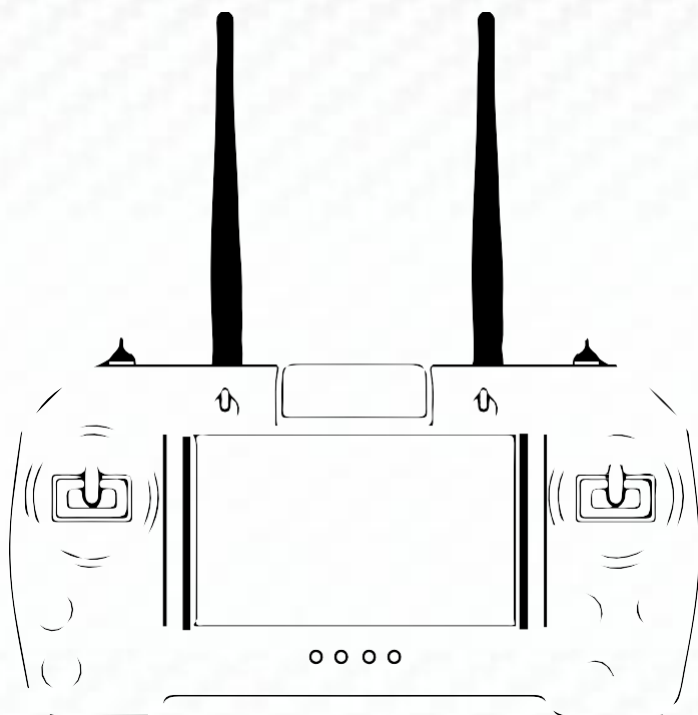


SKYDROID 云卓

泉州云卓科技有限公司



SKYDROID-T12

User Manual

PAY ATTENTION:

Misuse this product can cause unnecessary and potential dangerous.

ATTENTION: A damage or lose of your property if not follow this manual.

WARNING: If not reading this manual carefully to operate this product may cause a serious damage yourself and hurt your own property or third parties. As this product is a profession product and needs to take sometimes before master it. User must pay high attention when operation. This product is not suitable for children to use unattended. DO NOT use non Skydroid provided components or suggestion parts. User MUST follow strictly this operation manual when in operation.

A.Description

1. Productfeatures

- ① Dual antenna plus dual RF module with control of algorithm to ensure reliable communication by full angle high gain antenna. Also thanks to latest FHSS(Frequency Hopping Spread Spectrum) technology to achieve perfect control of operation.
- ② Integrated digital video transmission, to realize 20km transmission under SD resolution.
- ③ Internal integrated data link to realize 30km transmission.
- ④ Adjust parameter anytime through APP and upgraded traditional OSD to touch panel control.
- ⑤ Link by USB cable. Also support sbus、ppm、pwm、serial port and expandable.
- ⑥ Flight parameter can be adjusted through APP in your phone. It can be linked by USB with OTG function. You can change any features over the APP. Mode, Nor/Rev, Failsafe, output of sbus and ppm, Baudrate,etc. Data is saved on the phone ready for use anytime.
- ⑦ Base on "Tower"APP to make ground station perfectly matched each other. Larger view on the map so you may easily waypoint your route and self control include one key home return. Also support Tower, QGC, JIYI, TOPXGUN, BOYING APP.
- ⑧ Internal 4000mah Li-ion battery can last for over 25hours with 20dbm power output.
- ⑨ Highly integrated data link, Video and control 3 in 1, small in size. Foldable aluminium alloy phone mount. 360 degree rotation or 180 degree support for adjustment.
- ⑩ Number of optional camera can be selected for your application, such as mini digital camera, digital camera with LED, 20 times zoom camera, etc.

