

QUANUM

i8

Digital proportional radio control transmitter

INSTRUCTION MANUAL



CE 0678 FC



AFHDS 2A
AUTOMATIC FREQUENCY
HOPPING DIGITAL SYSTEM

WARNING:

This product is only for 15 years old or above



Digital proportional radio control system **i8**

Thank you for purchasing our product, an ideal radio system for beginners or experienced users alike.

Read this manual carefully before operation in order to ensure your safety, and the safety of others or the safe operation of your system.

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

www.hobbyking.com



Table of Contents

1. Safety	4
1.2 Safety Guide.....	4
2. Introduction	6
2.1 System Features.....	6
2.2 Transmitter Overview	7
2.2.1 Transmitter Antenna.....	7
2.2.2 Sticks	8
2.2.3 Status Indicator	8
2.2.4 Channel 5 6 Position Knob	8
2.2.5 Knob Position Indicator LEDs	9
2.2.6 Trims	9
2.2.7 Update Interface.....	9
2.3 Receiver Overview	9
2.3.1 Receiver Antenna	9
2.3.2 Status Indicator	9
2.3.3 Connectors	9
3. Getting Started	10
3.1 Transmitter Battery Installation.....	10
3.2 Connecting the Receiver and Servos	11
4. Operation Instruction	12
4.1 Power On	12
4.2 Binding.....	12
4.3 Preflight Check.....	12
4.4 Switching the Stick Modes.....	13
4.5 Calibrating the Sticks and Knobs.....	14
4.6 Throttle Trim	14
4.7 Power Off.....	14
4.8 Switching the Channel Output Sequence	14
4.9 Reversing Channels	15
4.10 Updating the Firmware.....	15
5. Product Specification	16
5.1 Receiver Specification.....	16
5.2 Transmitter Specification	16
Appendix 1 FCC Statement	17

1. Safety

1.2 Safety Guide



Prohibited



Mandatory



- **Do not fly at night or in bad weather like rain or thunderstorm. It can cause erratic operation or loss of control.**
- **Do not use the product when the visibility is limited.**
- **Do not use the product on rainy or snowy days. Should any type of moisture (water or snow) enter any component of the system, erratic operation and loss of control may occur.**
- **Interference could cause loss of control. To ensure the safety of you and others, do not operate in the following places:**
 - Near any site where other radio control activity may occur
 - Near high tension power lines or communication broadcasting antennas
 - Near people or roads
 - On any pond when passenger boats are present
- **Do not use this product when you are tired, uncomfortable, or under the influence of alcohol or drugs. It may cause serious injury to yourself as well as others.**
- **The 2.4GHz radio band is completely different from the previously used lower frequency bands. Always keep your model in sight as a large object can block the RF signal and lead to loss of control.**
- **Never grip the transmitter antenna when operating a model. It significantly degrades the RF signal quality and strength and may cause loss of control.**
- **Do not touch any part of the model that generates heat during operating or immediately after use, like the engine, motor, or speed control. These parts may be very hot and can cause serious burns.**



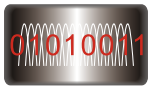
- **Misuse of this product can lead to serious injuries or death. To ensure the safety of you and your equipment, read this manual and follow the instructions.**
- **Make sure the product is properly installed in your model. Failure to do so may result in serious injury.**
- **Make sure to disconnect the receiver battery before turning off the transmitter. Failure to do so may lead to unintended operation and cause an accident.**
- **Ensure that all motors operate in the correct direction. If not, adjust the direction first.**
- **Make sure the model flies within a certain distance. Otherwise, it would cause loss of control.**

2. Introduction

The i8 is an 8-channel 2.4GHz AFHDS 2A digital proportional R/C system. It is compatible with multirotors, helicopters, fixed-wing, and gliders.

2.1 System Features

The AFHDS 2A (Automatic Frequency Hopping Digital System Second Generation) developed and patented by FLYSKY is specially developed for all radio control models. Offering superior protection against interference while maintaining lower power consumption and high reliable receiver sensitivity, FLYSKY's AFHDS technology is considered to be one of the leaders in the RC market today.



