

Instruction Manual

SPITFIRG

Specification: Item:8930

Wingspan: ----- 900mm(35.4in) Overall Length:---- 762mm(30in) Wing Loading: ----- 31.6g/dm² Servo: ----- 9gx4pcs

Battery:----- 11.1V 1250mAh 15c

Speed Controller:----- 18A Brushless

Motor Size: ----- KV1080 Brushless Outrunner

Flying Weight :-----500g(17.7oz)



WARRINGS SAFETY PRECAUTIONS

This radio control model is not a toy!

- First-time builders should seek advice from people having building experience in order to assemble the model correctly and to produce its performance to full extent.
- Assemble this kit only in places out of children's reach!
- Take enough safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation!
- Always keep this instruction manual ready at hand for quick reference, even after completing the assembly.

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Safety Precautions

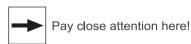
- ◆ Never fly the Airplane where there are crowds of people, power linese overhead, automobiles or near highways.give yourself plenty of room for flying, as the plane can travel at a high rate of speed.Remember you are responsible for the safety of others.
- ◆Do not fly in strong winds.
- ◆Do not attempt to catch the Airplane while flying.
- ◆Children under the age of 16 should not have admission to the transmitter for the plane.
- ◆ Never leave this system unattended, with the batteries in the unit and around children. Injury can result by children turning on the transmitter or the plane.
- ◆Keep away from the propeller at all times. The system can automatically start when the batteries are plugged in, regardless if the transmitter is in the on or off position. The propeller can cause injury!
- ◆Before flying, always remember to turn on the transmitter first, before plugging in the battery pack. Stay clear of propeller.
- ◆Always turn the speed controller all the way down and the switch on "OFF".(left control stick in the down position) before starting; otherwise the propeller will strat on full power when you plug the battery into the plane.
- ◆After running the motor, disconnect the battery first before turning off the transmitter, otherwise the propeller may staat at full power.
- ◆Never leave the charger or battery near wet areas.
- ◆Completely discharging a Li-poly battery can result in permanent damage to the cells of the battery. Therefore you must always remember to disconnect the battery after using the plane.

Before You Begin

- ◆Read through the manual before you begin, so you will have an overall idea of what to do.
- ◆Check all parts. If you find any defective or missing parts contact your local dealer.Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement .The manufacturer will replace any defective parts,but will be difficult to extend to the good parts that are good before bluing to defective parts during assembly .
- ◆Symbols used throughout this instruction manual comprise of following:









pliers

Ensure smooth non-binding movement while assembling.



Cut off shaded portion

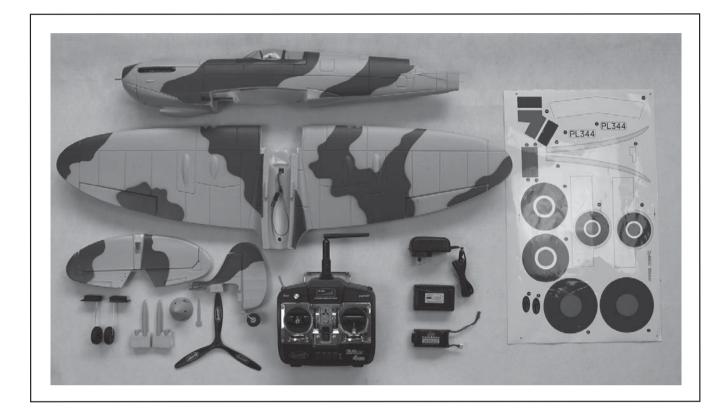
How to use your dynam 2.4G rc system

important

- 1. Put down throttle sticker.
- 2. Turn on transmitter power-switch.
- 3. Please let your receiver connect with battery in 10 seconds.
- 4. Check your protect-switch, when protect-switch in up station,put down,release from protect. when protect-switch in down station,put up frist,then put down again, release from protect,you can fly now.



