User Manual

GDU Byrd

User Manual V1.1

Table of Contents

C E 1856

Product features

Portable design

While ensuring structural strength and comfortable experience, the arms, landing gears and blades are designed to be foldable and portable.

Long endurance time

Equipped with a large-capacity battery. This allows the GDU Byrd to achieve 29 minutes flight time.

Multi-adaptive aircraft platform

Brand-new attitude integration control algorithm together with three-axis high-precision image stabilization design will bring you best photographing effect and experience. Multi-adaptive aircraft platform can carry 1080P, 4K high-definition sports camera and infrared camera. Quick release design makes the replacement easier.

HD video downlink system

GDU Byrd is equipped with HD video downlink system, which supports real-time HD videos and pictures transmitting. The transmission distance of Advance2.0 and Premium2.0 can reach 2,000 meters. Its USB interfaces allow Internet surfing during flight time!

Anti-shooting propellers

The propellers offer dual safety protection, The propeller cap is a self-locking device which can prevent the blade from disconnecting.Even if the cap falls off, the propellers will stay in place.

Dual remote controller

Joy of flight comes from participation, communication and interaction.Dual remote controller are designed particularly for sharing, the master unit has higher priority than slave unit, offering safety during training and allowing the operator to share the flight experience.
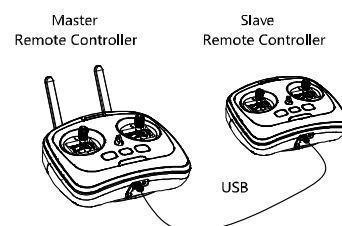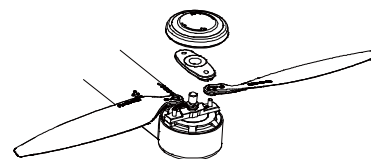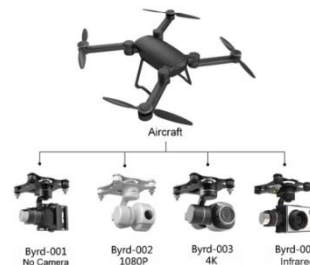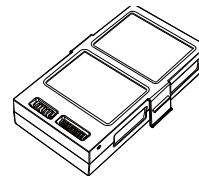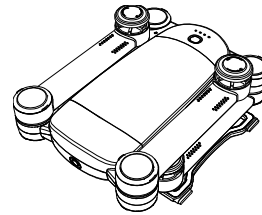
Stowage dropping

The strong dynamic system could release more load task. You could choose objects for long distance ejection according to your needs.

User Instructions

Warning

Thank you for purchasing the GDU Byrd. This product has the ability to cause serious bodily harm and even death as well as property damage if operated improperly. The GDU Byrd is a highly sensitive, highly tuned RC aircraft and should not be operated by persons under the age of 18. The opera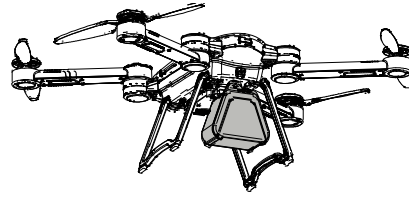tor is responsible for knowing the local laws and abiding by them. GDU is NOT responsible for improper/illegal use of this product.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED

BY AN INCORRECT TYPE.

DISPOSE OF USED BATTERIES ACCORDING

TO THE INSTRUCTIONS

To ensure the quality of your experience and your personal security, please carefully read the following sections before operating the aircraft;

1. *Disclaimer*

2. *Battery safety guidelines*

3. *Routine Maintenance Manual*

4. *Item List*

5. *User Manual*

6. *After-sales Service Manual*

7. *First Flight Guide* and Fast *Flight Guide*

In addition to above written instructions, GDU also provides tutorial videos for you.

You can go to www.gdu-tech.com or scan the following QR code to watch and download the tutorial video to better learn how to use the aircraft.

To ensure the best experience, please go to www.gdu-tech.com or scan the QR code below to download and install GDU Pro App.

To enjoy perfect after-sale services, please register your aircraft by visiting *www.gdu-tech.com*. Registering or not will not affect product's normal use, but we still invite you to be our VIP. Unscheduled official activities and more privileges have been prepared for you, stay tuned!

Your registration information would be kept strictly confidential.

Safety Overview

1. Environment

• Do not fly in severe whether such as rain, thunder, high wind, snow, heavy fog, and the sand and dust weather.

• Do not fly between tall buildings. Doing so may lead to disabling of the GPS and affecting flight characteristics. Please fly in wide open spaces with no buildings or other tall obstacles.

• Always keep the aircraft in direct line of sight and avoid flying over people and water.

• Do not fly in places where there are communication base stations of high-tension cable or launch towers to avoid the interference of the signals from the remote controller.

• Please operate with caution when flying above 4000 meters above sea level.

• Do not fly in areas that are restricted by laws or regulations..

2. Caution

• Do not answer the telephone or make telephone calls while flying the aircraft. Pay close attention to the display of the APP interface to ensure safe flight.

• Return to base and land as soon as possible when the low battery warning sounds;

• The aircraft will land automatically when the battery reaches critical low voltage. The pilot can guide the aircraft to a safe landing place though;

• Turn the aircraft off upon landing and before removing the battery.

• In case of an emergency during flight, please use the Return to Home button. DO NOT power off the motors during flight as the aircraft will come crashing to the ground causing damage and possible bodily injury.

• The propellers spin at a high rate of speed and can cause serious bodily injury. Please maintain a safe distance from the spinning motors during operation.

3. Maintenance

• In case of damage, swell, leakage or other defects of battery, please replace the battery in time.

• When starting up the motor without installing propeller, if abnormal sounds occur, it may be caused by the bearing abrasion, please replace the motor.

• Replace deformed and damaged propellers in time.

• Please use special cleaning kit to keep the lens clean.

Aircraft

The Head

① Nose LEDs	⑤ Battery Hatch	⑨ Micro-USB Interface	
② Tail LEDs	⑥ Power Button	⑩ Vision Positioning System	
③ Foldable Landing Gear	⑦ Motors	⑪ Dropping Box Interface	
④ Foldable Propeller	⑧ Battery Level Indicators	⑫ HD Video Download System Interface	

※ **Only Advanced and Premium versions are provided with "vision positioning system".**

※ **Only Advanced 2.0 and Premium versions are provided with "dropping box".**

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Flight mode

GDU Byrd supports the following three flight modes:

1. P mode (positioning mode)

When the GPS signal is good, the GPS module is used to maintain the aircraft's position;

When the GPS signal is not so good or is lost, it will turn to the visual and acoustic positioning

When both GPS positioning and the vision positioning do not work, only the attitude stabilization is provided.

2. F Mode (Course lock mode)

In this mode, forward control of the aircraft is related to the direction the pilot is facing and is not dependent upon the direction of the nose of the aircraft. Forward is forward even if the nose of the aircraft is pointing backward. This allows new pilots to enjoy flying while learning to control the orientation of the aircraft. This mode relies on GPS data, so please use it when GPS signal is good.

3. A mode (Attitude mode)

In this mode, GPS positioning and the visual and acoustic positioning are not used and only the attitude stabilization is provided. It is a manual mode and should only be used by experienced pilots.

※ **To change flight modes, please use the FLIGHT MODE switch on the remote control.**

RTH mode

GDU Byrd has the function of returning to home automatically. If the home point is recorded successfully before the flight, then the aircraft will return to home point and land automatically when connection between the remote and the aircraft is lost. The following three conditions can cause this to happen: return to home is activated on remote control, when aircraft reaches low battery and when the aircraft loses contact with the remote control.

1.   Home point

    Home point refers to the point at which the aircraft has been unlocked for the first time successfully and in Mode P and the GPS signal is good. Home point will only be logged if starting off in MODE P. IT WILL NOT WORK IF FLIGHT IS STARTED IN OTHER MODES.

2.   RTH mechanism

When this mechanism is started,the aircraft will rise or descend to the pre-set height (if the current height is lower than the pre-set height, the aircraft will rise to the pre-set height. If it is higher, and the aircraft will descend to the pre-set height) and it will fly to the point above the home point and hover for five seconds before slowly landing.

② Arrived the desirable altitude

③ RTH

① The RTH Button
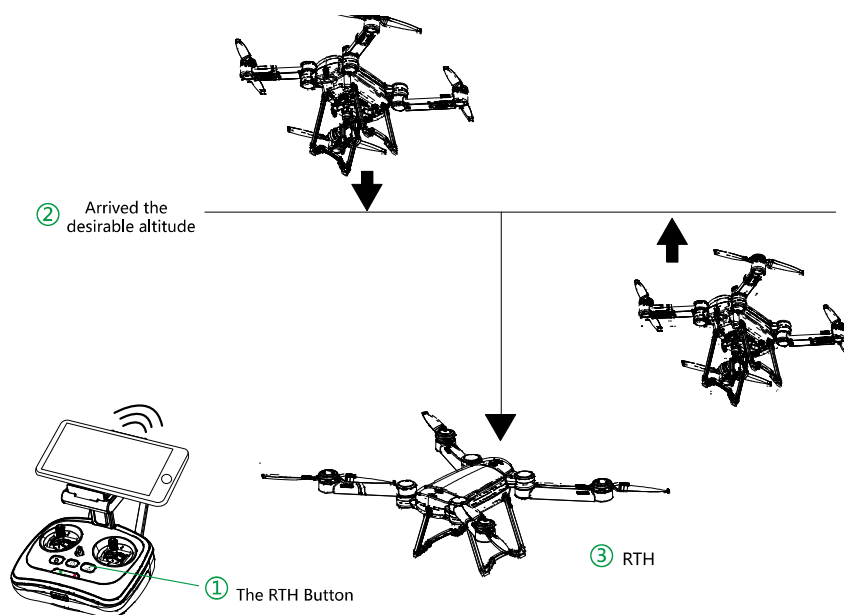
※ **Connection between remote controls and mobile equipment are different for different Byrd models (WiFi/USB connection) and the specific connection is subject to actual conditions.**

※ **When return to home is activated, the aircraft WILL NOT avoid obstacles. Please make sure that the height is set to avoid any obstacles between you and the aircraft. IF YOU CANNOT SEE THE AIRCRAFT, DO NOT ACTIVATE RETURN TO HOME.**

※ **Use the parameter adjustment software to change the altitude of the aircraft when return to home is activated. A safe altitude is dependent upon the environment in which you fly.The return altitude can be set through the FCS Configuration Software or the Flight setting page in the APP.**

3. Return to home (RTH)

During flying, automatic return can be realized by pressing "Return to home" (RTH) button

in the remote control or click the RTH icon on the APP interface.

4. RTH in low battery

Before RTH automatically happens, there is a warning issued to the pilot regarding the state of the flight battery.

• Low battery warning

When the aircraft power is less than 30%, low battery warning will be activated and APP will send alarm to you, so that you can return ASAP.

• RTH in severe low battery

When the electric quantity is less than 20%, the battery is serious low and the aircraft will return to home automatically.

5.   Out-of-control return

In normal conditions, the GPS signal is good, the compass works normally and the aircraft will record the home point successfully. If the signal between the remote controller and the aircraft is interrupted or lost, the aircraft will hover until signal is regained. If the signal interruption lasts for over three seconds, the aircraft will return to home automatically. During returning, if the signal is back to normal, the returning will be stopped and the pilot can regain control of the aircraft.

