

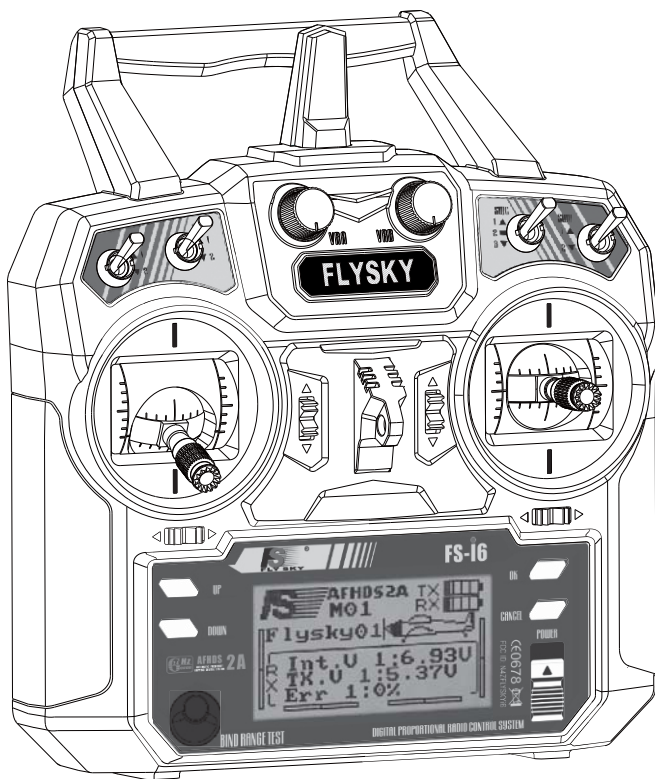


FS-i6

Digital proportional radio control system

INSTRUCTION MANUAL

用户手册



AFHDS
AUTOMATIC FREQUENCY
HOPPING DIGITAL SYSTEM

2A

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1. Introduction 简介

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.

感谢您选择富斯出品的FS-i6六通道2.4G可编程AFHDS2A第二代增强版自动跳频数字系统，该系统可兼容飞机和直升机两种模式。如果这是您第一次使用可编程遥控系统，这本使用手册将很快地带给您一个有趣又高端的全新世界。因此，为了确保您安全使用本产品，请仔细地完整阅读这本使用手册。

2. Services 服务

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>

如果您使用时遇到任何问题，请参照此说明书。如果您的问题仍然未能解决，请直接联系当地经销商或者我们网站上的客服人员。

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

3. Special symbols 特殊标志

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

当以下标志出现在说明书的时候请注意并且仔细阅读。



Danger:

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

如果使用者不按照说明方法操作，有可能导致使用者严重受伤，甚至致命的危险。



Warning:

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

如果使用者不按照说明方法操作，有可能导致使用者严重受伤。



Attention:

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

如果使用者不按照说明方法操作，有可能导致使用者外伤，甚至严重受伤。



Prohibited
禁止



Mandatory
强制

4. Safety guide 安全指导



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

请不要在夜晚或者雷雨天使用此产品，因为恶劣的天气环境有可能导致遥控设备失控。



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

操控时，请先确认模型所有舵机的动作方向与操控方向一致。

如果不一致，请调整好正确的方向。



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.

关闭时，请务必先关闭接收机电源，然后关闭发射机，如果关闭发射机电源时接收机仍然在工作，将有可能导致遥控设备失控或者引擎继续工作而引发事故。



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

特别要注意，如果附近有汽车正在运行或飞机正在飞行，开机后2.4 GHz RC系统可能会影响到他们。

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.



不要在户外雨天，有水的地方或能见度有限的时候使用。

可能水分(水或雪)会进入到系统内部，不稳定的运行和失控可能发生。

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.



不要操作在以下的地方：

基站附近或其他无线电活跃的地方，人多的地方或道路附近，

有客船的水域，高压电线或通信广播天线附近，干扰可能导致失控，

安装不正确，无线电控制系统可能导致模型发生严重的伤害。

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.



当你感到疲倦，饮酒或吸毒后，不舒服的影响下，不要操作这个R / C系统。

判断力下降，而且可能发生危险的情况下，对自己或他人可能造成严重的伤害。

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.



当模型操作或使用后，请勿触摸发动机、电机、定速设定或任何可能发热的部分，

这些部分可能非常热，会造成严重的烧伤。

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.

