



LOTUSRC

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T80 BASIC
QUADCOPTER
MANUAL
VERSION 1.0
(INTERNAL DOCUMENT)
(25 JULY 2011)



Read the follow words in red carefully before read the instruction, it links to the safety and liability of user.

- safety proceeding:

1. This product is a video remote control model, rotating rotor poses risk. People under 15years old please do not modulate and operate this model.
2. Users are required of inertial model operating safety knowledge to this product. We advise you operate it with professional people's help or guidance.

- disclaimers

1. Please do not utilize this product for anything illegal, users should bear all responsibility occurred in using our product.
2. This model contains a large number of sophisticated components and electronics, which may fail over time. LotusRC and our dealers assume no responsibility to any losses, be it direct and indirect as a consequence to this failure.



Notice:

Upon purchasing this product, you automatically accept the above agreement. May this product can bring you a satisfactory flying.

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Foreword

Before utilizing T80 quad-copter, please read this instruction carefully. It will help you to understand and know how to use it with less time. If there still have some points can't be realized during this reading, please contact us, you will get perfect answer and help here. In order to provide optimal service for you, please purchase this product via legal channel. People utilize our product in illegal action or any other unclear places, including get this product via illegal channel, is not able to share our relative service support.

To any illegal behavior which people copy our products and distributing, marketing, circulating, our company will claim for their legal liability.

Base on the continuous improvement and enhancement of product manufacturing techniques and producing workmanship, we maintain our



rights on changing instruction and product parts, parameter index at any time; therefore we will not inform our customer. You may know the latest product development by logging our website, welcome to send us any feedback of your feeling, opinions and suggestions during your playing process at any time.

I Brief instruction

1. Function and features

T80 quad-copter is a mini-type aircraft model designed for indoor and outdoor recreational flight. It is able to hang light PTZ camera, and take flight photography or do FPV flight.

1) Small dimension, light weight, taking off and landing vertically, low flying noise, fit for small acreage or space flying and landing.

2) Safe and easy to play, flight stable. Built in flight balance stable system.

The operator do not need to replace the flight altitude frequently, stable hovering and aerial flight can be achieved.

3) Use four same designed direct drive brushless motors, being reasonable placed, have high power conversion and strong thrust.

4) Flexible flight entertainment and configurable applying ability, hanging reasonable weight camera equipment is allowed for taking flight photography, FPV, etc, all expandable apply activities.

5) All aircraft metal parts are processed by sophisticated CNC skill, reasonably structured, have strong impact resistance, and also are

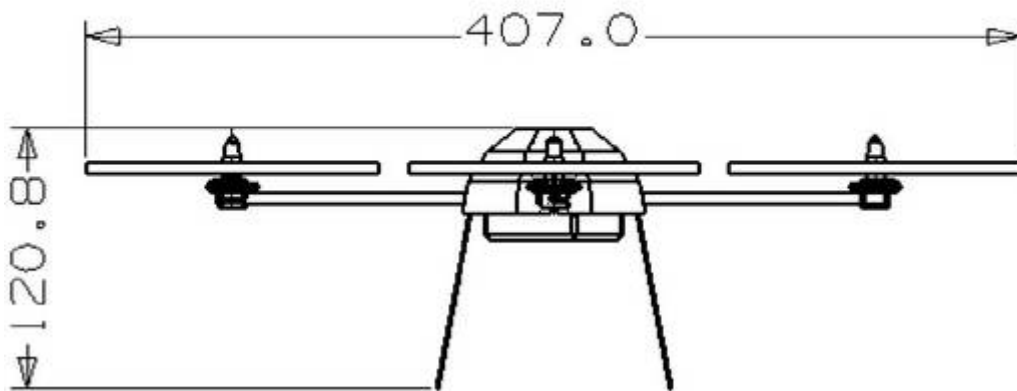


durable.