※   **When GPS signal is not good enough, automatic return won't work.**

Aircraft status indicator

The flight status of GDU Byrd can be judged by two groups of LED indicators at the head and tail of the aircraft. Their locations are as shown in the following picture.
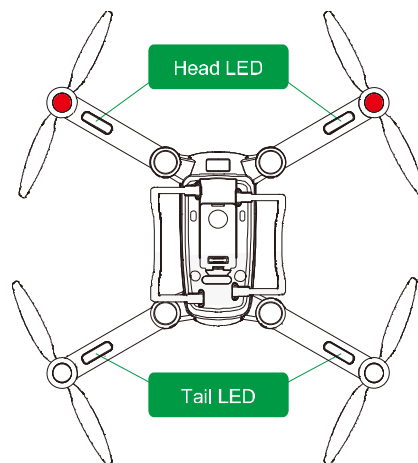

The two groups of LED indicator lights show the current status of the flight control system through different groups of colors and flickers. See the following table for more details.

	Status	Nose LEDs	Tail LEDs
Normal State	GPS	🔴 Red light on	🟢 Green light on
	P Mode		⚪ White light on
	A Mode	🔴 Red light on	🟡 Yellow light on
	Return to home	🔴 Red light on	🔵 Blue light on
Compass Calibration	Enter the calibration mode	🟡 Yellow light on	🟡 Yellow light blinks
	Level calibration success	🟡 Yellow light on	🟢 Green light blinks
	Calibration successful	🟡 Yellow light on	🟢 Green light on
	Large deviation, calibrate again	🟡 Yellow light on	🟡 Yellow light on
	Calibration failed, IMU error	🔴 Red light on	🔴 Red light on
Abnormal State	Low battery	🔴 Red light on	🟢 Green light blinks (P Mode)
	Serious low battery	🔴 Red light blinks	🟡 Yellow light blinks (A Mode)
	Losing connection with the remote controller	🔴 Red light blinks	🔴 Red light blinks

Vision positioning system

This positioning system consists of the visible light camera and the ultrasonic module. The former is used to obtain the position information of the flight to provide reference for the horizontal direction of the aircraft. And the latter will judge the current flight height to provide reference for the height from the ground to maintain the flight at a certain height.
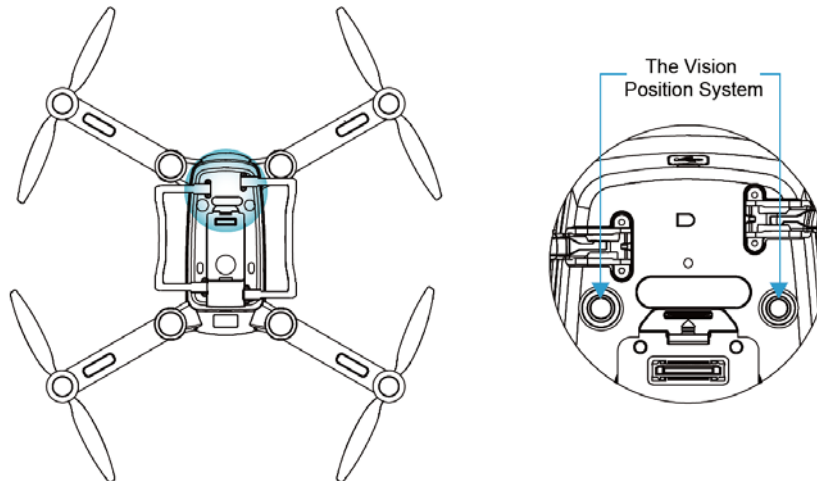
This system is adaptable to the environment in which the height is lower than 6 meters, where there is no GPS signal or the GPS signal is not good enough. It is particularly suitable for indoor flight.
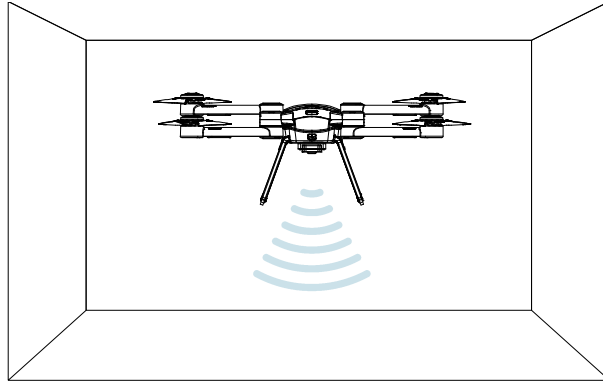
The precision of the visual and acoustic system can be affected by the illumination intensity and the surface texture of articles. And the ultrasonic will not measure the distance in certain damping materials. If both vision and ultrasonic do not work, the flight mode will be turned into the Attitude mode automatically. Therefore, please notice the following conditions during flight:

• The normal flight height of this system ranges from 0.2m to 6m. Please stay in this range when the aircraft is used indoor;

• The illumination condition is 10 lux–100000 lux;

• Within the required range of the illumination conditions, all textures could be used to position the flight except pure colors (such as pure black, pure red, pure white and pure green);

• Be cautious on the surface where there is intensive reflected light or inverted images;

• The flight speed should not be too fast and the highest speed should not exceed 8m/s(17mph).

• The maximum flight inclination should not be more than 30°.

• The range of flight temperature is -10℃-55℃(14 F to 131 F).

• The flight altitude should not be more than 4000 meters (13,000 feet).

※ **In Mode P and when the GPS signal is lost or not good enough, the system will turn to the visual and acoustic positioning mode and no manual operation is needed.**

※ **This system is only open to GDU Byrd Advanced/Premium version.**

Stowage dropping

GDU Byrd is able to be loaded with loads less than 500g (not including gimbal and camera) and deliver objects from a long distance.
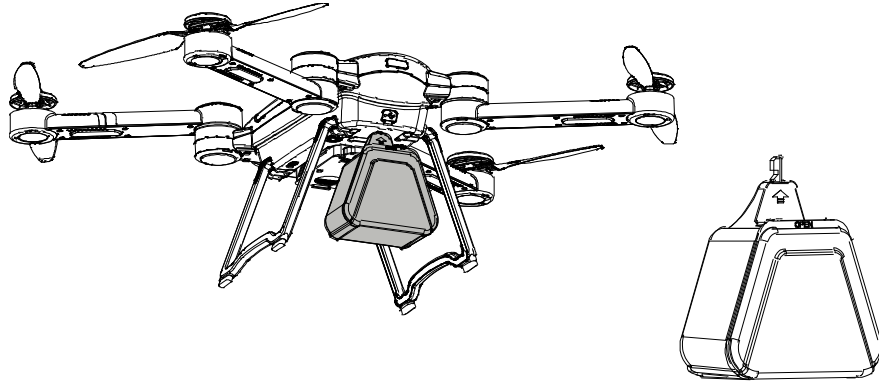
Before the ejection, the buttons C1 and C2 should be customized to choose the 'steering gear control' in the APP setting interface. The objects to be ejected are to be put into the container carrier and the container is inserted into the steering gear hole. Operate the aircraft to the place above the ejection point and press C1 or C2 button to let the container break away from the aircraft. The ejection is finished.

※ **Stowage dropping function is only applicable to Advance 2.0 and Premium version.**

Remote controller

The remote controller of GDU Byrd is an advanced wireless communication system that features automatic frequency hopping to realize 3-DOF control of aircraft within control range. It allows multiple aircrafts to work simultaneously in the same space.

The integrated wireless high-definition video transmission system within the controller is connected to GDU Pro App via Wi-Fi (via USB data wire for Advance 2.0 and Premium 2.0 versions). You can watch the video in real time on your personal mobile device (mobile phone, tablet). All parameters of the aircraft will be fully presented on the screen of your device. With state-of-art folding innovation and delicate design, you surely won't want to take your hands off it.
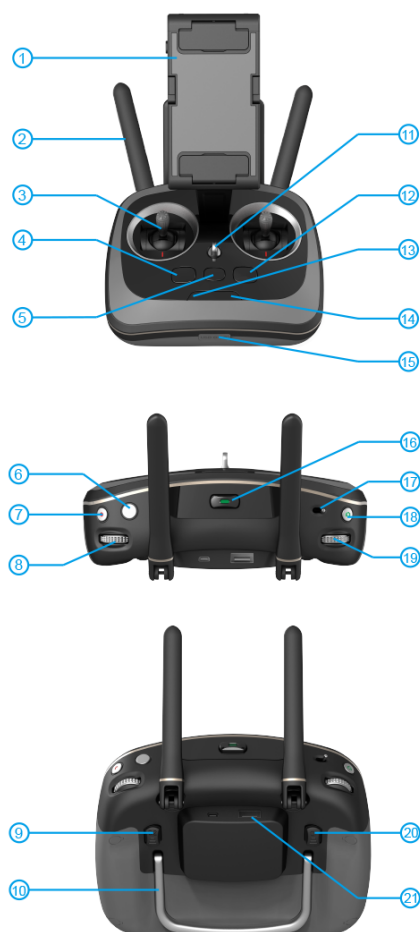
① Mobile Device Holder
② Antenna
③ Control Sticks
④ Take Off Button
⑤ Power Button & RC Battery Indicator
⑥ Gimbal Position Reset Button
⑦ Video Recording Buttons
⑧ Gimbal Dialfor Pitching
⑨ Customizable Button C2
⑩ Handle Bar
⑪ Lanyard Hole
⑫ Return to Home Button
⑬ Battery Level Indicators of the Aircraft
⑭ Remote Controller Status LED
⑮ Micro-USB Port &Charging Port
⑯ Equipment Support Lock
⑰ Flight Mode Switch
⑱ Shutter Button
⑲ Gimbal Dial for Yawing
⑳ Customizable Button C1
㉑ USB interface

※ **USB connector is only available on the remote controller of Advance 2.0 and Premium 2.0 versions.**

Dual remote controller

Master Remote Controller   Slave Remote Controller

USB
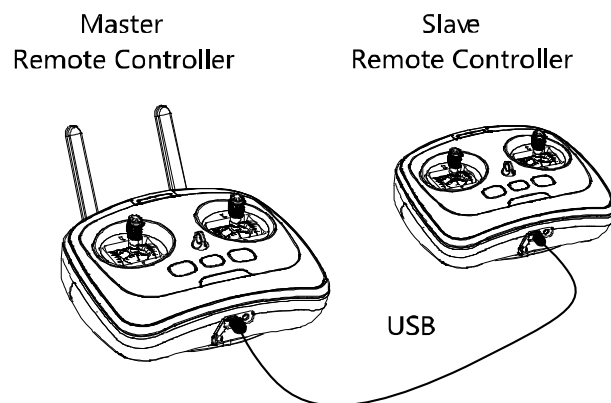
※ **The slave remote controller is not included with the GDU Byrd. For more information, please visit official shop at www.gdu-tech.com**

HD video downlink system

GDU Byrd series products are equipped with a high definition image transmission module which consists of a transmitter and a receiver. It does 1080P at 60 frames per second. The high-def image transmission module in GDU Byrd Standard, Advanced 1.0, and Premium 1.0 adopt common WIFI system and the transmitting distance is 500m for Standard version, and 1000m for Advanced 1.0 and Premium 1.0 versions. This image transmission of high definition module in GDU Byrd Advanced 2.0 and Premium 2.0 adopt OFDM system and the transmitting distance is 2000m.

