension according to your habit.



6.0 Neck Strap Usage

There is a concealed hook in the face panel of DEVO-6. 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.

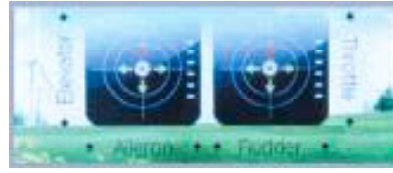


7.0 Stick Mode Switch

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 are the sketch maps:



MODE 1



MODE 3

Right-hand stick includes MODE 1 and MODE 3.



MODE 2



MODE 4

Left-hand stick includes MODE 2 and MODE 4.

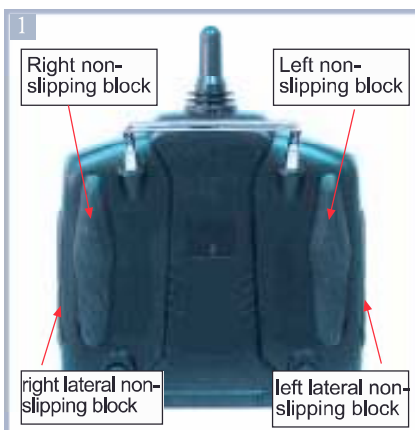
8.0 Switches between left-hand and right-hand throttles

The throttle switches between the left hand and right hand will be successful if both the MECHANICAL switch and ELECTRONIC switch are finished, separately. Below are the methods for switching.

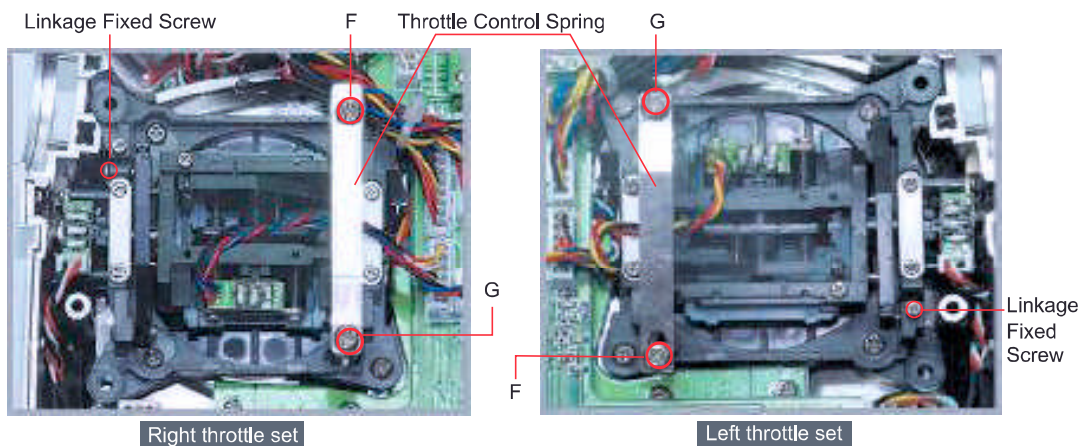
8.1 Right-hand throttle switched to left-hand throttle

(1) MECHANICAL switch

- 1 Remove the left lateral and right lateral non-slipping blocks and the left and right non-slipping blocks on the base plate, respectively.
- 2 Remove the fixed screws A, B, C, D, and E, and then remove the base plate.



Below are shown the inside views of left and right throttle sets, respectively. Use cross screwdriver to loosen and remove Linkage Fixed Screw, Screw F, Screw G, and Throttle Control Spring in right throttle set, respectively, and then mount them in the corresponding positions in left throttle set. And then adjust the stick tension according to your habit.



(2) ELECTRONIC switch

Touch the shortcut icon to enter System Menu, and then touch the icon to enter the stick mode interface, and then select the mode you desire.

Switch Right-hand to Left-hand throttle select stick model according below stick position, total 4 MODE. The model data will be automatically switched when touching MODE 2 or MODE 4.



Touch to save and exit after the selection is finished.

The switch from right-hand throttle to left-hand throttle is finished after both the MECHANICAL and ELECTRONIC switches changed, respectively. And the transmitter is ready to normally work now.