Multi-channel Hopping Frequency

This system's bandwidth ranges from 2.4055GHz to 2.475GHz. This band is divided into 140 channels. Each transmitter hops between 16 channels (32 for Japanese and Korean versions) in order to reduce interference from other transmitters.



Omni-directional Gain Antenna

The high efficiency Omni-directional high gain antenna cuts down on interference, while using less power and maintaining a strong reliable connection.



Unique ID Recognition System

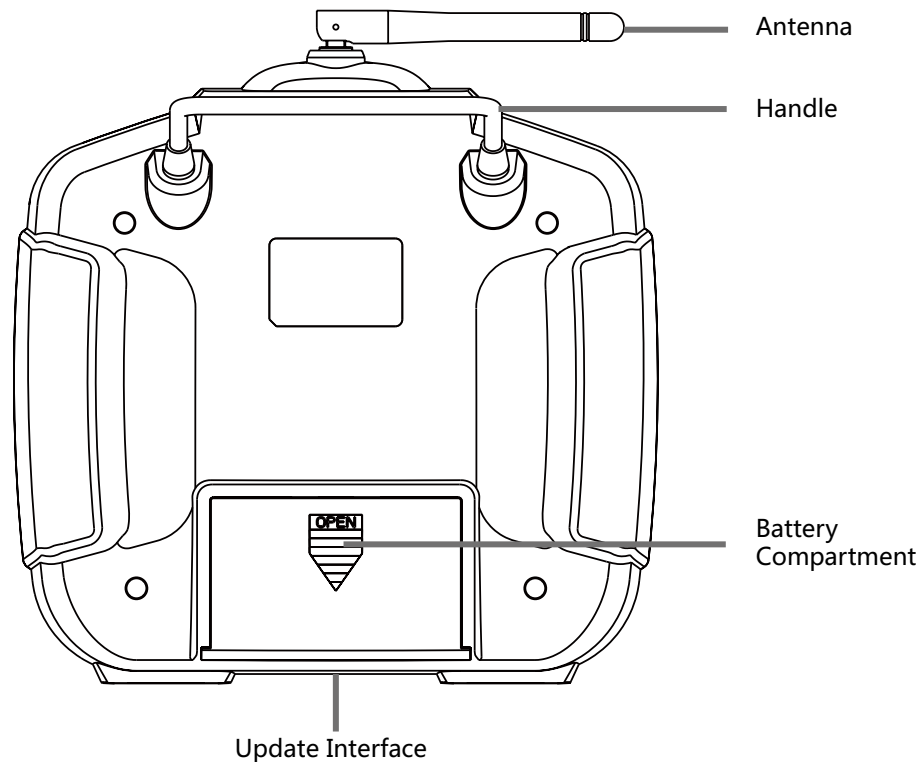
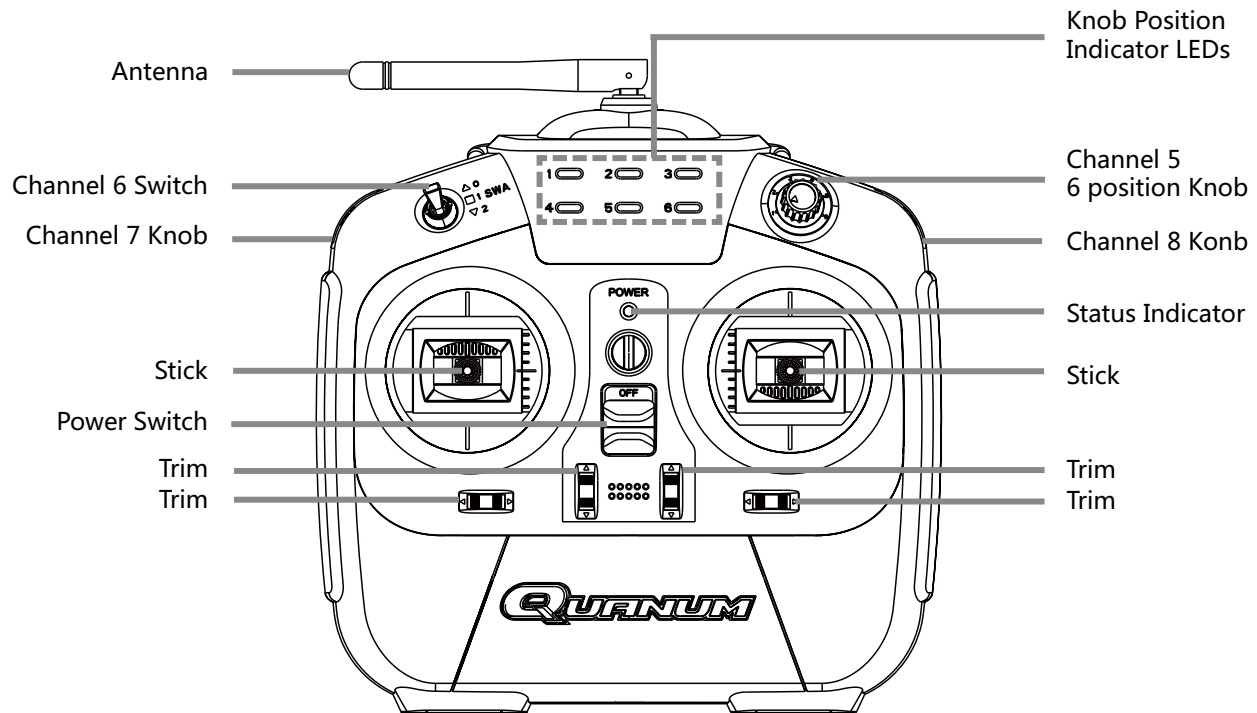
Each transmitter and receiver has its own unique ID. Once the transmitter and receiver have been paired, they will only communicate with each other, preventing other systems from accidentally connecting to or interfering with the system's operation.