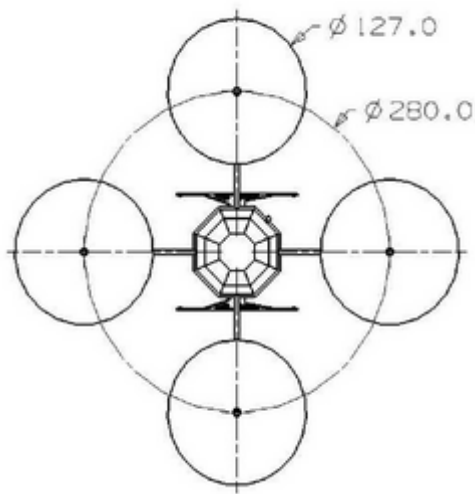
- 6) Only need 4 remote control proportion channels to fly. Property core system, it is compatible to all remote control equipments.
- 7) Dark grey transparent cover can do a help to observe aircraft working condition.

2. Aircraft dimensions

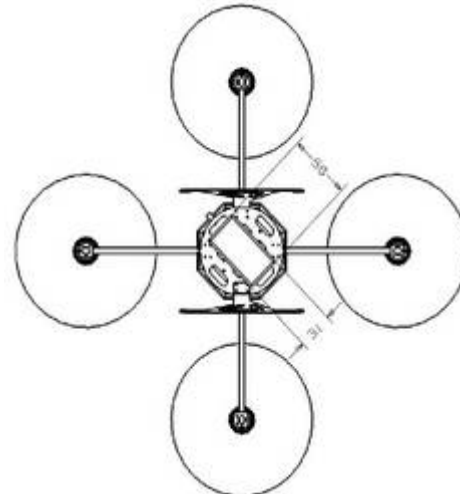
(mm)



Profile and dimension



Unfold dimension



(mm)

recommended battery placement

3. Parameter and specification

*this sheet is only for reference, product configuration may have little alteration in different versions. Please subject to material object.

NO.	Components' name	Specification	quantity	Unit	Remarks
1	Main body cover	PU composite	1	Set	-
2	Cross arm	carbon fiber	4	Pc	-
3	Foot stand	Silica gel, high strength aluminum	1	Set	-

4	Motor number	C`1803high efficiency brushless	4	Pc	Special purpose
5	Propeller	GWS7035 frontal and reversed propeller	4	Pc	-
6	Brushless electronic controller	2S 6A electronic high speed controller	4	Set	Special purpose
7	Flight control system	Inertial attitude self stable system	1	set	Special purpose

4. Technical parameter

EFFICIENT PAYLOAD	Mini vidicon / camera	≤50grams	standard
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Maximum lift force	Use 850mAh standard battery	380grams	-
Maximum payload	Use 850mAh standard battery	≤80grams	-
Maximum takeoff weight	Use 850mAh standard battery	280grams	Safety margin
Flight distance	Depend on remote control equipment and battery capacity	-	-
Flight time	2S 850mAh 15C battery	12mins	Hovering while no wind
Wind resistance	≤4	class	-

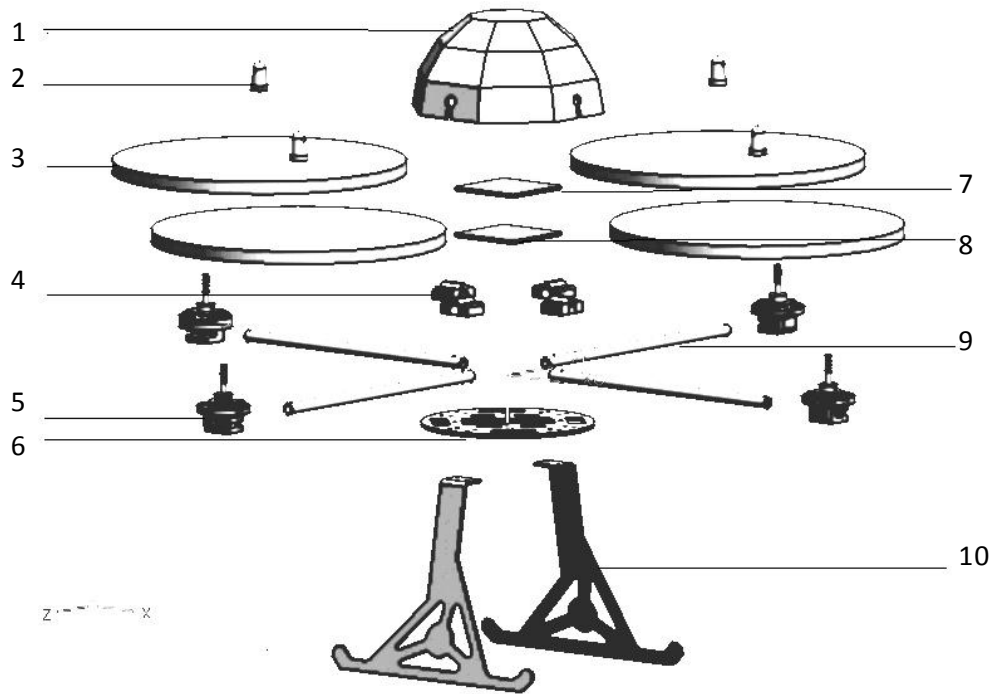
*this sheet is only for reference, product configuration may have little alteration in different versions. Please subject to material object.