Gimbal control

The control dial wheels for the gimbal yaw and pitch could control the yaw and pitch. The Back-to-center button of the gimbal could let the gimbal return to the initialization place.
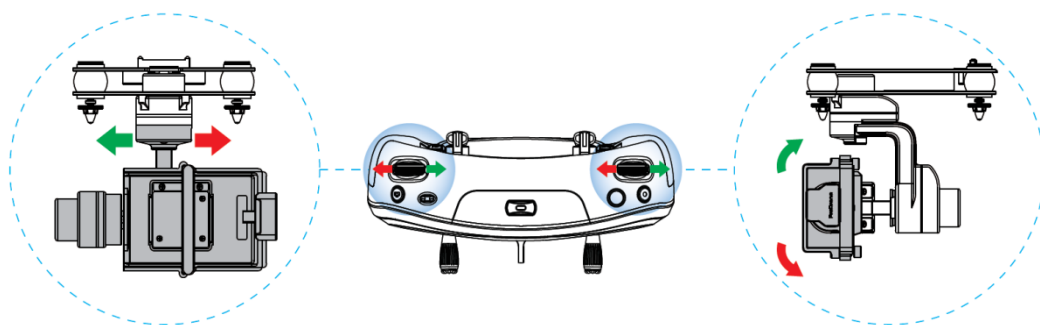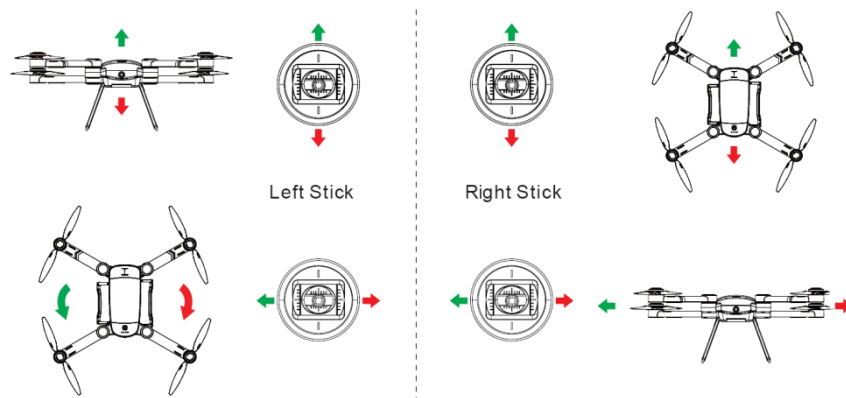
Control of aircraft

There are three different control schemes: American customization, Japanese customization, and Chinese customization. Definitions of the control sticks of the three modes are as follows:
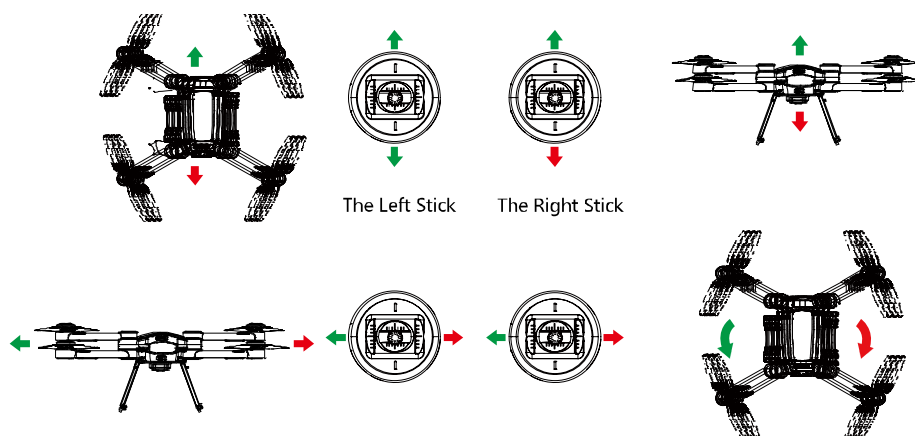
1. American customization: throttle and yaw on left stick and pitch and roll on right stick.

Left Stick　　Right Stick

2. Japanese customization: pitch and yaw for left hand and throttle and roll for right hand.

The Left Stick　　The Right Stick
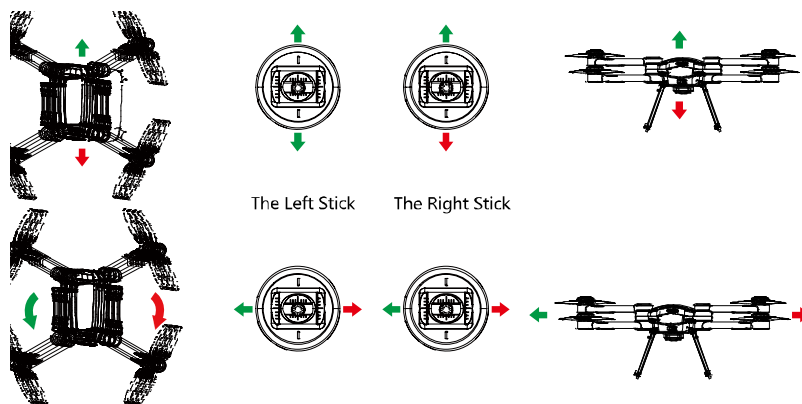
3. Chinese customization: pitch and roll for left stick and throttle and yaw for right stick

The Left Stick   The Right Stick

The default operation mode of the remote controller is the "American customization". You can modify with the parameter adjustment software or in "Control setting" on your APP. (See APP control setting for more details)

Link

After leaving factory, the remote controller has been bound to the aircraft and ready to be used. If the aircraft or the remote controller is replaced, then follow these steps to bind the units together:

1. Turn on the aircraft.

2. Press and hold the 'Return to home button' in the remote controller and then press the 'the power switch' button in the remote controller. At this moment, the remote controller gives a warning tone, the red LED indicator light is on, and the four indicator lights of the power of the aircraft in the remote controller flicker sequentially.


② Power

① RTH

③ Water Flow LEDs
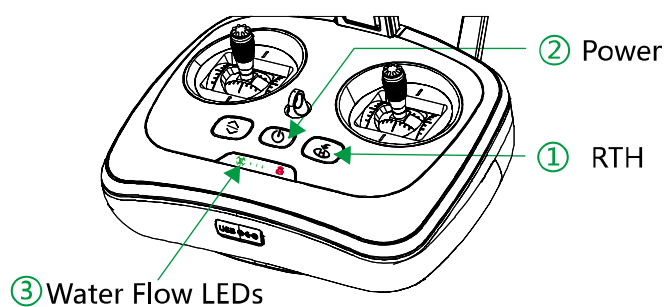
3. Press the power button of the aircraft for five times and wait for several seconds for the binding procedure to finish. At this time, the green LED indicator light showing the status of the remote controller is on.

⑤ Power

⑥ Green LED ON
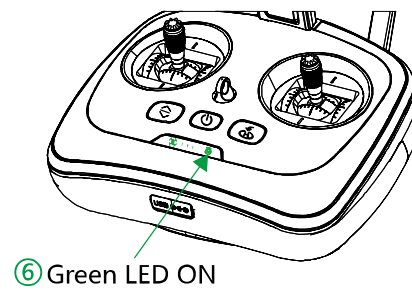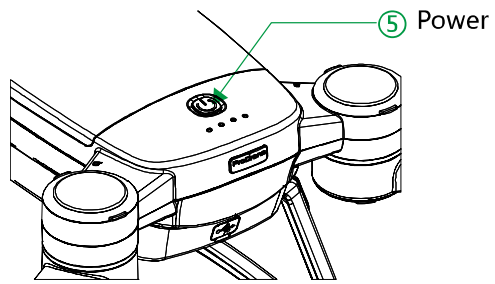
Gimbal camera

There are many high precision triaxial stabilization gimbals for GDU Byrd series aircraft, with brand new integrated control algorithm. The jittering of the angel is ±0.05 allowing for stabilized video and photos.

According to the design philosophy of GDU Byrd series, aircraft platform and load mission have been separated as two parts. The following four gimbals could be used in any type of Byrd's platform.
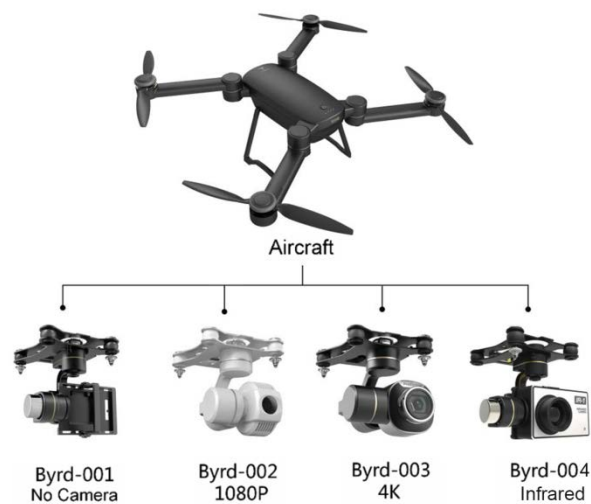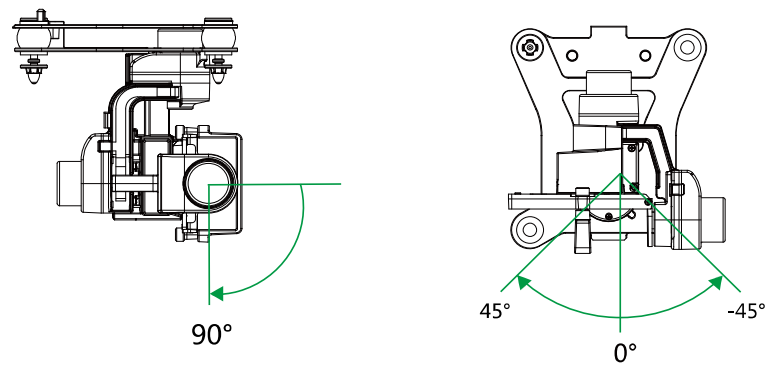

Byrd-001 gimbal

The standard configuration of GDU Byrd Advanced is Byrd-001 multi-function gimbal (without camera). This gimbal supports GoPro camera that you can buy separately.

What's more, Byrd-001 Gimbal can realize the controllable two-axis of pitch and yaw, providing

you with broader shooting angels.
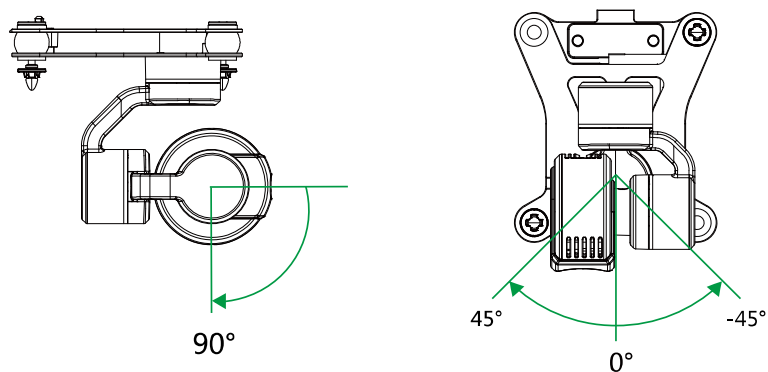
90°

45°   -45°

0°

Byrd-002 gimbal

The standard configuration of GDU Byrd Standard is the Byrd-002 integrated camera gimbal. The independently developed 1080P high-definition sports camera is carried on this gimbal. You can record and shoot 1080P videos and 16 mega-pixel photos with it. Camera and gimbal are connected together that cannot be separated.

