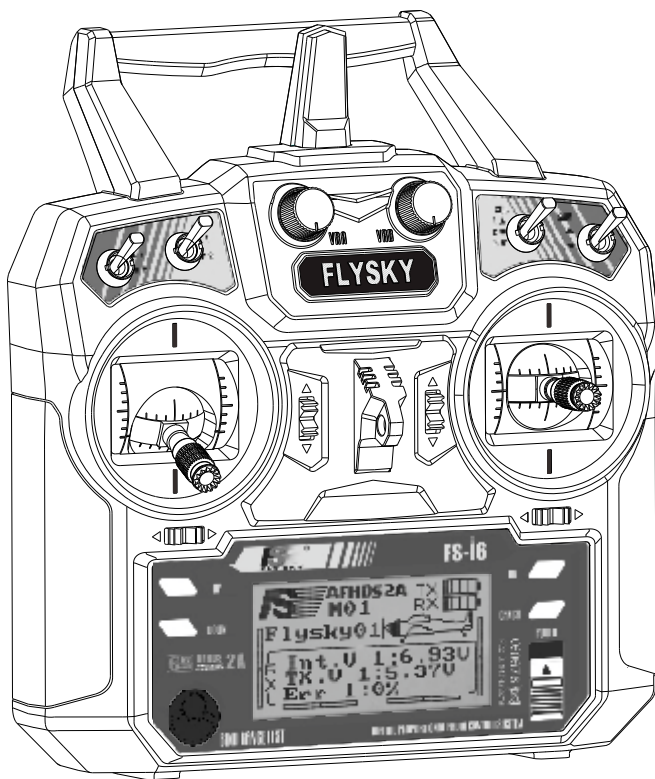




FS-i6

Digital proportional radio control system

INSTRUCTION MANUAL



AFHDS 2A
AUTOMATIC FREQUENCY
HOPPING DIGITAL SYSTEM

<http://www.flysky-cn.com>

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Flysky RC model technology co., ltd

WARNING:
This product is suitable for
15 years old and above



CE 0678 FC

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1. Introduction

Thank you for choosing the Fly Sky FS-i6 6 channels 2.4GHz AFHDS2A computerized digital proportional RC airplane and helicopter system. If it's your first use of a computerized radio system, this user manual will bring you easily to a new world of fun and sophistication. In all cases, please read carefully and completely this user manual as it contains all information to keep you safe.

2. Services

If you encounter any problem during use, please refer to this manual. If the problem still persists, please contact your local dealer or visit to our service and support website:

<http://www.flysky-cn.com>

3. Special symbols

Please pay attention to the following symbols when they appear in the manual and read carefully.



Danger: Not following these instructions may expose the user to serious injuries or death.



Warning: Not following these instructions may expose the user to serious injuries.



Attention: Not following these instructions may expose the user to minor injuries and even to serious injuries.



Prohibited



Mandatory

4. Safety guide



Don't fly at night or in bad weather like rain or thunderstorm as this can cause erratic operation or loss of control



Make sure moving direction of all motors be same with the operating direction. If not, please adjust direction first.



The shutdown sequence must be to first disconnect the receiver battery then to switch off the transmitter, if the transmitter is switched off while the receiver is still powered, it may lead to uncontrolled movement or engine start and may cause an accident.



In particular, the 2.4G RC system will affect the plane or the car nearby after you turn on the transmitter.



Do not operate outdoors on rainy days, run through puddles of water or use when visibility is limited. Should any type of moisture (water or snow) enter any component of the system, erratic operation and loss of control may occur.



Do not operate in the following places:

Near other sites where other radio control activity may occur,

Near people or roads,

On any pond when passenger boats are present,

Near high tension power lines or communication broadcasting antennas,

Interference could cause loss of control,

Improper installation of your Radio Control System in your model could result in serious injury.



Do not operate this R/C system when you are tired, not feeling well or under the influence of alcohol or drugs. Your judgment is impaired and could result in a dangerous situation that may cause serious injury to yourself as well as others.



Do not touch the engine, motor, speed control or any part of the model that will generate heat while the model is operating or immediately after its use. These parts may be very hot and can cause serious burns.



Please have an overall check about the model before any operation.

Any problem in radio control system or improper installation may cause out of control.

Simple distance test methods:

One hold the model, and the other one carry the transmitter to a proper place to check the servo system condition.

