

2.4G 发射机使用说明书
2.4G TRANSMITTER INSTRUCTION MANUAL



2.4G遥控系统采用智能化展频传输与数字跳频编码技术

2.4G Remote control system adopts Advanced Spread Spectrum Technology and digital FSK (frequency shift key) Coding Technology.

注意

使用本产品前请先阅读此说明书请妥善保管
以备不时之需

Caution

Please read this manual carefully before operation
and keep the manual for after reference

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四通道发射机
4CH Transmitter
EK2-0404G



六通道发射机
6CH Transmitter
EK2-0406H



六通道发射机
6CH Transmitter
EK2-0406G



六通道接收机
6CH Receiver
EK2-0424

为能安全使用本产品,请注意以下各点

To ensure safe use, observe the following precautions.

特殊符号说明 MEANING OF SPECIAL MARKINGS

本手册部分有下列符号的请特别注意安全。

Pay special attention to the safety at the parts of this manual that are indicated by the following marks.

危 险

DANGER

如果不按正确操作方法操作,可能会有导致操作者严重受伤,甚至致命的危险。

Procedures which may lead to a dangerous condition and cause death or serious injury to the user if not carried out properly.

警 告

WARNING

如果不按正确操作方法操作,可能会有导致操作者严重外伤,重伤或者致命的情况。

Procedures which may lead to a dangerous condition or cause death or serious injury to the user if not carried out properly, or procedures where the probability of superficial injury or physical damage is high.

注 意

CAUTION

如果不按正确操作方法操作,可能会有导致轻伤的危险,但一般不会导致操作者重伤。

Procedures where the possibility of serious injury to the user is small, but there is a danger of injury, or physical damage if not carried out properly.

符号:
Symbol:



禁止
Prohibited



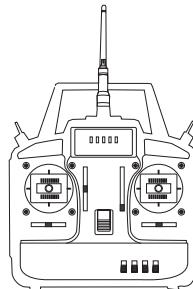
强制
Mandatory

! 警告 WARNING

禁止事项
PROHIBITED

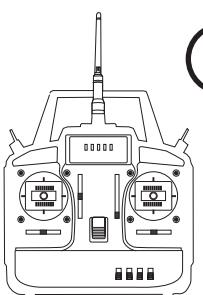
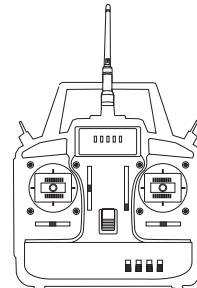
不要在夜晚、下雨或刮风的时候使用。
发射机会因环境影响导致对控制造成干扰，以免发生意外。

Do not fly in rainy or windy days, or at night.
Water will penetrate into the transmitter and cause faulty operation, or loss of control, and cause a crash.



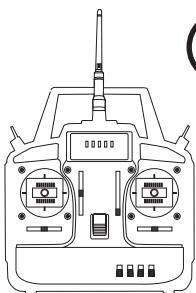
在开始飞行前，检查每个伺服器相匹配的操纵杆的工作方位，如果伺服器不能往正确的方向或于非正常状态下，请调整正确后再使用。

Before starting the engine, check the direction of control lever which matched to each servo. If the servo does not move in the proper direction or the operation is abnormal, please do not operate.



在飞行时手持发射机与水平面成45度夹角时飞行距离与效果处于最佳状态。

The flight Range ability and performance will be in the groove when the transmitter is placed at 45 degree to the plane.



在编码对频完成后，确认接收机与四合一指示灯正常工作。

Please confirm that the LED indicator on receiver and 4 in 1 mix controller are in normal operation after the code binding completed.



2.4G的介绍

Introduction to 2.4G system

天外飞公司最新研发2.4Ghz频段、2.4G遥控系统采用智能化展频传输与数字跳频编码技术，与传统的发射接收系统相比表现出了巨大的优势。

TWF Company newly designed 2.4G frequency band, "2.4G" RC system with advanced Spread Spectrum Technology and digital FSK (frequency shift key) Coding Technology, which manifested tremendous vantage compared to traditional transmitter.

