

2.4GHz
DSSS

6 CHANNEL DIGITAL PROPORTIONAL RADIO CONTROL SYSTEM MANUAL

ETB62A-2.4GHz



E-FLY®

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Thank you for purchasing the E-Fly ETB62A-2.4GHz Digital Proportional Radio Control System. Before you operate this unit, please read and keep this manual carefully. Please comply the proper procedures strictly, user must be responsible for the damages of radio system and model or other loss caused by incorrect operation.

PACKAGE LIST

Transmitter: ETB62A-2.4GHz	1pcs	We do not offer servo, speed controller, battery or changer with the radio control system .
Receiver: ER62-2.4GHz	1pcs	
Simulator cable:	1pcs	Users can buy as spare parts.
Neck strap(optional):	1pcs	Servo: AS-100(9 g) 3 pcs
Manual:	1pcs	Speed controller: ESC-30A 1 pcs
CD:	1pcs	Battery packs: 9.6V/Ni-MH 1 pcs
		Charger: 1 pcs

Great Features:

- Cordless trainer function
- For AERO/HELI/GLIDERS
- Fully proportional
- High quality joystick
- Servo reverse function
- Trainer port available
- Low voltage alarm
- Remote control

ETB62A-2.4GHz is a 6 channel full-scale 2.4GHZ RC device. It adopts the technology of direct sequence spread spectrum (DSSS), FDMA, CDMA and frequency hopping to have good anti-interference, stability and reliability.

It can be used for all ordinary aeroplanes, delta wing aeroplanes, gliders, coaxial helicopters, general helicopter and CCPM helicopter models, and so on. It has 6 channel output and simulator signal interface. It also has such functions as Dual Rate(D/R), Mode I and Mode II exchange and low voltage alarm.

The most characteristic feature of ETB62A-2.4GHz RC device is the cordless trainer function. It means flight instruction can be realized without the trouble of cord connection and this makes learning easier for green hand.

PRECAUTIONS FOR KEEPING

- If it is your first using, please make sure the receiver can be controlled by the transmitter. If not, please rebind. Details can be found in Bind Process Description. the transmitter and the receiver must be bind again. More details , ease refer to the process of frequency bind for 2.4 GHz R/C System.
- Please do not turn on several RC devices and bind them at the same time, only turn on a set of RC device at one time.
- Do not store the radio system in the damp, dusty and vibratory place, temperature over 40°C or under -10°C and direct sunlight for long time.

- If there is a long time not for use, please take the battery out from the transmitter and keep it in the dry place.
- Forbid to wipe the radio system with the organic liquor such as thinner, acetone and chloroform.
- Do not throw away the using up batteries, please keep them in the metalloid container and transfer them to the environmental conservation institution.
- On purpose of environmental conservation and low using cost , we suggest you use the rechargeable Ni-MH battery.

MEANING OF SPECIAL MARKINGS

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

MARK		MEANING
DANGER	⚠	Procedures which may lead to a dangerous condition and cause death or serious injury to the user if not carried out properly.
WARNING	!	Procedures which may lead to 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.

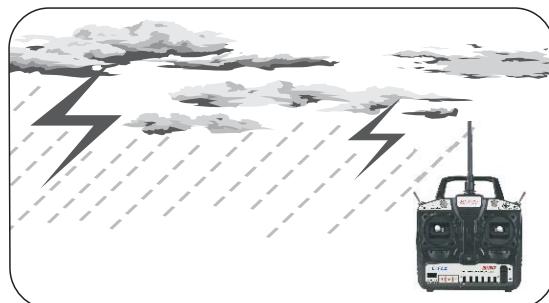
CAUTION Procedures where the possibility of serious injury to the user is small, but there is a danger of injury, or physical damage, if not carried out properly.

Symbol:  Prohibited  Mandatory

PRECAUTIONS DURING FLIGHT WARNING

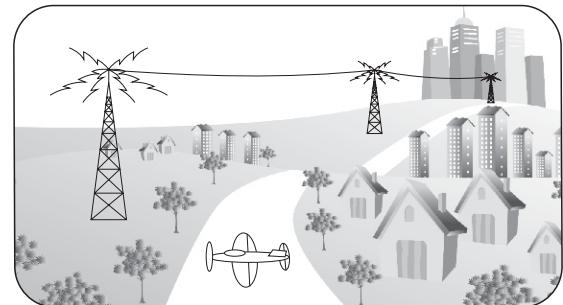
WARNING!

