BLACKBIRD X10

GIVE YOUR VISION WINGS

Owners Manual

ARIES USER'S MANUAL   V1.0   2014.07

Please carefully follow operating instructions in this User's Manual to use the ARIES X-10

WARNINGS

Please read these warnings carefully before using ARIES products.
This product is suitable for ages 18 years and above.
ARIES is a high-tech electronic product with integrated flight and camera control.
This product can provide exceptional aerial photography as long as there is
normal power supply and there are no damaged components.
Although the quadcopter software has safety mechanisms that ensure the
equipment is safe to handle while powering-up, we still strongly recommend
you remove the rotor blades during calibration.
ARIES does not assume any responsibility for any personal injury,
property loss (including direct and indirect losses), legal disputes
and compensation issues caused while using this product.

Please remember you may be subject to serious consequences if :

▶ This product is used in any illegal activity.

▶ This product is used in a no-fly zone for flight, video recording and photography.

▶ This product is operated without following instructions in the user's manual.

▶ This product was operated in inappropriate conditions.

IMPORTANT SAFETY NOTICES

● Check whether all product components are in good condition.
  Please do not operate if any part is worn out or damaged.

● Ensure the transmitter and quadcopter batteries are sufficiently charged before operating.

● Try to avoid the transmitter signals from interfering with other wireless devices.

● Ensure the quadcopter operates under the specified maximum load while it is airborne.

● Before take-off, switch on the transmitter and then start the quadcopter.
  After landing, turn off the quadcopter first, before turning off the transmitter power.

● While inspecting, do not get close to or touch the rotating motor or rotor blades.

● Please ensure you take-off or land the quadcopter from/at a central point in an open area,
  and ensure there are no persons or other obstructions within a 5 to 10 meter radius.

● Operate the quadcopter to fly in a safe zone away from obstructions, crowds, high-voltage
  lines, and considering your own safety.

● Do not answer phone calls when using mobile WiFi to connect with the onboard
  camera to preview images.

● Do not use the product in a complex electromagnetic environment as it may
  cause communication errors.

● Do not use or store the product in a humid environment as it may create condensation
  inside the machine that may damage the device or lead to unpredictable consequences.

● Do not use the product during lightning, in rain, strong winds, dust storms and other harsh
  environments, to ensure the safety of the device as well as people and property.

● Please keep away from heat as the quadcopter's thermoplastic material may wear-off
  quickly, deform or even melt in case of high temperatures.

● Novice users should operate the quadcopter under the guidance of professionals,
  and the throttle stick should be operated slowly to make adjustments.
  Consider using a safety tether if you are concerned that the unit may malfunction.
  Do not rapidly push or pull the throttle stick.

● For the safety of your life and property, please follow instructions the user's manual.
  Do not operate the quadcopter for any illegal acivity. Unauthorized disassembly
  or modification of the quadcopter is prohibited.

● Batteries should be placed out of reach children. Please seek medical assistance
  immediately if batteries are swallowed by a child.

● Make sure the quadcopter battery is properly installed and locked in place.

● Do not use devices other than the battery charger provided with the product,
  to charge the quadcopter battery.

● Do not dispose batteries in a fire or heat the batteries.

● Do not use batteries in places with strong static charge, as it may lead to possible
  failure of the electronic protection system or cause other safety accidents.

● Do not expose batteries to water. Batteries should be stored in a cool and dry place
  if they are not to be used for a long time.

● Do not combine different manufacturers' batteries or different capacity, types and varieties.

● Do not transport or store batteries together with metal objects which can cause a short.

● Do not strike or throw batteries.

● Do not short circuit the battery contacts.

● Do not pierce the battery case with sharp objects.

● Do not hit the batteries with a hammer or stamp on the batteries.

● Do not attempt to disassemble the batteries in any manner.

● Do not use or store batteries in a hot environment, such as in direct sunlight or in a car
  in hot weather, as high temperatures may affect battery performance and shorten life,
  or even cause batteries to catch fire.

DOWNLOAD ARIES APP

Please download the ARIES APP
to simultaneously watch live video
when using ARIES, as well as controlling
the camera and memory options.

For iOS users, please search FLY ARIES
in the App Store, and download and
install the ARIES APP.

For Android, please search FLY ARIES
in the Play Store, and download and
install the ARIES APP.

Aries — Aries

App Store — iOS 6.1 or above

Google play — Google play

OVERVIEW

ARIES is a high-tech electronic device
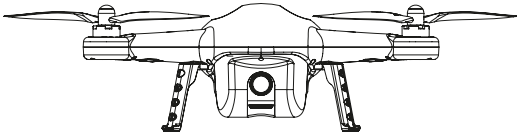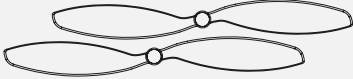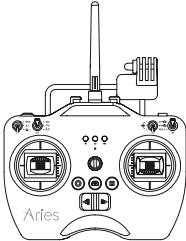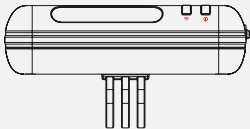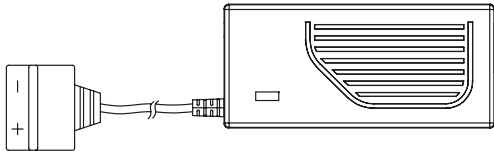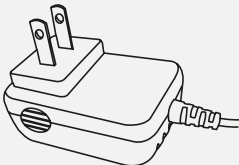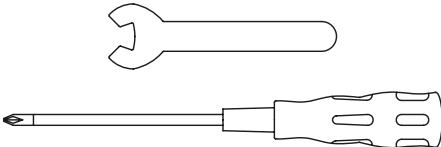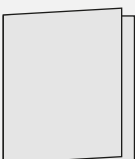with integrated flight and camera control.
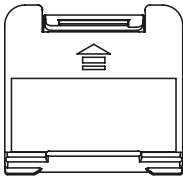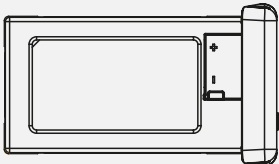
It is equipped with a 16 megapixel
camera and advanced intelligent flight
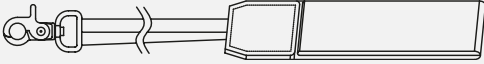control system.

You can use mobile devices to remote
control the camera through the ARIES
APP, and achieve real-time transmission
of video images.

ARIES will help you effortlessly capture
clear and stable aerial videos and photos.

KIT CONTENTS

Before using, please check all items inside the kit box.

No.	Name	Diagram	Quantity	Description
1	Quadcopter		1 pc	With onboard camera
2	Rotor Blades		4 pairs	4 pcs rotor blades with black caps 4 pcs rotor blades with gray caps
3	Transmitter		1 pc	Includes repeater mount
4	Repeater		1 pc	Used to extend range of mobile devices using WiFi
5	Mobile Device Mount		1 pc	Used to mount mobile devices
6	Quadcopter Battery		1 pc	Provides power supply to the Quadcopter
7	Quadcopter Battery Charger		1 pc	110-240V 50/60Hz
8	Repeater Adapter		1 pc	100-240V 50/60Hz
9	Tools		1 set	1 pc wrench and 1 pc screwdriver for disassembling rotor blades
10	User's Manual and Warranty Card		1 pc	Includes "ARIES User's Manual" and product warranty information.

No.	Name	Diagram	Quantity	Description
11	Screws		9 pc	M3.0×10 screws 8 pcs (alternate), long hex screw 1 pc (to attach repeater)
12	Strap		1 pc	

PRODUCT INTRODUCTION

The ARIES X-10 features a precision engineered design, and is equipped with professional-grade airborne photography equipment and a transmitter. It can provide excellent aerial footage for outdoor low-altitude or large indoor spaces.

After receiving this product, you need to conduct a simple installation process to fly your quadcopter and capture aerial footage, and the camera will store recordings to the memory card.
Users can control the Quadcopter in real time through the transmitter, and can view and control recording options and video through appropriate mobile devices.

This product is suitable for hobby or commercial photography applications, featuring simple and flexible operating controls coupled with stable and reliable performance.

Quadcopter

Rotor blade

Motor

Camera

Mobile device mount

Repeater

Repeater mount

Transmitter

Function

AT A GLANCE

Transmitter

2 Throttle Sticks
Multi-channel
Camera Angle Control

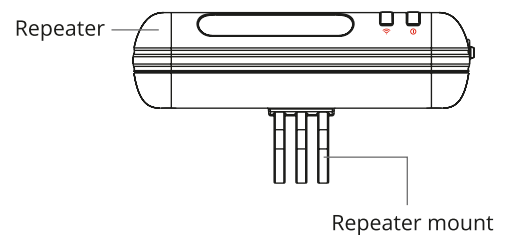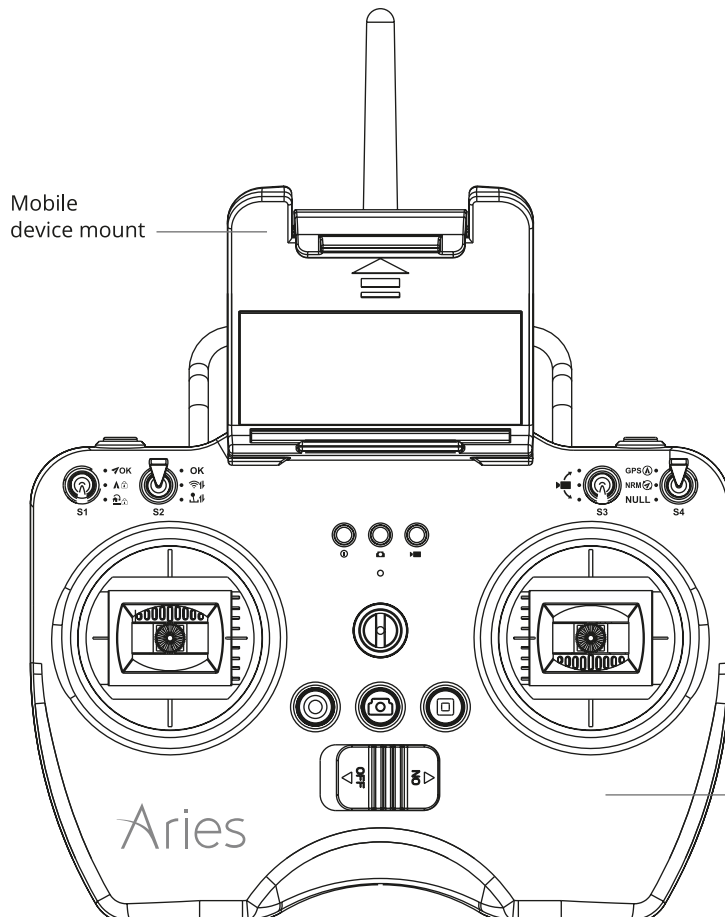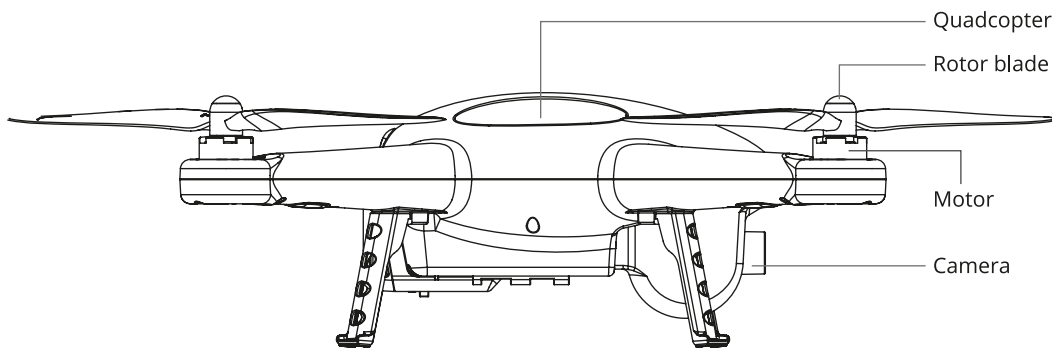**Quadcopter External Components**

Airal Camera with Adjustable Angle
Motors and Rotors

Quadcopter Operating Modes

GPS mode
Normal mode
Null (Reserve)

Quadcopter Internal Components

Flight control system
Wi-Fi module
Receiver
ESC (Electronic speed control)
Memory Card
(Micro SD up to 32gb)

PREPARE THE BATTERIES

Please make sure the following device batteries are fully charged before using ARIES.