2. Main application and range ofusage

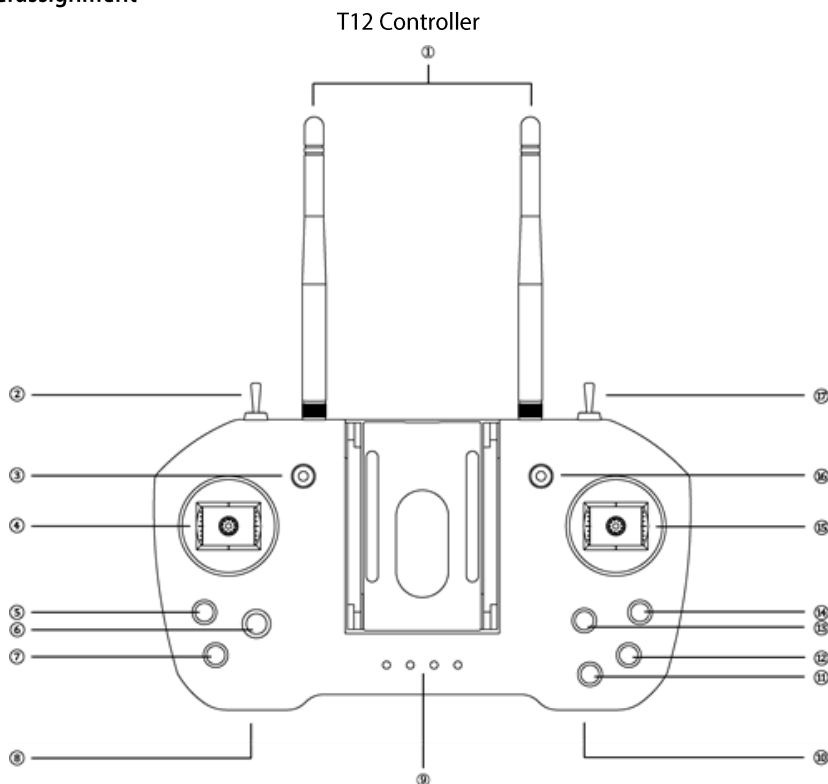
Specially design for UAV, Helicopter, Fixed Wing, Multi Rotor, Boat in video transmission (optional camera), Data Link and control of UAV.

3. TYPES,SPECIFICATION

PRODUCT DATA

Controller data			
Model	T12	channels	12
Working voltage	3.7V(1s Li-ion)	Working Current	130mA
Frequency	2.400-2.4833GHz	Modulation	New FHSS
Firmware	APP online	Weight	560g
Dimension	225*123*35mm	Battery Capacitor	4000mA
Duration	25(Hours)	Charge Port	MICRO-USB
Application	Helicopter,Fixed wing,Quadcopter,car,boat		

4. Orderassignment



Number Description

Number	Description	Number	Description
1	2.4G 3db antenna	10	USB2/Charge/Data Link
2	Toggle 3 position switch "G"	11	push switch D
3	Toggle 3 position switch "E"	12	push switch C
4	Left stick X1,Y1	13	push switch A
5	Reserved switch(No Function)	14	push switch B
6	Little stick X3,Y3	15	Right stick X2, Y2
7	Power switch	16	Toggle 3 position switch F
8	USB1/Video output	17	Toggle 3 position switch H
9	Power level Lamp		

5. EnvironmentCondition

PAY ATTENTION

- a) EnvironmentTemperature: $-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$.
- b) StorageTemperature: $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$.
- c) Relative Humidity: Not exceed 85%.
- d) Atmospheric pressure: 86kPa \sim 106kPa
- e) Working environment should not be full of explosive material or any corrosive or harmful gas to break the structure of the radio.
- f) Work under shelter to prevent rain, snow, wind, sand and dusty.

6. WorkingCondition

Power supply and Pay attention

T12 series build in Li-ion battery. Charging port is compatible with current micro USB 5v/1.5A charger (such as cell phone, digital camera USB charger).

In case of smoking and bad smell happen, stop charging the controller and return to our company for servicing as soon as possible.

Avoid charging in a place where children can reach.

DO NOT charge when room temperature over 60C.

7. Safety

WARNING

Beginner should pay attention for the followings! Please read it carefully!

⊗ DO NOT fly under drunken, tired condition!

⊗ DO NOT fly under strong wind and rainy days!

⊗ DO NOT fly close to electric emission tower, communication station and crowdly area!

⊗ DO NOT fly nearby airport and other prohibited area!

⊗ DO NOT fly crowdly, parking lot or any other possible of damage third parties property or human.

⚠ Check equipment before taking ou.

① Use certified charger to charge the battery.

① DO NOT put extra force on the antenna or it will be broken easily.

B. Operation

1. Pre-Check and Preparation

ATTENTION

① Check T12 battery level.