Low Power Consumption

The system is built using highly sensitive low power consumption components, maintaining high receiver sensitivity, while consuming as little as one-tenth the power of a standard FM system, dramatically extending battery life.

2.2 Transmitter Overview



2.2.1 Transmitter Antenna

Precautions:

- For best signal quality, make sure that the antenna is at about a 90 degree angle to the model. Do not point the antenna directly at the receiver.
- Never grip the transmitter antenna when operating a model. It significantly degrades the RF signal quality and strength and may cause loss of control.

2.2.2 Sticks

There are two sticks on the transmitter and two preset modes for the functions of the sticks. You can switch the sticks to suit your operation habit. For details, refer to section **4.4 Switching the Stick Modes**.

You can also loose or tighten the lever head to adjust the length of the stick.

2.2.3 Status Indicator

The status indicator is used to indicate the power and working status of the transmitter.

- Off: the transmitter is powered off.
- Lit in red: the transmitter is on and working.
- Flashing: the transmitter is binding, switching the sticks or calibrating the middle position; or the battery charge is low.

2.2.4 Channel 5 6 Position Knob

The Flight modes rotary knob has been specifically made to give a full 6 positions or flight modes by simply rotating the knob. The 6 center mounted easily visible LEDs give a quick visual reference to the selected flight mode/knob position. The included label sticker sheet lets you marks and layout your flight modes to match your preferences.

The Flight modes knob is configured to channel 5 of the CPM stream and corresponding CH5 PWM out pins of the IA8 receiver. The 6 knob positions represent 6 different PWM/uS outputs that are spaced to match most popular flight controller's flight mode options. The 6 PWM values for the knob positions are as follows:

Channel 5 PWM to Knob position map:

- Position 1 = 1200uS
- 2= 1300uS
- 3= 1400uS
- 4= 1500uS
- 5= 1700us
- 6= 1800uS



2.2.5 Knob Position Indicator LEDs

The knob position indicator LEDs are used to indicate the currently position of the channel 5 6 position knob, each indicator corresponds to a flight mode. When the knob changes position, the corresponding indicator lights up.