Equipment	Power Supply
Transmitter	Install four AA batteries for power.
Repeater	Repeater needs to be charged through the built in charging port (Micro USB port).
Quadcopter	Charged Quadcopter batteries for power supply.
Mobile Devices	Please ensure that your mobile device is fully charged before using ARIES APP.

▶ QUADCOPTER BATTERY

● The quadcopter battery (Figure 1) is a unique battery with a built in charge and discharge management function.
It is specifically designed for ARIES and has a capacity of 5300mAh and voltage of 11.1V. You must use the dedicated quadcopter battery charger (Figure 2) provided by ARIES for charging.
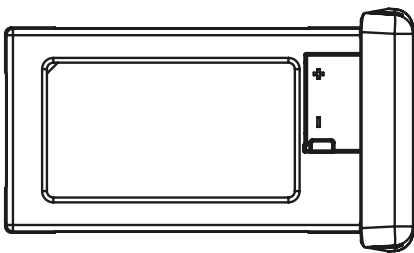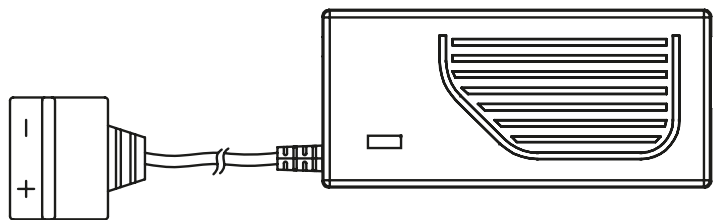
Figure 1

Figure 2

● Short press the Battery Level Check button (Figure 3). The screen displays appropriate battery level. Please fully charge the battery when the battery charge displayed is less than two bars.

Battery level

Battery Level Check button
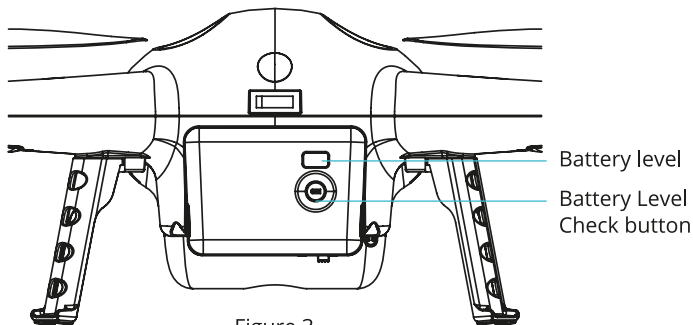
Figure 3

BATTERY SPECIFICATIONS

Type	Li-Po Battery
Capacity	5300mAh
Charging Ambient Temperature	0°C-50°C
Discharging Ambient Temperature	-20°C-50°C
Charge / Discharge Ambient Relative Humidity	< 80%

Before using the battery, please carefully read and strictly comply with this manual's instructions.

▶ CHARGING THE QUADCOPTER BATTERY

● Connect the charger to an AC power source (110-240V, 50 / 60Hz). If necessary, please use a power adapter.

● While charging, the battery charger indicator lights up, and turns red.

● When the battery indicator turns green, it means the battery is fully charged. Please remove the battery and disconnect the charger cable from the socket after the battery is completely charged.

Figure 4

▶ INSTALLING QUADCOPTER BATTERY
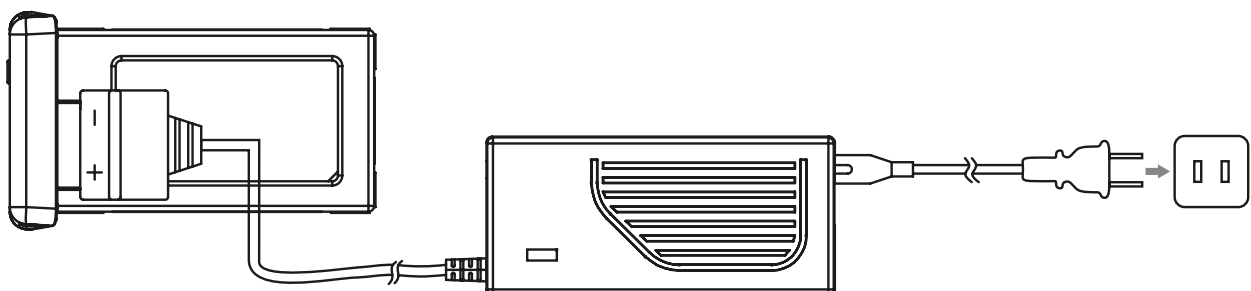
Push the battery in the correct direction (Figure 5) into the quadcopter's battery compartment and ensure the battery is properly installed before securing the battery lock.
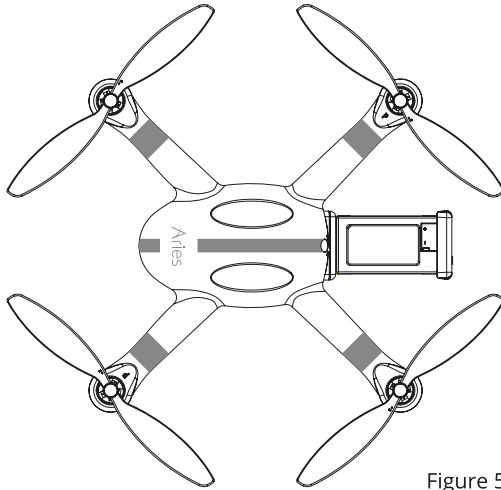

Figure 5

If the battery lock is not fastened, it may cause poor contact with the battery, which may affect flight safety, or even cause the quadcopter to fail.

Also, the battery could come loose due to impact or excessive angle or vibration, causing the quadcopter to fail MID-FLIGHT and really ruining your day.

ALWAYS TRIPLE CHECK THE BATTERY LOCK

▶ CAUTION

● Do not pull out the battery when the Quadcopter is switched on as it may damage the unit.

● If the battery is not used for a long time, it is recommended to discharge the battery to 40%~50% charge level, and store in a designated box. Discharge/charge the battery again every three months or so, to maintain battery life.

● Please replace the battery after it has been charged at least 300 times or more. Before scrapping batteries and disposing them, please discharge until the charge is fully depleted.

● Do not continue using the battery if there is any swelling or damage to the battery surface, as it may catch fire or explode. Please replace the battery in such cases.

● Please pay attention while charging batteries to prevent accidents. When charging the battery, please keep the battery and charger in a place where there are no flammable or combustible material in the area.

● Battery safety is very important. Please refer to the Important Safety Notices for more precautions.

● Dispose of batteries according to local law.

PREPARE THE QUADCOPTER
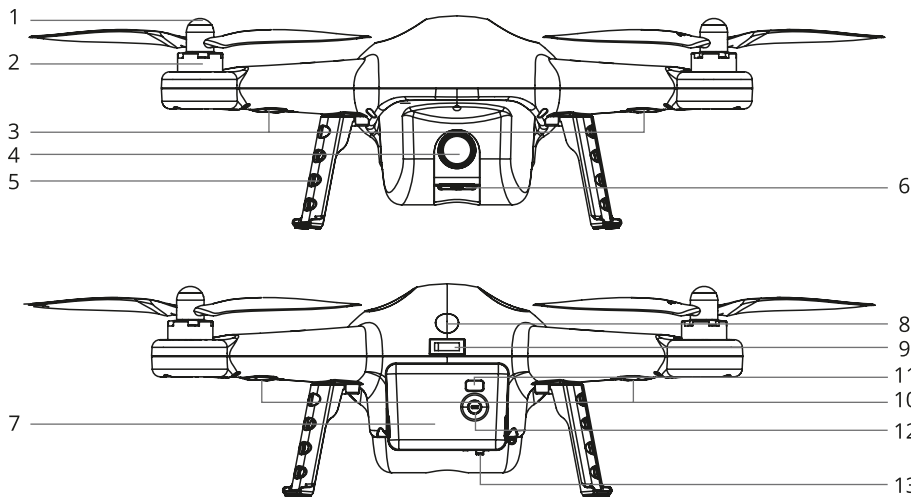
PARTS / FEATURES

1. Rotor Blades
2. Motor
3. Front Indicators
4. Camera Lens
5. Undercarriage
6. Micro SD Card Slot
7. Quadcopter Battery
8. Tail Indicator
9. Power Switch
10. Rear Indicators
11. Battery Level Display
12. Battery Level Check Button
13. Battery Lock Switch

▶ FLIGHT CONTROL SYSTEM

In addition to supporting basic flight maneuvers such as climb, descend, roll and pitch, the system also features failsafe protection, battery level alarms, smart direction control and other functions.

Flight Control System Components	Function
Master Controller	Core module of the flight control system. Connects all the modules and plays the role of centralized control.
GPS & Compass	Used for positioning and navigating the Quadcopter.
Indicators	Indicates current status of flight control system. Also used to navigate during night flying.

▶ FLIGHT INDICATOR LEDS

There are three LED Flight Indicators, the Front indicators, Rear indicators and Tail indicator.
When the Quadcopter switch is turned on, the LED Flight Indicators will be on.
The Front indicator is green and the Rear indicator is red. (Hereafter we use Green/Red Indicator to describe Front/Rear indicators respectively).

Front Indicators

Tail Indicator
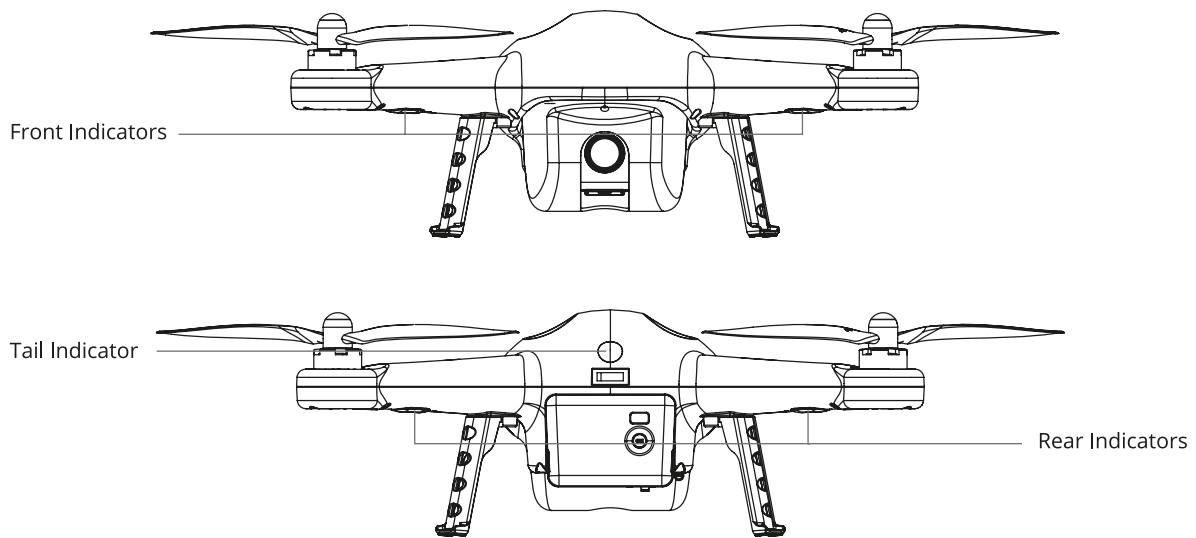
Rear Indicators

Situation	Front Indicator (Green)	Rear Indicator (Red)	Tail Indicator (Red)
Flight Navigation Instructions	Remains ON	Remains ON	Based on Transmitter Signal Status and GPS Searching Status
1st Level Low Battery Alarm	Slow Blink (1s ON, 1s OFF)	Slow Blink (1s ON, 1s OFF)	
2nd Level Low Battery Alarm	Fast Blink Twice at 1 Second Intervals	Fast Blink Twice at 1 Second Intervals	
Barometer Abnormal State	Remains ON	Slow Blink Once at 3 Second Intervals	
GPS Abnormal State	Remains ON	Fast & slow Blink Twice at 3 Second Intervals	
Compass Abnormal State	Fast Blink	Remains ON	
Compass Needs Calibration	Slow Blink	Remains ON	
Accelerometer Abnormal State	Fast Blink	Fast Blink	
Accelerometer Needs Calibration	Switches ON→OFF→Switches ON	Switches ON→OFF→Switches ON	
Gyro Abnormal State	Remains ON	Fast Blink	
Gyro Needs Calibration	Remains ON	Slow Blink	
Transmitter Signal Status Indication			Fast Blink
GPS Searching Satellite Status Indication			Slow Blink
If the barometer/accelerometer/gyroscope/GPS/compass permanently malfunctions, please send your unit to a service center for repair.			