Aircraft size	298x298x243	mm	±3mm
Maximum expandable size	475x475x128	mm	±3mm
Motor to motor	DIAGONAL DISTANCE BETWEEN TWO MOTOR CENTERS	Mm	±3mm
Battery	liPo 2S 850MaH 15c	Standard configuration	1300mAh is usable
Unit ARF weight	No battery, receiver, applicable load	165grams	±5grams
Takeoff weight	2S 850mAh battery, receiver	230grams	Standard configuration

II. Components name

1. Aircraft components:

(Aircraft exploded view)



No.	Components Name	Quantity
1	Cover	1
2	Blade Holder	4
3	Propeller	4
4	Locking Block	4
5	Brushless Motor	4
6	Pedestal	2
7	ESC	1
8	FC	1
9	Quad-copter Arm	4
10	Landing Gear	2

2. Electronic equipments

1) High speed appropriate brushless electronic controller, can keep outputting maximum current 6A, with excellent payload performance, special stop rotating protection methods, could prevent over burning the power tube efficiently. Built in communication signal monitoring mechanism, while inputting signal was broke off, motors will be closed gradually.

2) Flight controller system utilizes high speed main control chip, it is single chip, with nice capability and fast speed, working stable. Combined with high performance MEMS workmanship transducer, to reach stable and reliable attitude control. It is able to acquire signal from 4 receiver channels at the same time, and make flight attitude control available.

3. Software system

Specializing in development of quad-copter pneumatic layout model, we own flight controller and high speed brushless electronic control system with fully intellectual property right. The simple and easy use idea, avoid many sophisticated setting process. Help aircraft keep flight attitude stable and high performance via automatic adaption parameter of intelligent vague algorithm.



III. Assembly

1. Main body

In order to ensure product capability, aircraft main body has been assembled before shipping, it contains all electronic equipments.

2. Foot Stand

3. Propeller

T80 utilizes 4 pieces frontal and versa propellers (7inch), match motor shaft with loose threaded fix way, need to screw snugly by washer and aluminum blade holder to make sure it is stable and safe. Frontal propeller rotates by counter clock wise rotation with a symbol "7035" on the cover; versa propeller rotates by clock wise rotation with a symbol "7035R". Propeller installation pictures are followed, front and back one are frontal propellers, left and right one are versa propellers, pay attention to this.

Attention: do not install propellers first, just do it after setting be finished, it's for safety

IV. Connection installation

1. Receiver connection

35M, 40M, 72M and 2.4G channel standard remote control equipment, is compatible to market main brands: Spectrum, JR, Sanwa, Futaba, Hi-TEC, GWS, WFLY, ESKY etc. a minimum 4channel receiver is required to take off and land this aircraft vertically, hover,