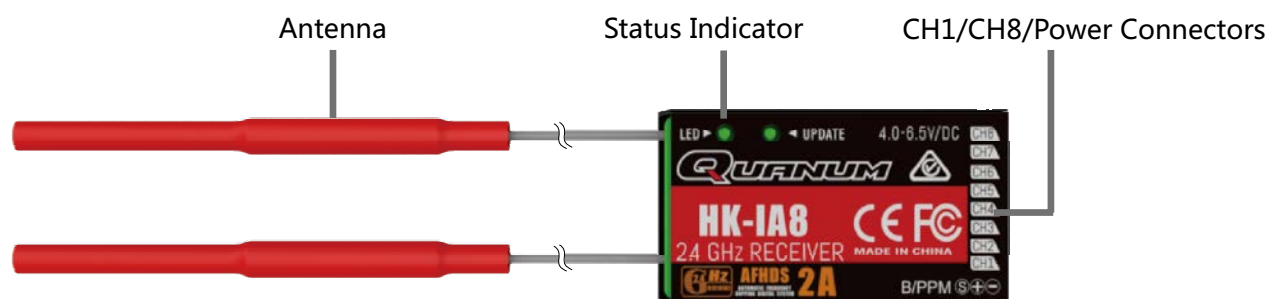
2.2.6 Trims

There are 4 trims affecting stick functionality, one for rudder (Channel 4), elevator (Channel 2), throttle (Channel 3) and ailerons (Channel 1). Each time a trim is toggled, the trim will move one step. It is possible to make quicker trim adjustments by holding the trim in the desired direction. When the trim position reaches the middle, the transmitter beeps in a higher tone.

2.2.7 Update Interface

The update interface is used to update the system software. If you want to update the system to the latest version, contact your local dealer or visit our service and support website for help: www.hobbyking.com.

2.3 Receiver Overview



2.3.1 Receiver Antenna



Attention

- For best signal quality, ensure that the receiver is mounted away from motors or metal parts. Also make sure that the antennas are mounted at a 90 degree angle to each other.

2.3.2 Status Indicator

The status indicator is used to indicate the power and working status of the receiver.

- Off: the power is not connected.
- Lit in red: the receiver is on and working.
- Flashing quickly: the receiver is binding.
- Flashing slowly: the bound transmitter is off.

2.3.3 Connectors

The connectors are used to connect the parts of model and the receiver.

- CH1 to CH8 connectors are used to connect the servos, power or other parts.
- B/PPM connector is used to connect the bind cable for binding.

3. Getting Started

Before operation, install the battery and connect the system as instructed below.