Byrd-002 Gimbal is controllable with two-axis of pitch and yaw, providing you with broader shooting angels.

90°

45°   -45°

0°

Byrd-003 gimbal

The standard configuration of GDU Byrd Standard is equipped with the Byrd-003 integrated camera gimbal. The independently developed 4K high definition sports camera is carried on this gimbal. And it could record and shoot 4K high definition videos and 12 mega-pixel photos. Besides, the camera and the gimbal are connected together and cannot be separated.

Byrd-003 Gimbal is controllable with two-axis of pitch and yaw, providing you with broader shooting angels.
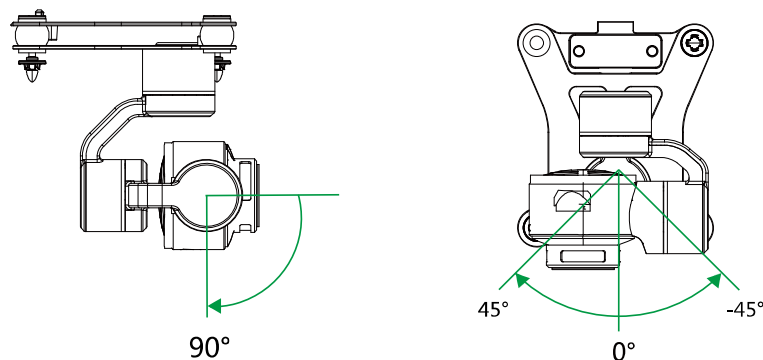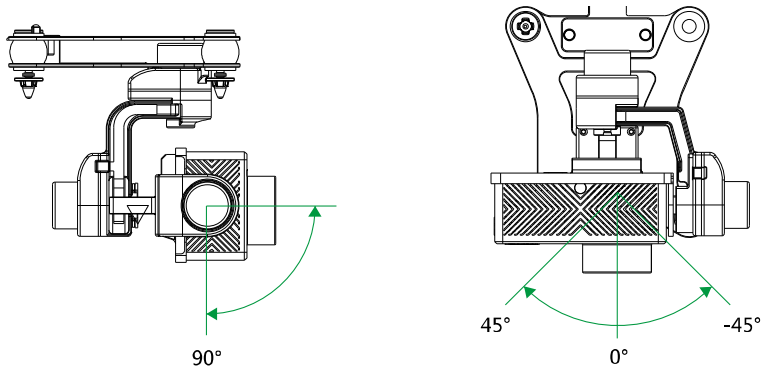

Byrd-004 gimbal

The independently developed infrared camera is carried on Byrd-004 infrared camera gimbal. You can record and shoot 640*480 pixels videos and photos with it. The infrared camera is separable and can be used alone.

Byrd-004 Gimbal is controllable with two-axis of pitch and yaw, providing you with broader shooting angels.

90°

45°   -45°

0°

GDU Pro App

GDU Pro APP is an interactive software specially designed for GDU Byrd series aircraft. With this software, you can control the aircraft, the gimbal, the camera to take pictures, record videos, eject objects, and set parameters of the aircraft. To coordinate with the image transmission of high definition, it is suggested to use on a tablet or mobile phones with large screens to get the best visual experience.

With rhythmic starting music and active animation, you will enter the Homepage of GDU Pro APP. There are three sections on the home page: real-time control, media center, and help center.

※　**The interface and functions are subject to the latest updated edition.**

● Real-time control

　　Enter into real-time control page by selecting the corresponding button on the home page of APP.

　　Camera interface:

1. Return to home page

Click to return to the home page of APP

2. Status of GPS
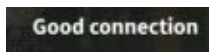
Show quantities of searched satellites;

3. Connection status of remote controller

/ Signal strength of remote controller;

※   **Connection are different for different Byrd models (WiFi/USB connection) and the specific connection is subject to actual conditions.**

4. Connection status of aircraft

Display the connection status of aircraft;

5. Battery status of remote controller

Display the remaining power of remote controller;

6. Battery status of aircraft

[icon] Display the remaining power of aircraft;

7. Settings

[icon] Click to enter system setting page, including control setting, flight setting, general setting, and camera setting;

8. Photo/video mode switch

[icon] Click to switch mode between photo and video;

9. Photo/video button

[icon]/[icon] Display current mode: Photo/video;

10. View cloud media

[icon] Click to view media documents stored in the SD card of aircraft;

※ **Some modes of Byrd do not support this function and have no this button.**
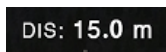
11. Camera setting

[icon] Click to expand camera and gimbal settings which are customizable;

12. Compass

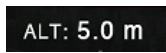[icon] Display current position and direction of head;

13. Flight distance

[DIS: 15.0 m] Display current flying distance;

14. Flight mode

[P-GPS] Display current flight mode;

15. Flight height

[ALT: 5.0 m] Display current flight height;

16. Mini map

 Display mini map;

17. Follow me

Click to activate follow me mode;

18. Return to home

Click to activate Return to home;

19. Easy takeoff

Click to activate easy takeoff;

20. Warning window

Display warning or abnormal information.

Map page:

21. Course planning

Click to activate course planning function, where you can set and upload flying mark points that the aircraft will follow;

22. Clear of flight path

Click to delete mark points on the map;

23. Switch map

Click to change form of map display, shift between 2D map and satellite map;

24. Compass

The red arrow indicates true north;

25. Positioning

Click to locate the current position;

26. Thumbnail real view image

Thumbnail display window of real view image.

● Media center

Users can check the photos and videos taken in media center, as well as edit them and share on social media.

● Help center

Help center is included with manual and instructions for flying aircraft and the latest APP and firmware are available to be viewed and downloaded here.

● System settings

Click icon to enter system setting screen. Includes control setting, flight

setting, general setting, and camera setting.

 [1] Control mode

There are three options are available to choose: Japanese customization, American customization, and Chinese customization.

[2] Customized button of remote controller

Two buttons at the back of the remote controller can be customized. The buttons can be customized for five functions: taking pictures, recording videos, back-to-center of the gimbal, steering gear control and take off. (Need the connection with the Remote Controller)

To the right page, you can enter the 'Flight Settings'.
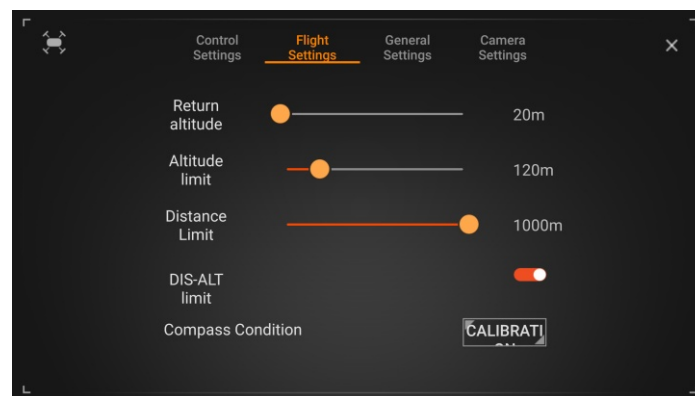
In this page, settings could be made for the Return Height, Altitude Limit, and Distance Limit. We strongly suggest you to set the altitude limit below 120m, although the maximum value allowed is 500m. If not, you will have to bear the risk.

Continue to the right page, you can enter the 'General Settings'.
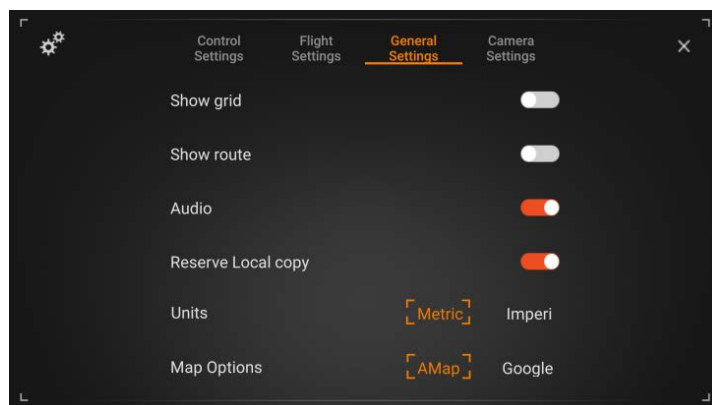
In this page, settings can be adjusted for units of the parameters, whether to show the grid, whether to show the flight track and whether to broadcast the sound effect. This is also where you can format the micro SD card for the camera.

To the right page, you can enter the 'Camera Settings'.
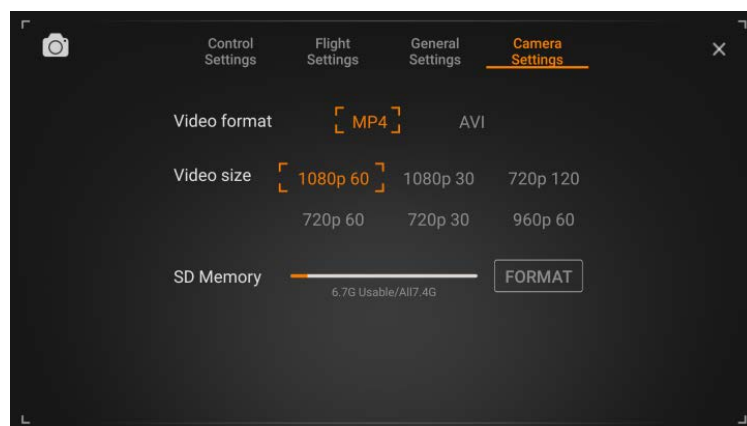
In this page, settings could be adjusted for the photo format, video format, whether to reserve local copies and the resolution ratio of the video. （Aircraft must be powered on!）.

※　**Settings may be changed subject to different gimbal models.**

● Takeoff button

　　In P mode, click icon after the aircraft is unlocked (or press button on the remote controller). In this case, the aircraft will take off and hover at the height of 3m above the ground.

h=3m
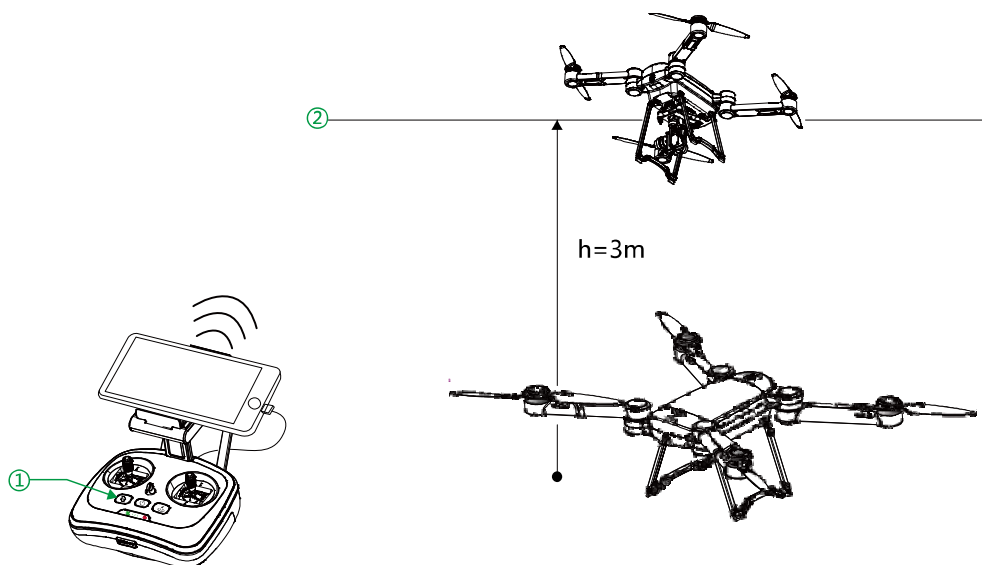
● Photo/video

: (Photograph)

 : (Video)

The icons of Taking pictures/ Recording videos on GDU Pro App have the same functions with those on remote controller. Click the button to take pictures or record videos, and click it again to stop.