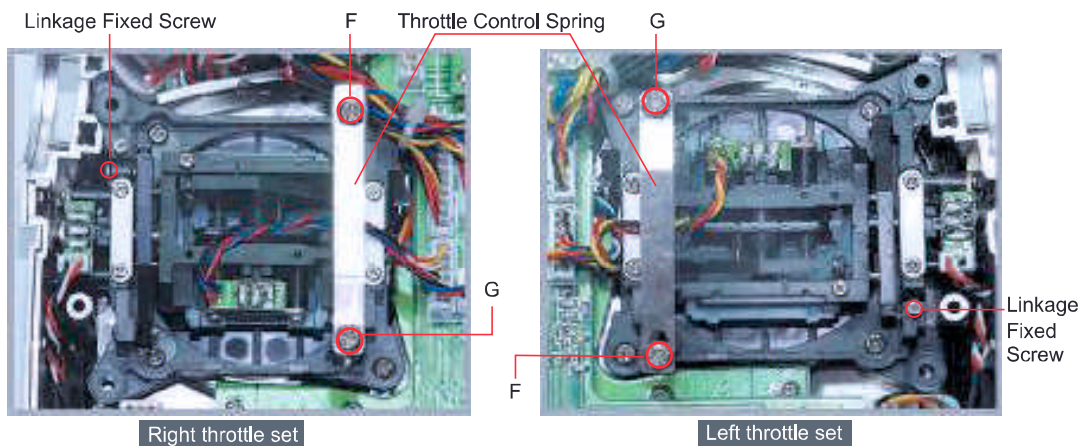
8.2 Left-hand throttle switched to right-hand throttle

(1) MECHANICAL switch

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

Below are shown the inside views of left and right throttle sets, respectively. Use cross screwdriver to loosen and remove Linkage Fixed Screw, Screw F, Screw G, and Throttle Control Spring in left throttle set, respectively, and then mount them in the corresponding positions in right throttle set. And then adjust the stick tension according to your habit. After finished close the transmitter cover.

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(2) The data switch

Refer to the above “(8.1) Electronic switch” to access to Stick Mode.

Switch Left-hand to Right-hand throttle select stick model according below stick position, total 4 MODE.The model data will be automatically switched when touching MODE 1 or MODE 3.



Touch  to save and exit after the selection is finished.

The switch from left-hand throttle to right-hand throttle is finished after both the MECHANICAL and ELECTRONIC switches changed, respectively. And the transmitter is ready to work normally.

Note: pay attention to the force when rotating the screws. Excessive forces may damage them.

9.0 Training function

Two DEVO-6 transmitters working together can execute the training function to meet the requirements for the beginners. The setting method is shown as below:

(1) Data copy

Using the wireless copy function of two DEVO-6 equipments, the model data saved in the trainer's one can be transmitted to the trainee's to ensure that the model parameters are exactly same. Regarding the copying method, refer to “2.4 Model Wireless Copy” at “Part Two: Helicopter”. Then follow the steps below:

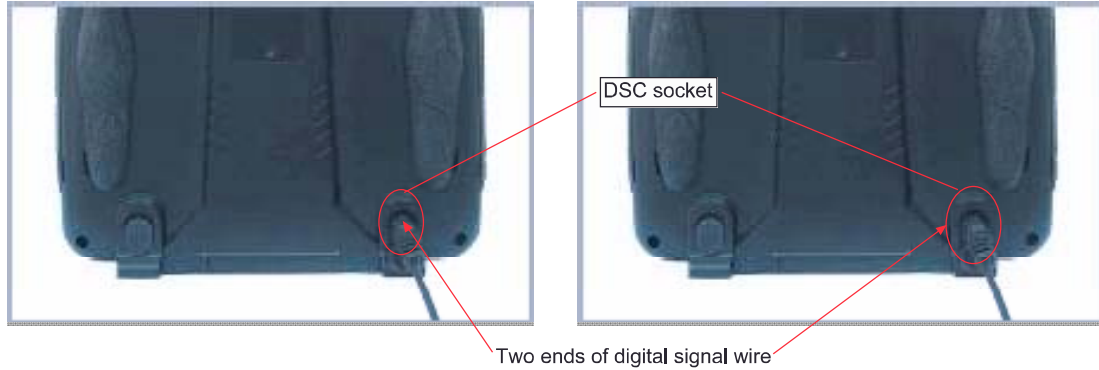
(2) Linkage

Insert one end of the signal wire into DSC socket at the rear face of the trainee's DEVO-6, and then turn on the power. A linkage icon will be shown on the boot screen. Find out the trainee's model data at its DEVO-6,



Turn on the power of the trainer's DEVO-6. Find out the trainee's model data, and then let the trainer's DEVO-6 bind with the helicopter model and fly it normally. Then turn off the power.