Please stop operation if any exceptional case occurs.

Please check the model memory to make sure the matching is right.



Turn on the power, please check if the throttle neutral position is in its lowest position while turning on the transmitter every time. When making adjustments to the model, do so with the engine not running or the motor disconnected, you may unexpectedly lose control and create a dangerous situation.

5. 2.4GHz System



AFHDS2A stands for "Automatic Frequency Hopping Digital System 2A". This highly sophisticated radio transmission system will guarantee you a long range, jamming free and long battery life experience. This is the result of years of research and testing and makes Fly Sky one of the world leader in the market.

RF specifications:

RF range: 2.4055-2.475GHz
Channel bandwidth: 500KHz
Number of channels: 140
RF power: less than 20dBm
RF mode: AFHDS 2A(Automatic Frequency Hopping Digital System 2A)
Modulation type: GFSK
Antenna length: 26mm*2(dual antenna)
RX sensitivity: -105dBm

Danger:

Misuse of this radio system can lead to serious injuries or death. Please read completely this manual and only operate your radio system according to it.

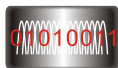
The 2.4GHz radio band has a completely different behavior than previously used lower frequency bands. Keep always your model in sight as a large object can block the RF signal and lead to loss of control and danger. The 2.4GHz RF signal propagates in straight lines and cannot get around objects on its path. Never grip the transmitter antenna when operating a model as it degrades significantly the RF signal quality and strength and may cause loss of control and danger

Danger:

Always turn on the transmitter first then the receiver. When turning off the system, always turn off the receiver first then the transmitter. This is to avoid having the receiver on itself as it may pick a wrong signal and lead to erratic servo movements. This is particularly important for electric powered models as it may unexpectedly turn on the motor and lead to injuries or death.

A separation distance of at least 20 cm from all persons is required during operation.

6. System Characteristic



This radio system works in the frequency range of 2.405 to 2.475GHz. This band has been divided into 142 independent channels. Each radio system uses 16 different channels and 160 different types of hopping algorithm. By using various switch-on times, hopping scheme and channel frequencies, the system can guarantee a jamming free radio transmission.



This radio system uses a high gain and high quality multi directional antenna. It covers the whole frequency band. Associated with a high sensitivity receiver, this radio system guarantees a jamming free long range radio transmission.



Each transmitter has a unique ID. When binding with a receiver, the receiver saves that unique ID and can accept only data from that unique transmitter. This avoids picking another transmitter signal and dramatically increases interference immunity and safety.



This radio system uses low power electronic components and a very sensitive receiver chip. The RF modulation uses intermittent signal transmission thus reducing even more power consumption. Comparatively, this radio system uses only a tenth of the power of a standard FM system.



AFHDS2A system has the automatic identification function, which can switch automatically current mode between single-way communication mode and two-way communication mode according to customer needs. The two-way communication mode with data return function can help users understand current working status better and make the fight more enjoyable.



AFHDS2A has built-in multiple channel coding and error-correction, which improve the stability of the communication, reduce the error ratio and extend the reliable transmission distance.

7. Transmitter specifications

Transmitter specifications:

Number of channels: 6
 Model type: fixed-wing/glider/ helicopter
 Channel resolution: 1024 steps
 Power supply: 6V (1.5V AA x4)
 Low voltage warning: Icon blinks and alarm less than 4.2V
 Icon blinks and short alarm less than 4.0V
 No-operation warning: The transmitter will alarm if
 there is no operation more
 than one minute.
 Antenna length: 26mm*2 (dual antenna)
 Color: Black
 Size: 174*89*190mm
 Weight: 392g
 Certification: CE, FCC


AFHDS 2A
 AUTOMATIC FREQUENCY
 HOPPING DIGITAL SYSTEM
MODELS: FS-i6



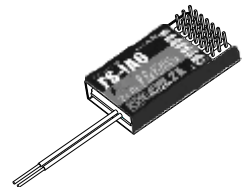
8. Receiver specifications


AFHDS 2A
 AUTOMATIC FREQUENCY
 HOPPING DIGITAL SYSTEM

MODEL: FS-IA6

SPECIFICATIONS :

Number of channels: 6
 Model type: fixed-wing/glider/ helicopter
 RF receiver sensitivity: -105dBm;
 Modulation : GFSK
 System type: AFHDS2A/AFHDS
 Channel resolution: 1024 steps
 Bind port: yes
 Power port: yes(VCC)
 Power: 4.0-6.5VDC
 Weight: 6.4g
 Antenna length: 26mm
 Size: 40.4*21.1*7.35mm
 Color: black
 Certification: CE, FCC.



