# MOZA Air

## User Manual

**GUDSEN**
INVENTED FOR VIDEO

MOZA

# Contents

# 1. Instruction

Thank you for choosing Gudsen. The MOZA Air is a professional handh
gimbal designed to create and capture cinematic camera movement. T
MOZA Air can support all mirrorless cameras and DSLRs up to 5.5 poun
The MOZA Air features advanced motor control technology, high-qua
materials, and industry leading software.

By using this product, you hereby signify that you have read this docum
carefully and that you understand and agree to abide by the terms a
conditions herein. You agree that you are solely responsible for your c
conduct while using this product. You agree to use this product only
purpose that are proper and in accordance with all terms, precautio
practices, policies, and guidelines Gudsen has made and may make availa

Gudsen reserves the right of final explanation for this document and
relevant documents relating to MOZA Air, and the right to make changes
any time without notice.

# 2. Packing list

### Gimbal X 1

MOZA Air Gimbal.
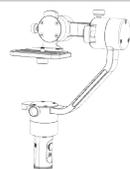
### Handgrip X 1

Main handle of the MOZA Air,
battery holder.
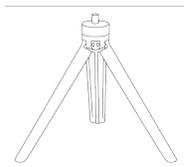
### Moza Air Modified Batteries X 3
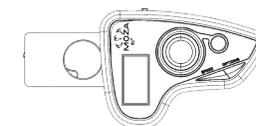
MOZA batteries.

### Charger X 1

MOZA charger.

### Tripod（Optional）X 1

Setup Stand.
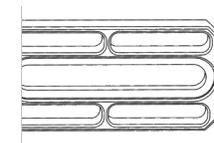
### Wireless Thumb Controller（Optional）X 1

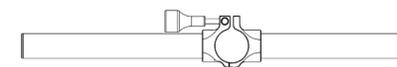Remote control of the gimbal.

### Lens Support X 1

Lens support.

### Lens Support Screw X 1

Screw for lens support.

### Dual Handle Bar X 1

Dual Handle Bar.

### Side Handle X 2

Handles for support.

# 3. Getting to Know the MOZA Air

## Control Cable X 3

camera control cables.
①Panasonic Control Cable
②Sony Control Cable
③Canon Control Cable

## USB cable X 1

For firmware update
or modification of parameters.

## Tool Bag X 1

Camera and gimbal
connection accessories.

## User Manual X 1

Instruction.
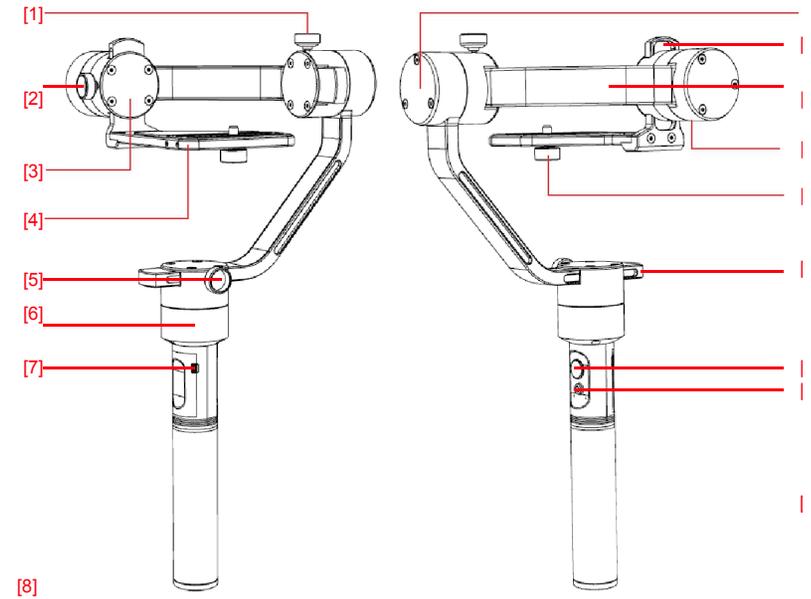


[1] Roll Adjustment Screw      [10] Tilt Adjustment Arm

[2] Tilt Adjustment Screw      [11] Roll Adjustment Arm

[3] Tilt Motor      [12] USB Output

[4] Camera Holder      [13] Camera Lock-knob

[5] Yaw Adjustment Screw      [14] Yaw Adjustment Arm

[6] Yaw Motor      [15] Joystick

[7] Micro USB Port      [16] On/off Button & Indicator

[8] 1/4"Screw      [17] Battery Handgrip

[9] Roll Motor

# 4.  Getting Started.

## 4.1  Battery Installation
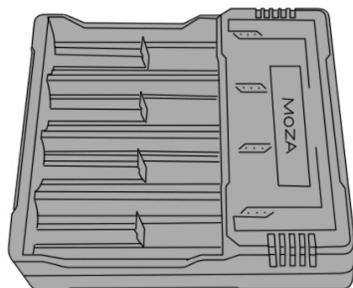
Please charge the batteries with the MOZA charger to ensure the best battery life for your MOZA Air.

## 4.2 Battery Safety Guidelines

WARNING

To avoid fire, serious injury, and property damage, observe the following safety guidelines when using, charging, or storing your batteries.

Battery Use

1.  Do not let the batteries to come into contact with any kind of liquid. DO NOT leave batteries out in the rain or near a source of moisture. DO NOT drop the battery into water. If the inside of the battery comes into contact with water, chemical decomposition may occur, potentially resulting in the battery catching on fire, and may even lead to an explosion.

2.  If the battery falls in to water by accident, put it in a safe and open a immediately. Maintain a safe distance from the battery until it completely dry. Never use the battery again, and dispose of the batt properly as described in the Battery Disposal section below.

3.  Do not extinguish any battery fire using water, sand, fire blanket or a powder fire extinguisher.

4.  Never use non-MOZA modified batteries. If replacement or backup needed , please purchase new batteries from http://www.gudsen.com.

5.  Never use or charge swollen, leaky, or damaged batteries. If y batteries are abnormal, contact Gudsen technical support or Guds authorized vendor for further assistance.

6.  The battery should be used in temperatures from 0-40℃. Use of battery in environments above 40℃ can lead to a fire or explosion. Use battery below 0 ℃ can lead to permanent damage.

7.  DO NOT use the battery in strong electrostatic environments . Otherwi the battery control board may malfunction.

8.  Never disassemble or pierce the battery in any way or the battery n leak, catch fire, or explode.

9.  DO NOT drop or strike batteries. DO NOT place heavy objects on batteries or charger.

10. Electrolytes in the battery are highly corrosive. If any electrolytes

make contact with your skin or eyes, immediately wash the affected area with fresh running water for at least 15 minutes, and then go to a doctor immediately.