Insert the other end of the digital signal wire into the trainer's DEVO-6, and then turn on its power. A linkage icon will be shown as below:



Trainer icon

Training status display: when the trainer's icon becomes into "X", the trainee stops flying and the trainer is working; when the trainer's icon turns into "√", the trainee is flying and the trainer is in leisure.



(3) Usage method

The training switch can be freely wirchable. Take "GEAR" switch as an example. Shown as below:

During the flight, if the trainer pushes " GEAR" switch backward, the linkage icon will be shown as "√" that means the control right is moved to the trainee. If trainer pushes " GEAR " switch aain, the linkage icon will be shown as "X" that means the trainer take back the control right.



(4) Setting for training function switch

Touch the shortcut icon to enter Function Menu, and then click to get access to Trainer screen. The available channels are shown below, and the current status of trainer switch TRN is also shown there.



Touch to exit.

(5) Setting for training function channels

Trainee is available to get full or part of flight control power to the aircraft model via setting the training function channel in the trainer's DEVO-6. Below is the setting method:



Touch the channel(s) which you want to grant to trainee. The channel(s) you have touched will be activated as "Active". The channels which are not granted to trainee will be kept inhibited. The default setting is "Inhibit".

10.0 Customized fixed ID

This setting will bind DEVO-6 with its receiver in a unique corresponding relationship. It will greatly speed up the time of automatic binding when DEVO-6 powered on.

(1) Setting for fixed ID

The setting for fixed ID should be under the status that automatic ID binding is successfully finished. Below is the setting method.

Touch the icon  to enter Model Menu, and then enter Fixed ID by touching the icon  in Model Menu.



Touch the navigational mark of the item ID Code Setting. It will expand into two statuses: Off and On. A series of random digits will be shown below after touching On. A mini soft keyboard is shown in the lower part after touching the random digits of ID Cod.




The new ID digits can be modified by touching the mini soft keyboard. Touch Match after the new ID has been set. An inquiry interface of "Are you sure?" pop up. "ID Code Match....." will be shown after touching OK. When complete, it will back to MENU automatically.



(2) Fixed ID cancellation

Press key "CLEAN" before the receiver is powered on, and then plug 5V DC power into one of the other output terminals. The red light of receiver will flash slowly. This means the fixed ID code has been cancelled. Pull out BIND PLUG.

DEVO-6 also needs to make relative cancellation and revision after the fixed ID in receiver is cleared out.

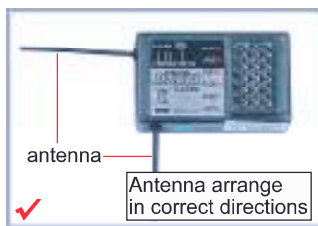
In the main interface touch the icon  to enter Model Menu and then touch  to enter Fixed ID. Touch ID Code Setting to expand the navigation mark into status On and Off. Touch Off. Then touch  to exit.



11.0 Installation requirement for receiver

It is important to correctly mount your remote control system in your model. Below are some advices on how to install your equipments.

- (1) Wrap the receiver with 10mm thick foam and soundly fix it with a rubber or magic string on your aircraft model. It helps protect the receiver from damage.
- (2) It is necessary to use rubber grommets and copper sleeves to isolate the vibrations from the main body of aircraft model. The mounting screws cannot be over-tightened. Otherwise the rubber grommets will be distorted and decrease the vibration absorption effect.
- (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 these servos.
- (4) If installing various switches, keep them far away from the engine tuned pipe and high vibration sources. Ensure all the switches move freely over their whole travel range.
- (5) Don't make the receiver antennas wrapped or parallel.