RTF Including



RTF including:

- **■** Fuselage
- **■** Wing
- **■** Elevator
- **■** Landing gear
- Vertical stabilizer
- Push rod
- **■** Propeller
- Glue
- Decal
- **■** Balance charger
- Li-Po battery (11.1V 1250mAh 15C)
- **■** Transmitter
- Adaptor
- Fibreglass tube
- **ESC**

Assembly



Apply the foam glue on the nose landing gear and glue it in position.



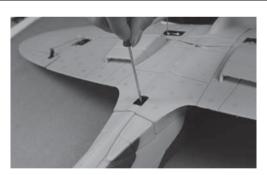
Apply the foam glue on the scale plastic parts and glue them in position.



3 Connect the aileron servos with Y wires.



4 Locate the wing in place.



Fix the wing on fuselage with PA2.3*20mm screw.



6 Install the scale antana set use the glue.

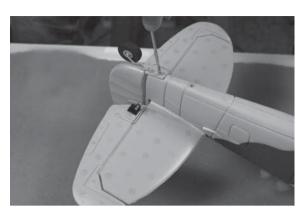


Insert the horizontal stabilizer and vertical stabilizer in place.

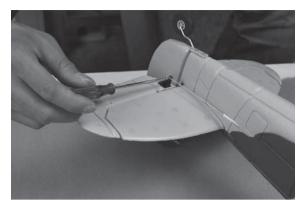


8 Fix the stabilizers with PA2.3*20mm screw.

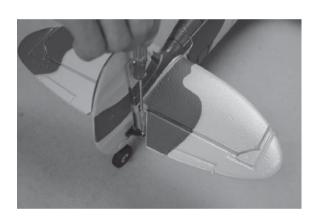
Assembly



9 Install tail wheel with PA2*6mm screws.



Insert the pushrod into elevator quick -controller and tighten the screw(the servo should be in center position).



