

MOZA Air

User Manual



GUDSEN TECHNOLOGY CO., LTD

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1. Instruction

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

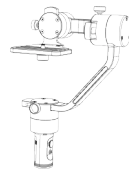
By using this product, you hereby signify that you have read this document carefully and that you understand and agree to abide by the terms and conditions herein. You agree that you are solely responsible for your conduct while using this product. You agree to use this product only for purposes that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

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

2. Packing list

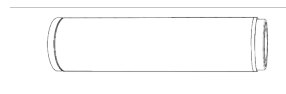
Gimbal X 1

MOZA Air Gimbal.



Handgrip X 1

Main handle of the MOZA Air,
battery holder.



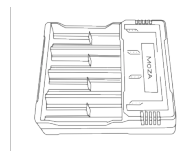
Moza Air Modified Batteries X 3

MOZA batteries.



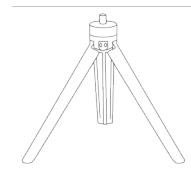
Charger X 1

MOZA charger.



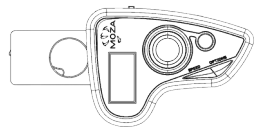
Tripod (Optional) X 1

Setup Stand.



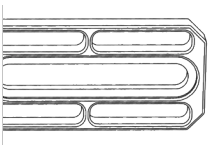
Wireless Thumb Controller(Optional) X 1

Remote control of the gimbal.



Lens Support X 1

Lens support.



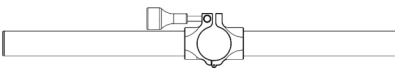
Lens Support Screw X 1

Screw for lens support.



Dual Handle Bar X 1

Dual Handle Bar.



Side Handle X 2

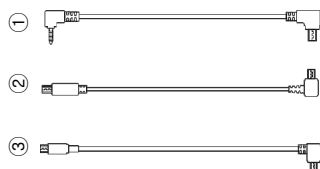
Handles for support.



Control Cable X 3

camera control cables.

- ① Panasonic Control Cable
- ② Sony Control Cable
- ③ Canon Control Cable



USB cable X 1

For firmware update
or modification of parameters.

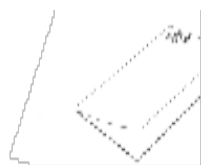
Tool Bag X 1

Camera and gimbal
connection accessories.

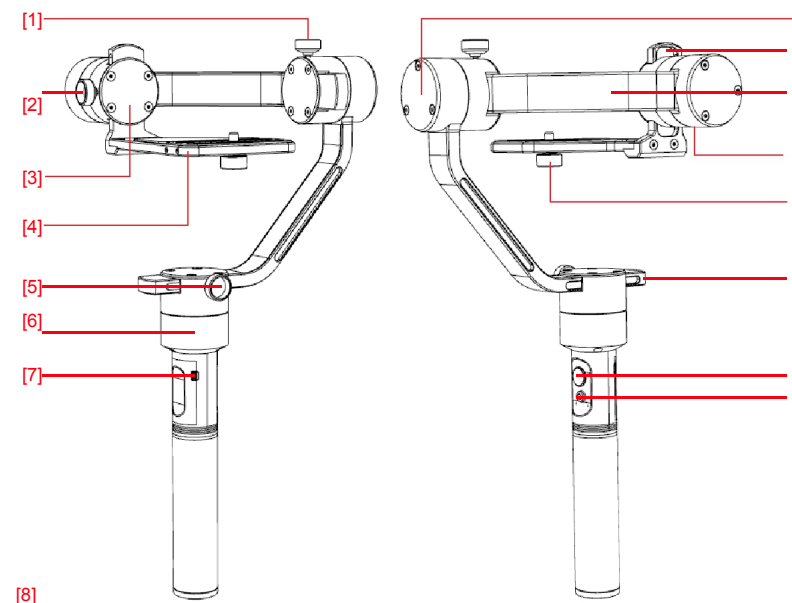


User Manual X 1

Instruction.



3. Getting to Know the MOZA Air

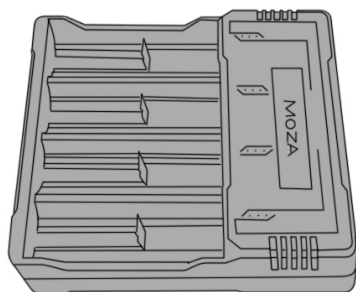


- [1] Roll Adjustment Screw
- [2] Tilt Adjustment Screw
- [3] Tilt Motor
- [4] Camera Holder
- [5] Yaw Adjustment Screw
- [6] Yaw Motor
- [7] Micro USB Port
- [8] 1/4" Screw
- [9] Roll Motor

- [10] Tilt Adjustment Arm
- [11] Roll Adjustment Arm
- [12] USB Output
- [13] Camera Lock-knob
- [14] Yaw Adjustment Arm
- [15] Joystick
- [16] On/off Button & Indicator
- [17] Battery Handgrip

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 Gud: authorized vendor for further assistance.
6. The battery should be used in temperatures from 0-40°C. Use of battery in environments above 40°C can lead to a fire or explosion. Use battery below 0 °C 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 loose 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°C may lead to

leakage, overheating , or battery damage.

4. Disconnect the charger when not in use. Examine the charger regularly for damage to the cord, plug, enclosure, or other parts. DO NOT clean the charger with denatured alcohol or other flammable solvents. Never 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 heater. 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 time, otherwise it will over discharge and lead to permanent damage.