11. DO NOT use the battery if it received impact from a fall or other accidents.

12. DO NOT heat batteries. DO NOT put batteries in a microwave oven or in a pressurized container.

13. DO NOT place lose battery cells on any conductive surface, such as a metal table.

14. DO NOT manually short-circuit the battery.

15. Clean battery terminals with a clean, dry cloth.

## Battery Charging

1. DO NOT attach the batteries to wall outlets or car charger sockets directly, always use a MOZA official charger. Gudsen takes no responsibility if the battery is charged using a non-MOZA official charger,

2. Never leave the battery unattended during charging. DO NOT charge the battery near flammable materials or on flammable surfaces such as carpet or wood.

3. DO NOT charge the battery immediately after use, because the battery temperature may be too high. Wait to charge the battery until it cools down to near room temperature. Charging the battery outside of the temperature range of 0-40℃ may lead to

leakage, overheating , or battery damage.

4. Disconnect the charger when not in use. Examine the charger regula for damage to the cord, plug, enclosure, or other parts. DO NOT cle the charger with denatured alcohol or other flammable solvents. Ne use a damaged charger.

## Battery Storage

1. Keep batteries out of the reach of children and pets.

2. DO NOT leave the battery near heat sources such as a furnace or hea DO NOT leave the batteries inside of a vehicle on hot days.

3. Always keep the battery in a dry place.

4. DO NOT store the battery fully discharged for long periods of ti otherwise it will over discharge and lead to permanent damage.

## Battery Maintenance

1. Never use the battery when the temperature is too high or too low.

2. Never store the battery in environments with a temperature higher th 60℃.

## Battery Disposal

Dispose of the battery in specific recycling boxes only after a compl discharge. DO NOT place the battery in regular trash containers. Stri follow your local regulations regarding the disposal and recycling of batterie

## 4.3  Mounting your camera

1.  Please place the camera in parallel with the mounting plate, aim the 1/4" threaded hole at the bottom of the camera with the empty slot of the mounting plate.

2.  Move the camera as closer as possible to the Tilt Motor, and slide the camera forward or backward to find the level balance.

3.  Once the camera remains still and level, then tighten the 1/4" screw to secure the camera position.
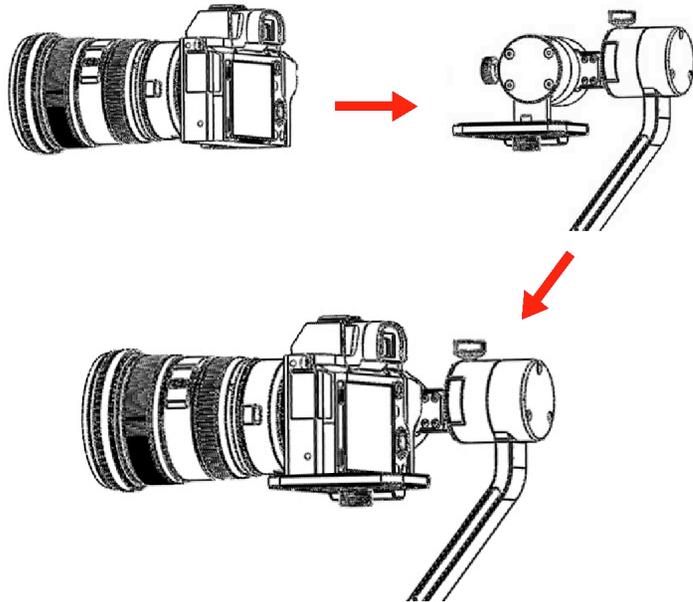
## 4.4  Balance the Tilt Axis

1.  Please loosen Tilt Adjustment Screw and adjust the Tilt Axis until remains still with the lens facing vertical or toward the ground.

2.  Tilt Adjustment Screw.
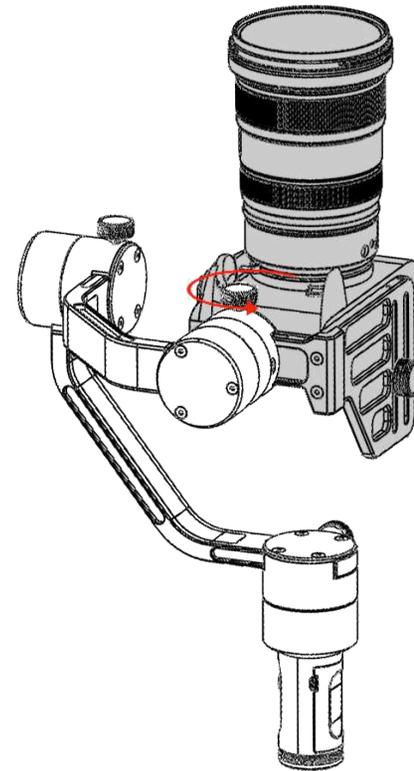
## 4.5  Balancing the Roll Axis

1.  Please loosen the Roll Adjustment Screw and adjust the Roll Axis until the camera remains still and level with the horizon.
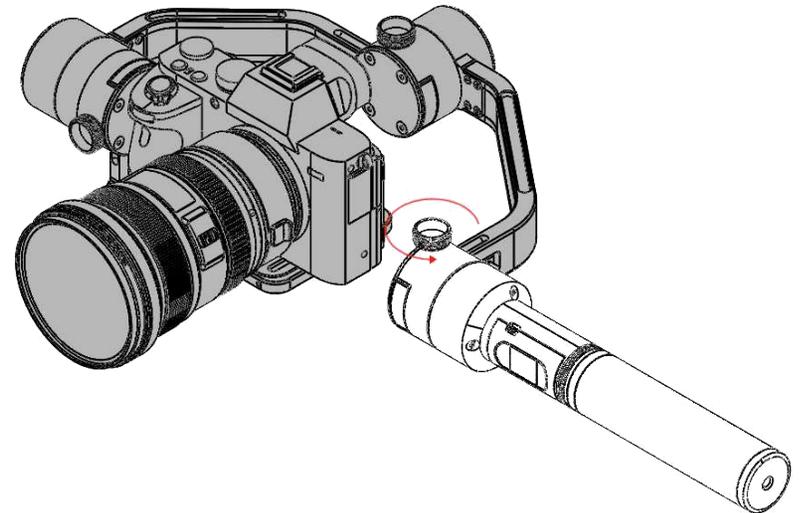
2.  Once balanced tighten the Roll Adjustment Screw.
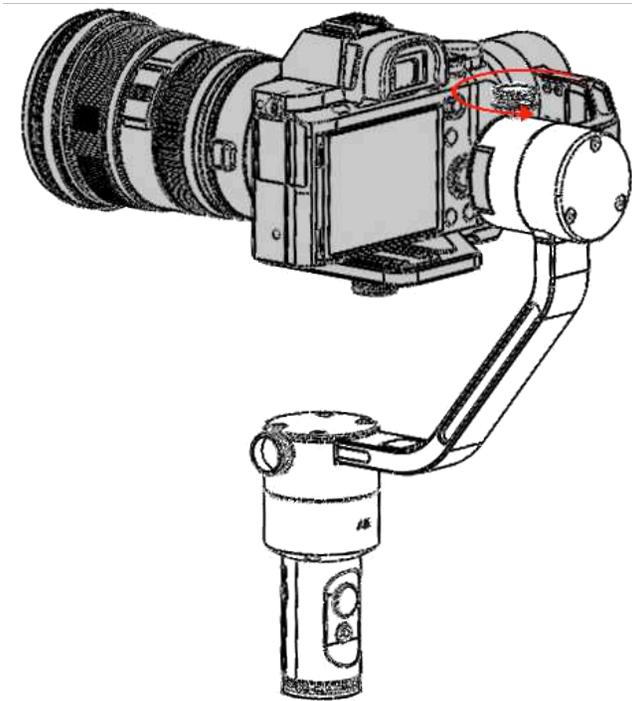


## 4.6  Balancing the Yaw Axis

1.  Please loosen the Roll Adjustment Screw and adjust the Roll Axis u the camera remains still and level with the horizon.

