

Accsoon
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Accsoon A1

Professional
Camera Gimbal

User Manual 1.0



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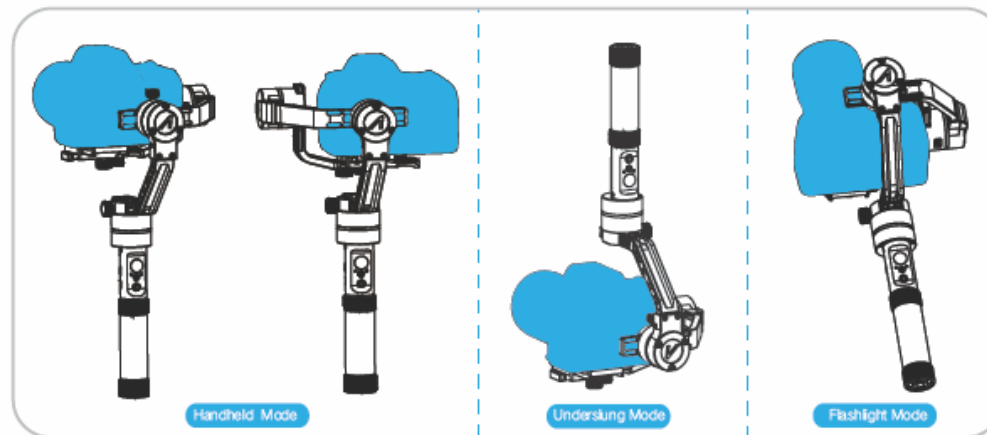