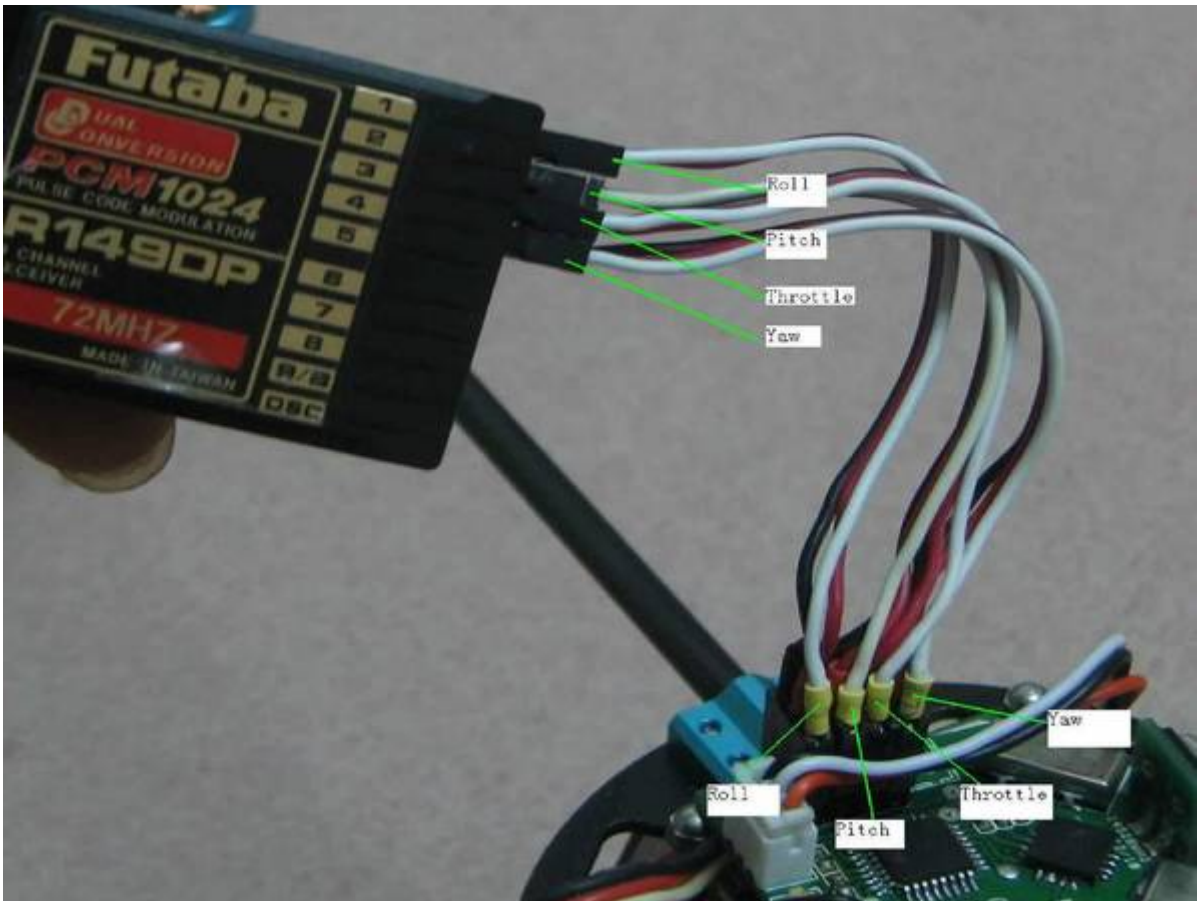
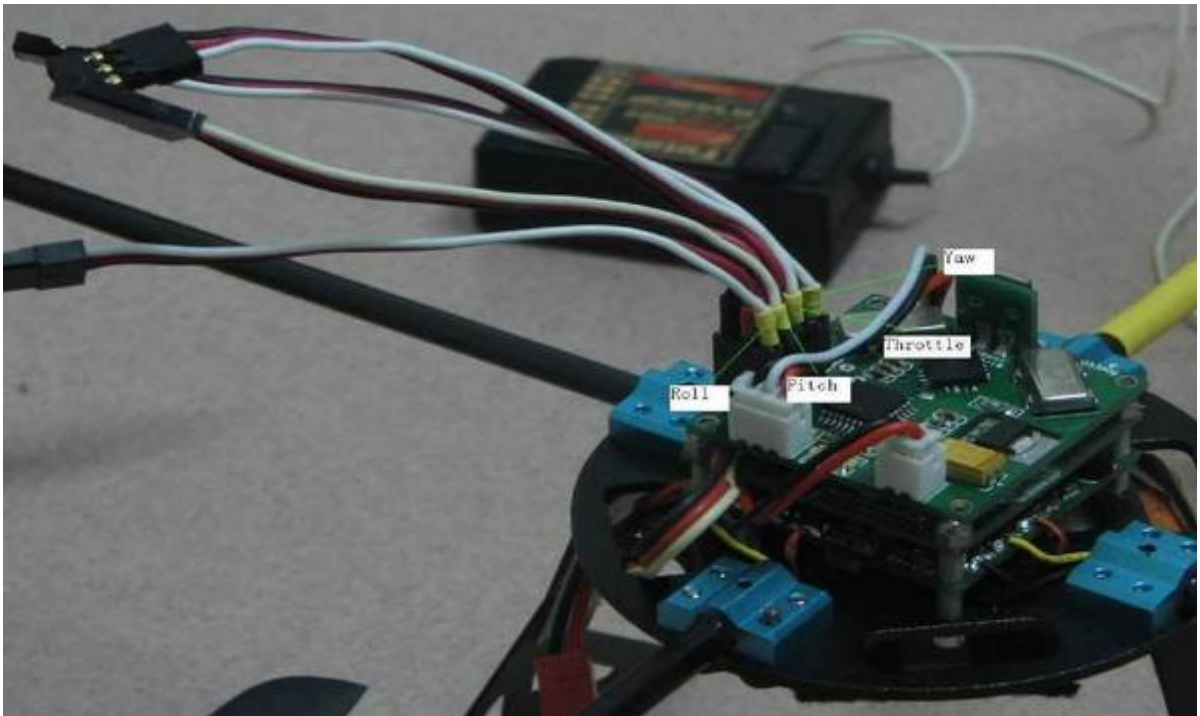
altitude hold, fly left, right, forward and back with ease.