11 Repeat the steps for the rudder.



12 Install the propeller.

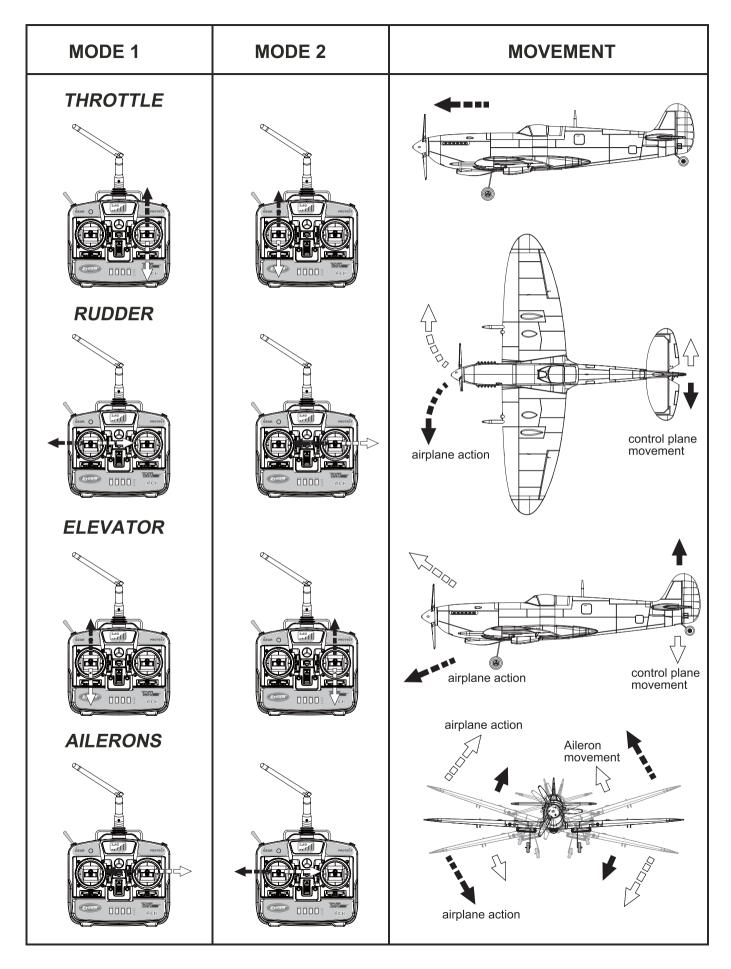


13 Install spinner with PA2*6mm screws.

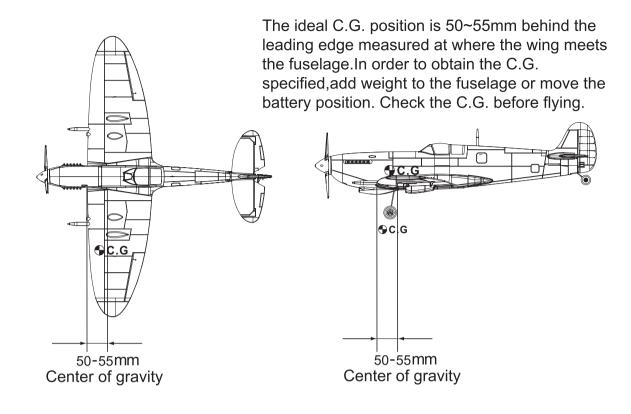


14 Put the battery in position.

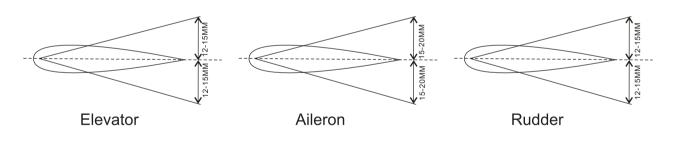
Stick Operation

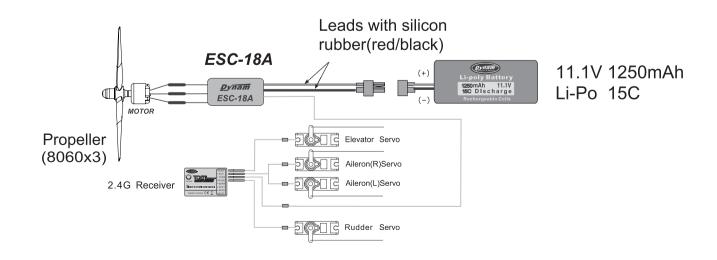


CG And Receiver Assembling



Suggest Control Throw Setting



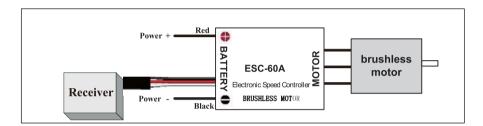


Manual of Brushless Motor Speed Controller

Specifications:

	Pentium Series										
Class	Model	Cont.	Burst	BEC	BEC	Batter	ry Cell	User	Balance	Weight	Size
		Current		Mode	Output		NiMH	Programm-	Discharge		L*W*H
			(>10s)	(Note1)		Li-poly	NiCd	able	Protection		
12A	Esc-12	12A	15A	Switch	5V/3A	2-4	5-12	Available	N/A	19g	45*24*9
18A	Esc-12	18A	22A	Switch	5V/3A	2-4	5-12	Available	N/A	19g	45*24*11
25A	Esc-25	25A	35A	Switch	5V/3A	2-4	5-12	Available	N/A	22g	45*24*11
30A	Esc-30	30A	40A	Switch	5V/3A	2-4	5-12	Available	N/A	25g	45*24*11
40A	Esc-40	40A	55A	Switch	5V/3A	2-6	5-18	Available	N/A	35g	55*28*12
50A	Esc-50	50A	80A	Switch	5V/3A	2-6	5-18	Available	N/A	60g	70*31*14
60A	Esc-60	60A	80A	Switch	5V/3A	2-6	5-18	Available	N/A	60g	70*31*14
70A	Esc-70	70A	100A	Switch	5V/3A	2-6	5-18	Available	N/A	62g	70*31*14
80A	Esc-80	80A	100A	Switch	5V/3A	2-6	5-18	Available	N/A	62g	70*31*14