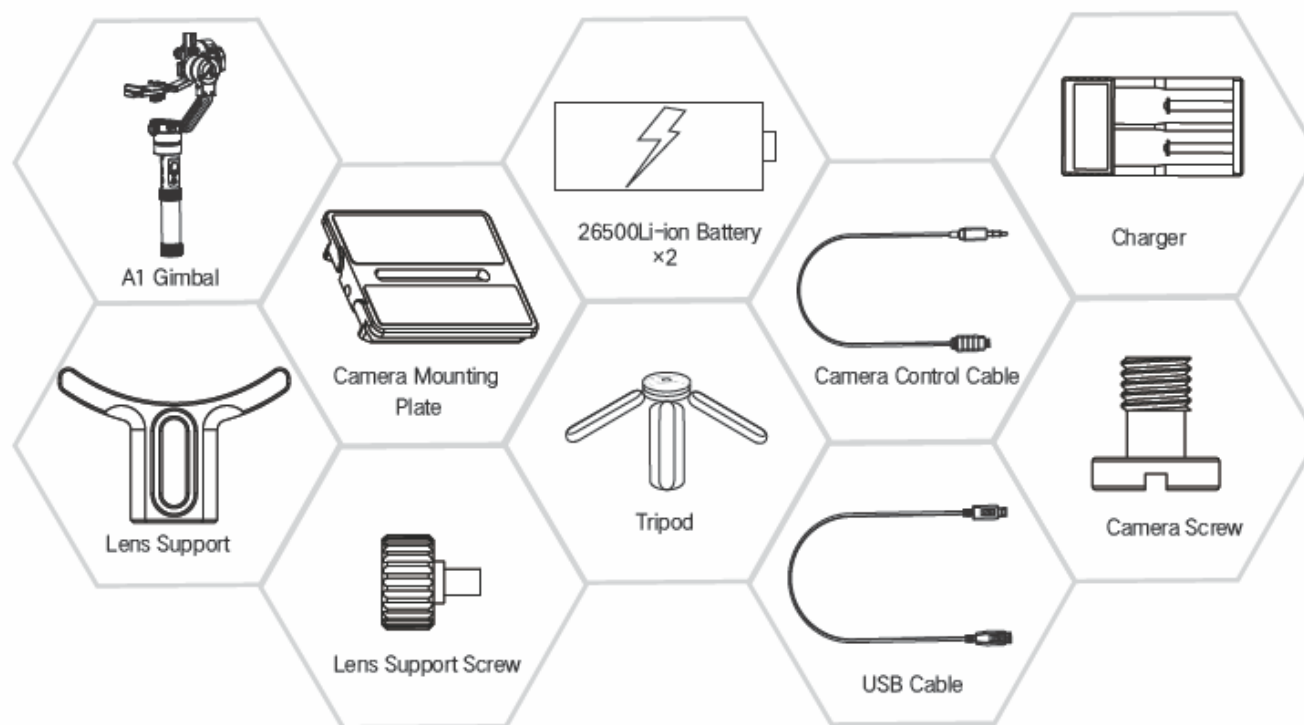
01.Introduction



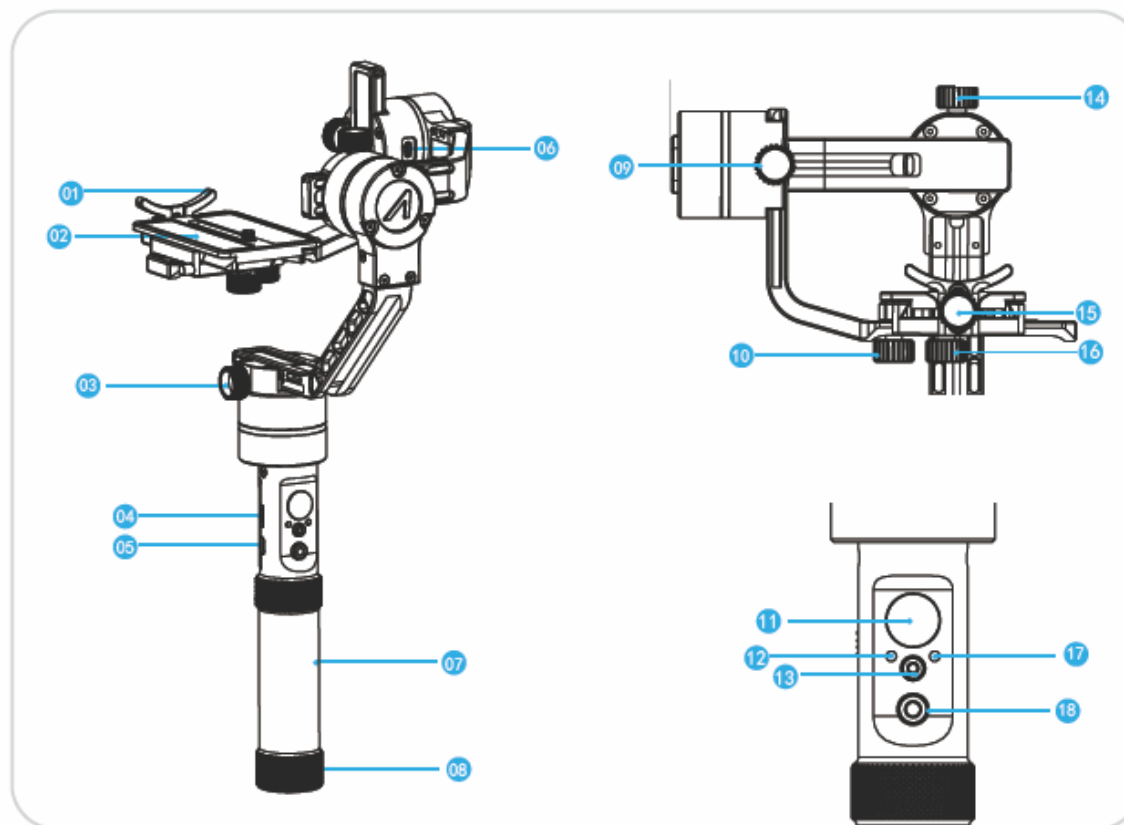
Accsoon A1 is a multi-function gimbal for digital cameras, based on our years of gimbal development experience, is the most advanced video shooting stabilization platform to date. The technology built into the A1 allows the user easily use and bring world-class movement translation and stability to the professional cinematographer's market.

High performance motor servo systems with position feedback and IMU to communicate with our custom 32-bit processor, which processes movement calculations in 0.001 seconds, this equates to control and stability accuracy down to 0.02 degrees of translated movements, meaning your images are going to be perfectly stable in all three axes of movement.





03.Gimbal Structure



- 01.Lens Support
- 02.Camera Mounting Plate
- 03.Thumb Screw 1
- 04.Zoom Lever
- 05.Micro USB
- 06.Camera Shutter Cable Interface
- 07.Handle
- 08.Battery Compartment Screw
- 09.Thumb screw 2
- 10.Thumb Screw 3
- 11.Joystick
- 12.Power LED
- 13.Power/Camera Control Button
- 14.Thumb Screw 4
- 15.Lens Support Screw
- 16.Thumb screw 5
- 17.Mode LED
- 18.Mode Switch Button

01 Battery Installation

Loosen the battery compartment screw, put two 26500 batteries into the handle according to the direction of the arrow, then tighten the screw.
Make sure the battery is fully charged and the positive and negative terminals are installed correctly.