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.



Always test the digital proportional R/C set before use. Any abnormality in the digital proportional R/C set, or model, may cause a crash. Before starting the engine, check that the direction of operation of each servo matches the operation of its control stick. If a servo does not move in the proper direction, or operation is abnormal, do not fly the plane.

The transmitter can not work properly if the frequency bind button is pressed down negligently. In this case, The transmitter and the receiver must be bind again. More details , ease refer to the process of frequency bind for 2.4 GHz R/C system.



Please do not turn on several RC devices and bind them at the same time, bind only one set of RC device at one time. The RC device should not be stay in bind state for a long time.



Do not fly the plane near the house, road,electrical wire and airport.

TRANSMITTER

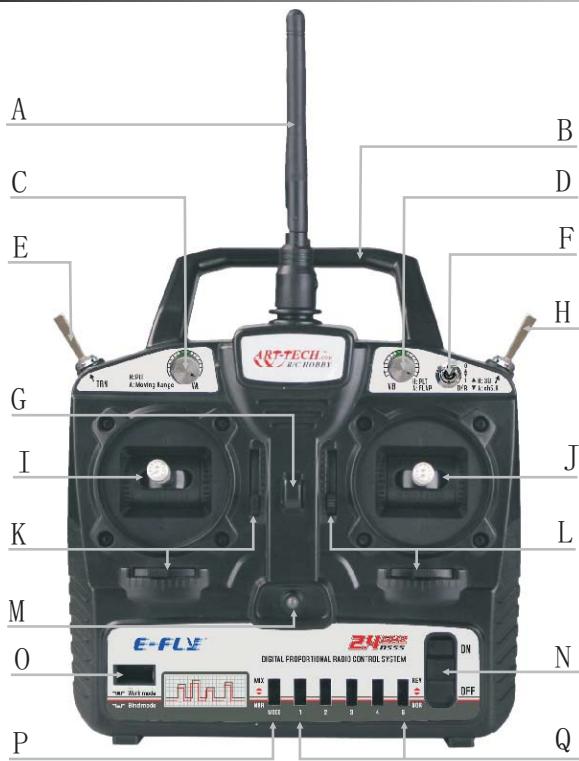
- We offer Mode I and Mode II two types of transmitter for selection. Customers should choose one according to their individual needs.
- You will need 8 AA batteries for operating the transmitter.
- Please do not press the frequency bind switch when the Transmitter at work mode, or else your device will not work!
- If the indicator of the transmitter or the receiver flashing once every two seconds after turn on the power please bind the frequency of the transmitter and the receiver again.



Low battery voltage alarm function.

The transmitter will emit a high-pitched tone if the battery voltage gets too low.

Transmitter particular introduce



A: Antenna

B : Handle

C : VA

1) For aeroplanes, it is for small rate adjustment of channel 1,2 and 4;

2) For helicopters, it is the fine-tuning for the PIT.

D : VB

1) For aeroplanes, it is for adjustment of channel 6, usually used for output setting of flap;

2) For helicopters, it is the fine-tuning for the PLT.

E : Trainer switch

F : Dual Rate (D/R) Switch

1) For aeroplanes, When it is 1, it is adjusted by knob A, from 20% to 100%; When it is 0, it means the turning range of servos is 100%.

2) For helicopters, The switch is to change the turning range of servos (100% / 70%) for CH1, CH2 and CH4. When it is 0, it means the turning range of servos is 100%. When it is 1, it means the turning range of servos is 70%.

G : Flying Ring

H : Switch

1) For aeroplanes, this switch is for Ch5 and Ch6 and can be used for collapsible landing gear, aerial camera and flap control, etc.

2) For helicopters, it is the 3D switch.

I : Joystick

1) If the transmitter is Model 1, CH2 is for elevator and CH4 for rudder.

2) If the transmitter is Model 2, CH3 is for throttle and CH4 for rudder.

J : Joystick

1) If the transmitter is Model 1, CH1 is for aileron and CH3 for throttle.