*传统遥控空距在250米左右时，发射机发射功耗为750mW，2.4G发射机只需要4mW功耗；
Traditional remote control distance is about 250meters, required a transmitter with 750mW transmitting power consumption, but 2.4G transmitter just need 4mW power consumption.

*2.4 G 频道使用相当广泛，通过自动对频或自动跳频产生相对应的频点，同时飞行时几乎不可能发生同频干扰现象；

2.4G Channel with wide use, can generate corresponding frequency through binding or FSK, there will be no frequency interfering when fly simultaneously.

*2.4G遥控系统，采用高度集成的频率合成及FSK跳频技术，在微处理器的支持下自动规划和设定工作频点。使用户再也不会为更换晶体设置频率产生烦恼。

2.4G remote control system adopts superintegrated frequency synthesis and FSK(frequency shift key) technology, which can automatically program and set the working frequency under the supporting of microprocessor. Flyers would enjoy a free flight without changing crystal.

*具有双向传输特性，使得数据在发射机和接收机之间进行双重传输、确认，由此可使许多扩展功能成为可能；

With dual transmission characteristic, the data will be in dual transmission & confirmation between transmitter and receiver. So probabilize many extended functions.

*2.4G遥控系统具有响应速度快、精度高和不抖舵的特点；

With the characteristics of quick response, high precision and non servo quiver.

*2.4G遥控系统的频率波长是通常使用频率波长的1/4，2.4Ghz设备由于频率高，波长短，所以发射机天线仅有14.5cm

2.4G RC System frequency wave range is 1/4 of the usual used frequency wave range, because 2.4Ghz device with high frequency, short wave range, so the transmitter antenna is just 14.5cm in length.

2.4G遥控系统的调整工作方法

Regulation and operating procedure of 2.4G RC System

在出厂之前每套产品的遥控系统编码对频都已完成，不需另做调试。

Binding for RC System of each model has been completed in factory, without needing to debug again.

正常工作表现方式如下：

Normal operation manifested as below:

打开发射机电源后，前3秒发射机2.4G信号指示灯闪烁，该状态表示发射机所发的是编码对频信息，3秒过后2.4G状态指示灯由闪烁变为恒亮；再接通接收机或四合一电源，观察接收机或四合一2.4G信号指示灯由闪烁两次转为恒亮，表示已成功收到通道数据可以飞行。

Power on the transmitter, the indicator of 2.4G transmitter will twinkle for 3 seconds, which indicates that transmitter is sending code binding information. After 3 seconds, the twinkling 2.4G transmitter indicator becomes solid. Then connect the receiver or 4 in 1 mix controller, observe the receiver or 4 in 1 mix controller, 2.4G transmitter indicator twinkles two times and gets solid, which indicates that the reception of the channel data is successful and are ready to fly.

打开发射机，连接直升机电源，接收机或四合一信号指示灯闪烁两次之后熄灭，表示编码对频工作失败，需要擦码和重新编码对频。

Turn on the transmitter and power on the helicopter. LED indicator of receiver or 4 in 1 mix controller go out after twinkling two times, indicating that binding is failing and need to unbind firstly and rebind.

1. 如何洗码 How to unbind?

关掉发射机，接通接收机电源，在编码对频按键开关上按住1-2秒，接收机LED灯会快速闪烁不止表示擦码已完成（如右图）。

Turn off the transmitter, Connecting the battery to receiver, Press the bind keystoke for 1 or 2 seconds LED indicator of Receiver will twinkle constantly, which indicates that unbinding has completed. (As shown in the right picture)



2. 重新编码对频 Rebind

先断开接收机或四合一电源，再接通接收机或四合一电源，信号指示灯慢闪烁表示接收机正在接收机身码，这时打开发射机电源，接收机信号指示灯由慢闪变为快闪，然后转为恒亮，表示对码成功。（注意：发射机只有在打开发射机电源的前3秒发码，如果3秒后接收机没有成功收到码，请重新打开发射机电源。）

Firstly disconnect the receiver and 4 in 1 mix controller, then connect the receiver or 4 in 1 mix controller to the power, the state indicator twinkles slowly, which indicates that receiver is receiving signal. Then Power on the transmitter, if the indicator of RX display from slow twinkling to rapid twinkling, then solid, which indicate the binding is successful.(Note: transmitter just will transmit code in first 3 seconds, if receiver can not receive code within 3 seconds, please turn on the transmitter again.)