2.  Once balanced tighten the Roll Adjustment Screw.

## 4.7 Dual handle Setup

Install the two handle bars and secure them by screwing them into each side of the handle clamp. Loosen the lock-screw in the middle of the handle clamp. Then clamp onto the handgrip of the MOZA Air, adjust desired position and secure the lock-screw.
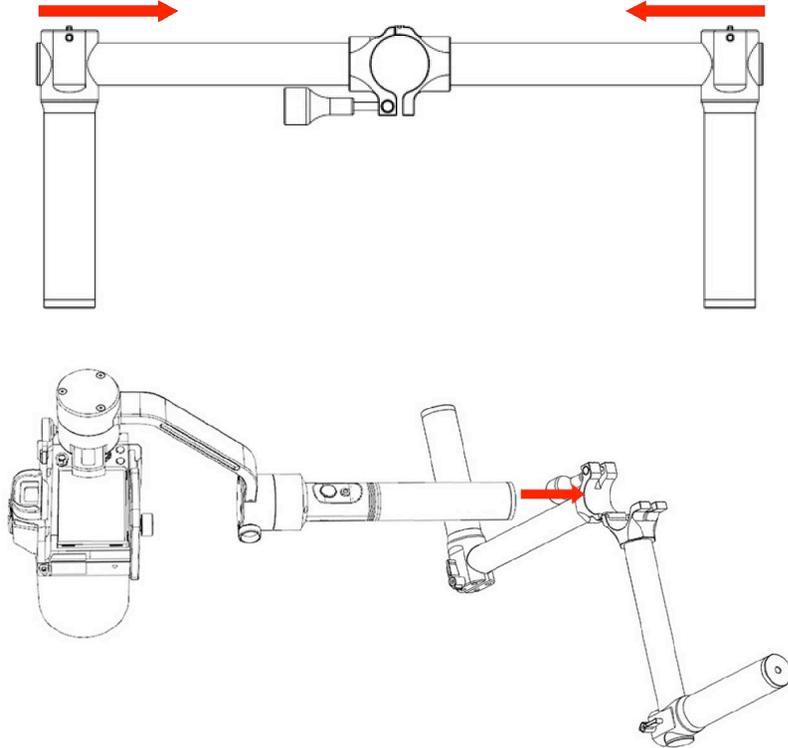
## 4.8 Camera Control Cables

Connect the camera to the Camera Connection (Mini-USB port) on the motor with the control cable. Please make sure the cable doesn't affect movement of the gimbal. When finished, test by pressing the Power on/ button on the MOZA Air to start/stop the camera's recording.

# 5.  Gimbal Controls

## 5.1  Handgrip controls

Available operation modes

1.  Yaw-follow mode: The Yaw Axis follow the movement while the Tilt and Roll Axes are locked.

2.  Tilt - Yaw follow mode: The Tilt and Yaw Axes follows the movement while the roll Axis is locked.

3.  All lock mode: All three Axes are locked.

4.  Roll-follow mode: The Roll Axis and Yaw Axes arefollow the movement while the Tilt and is locked.
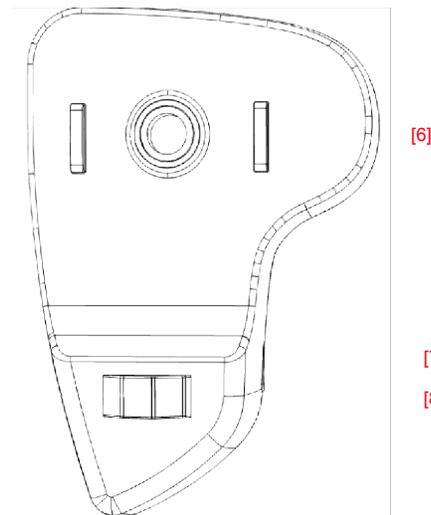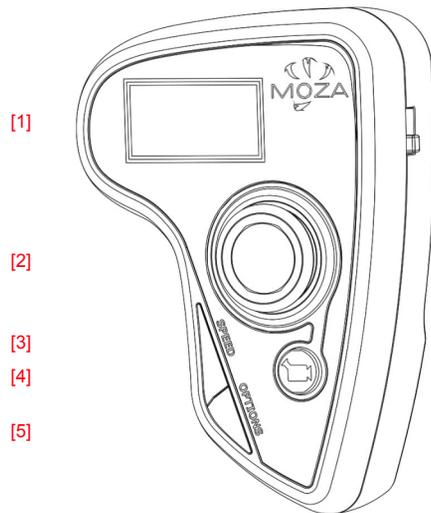
Joystick

1.  One quick press: Yaw-follow mode

2.  Double quick press: Tilt-yaw follow mode

3.  Triple quick press: All-lock mode.

4.  Four times quick press: Roll-follow mode.

Power button

1.  One quick press: Start/Stop recording

2.  double quick press: Photo-taking

3.  Triple quick press: auto-center

4.  Four times press: Roll control

5.  Long press: Power on/off the MOZA Air

# 6. Wireless Thumb Controller
## (Optional Accessory)

[1]

[2]

[3]
[4]

[5]

[6]

[7]

[8]

[1] OLED DISPLAY
[2] JOYSTICK
[3] SPEED BUTTON
[4] ON/OFF BUTTON
[5] OPTION BUTTON
[6] 1/4" SCREW
[7] USB PORT
[8] ROLLER

## JOYSTICK

1. MOZA Air gimbal remote control；
2. Up/down scrolling: Select the item at the menu.
3. Left scrolling: Go back to the upper menu.
4. Right scrolling: Go to the next menu or save the changes.

## SPEED BUTTON

1. Quick press to select the speed.（L,M,H）.
2. Long press to select between Focusing speed and gimbal moving spee

## OPTIONS button

1. Quick press to switch the follow mode (Default yaw-follow, yaw-pi
   follow, and all-lock).
2. Long press to enter the setting menu.

## ON/OFF BUTTON

1. Long press the button to power on/off the gimbal.
2. Quick press to start camera REC, quick press again to stop camera RE

## ROLLER

1. Use the Roller knob to control camera focus by rolling the knob lef
   right. Available for Canon camera with USM lens.
2. Twice quick press the roller to re-center the gimbal.