2) If the transmitter is Model 2, CH1 is for aileron and CH2 for Rudder

K : Trim levers

L : Trim levers

M : LED Indicator for Power

N : Switch for Power

O : Bind Button

P : mixed control switch

1) For aeroplanes, NOR means no mixing, MIX means mixing control for the CH1 and CH2;

2) For helicopters, NOR means independent aileron, pitch and elevator servos linked to the swashplate. MIX means CCPM helicopter. With Aileron

inputs, the aileron and pitch servos tilt the swashplate left and right; with Elevator inputs, the three servos tilt the swashplate fore and aft; with Pitch inputs, all three servos raise the swashplate up and down.

Q : CH1, CH2, CH3, CH4, CH6 reverse switch

1) aileron reverse switch

2) elevator reverse switch

3) throttle reverse switch

4) rudder reverse switch

6) flap / pitch reverse switch

R : Rechargeable plug

S : Battery bay for transmitter

T : Plug for Simulator

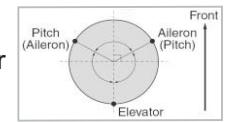
U : mode selection switch

1: ACRO for aeroplanes, HELI for the helicopters.

2: MODE 1 and MODE 2 selection.

3: frequency range selection switch, the usable frequency range of 2.4GHz is different in some countries, for example, in France only 2.400 ~ 2.454GHz can be used.

2.400 ~ 2.483GHz can be used in the majority of countries, FREQ1 for 2.400 ~ 2.483GHz, FREQ2 for 2.400 ~ 2.454GHz



functions of the RC device

- ETB62A-2.4GHz has a variety of flight mode. It can be used for all ordinary aeroplanes, delta wing aeroplanes, gliders, coaxial helicopters, general helicopter and CCPM helicopter models, and so on.

A: ordinary aeroplanes

Settings: Set switch U(1) to ACRO, Set switch P to NOR

Use: 1. by adjusting fine-tuning knob A, the turning range of servos for CH1, CH2 and CH4 can be adjusted from 20% to 100%

2. Small Rate can be chosen by setting the switch F to 1.

3. switch A is for CH6 flap and CH5 collapsible landing gear at the same time. Flap can be adjusted by fine-tuning knob B from 0% to 100%

4. by setting the switch set Q, the reverse setting of CH1, CH2, CH3, CH4 and CH6 can be adjusted.

B: delta wing aeroplanes

Settings: Set switch U(1) to ACRO, Set switch P to MIX

Use: 1. by adjusting fine-tuning knob A, the turning range of servos for CH1, CH2 and CH4 can be adjusted from 20% to 100%

2. Small Rate can be chosen by setting the switch F to 1.

3. switch A is for CH6 flap and CH5 collapsible landing gear at the same time. Flap can be adjusted by fine-tuning knob B from 0% to 100%

4. by setting the switch set Q, the reverse setting of CH1, CH2, CH3, CH4 and CH6 can be adjusted.

C: general helicopter and coaxial helicopters

Settings: Set switch U(1) to HELI, Set switch P to NOR. For coaxial helicopter mode, set Dual Rate(D/R) to 1.

Use: 1. CH3 and CH6 mixing for pitch control, PIT and PLT can be tuned by knob A and B

2. The switch F is to choose Dual Rate (100% / 70%) for CH1, CH2 and CH4.

3. The switch A is for 3D mode, it is used for the stunt mode

4. by setting the switch set Q, the reverse setting of CH1, CH2, CH3, CH4 and CH6 can be adjusted.

Note: When use coaxial helicopter mode, do not use 3D mode.

D: CCPM helicopters

Settings: Set switch U(1) to HELI, Set switch P to MIX.

Use: 1. CH1, CH2, CH3 and CH6 are mixed to achieve control for CCPM helicopter, PIT and PLT can be tuned by knob A and B

2. The switch F is to choose Dual Rate (100% / 70%) for CH1, CH2 and CH4.

3. The switch A is for 3D mode, it is used for the stunt mode

4. by setting the switch set Q, the reverse setting of CH1, CH2, CH3, CH4 and CH6 can be adjusted.

- EBT62A-2.4GHz has the unique cordless trainer function. For details, please refer to (The using of trainer function).

Other function of transmitter

- Servo reversing switches
- If the direction of servo operation is not the same as the model, adjust the reversing switches to reverse the direction.

The lower position is the normal setting and the upper position is the reverse setting.