RC equipment size after fully field tested:

Fasten the receiver on ARF inner side of cover or an appropriate place under the main body by prepared VELCRO, plug flight controller signal line in corresponding output channel of receiver in order. Channels of Futaba and JR receiver are different; refer to follow pictures during connection.

NO.	Brands	RC transmitter	Receiver	Remarks
1	WFLY	FT06-C	FRP06	—
2	Futaba	FF9	R149DP	—
3	Futaba	6EX	R146lp	—
4	Futaba	10C		—
4	JR	DSX7	RD721	—
5	JR	9X11		—
5	Spectrum	DX7	AR7100	—
6	Sanwa	RD8000	92777	—
7	Hi-TEC	Eclipse7	FRP06	—





2. Battery installation

- T80 aircraft motive power battery is fastened glutinously, easy to dismantle. Battery with standard configuration is **2S 850mAh 15C 1P L-poly** battery, the maximum battery size is **2S 1300mAh**. Flight time will be extended accordingly, but battery capacity's increase cannot be ideal direct proportion with flight time, as battery's increase gained taking off weight, this will lower aircraft's thrust-weight ratio at the same time, make flight maneuver performance decline.

3. Remote controller installation

Set remote controller to be no mix control fixed wing mode, rudder quantity 100%, rudder quantity curve of 1, 2, 3,4channel all set to zero. Fine adjustment turn to middle level. If it is new remote controller equipment, please confirm whether it is working well first.

Power on RC, and set accelerator to the lowest level, then put aircraft on the stable flat ground; you may refer to the level benchmark machine to put the aircraft on a approximate level condition, it's **vital** to hovering. Power on aircraft, then a warning tone will come out from four brushless motors; you will hear one "beep" indicating that FC starts work. 2seconds later a "beep" from FC means battery is full charged. One second later another "beep" means RC signal is normal.



A “beep-beep” short voice at 2seconds later indicating that aircraft self-checking is finished, it’s time to start motors.

Attention: do not move the aircraft while it was powered on, aircraft need to do self-checking on transducer, only after self-checking finished, you can move it.