▶ MICRO SD CARD SLOT

Before using ARIES to take pictures or record videos, please insert the Micro SD card into the card slot while the power is OFF. ARIES supports maximum 32GB capacity cards.
Make sure to close the rubber card cover after inserting the card so it does not interfere with the camera movement.
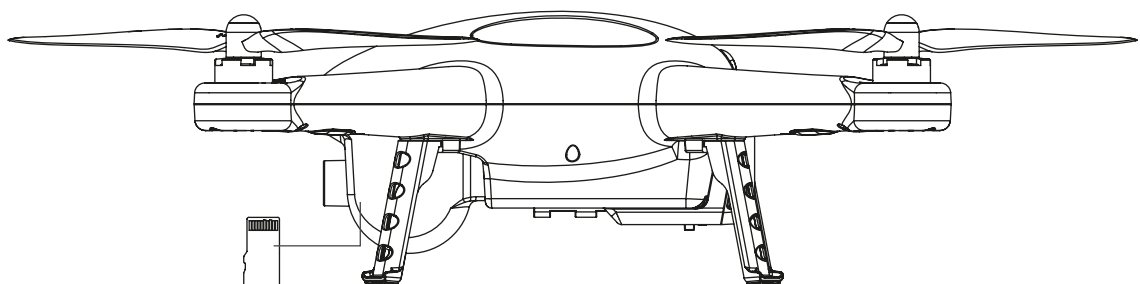
▶ ONBOARD CAMERA

The ARIES camera's power is supplied by the quadcopter's battery. The camera power is on when power switch is turned on. Users can take photos and record videos by pressing the camera function key, or through ARIES APP. The camera supports single shot and continuous shooting mode, and video capture resolution up to 1080P / 30fps (N system) 1080P / 25fps (P system) Full HD video.

Camera Specifications	
Resolution	Maximum 1080P / 30fps (N system) 1080P / 25fps (P system)
Image Resolution	4608×3456
Video File Formats	MOV (H.264 Compression)
Storage	External Micro SD Card, Up to 32GB
Tv System	N(NTSC) & P(PAL) Options

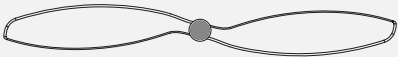| Function Status	Transmitter Indicator		
	Red Light	Green Light	Green Light
	Power Supply	Photo Capture	Video Recording, Code Pairing
Start Quadcopter	Remains ON	OFF	ON→OFF
	Remains ON	OFF	
	Remains ON	OFF	
Accelerometer Calibration	Remains ON	OFF	OFF
Gyro Calibration	Remains ON	OFF	
Compass Calibration	Remains ON	OFF	
Start Video Recording	OFF	OFF	Slow Blink (1.5 seconds OFF, 0.8 seconds ON)
Stop Video Recording	Remains ON	OFF	OFF
Photo Capture		Flash 0.3 sec	
Photo Capture Completed		OFF	
Low Power		OFF	
Code-pairing	Remains ON	OFF	Remains ON
Gps Satellite Searching	Remains ON	OFF	OFF
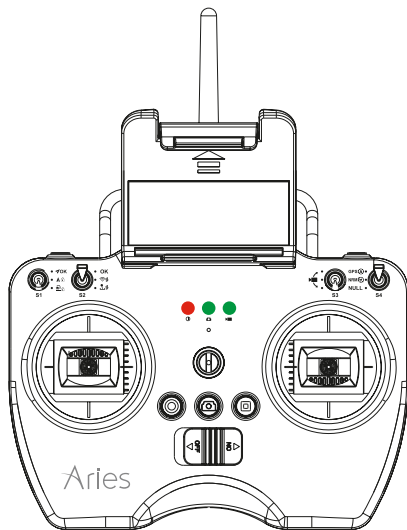
- When the Transmitter battery charge is low, a warning alert sounds.
- When video recording and photo capture commands are sent from the Transmitter, the Transmitter LED indicators show the corresponding function status.

CAMERA FUNCTION KEYS

Photo capture function: Press the camera button on the Transmitter to take pictures. Each press snaps one photo.

Video-recording function: ARIES Quadcopter automatic recording is set to ON as a default setting.

While video recording, you can press the Stop Button on the Transmitter to stop recording, or press Record Button to restart video recording.

CAMERA DATA COPY

When the ARIES power is switched OFF, remove the Micro SD card from the Micro SD card slot, and connect to a computer with a card reader to easily copy camera photos and videos.

(Quadcopter power must be OFF while removing the Micro SD card).

SHOOTING STATUS INDICATOR

When the quadcopter is turned on and the camera is used for recording and photo capture, the Shooting Status Indicator will light up.

Users can determine the current camera status through the Shooting Status Indicator.

Camera Status Indicators on the Transmitter are as shown in the below figure. The three LED indicators on the Transmitter are:

Transmitter Power Indicator (red), Photo Capture Indicator (green), Video Recording Indicator (green)

▶ PREPARE ROTOR BLADES

ARIES uses 10-inch rotor blades, with black and gray color rotor blade caps.
Rotor blades are replaceable items. If necessary, please purchase separately.

▶ INTRODUCTION

| Rotor Blades	Gray (1045)	Black (1045R)
Installation	🔒 Lock: Tighten rotor blades onto the motor in this direction.	
Symbol Description	🔓 Unlock: Remove the rotor blades from the motor by turning in this direction.	

▶ INSTALLATION INSTRUCTIONS

(As shown below) Prepare two blades with gray caps and two with black caps. Attach the blades with gray caps to the motor shafts without "P" marks and attach the blades with black caps to the motor shafts with "P" marks. Tighten appropriate rotor blades as per the locking direction by hand.
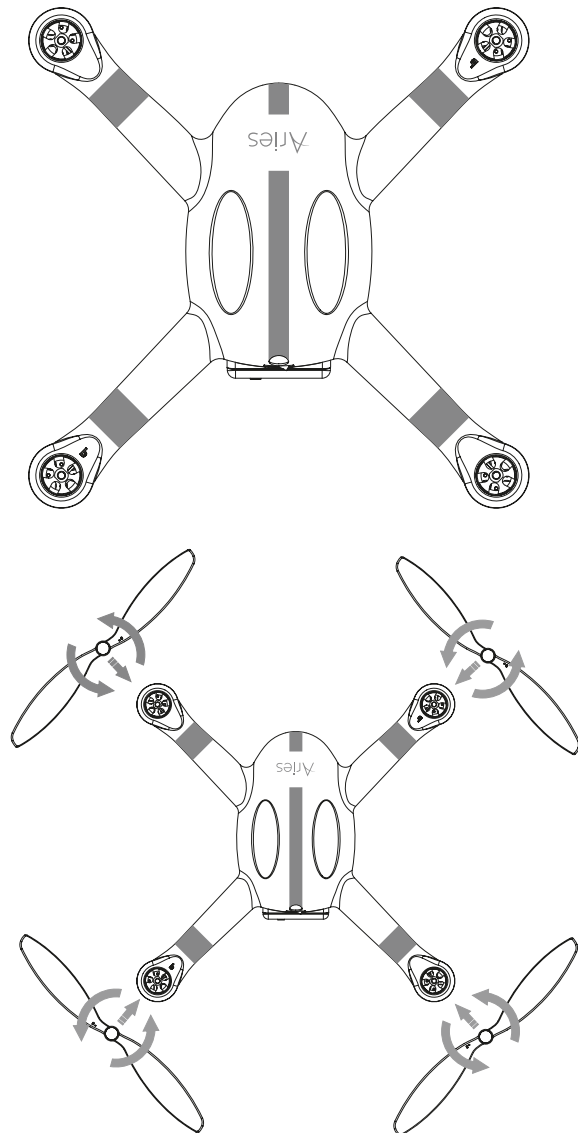
- Rotor blades are designed for automatic tightening, therefore do not use tools when installing the blades. They self tighten during flight; hand tighten only. Do not use glue for the screws.
- Please ensure rotor blades are installed in the correct position. The quadcopter cannot fly properly if the rotor blades are installed incorrectly. Since the blades are very thin, it is advised to wear gloves when installing, to prevent accidental scratches.

▶ REMOVING BLADES

Auxiliary wrench

Unlock direction
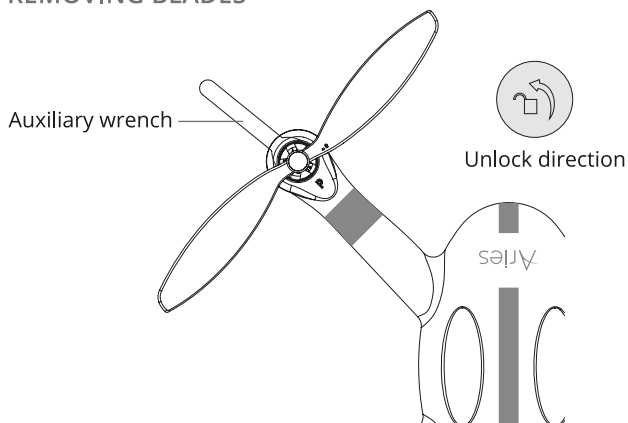
PRECAUTIONS

- Before each flight, please check that the rotor blades are correctly and firmly installed.
- Ensure all rotor blades are intact before each flight. If the blades are worn or damaged, please replace with new blades before flying.
- Keep your distance from rotating rotor blades and the motor to avoid cuts and injury.
- Use only rotor blades provided by Aries to ensure optimal performance.

PREPARING THE TRANSMITTER

ARIES Transmitter is used together with the quadcopter receiver. The transmitter and receiver have been successfully paired to match frequency before delivery. The transmitter is set to U.S. mode as the default factory setting mode.

Control Mode: The transmitter is set to U.S. mode or Japanese mode according to stick channel mapping.

U.S. mode: The transmitter's left stick is the throttle stick.

Japan mode: The transmitter's right stick is the throttle stick.

- The repeater mount is already installed on the transmitter before delivery. Please Install mobile device mount to place mobile devices.
- Oversized mobile devices (such as Tablets) cannot be installed on the mount, hence they are not recommended.

As shown in the illustration, hold the motor with the auxiliary wrench. Hold and rotate the rotor blades in the unlocking direction to remove rotor blades.

Note: Each blade is marked with the proper direction for tightening and removing it.