3.1 Transmitter Battery Installation

 **Danger** • Only use specified battery.

 **Danger** • Do not open, disassemble, or attempt to repair the battery.

 **Danger** • Do not crush/puncture the battery, or short the external contacts.

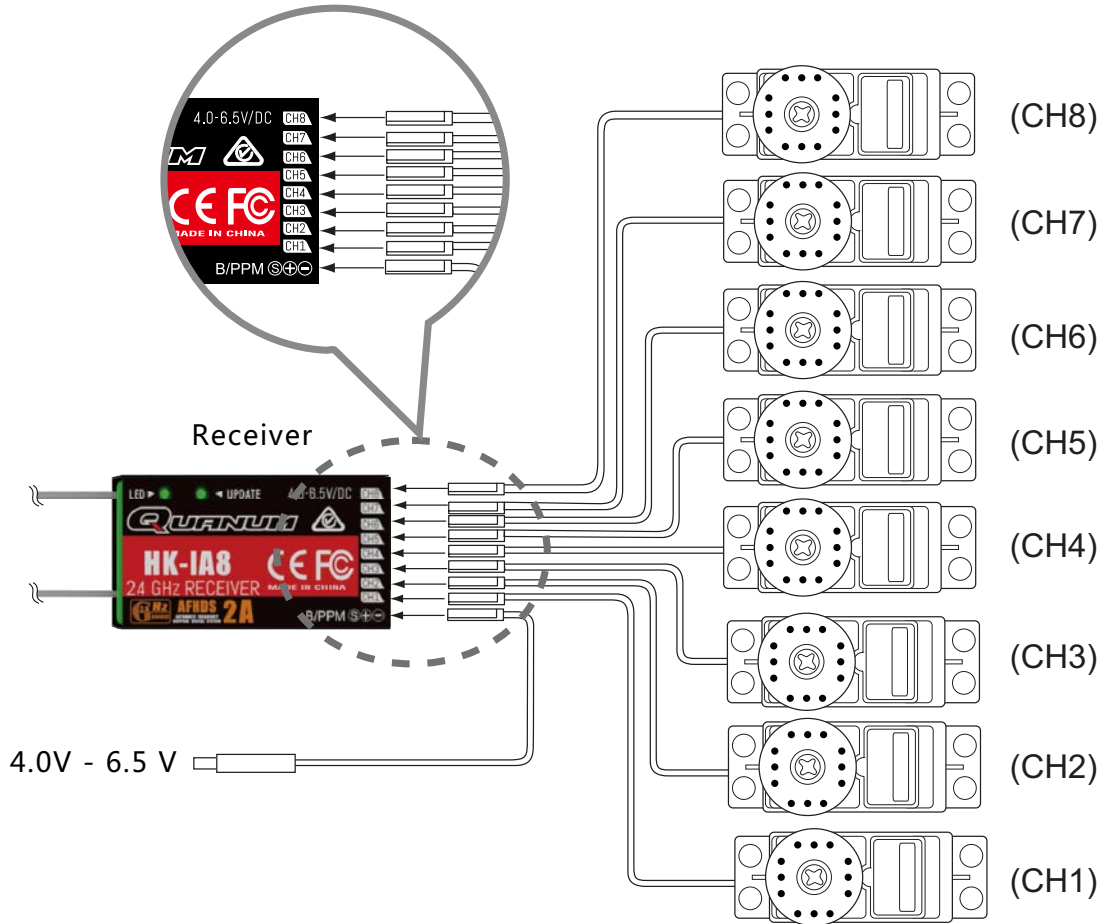
 **Danger** • Do not expose to excessive heat or liquids.

Follow the steps to install the transmitter battery:

1. Open the battery compartment.
2. Insert a fully-charged battery into the compartment. Make sure that the battery makes good contact with the battery compartment's contacts.
3. Replace the battery compartment cover.

3.2 Connecting the Receiver and Servos

Connect the receiver and the servos as indicated below:



4. Operation Instruction

After setting up, follow the instructions below to operate the system.

4.1 Power On

Follow the steps below to turn on the system:

1. Check the system and make sure that:
 - The battery is fully charged and installed properly.
 - The receiver is correctly installed.
 - The throttle stick is at its lowest position.
2. Slide the power switch up to the ON position.
3. Connect the receiver power supply.

The system is start now. Operate with caution, or serious injury could result.

4.2 Binding

The transmitter and receiver have been pre-bound before delivery. If you are using another transmitter or receiver, follow the steps below to bind the transmitter and receiver:

1. Make sure a battery is installed in the transmitter and that the transmitter is turned off.
2. Connect the bind cable to the B/PPM connector of the receiver.
3. Connect the power to any of the CH1 to CH8 connectors. The indicator starts to flash, indicating that the receiver is in binding mode.
4. Turn the transmitter on. The status indicator starts to flash, indicating that the transmitter is in binding mode. Then the indicator on the receiver starts to flash slowly for a short time after which it will become a solid colour indicating that the binding was successful.
5. Check if all the servos work as expected. If anything is wrong, restart this procedure from the beginning.

4.3 Preflight Check

Before operation, perform the following steps to check the system:

1. Check to make sure that all servos and motors are working as expected
2. Check the safe distance: one operator holds the transmitter, and another one moves the model away from the transmitter. Check the model and mark the distance from where the model starts to lose control.