Channel display

AIL.: Aileron	(CH1)
ELE.: Elevator	(CH2)
THR.: Throttle	(CH3)
RUD.: Rudder	(CH4)
Aeroplanes: flap control	(CH5)
Helicopters: pitch control	(CH6)

- Working modes' option
MIX: delta-wing or V type tail-wing mode
NOR: normal mode

- Operating direction display

REV.: Reverse setting
NOR.: Normal setting

Stick lever spring tension adjustment The stick spring tension can be adjusted. The operating feel of the aileron, elevator, and rudder sticks can be individually adjusted.

- Remove the four transmitter rear case screws and remove the rear case.
- Adjust the spring strength by turning the screw of the channel you want to adjust.
- Close the rear case and tighten the four screws. Stick length adjustment.
- Turn the head of stick.

- TRAINER JACK

Connects the trainer cord when using the trainer function (The trainer cord is sold separately), see part 8 for the details of the trainer function.

- BATTERY COVER

Use when replacing the battery. Slide the cover downward while pressing the part marked □ PUSH □

- MODE I AND MODE II SETTING

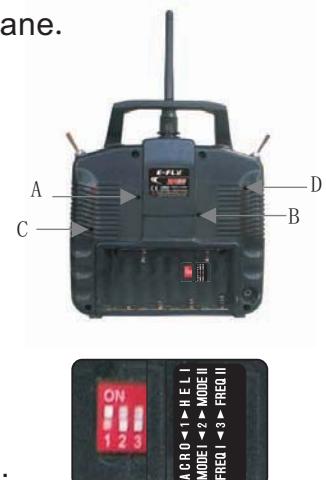
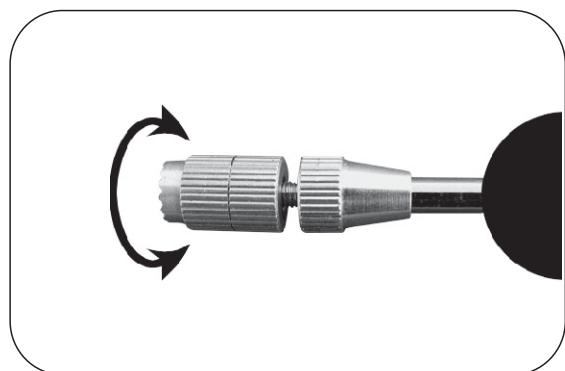
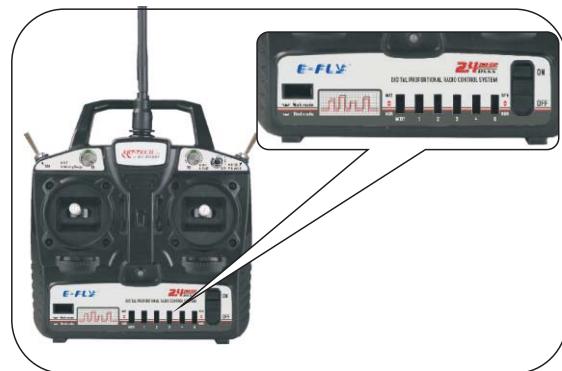
Before setting mode I and mode II, please turn off the power of the plane.

1. Press the sub button, enter into the Mode I and Mode II setting menu. Before Mode Setting, please unplug the power supply of the plane. Adjustment of joysticks

The screws for mode setting are in the rear cover. as shown in the figure: The screws A and B play the role of suppressing springs; and the screws C and D play the role of adjusting resist force.

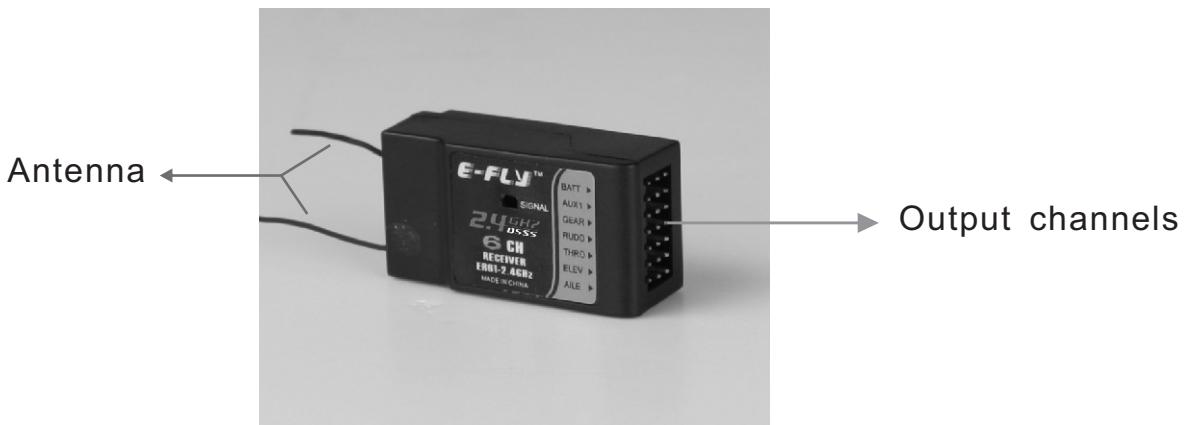
Therefore, for mode I, loosen the screws A and C, tighten the screws B and D. For mode II, loosen the screws B and D, tighten