USB port

1. Charging the thumb controller.
2. Firmware update.

OLED Display Instruction

Gimbal Battery



Controller
Battery

Recording
Status

Speed

Main Menu

Long press Option Button to enter the main menu.

1. Pair: Pairing is necessary when you change the wireless thumb control
   gimbal or upgrade the firmware. Long press Option Button to enter
   main menu, then choose Pair and move the joystick right to enter
   secondary menu.
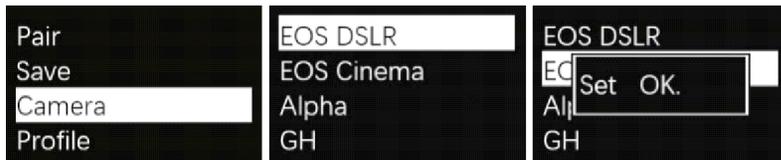
   Move the joystick down to choose the YES option, and move the joys
   right again to enter the Pairing mode. The interface of Pairing will appe
   Then turn on MOZA Air gimbal, the screen of the thumb controller sho
   OK in 5 seconds.



Note: If the OK confirm is not shown or you get a Pair ERR, please power c
      the gimbal then turn it on and try it again. If the pair

still fails, please check and update the firmware of your gimbal and wireless controller then try to pair them again (both devices must have the newest firmware installed).

2. Camera：Choose the camera type to control the camera start/stop recording.

| Pair | EOS DSLR | EOS DSLR |
|------|----------|----------|
| Save | EOS Cinema | EC Set  OK. |
| Camera | Alpha | Al |
| Profile | GH | GH |

Note: The gimbal must be on when selecting a camera type or ERR will display.

3. Profile: There are 4 sets of parameters. Choose which parameter that best fits the camera and lens setup used with the gimbal.

| Pair | AUTO | AUTO |
|------|------|------|
| Save | 0.5--1.5 Kg | 0.5 Set  OK. |
| Camera | 1.5--2.5 Kg | 1.5 |
| Profile | 2.5--3.5 Kg | 2.5--3.5 Kg |

4. Follow Speed: Gimbal movement speed along with the operator. Three follow modes are available.

| Follow Speed | Low | Low |
|--------------|-----|-----|
| Power | Middle | M Set  OK. |
| Calibrate | High | Hi |
| Habit | | |
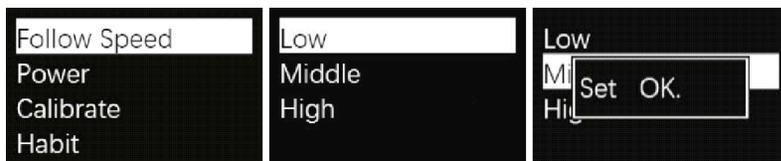
5. Power：Motor torque adjustment, please keep the original parameters.

6. Gyro Calibrate：Calibrate the Gyro, don't forget to turn off the mc before calibration.

7. Habits：Set the motor and joystick movement speed.

8. Motor：Turn on or off the motors.

9. Version : View the current firmware version of the wireless thu controller
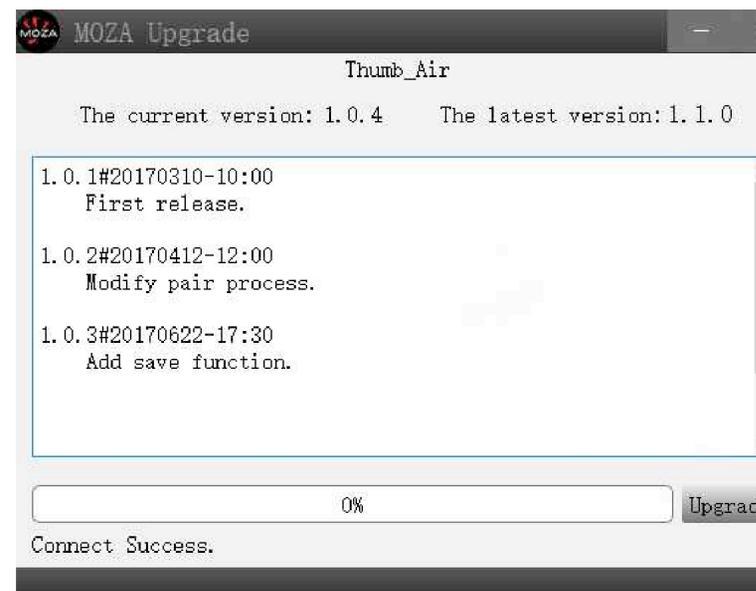
# 7. Mimic Motion Control

## 7.1 Parts schematic

## 7.2 MOZA thumb controller schematic

OLED DISPLAY

1/4" SCREW

JOYSTICK

SPEED BUTTON

ON/OFF BUTTON

OPTION BUTTON
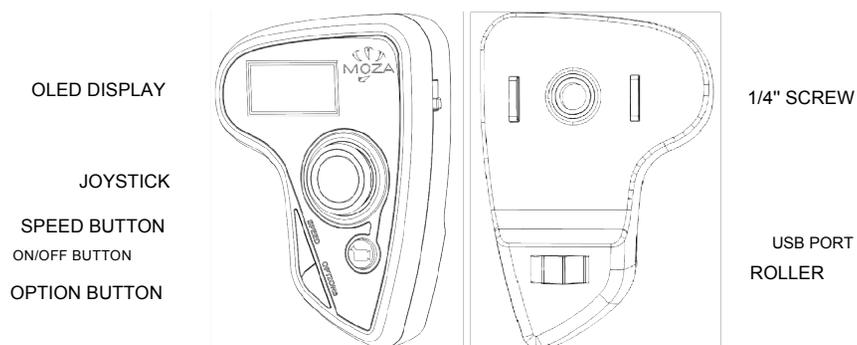
USB PORT

ROLLER

## 7.3 Steps to upgrade the firmware of MOZA thumb controller

1. With the thumb controller off, long press "SPEED" without releasing, connect controller to computer through USB port, release "SPEED" button when the screen displays "connecting".

2. Launch MOZA-Assistant after installing the driver. When the screen displays "Connect OK", MOZA-Assistant enters the interface of firmware upgrade.

MOZA Upgrade

Thumb_Air

The current version: 1.0.4     The latest version: 1.1.0

1.0.1#20170310-10:00
   First release.

1.0.2#20170412-12:00
   Modify pair process.

1.0.3#20170622-17:30
   Add save function.