总是在操作模型之前进行全面的检查。



无线电控制系统出现问题以及不正确安装，都有可能导致模型失控，

简单的距离测试方法：一个人把持模型另一个人持发射机走开，检查该伺服系统运转情况。

测试时要注意到若有异常出现，请不要操作模型。

也检查模型的记忆，以确保模型的匹配是适当的。

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.



开机时，每次都要检查发射器的油门中位是否是最低。

当发射机作出调整时，可能模型的引擎没有运行或电机没有连接，可能会发生失控或意外事故的情况。

5. 2.4GHz System 2.4G系统



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.

AFHDS2A是第二代增强版自动跳频数字系统的简写。它是一个高度精密的遥控信号传播系统，这个系统能够提供良好的距离，抗干扰能力强并且耗电量低。它是世界领先的遥控制造商之一——富斯遥控模型技术有限公司研发并测试多年的成果。

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

参数说明：

频率范围：2.4055-2.475GHz
波段宽度：500KHz
波段个数：140个
发射功率：不高于20dBm
发射模式：AFHDS2A(第二代增强版自动跳频数字系统)
编码方式：GFSK
天线长度：26毫米*2 (双天线)
接收机灵敏度：-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.

警告!

错误使用遥控设备将导致严重的伤害甚至死亡。请在使用前完整阅读这本使用手册，并且在使用过程中严格按照此手册的说明操作。

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

该2.4G无线电波段完全不同于之前所使用的低频无线电波段。使用时要保持您的模型产品飞行在您的视线范围内，因为大的障碍物将会阻断无线电频率信号从而导致遥控失控和危险。2.4G无线电频率信号是沿直线传播的，它不能绕过障碍物进行传播。在使用过程中，严禁紧握发射机天线，否则将会大大减弱无线电传播信号的质量和强度，导致遥控设备失控和危险。

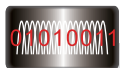
Danger:

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.

警告!

每次使用时,必须先打开发射机，然后再给接收机通电。停止使用时，必须先断开接收机电源，然后再关闭发射机。这样操作可以避免接收机接收到错误信号而导致的伺服器无规律的抖动。这对于电动模型来说尤为重要，因为它有可能导致马达突然转动而致使人员伤亡。

6. System Characteristic 系统特征



This radio system works in the frequency range of 2.4055 to 2.475GHz. This band has been divided into 140 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.

此系统工作频率范围是2.4055到2.475GHz。整个波段被分为140个独立频点。每套遥控系统使用16个不同频点和160种不同的跳频算法。通过开机时间不同，跳频规律不同和使用不同的频点，遥控系统能避免干扰传播信号。



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.

此系统采用高质量的增益天线，覆盖整个波段带宽。配合高灵敏度接收机，系统能有效的避免远距离传播信号的干扰。



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.

每台发射机有一个唯一的ID码，当和接收机对码之后，接收机保存这个唯一的ID码并且只接受从这个ID码发射机发出的信号。这样可以避免接收到别的发射机信号，大大增强抗干扰能力和安全性。



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.

此系统使用低功率电子元件和高灵敏度接收机芯片。无线电频率模块采用间歇性信号传播，因此大大降低了发射功率。比较而言，此系统功耗仅为FM版本的十分之一。



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系统具备单一双向自动识别功能，根据用户需求自动切换单-双向通信模式。在双向通信模式下，具备信息回传功能，能更好的掌握模型的当前工作状态，增加操控乐趣及安全性。



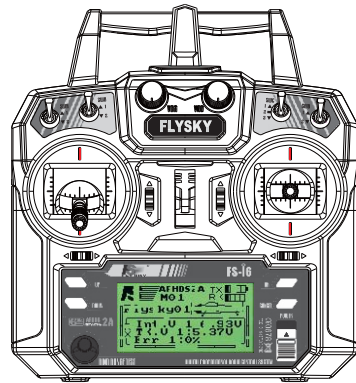
AFHDS2A has built-in multiple channel coding and error-correction, which improve the stability of the communication, reduce the error ratio and extend the reliable transmission distance.