▶ LAYOUT
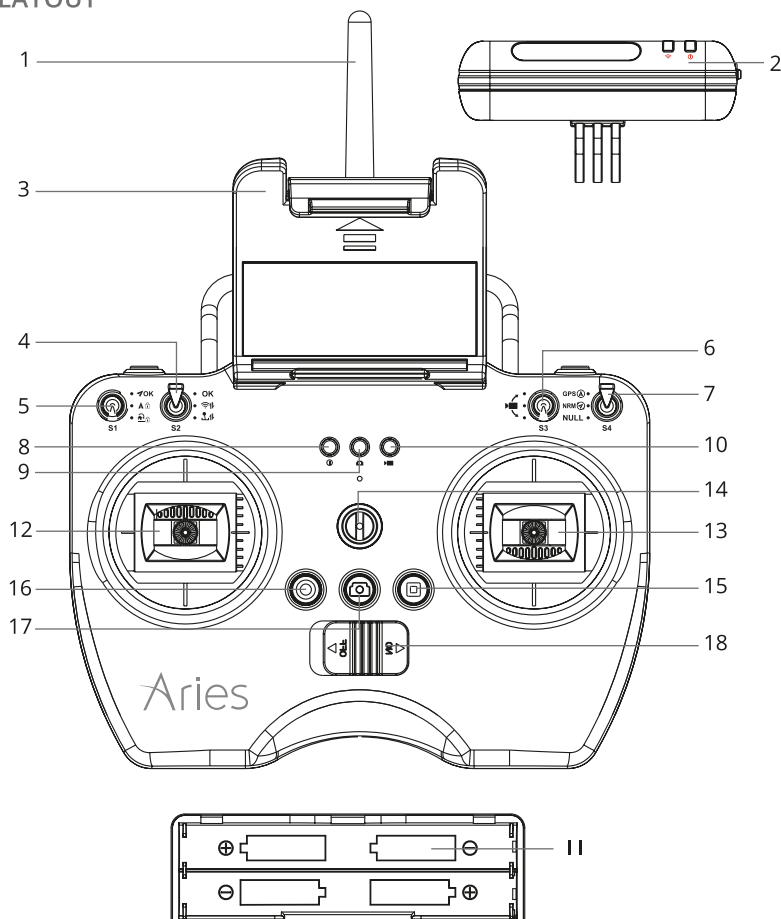
1. Antenna
2. Repeater
3. Mobile Device Mount
4. 3-position Switch S2
5. 3-position Switch S1
6. Camera Angle Control S3
7. 3-position Switch S4
8. Transmitter Power Indicator
9. Photo Capture Indicator
10. Video Recording Indicator
11. Battery Compartment
12. Left Stick ("Up & Down" controls Throttle, "Left & Right" controls Yaw)
13. Right Stick ("Left & Right" controls Roll, "Front & Back" controls Pitch)
14. Strap Hole
15. Video Stop Button
16. Airborne Video Recording Button
17. Airborne Photo Capture Button
18. Transmitter Power Switch

▶ SWITCHING ON THE TRANSMITTER

1. Install 4 AA batteries into the battery compartment as per positive and negative directions.
2. Ensure the two sticks are in the center position. Push switches S1and S2 to the top position.
3. Push the transmitter switch to ON position, to switch on the Transmitter.
4. After switching on the transmitter, the power indicator remains on and is red.

- Before each use, make sure the transmitter has sufficient battery charge. If the charge is too low, the transmitter will sound a lower power alarm. Please replace the battery immediately.
- Please remove batteries, if you do not intend to use the transmitter for a long time.
- After the batteries after depleted, please remove the batteries and follow the battery instructions for recycling.

▶ ANTENNA SIGNAL DESCRIPTION

Make sure keep the transmitter antenna points skyward, and try to maintain no obstacle between the transmitter antenna and the receiver antenna, in order to achieve maximum communication range during flight.
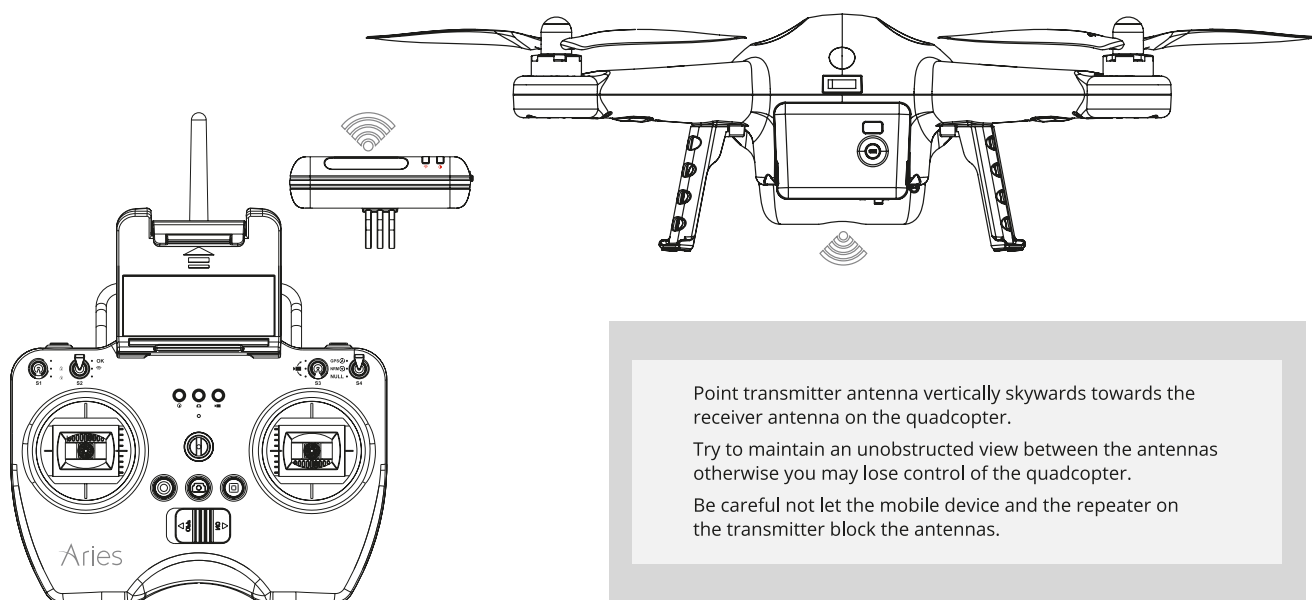
Point transmitter antenna vertically skywards towards the receiver antenna on the quadcopter.
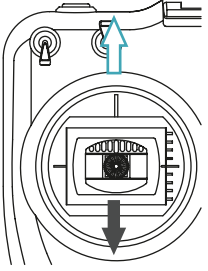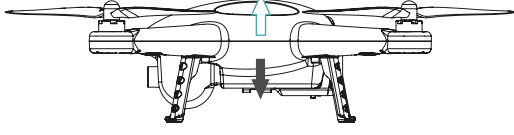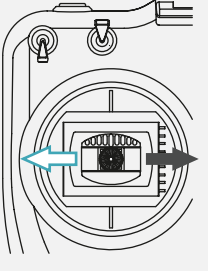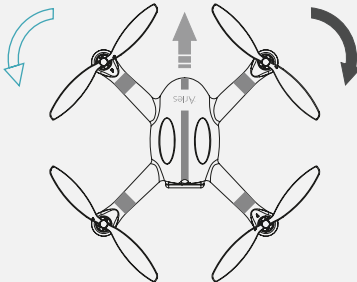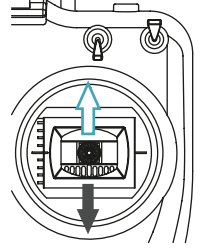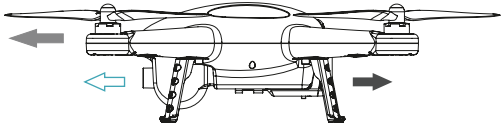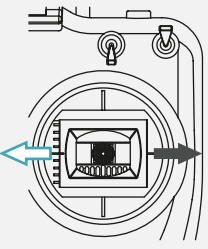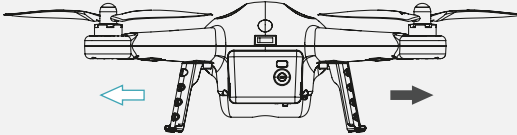
Try to maintain an unobstructed view between the antennas otherwise you may lose control of the quadcopter.

Be careful not let the mobile device and the repeater on the transmitter block the antennas.

Stick back to center/neutral: Throttle stick of the transmitter is set at the center position.
Stick deviation distance: The distance the transmitter stick deviates from the stick center position.

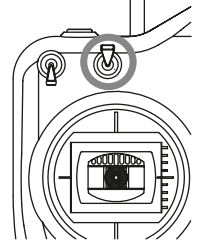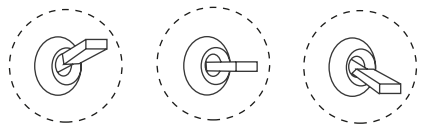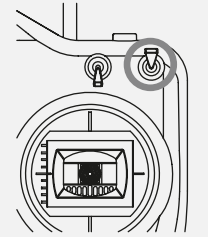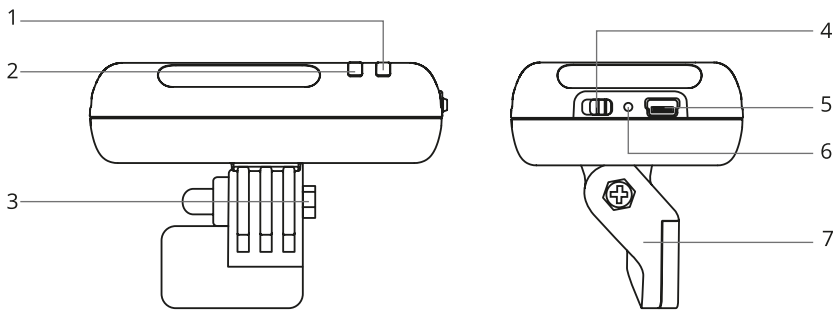| Transmitter	Quadcopter Direction (Towards the ⬅)	Control Method
		The throttle stick controls quadcopter elevation. Push the stick up and the quadcopter rises. Pull the stick down and the quadcopter descends. Keep the stick at the center position, and the quadcopter hovers at that particular height (height is automatically set). Push the throttle stick upwards over the centered position to make quadcopter take off from the ground. (Please push the throttle stick slowly to prevent the quadcopter from suddenly and unexpectedly rising).
		The yaw stick controls the quadcopter rudder. Push the stick right and the quadcopter rotates clockwise. If the stick is centered, the quadcopter flies in the same direction without rotating. The stick controls the rotating angular velocity of the quadcopter. Move the stick to increase quadcopter rotation velocity.
		The pitch stick controls the quadcopter's front & back tilt. Push the stick up and the quadcopter will tilt and fly forward. Pull the stick down and the quadcopter will tilt and fly backward. The quadcopter will keep level and straight if the stick is centered. Move the stick faster to increase the tilt angle (maximum is 35 degrees), and faster flight velocity.
		The roll stick controls the quadcopter left & right tilt. Push the stick left and quadcopter will tilt and fly left. Push the stick right and the quadcopter will tilt and fly right. The quadcopter will keep level and straight if the stick is centered. Move the stick faster to increase the tilt angle (maximum is 35 degrees), and faster flight velocity.
	Position-1 Position-2 Position-3	S2 switch is used to calibrate the throttle position. Toggle the S2 to position 3 to start the transmitter. Toggle the throttle stick from left to right and back to left in a circle, to make the stick touch the maximum positions. After doing this for about 5-8 times, toggle S2 to position 1, the Video Recording Indicator lights up (green), and calibration is completed.
	Position-1 Position-2 Position-3	S4 switch is the flight mode toggle switch. Position 1 is GPS mode, Position 2 is NRM mode, Position 3 is Null (Reserve)

- In GPS mode, when all sticks are in the neutral position, the quadcopter hivers at a fixed-point.
- In Normal mode, when all sticks are in the neutral position, the quadcopter remains level, but may drift in a horizontal direction.

FREQUENCY PAIRING BETWEEN TRANSMITTER AND RECEIVER

▶ FREQUENCY PAIRING PROCEDURES

- Keep the transmitter power OFF and turn on the quadcopter, the quadcopter Front/Rear indicators as well as Tail indicator light up. When you hear a "beep" sound, switch on the transmitter, the Video indicator lights up, indicating frequency-pairing has commenced. When the Tail Indicator (red) continuously blinks fast, the link between the transmitter and receiver is successfully established.
- After the link is established, turn on the transmitter, and then power on the quadcopter. The Tail Indicator starts blinking fast, indicating frequency-pairing is successful.