Wiring Diagram:



Programmable Items:

- 1. Brake Setting: Enabled / Disabled, default is Disabled
- 2. **Battery Type:** Li-xx(Li-ion or Li-poly) / Ni-xx(NiMH or NiCd), default is Li-xx.
- Low Voltage Protection Mode(Cut-Off Mode): Soft Cut-Off (Gradually reduce the output power) or Cut-Off (Immediately stop the output power). Default is Soft Cut-Off.
- 4. Low Voltage Protection Threshold(Cut-Off Threshold): Low / Medium / High, default is Medium.
 - When NOT using balance discharge monitoring and protection function (i.e. Not plugging the balance charge connector
 into the BDMP socket on the Guard series ESC, the ESC only monitors the voltage of the whole battery pack)
 - 1) For lithium batteries, the number of battery cells is calculated automatically. Low / medium / high cutoff voltage for each cell is: 2.6V/2.85V/3.1V. For example: For a 3 cells lithium pack, when "Medium" cutoff threshold is set, the cut-off voltage will be: 2.85*3=8.55V.
 - 2) For nickel batteries, low / medium / high cutoff voltages are 0%/45%/60% of the startup voltage (i.e. the initial voltage of battery pack), and 0% means the low voltage cut-off function is disabled. For example: For a 10 cells NiMH battery, fully charged voltage is 1.44*10=14.4V, when "Medium" cut-off threshold is set, the cut-off voltage will be:14.4*45%=6.5V.
 - When using balance discharge monitoring and protection function (i.e. Plugging the balance charge connector on battery pack into the BDMP socket on the Guard series ESC, the ESC monitors not only the voltage of the whole battery pack but also the voltage of each cell). For lithium battery, low / medium / high cut off voltage for each cell is: 2.6V/2.85V/3.1V. When the voltage of any cell in battery pack is lower than the cut-off threshold, the protection function is activated.
- 5. Startup Mode: Normal /Soft /Super-Soft, default is Normal.
 - Normal is preferred for fixed-wing aircraft. Soft or Super-soft are preferred for helicopters. The initial acceleration of the Soft and Super-Soft modes are slower in comparison, usually taking 1 second for Soft startup or 2 seconds for Super-Soft startup from initial throttle advance to full throttle. If the throttle is closed (throttle stick moved to bottom) and opened again (throttle stick moved to top) within 3 seconds of the initial startup, the restart-up will be temporarily changed to normal mode to get rid of the chances of a crash caused by slow throttle response. This special design is very suitable for aerobatic flight when quick throttle response is needed.
- 6. Timing: Low / Medium / High, default is Low. Note2
 - Usually, low timing value can be used for most motors. We recommend the **Low** timing value for 2 poles motor and **Medium** timing value for motors with more than 6 poles to get a high efficiency. For higher speed, **High** timing value can be chosen.
 - Note2: After changing the timing setting, please test your RC model on ground prior to flight!

Begin To Use Your New ESC

Please start the ESC in the following sequences:

- 1. Move the throttle stick to the bottom position and then switch on the transmitter.
- 2. Connect the battery pack to the ESC, the ESC begins the self-test process, a special tone " ▶ 123" is emitted, which means the voltage of the battery pack is in normal range, and then N "beep" tones will be emitted, means the number of lithium battery cells. Finally a long "beep-----" tone will be emitted, which means self-test is OK, the aircraft/helicopter is ready to go flying.
 - If nothing is happened, please check the battery pack and all the connections;

Manual of Brushless Motor Speed Controller

- If a special tone " → 567i2" is emitted after 2 beep tones ("beep-beep-"), means the ESC has entered the program mode, it is because the throttle channel of your transmitter is reversed, please set it correctly;
- If the very rapid "beep-beep-, beep-beep-" tones is emitted, means the input voltage is too low or too high, please check your battery's voltage.
- 3. "VERY IMPORTANT!" Because different transmitter has different throttle range, we strongly suggest you using the "Throttle Range Setting Function" to calibrate throttle range. Please read the instruction on page 4-----"Throttle Range Setting".