※ **Connection between different Byrd remote controllers and mobile devices varies (WiFi/USB connection) and the actual conditions shall prevail.**

※ **Language of App interface shall be consistent with the system language of mobile equipment.If interface language needs to be changed, please change the system language of your mobile device first.At present, App language supports simplified Chinese, English, French and German.**
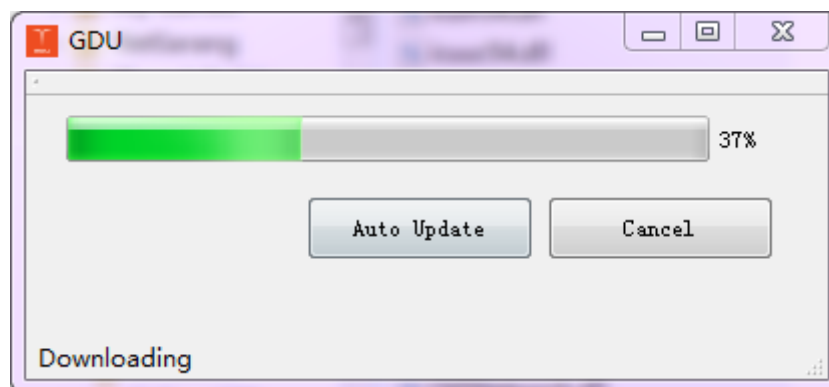
FCS Firmware Upgrade

The GDU development team will continuously improve and update the firmware in the flight control system. You need to download and install the 'Update tool of the firmware in the flight control system' on your own to update the firmware. The steps of using the software are as follows:

1. PC user visits www.gdu-tech.com to download and unzip the latest version of firmware package.

2. Run "GduUploader.exe" in the unzipped package and click "Auto Update".

3. After the hardware is downloaded, connect the aircraft parameter-adjustment interface and PC with USB cable when the aircraft is off and click OK.
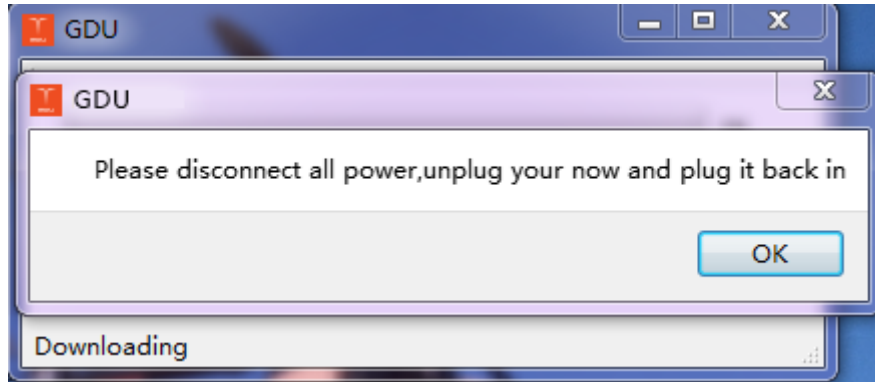
4. Upgrading.
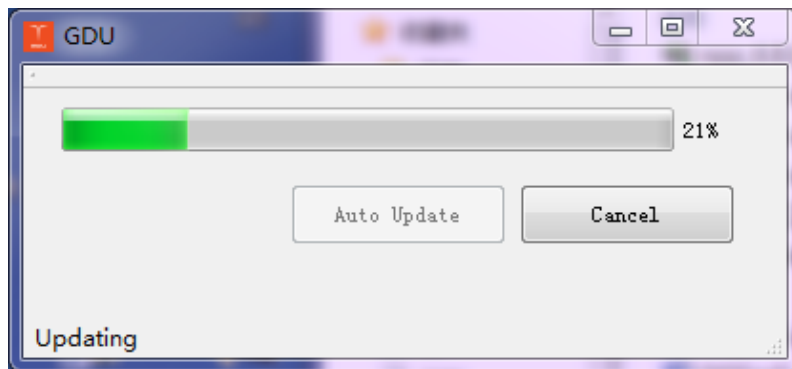
5. Exit software interface when upgrading completed.
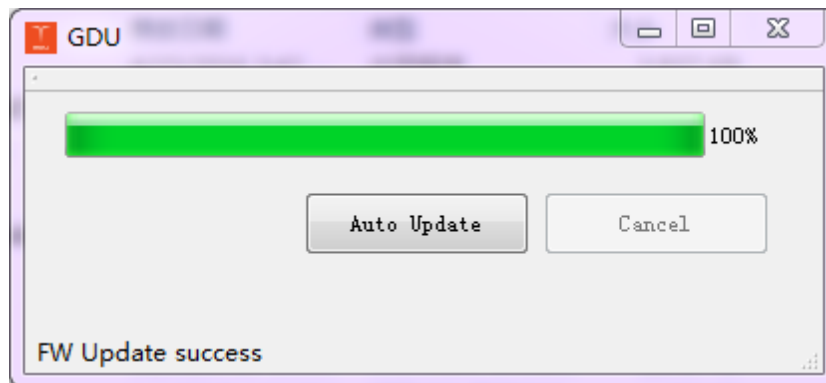
Product assembly

Aircraft preparation

1. Unfold

Unfold the arms, landing gears and push them to limit positions as shown in the picture and ensure the unfolded positions are geometrically symmetric.
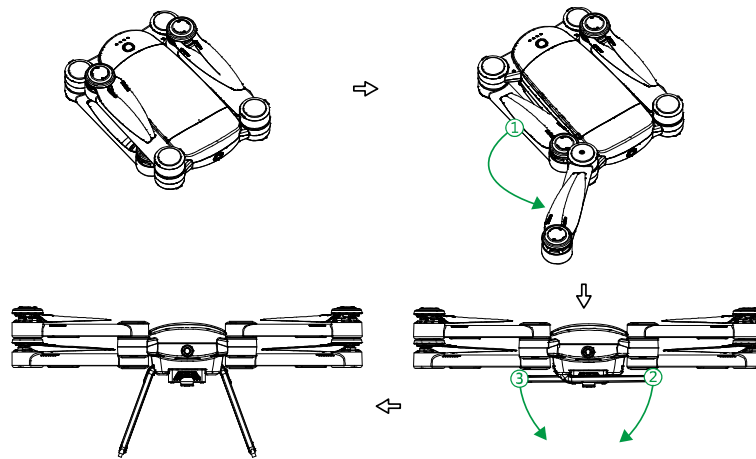
2. Fold
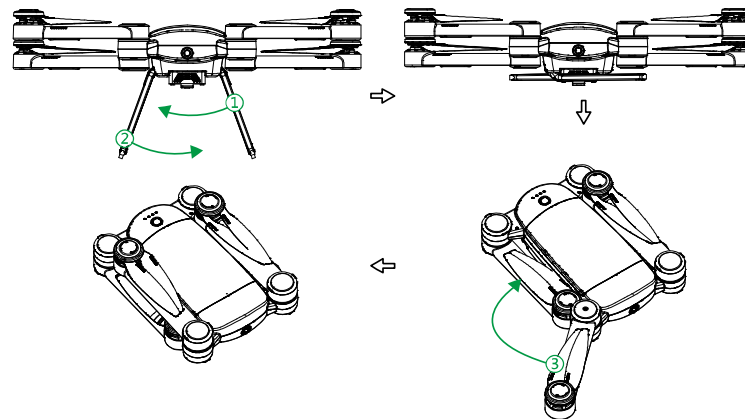
※ **Please control your force when rotating the arms and landing gears to unfold the aircraft. Stop rotating when they are pushed to limiting positions.**

※ **Note the rotating direction of the arms and landing gears when folding the aircraft.Reverse rotation will damage the position limiting mechanism.**

1. Propellers Installation and Dismounting

The GDU Byrd uses the foldable propellers. The propellers are marked A or B.　Propellers A rotate in the opposite direction of Propellers B.

Propellers	Type A	Type B
Program		
Install location	Fixe on the motors rotate in clockwise.	Fixe on the motors rotate in counter-clockwise
Symbol Explanation	Lock: Turn the propellers in the indicated direction to mount and tighten	
	Unlock: Turn the propellers in the indicated direction to loosen and remove	

Letters A and B are marked respectively on the hub of the propeller, in the internal surface of the propeller cap, and the motor rotor. Make sure signs of the three are the same in the installation and dismounting.
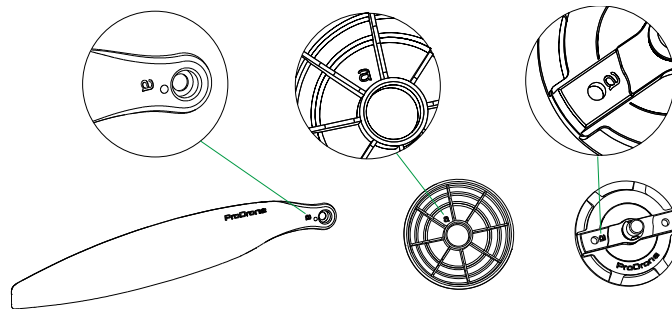
In installation, choose the same type of propeller with that on the motor rotor. Put the side with the letter up and insert it to the spacer pin of the propeller in the electric motor. Press the base of the propeller to the card slot of the motor spindle in the direction vertical to the spacer pin. Rotate for 90° to align the hole sides at two ends with the spacer pin and press it in. In the end, rotate the propeller cap according to the direction shown in the cap.
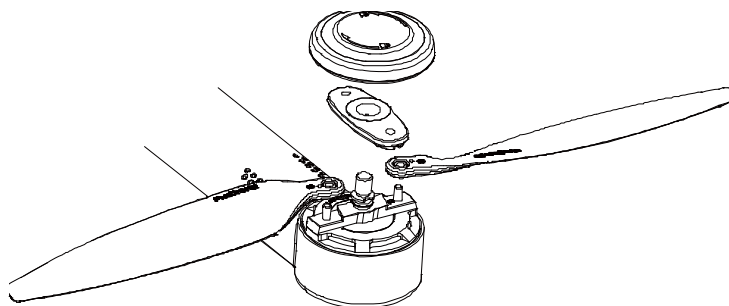
To remove, take down the propeller cap according to the direction shown in the cap. Lift the propeller cap up slightly and rotate it for 90° to remove the base. In the end, take down the propeller.

2. Anti-shooting propellers

The anti-shooting propeller serves as the second security assurance besides the self-locking design of the propeller cap. Even if the cap falls off in flight, this mechanism will prevent the propeller from being ejected out. The card slot in the pin coordinates with that in the motor spindle. Only when the base is rotated to certain angel, it could be removed from the spindle.