注意事项 Remarks:

1. 打开发射机电源发射机信号指示灯在前3秒内闪烁50次为编码对频时间，编码对频后指示灯恒亮（注意：在编码对频过程中，必须先接通接收机或四合一电源，然后打开发射机电源）。

Power on the transmitter, indicator twinkles 50times within 3 seconds of binding period, the indicator get solid after the binding.(Please note that in the process of binding, first connect the receiver or 4 in 1 Mix controller before powering on the transmitter)

2. 在编码对频不成功时，接收机或四合一的信号指示灯闪烁两次后熄灭。

If binding is not successful, the indicator of receiver or 4 in 1 mix controller will twinkle two times then go out.

3. 由于各厂家产品拥有不同的频段、频道与不同的编码、解码方法，不同品牌的产品是互不兼容的，所以只能使用同一品牌的遥控系统。

Since different manufacturers have different frequency band, channel and different coding and decoding method, so different products are incompatible, all RC system should be under the original trademark.

4. 每一次在编码对频时须重新将发射机电源打开。

Do turn on the transmitter once again in each binding.

发射机与直升机的基本操作知识

TRANSMITTER OPERATION AND THE WORK OF HELICOPTER

在使用之前, 请仔细了解发射器的操作与每个伺服器的运行。(下面的说明中, 以发射机为重点)

Before using, please know the operation of transmitter and the movement of each servo carefully. The following instruction take the transmitter as the keystone.



制式1 (右手油门)
Model 1 (right throttle)

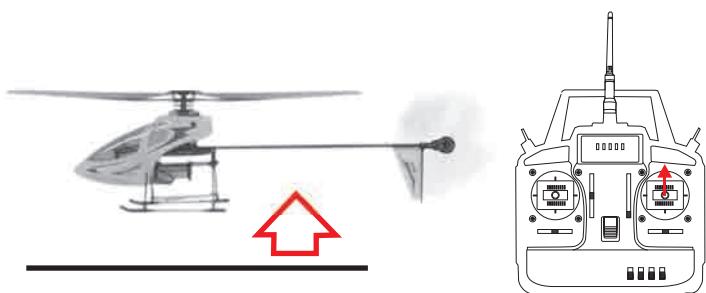
当副翼操作杆移向左边时, 倾斜盘向左边倾斜。直升机飞向左边。

When the aileron stick is moved to the left, the swashplate also tilt to the left, and the helicopter moves to the left.



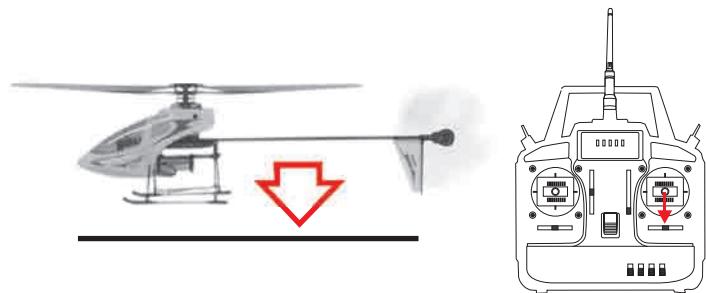
当副翼操作杆移向右边时, 倾斜盘也应该向右边倾斜。直升机飞向右边。

When the aileron stick is moved to the right, the swashplate also tilt to the right, and the helicopter moves to the right.



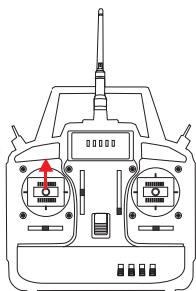
当油门杆向上推时, 电机(发动机)动力和主翼的速度增加, 直升机上升。

When the throttle stick is pushed upward, the speed of the motor and main rotor increases, as a result, the helicopter lifts up.