0%     Upgrade

Connect Success.

connecting          Connect OK

3.  Ensure the network being connected, MOZA-Assistant will display information of firmware version and upgrade, click "Upgrade" to start upgrading the thumb controller.
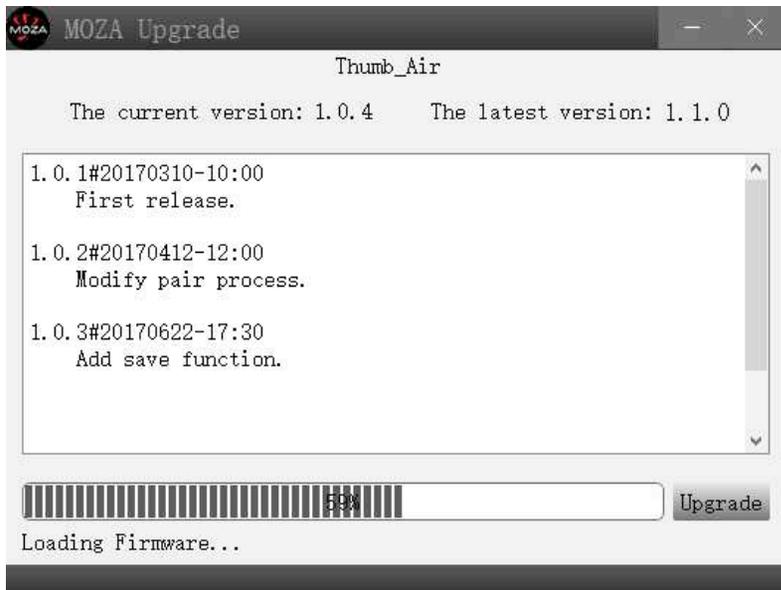


| Upgrading... | Upgraded OK |

## 7.4 Upgrade Firmware of the MOZA Air：

MOZA Assistant Software

More information please refer to chapter 9 Firmware Update.

MOZA Assistant App

This process takes around 20 minutes to complete by smartphone.

Press and hold the joystick in and then power on the MOZA Air to enter firmware upgrading mode. Turn on your smartphone's Bluetooth, open MOZA APP. The MOZA Assistant App will recognize MOZA Air's status a enter the firmware upgrading interface. Make sure network is connected a click "Upgrade". The App will automatically download the latest firmware a rewrite it to the MOZA Air. Wait till 100% before powering off the gimbal a restarting.

Warning: The upgrade process must keep the App running all the time. If have an emergency call coming in or need to switch to another App, be s to turn off the MOZA Air first then try another update process when you free to go with the firmware update.

Operation Guides

Only applies to version D of the MOZA thumb controller

1.  Pair the MOZA Air with the thumb controller (which has been paired a manufacture).

2.  Turns on the MOZA Air on.

3.  Calibration should be done when the gimbal drifts or unstable situations occur. please refer to gyroscope calibration and accelerometer calibration of the remote in the chapter 9.

4.  Long press "OPTIONS" to enter the menu. Select "Motion Control", "Start" to enter the mimic control mode.

Motor
Motion Control
Version

Start
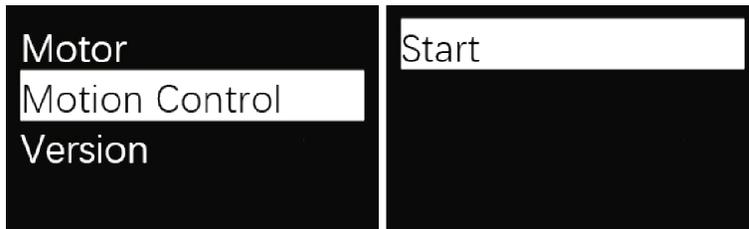
5.  The screen displays parameters for each of the axes after entering the mimic control mode. If "Error" displays, please check the thumb controller code or try it again.

Motion Ctrl
Pit:-000
Rol:-002
Yaw:-063

6.  If the horizon of MOZA Air is inconsistent with the thumb controller in mimic control mode, long press "SPEED" button to pause mimic control, turn the thumb controller to a desired position, then release "SPEED" to restart controller.

7.  Move the joystick leftwards to exit the mimic control mode.

Mimic control calibration

1.  Long press "OPTIONS" to enter the menu. Select "Motion Contro "Motion Calib" to start calibration.

Motor
Motion Control
Version

3. Keep the thumb controller still, until the screen displays "Success".

# 8. App Installation

1.  Mobile App

    MOZA Assistant App is available both in Apple Store and Google Play Store. Use keyword "MOZA Assistant" to search or scan the QR Code to download it on your phone.

    iOS             Android

2.  Desktop App(GUI)

    The GUI is a desktop software to update the gimbal firmware and change parameters of the gimbal. It is free to download at http://www.gudsen.com/moza-air-downloads.html

# 9. Firmware update

## 9.1 Firmware Upgrade

Make sure you have the most up to date MOZA Air firmware.
Please download the MOZA Assistant from this site:
http://www.gudsen.com/moza-air-downloads.html

Notice:
Please note Gudsen haven't released any MOZA Air firmware upd packages on the network, all the firmware files are available on the server a the only access to get them is going thought the MOZA Assistant software MOZA Assistant mobile App, here we introduce the way on the computer.

Then unzip the files and install the driver for MOZA gimbal. Driver location at the zip file:
Windows:MOZA_Assistant_Win_Package.zip\MOZA_Assistant_Win2.6.3_Package
Macintosh:MOZA_Assistant_Mac_Package.zip\MOZA_Assistant_Mac2.6.3_Package

Please try this link if your Mac computer reject the installation: http://www . iclarified . com/28180/how - to - open - applications - fromunidentified-developers-in-mac-os-x-mountain-lion

Run the software first, select firmware update and hit OK at the follow page,then plug in the gimbal, press and hold the joystick( the joystick can press down like a button) while quick pressing the power button once to er the upgrade mode, the flashing blue LED shows on which means you di right.

Then begins the upgrade by hit the upgrade button on the software page:
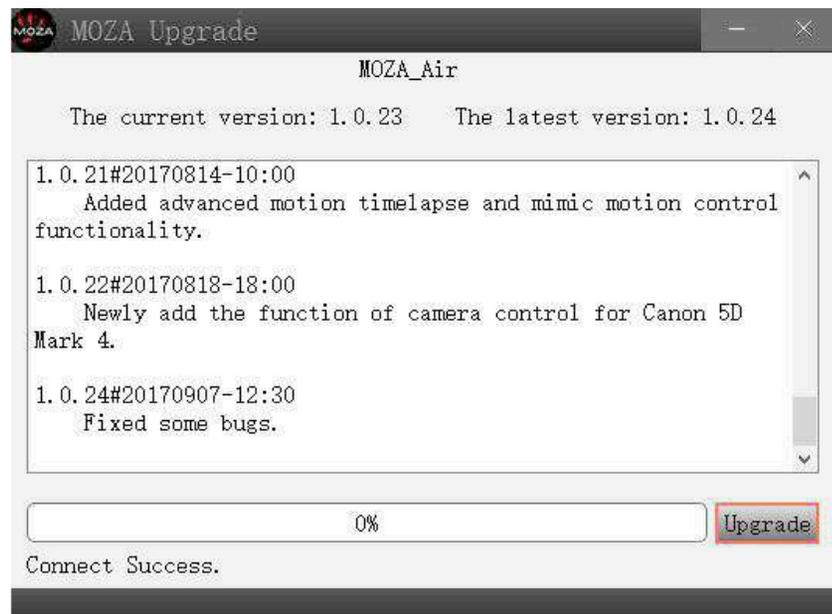


When the update is finish, please turn off the gimbal first, then exit the software。

When it is done, the turn off the gimbal, unplug it, balance the camera again here is a video about how to balance your camera:

(1). https://www.youtube.com/watch?v=zjM-mRyVh5I&t=66s

(2). https://www.youtube.com/watch?v=u6X2yh4xMHg

Then turn it on and give it try! If you still have the problem to walk it though firmware upgrade, please contact

support@gudsen.com.