AFHDS2A系统内置多重信道编码和纠错算法，有效的提高了通信稳定度，减小通信误码率，增加可靠传输距离。

7. Transmitter specifications 发射机参数

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



机种参数

1. 通道个数 : 6
2. 适合机种 : 固定翼/滑翔机/直升机
3. 数据分辨率: 1024级
4. 输入电压: 6V (1.5V AA x 4)
5. 低电压报警功能: 低于4.2伏图标闪烁并且长报警
低于4.0伏图标闪烁并且短报警
6. 关机报警功能: 开机无操作1分钟后蜂鸣器报警
7. 天线长度: 26毫米* 2(双天线)
8. 外观颜色: 黑色
9. 外形尺寸: 174*89*190毫米
10. 整机重量: 392克
11. 安规认证: CE, FCC

8. Receiver specifications 接收机参数

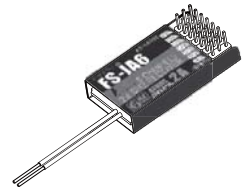


SPECIFICATIONS :

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.

机种参数:

1. 通道个数 : 6个通道
2. 适合机种 : 固定翼/滑翔机/直升机
3. 接收灵敏度 : -105dBm
4. 调制方式: GFSK
5. 系统模式: 第二代增强版自动跳频
数字系统(含第一代系统)
6. 数据分辨率: 1024级
7. 对码接口: 有
8. 电源接口: 有(VCC)
9. 电源标准: 4.0-6.5V DC
10. 整机重量: 6.4克
11. 天线长度: 26毫米
12. 外型尺寸: 40.4*21.1*7.35毫米
13. 外观颜色: 黑色
14. 安规认证: CE, FCC.



9. RX setup introduction

接收机操作说明

Dual antenna notes



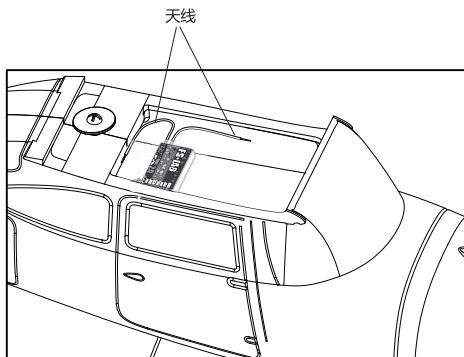
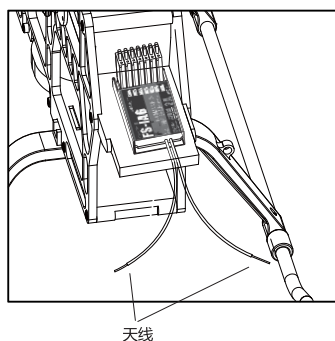
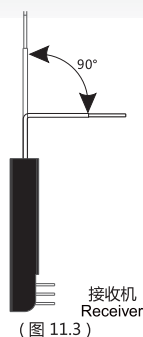
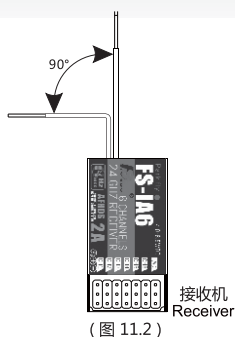
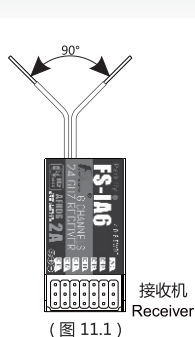
In order to make sure maximum distance between the transmitter and receiver please follow the directions below:

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 safe operation. 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.

接收机双天线注意事项：

为了让发射及接收距离更远，请注意以下几点：

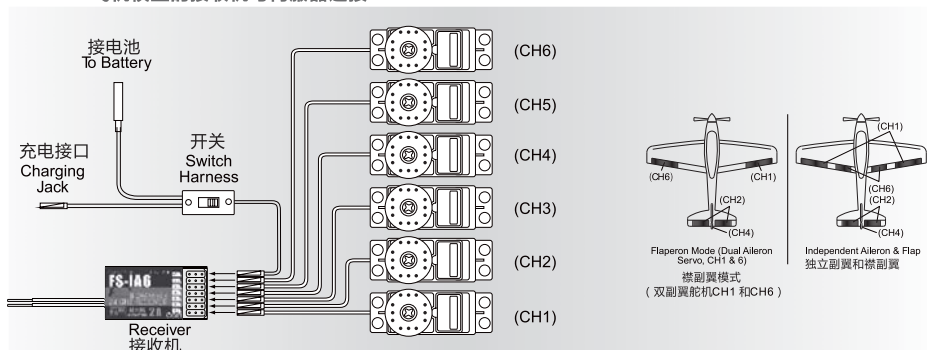
1. 尽量保证双天线笔直，否则将会减小控制范围；
2. 双天线的夹角保持在90°(如图三种方式)，这并不是精确的垂直角度，重要的是尽可能保持天线互相远离；
3. 天线应该尽可能远离金属导体，至少要有1.5cm左右的距离。轴电缆段不受此限制，但不要过度弯曲；
4. 尽可能保持天线远离电动机、调速器，和其它的噪声源。