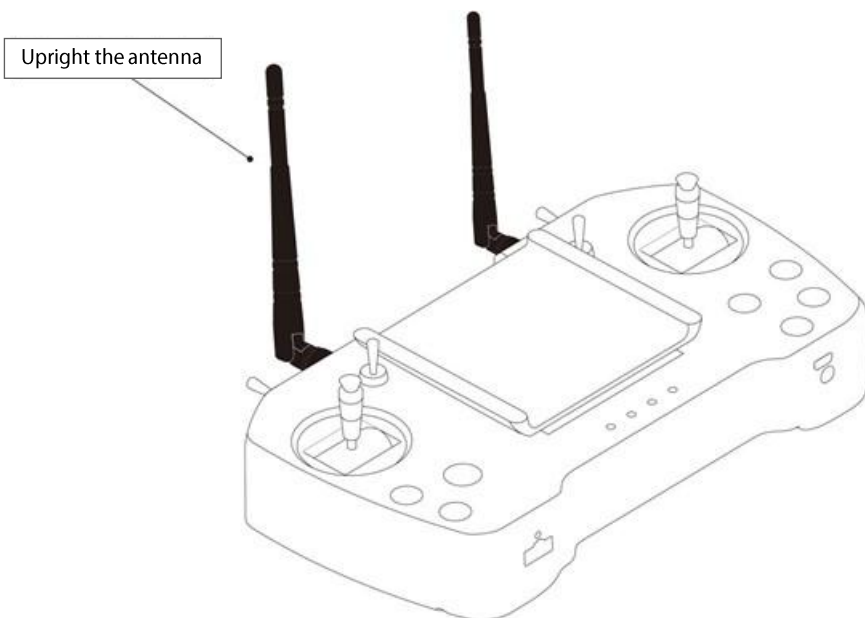
② Check position of the antenna to get better performance

③ Make sure the firmware is the latest version

④ DO NOT operate under the influence of wine or drug

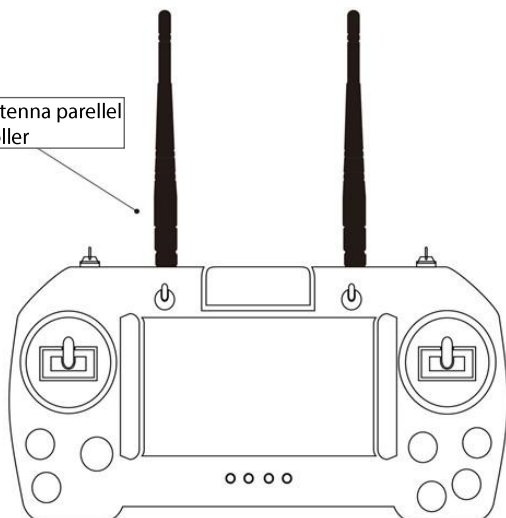
T12 part illustration

Correct Position



Incorrect operation

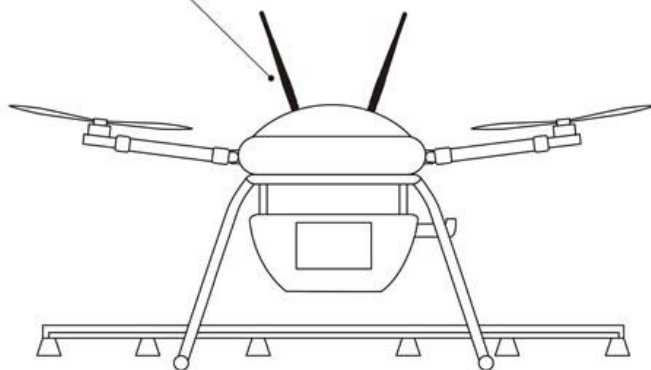
DO NOT put antenna parallel with the controller