Anti-shedding Device
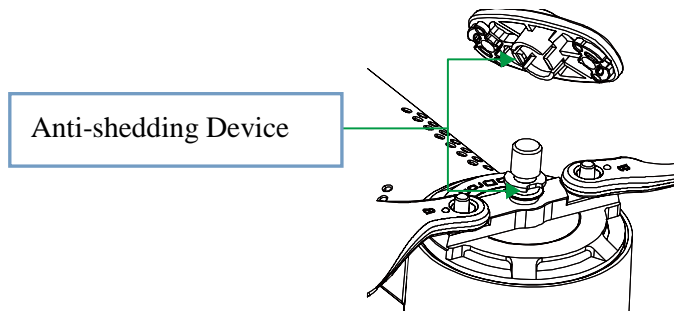
2. Battery Installation and Dismounting

A high capacity Li-polymer battery, whose capacity is 6700mAh and voltage is 14.8V, is used in this aircraft. The snap joint design is used here and you can snap the battery into the battery cabin in the direction shown in the following picture, and confirm that the battery on both sides of the snap fastening. After installation, tighten the cover of the battery cabin according to the method shown in the following picture.
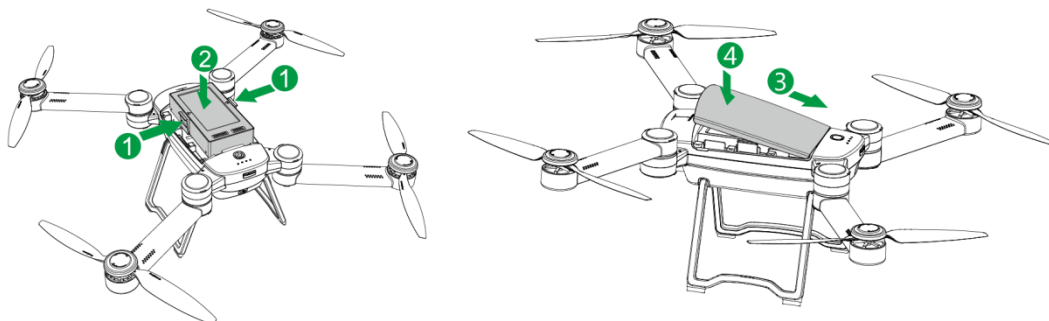
After flight, please take down the battery according to the method shown in the following picture. Take down the cover and press the snap joints at two sides of the battery at the same time. You can dismount the battery.
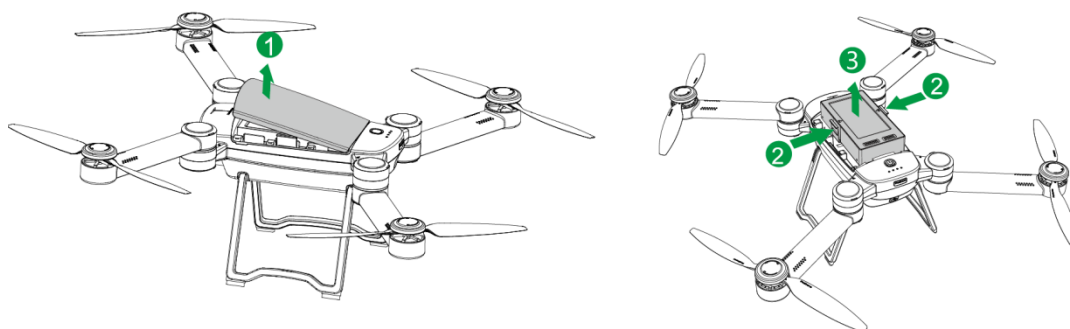
3. Gimbal Installation

Insert, with a diagonal angle, the plug of the butt strap of the gimbal into the card slot at the bottom of the aircraft. Pull to open the snap joint of the spring at the bottom of the aircraft. Press the other end of the gimbal into the snap joint to connect the gimbal and the bottom surface of the aircraft. Unclamp the snap joint to check whether the gimbal has been fixedly installed.
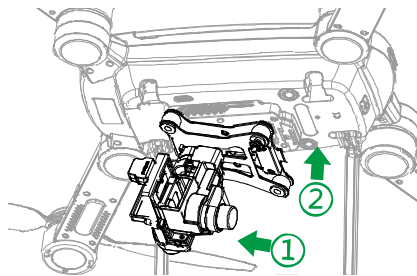
4. Dropping Box Installation and Dismounting

There is a plug at the top of the container. Insert it to the steering gear hole at the bottom of the end of the aircraft and the installation is finished.

Dropping Box Interface
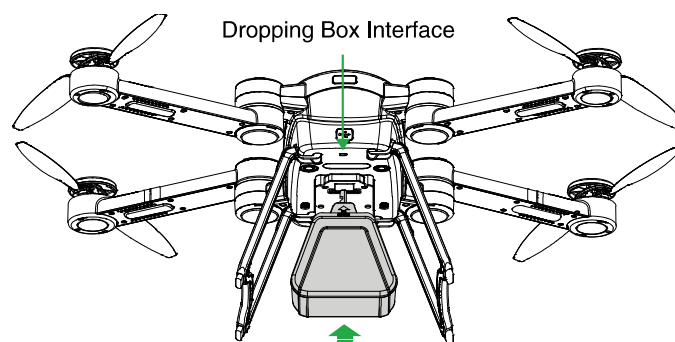
In dismounting, the powers of the aircraft and the remote controller should be turned on. And then the ejection would be carried out and the container would break away from the aircraft.

※ **Stowage dropping feature is only applicable to Advance 2.0 and Premium version.**

4. On and off

Press the power switch of the aircraft for three seconds, and it will be turned on. Repeat this operation and the aircraft will be turned off.
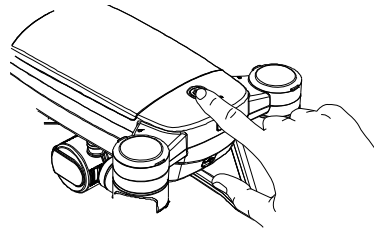
5. Battery check

There are two methods to examine the battery capacity:

• After turning on the power switch of the aircraft, you can see the remaining battery capacity by observing the LED indicator lights.
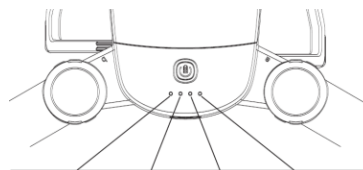
LED1	LED2	LED3	LED4	Current battery level
●Green	●Green	●Green	●Green	75%~100%
●Green	●Green	●Green	○OFF	50%~75%
●Green	●Green	○OFF	○OFF	25%~50%
●Red	○OFF	○OFF	○OFF	0%~25%

• After turning on the power switches of the aircraft and the remote controller, you could see the remaining capacity by observing the LED indicator lights for the aircraft in the remote controller.
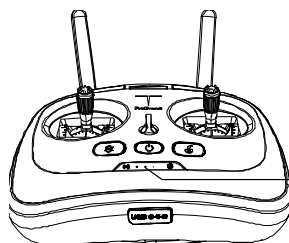
LED1	LED2	LED3	LED4	Current battery level
●Green	●Green	●Green	●Green	75%~100%
●Green	●Green	●Green	○OFF	50%~75%
●Green	●Green	○OFF	○OFF	25%~50%
●Red	○OFF	○OFF	○OFF	0%~25%

6. Charging

The battery cannot be charged while in the aircraft. Please remove it from the aircraft and charge it with the included charger. It takes about 2.5 hours to finish the charging.

Charging port
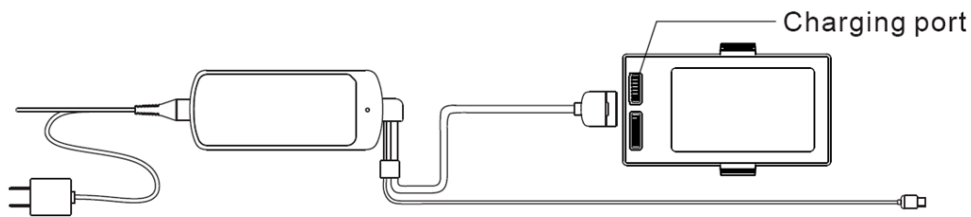
While charging, the LED indicator light in the charger is red. When the light turns solid green, it means the battery has been fully charged. Please disconnect the charger after the battery is fully charged.

※　**Make sure to use the original charger to charge the battery and the remote controller. GDU will assumes no responsibilities if faults or damages are caused by not using the original accessories.**

※　**If the type of the charger plug does not match with that of the power plug, please visit the official store to buy the same type of the power line before trying to charge.**

Remote controller preparation

1. On and off

Press the power switch of the remote controller for three seconds, and it will be turned on. Repeat this operation and the remote controller will be turned off.

2. Battery check

The battery capacity of the remote controller is shown through the color of the back light of the power switch. If it is green, it means the battery capacity is enough for the flight; if it is red, it means the battery needs to be charged.
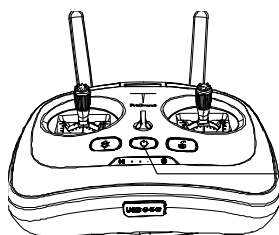
Indicator status	Current battery level
● Green light on	40%~100%
◉ Green light on	15%~40%
● Red light on	0%~15%

3. Charging

The remote controller could be charged no matter it is on or off, but it is suggested to charge it when it is off.

Charging port
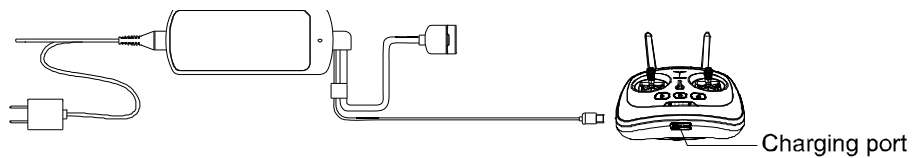
While charging, you could judge whether it has been fully charged by the color of the LED indicator light. If the red light flickers, it means it is being charged. If the green light flickers, it means it has been fully charged. It needs about five hours to finish the charging and the remote controller could be used for about two weeks.