2. And then set the second switch of the switch set U to set the right mode.

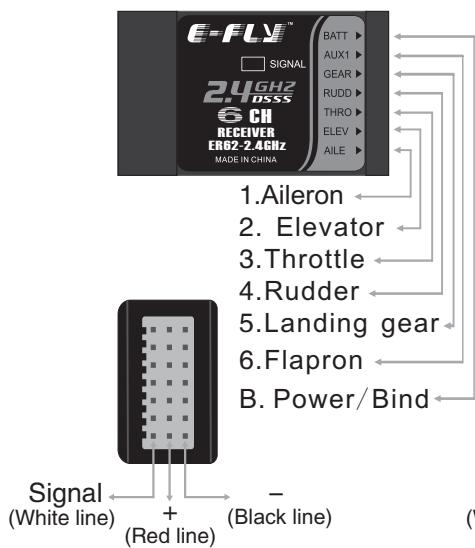


RECEIVER

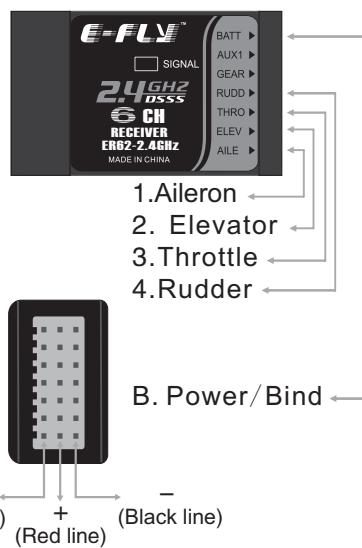
With E-FLY ER62-2.4GHz receiver, the max range is 1000 feet (350m) in the air, suitable for small park flyer type model plane.



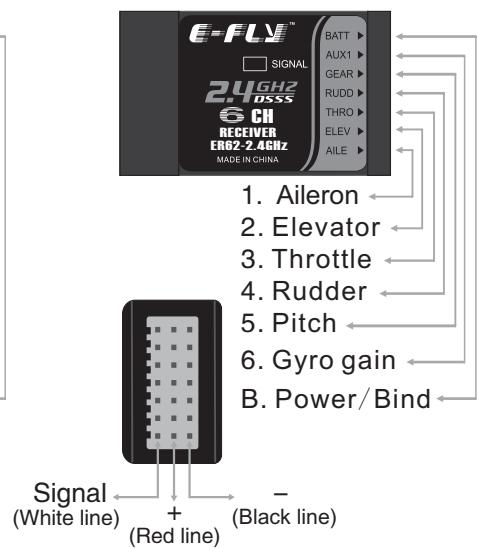
OPERATION FOR AIRPLANES



OPERATION FOR COAXIAL DUAL ROTOR



OPERATION FOR AIRPLANES



SPECIFICATIONS AND PARAMETERS

- Operating voltage: 4.8V~6V
- Current drain: $\leq 40\text{mA}$
- Weight: 12g
- Dimension: 44mm*23mm*15mm
- Adjacent channel rejection: $\geq -85\text{dBm}$
- Channel: 6CH
- Range(Height): $\geq 350\text{m}$
 $\geq 50\text{m}$ (with coaxial dual HELI)

MANUAL FOR BRUSHED ESC

Specifications for ESC-30A

Working currency:30A/50A(max currency)

input voltage: DC,5V-14.4V.

starting mode: adaptable point (1.0ms-1.5ms)

control mode: 200 class proportional

output voltage(BEC) : 5V/1A(direct for servo)



Auto cut-off function

When the voltage of battery in model plane is under working voltage, ESC has the function of cutting the power to the motor and only supply to receiver in order to save power. In that case, the model plane should be landed immediately for the sake of safety.