Battery Maintenance

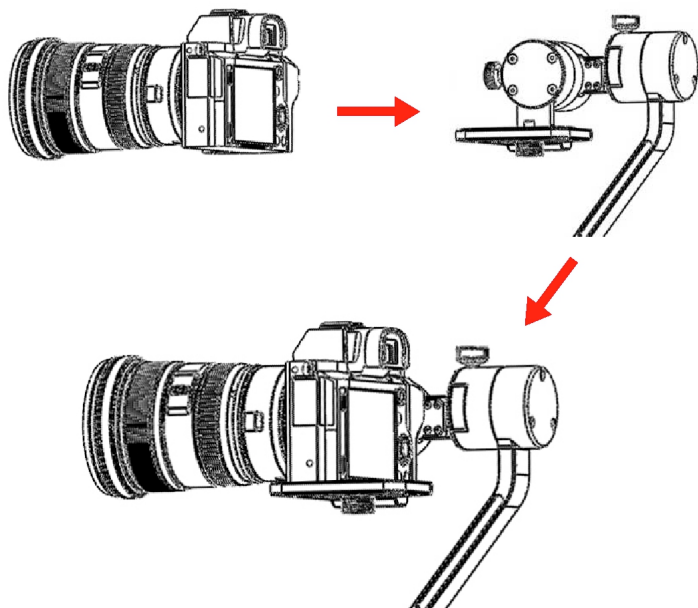
1. Never use the battery when the temperature is too high or too low.
2. Never store the battery in environments with a temperature higher than 60°C.

Battery Disposal

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

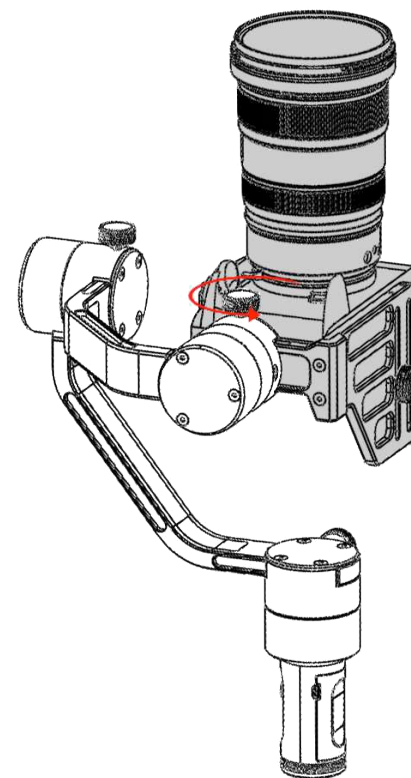
4.3 Mounting your camera

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.



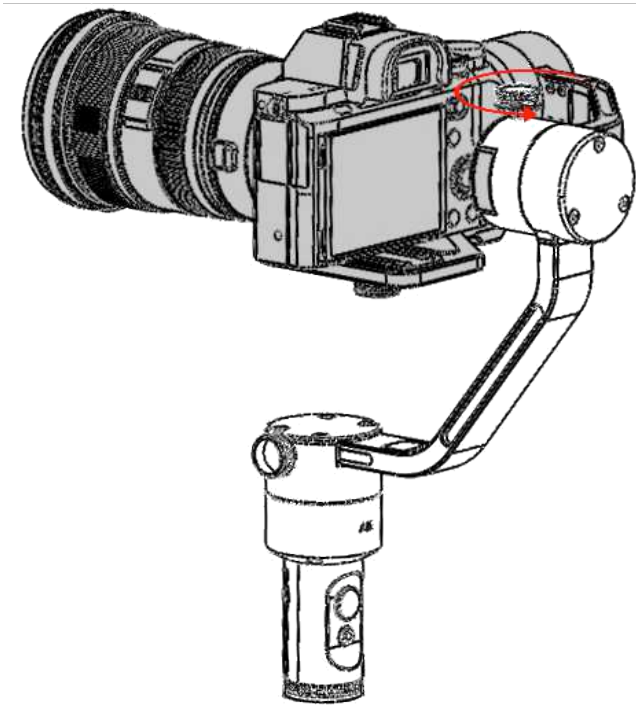
4.4 Balance the Tilt Axis

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.



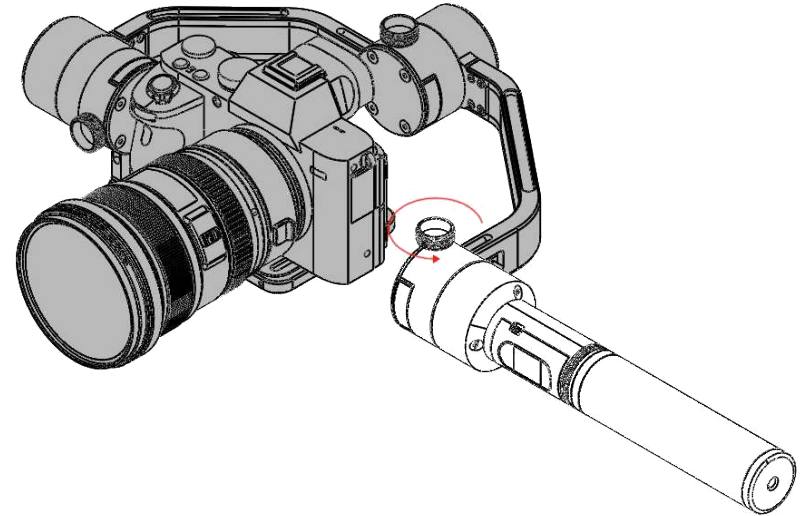
4.5 Balancing the Roll Axis

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.