# 10. App Instruction

## 10.1 Home Page



At this page you can select the right gimbal model for the Bluetooth connection.

Note: Please try to locate the device at this page (not at the phone Bluetooth list) if you use the gimbal with an Android device.

## 10.2 Device page
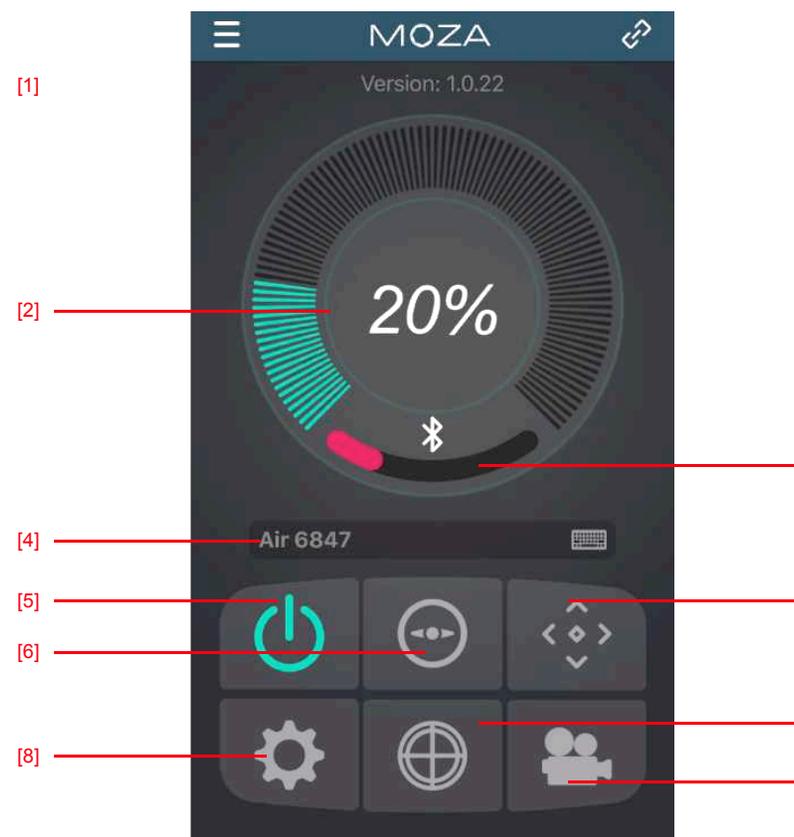


| | |
|---|---|
| [1] MOZA Air firmware version | [6] Re-center the gimbal |
| [2] Battery Level | [7] Remote Control & Normal Motion Time-lapse |
| [3] Bluetooth signal strength | |
| [4] Device name | [8] Parameter setting |
| [5] Motor on/off | [9] Gyro/accelerometer calibration |
| | [10] Advanced Motion Time-lapse |

35

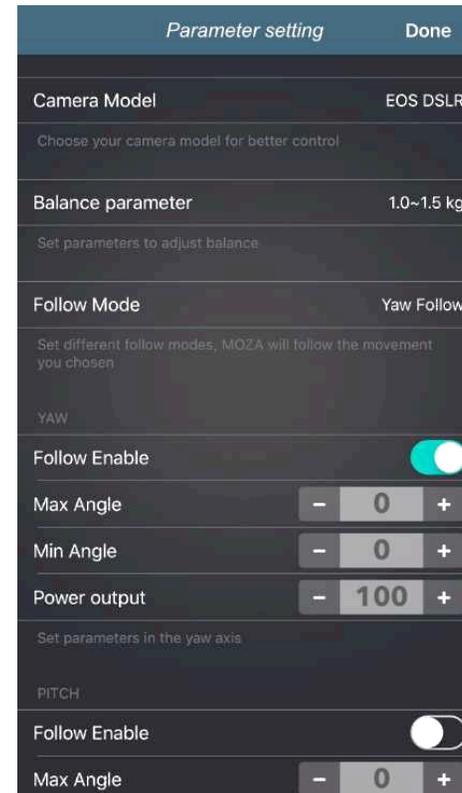## 10.3 Remote Control &Normal Motion Time-lapse



[1]

[2]

[3]

[4]
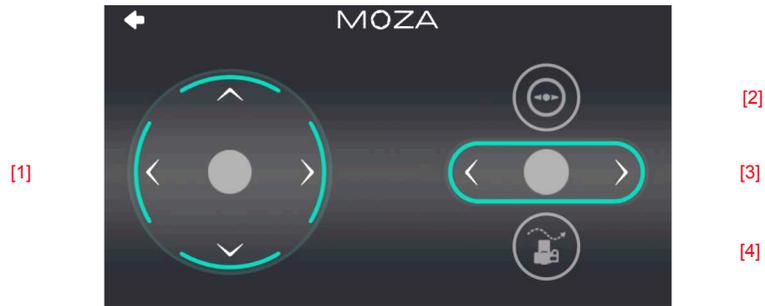
[1]  Joystick

[2]  Re-center the gimbal

[3]  Roll control

[4]  Normal time lapse

After you click on the time lapse on the app you will see this page. You can set a basic time lapse motion for your gimbal but the gimbal can't control the camera shutter.
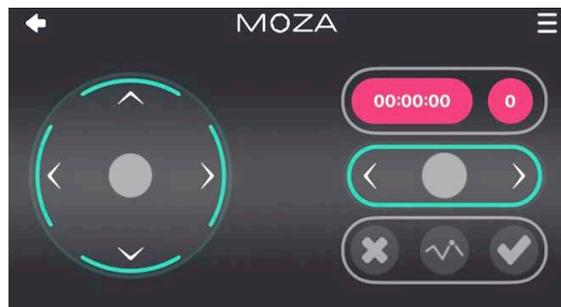


## 10.4 Parameter setting



Camera Model

There are 4 types of camera models available on start/stop rem control are listed as below:

1. EOS DSLR profile for Canon series (Canon 5DⅡ/5DⅢ/60D/7D/70D).

2. Alpha profile for Sony series(a7S/a7SⅡ/a7R/a7RⅡ).

3. GH profile for Panasonic camera(GH3/GH4).

4. BMD profile for Blackmagic Design camera (BMPCC/BMCC/BMPC).

\* Canon 5DⅣ is available as well, but it needs consumer to purchase an extra camera control wire, please contact support@gudsen.com for the solution.