Alert Tone

- Input voltage is abnormal: The ESC begins to check the voltage when the battery pack is connected, if the voltage is not in the
 acceptable range, such an alert tone will be emitted: "beep-beep-, beep-beep-, beep-beep-" (Every "beep-beep-" has a time interval of
 about 1 second.)
- 2. Throttle signal is abnormal: When the ESC can't detect the normal throttle signal, such an alert tone will be emitted: "beep-, beep-, beep-, (Every "beep-" has a time interval of about 2 seconds)
- 3. Throttle stick is not in the bottom position: When the throttle stick is not in bottom (lowest) position, a very rapid alert tone will be emitted: "beep-, beep-, beep-". (Every "beep-" has a time interval of about 0.25 second.)

Protection Function

- Abnormal start up protection: If the motor fails to start within 2 seconds of throttle application, the ESC will cut-off the output power. In
 this case, the throttle stick MUST be moved to the bottom again to restart the motor. (Such a situation happens in the following cases:
 The connection between ESC and motor is not reliable, the propeller or the motor is blocked, the gearbox is damaged, etc.)
- 2. Over-heat protection: When the temperature of the ESC is over 110 Celsius degrees, the ESC will reduce the output power.
- 3. Throttle signal loss protection: The ESC will reduce the output power if throttle signal is lost for 1 second, further loss for 2 seconds will cause its output to be cut-off completely.

Program Example

Setting "Start Mode" to "Super-Soft", i.e. value #3 in the programmable item #5

1. Enter Program Mode

Switch on transmitter, move throttle stick to top position, connect battery pack to ESC, wait for 2 seconds, "beep-beep" tone should be emitted. Then wait for another 5 seconds, special tone like 5 567i2" should be emitted, which means program mode is entered.

2. Select Programmable Items

Now you'll hear 8 tones in a loop. When a long "beep-----" tone is emitted, move throttle stick to bottom to enter the "Start Mode"

3. Set Item Value (Programmable Value)

"Beep-", wait for 3 seconds; "Beep-beep-", wait for another 3 seconds; then you'll hear "beep-beep-beep", move throttle stick to top position, then a special tone " 1515" is emitted, now you have set the "Start Mode" item to the value of "Super-Soft"

4. Exit Program Mode

After the special tone " 1515", move throttle stick to bottom within 2 seconds.

Trouble Shooting

T 11	D "11 D	A 41			
Trouble	Possible Reason	Action			
After power on, motor does not work, no	The connection between battery	Check the power connection.			
sound is emitted	pack and ESC is not correct	Replace the connector.			
After power on, motor does not work,	Input voltage is abnormal, too high	Check the voltage of battery pack			
such an alert tone is emitted:	or too low.				
"beep-beep-, beep-beep-,beep-beep-"	The balance charge connector is	Check the connection of the balance charge			
(Every "beep-beep-" has a time interval	not located properly in BDMP	connector and the BDMP adapter.			
of about 1 second)	adapter.				
After power on, motor does not work,	Throttle signal is irregular	Check the receiver and transmitter			
such an alert tone is emitted:		Check the cable of throttle channel			
"beep-, beep-, beep- "(Every "beep-" has					
a time interval of about 2 seconds)					
After power on, motor does not work,	The throttle stick is not in the	Move the throttle stick to bottom position			
such an alert tone is emitted:	bottom (lowest) position				
"beep-, beep-, beep-" (Every "beep-" has					
a time interval of about 0.25 second)					
After power on, motor does not work, a	Direction of the throttle channel is	Set the direction of throttle channel correctly			
special tone " 🎝 56712" is emitted after 2	reversed, so the ESC has entered				
beep tone (beep-beep-)	the program mode				
The motor runs in the opposite direction	The connection between ESC and	Swap any two wire connections between ESC and			
	the motor need to be changed.	motor			
The motor stop running while in working	Throttle signal is lost	Check the receiver and transmitter			
state	-	Check the cable of throttle channel			
	ESC has entered Low Voltage	Land RC model as soon as possible, and then			
	Protection mode	replace the battery pack			
	Some connections are not reliable	Check all the connections: battery pack connection,			
		throttle signal cable, motor connections, etc.			
Random stop or restart or irregular	There is strong electro-magnetic	Reset the ESC to resume normal operation. If the			
working state	interference in flying field.	function could not resume, you might need to move			
	, ,	to another area to fly.			