4. Operation and motion

T80 quad-copter is designed as a standard “+” flight mode. On account of it is totally symmetry, there is no airframe direction features, need to make a symbol to stand for flight direction. Put aircraft in front of you with its obverse side, look down from the upside, yellow symbol is the direction of head. it means the “front” side of flight direction, diagonal side with yellow symbol, close to operator side, it is “back”; on the left side it is “left”; right hand side is “right”, all directions are the same with RC operation motion.

Please set RC corresponding channel’s frontal and versa rudder refer to above materials.



V . First flight

1. Preparation before starting fly.

- a. Check if all airframe parts installation is firm;
- b. Check whether propellers are assembled correctly, propeller clip are loose or not.
- c. Check receiver and FC is connected reliable or not.
- d. Check whether battery is fixed well
- e. Detect whether remote control distance can fulfill flight requirements.

2. Taking off and landing down

After aircraft powered up and self-checking is finished, gently push accelerator to start motors, wait a moment and let motors finish starting. Push accelerator little high properly, let propellers increase rotating speed but not leave the ground, check whether aircraft is drifting, correct it by rudder fine adjustment. Push the accelerator gently, and aircraft can fly in sky.

Keep hovering condition while landing, and pull down accelerator slowly, then you can land successfully. Taking off and landing features of quad copter are totally same with helicopter, for users who are familiar with helicopter model, T80 is easy to operate.

Attention: as affected by ground influence, airframe tilt phenomenon



may take place while taking off; need to adjust rudder's direction properly.

3. Signal and forced landing

1) No signal protection: no RC signal while starting up, aircraft will enter standby mode, red LED is blinking, and beeper has intermittent long beep at the same time. Till get efficient RC signal, aircraft will out of standby protection status.

2) High throttle protection: while powering up aircraft, RC accelerator is not in low level, aircraft will enter accelerator protection mode, red, green LED are blinking at the same time, beeper will have "b-e-e-e-p" too, till accelerator turned back to a low p, aircraft will out of safety protection mode.

3) Signal interrupt protection: during the work of the aircraft, once RC signal interrupt is detected, FC red LED will blink, beeper will beep a moment at the same time, to warn user the RC signal is lost, if it is in flying status, FC security force landing function will start to land aircraft automatically, during the force landing, beeper will keep beeping. If signal recovered during landing, it will exit landing process, continue normal flying.

Landing automatically can't be less than 5sec, aircraft will have enough time for landing, and definite landing time depends on current flight height and accelerator location. It's a limited



self-protection landing, aimed at decreasing aircraft crash damage to the minimum, it doesn't mean the protection is perfectly safe, if your receiver has control lose protection function, set is please.

4) Low battery protection: upon low battery, aircraft's green LED will blink, beeper has fast intermittent warning tone. Please land down and replace aircraft battery. If user sticks to fly, aircraft will lower flight height, till landing on ground. During low battery protection process, RC operation still work.

Attention: while aircraft battery is low, please land down to replace battery in time, low battery flight may make accident crash happen.

VI. Operation presentation

1. Red LED: remote control signal indicator light, blink while no remote control signal, is light if remote control signal is well.
2. Green LED: battery voltage indicator light, blink while aircraft battery is low, keep light if have enough power supply.



LED indicator light status presentation:

No.	Red	Green	Features	Status presentation
1	1	1	Extinguish after blink 1sec	Power up indicator, aircraft is in initializing
2	X	1	Blinking	Aircraft battery is low
3	X	1	Keep light	Power supply is full
4	1	X	Blinking	No remote control signal
5	1	X	Keep light	Have good remote control signal
6	1	1	Synchronous blinking	While powering up, accelerator is not at low level
7	1	1	Keep light	Normal operation

X=both, 1=keep light.

VII. Packing list

1. Main aircraft body be packed in advance include brushless ESC, FC, motor;
2. Foot stand parts: include 4transparent silicone tubes
3. One frontal and one versa GWS7035 propeller, 3 sets
4. Bullet propeller clip 4 pieces include spring lamination.
5. VELCRO
6. One Product data CD.
7. One introduction
8. One factory test certification.

VIII. Version illustration**IX. Support and help**

1. Common troubleshooting reference table.



X Information feedback

If any problems existed during your use, you may contact us by mobile or e-mail, tell us your opinions and suggestion. May we could produce much more excellent products with your help.

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