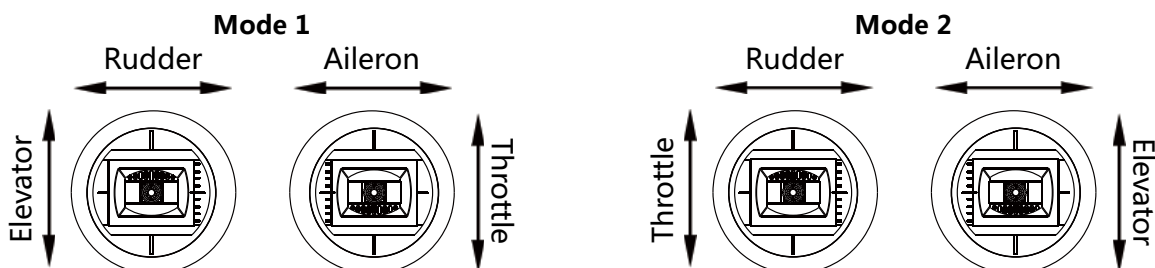
 **Danger** • **Stop operation if any abnormal activity is observed.**

 **Danger** • **Make sure the model flies within the safe distance.**

4.4 Switching the Stick Modes

There are two sticks on the transmitter and two preset modes for the functions of the sticks. Usually the stick with the self centring feature on both axis will be mapped to the Elevator, while the other to the Throttle.

The functions of the sticks in respective modes are shown below:

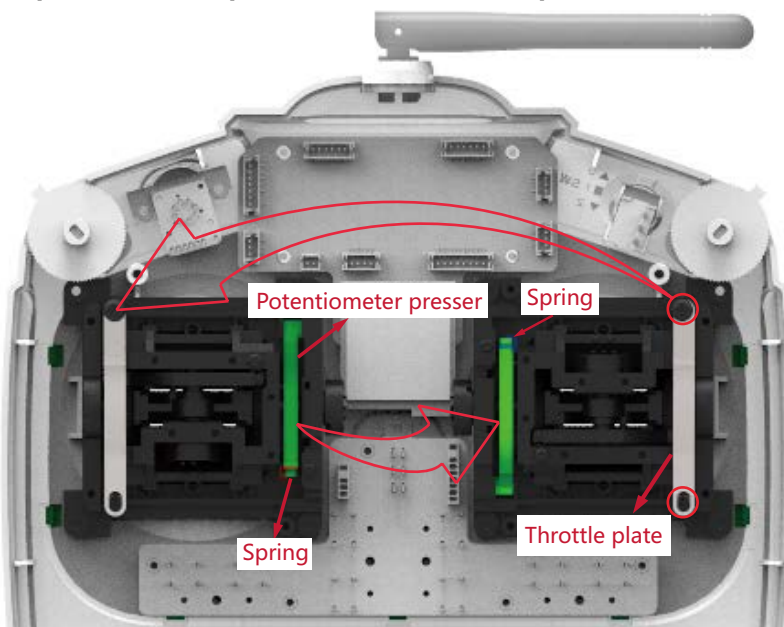


You can switch the stick modes to suit your operation habit. To switch the sticks:

1. Take the battery out from the transmitter. Loosen the four screws that hold the rear cover. Keep the screws properly.
2. Unhook the spring with tweezers and then take out the potentiometer presser. Turn the potentiometer presser around and install it to the other side of the seat. Hook one end of the spring to the seat and the other end to the potentiometer presser.
3. Loosen the two screws that hold the throttle plate, and then take out the throttle plate. Then install the throttle plate to the other side of the seat, and tighten the screws.

• **Note:**

Do not install the potentiometer presser and the throttle plate to the same side of the seat.



4. Re-assemble the rear cover of the transmitter, and tighten the screws.
5. Move the left stick to the top left corner and the right stick to the top right corner, and slide the power switch up to the ON position simultaneously. The status indicator starts to flash.

• **Note:**

If the throttle function is switched to the left stick, the transmitter beeps. If the function is switched to the right stick, the transmitter does not beep.

6. Slide the power switch down to the OFF position.

4.5 Calibrating the Sticks and Knobs

After switching the stick modes, it is required to calibrate the sticks and knobs on the transmitter. You should also perform a calibration after switching sticks or if the transmitter sticks/knobs are not working accurately.

To perform a calibration:

1. Move the left stick to the top right corner and the right stick to the top left corner, and slide the power switch up to the ON position simultaneously. The status indicator starts to flash.
2. Move the sticks and knobs through their maximum range of movement.
3. Wait until the status indicator stops flashing. The calibration is finished.

4.6 Throttle Trim

For motor-driven models, it is required to set the initialization position of the throttle before first use.