Notice



It is better to choose proper motor and battery in order not to over load. And please pay attention to the connection between ESC and the motor. In working condition, the ESC will become hot, so please pay attention to that.



TRANSMITTER OPERATION AND MOVEMENT OF EACH SERVO (Mode 1)

Before making any adjustments, learn the operation of the transmitter and the movement of each servo. (In the following descriptions, the transmitter is assumed to be in the standby state.)

AILERON OPERATION

When the aileron stick is moved to the right, the right aileron is raised and the left aileron is lowered, relative to the direction of flight, and the plane turns to the right. When the aileron stick is moved to the left, the ailerons move in the opposite direction.



ELEVATOR OPERATION

When the elevator stick is pulled back, the tail elevator is raised and the tail of the plane is forced down, the airflow applied to the wings is changed, the lifting force is increased, and the plane climbs (UP operation).

When the elevator stick is pushed forward, the elevator is lowered, the tail of the plane is forced up, the air flow applied to the wings is changed, the lifting force is decreased, and the plane dives (DOWN operation).



THROTTLE OPERATION

When the throttle stick is pulled back, the engine throttle lever arm moves to the SLOW (low speed) position. When the throttle stick is pushed forward, the throttle lever arm moves to the HIGH (high speed) position.



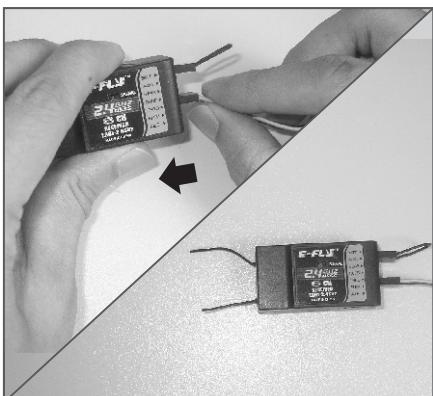
RUDDER OPERATION

When the rudder stick is moved to the right, the rudder moves to the right and the nose points to the right, relative to the direction of flight. When the rudder stick is moved to the left, the rudder moves to the left and the nose points to the left and the direction of travel of the plane changes.

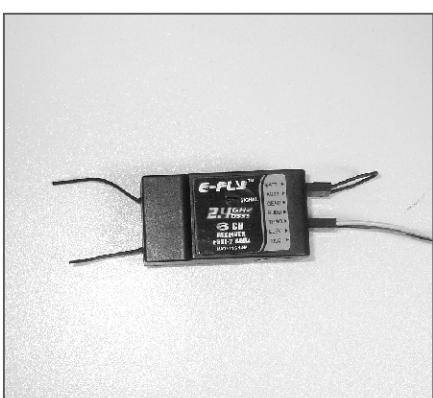


The process of frequency bind for 2.4GHz R/C system

Place the transmitter and the receiver close to each other within one (1) meter.
If oil aircraft, please connect the power of receiver to other channel at first, and then plug it to BATT after frequency bind.



1. plug the short-circuit plug into the Receiver in the position of BATT. Connect the ESC to receiver for electricity supply, which results to the indicator light glitters.



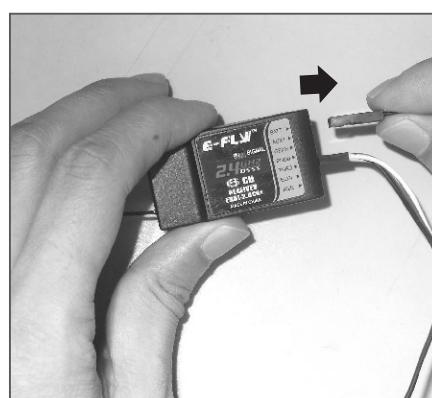
3. the indicator light of the receiver will light, which indicates that the frequency bind is successful.



5. Press frequency bind button again to get it rebound. After the indicator light flashes for a few seconds, it turns green, the transmitter get into working mode.