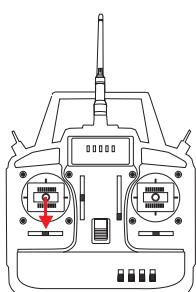


当油门杆向下推时, 电机(发动机)的动力和主翼的速度减少, 直升机下降。

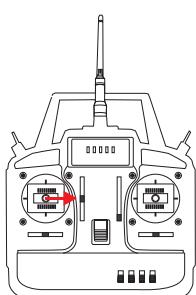
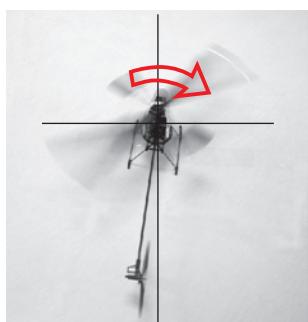
When the throttle stick is pushed downward, the speed of motor and main rotor decreases, as a result, the helicopter descends.



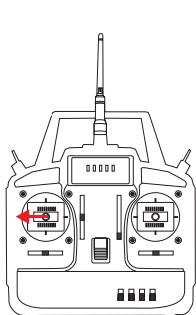
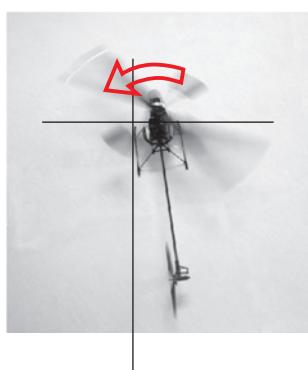
当升降杆推向前方时，直升机的前端会向下倾，结果直升机向前飞，速度减低。
When the elevator stick is pushed forward, the nose of helicopter will tilt downward, as a result, the helicopter moves forward and its speed decreases.



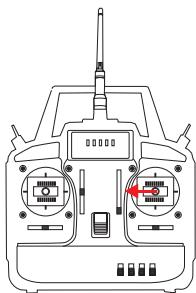
当升降杆推向后方时，直升机的前端会向上倾，直升机向后飞，速度增加。
When the elevator stick is pushed backward, the nose of the helicopter will tilt upward, then the helicopter moves backward and its speed increases.



当方向舵移向右边时，直升机的尾部向左边移动，直升机的头部向右转。（请注意直升机的前端）
When the rudder stick is moved to the right, the tail of helicopter moves to the left and the nose of the helicopter turns to right.
Please pay attention to the nose of helicopter.

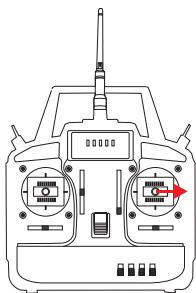


当方向舵移向左边时，直升机的尾部向右边移动，直升机的头部向左转。（请注意直升机的前端）
When the rudder stick is moved to the left, the tail of helicopter moves to the right and the nose of the helicopter turns to left. Please pay attention to the nose of helicopter.

制式2（左手油门）
Model 2 (left throttle)

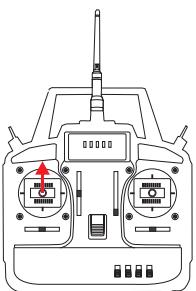
当副翼操作杆移向左边时，倾斜盘也应该向左边倾斜。直升机飞向左边。

When the aileron stick is moved to the left, the swashplate also tilt to the left, and the helicopter moves to the left.



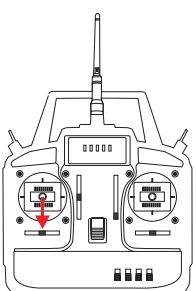
当副翼操作杆移向右边时，倾斜盘也应该向右边倾斜。直升机飞向右边。

When the aileron stick is moved to the right, the swashplate also tilt to the right, and the helicopter moves to the right.



当油门杆向上推时，电机动力和主翼的速度增加，直升机上升。

When the throttle stick is pushed upward, the speed of the motor and main rotor increases, as a result, the helicopter lifts up.



当油门杆向下推时，电机的动力和主翼的速度增加，直升机下降。

When the throttle stick is pushed downward, the speed of the motor and main rotor increases, as a result, the helicopter descends.