## Balance Parameter

There are four groups parameters to select and balance your camera, they are:

1. 0.5-1.0 kg;
2. 1.0-1.5 kg;
3. 1.5-2.0 kg;
4. 2.0-2.5 kg;
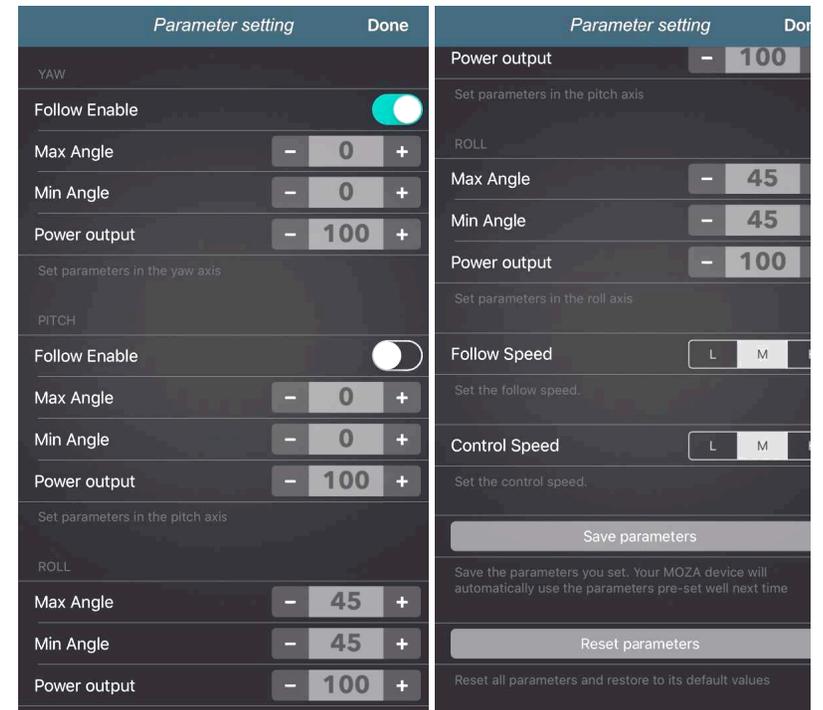
## Yaw/Pitch/Roll

The motor parameters for yaw/pitch/roll, please leave these settings unless you have a special need to change the parameters.

Follow Speed

The speed of the gimbal motion movement. There are three levels are available:
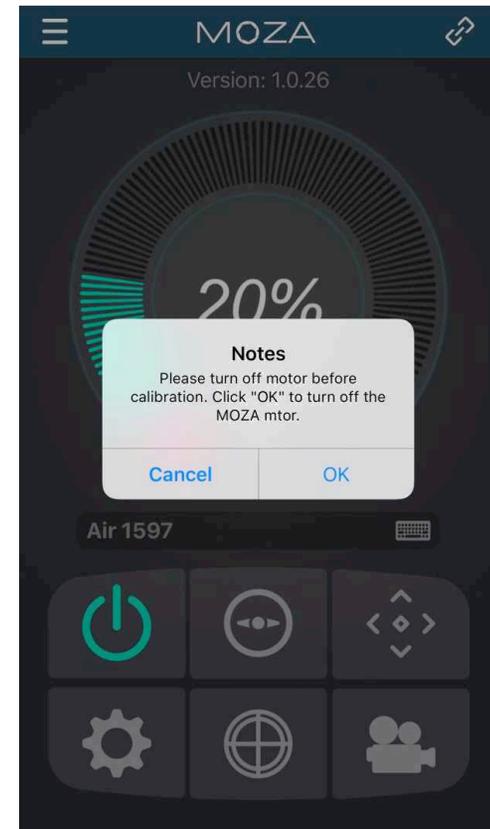
1. Low Speed;
2. Medium Speed;
3. High Speed;

Control Speed

The sensitivity of joystick speed to control the gimbal movement. There are three levels are available:

1. Low Speed;
2. Medium Speed;
3. High Speed;

Gyro and accelerometer calibration

Click on the calibration button on the device page and you will see this notification, please hit ok to go on the calibration.
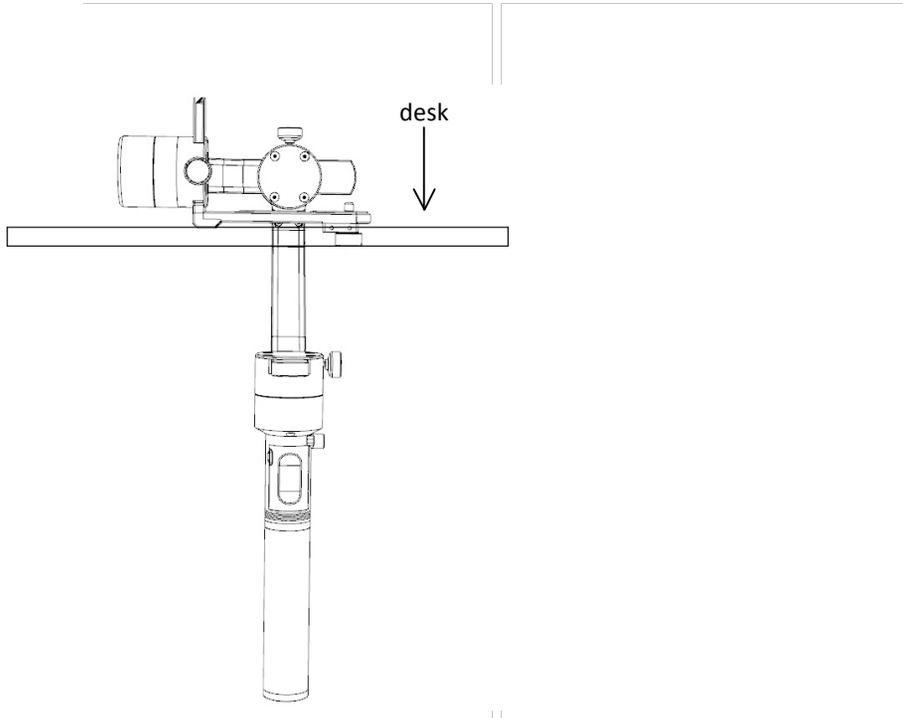
Then begin with the Gyro calibration first as the pictures shown below, you can go back to the device page by clicking on the white triangle button. Please keep the gimbal still during the calibration.