PREPARING THE REPEATER

ARIES repeater is a wireless communication device that works in the 2.4GHz frequency band, and is used to increase the effective communication distance between the mobile and ARIES. Communication distance is affected by the surrounding environment, such as blockages due to trees, signal reflection by buildings, interference by other same frequency bands, ect., affecting effective communication distance.

Before flight, make sure the repeater works properly, otherwise the connection cannot be established between the mobile device and ARIES.

▶ LAYOUT

1. Power Indicator
2. WiFi Indicator
3. Lock Screw
4. Power Switch
5. Charging Port (Mini USB port)
6. Pairing Button
7. Base

▶ WiFi INDICATOR
Indicates Repeater's WiFi status

WiFi Indicator	Description
Blue Light Remains On	Repeater startup completed.
Blue Light Fast Blink (1.5s OFF, 0.3s ON)	Repeater is paired with the onboard camera.
Blue Light Slow Blink (3s ON, 0.3s OFF)	Successfully paired repeater with onboard camera.

▶ POWER INDICATOR
Indicates Repeater's power supply status

Power Indicator	Description
Green Light Remains ON	Repeater power supply is normal.
Red Light Blinks	Repeater is charging, or repeater power is running out, please charge as soon as possible.
Red Light Remains ON	Charging is completed.

- It is not recommended to turn on the repeater while it is charging.

▶ PAIRING BUTTON

When the repeater is on, long press the Pairing button for 3 seconds, the repeater will automatically restart for code re-pairing.
Short press the Pairing button to check repeater power level.

Short press Pairing button	Press Pairing button once:
	If Power Indicator blinks once, indicates that repeater has over 80% charge remaining.
	If Power Indicator blinks twice, indicates that repeater has over 50% charge remaining.
	If Power Indicator blinks three times, indicates that repeater is running out of power.
Long press Pairing button (3 seconds)	Repeater restarts and you can re-pair codes.

If the Wi-Fi indicator quick blinks blue (1.5 seconds OFF, 0.3 seconds ON), or remains on, please re-pair in the following steps.

CODE PAIRING

- Switch on the transmitter power switch, quadcopter power switch and repeater power switch respectively.
- When WiFi repeater's blue light indicator is on, the repeater is working normally. Toggle S2 switch on the transmitter to the center position from "OK", and then toggle back to "OK".
- Press the repeater pairing button for 3s. The WiFi repeater blue light indicator slow blinks (0.3s on, 3s off). This indicates the repeater has successfully paired with the onboard camera. If pairing fails, please repeat steps 2 and 3.

HOW TO USE

▶ **CHARGING THE REPEATER**

Connect the repeater Mini USB port to the charger/adapter to charge the repeater. It takes about 2 hours to fully charge.

● Before each flight, make sure the repeater has sufficient charge.

▶ **SWITCHING ON THE REPEATER**

1. Toggle repeater power switch to ON to switch on the repeater.
2. Wait until the WiFi indicator blinks blue, indicating that the repeater works properly.
3. While using this device, ensure the repeater's LED side faces you, and try to ensure that visibility between the repeater and quadcopter is unobstructed, to obtain maximum communication distance.

● After the flight is completed, in addition to switching off the quadcopter and transmitter, be sure to turn off the repeater, to avoid depleting the repeater's battery.

▶ **CHECK BATTERY STATUS**

In ARIES APP camera interface, you can display and view ARIES power information.

● You can see ARIES power information on the upper left corner of the camera interface.

▶ **CONNECTING TO THE CAMERA**
The procedures to connect the camera and the mobile device are as follows:

1. Turn on the transmitter and repeater.
2. Turn on ARIES.
3. Turn on WiFi on the mobile device. Wait for approximately 30 seconds, and select "BBX10" from the WiFi network list. Type in the WiFi password. Default password is "Aries123".

4. Touch the ARIES APP to launch the app as shown in the below figure. The app interface appears on the mobile device.

Select this network and enter the password "Aries123" to join the network.
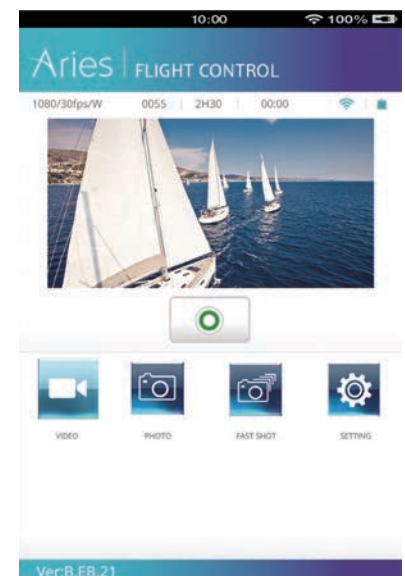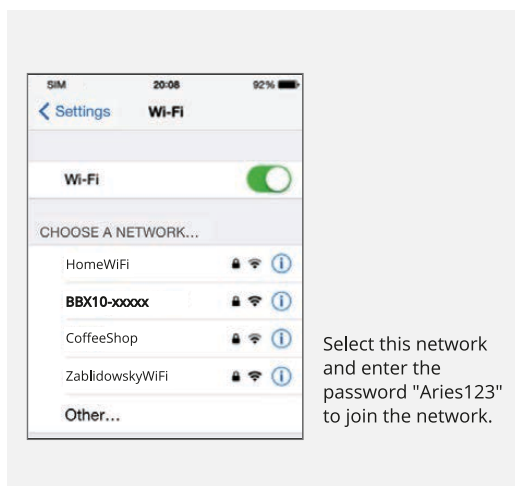
5. Touch "CONNECT", to establish connection between the mobile device and camera. After successful connection the app will navigate to the APP preview interface. If you can see real-time camera preview on screen, it indicates that the mobile device has successfully connected with the camera.

If the connection fails, you will see the "connection error" message. Please check your network connection is working properly and try to connect again.

DOWNLOADING AND INSTALLING ARIES APP

Search "FLY ARIES" in the App/Play Store, and download and install the app on your mobile device.

Aries

FLYING ENVIRONMENT REQUIREMENTS

- Do not use the quadcopter in inclement weather, such as strong winds (wind speed 4 and above), snow, rain and fog.
- Select an open area with no tall buildings as the flying site. The presence of a large number of steel buildings in the area will affect the compass.
- While flying the quadcopter, please stay away from obstacles, people, power lines, trees, shelters, water bodies, ect.
- Do not fly in a complex electromagnetic environment (such as near mobile phone base stations or towers) to avoid transmitter interference.
- This product cannot be used in the Antarctic and Arctic Circle.
- Do not fly in restricted or no-fly zones and abide by relevant laws or regulations.
- Ensure that you transmitter and pilot have an unobstructed view of the intended flying area.

▶ **BEFORE YOU TAKE OFF, ALWAYS PLAN A LARGE AREA WHERE YOU INTEND TO LAND. TAKING OFF FROM A 4 FOOT WIDE A BALCONY IN MIDTOWN NYC IS NOT A GOOD IDEA.**

FLYING THE QUADCOPTER

After installation, please conduct flight training (for example: Flight simulator training or professional training).

Please use the quadcopter in an appropriate flying environment.

PRE-FLIGHT CHECK:

- Ensure transmitter, quadcopter, repeater and mobile device are fully charged.
- Ensure rotor blades are correctly installed.
- Ensure the Micro SD card is properly inserted before using the camera to capture images and videos, and that the Micro SD card cover is closed.
- After powering on the quadcopter, transmitter and other equipment, please ensure they are working properly.
- Check if the motors start properly after the quadcopter is switched on.
- Check if the ARIES APP is properly connected to the camera.
- Check if the battery lock is engaged.

▶ COMPASS CALIBRATION

Compass calibration is required before first time use.
Otherwise the system may not work properly, affecting flight safety.

The compass is susceptible to interference from other electronic devices, resulting in data anomalies, affecting the flight of even leading to accidents. Frequent calibration ensures the compass works appropriately.

- Do not calibrate the compass in a strong magnetic field.
- Do not carry ferromagnetic material, such as keys, cell phones, etc., while calibrating the compass.
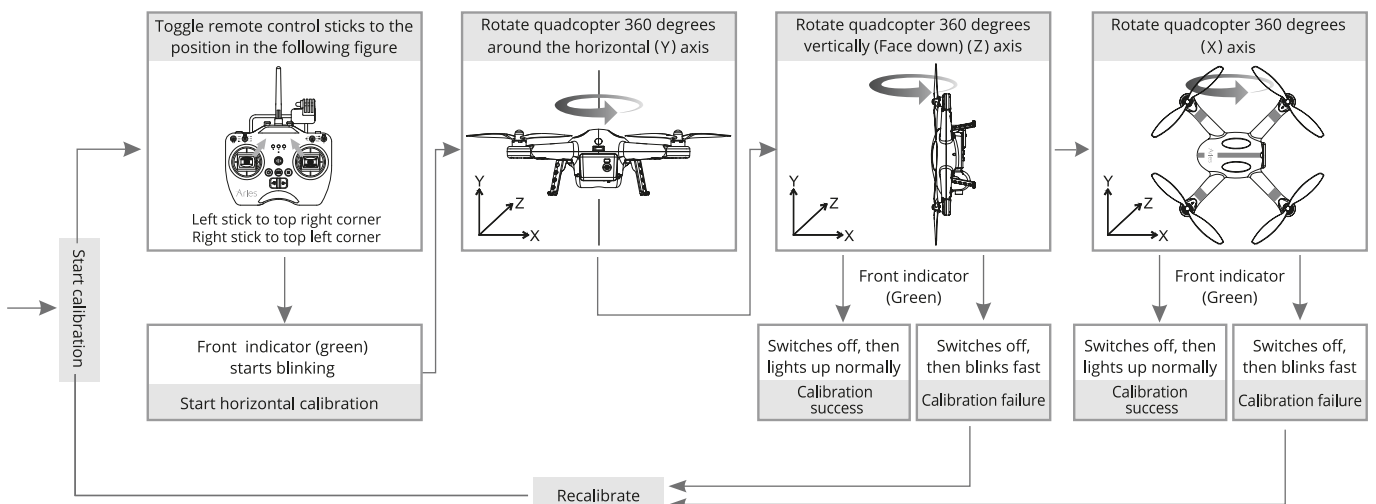
▶ CALIBRATION PROCEDURES:

Please choose a large, open area to conduct calibration.
Start the transmitter and quadcopter and ensure the equipment work properly.

Follow the below procedures to calibrate the compass:

- Be sure to remove rotor blades before calibration, to avoid accidental injury or damage.

▶ SITUATIONS WHEN RECALIBRATION IS REQUIRED

- Compass data anomalies. Front indicator blinks fast.
- Flight venue is far from the place where last compass calibration was conducted.
- There are changes in quadcopter's physical structure.
- The quadcopter drifts a lot while flying or it cannot fly straight.

STARTING / STOPPING THE MOTOR

▶ ## STARTING THE MOTOR

Toggle the sticks as shown in the illustration (Combination Stick Command [CSC]) to start the motor.
After the motors start, please release the sticks immediately.
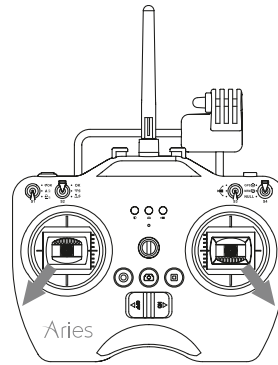
Toggle left stick to left bottom corner.
Toggle right stick to right bottom corner.

▶ ## STOPPING THE MOTOR

After the motor starts, there are two ways to stop it.
Method One (Figure 1): In case of emergancy or if the X-10 is snagged, perform CSC, the motors will immediately stop. Release the sticks after the motors stop.