※　**Make sure to use the original charger to charge the battery and the remote controller. GDU assumes no responsibilities if faults and damages are caused by not using the original accessories.**

※　**If the type of the charger plug does not match with that of the power plug, please visit the official store to buy the same type of the power line before trying to charge.**

4. Antenna placement

Please hold the antenna in the direction shown in the following picture.
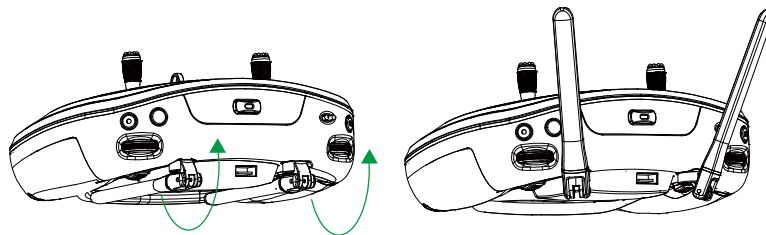
※　**Only Advance 2.0 and Premiu2.0 remote controllers have USB port on the bottom.**

The remote controller will receive signals of different strengths if the antenna is placed in different positions. During flight, the direction of the antenna needs to be changed to keep the aircraft within communication range.
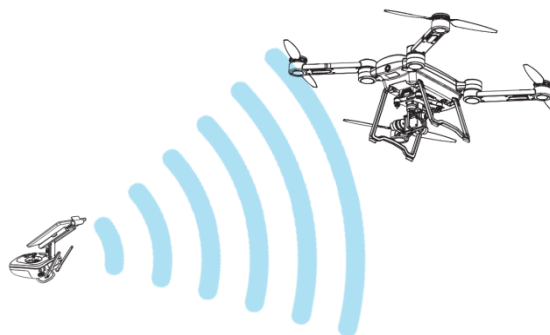
5. Mobile Device Holder Installation and Dismounting

Unfold the joint lever of the support of the mobile device to the limited position and insert it downward to the installation hole and adjust fit the device being used.
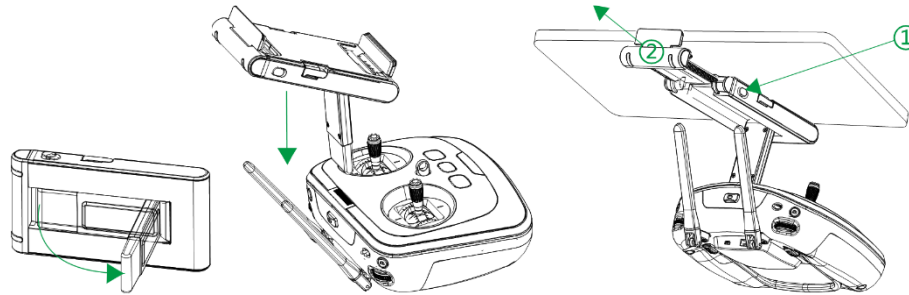
To remove, press down the 'Equipment support lock' and pull the support upward.
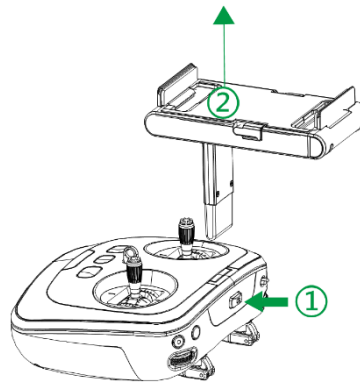
Flight

Pre-check

- Check all parts of the aircraft before each flight. Look for cracks in the propellers, cracks in the arms and make sure that the motors spin freely. If there is any damage, please repair/replace before trying to fly the aircraft.

- Make sure the flight battery is fully charged and that the remote control has a good charge before attempting to fly the aircraft.

- Make sure the arms and landing legs are in their proper places and that the propellers are properly installed.

- Check whether the connection between the remote controller and the aircraft is normal.

- Always operate with the latest firmware. And check whether the APP and the remote controller are connected normally.

- Check whether the electric motor and the gimbal are working properly after the aircraft is powered on.

- Make sure that the SD card has been inserted into the camera.

Accelerator calibration

When the aircraft leaves the factory, the accelerometer has already been calibrated. It is suggested to calibrate it again if the drone has been updated to ensure the safe flight. Follow these steps:

- Visit www.gdu-tech.com to download and install the 'FCS Configuration Adjustion Software' on your PC.

- Make sure the aircraft is sitting on a level surface and POWERED ON. Then connect the aircraft to your PC, the software will automatically indentify the aircraft.

- Open the 'Accelerometer' which under the options of 'Basic' in the parameter adjustment software, then click the button that says 'Click to start the single axis calibration'.

- Wait for three seconds and the calibration is finished.

※ **It's recommended to calibrate the accelerator on PC with configuration of Win 7 (64 bit) or higher.**

※ **Do not power on the remote controller during the whole process.**

Compass calibration

- Power on the remote control and then the aircraft. At this time, the aircraft will start a self-check and a series of beeps will sound.

- After the beep stops, toggle the "Flight Mode Switch" back and forth for several times. Observe

the color of the LED indicator light in the aircraft and stop toggling when the yellow LED indicator light at the head of the aircraft is on and the yellow light at the tail flashes.
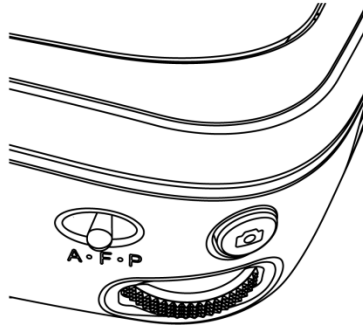
Compass calibration method II: After the beep stops, click icon on APP, and select page of "Flight Settings"; click "compass calibration" in the lower right corner, and then click "aircraft"; it enters into mode of compass calibration when the yellow light on nose keeps on and yellow light on tail flickers.
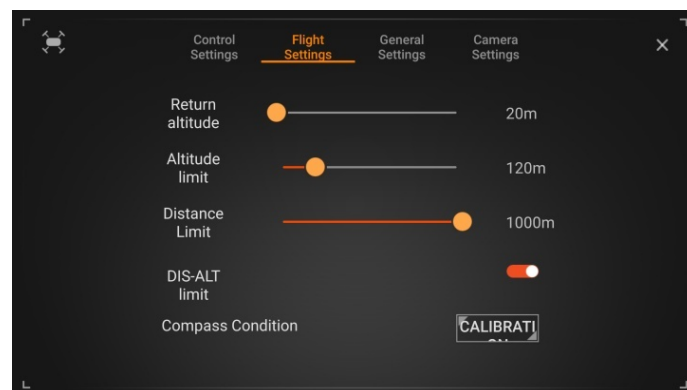
1. Hold the aircraft **UPSIDE DOWN** and rotate it clock-wisely and horizontally. Observe the color of the LED indicator light in the aircraft and go to the next step when the yellow light at the head of the aircraft is on and the green light at the tail flashes. Otherwise, please return to the step 2.
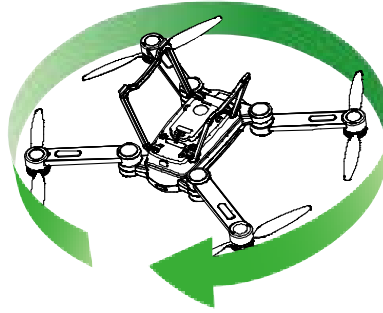
- Hold the aircraft with its **HEAD DOWN** and rotate it clock-wisely and vertically. Observe the color of the LED indicator light in the aircraft; the compass calibration is successful when the YELLOW lights at the head of the aircraft and the GREEN lights at the tail keep on. The compass calibration is not so good when all the yellow light keep on. You'd better calibrate the compass once more. Otherwise, please return to the step 2.

The Head

The ground
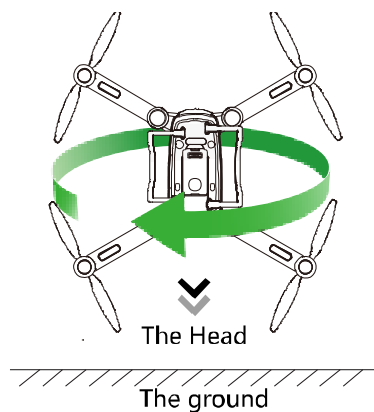
※ **Do not move the aircraft during the self-check startup.**

※ **When the aircraft is used for the first time or it is moved to a new location since the last calibration, please calibrate the compass.**

※ **When severe drifting occurs in flight or it couldn't fly in straight line, please calibrate the compass.**

※ **Do not calibrate the compass indoor, or near large metal objects, or in the place where there may be high magnetic fields.**

※ **When calibrating the compass, do not carry the mobile phone, hand-watch, keys and other metal objects.**

Takeoff

You can rise the aircraft by auto take-off or manual take-off. After compass calibration, push both

control sticks to bottom inner corners to start the motors. Once the motors have started spinning, release both control sticks simultaneously. When the GPS signal is not good enough, P mode could not unlock the motors. Please change to other wide-open spaces or turn to A mode at this time. When unlocked, push the throttle up slowly, the aircraft will take-off.

American、Japanese:

Chinese configuration:
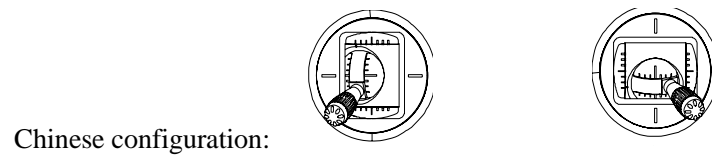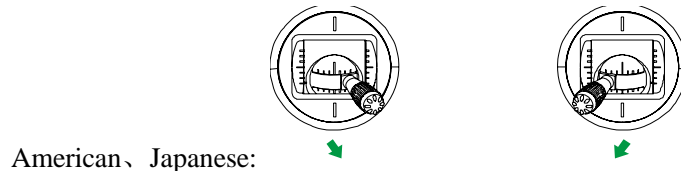
※ **Before the flight, please put the head of the aircraft forward and keep over 10 feet away from the aircraft.**

※ **Do not unlock the aircraft on steep slopes or hillsides.**

Landing

During the flight, push the throttle downward slowly and the aircraft will land slowly. At this time, push the throttle to its lowest place and hold for two seconds. The motor will stop and then loosen the throttle to lock the aircraft.
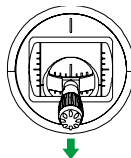
FAQ

1. What is the control distance of the remote controller? How are the aircraft, the mobile phone and the remote controller are connected?

The control distance of the remote controller is 2000 meters (the actual control distance depends on the environment). The mobile device and the remote controller are connected via WIFI and the aircraft and the remote controller communicate with each other by 5.8 G radio frequency.

2. What are the endurance, capacity and type of the battery?

The average flight time of the Standard model is 25 min and the Advanced/Premium models are 29min. All three models use a 6700mA, and 14.8V Lipo battery.

3. What is the resolution of the camera? (Can it be replaced by other cameras?)

The three different models are equipped with different cameras. The Standard model comes with a 1080P integrated cameral gimbal and the camera cannot be replaced. The Advanced model comes with multi-function gimbal (without the camera), which perfectly compatible with Gopro camera. The Premium model comes with a 4K integrated camera gimbal and the camera cannot be replaced.

4. What is the maximum load of the aircraft?

The maximum load of the aircraft is 1200g and the flight time will be reduced if it is flown with this load.

5. Does it have the function of transmitting real-time image?

The aircraft is equipped with high definition image transmission module and can transmit high definition image in real time. The transmission distance for Standard version is 500m, Advance 1.0 and Premium 1.0 are 1000m, the transmissions are achieved via WIFI. Unlike them, Advance 2.0 and Premium 2.0 adopt the OFDM system so that the distance could be as long as 2000m.

6. Could this camera take pictures or record videos at night?

There is the LED indicator light of status in the airplane arms, so the direction of the aircraft head could be judged correctly and it could fly at night. Whether the camera could take pictures or record videos at night is decided by the whether the camera supports this function or not.

7. What will happen if the aircraft is low battery in flight? What will happen if there is telephone call in flight? What will happen if the aircraft flies beyond the control range? What will happen if it flies so far that there is no image transmission and there are barriers? Does the aircraft have collision avoidance?

The aircraft will return to home automatically in the event of a low battery. When there is telephone call in flight, APP will operate in the background automatically and continue to work. However, it is not suggested to receive or make telephone calls. If the aircraft flown beyond the maximum control distance, then return to home be triggered. When if flies beyond the distance of transmitting images, please stop all operations and return to home. This product does NOT have a collision avoidance system and cannot automatically avoid barriers.

8. How to download GDU Pro APP?

You can visit www.gdu-tech.com or scan the two-dimension code in the instruction profile to download GDU Pro APP.