Manual of Brushless Motor Speed Controller

Normal startup procedure:

Move throttle stick to bottom and then switch on transmitter. Connect battery pack to ESC. special tone like "♪123" means power supply is OK

Several "beep-" tones should be emitted, presenting the number of lithium battery cells

When self-test is finished, a long "beep----"tone should be emitted

Move throttle stick upwards to go flying

Throttle range setting: (Throttle range should be reset whenever a new transmitter is being used)

Switch on transmitter. move throttle stick to top

Connect battery pack to ESC, and wait for about 2 seconds

"Beep-Beep-" tone should be emitted, means throttle range highest point has been correctly confirmed

Move throttle stick to the bottom, several "beep-" tones should be emitted, presenting the number of battery cells

A long "Beep-" tone should be emitted, means throttle range lowest point has been correctly confirmed

Program the ESC with your transmitter (4 Steps):

- Enter program mode
- Select programmable items
- Set item's value (Programmable value)
- Exit program mode

1. Enter program mode

- Switch on transmitter, move throttle stick to top, connect the battery pack to ESC
- Wait for 2 seconds, the motor should emit special tone like "beep-beep-"
- Wait for another 5 seconds, special tone like " > 567i2" should be emitted, which means program mode is entered

2. Select programmable items:

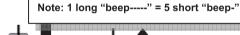
After entering program mode, you will hear 8 tones in a loop with the following sequence. If you move the throttle stick to bottom within 3 seconds after one kind of tones, this item will be selected.

- "beep" brake
- (1 short tone)

- 2. "beep-beep-"
- battery type
- (2 short tone)

- "beep-beep-" 3. 4.
- cutoff mode
- (3 short tone) "beep-beep-beep-" cutoff threshold (4 short tone)
- 5. "beep----"
- startup mode
- (1 long tone)

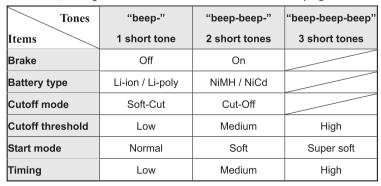
- "beep----beep-"
- timing
- (1 long 1 short)
- 7. "beep----beep-beep-"
- exit
 - set all to default (1 long 2 short) (2 long tone)



"beep----"



You will hear several tones in loop. Set the value matching to a tone by moving throttle stick to top when you hear the tone, then a special tone " > 1515" emits, means the value is set and saved. (Keeping the throttle stick at top, you will go back to step 2 and you can select other items; Moving the stick to bottom within 2 seconds will exit program mode directly)





There are 2 ways to exit program mode:

- In step 3, after special tone "♪ i5i5", please move throttle stick to the bottom position within 2 seconds.
- In step 2, after tone "beep----"(ie. The item #8), move throttle stick to bottom within 3 seconds.