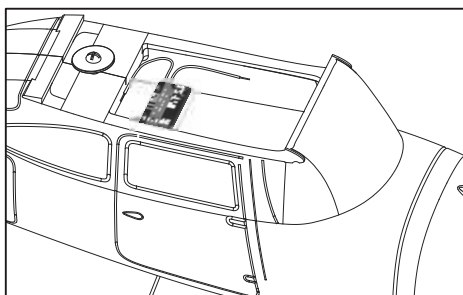
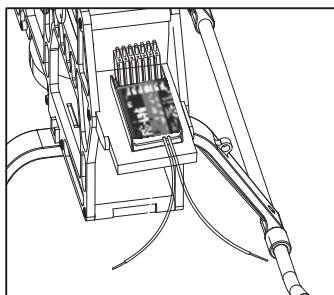
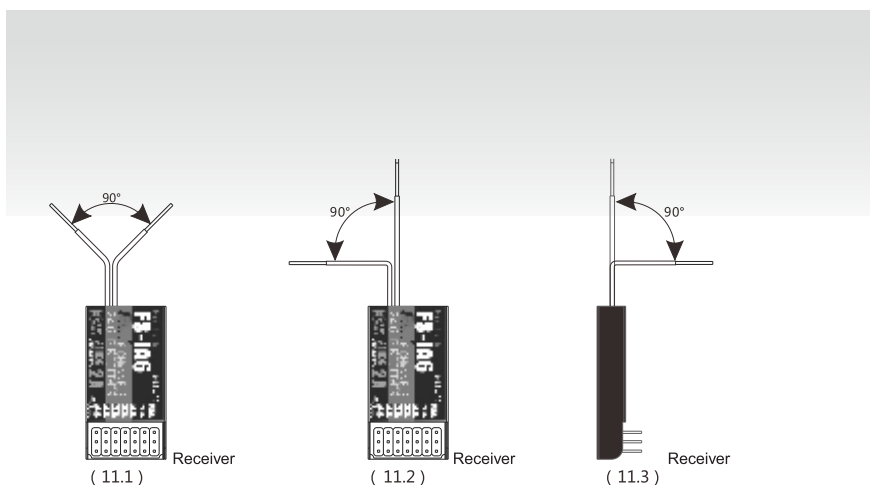
9. RX setup introduction

Dual antenna notes



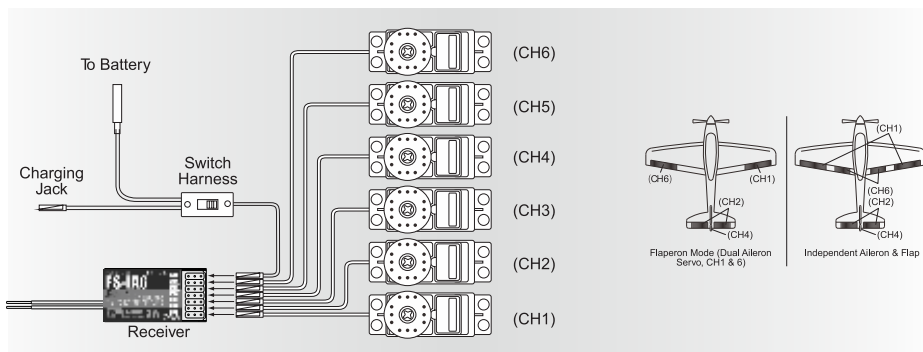
In order to make sure maximum distance between the transmitter and receiver please follow the directions below:

1. The two antennas must be kept as straight as possible. Otherwise, control range will be reduced.
2. The two antennas should be placed at a 90 degree angle to each other, as illustrated in the three pictures below.
3. The antennas must be kept away from conductive materials, such as metal and carbon. A distance of at least 1.5cm is required for separation. Conductive materials will not affect the coaxial part of the antenna, but it is important that the coaxials are not bent to a severe radius.
4. Keep antennas away from the motor, speed controller and other noise sources as much as possible.