03 Mounting the Camera

step1 Insert the camera until the safety lock is engaged.



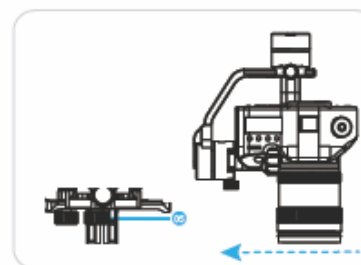
02 Install the Camera Plate and Lens Support

step1 Mounting the camera on the camera plate using the provided screw.

step2 Install the lens support.



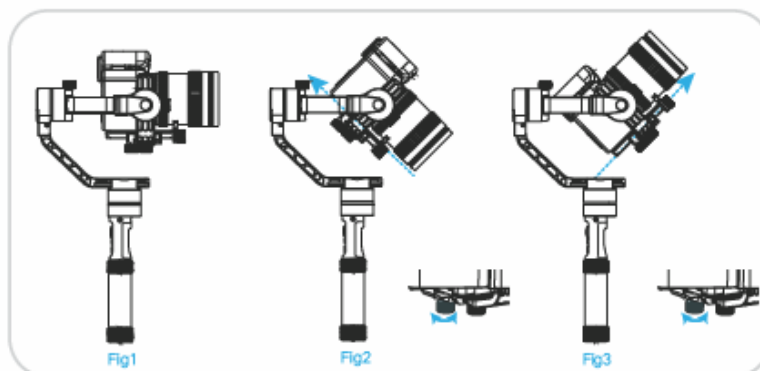
step2 Loosen the thumb screw to allow the camera and mounting plate to slide and slide the camera to the tilt arm, then tighten the thumb screw.



Tilt Balance



Balancing the Horizontal Tilt



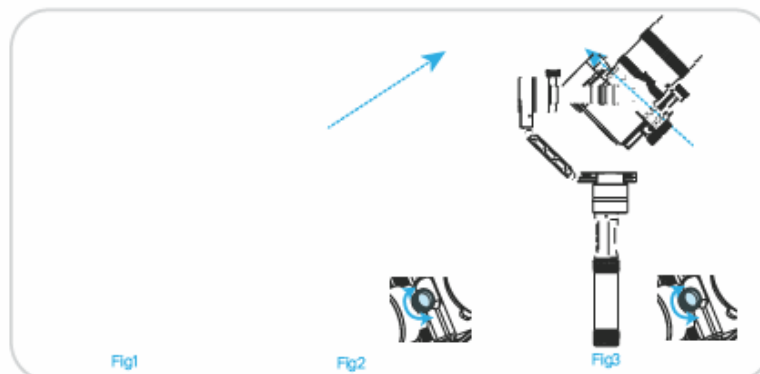
Rotate the tilt axis so the camera lens is pointing forward, loosen the camera base's side thumb screw, slide the camera plate forwards or backwards until the tilt axis remains level, then tighten the thumb screw.

Fig2 The center of gravity is close to front, slide the camera plate backward.

Fig3 The center of gravity is close to back, slide the camera plate forward.



Balancing the Vertical Tilt



Rotate the tilt axis so the camera lens points straight up, loosen the tilt arm side thumb screw, slide the tilt arm up or down until the camera remains pointing straight up when released, then tighten the thumb screw.

Fig2 The center of gravity is close to top, slide the tilt arm down.

Fig3 The center of gravity is close to bottom, slide the tilt arm up.

Confirm tilt balance by moving the camera to several tilt angles and confirming the camera remains stationary in the tilt axis once released.

Roll Balance

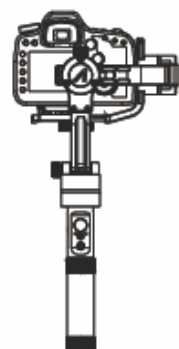


Fig1

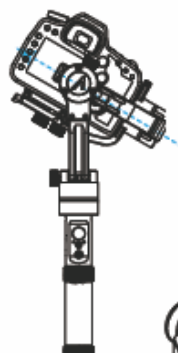


Fig2



Fig3

Loosen the roll arm side thumb screw, slide the roll arm left or right until the camera remain stationary when released, then tighten the thumb screw.