2. Press the frequency bind button, then turn on the transmitter's power.



4. Unplug the short-circuit, the indicator light glitters.



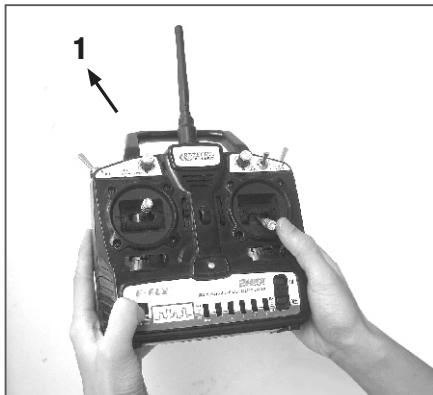
6. The indicator light turns bright again, which means that the radio system can work normally now.

The using of trainer function

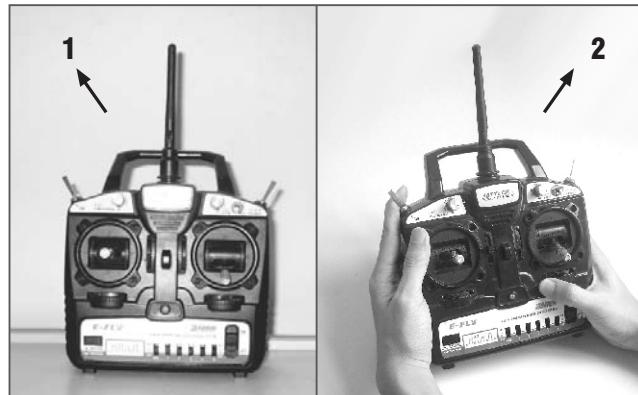
Before using trainer function, you should first bind the frequency of the master(teacher) transmitter to the receiver, adjust the same aircraft to respectively. Before entering into the next step, please make sure the reverse switches and mode settings are set correctly.

Make sure that the master transmitter and the receiver have been bound (frequency bind)

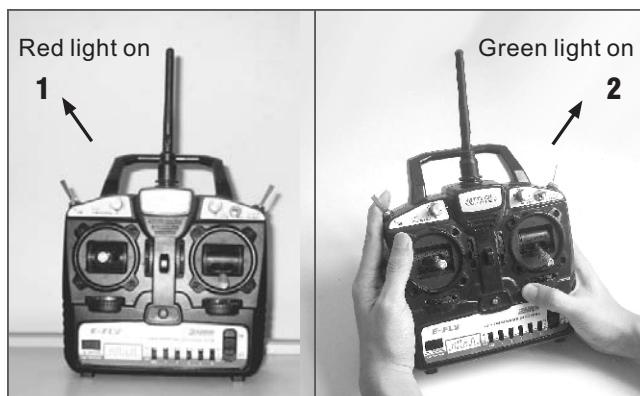
- the binding process of the master transmitter and the slave transmitter



1. Press the frequency bind button of the master transmitter, turn on the power, the indicator flashes.



2. Press the frequency bind button of the slave transmitter, put the slave near the master. turn on the power of the slave, the indicator flashes.



3. Wait Until the indicator of the master transmitter turns red and the slave transmitter turns green, which means the binding of the two transmitter has been completed, you can use the trainer function now.

- using of trainer function

When holding the TRN switch of the master transmitter, the indicator of the slave transmitter flashes , the slave transmitter can now control the plane; If holding the TRN switch of the slave transmitter, the indicator of the master transmitter flashes , this is only used for the slave to send prompt signal to the master.

Note: using the trainer function, the master transmitter and the slave transmitter should be in the same mode. VA,VB is controlled by the master transmitter. Before flying, the reverse switches of the two transmitter must be correct, and then fine-tuning knob should be adjusted to achieve the effect that when switching control, there are no changing in servo positions.

ADJUSTMENTS

The operating direction, neutral position, and steering angle of each servo are adjusted.