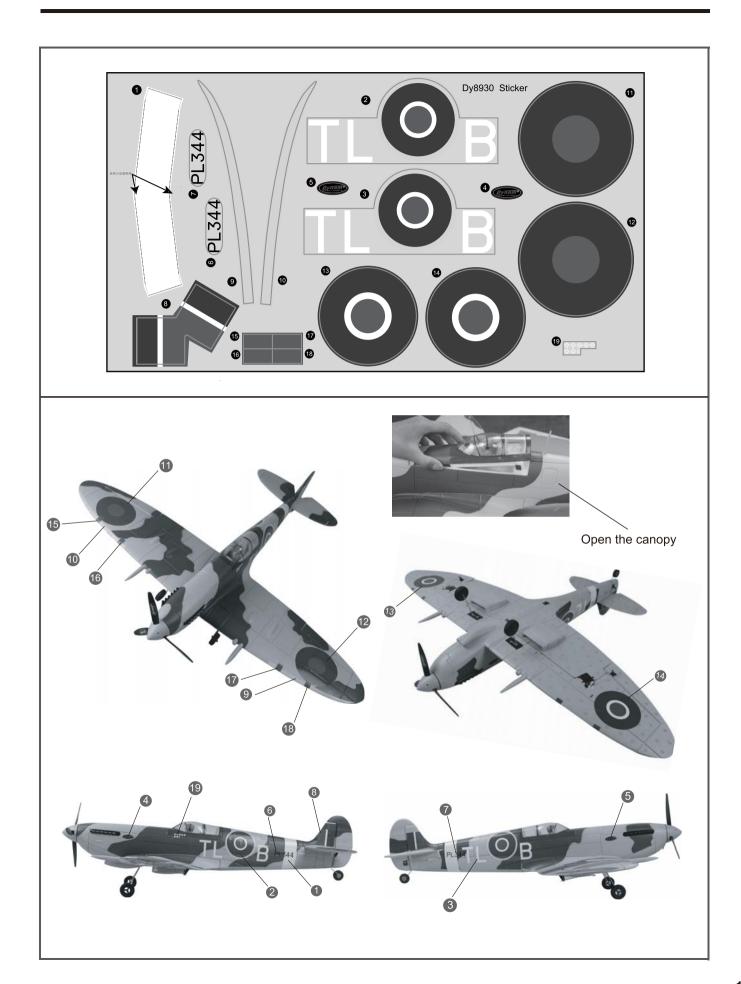


How To Programming The ESC With The Dynam Radio

How to enter the programming mode of the Dynam's brushless ESC with the Dynam 2.4Ghz radio system:

(Warning: Please disconnect the motor from the ESC before starting the following procedure)

- 1) Turn on the transmitter, then connect battery to the receiver, let the normal auto binding process completed. (Both LED lights on transmitter and receiver should flash rapidly at the same time for this process to succeed)
- 2) Disconnect the receive power; do not turn off the transmitter.
- 3) Move the throttle stick to the top position.
- 4) Toggle the safety switch (on the upper left hand corner of the transmitter). Then make sure the safety switch is at the off position (the tip of the switch is set toward the back of the transmitter)
- 5) Connect battery to the receiver; now you are ready to enter the programming mode (please see the ESC manual for programming instruction).
- 6) If unable to enter the programming mode, please repeat the above procedure again.



Battery Warning And Charging

Lithium-polymer batteries are a revolutionary new rechargeable battery technology for electric R/C flight, offering a variety of significant advantages over NiCd, NiMH and Li-lon batteries. It is very important to have a good understanding of the operating characteristics of Li-Po batteries especially their exact rated voltage. Always read the specifications printed on the label of your Li-Po battery prior to use, and read this instruction sheet in its entirety.

WARNING! Lithium-Polymer batteries(Li-Po) are entirely different than NiCd and NiMH batteries and must be handled differently as well!! Failure to follow these care and handling instrututions can quickly result in severe, permanent damage to the batteries and its surroundings and even start a FIRE!

- ◆ You must charge the Li-Po battery pack in a safe area away from flammable materials.
- Never charge the battery unattended. When charging the battery you should always remain in constant observation to monitor the charging process and react to potential problems that may occur.
- ◆ After flight, the battery cool down to ambient temperature before charging.
- ◆ Wire lead shorts can cause fire! If you accidentally short the wires, the battery must be placed in a safe area for observation for approximately 15 minutes.