10. Receiver and servo connections 接收机与伺服器连接

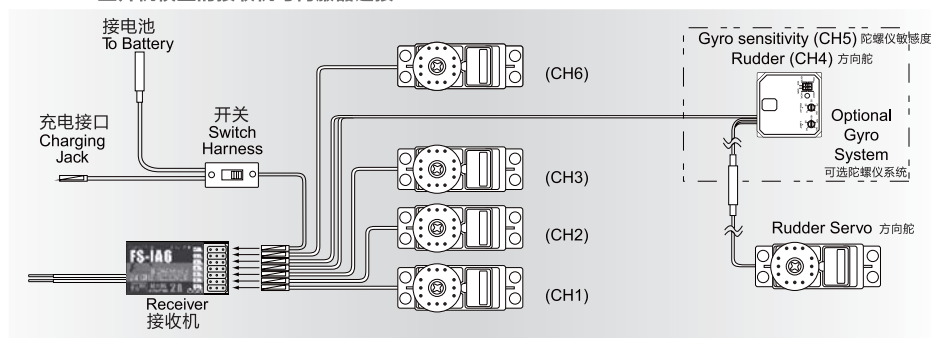
10.01. Receiver and servo connections (aircraft)

飞机模型的接收机与伺服器连接



10.02 Receiver and servo connections(helicopter)

直升机模型的接收机与伺服器连接



11. 2.4GHz Operation notes 2.4G操作注意事项

11.01. Binding 对码

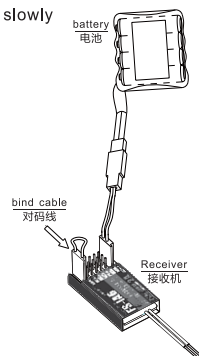
The supplied transmitter and receiver are already bound at production time so you don't need to do it. If you are using another transmitter or receiver, you have to first bind them before use as described below:

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 above steps.

对码:

所有遥控产品在出厂的时候都已经对好码，您无需再次对码。如果您需要和其他发射机或接收机对码，您必须在使用前按照以下方法对码：

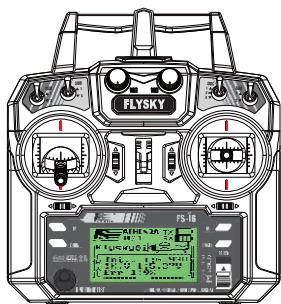
1. 将电池装入发射机然后关闭发射机。
2. 将对码线插到接收机电池通道插口。
3. 将接收机电池连接至接收机任意通道，接收机红色指示灯快速闪烁表明处于对码状态。
4. 按住发射机对码按键不松手，同时打开发射机。
5. 接收机红色指示灯由快闪变成慢闪表明对码成功，拔掉对码线，红色指示灯常亮。
6. 断开接收机电源。
7. 关闭发射机电源。
8. 将所有舵机连接至接收机，然后将电池连接到接收机。
9. 检查是否所有的舵机按照要求工作正常。
10. 如果对码失败，请按以上步骤从头再来。