9. Whether it could take off in windows of high buildings or in comparatively narrow spaces? (Whether it only could take off in flat ground?)

Yes, it can. However, the signals might disappear in high buildings, which can be very dangerous. For safety, it is suggested to let only take off in an open place and keep it fly below the height of 400 feet.

10. The aircraft voice is loud during flight. Is that normal?

The noise of the aircraft's propellers has a direct relationship to the speed of the propellers.

11.   What's the GPS precision of the map in the mobile phone?

The precision of the GPS on the map is determined by the quality of the GPS module in your mobile device.

12. How fast can the aircraft fly?

The fastest ascent speed is 6 m/s and the fastest forward speed is 15 m/s.

13. Can aircraft return automatically without power?

Key: Two-stage warning mechanism for low battery is set in system. When only 30% of battery volume is left, it will trigger early warning of low battery, and APP will remind you to return. If you continue the flight, it will trigger serious low battery return after several minutes. At that moment, the aircraft will be forced to return.

14. How dose APP control the aircraft?

The control instructions of the APP are transmitted to the remote controller by WIFI and to the aircraft by the remote controller. Please read the help profiles in the first page of APP or read the tutorial video in GDU Pro APP.

15. What is the shooting time of the camera?

The camera relies on the battery loaded in the aircraft for power supply. Therefore, the shooting time is decided by the endurance of the aircraft and the memory capacity of the SD card.

16. Will there be a memory card in the products we buy?

There will be a 16G memory card included with the standard configuration of the Standard version and a 64G for the Premium version. Visit www.gdu-tech.com for more accessories.

17. What kind of motors are your products using?

The high-performance brushless motor which was specially developed for this product's power system. Its service life could be as long as 40,000 hours. Each motor has undergone serious routine inspection and its performance is reliable and stable.

18. Why could I not unlock the aircraft?

Watch the status indicator light of the remote controller to check whether the connection between the remote controller and the aircraft is normal. The aircraft could not be unlocked if there is strong magnetic interference, if the GPS signal is not good enough, and if the GPS precision does not meet the requirements.

19. Will it show my place only if I turn on the WIFI and connect it to the internet?

Yes. The place of pilot is positioned by the GPS in the mobile phone and the place of the aircraft is positioned by the GPS loaded in the aircraft. The information of the two places are transmitted to the APP by the remote controller and are shown in the APP interface.Currently, GDU Byrd Standard, Advance 1.0 and Premium 1.0 via WIFI; Byrd Advance 2.0 and Premium 2.0 via USB cable to connect the aircraft to the internet.

20. What is the material of the gimbal? And what is the control range of the pitch?

This aircraft is equipped with a three-axis high definition gimbal developed by GDU. It is made of light aluminum alloy. The three types of gimbals are two-axis controllable. Their controllable pitch range is -90°- 0° and their controllable yaw range is -45°- 45°.

21. What's the material of the body of the airplane? Is   break-resistant?

The body of aircraft is made of compound materials of high strength. It has been testified that the aircraft still keeps comparatively integral structure when it falls from a several meters high place.

22. What are the meanings of the red full lines and blue dotted lines in the map in the APP of the mobile phone?

The red full lines show the flight track while the blue dotted line show the flight lines made by the planning function of flight track.

23. How to charge the power battery?

Connect the battery and the charger and connect the charge with the 220 V power source to start the charging. When the LED indicator light in the charger is red, it means the battery is being charged; when the light is green, it means the battery has been fully charged.

24. What will the aircraft do if the mobile phone is power off?

If the mobile phone is power off, you only could not see the images sent by the image transmission, but the remote controller could control the aircraft normally.

25. Why there are tweet sounds after turning on the power for a short time? Is it normal?

After turning on the power and there is no instruction for a long time, there will be tweet sounds. This is normal and will happen in 12 minutes after turning on the power.

Technical parameters
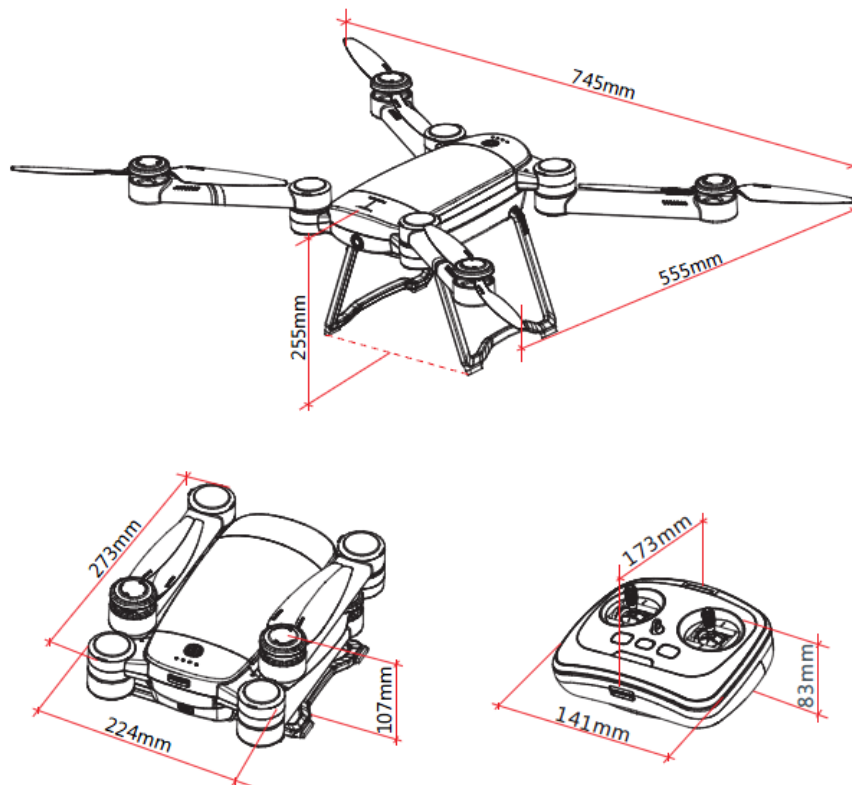
GDU Byrd Standard

1. Aircraft

Weight	1890 g
Rated load	200 g
Max.load	500 g
Wind resistance	Level 4
Max.vertical speed	6 m/s
Max.horizontal speed	15m/s
Hover accuracy (mode p)	±0.8 m (vertical)
	±1.0m (horizontal)
Max.flight altitude	4000 m
Endurance	25 min
Operating temperature	-10°C to 50°C

2. Gimbal

Controllable angle range   pitching: -90°-0°

yawing: -45°-45°

3. Camera

Resolution	1080P (16:9), 960P (4:3)
	720P (16:9)
Pixel	16M
Video format	.MP4 (H.264 codec)
Photo format	.JPEG
Sensor Type	CMOS
Video frame	1080P: 25/30/50/60fps
	960P: 25/30/48/50/60fps
	720P:25/30/50/60/100/120fps
Field angle (opposite angles)	1080P: 120°
	960P: 140°
	720P: 120°
Focal length	3.64 mm
Photo mode	16 / 14 /12M (4:3) pixel
Memory card type	32GB Micro-SD
Operating temperature range	-10°C to 50°C

4. Remote controller

Work frequency	5745MHz ~ 5810MHz
Maximum communication distance	2000m
Battery voltage	7.4V
Battery capacity	5000mAh-2S lithium battery
Mobile device holder	Support Pad & Mobile Phone

Equivalent isotropic radiated power (EIRP)   18mW

Operating emperature   -10°C to 50°C

5. Charger

Voltage/current   16.8V / 2.5A (battery)

16.8V / 1A (remote controller)

Rated power   67.2 W

6. Battery

Capacity   6700 mAh

Voltage   14.8 V

Energy   99.16 Wh

Weight   560 g

Operating temperature   0°C to 40°C

GDU Byrd Advanced

1. Aircraft

Weight (with battery and gimbal camera)	1866 g
Rated load	200 g
Max.load	500 g
Wind resistance	Level 4
Max. vertical speed	6 m/s
Max. horizontal speed	15m/s
Hover accuracy (mode p)	±0.2 m (vertical)
	±0.2m (horizontal)
Max. flight altitude	4000 m
Endurance	29 min
Operating temperature	-10°C to 50°C

2. Gimbal

Controllable angle range	pitching: -90°-0°
	yawing: -45°-45°

3. Visual positioning system

Velocity range	< 8 m/s
Altitude range	20 cm-600 cm
Positioning accuracy	± 3.0cm (horizontal)
	± 2.54cm (vertical)
Operating environment	Surface with clear pattern and Adequate lighting

4. Remote controller

Work frequency	5745MHz ~ 5810MHz
Maximum communication distance	2000m
Battery voltage	7.4V
Battery capacity	5000mAh-2S lithium battery
Mobile device holder	Support Pad & Mobile Phone
Equivalent isotropic radiated power (EIRP)	18mW

5. Charger

Voltage/current	16.8V / 2.5A (battery)
	16.8V / 1A (remote controller)
Rated power	67.2 W

6. Battery

Capacity	6700 mAh
Voltage	14.8 V
Energy	99.16 Wh
Weight	560 g
Operating temperature	0°C to 40°C

GDU Byrd Premium

1. Aircraft

Weight (with battery and gimbal camera)	1866 g
Rated load	200 g
Max.load	500 g
Wind resistance	Level 4
Max. vertical speed	6 m/s
Max. horizontal speed	15m/s
Hover accuracy (mode p)	±0.2 m (vertical)
	±0.2m (horizontal)
Max. flight altitude	4000 m
Endurance	29 min
Operating temperature	-10°C to 50°C

2. Gimbal

Controllable angle range	pitching: -90°-0°
	yawing: -45°-45°

3. Visual positioning system

Velocity range	< 8 m/s
Altitude range	20 cm-600 cm
Positioning accuracy	± 3.0cm (horizontal)
	± 2.54cm (vertical)
Operating environment	Surface with clear pattern and Adequate lighting

3. Camera

Image Resolution	4K（16：9）, 2.7K（16：9）,

	1440P（4：3）, 1080P（16：9）
Effective Pixel	12million
Video Format	.MP4（H.264 codec）
Picture Format	.JPEG
Burst　Shooting	30 pieces/s（12 million）
Aperture	F/2.8
Frame Rate	4K(4096*2160)：24 fps
	3840*2160：24/30 fps
	2.7K：25/30 fps
	1080P：30/60fps
Field Angle	104°（Opposite）
	82°（Horizontal）
Distortion	<27%
Output Mode	USB
RAM	2GB flash + 8GB DDR
Supported SD Card Types	Support Maximum 64GB
Operation Temperature	-10℃ to 50℃

4. Remote controller

Operating frequency:	5745 MHz ~ 5810 MHz
Max. communication distance	2000m
Operating temperature	-10°C to 50°C
Battery capacity	5000mAh-2S lithium battery
Mobile Device Holder	Support Pad & Mobile Phone
Equivalent isotropic radiated power (EIRP)	18mW

5. Charger

Voltage/current	16.8V / 2.5A (battery)
	16.8V / 1A (remote controller)
Rated power	67.2 W

6. Battery

Capacity	6700 mAh
Voltage	14.8 V
Energy	99.16 Wh
Weight	560 g
Operating temperature	0°C to 40°C

Authentication information

FCC Compliance

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

7. This device may not cause harmful interference, and

8. This device must accept any interference received, including interference that may cause undesired operation.

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

FCC Warning Message

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

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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: 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 experience radio/TV technician for help.