1. Push the power switch up to the ON position.
2. Press and hold the throttle trim button upward or downward until you hear a beep of a higher tone.

4.7 Power Off

Follow the steps below to turn off the system:

1. Disconnect the receiver from the battery.
2. Slide the power switch of the transmitter down to the OFF position.



Danger

- **Make sure to disconnect the receiver battery before turning off the transmitter. Or it may lead to unintended operation and cause an accident.**

4.8 Switching the Channel Output Sequence

Generally the transmitter outputs channel signals in a sequence of CH1 -> CH2 -> CH3 -> CH4 -> CH5 -> **CH6** -> **CH7** -> CH8. If needed, you can change the sequence to CH1 -> CH2 -> CH3 -> CH4 -> CH5 -> **CH7** -> **CH6** -> CH8.

To switch between the two sequences:

1. Turn off the transmitter.
2. Move both of the sticks to the top left corner, and slide the power switch up to the ON position simultaneously.

The sequence is now set and will not change unless the above procedure is performed again.

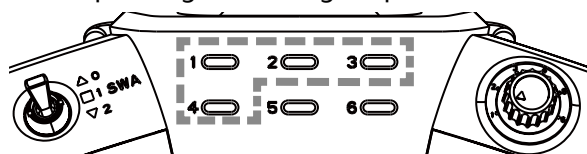
4.9 Reversing Channels

You can reverse the direction of channels 1, 2, 3 or 4 in relation to the sticks. For example, if a servo is mounted upside down in order to fit inside a model, when the corresponding stick is moved, the servo will move in the opposite direction. To fix this, all we need to do is reverse the channel.

To reverse the channels,

1. Turn off the transmitter.
2. Move both of the sticks to the bottom right corner, and slide the power switch up to the ON position simultaneously. The transmitter now enters channel reversing mode.

In channel reversing mode, the following four LEDs indicate the current status of the four channels. If a channel is reversed, the corresponding LED will light up.



3. Press the trim buttons up or to the left to reverse the corresponding channels. If a channel is reversed, press the trim buttons down or to the right to change it back to normal.
4. Adjust the SWA switch to another position. The status indicator starts to flash and the setting is saved.

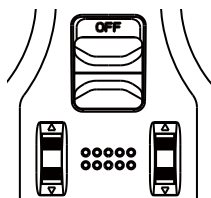
4.10 Updating the Firmware

The internal software of the transmitter can be updated using the USB cable connected via a PC computer. Once this function is activated, all functions of the transmitter stop. To avoid any loss of control of the vehicle, turn its receiver off before entering this mode. A confirmation is requested.

When the firmware is updating, never disconnect the USB cable or remove the battery or the transmitter will become unusable.

This function can be helpful only when connected with computer. Follow the steps as shown below:

1. Make sure the transmitter is powered off.
2. Press the two trim buttons shown in the figure below down, and slide the power switch up to the ON position simultaneously. The transmitter now enters firmware update mode.



3. Connect the transmitter with a computer by USB cable.
4. Download and open the newest official software.
5. Click "Program" to update the firmware.
When the update is complete, the transmitter will restart automatically.
6. Disconnect the USB cable.

5. Product Specification

5.1 Receiver Specification

No. of Channels	8
Model type	Multicopter/Fixed-wing/Glider/Heli
RF	2.4 GHz
Protocol	AFHDS 2A
Output	PWM/CPPM
Voltage range	4.0-6.5V
Dimension	25*8.1*44.5mm
Weight	13 grams
Certificate	CE0678, FCC and C-TICK

5.2 Transmitter Specification

Model type	Multicopter/Fixed-wing/Glider/Heli
RF	2.4 GHz
Protocol	AFHDS 2A
Low voltage warning	Less than 3.7V
Charge port	Yes
Display mode	LED indicator
Output	PWM/CPPM
Battery	3.7 V 1700mah Li-ion Polymer
Color	Black/White
Dimension	193*184*104mm
Weight	430 grams
Certificate	CE0678, FCC and C-TICK



Appendix 1 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.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.



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Edition: 2015-9-22