12.0 Installation requirement for DEVO-6 Battery pack

Open the battery cover of DEVO-6 transmitter and take out the battery box. Then put 4 cells AA battery or the same size full charged NIMH battery into the battery box. Please check again to make sure the polarities are correct.

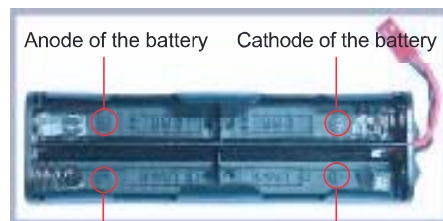


Warning: Do not put the polarities of batteries in the opposite directions.

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



Power fool-proof plug Battery box fool-proof plug



Cathode of the battery Anode of the battery

12.1 DEVO-6 battery charging

Warning: the CHG socket is only used for the rechargeable NIMH batteries. If using the batteries which is unchargeable. The CHG socket is not allowed to use.

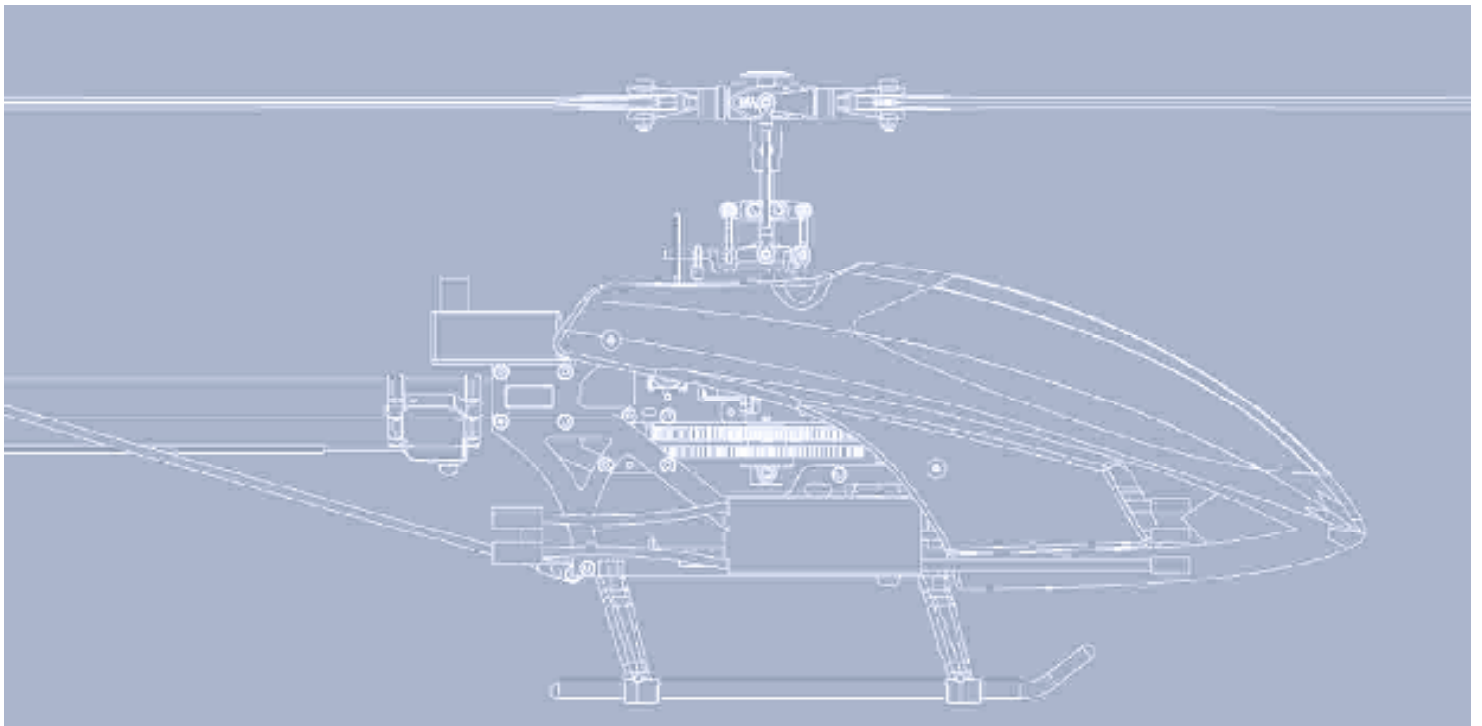
Charge socket(CHG):input DC at 8-12V,200mA; Polarity: ⊕ → ⊖