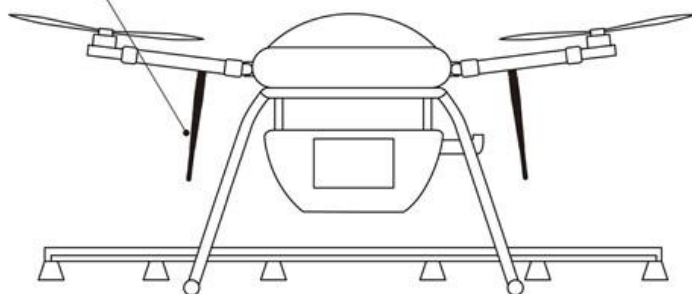
UAV Correct antenna position

Correct Position

Place far from central board, upright the antenna without any obstacle

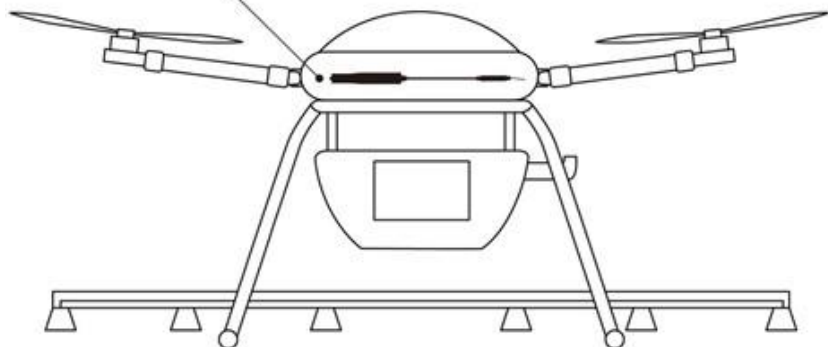


Or put under the drone arm

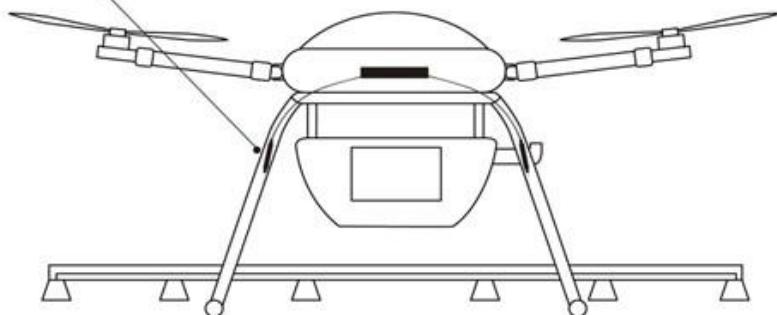


Incorrect operation

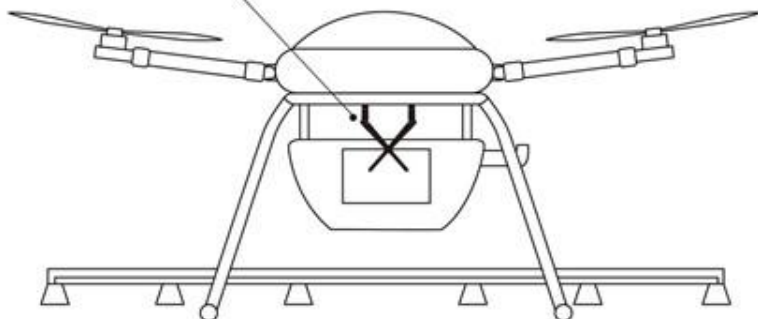
DO NOT put inside of the board



DO NOT close to Carbon Fiber or Metal part



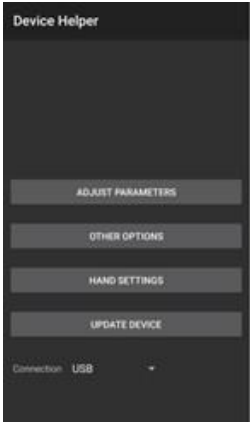
DO NOT cross the antenna between the central Flight control board and container



2. Operation

Part 1: Connect Device Helper

- 1 Confirm receiver and flight controller are ready, power up to make sure the receiver is running normally
- 2 Only support Android system
- 3 Install APP (download from official website www.skydroid.xin: DeviceHelper)
- 4 Switch on the controller (short press once and then longpress)
- 5 Open Device Helper APP and select Connect USB (Diagram 1), use Micro USB or Type C OTG cable to link up USB1 and cellphone



(1)

Name	Purpose
Adjust Parameters	Adjust channel Nor/Rev, Channel binding, Failsafe value
Other Options	For selection of sbus,ppm output and baud rate
Hand Settings	Support 4 diuerent types of hand mode
Update Device	For online firmware upgrade

- 6 Adjust parameter: enter controller interface. APP read the current data of controller and receiver.(Diagram2)



(2)

Example:

Channel 1: X2 has no Rev, Failsafe value is set to be 1500, min travel is 1000, max is 2000
Channel 2: Y2 has no Rev, Failsafe value is set to be 1500, min travel is 1000, max is 2000
Channel 3: Y1 has no Rev, Failsafe value is 900, min travel is 1000, max is 2000
Channel 4: X1 has no Rev, Failsafe value is set to be 1500, min travel is 1000, max is 2000
.....and vice versa, view adjustment horizontally is much easier for setting. Just tick related item.