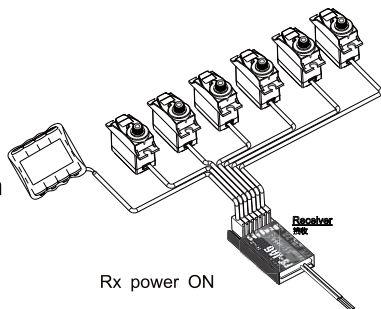
11.02 Power on 开机

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

1. 连接好所有部件
2. 打开发射机
3. 接通接收机电源
4. 接收机红色指示灯常亮说明信号连接正常。
5. 操作系统可以使用



Tx power ON

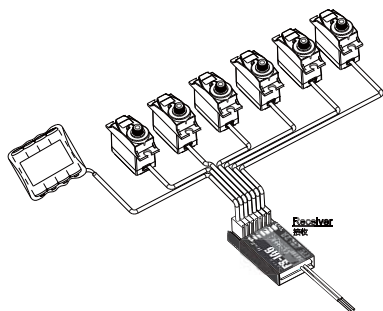


Rx power ON

11.03 Shut down 关机

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

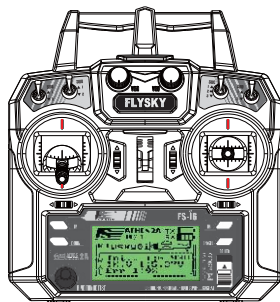
1. 断开接收机电源
2. 关闭发射机



Rx power off

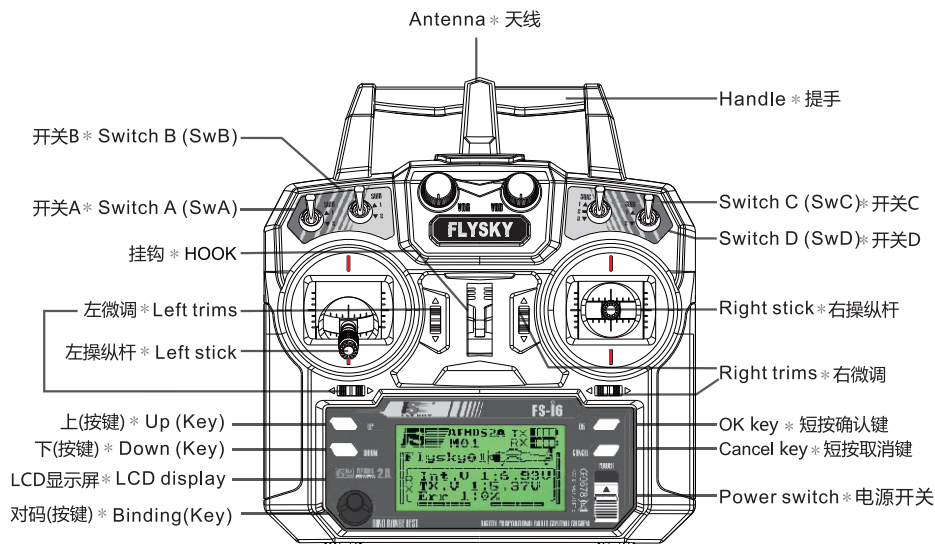


Shut down



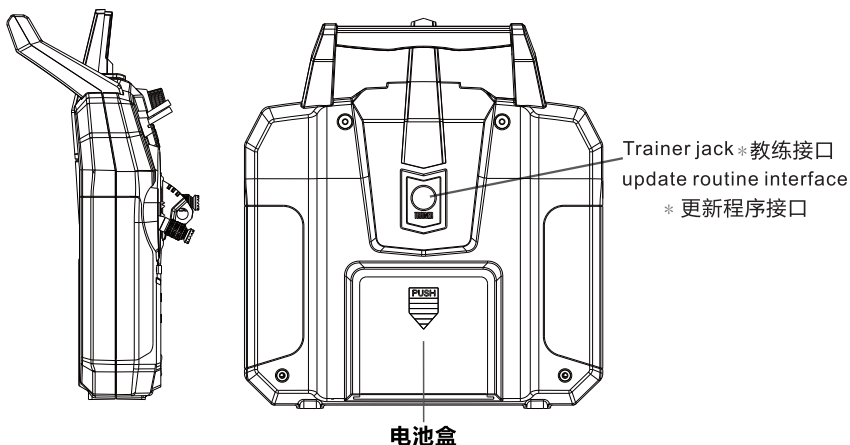
Tx power off

12. Definition of key functions 按键定义



Definition of key functions

按键定义



13. Warning 警告



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.

为了您的安全，开机时发射机上面的四个拨动开关必须在关闭位置，油门摇杆必须在最低位置。如果没有在关闭位置或最低位置，显示屏将会出现报警提示直至所有开关关闭。

14. Main screen 开机画面（双向）



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).

除了富斯商标和AFHDS2A跳频方式外，开机画面还显示以下内容：

1. 选择模型编号(1到20)：发射机可以存储20组不同模型，用户可立即转换20组不同数据。
2. 模型名称：每一组模型的名称由8个字符组成，用户可以根据模型的名称很容易的找到相关的模型。
3. 所选择的飞机或者直升机的种类的标志。
4. 四个电子微调的位置。
5. 电池的电量状况和电压。当电池电压低于4.2V时，图标闪烁并且长报警，当电池电压低于4.0V时，图标闪烁并且短报警。
6. 接收机反馈的传感器数据（双向特有）。

14.01 Main screen 开机画面（单向）