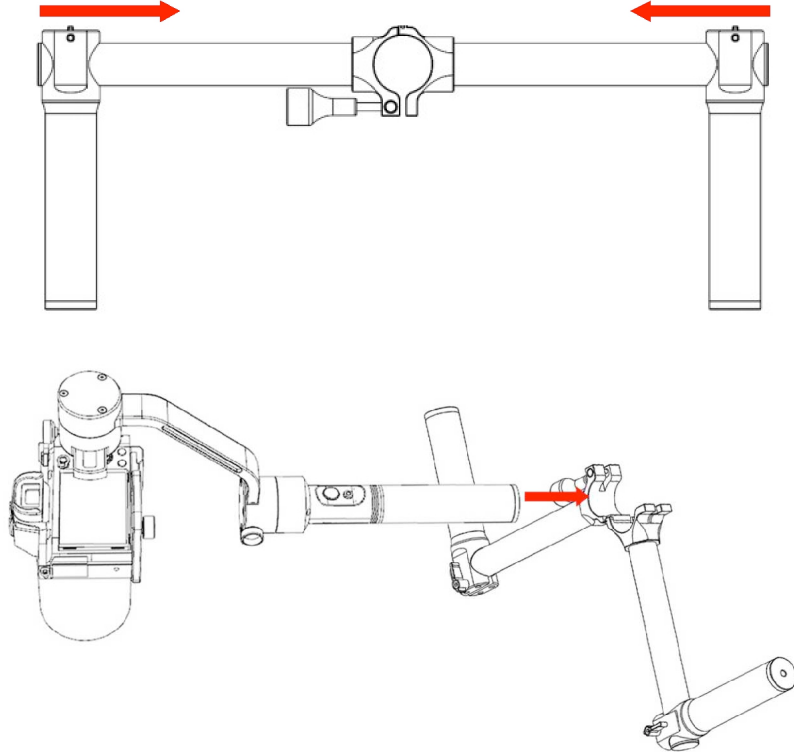
4.6 Balancing the Yaw Axis

1. Please loosen the Roll Adjustment Screw and adjust the Roll Axis until 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 are follow the movement while the Tilt and is locked.

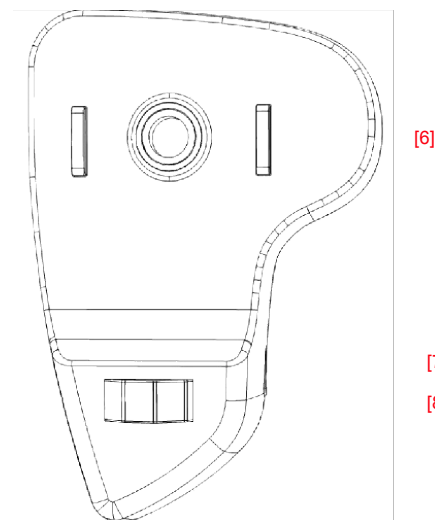
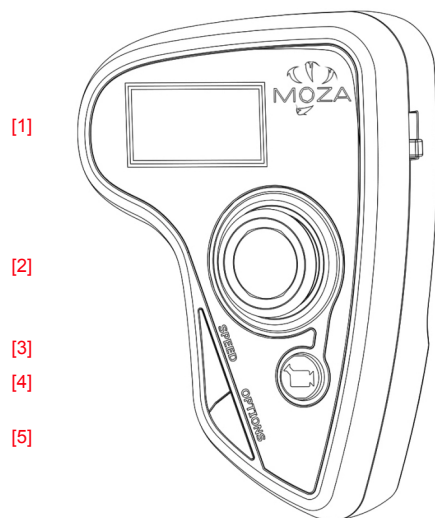
Joystick

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

MOZA Air User Manual

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 speed.

OPTIONS button

1. Quick press to switch the follow mode (Default yaw-follow, yaw-pitch-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 REC.

ROLLER

1. Use the Roller knob to control camera focus by rolling the knob left or 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



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.

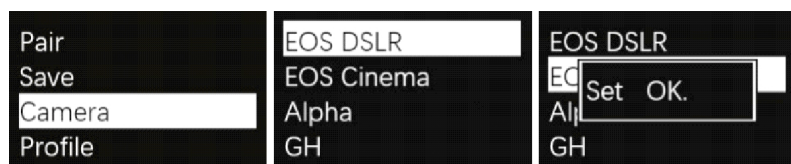
Move the joystick down to choose the YES option, and move the joystick right again to enter the Pairing mode. The interface of Pairing will appear. Then turn on MOZA Air gimbal, the screen of the thumb controller should show OK in 5 seconds.



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

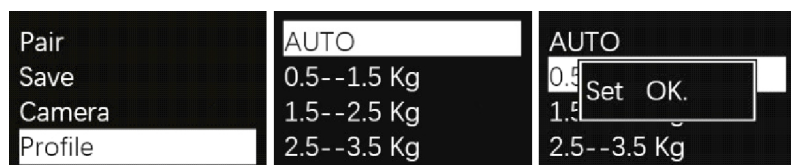
still fails, please check and update the firmware of your gimbal and wireless controller then try to pair them again (both devices must have the newest firmware installed).