Part two

Helicopter

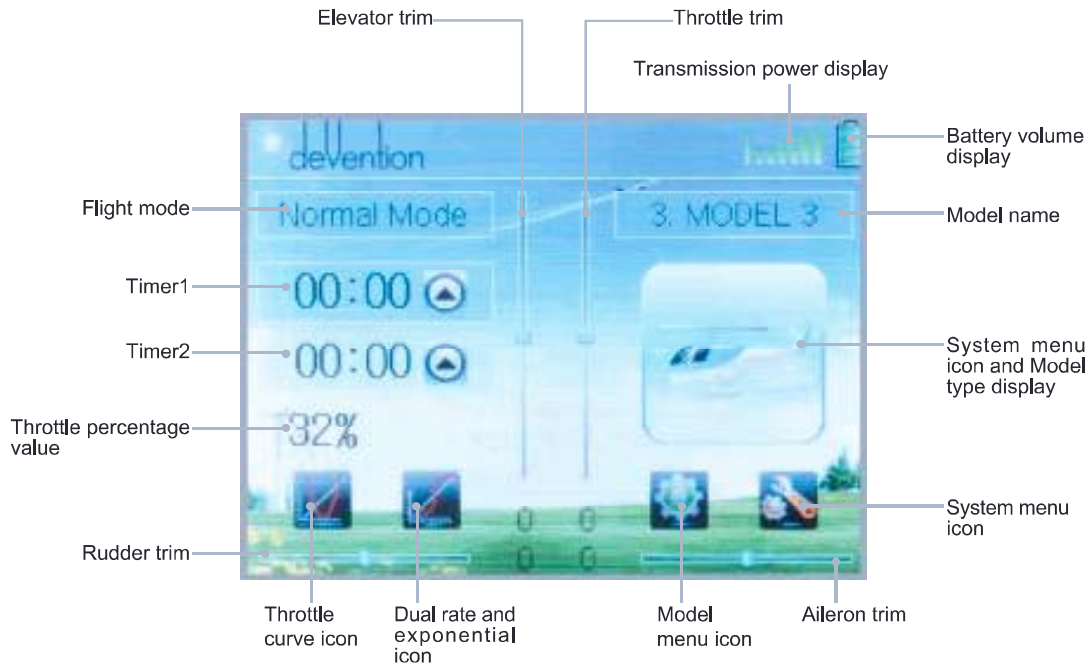
All the functional settings, which are relative to the operation system of DEVO-6 itself, are fully integrated in System Menu. They include Language, Display, Buzzer, Touch Screen Calibration, Stick Mode, Stick Calibration, and About.



1.0 System menu

All the functional settings, which are relative to the operation system of DEVO-6 itself, are fully integrated in System Menu. They include Language, Display, Buzzer, Touch Screen Calibration, Stick Mode, Stick Calibration, and About.

Below is the boot screen of helicopter:



1.1 Language setting

Touch the shortcut icon to enter System Menu and then touch to enter the language interface. Touch the language that you want to select. A "✓" will be shown on the screen after selected. Then touch to save and exit.



1.1 Language setting



1.2 Display

1.2 Display

Touch the shortcut icon to enter System Menu and then touch the icon to enter "Display".

Three items are available to be set. Below are the setting methods for them:



- (1) Backlight lightness: the backlight lightness is adjustable by touching the navigation marks. The power consumption will be increased if the backlight lightness is too bright and the battery cruise duration will be shortened.

Welcome to use the DEVO-6 transmitter

- (2) Backlight time out: it is possible to set the duration which LCD stays at highlight in the form of "Always on" or any period from 5 to 60 seconds with an interval of 5 seconds.
- (3) Power save time: it can adjust the backlighting duration by turning off the backlight in order to prolong the battery cruise time. The setting status contents Always On and duration in 30 grades with an interval of 1 minute.


Touch  to exit.

1.3 Buzzer warning



Touch the icon  to enter System Menu and then touch  to enter the buzzer interface.