Fig1 Roll balance start position.

Fig2 The center of gravity is close to right, slide the roll arm left.

Fig3 The center of gravity is close to left, slide the roll arm right.

Confirm roll balance by moving the camera to several roll angles and confirming the camera remains stationary in the roll axis once released.

Pan Balance

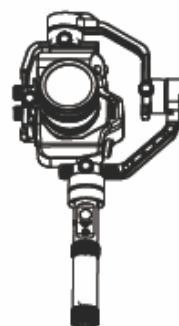


Fig1



Fig2



Fig3



Loosen the pan arm side thumb screw, slide the pan arm forwards or backwards until the camera remain stationary when released, then tighten the thumb screw.

Fig1 Pan balance start position.

Fig2 The center of gravity is close to the camera, slide the pan arm forward.

Fig3 The center of gravity is close to the roll motor, slide the pan arm backward.

Confirm pan balance by moving the camera to several pan angles and confirming the camera remains stationary in the pan axis once released.

06.Control Panel



Power Button

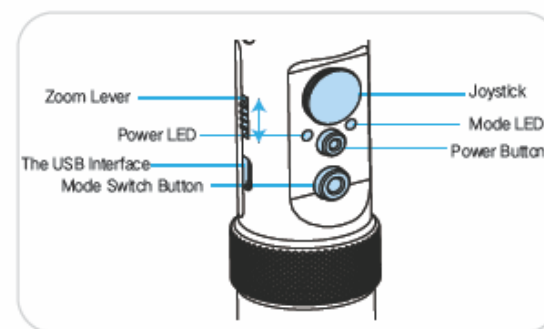
- Power On** Press and hold the power button for 2 seconds to turn on the gimbal, then the power led and mode led will blink and the gimbal will start to work.
- Power Off** Press and hold the power button for 2 seconds when the gimbal is turned on, the gimbal will power off.
- Take Photos** Click the button once to control the camera to take a photo.
- Video** Click the button twice to control the camera to start/stop the video.
- Auto tuning** Click the button four times to start the gimbal auto tuning.

Joystick

The joystick controls four directions movement of the camera.

Power LED

Power LED State	Current Battery Level
Flashes four times	75%-100%
Flashes three times	50%-75%
Flashes twice	25%-50%
Flashes once	0%-25%
Keep flashing	<0%.Replace the battery



Zoom Lever

The zoom lever can be used to control the zoom of the camera(Only SONY camera supported).

Micro USB

Connect to PC for firmware upgrade.



01 Before power on the gimbal, please make sure the gimbal was well balanced and there is nothing block the gimbal.

02 In order to avoid collisions between the camera and the gimbal , when the gimbal power goes off, the gimbal will continue to work for 5 seconds and then totally power off.

Operating Instructions of Mode Switch Button

Operation	Function	Mode LED Status	Explanation
Single tap	Pan Follow	Red LED on	Tilt and Roll axes locked and can be controlled by the joystick
Double tap	Pan & Tilt Follow	Blue LED on	Roll axis locked and can be controlled by the joystick
Tripple tap	3-Axis Lock	Green LED on	Tilt and Pan axes locked and can be controlled by the joystick
Quadruple tap	Roll Follow	Red LED Blink	Tilt and Pan axes locked and can be controlled by the joystick
Long press for 2 seconds	Standby	Blue LED Blink	Long press again awake the gimbal

 01 If the gimbal balance is not well or any protection occur, it will automatically enter standby mode, then press the mode switch button for 2 seconds can make the gimbal to return to normal working mode.

02 In axis follow mode, the users' action will be translated to the corresponding camera lens movement.

Auto tuning

For the best performance, auto tuning function build into the A1, it's provides an easy way to automatic configuration of each axis motor's speed, power. Whenever a new camera was mounted or change the camera lens or accessories change , you may use auto tuning to quickly get the gimbal work in best performance.

How to auto tuning

1. Make sure the camera and all accessories are in place, tightly secured and well balanced.
2. Put the gimbal on the tripod and power on A1 .
3. Click the power button on the control panel four times or use the APP to start auto tuning.
4. After the auto tuning process is complete, test the A1 for vibrations or oscillations during use. If any vibrations or oscillation exist, determine what axis they are related to and reduce the power of the axis using the APP.



1. The auto tuning will not change the Follow Speed and Follow Deadband settings.
2. Before the auto tuning completed, don't move the gimbal.

Advanced settings

Each axis has its own motor power and motor speed adjustment. The basic tuning method is adjust the power value first and then adjust the speed value, adjust the pitch axis first, then adjust the roll axis, and finally adjust the pan axis.

1. Motor Power

The Motor Power value set how much power the gimbal output tries to return to its target position if it displaced. Higher value comes out higher stability but may cause vibrations or oscillations to the gimbal.

Increase this value of an axis until the axis slight vibration or oscillation then reduce this value until the axis do not vibrate at any angle.

2.Motor Speed

The Motor Speed value set how aggressively the gimbal tries to return to its target position if it displaced. Higher value comes out higher stability but may cause overshoot to the gimbal.

Increase this value of an axis and test its response to a disturbance. If the axis returns to its original position too slowly, increase the value. If the axis overshoots its original position decrease the value.

3.Follow Speed

This parameter will determine how fast the camera will follow the handles movement. A higher value means the camera will follow the handles more actively.

4.Follow Deadband

Follow Deadband defines a range in degrees of handle movement which will be ignored. It means in the setting range, the camera will not follow the handles movement.



Please tuning the Motor Power and Motor Speed value under 3-Axis Lock mode.

08.Creative Photography

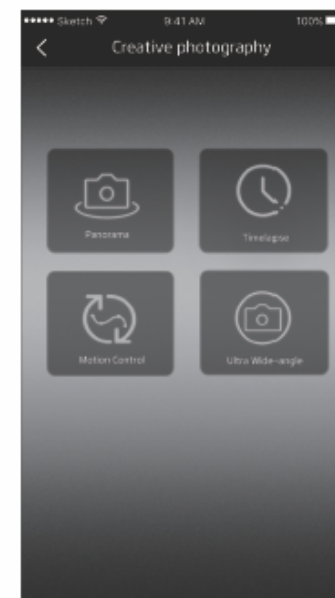
A1 supports panoramic photography, timelapse, motion control photography and ultra wide-angle photography. With the precise control and automatic control functions of A1, users can devote more energy to creating without having to spend too much effort on equipment operation, allowing users to easily create higher quality creative videos and photos.

Panorama A1 supports horizontal panoramic and spherical panoramic, in the shooting process, the gimbal automatically control shooting angle and overlap rate, making the panorama photography more easily and comes out stunning perfect pictures.

Timelapse A1 timelapse mode lets user create stunning camera movements for timelapse in seconds. User can create and edit keyframes of the desired motion and adjust variables such as interval, frame rate and duration.

Motion Control Thanks to the built-in high-precision control algorithm in A1, A1 can repeats the same trajectory without any deviation. Users simply enter the path position on the APP(up to 20 path positions), interval time and other parameters to achieve high-precision motion control photography.

Ultra Wide-angle In ultra wide-angle photography mode, A1 can automatically shoot 9 photos, the user can use these photos to create an ultra-wide-angle photo.



Please download Accsoon APP to get more details about Creative Photography.

Updating

The A1 will arrive with the latest firmware already installed, so updating is not required before the A1 is initially ready for use. When future firmware versions are released, users can update the A1 using the follows steps:

1. Download and install Accsoon Assistant APP.
2. Turn on the Accsoon A1 , and make sure the battery fully charged.
3. Open the Accsoon Assistant APP and connect to the Accsoon A1.
4. Click "Update". If there is a new firmware update, the APP will prompt you to update the A1 .
5. If you wish to update the A1 select "Yes" to initiate the update process.
6. Once the update has completed, reboot the A1.

Calibration

Calibration needed if the following situations happens:

1. The tilt or the roll axis is not horizontal.
2. One or more axis seems to be drifting.

Calibrating steps:

1. Turn on the gimbal and long press the mode switch button to let the gimbal enter standby mode.
2. Lay the gimbal on a static flat surface.
3. Open the Accsoon Assistant APP and connect to the Accsoon A1 .
4. Click "Calibrate" button and waiting for the calibrating complete.



Please keep the gimbal in static status before calibration completed.

Battery Specification

26500 Li-ion Battery, 3200mAh, Voltage 3.7V.

Charging

1. Please use qualified 5V charger with output current more than or equal to 1000mA.
2. The charging time is depended on the charger's maximum output current.