Method 2 (Figure 2): After the Quadcopter lands, toggle the throttle stick to the lowest position and hold for 3 seconds to stop the motor.
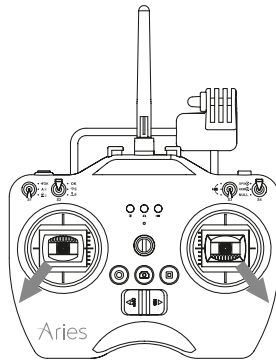
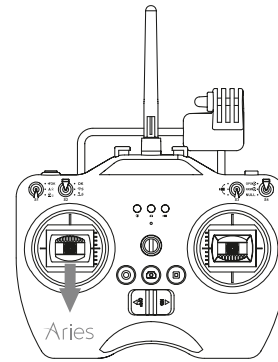Figure 1   Figure 2

- Do not stop the motor during flight, or else the quadcopter may crash.
  When performing CSC, toggle the sticks quickly and accurately.
  Release the sticks after the motors start or stop.

BASIC FLIGHT

▶ ## BASIC FLIGHT PROCEDURES

- Place ARIES on a flat and open ground, and ensure the battery indicator faces toward you.
- Turn ON the transmitter, repeater and quadcopter.
- Run ARIES APP, connect the mobile device and ARIES, and navigate to the camera preview screen.
- Wait until the tail indicator blinks slowly. The quadcopter enters a safe flying state. Perform CSC to start the motor.
- Push up the throttle stick slowly to smoothly take-off the quadcopter. Please refer to transmitter control instructions for detailed control procedures.
- Use the ARIES APP to take photos and videos, and enjoy the flight. For details, please refer to Using ARIES APP section.
- When landing, slowly pull down the throttle stick to make the quadcopter descend slowly to the ground.
- After landing, pull the throttle stick to the lowest position and hold for more than 3 seconds until the motors stop.
- After motors stop, turn off the quadcopter, repeater, and transmitter one after the other.

AERIAL PHOTOGRAPHY TIPS AND TRICKS

- Perform pre-flight checks.
- Try to take pictures or videos during safe flight status.
- Try to capture photos and record videos in sunny weather with little wind.
- Set camera settings as per shooting requirements, such as video resolution, picture size, etc.
- Carry out a trial flight before actual flight to help plan the route and frame your photos and videos.
- During flight push the throttle stick as slowly as possible, to ensure the quadcopter can fly smoothly.
- Follow the "Blue Sky" rule. To avoid crashes, always increase the blue sky visible between obstacles and the quadcopter, this ensures accidents are not caused due to errors of depth perception.
- During flight if all 4 arm indicators slow blink or fast blink, it indicates the quadcopter has entered a low battery state. Please refer to the battery warning functions for details.

FAILSAFE PROTECTIONS

With the Failsafe mode, if the quadcopter loses the signal from the transmitter
(i.e., you lose control), the Automatic Flight Control system will control the quadcopter,
return it to the starting point and land it safely.
This reduces chances of the quadcopter getting lost or crashing if transmitter signal is lost.

- Home Point : Indicates the quadcopter's position when the quadcopter's GPS successfully scans and connects to the satellite. Usually this is where you turned on the quadcopter.

▶ SCENARIOS WHEN QUADCOPTER ENTERS FAILSAFE MODE

- When transmitter is turned off or runs out of batteries.
- The flight distance is beyond the effective range of the transmitter signal.
- There are obstructions between the transmitter and the quadcopter.
- There is interference in transmitter signal.

▶ FAILSAFE AND RETURN PROCEDURE

In case you lose control of the quadcopter during flight, the quadcopter will
automatically follow the following steps:

- The quadcopter automatically slows down and hovers in one location.
- If the quadcopter regains signal from the transmitter within 2 seconds, flight control returns to Normal mode, and the quadcopter will not enter Failsafe mode and will not automatically fly back to the Home Point.
- If the quadcopter does not regain signal from the transmitter within 2 seconds, the quadcopter enters Failsafe mode, and initiates automatic flight control to fly back to the Home Point. The quadcopter will now continue to hover for 15 seconds and evaluate vertical distance to the Home Point. If the distance is more than 15 meters, the quadcopter will commence to fly back to the Home Point. If the distance is less than 15 meters, the quadcopter will fly up vertically 15 meters higher than the home point, and then commence to return. When the quadcopter reaches the Home Point it will hover for 5 seconds and then automatically land.
- To ensure the quadcopter successfully flies back to the Home Point when it is in Failsafe mode, please take off only after the quadcopter's GPS successfully connects to the satellite.
- The quadcopter cannot automatically avoid obstacles in its path when it is flying in Failsafe mode.

▶ HOW TO REGAIN CONTROL OF THE TRANSMITTER

When the quadcopter is out of control, toggle the S4 switch on the transmitter
down and then back up several times to switch flight mode.

When the signal is restored, the transmitter will regain control, and you
can continue to use the transmitter to operate the quadcopter.

USING ARIES APP

Use the ARIES APP to control the
quadcopter camera.
It can be used to configure video and
camera settings, controlling the camera
angle and for capturing images and
videos. It can also display quadcopter
status and current settings.

DOWNLOAD AND INSTALL ARIES APP

To use the ARIES APP, please download
the app and install it on your mobile
device. Please ensure your mobile
device is connected to the internet,
enter the "App/Play Store",
type "FLY ARIES" in the search field and
search. You will find the application icon
shown in the search results.

Aries

Touch the icon to install the app, and
follow the prompts to complete
installation.

BATTERY LEVEL ALARM FUNCTION

When quadcopter battery power is low, you must land it as soon as possible, or else it may lose power completely and crash, damaging the quadcopter and creating a dangerous situation.

In order to prevent danger caused by low battery, the quadcopter has a two-level battery alarm function. Level 1 is a Low Power alarm and Level 2 is a Severe Low Power alam that is indicated by the flight indicator lights.

Low Power Alarm	Flight Indicator Light Status	Low Power Risk Prompt
Level 1 Alarm	4 arm indicators Slow Blink (blinks on and off in 1s intervals)	Quadcopter flies normally for 3 minutes and then initiates Level 2 alarm. Be cautious while flying. Keep the quadcopter within sight and do not to fly too high or too far.
Level 2 Alarm	4 arm indicators Fast Blink (blinks twice within 1s)	Quadcopter flies normally for 3 minutes and then initiates Failsafe mode and starts to automatically land. Under such a situation, please return and land the quadcopter as safely as possible, and do not push the throttle hard or make sudden movements during flight.

During low-power automatic landing, you can regain control of the quadcopter by switching the flight mode. However, do not do so repeatedly, as it may:

- Reduce battery service life due to over discharge.
- Quadcopter may crash due to insufficient power.

▶ STARTING ARIES APP

CONNECT TO ARIES SYSTEM NETWORK

Before you start using the APP, you need to connect to the ARIES system network. The procedures are as follows:
Navigate to mobile device "Settings" - "Wi-Fi" page.
Locate the "BBX10" network in the "Select Network" list.
Select this network, enter the password (default password is "Aries 123"), and connect to the network.

SIM	20:08	92%
‹ Settings	**Wi-Fi**	

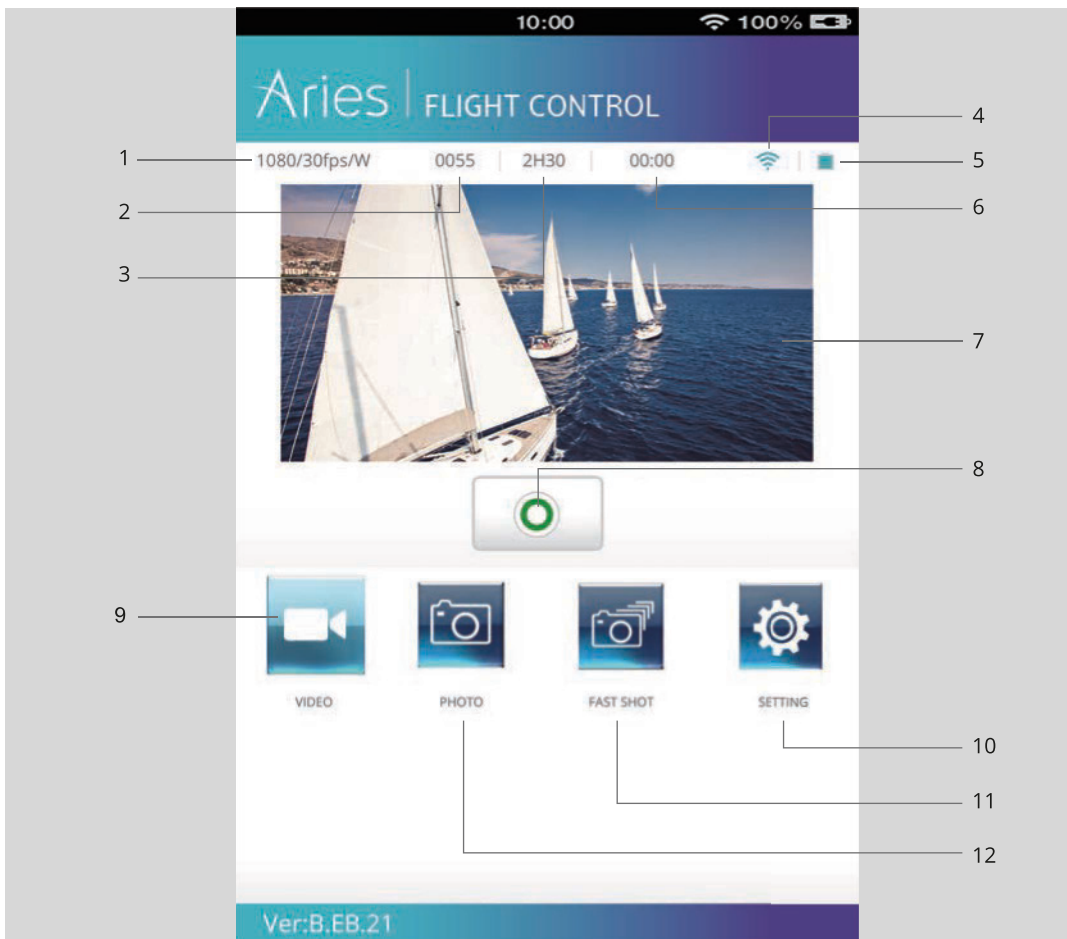| **Wi-Fi**	⬤
CHOOSE A NETWORK...	
HomeWiFi	🔒 📶 ⓘ
BBX10-xxxxx	🔒 📶 ⓘ
CoffeeShop	🔒 📶 ⓘ
ZablidowskyWiFi	🔒 📶 ⓘ
Other...	

Touch the ARIES APP icon to launch it.
The app will display the below interface on the mobile device:
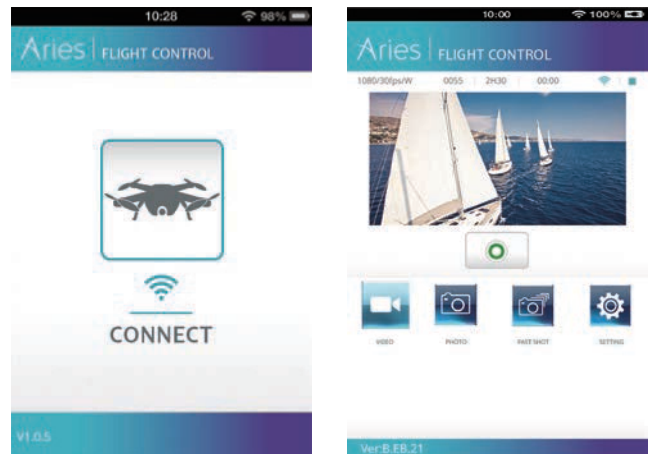
- Touch "CONNECT", to establish connection between the mobile device and camera. After connection is successful, the app will display the APP preview interface.
- If connection fails, you will see the "connection error" message. Please check if your network connection is working properly, and then try to connect again.
- If you receive a phone call on the mobile device while flying the quadcopter, the mobile device will display the Call screen. Do not answer phone calls while the quadcopter is flying as it may distract you and affect flight safety.

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After successfully connecting to ARIES APP, you can see the APP preview screen as shown in the below figure.