- (1) Buzzer switch: touch the navigation mark at Buzzer Switch and pop up an alternative item: "Off" and "On". If touching On, a drop-down menu will be shown below.
- (2) Throttle stick buzzer: under Buzzer Switch is at the status of On, if Throttle Stick is set as "Active", a relative musical scale will make response when moving the throttle stick. You can judge the position of the throttle stick according to the different musical scales. Also, it can be set as Inhibit.
- (3) Buzzer tone: the tone is composed of 10 grades. You can choose the favorite one according to your interests. Touch Test to make a listening test.



Touch  to exit after finished.



1.4 Touch screen calibration

Touch the icon  to enter System Menu and then touch  to enter the Touch screen calibration interface.

Click anywhere on the screen to start calibration with the touch pen, and then follow the indication to calibrate. It will automatically return to System Menu after the calibration is finished.

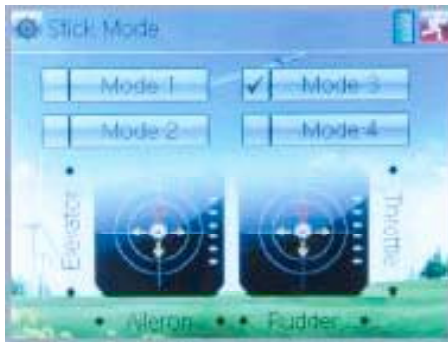


1.5 Stick mode



Touch the icon  to enter System Menu, and then touch the icon  to enter the stick mode interface.

There are four stick modes from MODE 1 to MODE 4. Select the stick mode you desire and then touch the icon  to exit.





1.6 Stick Calibration

Touch the icon  to enter System Menu and then touch the icon  to enter the interface of Stick Calibration. There are two items in the interface: Stick Direction and Stick Calibration.

(1) Stick direction: there are four options: Elevator, Aileron, Throttle, and Rudder. Click the item, which you want to reverse, to change the output direction of the stick. The default setting is Normal.



(2) Stick calibration: if variance happened in sticks, it would be calibrated via this option.

Method for calibration:

Click the display item of Start to enter the status of calibration, and Start will be turned into Stop.

(2.1) Stick calibration: Clockwise or counter clockwise mechanically move the right stick and left stick from their minimum levels to their maximum levels several times, and then return the sticks to the neutral positions, respectively.

(2.2) Click the item of Stop. If the calibration is finished, "Calibration success!" will be shown at the lower of the screen. If the calibration is failed, "Calibration error! Please try again!" will be shown instead. It needs to be calibrated again.






(2.3) Re-calibration: directly repeat the said steps (2.1) and (2.2) in the calibration failure interface.

Touch the icon  to exit.

Welcome to use the DEVO-6 transmitter

1.7 About

Touch the icon  to enter System Menu and then touch  to get access to the about interface. You can check the versions of hardware and software. Click the icon  to exit.




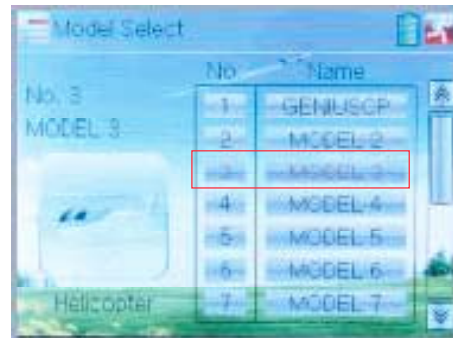
2.0 Model menu

Model Menu manages all the model data saved in DEVO-6. It includes Model Select, Model Name, Model Copy, Model Transmit, Model Receive, Model Reset, Type Select, Trim System, Device Select, Device Output, Swash Type, Power Amplifier, and Fixed ID.


2.1 Model select



Touch the icon  to enter Model Menu and then click the icon  to enter the model select interface.

Click the model you desired. The selected model will be temporarily changed into orange color. Then click the icon  to exit.



2.2 Model name

In the menu of Model Name, you can make a desired name for your model for long term storage. Its data can be directly withdrawn in next flights. Repeat the step "2.1 Model Select" to choose the model you want to name or save. And then touch the icon  to exit.

Click the icon  to enter System Menu and then click the icon  to get the model name interface. The following is the interface:

