

Item No.: F3601

# Flight Design CTLS

WINGSPAN : 1200mm (47-1/4")

Instruction Manual

组装说明书



- The manual suit for every color scheme of Freewing Flight Design CTLS.
- The manual only choose one color scheme as an example.
- The manual is only for reference. All is according to the actual product .We can't note if any improvement or upgrade.
- Spareparts support , please visit [www.sz-freewing.com](http://www.sz-freewing.com) to search.

Version No.: F3601-V01

FC CE    
MADE IN CHINA

Thanks very much for your purchasing our Freewing Flight Design CTLS. This upper wing airplane has a very high natural roll stability. At the same time, it has a strong automatic recovery stability during flight. So, this Flight Design CTLS is very suitable for beginners for basic flight training.

This airplane use EPO material, also add parts of carbon material to strengthen. In the case of increasing a slight weight, it ensure its strength structure. We have spent a lot of energy and try the best to do it close to the real aircraft. In fact, we have done it, these design like scale fuselage, scale cockpit, pilot figure, etc, makes it look like a real aircraft.

Its structural design is very reasonable, you can finish its install very quickly. Install main wing and tail wing is extremely simple .Only take several minutes, you can complete its assemble. Please read the assembly manual carefully to familiarize you with all the steps before starting.

The following is our basic specification.

Specification	
Material	EPO
Fuselage length	900mm (35-7/16")
Wingspan	1200mm (47-1/4")
Flight weight	1100g (38.80 oz.)
Pull	1150g (40.60 oz.)
Motor size	3510-1000KV
Prop size	3-Bladed 9*8
Battery	3S 11.1V 1600mAh 20C
ESC	30A ESC
Servo	9g servo (5pcs)
Landing gear	YES
Aileron	YES
Elevator	YES
Rudder	YES
Throttle	YES
Flap	YES (Do it by yourself)

According to different demands, we provide **RTF**、**ARF**(no transmitter, receiver ,battery and charger),**Airframe only**, the three equipment for your choose. Please refer to the following list to take an inventory and make sure it is complete.

Note: 1. Picture use RTF version for your reference.

2. ○ refer to RTF version    △ refer to ARF version    ● refer to Airframe version

EPO Foam Fuselage	○   △   ●
Motor	○   △
ESC	○   △
Servo	○   △
Battery	○
Charger	○
Spare Parts Bag	○   △   ●
Manual	○   △   ●
Transmitter	○



# Accessory Bag Content List

(RTF\ARF)

## Spare Parts Bag 1

No.	Name	Specification	Qty.
1	Screw	PA2.3*16mm	4
2	Screw	PT1.7*14mm	2
3	Screw	PT1.7*12mm	4
4	Screw	PWA3*8mm	8

## Spare Parts Bag 2

No.	Name	Specification	Qty.
1	Screw Driver Handle	/	1
2	Screw Driver Head	2.3	1
3	Screw Driver Head	3.6	1
4	Y wire	L=100mm	1
5	Metal wire	L=41.5mm $\varnothing$ 1.2mm	2
6	Clips	$\varnothing$ 1.0mm	1
7	Clips	$\varnothing$ 1.2mm	1
8	Rudder arm sets	/	2
9	Antenna	/	1
10	Rear Wheel Wire Fixing Cover(Left)	/	1
11	Rear Wheel Wire Fixing Cover(Right)	/	1

(Airframe Only)

## Spare Parts Bag 1

No.	Name	Specification	Qty.
1	Screw	FA2.3*16mm	4
2	Screw	PT1.7*14mm	2
3	Screw	PT1.7*12mm	4
4	Screw	PA3*10mm	3
5	Screw	PA2.3*8mm	2
6	Screw	PWA3*8mm	8
7	Locknut	M4	1
8	Metallic Gasket	$\varnothing$ 4mm	1

## Spare Parts Bag 2

No.	Name	Specification	Qty.
1	Screw Driver Handle	/	1
2	Screw Driver Head	2.3	1
3	Screw Driver Head	3.6	1
4	Y wire	L=100mm	1
5	Metal wire	L=41.5mm $\varnothing$ 1.2mm	4
6	Clips	$\varnothing$ 1.0mm	1
7	Clips	$\varnothing$ 1.2mm	1
8	Rudder arm sets	/	2

## Spare Parts Bag 3

No.	Name	Specification	Qty.
1	Propeller Cowling	/	1
2	Propeller Fixed disk	/	1
3	Propeller	3 Bladed 9*8	1
4	Antenna	/	1
5	Rear Wheel Wire Fixing Cover(Left)	/	1
6	Rear Wheel Wire Fixing Cover(Right)	/	1

## Note:

- 1.This is not a toy .It is for experienced modelers only. You are responsible for the safe operation of this model and any damage of harm it may cause.
- 2.Before flying the Flight Design CLTS for the first time .Please read through the instructions carefully and make sure that your radio equipment is working properly and has been range tested prior to flight.
- 3.Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of and adult with modeling experience.
- 4.Please keep these instructions for future reference after completing model assembly. They contain information critical to the safe operation of this model.
- 5.If you have any further questions regarding the safe operation of you RC model. please contact your local hobby shop .flying club or Freewing Model for professional help and advice.

非常感谢您选择这款“Flight Design CTLS”，这种上单翼布局的飞机具有极高的自然滚转稳定性。同时，在飞行过程中，这种上单翼布局还具有较强的自动恢复的飞行姿态稳定性。所以，这款“Flight Design CTLS”是非常适合于购买者进行基础飞行训练的。

这款飞机模型采用EPO材料制作，同时加入碳纤材料进行局部加强。在增加少许重量的情况下，保证了模型结构的强度。我们花费了很大的精力，力求这款模型接近于真正的飞机。而事实上，我们做到了这一点，仿真机身、仿真座舱、飞行员等这些设计，使得这款飞机看上去，就像是一款真实的飞机。

这款飞机的结构设计非常合理、整机完成度高。主翼、尾翼的拼装过程异常简单。仅仅需要花费您几分钟的时间，即可完成飞机的拼装。接下来，请您认真的阅读说明书、来指导您正确的安装和了解这款模型。

以下是这款飞机的一些基本参数：

规格参数	
材料	EPO
机身长度	900mm (35-7/16")
翼展	1200mm (47-1/4")
起飞重量	1100g (38.80 oz.)
推力	1150g (40.60 oz.)
电机尺寸	3510-1000KV
桨叶尺寸	3-Bladed 9*8
电池	3S 11.1V 1600mAh 20C
电调	30A ESC
舵机	9g servo (5pcs)
起落架	YES
副翼	YES
平尾	YES
方向	YES
油门	YES
襟翼	YES(可自主改装)

根据每位消费者不同的需求，我们分别提供整机、ARF(不含发射机、接收机、电池、充电器)、空机三种不同的配置方案供大家选择。请参考下列配置清单和图片来核对产品的完整性。

注：1. 图片采用整机配置做为参考。

2. ○符号代表整机配置    △符号代表ARF配置    ●符号代表空机配置

EPO泡沫机身套件	○ △ ●
电机	○ △
电调	○ △
舵机	○ △
电池	○
充电器	○
零件包	○
说明书	○ △ ●
遥控器	○



# 附件包内容列表

## 附件包(整机、ARF)

### 零件包一

序号	品名	规格	数量
1	螺丝	PA2.3*16mm	4
2	螺丝	PT1.7*14mm	2
3	螺丝	PT1.7*12mm	4
4	螺丝	PWA3*8mm	8

### 零件包二

序号	品名	规格	数量
1	螺丝刀手柄	/	1
2	钢丝刀头	2.3	1
3	钢丝刀头	3.6	1
4	Y线	L=100mm	1
5	襟翼舵机钢丝	L=41.5mm $\varnothing$ 1.2mm	2
6	夹头	内径 $\varnothing$ 1.0mm	1
7	夹头	内径 $\varnothing$ 1.2mm	1
8	舵面摇臂套件	/	2
9	天线	/	1
10	后轮钢丝固定盖左	/	1
11	后轮钢丝固定盖右	/	1

## 附件包(空机)

### 零件包一

序号	品名	规格	数量
1	螺丝	FA2.3*16mm	4
2	螺丝	PT1.7*14mm	2
3	螺丝	PT1.7*12mm	4
4	螺丝	PA3*10mm	3
5	螺丝	PA2.3*8mm	2
6	螺丝	PWA3*8mm	8
7	防松螺母	M4	1
8	垫片	$\varnothing$ 4mm	1

### 零件包二

序号	品名	规格	数量
1	螺丝刀手柄	/	1
2	钢丝刀头	2.3	1
3	钢丝刀头	3.6	1
4	Y线	L=100mm	1
5	舵机钢丝	L=41.5mm $\varnothing$ 1.2mm	4
6	夹头	内径 $\varnothing$ 1.0mm	1
7	夹头	内径 $\varnothing$ 1.2mm	1
8	舵面摇臂套件	/	2

### 零件包二

序号	品名	规格	数量
1	螺旋桨整流罩	/	1
2	螺旋桨固定盘	/	1
3	螺旋桨	9*8三叶桨	1
4	螺旋桨定位圈	$\varnothing$ 2-5mm	1
5	天线	/	1
6	后轮钢丝固定盖左	/	1
7	后轮钢丝固定盖右	/	1

## Install

### Note:

1. When install, please read the manual carefully. if you have any questions, kindly contact with your distributor, or contact us on [freewing@sz-freewing.com](mailto:freewing@sz-freewing.com)
2. Before install, please refer to P12 ,check the screw position.
3. Spareparts support , please visit [www.sz-freewing.com](http://www.sz-freewing.com) to search.

### 组装部份

#### 提示:

1. 组装过程中, 请仔细对照说明书, 如有任何疑问, 可以联系您购买产品的经销商, 或者联系我们公司邮箱 [freewing@sz-freewing.com](mailto:freewing@sz-freewing.com) 来寻求帮助。
2. 组装过程中, 请参考第12页, 查看螺丝正确的应用位置。
3. 配件支持, 请登陆我们公司的网址[www.sz-freewing.com](http://www.sz-freewing.com)进行查询。

-Prepare to install main wing as the right photo shown.

-如右图所示, 准备安装主翼。



-Connect the main wing servo wire and Y-wire, then insert main wing into fuselage.

-首先连接主翼舵机线与“Y”线, 然后将主翼插入机身。

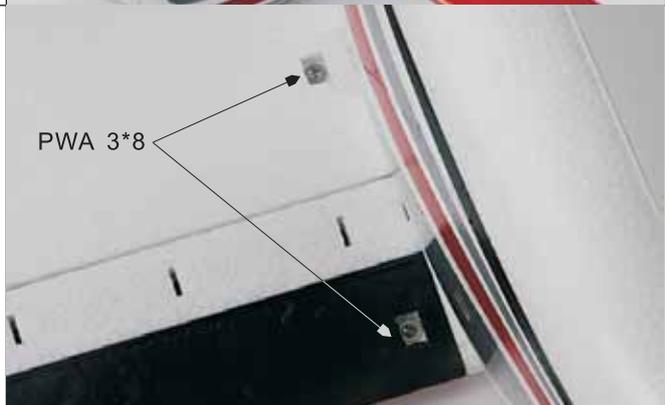


-Turn over the fuselage, fixing the plastic parts between main wing and fuselage by screws.

-Use the same way to install another main wing.

-翻转机身, 用螺丝固定主翼与机身之间的塑料连接杆. 即完成一边主翼安装。  
-采取同样的方法, 安装好另一外一侧主翼。

PWA 3\*8



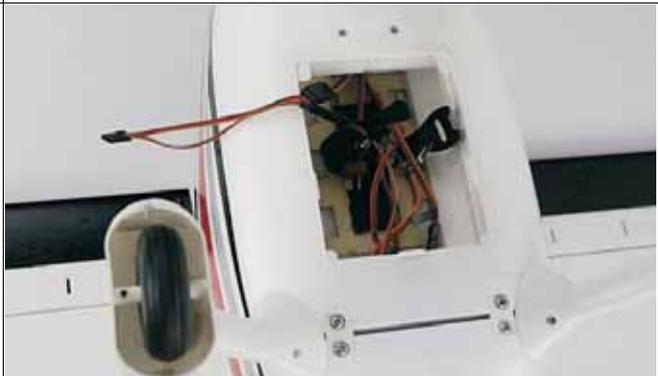
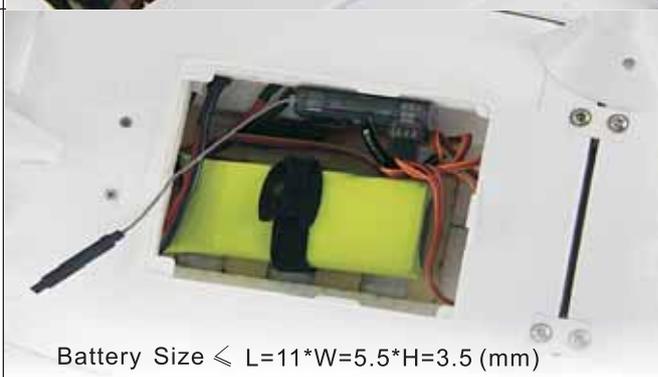
-Main wing install well as the right photo shown.

-主翼安装完成效果如右图所示。



<p>-Take the elevator and prepare to install.</p> <p>-机包装盒内取出平尾, 准备安装.</p>	
<p>-As the right photo shown, Insert the elevator into the rudder plastic parts, after the voice "ka", it means install successful.</p> <p>-如右图所示, 用力将平尾插入到预先安装在垂直尾翼内的塑料件上. 当听到“咔”的一声后, 表示安装成功。</p>	
<p>-Elevator install well as the right photo shown.</p> <p>-平尾安装完成后如右图所示.</p>	
<p>-Prepare landing gear parts and start to install as the right photo shown.</p> <p>-如右图所示, 准备好起落架安装材料. 开始安装起落架.</p>	
<p>-Install nose landing gear on the fuselage, please pay attention of its direction.</p> <p>-首先将前轮安装到机身腹部, 注意方向.</p>	

<p>-Fixed nose landing gear by screws.</p> <p>-用螺丝固定前起落架。</p>	
<p>-Install main landing gear, please pay attention of its direction as the right photo shown.</p> <p>-安装后起落架. 安装过程中, 请参考右图, 并注意方向。</p>	
<p>-Fixed main landing gear by screws as the right photo shown.</p> <p>-如右图所示, 用螺丝固定后起落架。</p>	
<p>-Complete to install, as the right photo shown.</p> <p>-最终飞机组装完成效果如右图所示。</p>	
<p>-Prepare Transmitter, Receiver, Y-wire, Battery to adjust before fly.</p> <p>-现在, 准备好遥控器、接收机、Y线和电池, 进行飞机飞行前的调校。</p>	

<p>-Open the battery cabin cover under fuselage.</p> <p>-打开机腹上“电池舱盖”。</p>	
<p>-Use Y-wire to connect the nose landing servo wire and rudder servo wire, combine into one channel.</p> <p>-运用“Y”线把前轮转向舵机线与垂尾方向舵合并为一个通道。</p>	
<p>-Insert the channels into the receiver</p> <p>PS: The following step please refer to the “P10”, Transmitter set” for detail explain.</p> <p>-将各个通道插入到接收机内。 PS: 以下步骤可以参考P10页“遥控器设定”内的详细解释。</p>	
<p>-Install 8pcs 5# AAA battery into the transmitter. Swith on the transmitter.</p> <p>-Connect lipo battery and fix it by velcro.</p> <p>PS: Please make sure the battery is full power.</p> <p>-1. 安装8只5号3A电池到到遥控器内，给遥控器供电。同时打开遥控器电源开关。 2. 连接飞机电池。并用魔术贴扎带固定电池。 PS: 使用飞机电池时，确保充电已达饱和状态。</p>	 <p>Battery Size ≤ L=11*W=5.5*H=3.5 (mm)</p>
<p>-Install well the battery cabin cover and adjust the plane,</p> <p>-盖好电池舱盖. 对飞机进行调效.</p>	

<p>-Make sure the servos are in the center, through turning plastic chuck to adjust the rod length.</p> <p>-确认各个舵机摇臂处于居中状态后，通过转动塑料夹头调节连接杆长短。</p>	
<p>-As the right photo shown, when all the wing is in the center, fasten the plastic chuck.</p> <p>-如右图所示，当各翼面居中的情况下，扣紧塑料夹头。</p>	
<p>-As the right photo shown, you can repair or replace the tail control servos, just need to unscrew the screws.</p> <p>Ps: 通过右图所示位置，拧开螺丝,即可对尾翼控制舵机进行检修和更换。</p>	

### Preflight

After check everything before flight, as a beginner, we should pay attention of following issues, to make sure our flight is successful.

1. When use radio set, make sure switch on the transmitter power firstly, then power on the receiver.
2. Before flight, under power on condition, push up and down the throttle and check the motor/ESC work well.
3. Before flight, check well the plane's center of gravity. Correct CG is the key factor of successful flight. Please refer to P11 to check the center of gravity.
4. No matter take-off on the road or hand launch, we must upwind to take off.
5. After take off, if any unusual flight or hard to control, we should pull high the plane, then trim to adjust according to the actual situation to maintain it level flight.
6. When the transmitter alarm, you must end your flight as soon as possible and operate to its landing, to avoid the radio will be out of control since of low voltage.
7. If any damage in flight, please purchase the spareparts from your distributor or refer to [www.sz-freewing.com](http://www.sz-freewing.com) to check.

### 飞行注意事项

在完成飞行前的检查之后，对于我们初学者，我们应该在飞行前及飞行中注意下面一些问题。这样，会使我们的飞行更加成功。

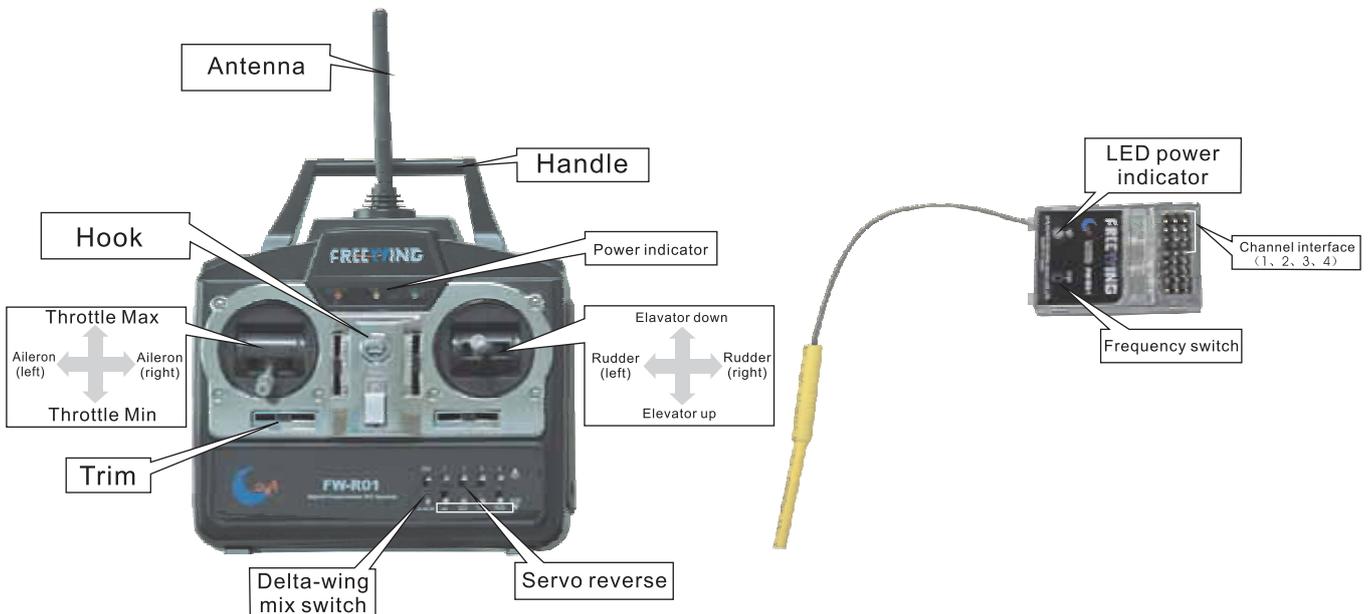
- 1、在正常使用摇控设备时，必须保证先打开发射机电源，然后再将接收机通电。
- 2、在飞行前，通电状态下，应反复上、下推动油门，检验马达与电子调速器的工作状态是否良好。
- 3、飞行前，必须确认飞机的重心位置。正确的重心位置是获得成功飞行关键因素。请参考P22来确认飞机的重心位置。
- 4、不管是选择滑跑起飞或者是手掷起飞，我们都应该迎风起飞。
- 5、飞机起飞后，发现飞行姿态有异常或难以控制时，我们应当尽量拉高飞机，然后根据飞机的实际情况，调整飞机的微调开关。使飞机可以保持平飞。
- 6、当发射机发出报警音后，应尽快结束飞行，操纵模型飞机着陆，避免低电压造成摇控设备失控。
- 7、在飞行过程中，如发生损坏，请联系您的模型商购买配件。请参考我们的网站：[www.sz-freewing.com](http://www.sz-freewing.com)查询。

# Operating instruction of Radio Control

1. Radio control include the transmitter and receiver.



2. Radio control function introduction.



3.2.4G Radio control frequency method.

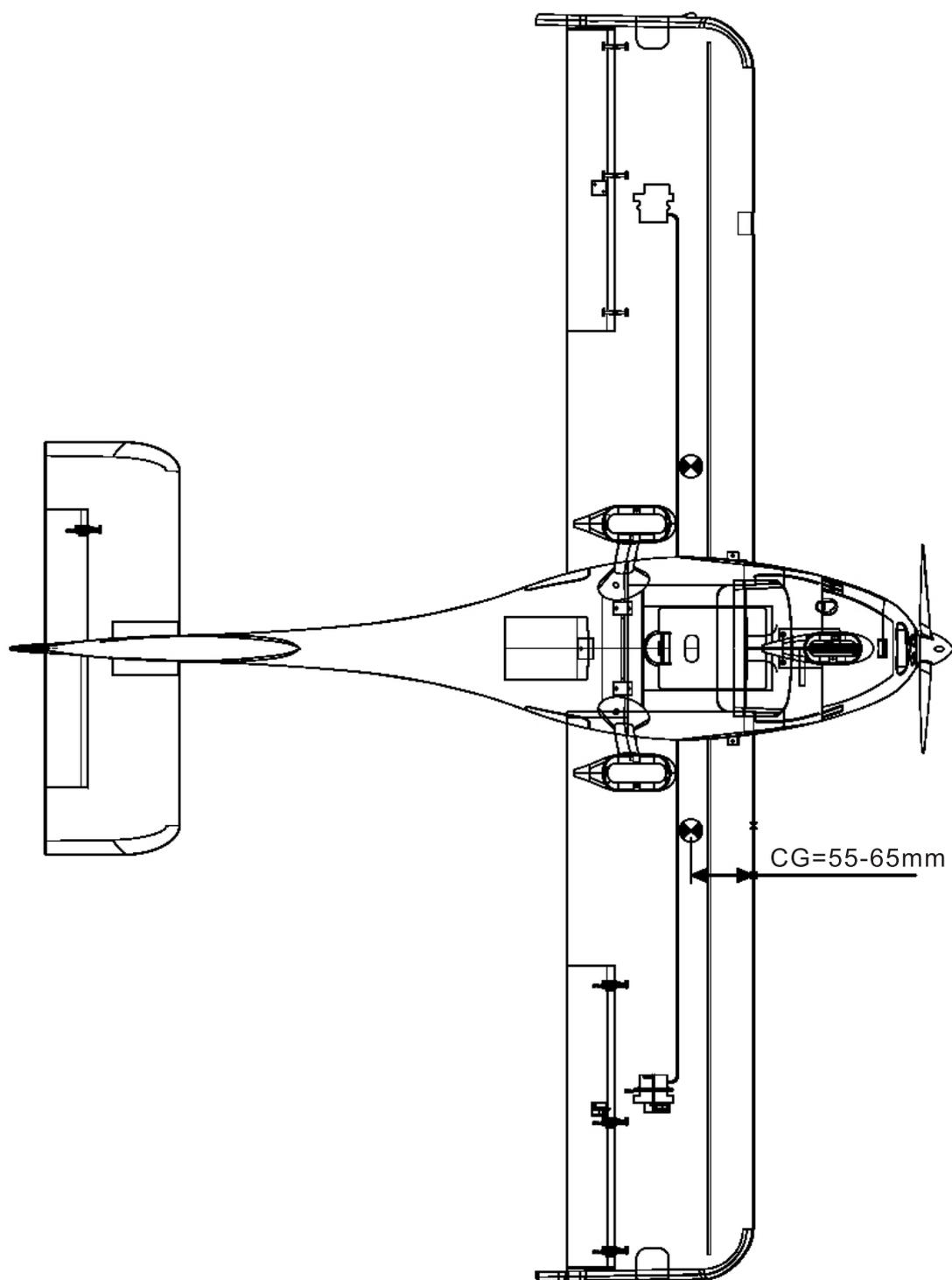
**Note: the radio control has been established on the frequency treatment in factory, could use directly. In exceptional case, it need re-adjust frequency, please set as following:**

- Press on the receiver frequency switch,
- While press on the receiver frequency switch, the receiver power on.  
(Now, the receiver frequency signal light should be continue flashing.)
- Turn on the transmitter power switch  
(Now, in transmitter panel, red light, yellow light, green light will be continue flashing)
- Stop to press on the receiver frequency switch
- After the success of the frequency, the receiver frequency signal light is on, not flashing.  
The transmitter signal light is on, not flashing, it transformed to battery signal light

## Center of Gravity

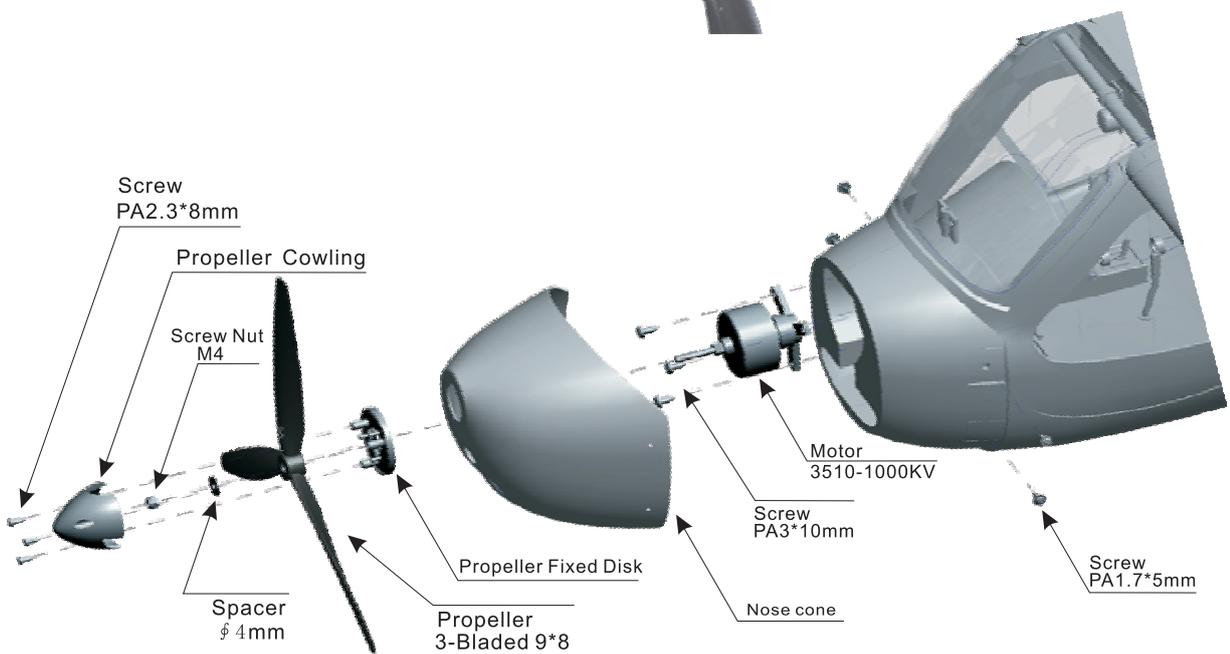
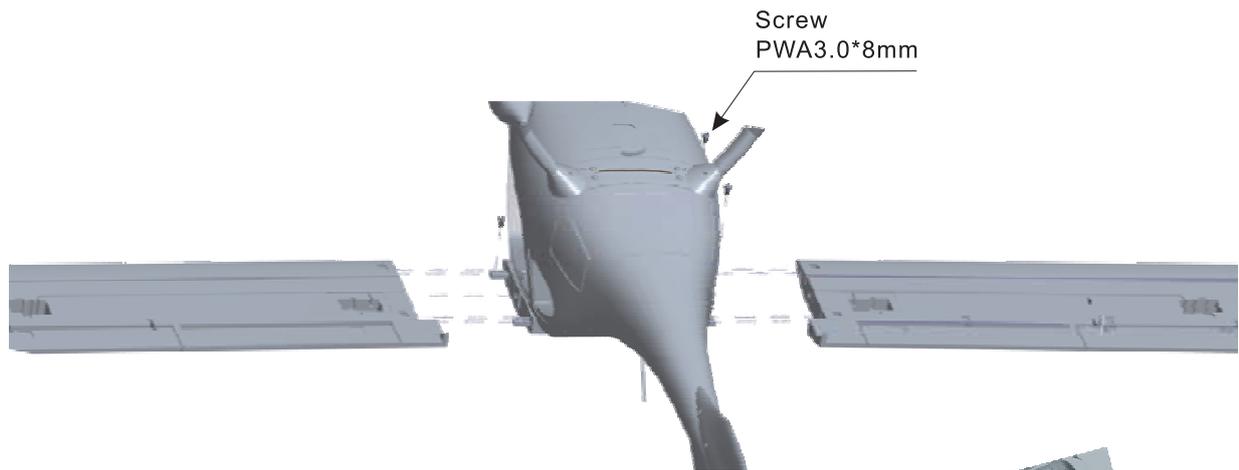
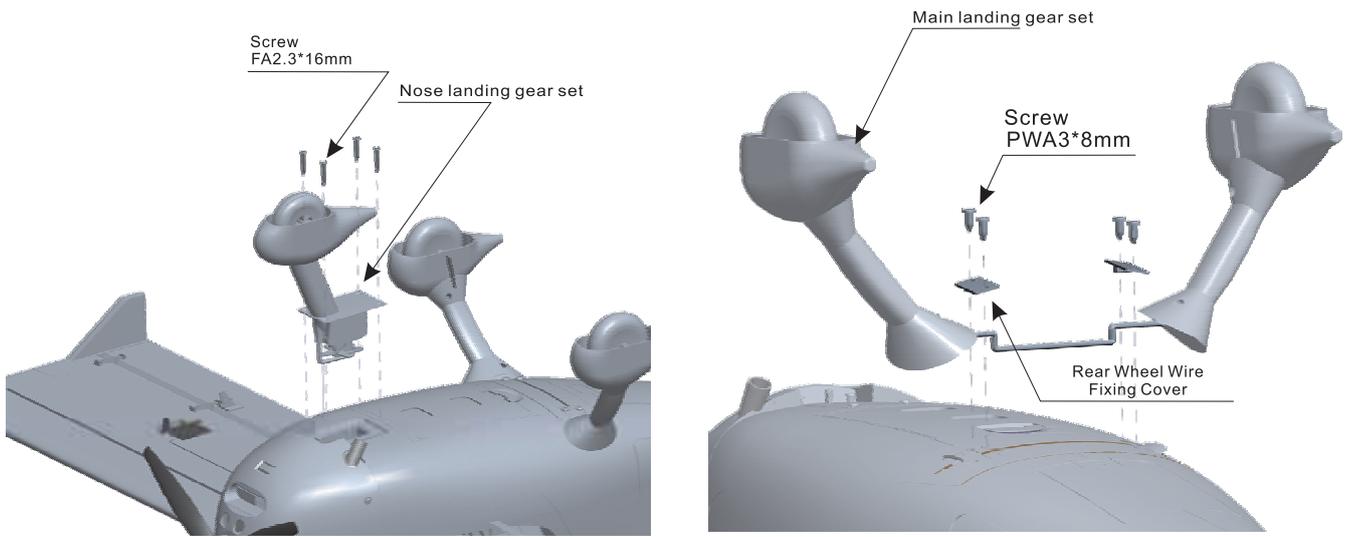
Check the aircraft center of gravity ,wrong center of gravity will lead to failure fly.  
(Please refer to the following photo to check CG.)

我们在飞行前需要确认飞机的重心位置，错误的重心位置可能会导致您的飞行失败。  
(请参考下列图片所标示的重心位来调整飞机的重心。)



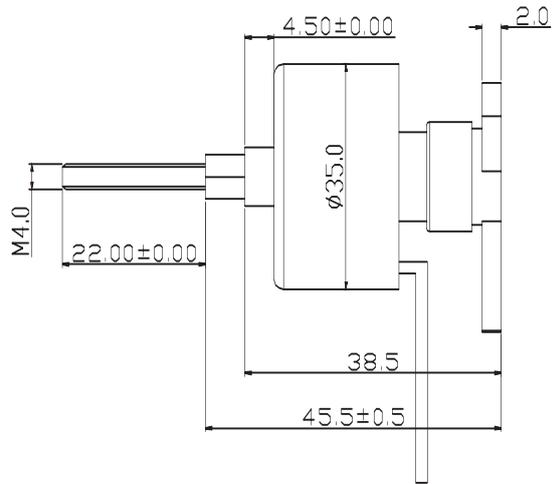
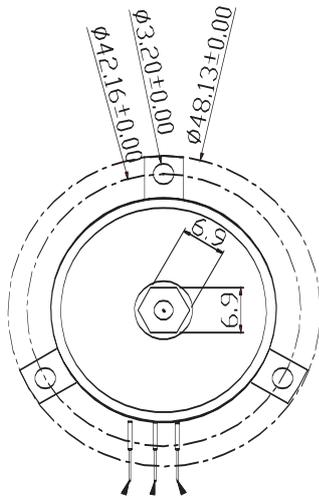
# “Flight Design CTLS” Assemble Photo

## “Flight Design CTLS” 组装图解

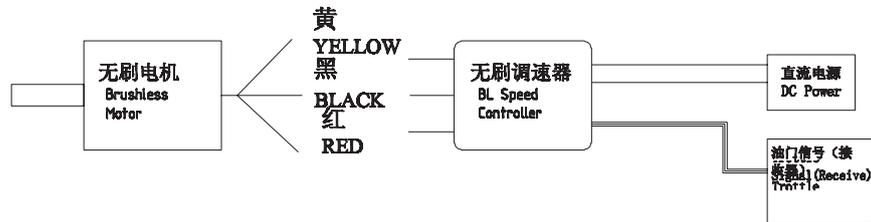


# Motor Specification

电机参数



接线示意图:  
Sketch Map



Model	KV Value	Volute (V)	Current (A)	Pull (g)	RPM	Weight (g)	G/A	No Load Current	Prop	ESC
3510-1000	1000RPM/V	11.1	18	1050	----	76	57.2	11.1V/1.0	3-Bladed 9*6	20A

## Flap function (Do it by yourself)

We add the flap function for this airplane, but you need servo to revise by yourself. (We advise to use 9g servo).

Operate step is as following:

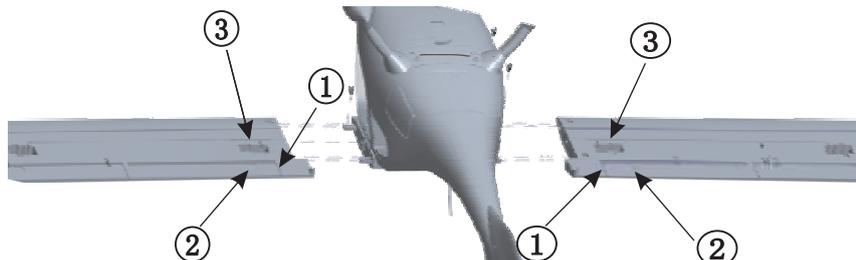
1. Cut the indicated position by knife as the photo 1 shown.
2. Move up and down the flaps and make it smoothly.
3. Lock the servo arm (parts bag include) to indicated position as the photo 2 shown.
4. Glue the servo on the indicated position as the photo 3 shown. Use wire to connect (parts bag include the wire, chuck)

## 襟翼功能

我们为这款飞机加入了襟翼功能，但是需要购买者自行准备舵机进行（建议使用9g舵机）改装。

操作步骤如下：

1. 用刀片在图示1位置切开。
2. 上、下反复转动翼面几次，让翼面在转动时变得流畅一些。
3. 在图示2位置，锁上舵面摇臂（零件包内附送）。
4. 在图示3位置内，粘紧舵机。最后用钢丝连接（钢丝、夹头附件包内附送）。

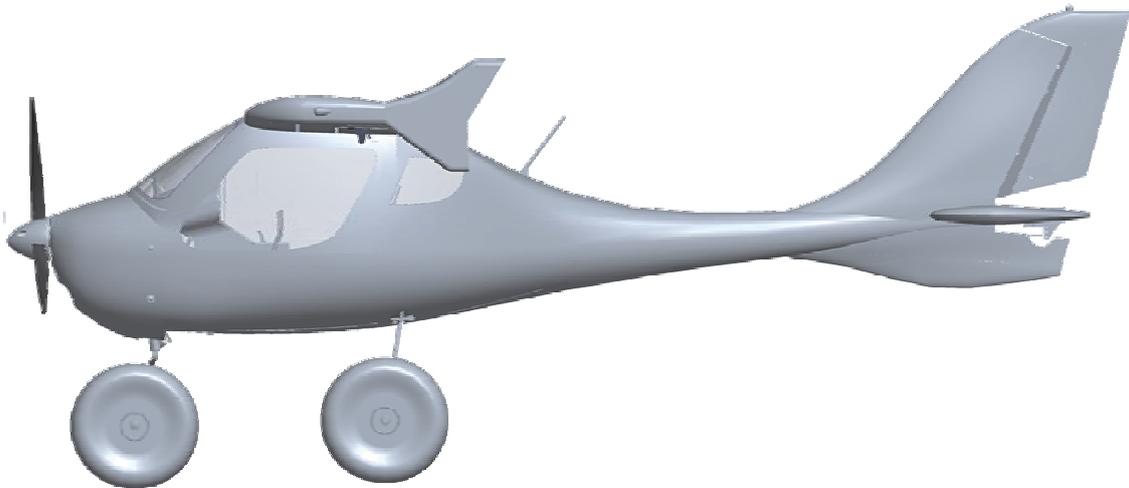


## Big wheel introduction

### 大尺寸机轮介绍

We designed an unique landing gear for this airplane, use EPO material to do a big size foam wheels(Size= $\varnothing$  100mm). Use this big size landing gear, you can take off in lawn, beach or other uneven ground. If you need, contact your dealer to purchase.

我们为这款飞机单独设计了一套起落架，用EPO材料制成的泡沫机轮( $\varnothing$  100mm)。这套起落架主要应用于草地、沙滩或者其它坑洼不平的环境下滑跑起飞。如果需要，可以联系您的经销商购买。





Have Fun!  
We hope that you have many pleasant  
flights with your Flight Design CTLS !



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