ADJUSTMENT PROCEDURE

Before making any adjustments, set all the SERVO REVERSER switches on the front of the transmitter to the lower (NOR) position. (Switch the switches with a small screwdriver, etc.) Turn on the transmitter and receiver power switches and make the following adjustments:

1. Check the direction of operation of each servo. If a servo operates in the wrong direction, switch its SERVO REVERSER switch. (The direction of operation can be changed without changing the linkage.) * Note that the direction of the aileron servo is easily mistaken.
2. Check the aileron, elevator, and rudder neutral adjustment and left-right (up-down) throw. Check that when trimmed to the center, the servo horn is perpendicular to the servo and check the neutral position of the fuselage control surfaces (aileron, elevator, rudder, etc.). If the neutral position has changed, reset it by adjusting the length of the rod with the linkage rod adjuster. When the throw is unsuitable (different from steering angle specified by the kit instruction manual), adjust it by changing the servo horn and each control surface horn rod.
3. Check the engine throttle (speed adjustment) linkage. Change the servo horn installation position and hole position so that the throttle is opened fully when the throttle stick is set to HIGH (forward) and is closed fully when the throttle stick and throttle trim are set for maximum slow (backward position and lower position, respectively).
4. After all the linkages have been connected, recheck the operating direction, throw, etc.*Before flight, adjust the aircraft in accordance with the kit and engine instruction manuals.
5. Fly the plane and trim each servo.

The using of computer-controlled interface

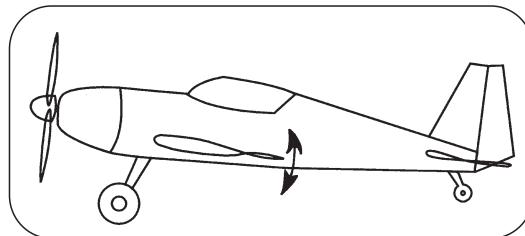
The jack on the left side of the transmitter can be connected to the computer via a simulation cable, the beginner can practise flying on the computer. This learning process can make the green hand be familiar with the operation and reduce the damage, please refer to the specific CD-ROM for more information.

GLOSSARY

The following defines the symbols and terms used in this instruction manual.

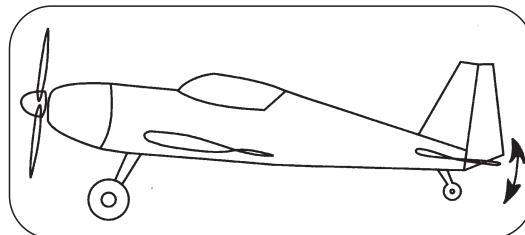
AILERON (AIL.)

Control surface at the left and right sides of the main wing of an aircraft. It usually controls turning of the aircraft.



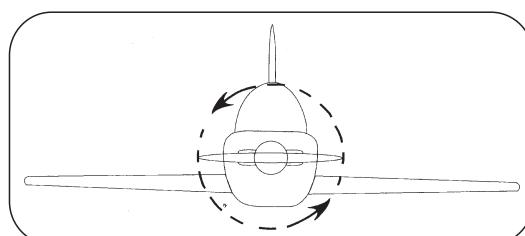
ELEVATOR(ELE.)

Control surface that moves up and down of the horizontal stabilizer of an aircraft. It usually controls up and down.



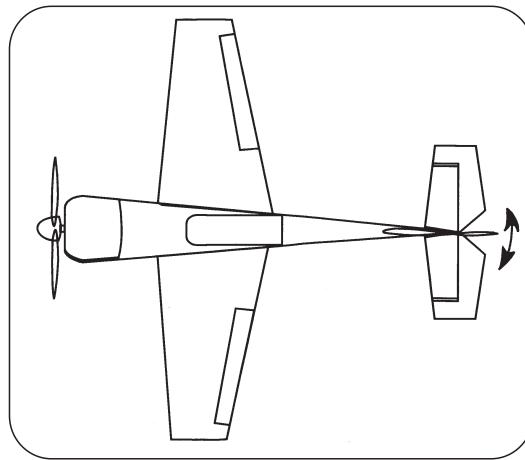
THROTTLE (THR.)

Part that controls the air mixture at the engine intake. When opened (throttle high side), a large air mixture is sucked in and the engine speed increases. When closed (throttle low side), the engine speed decreases.



RUDDER (RUD.)

Tail control surface that controls the direction of the aircraft.
Manufacturer reserves the right to make improvements without notice. Forbid to transfer and copy contents in this manual without consent.



There will be no notice given of any changes or improvements made .
It is forbidden to copy any of the content of this manual without permission.

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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).

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of FCC RF Rules. Operation is subject to the following two conditions:

- 1) This device may not cause interference and
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.

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.

Declaration of Conformity

Hereby, ShenZhen ART-TECH R/C Hobby Co., Ltd., declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.



SHENZHEN ART-TECH R/C HOBBY CO., LTD