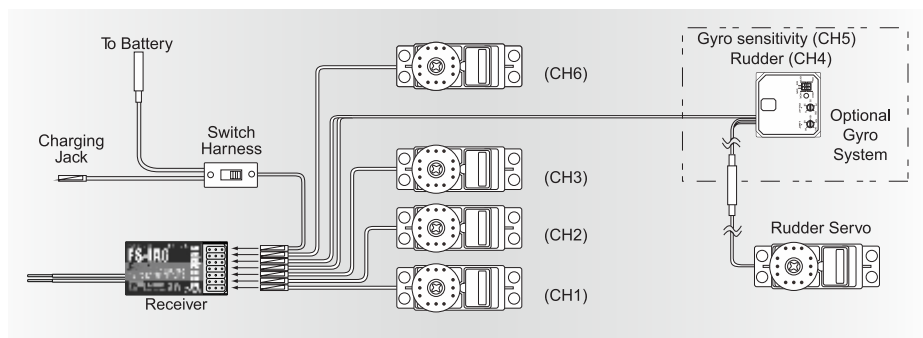


10. Receiver and servo connections

10. 01. Receiver and servo connections (aircraft)



10. 02 Receiver and servo connections(helicopter)

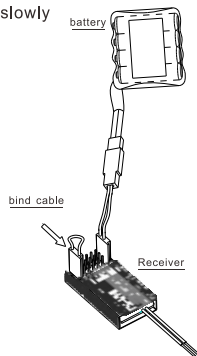


11. 2.4GHz Operation notes

11. 01. Binding

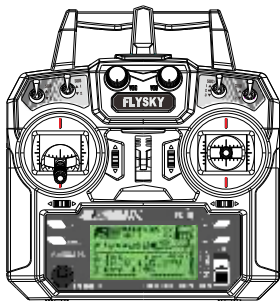
The supplied transmitter and receiver are already bound at production time so you don't need to do it. If you are using another transmitter or receiver, you have to first bind them before use as described below:

1. Install batteries in the transmitter and turn it off.
2. Connect the binding jumper to the battery port of the receiver.
3. Connect the battery of the receiver to any channel power supply. The red LED with blink indicating that it is in binding mode.
4. Press and hold the bind key of the transmitter and turn it on.
5. The binding process is finished when the red indicator on receiver flashes more slowly than before. Pull out the binding wire and the red indicator stays on.
6. Disconnect the receiver battery.
7. Turn off then back on the transmitter.
8. Connect all the servos to the receiver and then connect its battery.
9. Check if all servos are working as expected.
10. If anything is wrong, please bind again according to the steps.

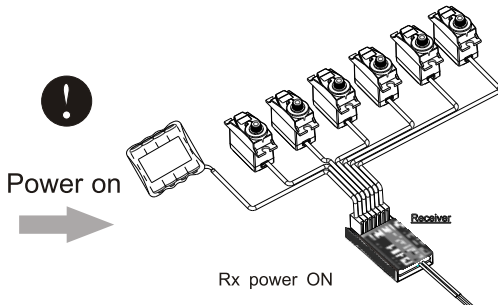


11. 02 Power on

1. Connect all parts
2. Switch on the transmitter
3. Connect the receiver battery
4. The receiver red LED indicator is solid indicating the presence of a correct signal
5. Use the radio system



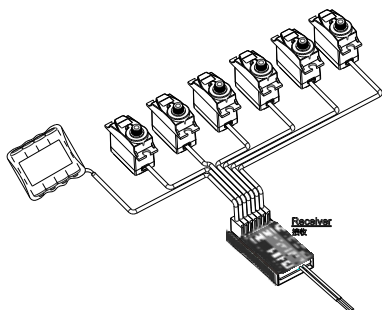
Tx power ON



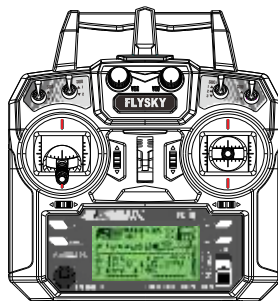
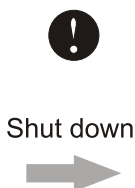
Rx power ON