:
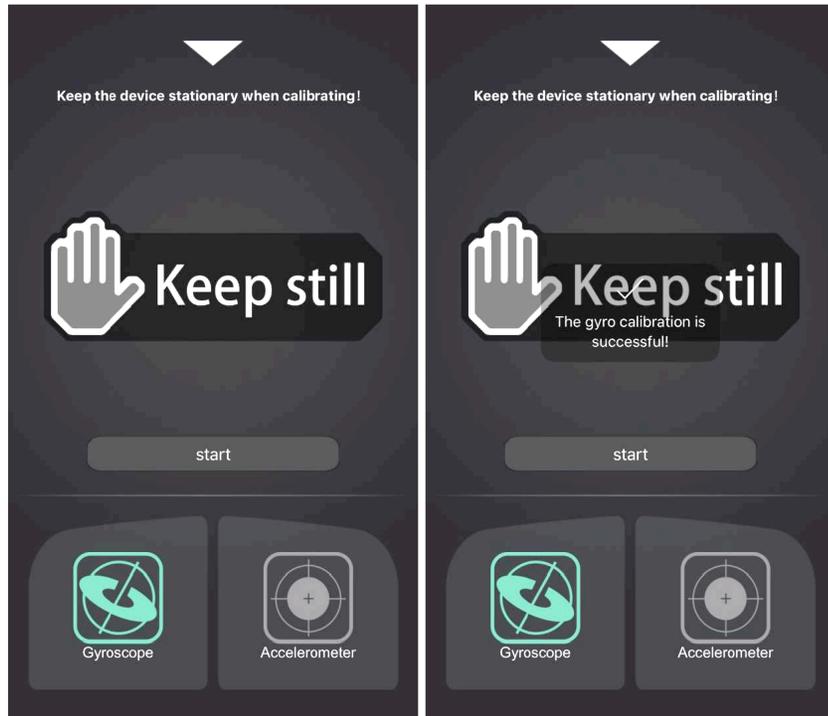
After the gyro is done and then begin with the accelerometer.

desk

Here is a recommend position for accelerometer calibration.
Keep the gimbal still while it is working. More information please check the video here: https://www.youtube.com/watch?v=m7Hcfu_gbgM
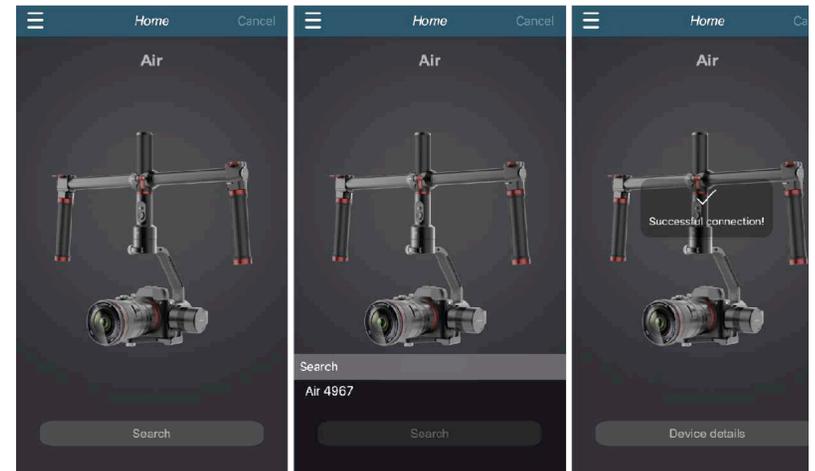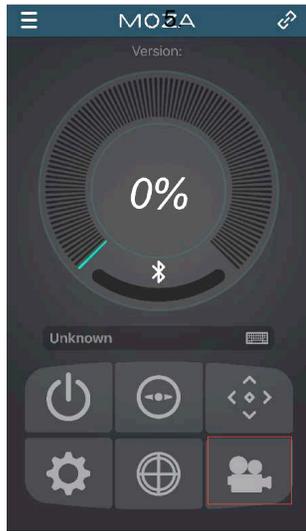
## 10.5 Long exposure time-lapse Tutorials

Steps to use the advanced motion time-lapse mode：

1. Balance the Camera on the gimbal, use the correct camera connection cable to connect the camera to MOZA Air.

2. Turn on Bluetooth. Open the MOZA Assistant App and connect it to th gimbal via Bluetooth.



3. Touch the icon on the lower right of the Homepage, to enter 'TIMELAPSE' screen.

Tap setup to set 'Shutter Interval', 'Shutter Duration'(shorter th 'Shutter Interval'),'Target Clip FPS 'and ' Target Clip Length'.

4. Use the joystick to create your shot path by controlling the movement of the gimbal and adding points.

# 11.Specifications

6.  Preview confirm the gimbal's movement. Then hit start to enjoy the time lapse.
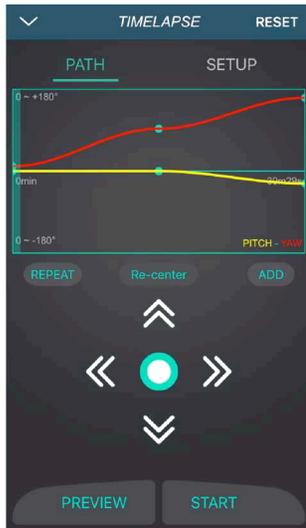
## Gimbal

| | |
|---|---|
| Weight | 1100g(without battery) |
| Dimensions | 90*88*294mm |
| Max Payload | 2500g |
| Till Rotation Range | 360° |
| Roll Rotation Range | 360° |
| Yaw Rotation Range | 360° |
| Working Voltage | 10-15V |
| Dynamic Current | 300mA |
| Static Current | 100mA |
| Battery Life | ≥8hrs |
| Bluetooth | Bluetooth 4.0 |
| valid range | 5m |
| USB Input | Micro USB 2.0 |

## MOZA Modified Battery

| | |
|---|---|
| Type | Li-ion |
| Model | 26350 |
| Capacity | 2000mAh |
| Output Voltage | 4.2V(max) |
| Output Current | 2A (max) |

## Charger

| | |
|---|---|
| Input Voltage | 110~220V AC |
| Output Voltage | 4.2V |
| Output Current | 1000mA X4 / 500mA X4 |
| Charging Time | 3hrs |

| Wireless Thumb Controller | |
| --- | --- |
| Weight | 100g |
| Battery Capacity | 600mAh |
| Battery Voltage | 3.7V |
| Working Current | 50mA |
| Rest Current | 10mA |
| Standby Time | 24h |
| Wireless Type | 2.4G |
| Control Range | 50M |
| Charging Voltage | 5V |
| Charging Time | 2h |

# 12.Warranty

1. Questions, Support, Service and Warranty contact support@gudsen.com

2. All shipment must be approved by the Technical Support before shipm Consumers are responsible for shipping costs. Technical Support examine and identify the problem and responsibility; If the issue or iss are a manufacturing defect Gudsen will cover all testing costs, mate costs, labor costs, and return shipping.

3. If the product is deemed not to be covered by the warranty. We contact the customer describing the repairs and costs before repairing stabilizer. Customer is responsible for return shipping;

4. Consumers can contact support@gudsen.com for more details maintenance process.

5. The gimbal is covered by 12 months warranty. The limited warranty d not apply to accessories or consumable parts. For more details on warranty policy www.gudsen.com.