Attention

- 1) Please select the value between 900-2100, Failsafe hold select“0”
- 2) Please click SAVE at the right upper corner to keep the record. The selected value will be written to the controller and receiver.
- 3 Save and download the data (Diagram 3,4,5) In order to quicker change from model to model, or large scale set up, we can save the data in the APP so that you can find it out easily
As illustrated: when finished the adjustment, click “...” then Save Configuration.
Then rename the model and save it. Same as download the data
- Attention: Adjusted parameter only save in the APP, Click “write” to load data to the controller. Sound “Di” means communication succeeded.



(3)



(4)



(5)

Part 2 : T12 Connect to Android phone

1. Connection between receiver and camera (example: mini digital camera), Power up the system.
Please watch the video of connection in www.skydroid.xin
2. Please go to www.skydroid.xin to download the Skydroid FPV.
3. Use USB-OTG cable come with the kit to link up the controller and Android phone.
4. Click "Yes" to confirm then image will show on your phone.
5. Use of Skydroid FPV please go to the official website.

Part 3: How T12 connect to PC missionplanner, QGC

- 1 Use two USB connectors cable to link between USB1 and USB port in PC. Select the port related to the ground station. Please select Baud Rate 115200 to link with the data port of the flight controller. (QGC, missionplanner need to add SDK of Skydroid to show image, undevelopment).
- 2 Use Micro data cable to connect USB2 and PC, select baud rate 115200 (Only support data, not for video).

Part 4: How T12 to update firmware

- 1) Android update
Download and install Device Helper before upgrade.
- 2) Controller upgrade: download Device Helper and use the USB-OTG cable to link with the controller and choose USB as mentioned at part 1.
Open the Device Helper, select Controller Firmware upgrade see any new update. If any, please update.
- 3) Receiver upgrade: Open the Device Helper, use USB-OTG cable to link up the controller and select connection USB. Power up the controller and receiver (Green LED light solid).
Check if any new update, if any, please update.

Part 5: Q & A

Q: What is the Video/Data distance of T12 in transmission?

A: Under an open area, the max distance of video link is 20km while data link is 30km.

Q: Does T12 support ppm, sbus?

A: Yes! Sbus port is defaulted in the first row. If you need ppm signal which can be switched in Device Helper App.

Q: How to define two antenna on T12?

A: Two antenna are 2.4ghz redundant design. We use diversity technology so both antenna perform data link and transmission.

Q: How to define two antenna on receiver?

A: Two antenna on Receiver are redundant design and telemetry.

Q: How to charge T12?

A: Use micro USB cable come with T12. Please use certified 5v charger. LED status: LED flashing during charging and on when it is full.

Q: Where to watch demonstration video of T12?

A: Please visit <http://www.skydroid.xin> and watch the video.

Q: How to power on/off the T12?

A: Short press and then long press the power switch

Q: Failed to Disarm?

A: Flying mode: disarm gesture. Stick calibration push left stick to lower right and right stick to lower left, if left stick is upper right and right stick is upper left, ESC travel calibration.

Q: No LED indication on the receiver when plug into the flight control board?

A: T12 is power on; if the case still exist, check battery status(short press power switch to check the battery level), if not binding, then bind it.

Q: How to change Mode?

A: Connect T12 with USB, open Device Helper App and select Mode, save to complete.

Q: How to calibrate neutral of the gimbal?

A: Calibration (watch video), please visit www.skydroid.xin

Q: How many "ms" of signal command interval?

A: 300ms/sec

Q: Do T12 bind with new receiver?

A: T12 send binding signal with ID to bind a new receiver. Once binded the new one, old receiver need to rebind afterwards.

C. Maintenance, Servicing

Storage for not using certain period

Put T12 in a dry and ventilation area. No direct Sun light to prevent harmful of the internal Lipo battery. If store it over three months, it is highly recommend to put room temperature between 22C to 28C. DO NOT put it below 20C or higher than 45C area.

D. Transportation, Storage

WARNING

In order to prevent lost or getting hurt, Please strictly follow the rules of operation:

Keep small parts or wire away from children can reach. DO NOT let children touch the small parts of T12.

ATTENTION

- 1) DO NOT put T12 into water. If it does, please switch on the power and dry it.
- 2) DO NOT crash the T12 or break the battery is prohibited.

E. Scan the QR code to download the APP



DeviceHelper



Skydroid FPV



SkydroidTower

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.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.