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

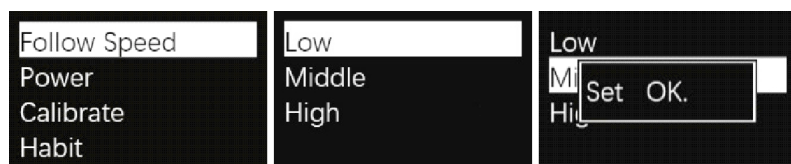


Note: The gimbal must be on when selecting a camera type or ERR will display.

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



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



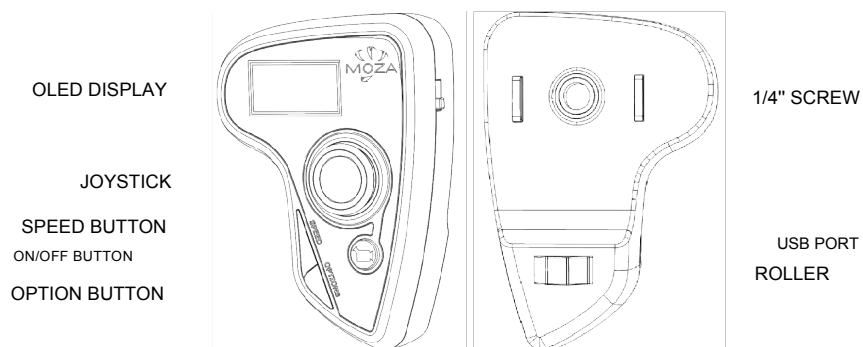
5. Power: Motor torque adjustment, please keep the original parameters.
6. Gyro Calibrate: Calibrate the Gyro, don't forget to turn off the mc before calibration.
7. Habits: Set the motor and joystick movement speed.
8. Motor: Turn on or off the motors.
9. Version: View the current firmware version of the wireless th controller

7. Mimic Motion Control

7.1 Parts schematic

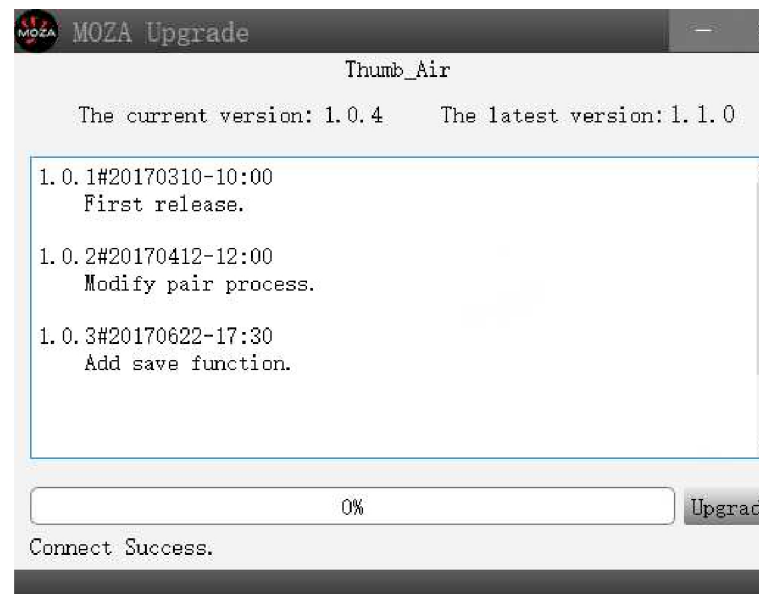


7.2 MOZA thumb controller schematic



7.3 Steps to upgrade the firmware of MOZA thumb controller

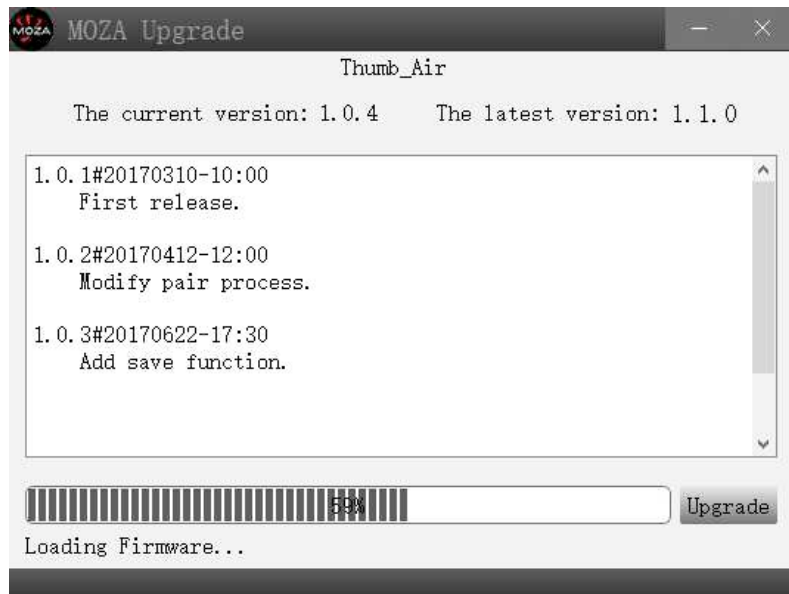
1. With the thumb controller off, long press "SPEED" without releasing connect controller to computer through USB port, release "SPEED" button when the screen displays "connecting".
2. Launch MOZA-Assistant after installing the driver. When the screen displays "Connect OK", MOZA-Assistant enters the interface of firmware upgrade.



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 and enter the firmware upgrading interface. Make sure network is connected and click "Upgrade". The App will automatically download the latest firmware and rewrite it to the MOZA Air. Wait till 100% before powering off the gimbal and restarting.

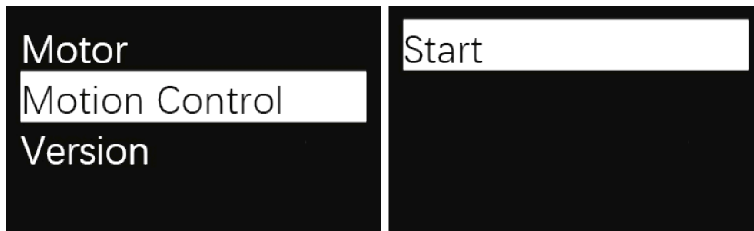
Warning: The upgrade process must keep the App running all the time. If you have an emergency call coming in or need to switch to another App, be sure to turn off the MOZA Air first then try another update process when you are free to go with the firmware update.

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 at 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.



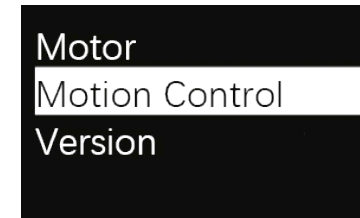
5. The screen displays parameters for each of the axes after entering the mimic control mode. If “Error” displays, please check the thumb controller code or try it again.



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 Control” “Motion Calib” to start calibration.



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 update packages on the network, all the firmware files are available on the server and the only access to get them is going through 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:

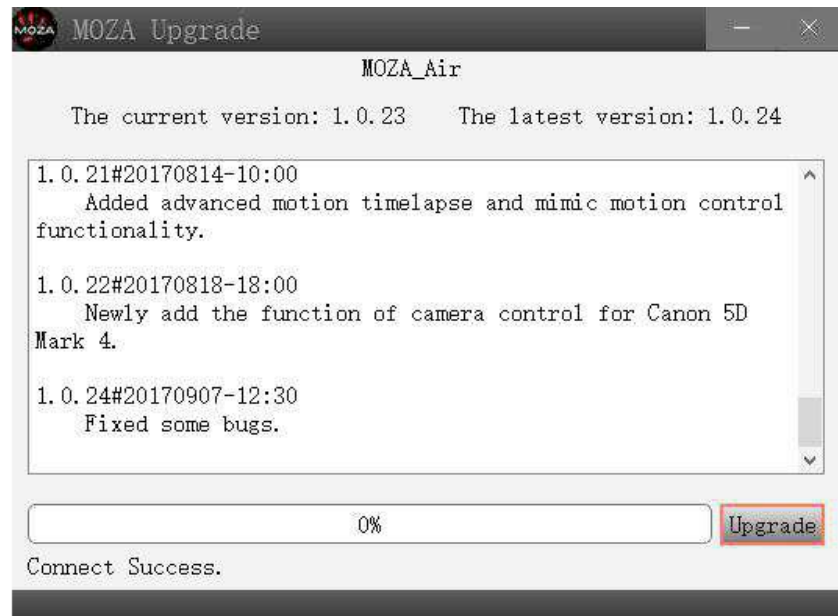
Windows:MOZA_Assistant_Win_Package.zip\MOZA_Assistant_Win2.6.3_Package

Macintosh:MOZA_Assistant_Mac_Package.zip\MOZA_Assistant_Mac2.6.3_Package

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

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

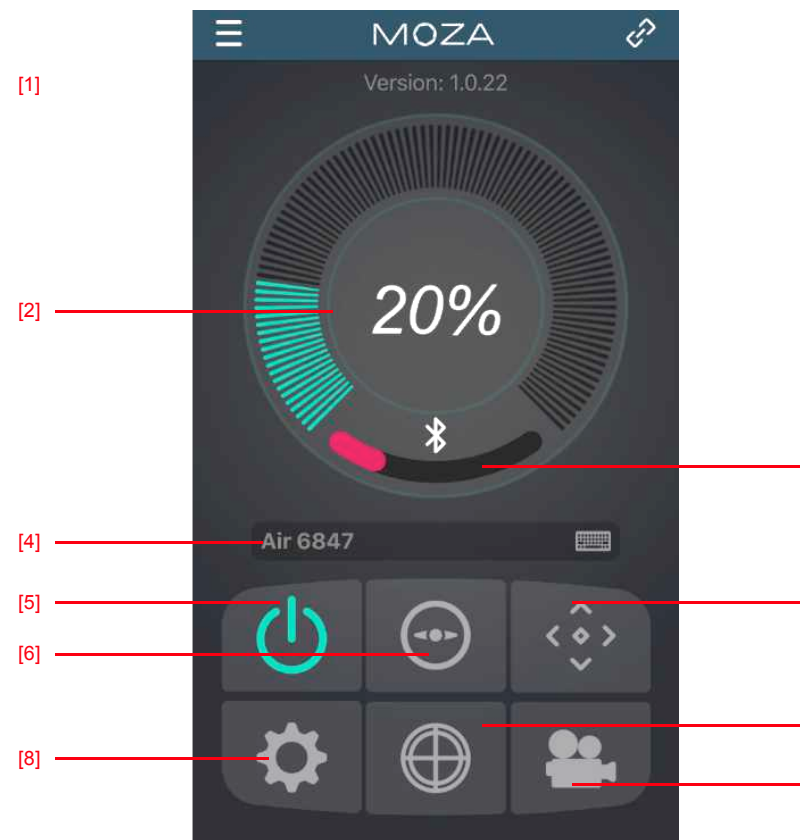
10.1 Home Page



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

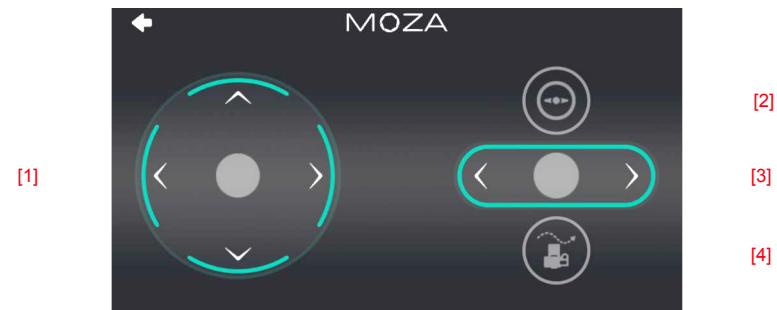
Note: Please try to locate the device at this page (not at the phone Bluetooth list) if you use the gimbal with an Android device.

10.2 Device page



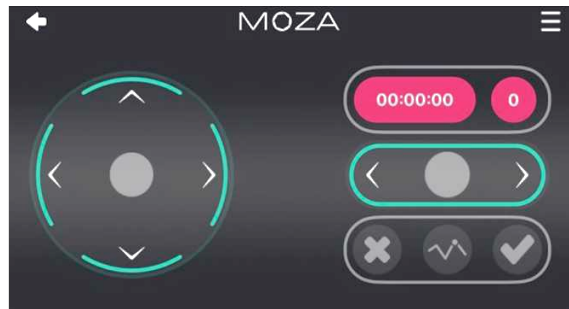
- | | |
|-------------------------------|---|
| [1] MOZA Air firmware version | [6] Re-center the gimbal |
| [2] Battery Level | [7] Remote Control & Normal Motion Time-lapse |
| [3] Bluetooth signal strength | [8] Parameter setting |
| [4] Device name | [9] Gyro/accelerometer calibration |
| [5] Motor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

10.3 Remote Control &Normal Motion Time-lapse

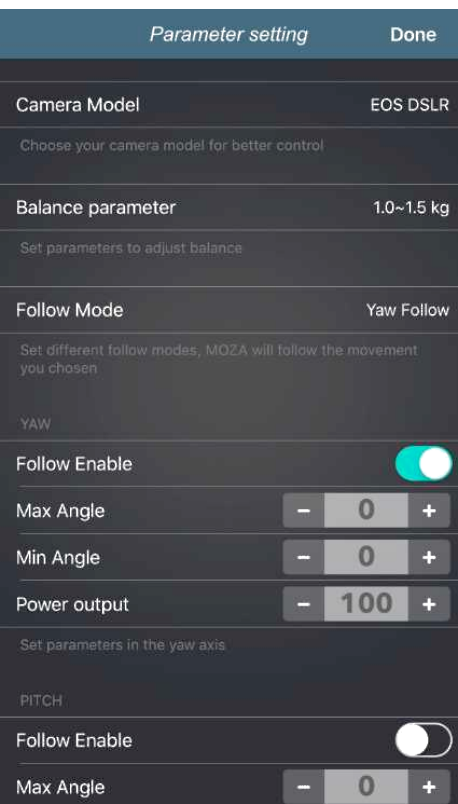


- [1] Joystick
- [2] Re-center the gimbal
- [3] Roll control
- [4] Normal time lapse

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:

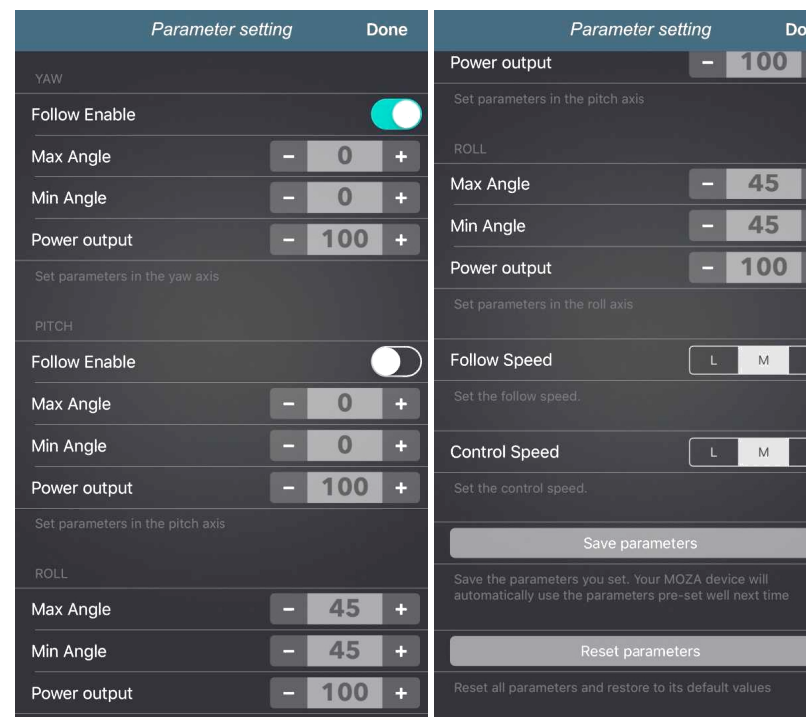
1. EOS DSLR profile for Canon series (Canon 5D II/5D III/60D/7D/70D).
2. Alpha profile for Sony series(a7S/a7S II/a7R/a7R II).
3. GH profile for Panasonic camera(GH3/GH4).
4. BMD profile for Blackmagic Design camera (BMPCC/BMCC/BMPC).

* Canon 5D IV 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;

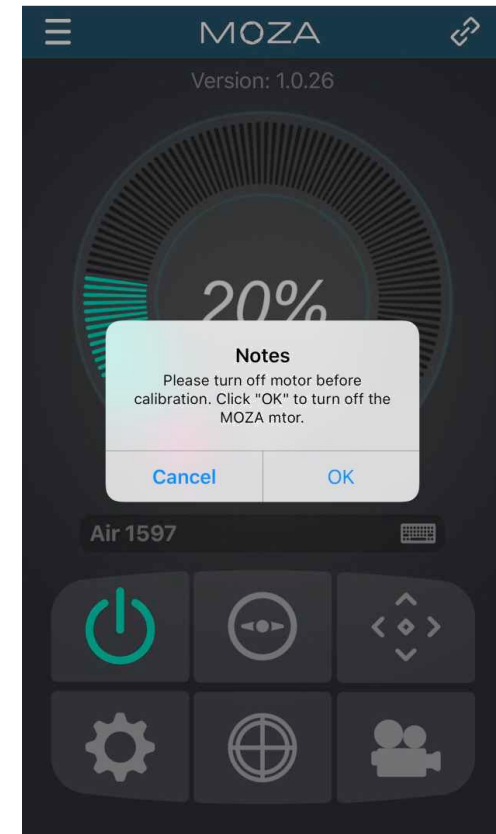
Control Speed

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

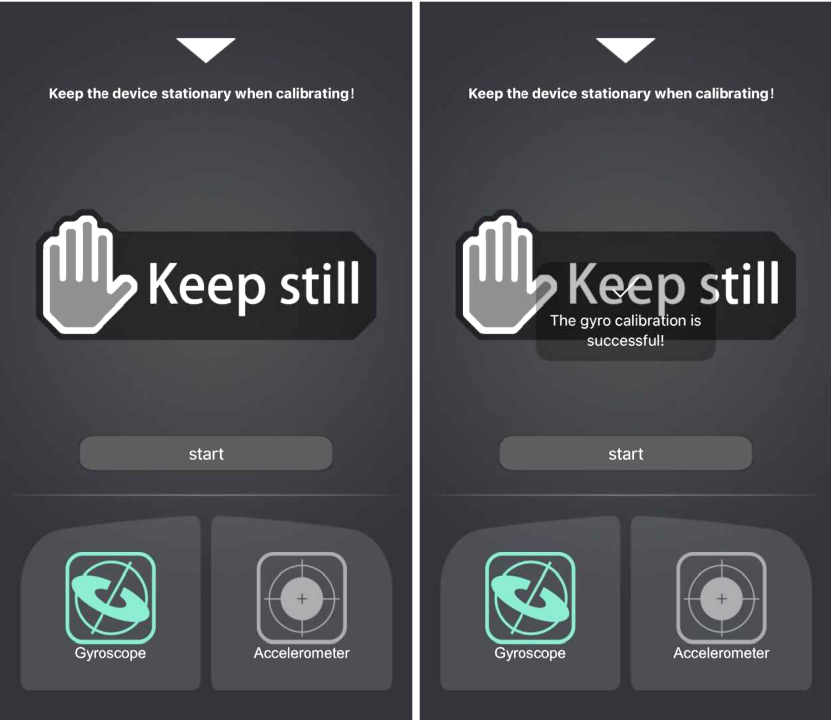
1. Low Speed;
2. Medium Speed;
3. High Speed;

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.

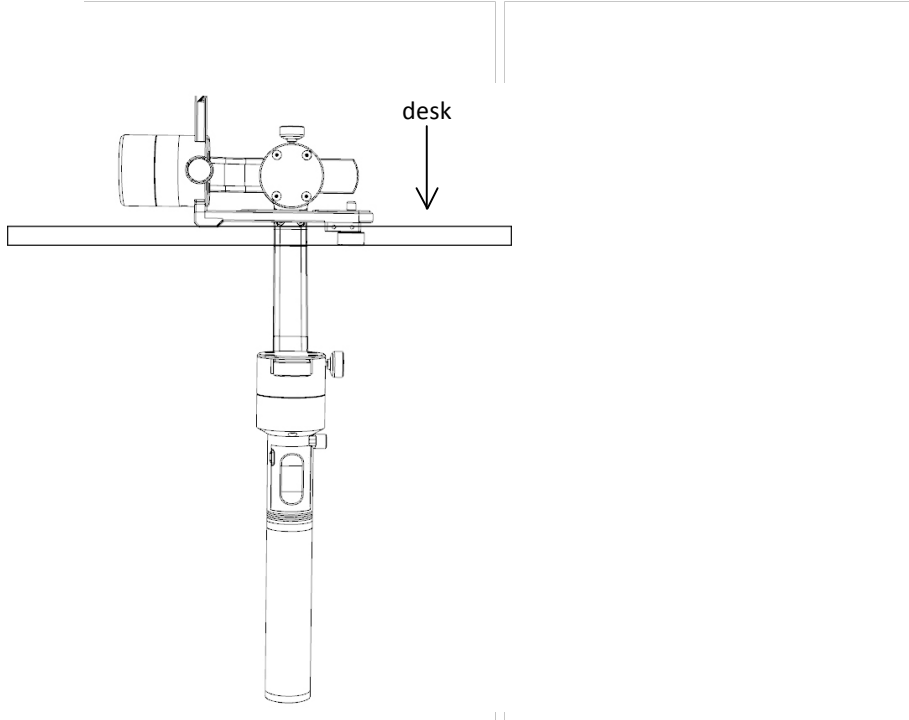


Then begin with the Gyro calibration first as the pictures shown below, you can go back to the device page by clicking on the white triangle button. Please keep the gimbal still during the calibration.



:

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

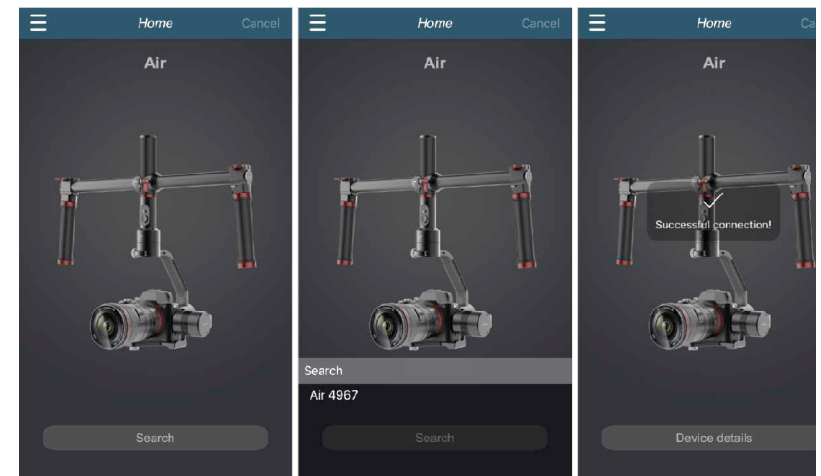


Here is a recommend position for accelerometer calibration.
Keep the gimbal still while it is working. More information please check the video here: https://www.youtube.com/watch?v=m7Hcfu_gbgM

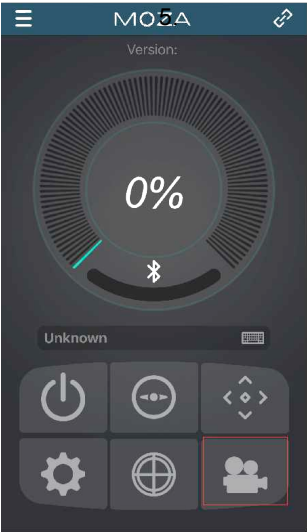
10.5 Long exposure time-lapse Tutorials

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 the gimbal via Bluetooth.



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



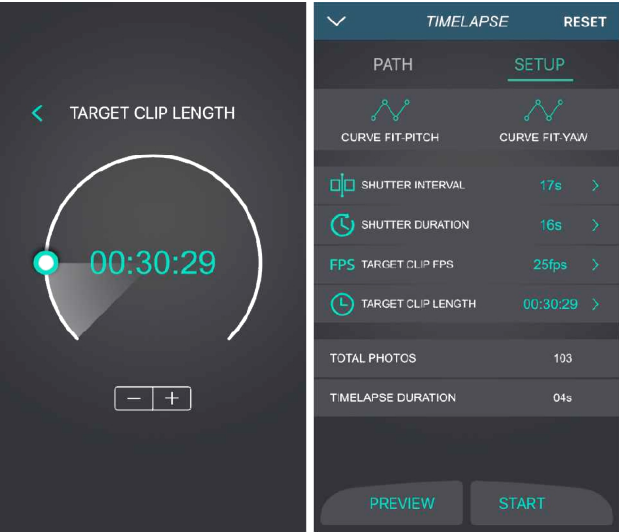
4. Use the joystick to create your shot path by controlling the movement of the gimbal and adding points.



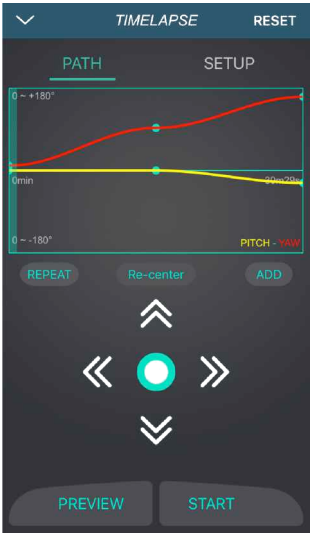
Tap setup to set 'Shutter Interval', 'Shutter Duration'(shorter than 'Shutter Interval'), 'Target Clip FPS' and 'Target Clip Length'.



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 shipment. Consumers are responsible for shipping costs. Technical Support will examine and identify the problem and responsibility; If the issue or issues are a manufacturing defect Gudsen will cover all testing costs, material costs, labor costs, and return shipping.
3. If the product is deemed not to be covered by the warranty. We will contact the customer describing the repairs and costs before repairing the stabilizer. Customer is responsible for return shipping;
4. Consumers can contact support@gudsen.com for more details on the maintenance process.
5. The gimbal is covered by 12 months warranty. The limited warranty does not apply to accessories or consumable parts. For more details on warranty policy www.gudsen.com.