11.03 Shut down

1. Disconnect the receiver battery
2. Switch off the transmitter

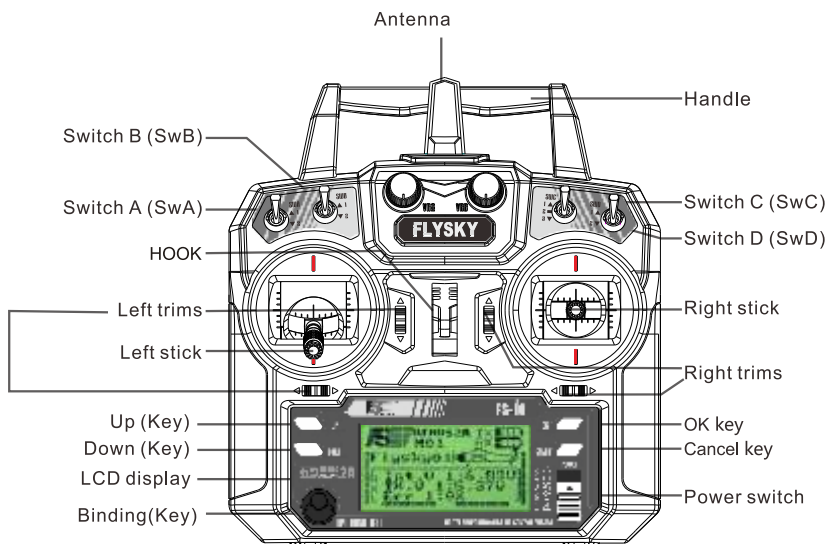


Rx power off

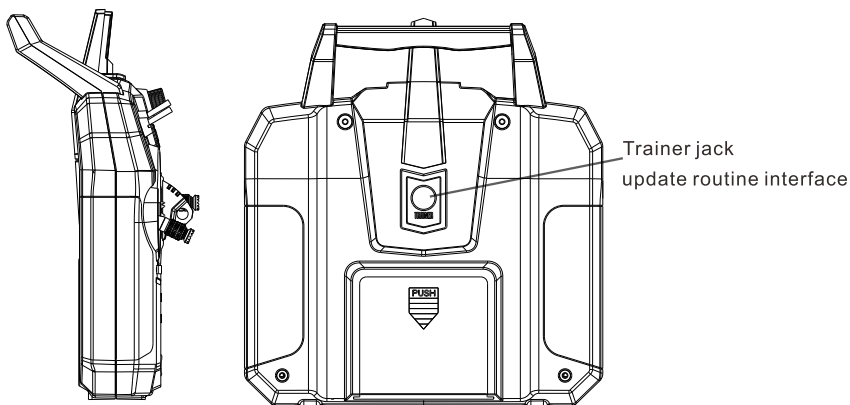


Tx power off

12. Definition of key functions



Definition of key functions



13. Warning



For your safety, the 4 switches of the transmitter must be in their off position and throttle stick must be the lowest position when turning the transmitter on. If not, a warning screen will be displayed until all switches are in the right position.

14. Main screen



Besides the Fly Sky logo and modulation type (AFHDS2A), the main screen displays the following information:

1. Selected model number (1 to 20): 20 different models can be saved in the transmitter allowing you to instantly switch to 20 different models.
2. Model name: each model can be named with 8 characters name that allow you to easily recognize the associated model.
3. An aircraft or helicopter picture that indicates the type of the selected model.

4. The four electronic trims position.
5. The battery status and voltage. Icon blinks and alarm when the battery voltage drops below 4.2V. Below 4.0V, Icon blinks and alarm shortly.
6. Feedback sensor data from RX (unique character of two-way communication system).

14.01 Main screen



15. Main menu



The main menu is separated into two main sections, system setup and functions setup. The system menu allows you to set up the transmitter and manage the 20 models. The function menu is used to set up each model separately. To enter the main menu, long press the "OK" key. Use the "Up" and "Down" Key to select the desired section and press "OK". Then, use the "Up" and "Down" Key to select the desired submenu and press again "OK". Most of the following screen work according to this simple scheme:

1. Use the "OK" key to select the parameter to modify.
2. Use the "Up" and "Down" key to modify the value of the selected parameter.
3. Long press the "Cancel" key to exit and save the new parameters.
4. Short press the "Cancel" key to exit without saving new parameters.

To return to the previous screen, press the "Cancel" key. You can repeat that operation until the main screen.