No.	Function	Description
1	Video Resolution	Maximum video resolution is 1080P / 30fps (N system), 1080P / 25fps (P system).
2	Number of files stored in Micro SD card	0007 indicates there are 7 files stored in the Micro SD card.
3	Camera available shooting duration	0H55 indicates under current camera settings, the Micro SD card can store a further 0 hours 55 minutes of video.
4	WiFi signal strength	The Wi Fi signal strength between ARIES and Wi-Fi repeater.
5	ARIES power level	ARIES Battery level.
6	Recording time	When the camera starts recording video, recording time will be displayed.
7	Video Preview window	Watch videos recorded in real time.
8	Operation Button	Operation button has different functions in different shooting modes: Recording mode: Press "Operation button" to start video recording; Press "Operation button" again to stop recording. Camera mode: Press "Operation button" once to capture photo. Snapshot mode: Press "Operation button" once to capture photos.
9	Video Recording Mode	In this mode, the airborne camera can record videos.
10	Settings Button	View and configure airborne camera settings.
11	Snapshot Mode	"Snapshot mode" toggle button.
12	Camera Mode	"Camera mode" toggle button.

The preview screen is always shown in portrait mode. Even when the mobile device is turned sideways, the APP's interface remains in portrait mode. Touch the "preview" area to change the APP interface to video preview interface screen, which supports both portrait and landscape orientations.
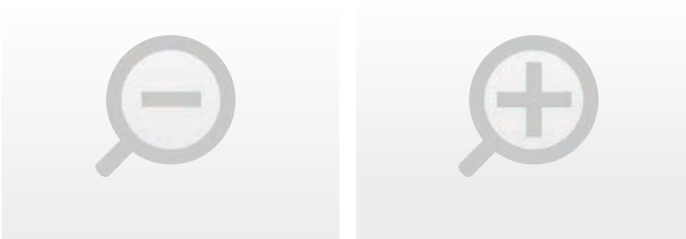
▶ **VIDEO INTERFACE**

Touch the "preview" area to enter the video interface as shown in the picture below.
When the mobile device is horizontal, the APP interface will also change to landscape mode as shown in the picture.


The main interface and video interface function buttons are essentially the same,
except there are two additional function buttons for zoom in the video interface.

Other function buttons have same functions as in the main interface.

▶ **SETTINGS INTERFACE**

When the ARIES APP is successfully connected to the mobile device, we can change camera and
video settings in the setting menu, to meet different photo and video requirements.

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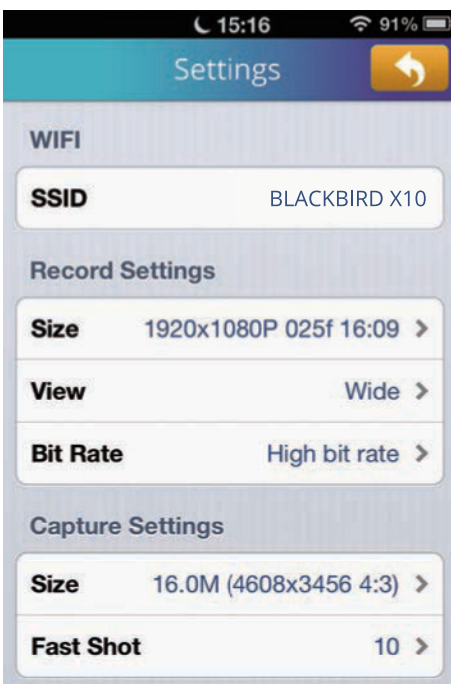
IN THE SETTINGS INTERFACE, YOU CAN VIEW / MODIFY AIRBORNE CAMERA PARAMETERS.

Menu	Settings	Description	Parameters	
WiFi	Wireless Network Name	Display the "Wireless Network Name" that phone is connecting to		
Recording Settings	Resolution	Set the video resolution.	PAL	NTSC
			1920×1080P 025f 16:09	1920×1080P 030f 16:09
			1280×0960P 048f 04:03	1280×0960P 048f 04:03
			1280×0960P 025f 04:03	1280×0960P 030f 04:03
			1280×0720P 050f 16:09	1280×0720P 060f 16:09
			1280×0720P 025f 16:09	1280×0720P 030f 16:09
			0848×0480P 100f 16:09	0848×0480P 120f 16:09
			0848×0480P 050f 16:09	0848×0480P 060f 16:09
	Angle	Set shooting angle for the lens.	Angles incl.: Wide / Medium / narrow / small	
	Bit Rate	Set video encoding bit rate.	Normal / High Rate	
Camera Settings	Resolution	Set camera still capture resolution.	8.0M (3264×2448 4:3)	
			12.0M (4096×3072 4:3)	
			16.0M (4608×3456 4:3)	
	Snapshots per second	Set the number of frames per second for snapshots.	3 / 6 / 10 frames	
Parameter Settings	Looped video recording	When memory card storage space is insufficient, choose this option to overwrite memory card contents.	Yes/No	
	TV output format	Select appropriate TV output format to record videos. Different output formats match different recording frame rates.	PAL/NTSC	
	Language	Select the camera language.	简体中文	
			繁體中文	
			English	
			Deutsch	
			Français	
			Italiano	
			Espanõl	
			Русс кий	
			Portugueŝ	
			日本語	
	Date / Time	Synchronize camera's date and time with mobile device		
	Format memory card	Format camera's Micro SD card.	Used to delete all memory card contents (Please maintain data backup before formatting the memory card).	
	Version	Displays camera's software version number.		
	Model	Displays camera model.		
Others	About	Display APP version information.		

● Users can configure airborne camera settings as per their own requirements.

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APPENDIX

▶ DESCRIPTION OF COMMON INDICATORS

Normal State	
Front and Rear Indicators are ON; Tail Indicator Fast Blinks	Enter normal mode
Front and Rear indicators Remains ON, Tail Indicator Slow Blinks	Enter GPS mode
Warnings and Abnormal State	
Front and Rear Indicators Slow Blinks	Low power alarm (first-level low power alarm)
Front and Rear Indicators Fast Blink	Severe low power alarm (second-level low power alarm)

Above indicator descriptions refer to common LED indicator states. For specific details, please refer to "Prepare the Quadcopter" in section 2.3 LED indicators.

▶ SPECIFICATIONS

Quadcopter	
Battery	5300mAh LiPo
Weight	1.4kg
Hover Accuracy	Horizontal: 2m , vertical: 1m
Maximum tilt angle	35°
Maximum climb / descent speed	Climb: 8m / s; Descend: 5m / s
Maximum flight speed	20m/s (Not recommended)
Wheelbase	450mm
Flight Time	25min
Camera	
Ambient operating temperature	0°C-50°C
Sensor Size	1/2.3
Effective Pixels	16 Megapixels (MP)
Resolution	4608x3456
HD video recording	Maximum 1080P / 30fps (N system), 1080P / 25fps (P system)
Transmitter	
Communication distance	500m
Working Hours	8h
Operating current / voltage	150mA/6V
Battery	4 AA Batteries
Repeater	
Operating Frequency	2.4GHz
Communication distance (open outdoors)	300m
Transmitting power	<=17dBm
Power Consumption	1.5W

COMMON TROUBLESHOOTING

▶ SOLUTION FOR TRANSMITTER STICKS CENTER (NEUTRAL) POSITION ERRORS

When there is a big difference in transmitter sticks neutral position, the motors cannot start when performing CSC. Errors in transmitter sticks neutral position usually occurs in two cases:

1. When quadcopter is ON and the stick (except throttle) is not in neutral position - Solution: Please move all transmitter sticks to neutral position, and re-start the quadcopter, to re-record the neutral position. If the problem persists, it may be caused due to:

2. Transmitter stick is over tuned, leading to a large shift in position, i.e., there is a large asymmetry in transmitter stick position - Solution: Recalibrate the transmitter.

a) Toggle S2 switch to position 3 ⟨⊚⟩ , start the transmitter, push left and right sticks and turn in circles (5-8 circles), so that the sticks touch all endpointpositions. Then toggle S2 switch to position 1 ⟨⊘⟩ , the video recording indicator (green) switches off, and calibration is completed.

b) Re-start the quadcopter, and pay attention if the quadcopter starts properly. If the problem cannot be solved by the above methods, please send the transmitter for repair.

QUADCOPTER IS VISIBLE BUT WiFi IS DISCONNECTED

Turn off the transmitter and let the quadcopter automatically return.

Make sure there are no obstructions on the quadcopter's return path, and ensure you are familiar with the procedures on how to regain control of the quadcopter.

WiFi COULD NOT BE RE-CONNECTED

This is probably because after the mobile device disconnects from ARIES's WiFi connection, the mobile device automatically connects to other WiFi networks.

Please check your mobile device is connected to the ARIES WiFi network.

PRECAUTIONS WHEN MULTIPLE MOBILE DEVICES USE THE APP AT THE SAME TIME

During flight if the APP is used on one mobile device and then shifted to another mobile device, please make sure you completely log out from the APP in the original mobile device, so that the APP can be normally used on the other mobile device.

This manual is subject to change. You can check the official ARIES website for the latest updated version.
www.ARIESFLIGHT.com

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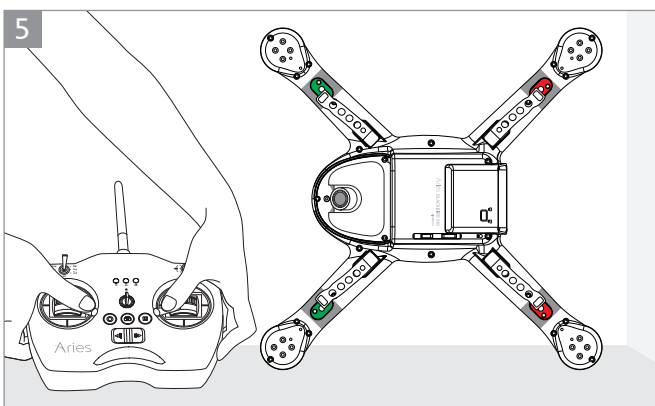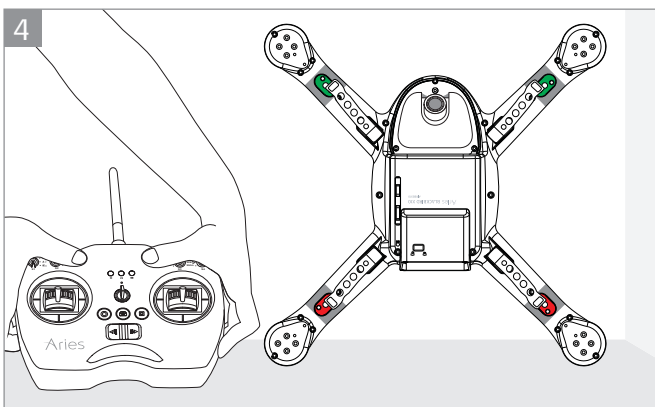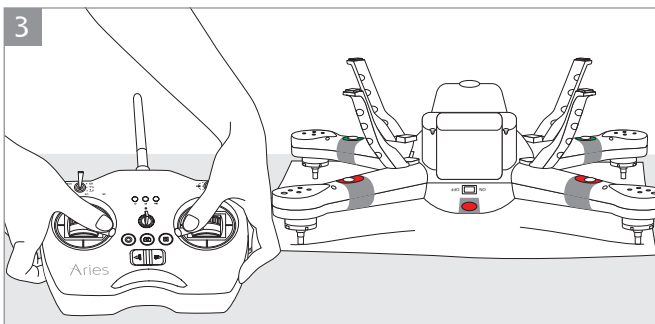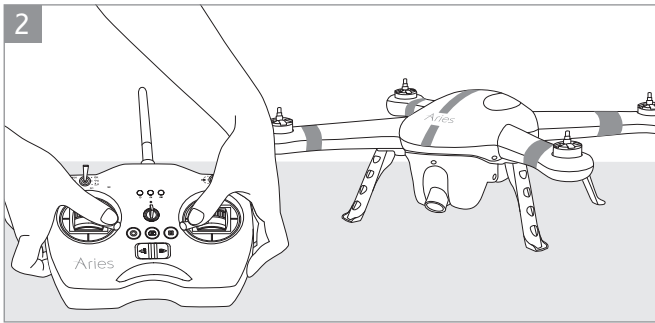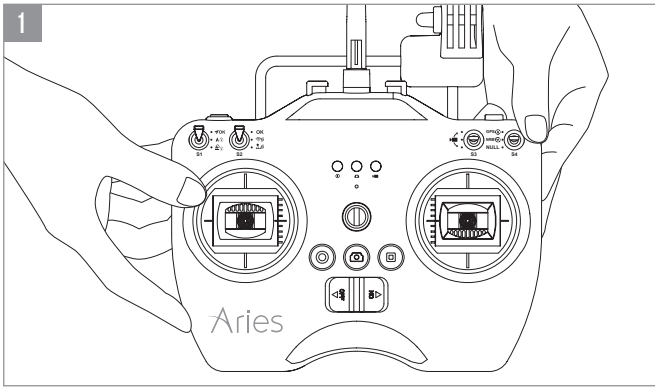
CALIBRATION INSTRUCTIONS

For safety reasons, all calibration should be done without the propellers installed. Make sure the fully charged battery is inserted and locked.