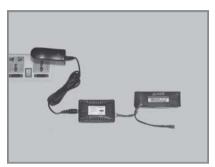
- ◆ In the event of a crash, you must quickly and safely disconnect and remove the battery from observation, then place it in a safe, open area from flammable materials to observe it for at least 15 minutes.
- Store the battery at room temperature for best results.
- ◆ Do not over-discharge the battery. Discharging the battery too low can cause damage to the pack resulting in reduced performance and duration

The charger requires up to 1.5 Amps of 10-15 Volt DC input power that can be supplied from a small 12V gel cell or car battery.

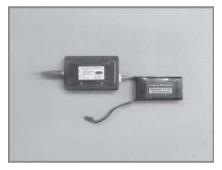


Battery Warning And Charging

Input power for the charger can also be supplied through the use of an AC to DC adapter/power supply for convenient charging anywhere an AC outlet is available. We recommend the optional AC to 12V DC ,1.5Amp Power Supply. **NEVER attempt to power the charger from an AC outlet without the use of a proper AC to DC adapter/power supply.**



Once you have connected the charger to a power source, The red LED will turn on, Connect the Li-Po battery pack to the chager. When the park is full charged. The green LED will turn on.

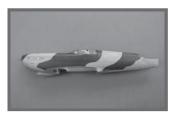


Install the Transmitter Batteries

Install 8 new "AA" batteries in the included transmitter. Check the power level of the batteries and operation of the transmitter by switching the power switch on (upward). The status LEDs at the top of the transmitter will indicate the power level of the batteries. If at any time the status LEDs no longer show green, it will be necessary to replace the batteries with new ones.



Parts List



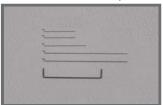
SPF-001 Fuselage



SPF-004 Elevator



SPF-007 Propeller



SPF-010 Push rod



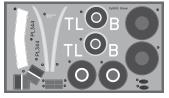
DYT-2002 Transmitter



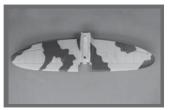
DYA-000X Adaptor



DY-3003 Glue



SPF-012 DECAL



SPF-002 wing



SPF-005 Landing gears set



SPF-008 canopy



SPF-011 Plastic set



DY-3001 Quick-controller



DY-6006 11.1V 1250mAh 15C Li-Po Battery



DYE-1003 18A ESC



SPF-003 Vertical stabilizer



SPF-006 spinner



SPF-009 BM2810CD-KV1080



DYAT-008 Servo Horn



DY-1007 9g Servo



DYC-1002 Balance Charger



DYR-2001 2.4G Receiver



Piner J3

Specification:

Wingspan: - - - - - 1245mm (49in) Overall Length: ---- 850mm (33in) Wing Loading: ----43.9g/dm² Servo: ------ 9gx4pcs

Battery: — — — — — — 11.1V 2200mAh Li-Po,25c

Speed Controller: ---30A brushless

Motor Size: — — — — - 1100kv Brushless Outrunner

Flying Weight: ----1000g (35.3oz)





Specification:

Wingspan: ----1200mm(47in) Overall Length: --- 1010mm (40in) Wing Loading: ---- 40.5g/dm² Servo: ----- 9gx4pcs

Battery: -- -- -- 11.1V 2200mAh Li-Po ,20c

Speed Controller: --- 30A brushless

Motor Size: — — — — - 850Kv Brushless Outrunner

Flying Weight: ---- 1150g(40.6oz)



Specification:

Mat-5 Texan

Wingspan: — — — 1370mm (54in)
Overall Length: — — 895mm (35.2in)
Wing Loading: — — -44.6g/dm²
Servo: — — — -9g x4pcs

Battery: — — — 11.1V 2200mAh Li-Po, 25c

Speed Controller: — — — 30A Brushless Motor Size: — — — 900KV Brushless Outrunner Flying Weight: — — - 1250g (44.2oz)

www.dynam-rc.cn





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