16. System settings



16.01. Model select



Use this function to select the active model among the 20 available models. Doing so, you can set up and save all required parameters to fly 20 different models and switch instantly between them.

16.02. Model name



Use this function to change the name associated with the currently selected model. Press "OK" to select

the letter of the name to change then use the "UP" "DOWN" key to change the selected letter.

16.03. Type select



Use this function to select the type of aircraft or helicopter the current model is controlling. The "Functions setup" menu will be filled accordingly. The transmitter supports

airplanes (including V tail configuration), fixed and variable pitch helicopters and SwashAFR (Collective and Cyclic Pitch Mixing) 90°, 120° and 140°.

16.04. Model copy



Use this function to copy one model settings to another. The target model settings will be deleted and replaced by the source model settings. Since this command is

destructive, a confirmation will be asked. Press "OK" to execute the copy, select "Yes" with "UP" "DOWN" key then press "OK" again to confirm.

16.05. Model reset



This function will reset the currently selected model to its default. The other models will not be affected. This can be useful when a setup is going nowhere and

needs a fresh start. Since this function is destructive, a confirmation will be asked.

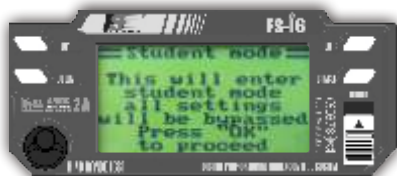
16.06. Trainer mode



This function allows you to connect 2 transmitters together using a dedicated cable connected to the back interface. One is the instructor (the master) and the other is the student (the slave). Once enabled, switching on the selected trainer switch will set up the remote as the

instructor and use the trainer transmitter to control the model. As soon as the trainer switch is turned off, the student transmitter regains control. To be effective, the 2 transmitters have to use the same radio mode (see below).

16.07. Student mode



This function works together with the trainer mode. Once enabled, all mode settings are bypassed and the sticks position is sent directly to the instructor's transmitter. At that time, the student transmitter must not control any model directly and any receiver bound to the trainer

transmitter must be turned off. Bypassing all student settings allows both student and instructor to share the instructor settings to avoid any glitch when switching between the student and its instructor.

16.08. Sticks mode



With this function, you can choose among 4 different selected sticks according to your flying habits (left or right handed for example).

16.09 Rx setup

16.09.01 AFHDS 2



This function is used to set one-way or two-way communication.

16.09.02 RX Battery



Low voltage: set the minimum voltage value. The battery is empty when the actual battery voltage value is lower than this value.

Alarm voltage: set the alarm voltage. An audible alarm rings and the receiver battery icon in the top tray blinks when the actual battery voltage value is lower than this value.

High voltage: set the maximum voltage value. The battery is in full charge state when the actual battery voltage is equal to this value.

16.09.03 Fail Safe



This function is used for setting the data of failsafe. Once the signal of receiver is lost, the one or more servos will back to pre-set position. "turn off" means the relevant servos will keep the last position when the signal is lost. Setting methods:

Short press "OK", choose one channel to set failsafe function, if

the channel is in the needed position, and keep it, short press "OK", then the position of servo will be saved. "ALL Channels" is used for setting all activated channels at a time. Press "Cancel" after finishing all setting to save the failsafe data.

16.09.04 Sensors list



It shows all sensors' type, code and value, it can connect 15 sensors at most.

16.09.05 Choose Sensors



Main screen can show 3 sensors' value, this function can select sensor which need to show, if you don't select sensor, it will show the default one.

16.09.06 Speed-distance



Speed sensor:

Select the rotation speed sensor to use. If none is selected, this function is disabled.

Set rotation length:

Set the vehicle travel distance corresponding to one rotation speed sensor. This distance is used to control the virtual speed and odometers sensors.

Reset odometer:

Touch "Reset odometer 1" or "Reset odometer 2" to reset the corresponding odometer.

Odometer 1: it is used for recording the distance traveled by the vehicle one time

Odometer 2: it is used for recording total distance traveled by the vehicle.

16.09.07 i-BUS Setup



This function is used to expand data channel

16.09.08 Servos Freq



This function is used to set servo's frequency

16.10. LCD brightness



Adjust the screen contrast according to the surrounding light environment.

16.11. Firmware version



This screen displays the firmware version and date. This allows you to know if a newer version is available for update (see below).