Place the X10 on a flat surface
Remote top row switch settings should be: (ILLUSTRATION #1)

Up, Up,   Middle, Middle   ▶ Turn on remote   ▶ Turn on X10   ▶ Wait

After initial startup and 3 tone beep, when you hear SINGLE tone and the rear indicators blink red fast (after around 30 sec), you are ready to begin.

▶ **Accelerometer Calibration**
Use optional foam/cloth pad, requires a flat surface and a wall.

1. Push both sticks to their lower INNER most position (ILLUSTRATION #2) until the wing lights on the X10 go off.
2. Release the joysticks and set aside the transmitter.
3. **DO NOT MOVE THE X10, THE ACCELEROMETER IS NOW CALIBRATING.**
4. When the lights come back on, the zone is calibrated.
   (make sure not to calibrate the same zone twice)
5. Place the X10 UPSIDE DOWN on a flat surface (slide the foam pad underneath to protect the surface) with the feet sticking up in the air. (ILLUSTRATION #3)
6. Follow steps 1- 4.
7. Stand the X10 against a wall with the "top" of the X10 against the wall, the legs away from the wall, and the camera pointed up in the air and battery toward the ground. (ILLUSTRATION #4)
8. Follow steps 1- 4.
9. Rotate the X10, (left) keeping the "top" against the wall, so the camera is now pointed left and the battery is pointed right. (ILLUSTRATION #5)
10. Follow steps 1- 4.
11. Rotate the X10, (left) keeping the "top" against the wall, so the camera is now pointed down and the battery is pointed up. (ILLUSTRATION #6)
12. Follow steps 1- 4.
13. Rotate the X10, (left) keeping the "top" against the wall, so the camera is now pointed right and the battery is pointed left. (ILLUSTRATION #7)
14. Follow steps 1- 4, as this is the final side it might take slightly longer to calibrate than the others Accelerometer calibration is complete.
   Turn off the X10 and the transmitter before using.
   If the Accelerometer calibration failed, the lights on the X10 will begin to flash, please redo the calibration.

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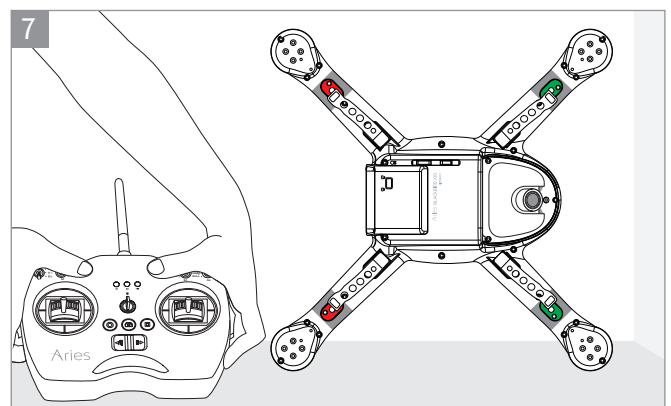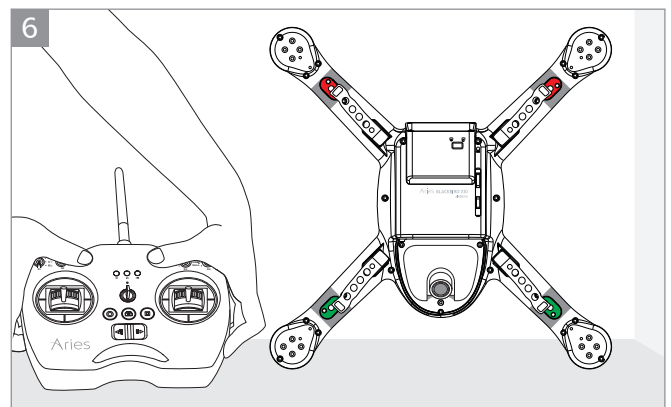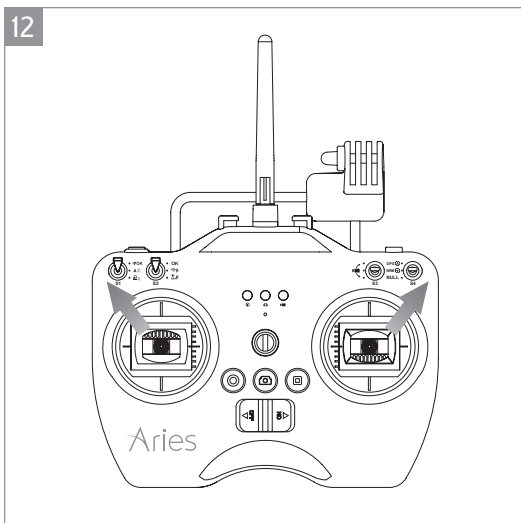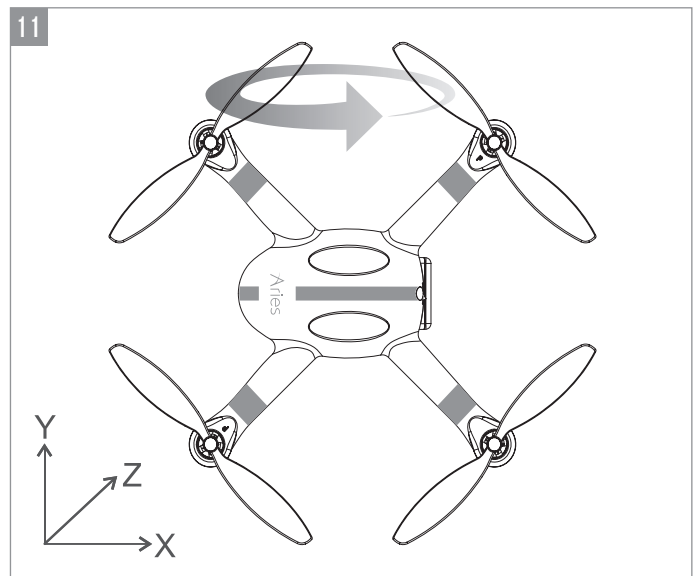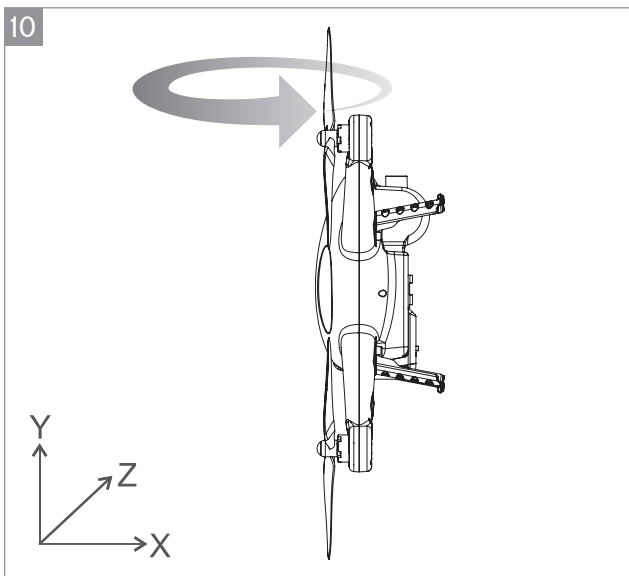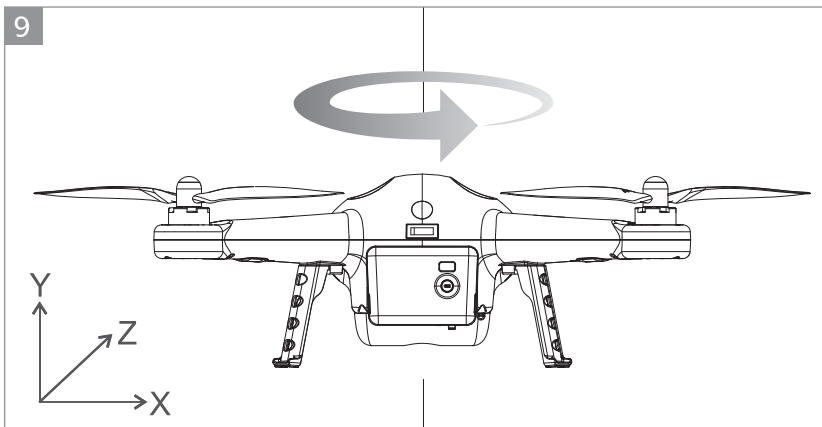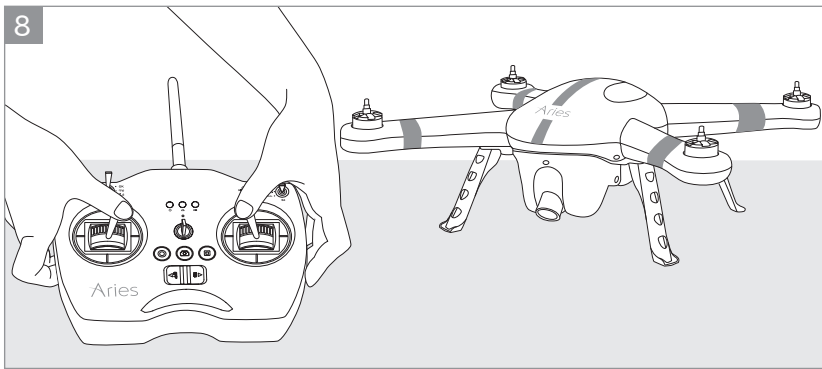
▶ Compass Calibration

Do this away from large metal items which can interfere with the compass.

1. Push both sticks to their UPPER INNERMOST position (ILLUSTRATION #8) until the green wing lights on the X10 begin blinking.

2. Release the joysticks and set aside the transmitter.

3. Lift the X10 while keeping it flat (oriented as if it were flying), and rotate it 360 degrees (ILLUSTRATION #9) while keeping the bottom flat towards the ground, until the green lights turn solid.

4. Then turn the X10 so the nose/camera is pointed straight up in the air, and rotate it 360 degrees (ILLUSTRATION #10) while keeping the battery towards the ground, until the green lights start blinking again.

5. Turn the X10 again so the camera and battery are pointed sideways and two of the arms are pointed up and two pointed down. (ILLUSTRATION #11) Rotate the X10 keeping the same 2 arms pointed up and 2 arms pointed down, until the lights go off.

6. Put the X10 on a flat surface, if the green lights light steady, it means calibration has been completed. If they blink, please redo the calibration.

▶ Gyro Calibration

Be careful not to move the X10 during calibration!

1. Push both sticks to their UPPER OUTER most position (ILLUSTRATION #12) until the red wing lights on the X10 begin blinking. Release the sticks.

2. When the red wing lights become solid, it means calibration has been completed. If the red lights begin to blink rapidly it means the calibration has failed. Please start again.

3. Switch off the X10, then the remote.