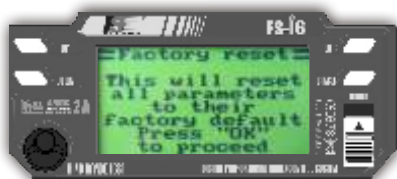
16.12. Firmware update



Prior activating this function, connect the USB cable between the back interface of the transmitter and a PC computer. A confirmation will be asked since all

functions will be halted. Turn off any receiver before entering this mode. To exit this mode, simply turn off then back on the transmitter.

16.13. Factory reset



This function will restore the whole transmitter settings to their factory default. All system and modes settings



will be lost. Since this function is destructive, a confirmation will be asked.

17. Functions settings



17.01. Reverse



This function allows you to reverse a channel. Set all channels according to your model mechanics.

17.02. End points



This function sets the lower and upper extents of all channels. Select the channel number with the "OK" key and the lower or upper extent by moving the

corresponding stick or variator to the desired direction. Select each extent value according to your model mechanics.

17.03. Display



This screen displays the status of all the 6 channels like they are transmitted to the model. It includes

all the mode settings and algorithms if the student mode is not activated.

17.04. Auxiliary channels



This function let you choose the source of the channels 5 and 6. It can be a variator or a switch. If a switch is selected, an off switch will transmit the lower extent of the channel and an on switch the upper extent.

If a variable pitch helicopter is in use, the channel 6 is unavailable. If a helicopter gyroscope is activated, the channel 5 is unavailable.

17.05. Sub-trim



This function allows you to adjust the middle point of each servo. This is especially useful when this middle

point cannot be mechanically fine adjusted.

17.06. Dual rate / exponential



This function lets you set up the transfer function of the channel 1, 2 and 4 in both normal and sport mode. Use the fly mode switch to change mode. The rate selects

the desired slope coefficient and the exponential the linearity of the curve. This is very useful to decrease the sensitivity near the middle point.

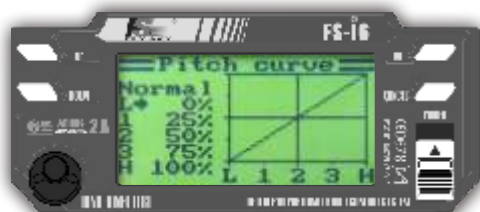
17.07. Throttle curve



This function sets up the transfer curve of the throttle (channel 3) in both normal and idle up modes. Use the idle mode switch to change mode. 5 key points can be

adjusted. For example, a beginner may set them to 0%, 5%, 10%, 15% and 20% to decrease the throttle sensitivity and keep its linearity.

17.08. Pitch curve (variable pitch helicopter only)



This function is similar to the "Throttle curve" and sets up the transfer curve of the pitch.

17.09. Swash AFR (variable pitch with Swash AFR helicopter only)



This function sets the proportion of aileron, elevator and pitch in the Swash AFR. To invert one of them, a

negative value must be selected.

17.10. Mix



This function allows you to program up to 3 custom channel mixes. The master channel will alter the slave channel. The positive and negative mix set the amount

of alteration above and below the middle point. The offset shifts the slave channel by a certain amount.

17.11. Elevon (Airplane only)



For the model without tail and the delta wing, you can set mix control rates of Aileron (CH1) and Elevator

(CH2) by this function.

17.12. V tail (Airplane only)



For the model without the V-tail, you can set mix control rates of Elevator (CH2) and Rudder (CH4) by this function.

17.13. Gyroscope (helicopter only)



This function allows you to activate the gyroscope on the channel 5 and to set up its value for both normal and idle up modes.

17.14. Switches assign



This function lets you assign a switch to control the fly mode, idle mode and throttle hold functions.







17.15. Throttle hold



This function allows you to activate the throttle hold and to choose its value. Once engaged, the throttle stick is

ignored and only the selected value is transmitted.

18. Packaging content

NO:	Model	Sum	Remarks
1	6 channel 2.4G transmitter (FS-i6) 	1	
2	6 channel 2.4G receiver (FS-iA6) 	1	
3	User manual 	1	CD
4	Simulator cable 	1	Optional
5	Servo (FS-S009) 	2	Optional
6	Trainer cable 	1	Optional

19. FCC Statement

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example use only shielded interface cables when connecting to computer or peripheral devices).

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Caution!

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.



Digital proportional radio control system

CE0678FC

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