Battery safety and warnings

1. Do not leave the battery and charger unattended during use.
2. Stop using or charging the battery immediately if the battery becomes or appears damaged, starts to balloon or swell, leaks, becomes deformed or gives off an odor, exceeds a temperature of 60°C, or if anything else abnormal occurs.
3. Never disassemble, modify, puncture, shock, crash, short circuit, and/or expose the battery to a flame. Leakage, smoke emission, ignition, explosion or fire can occur, which may result in personal injury or property damage.
4. Never allow an electrical short between the battery's positive and negative terminals.
5. The battery should be stored in a dry environment, and the recommended storage temperature range is 10°C~30°C.
6. Please don't discard used batteries at will, contact local specialized institutions for the disposal of the batteries.

Troubleshooting

Gimbal won't turn on

- (1) Make sure the batteries are fully charged
- (2) Make sure the batteries are installed properly
- (3) Make sure the battery compartment screw is tightened well

Gimbal turn off automatically

- (1) Check the batteries level

Axis seems to be drifting

- (1) Calibrate the gimbal

Oscillation on one more gimbal axis

- (1) Make sure all the thumb screws are tightened well
- (2) Motor power value is too high
- (3) Make sure the lens support was used
- (4) Make sure the camera rigidly mounted

The Camera control function not work

- (1) Make sure the camera control cable connect to the camera correctly.
- (2) Make sure the right camera control cable used and choose the right camera brand in the APP.

Maintenance

1. Put the gimbal in special containing box was strongly recommended, lest any damages caused by shaking and collision may occur in transit.
2. The gimbal is a precise product and is not waterproof. Keep it away from sand and dust when in use. Soft and dry cloth for cleaning is recommended, don't use any cleaning liquids onto the gimbal.
3. The batteries should be take out and regularly charge/discharge if the gimbal not use for a long time.

12.Specifications



General

- | | | |
|-------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Built-in function | • Three Operation Modes | • Accsoon Specialized Gimbal Driver Motors With Encoders |
| | Upright Mode | • USB Connection |
| | Underslung Mode | • Bluetooth Module |
| | Flashlight Mode | • Multiple Protection Functions(Over current, Motor stall, Under voltage) |
| | • Four Working Modes(Pan Follow, Pan&Tilt Follow, Roll Follow, 3-Axis Lock) | • Battery Level Indicator |
| | • Auto Tuning | • Camera Control |
| | • Built-in Independent IMU Module | |

Support Camera

- Mirroless and DSLR Cameras

Mobile Assistant Software Requirments

- iOS 7.0 or above, Android 4.3 or above

Mechanical & Electrical Characteristics

Power Input	<ul style="list-style-type: none"> • Dynamic Current: 200mA@7.4V • Stall Current: Max 5000mA@7.4V 	<ul style="list-style-type: none"> • Voltage: 7.4V • Static Current: 100mA@7.4V
Operating Temperature	<ul style="list-style-type: none"> • -10°C to 50°C (14°F to 122°F) 	
Run-time	<ul style="list-style-type: none"> • 12~18hours(camera well balanced and batteries full charged) 	
Wight	<ul style="list-style-type: none"> • 1100g(batteries not included) 	
Load Weight	<ul style="list-style-type: none"> • 2.5kg 	

Working Performance

Angular Vibration Range	<ul style="list-style-type: none"> • $\pm 0.02^{\circ}$
Maximum Control Rotation Speed	<ul style="list-style-type: none"> • Pan & Tilt Axis: 100°/sec; Roll Axis: 30°/sec
Controlled Rotation Angle	<ul style="list-style-type: none"> • Pan Axis: Unlimited; • Roll Axis: $\pm 45^{\circ}$; • Tilt Axis: Up 120° to down 90°
Mechanical Rotation Angle	<ul style="list-style-type: none"> • Roll Axis: Unlimited • Pan Axis: Unlimited • Tilt Axis: Unlimited
Gimbal Dimensions	<ul style="list-style-type: none"> • 182mm(W)×246mm(D) ×380mm(H)

Congratulations on purchasing your new Gimbal. Please read this manual and disclaimer carefully before using this product. By using this product, you hereby agree to this disclaimer and signify that you have read it in full. You agree that you are responsible for your own conduct and any content created while using this product, and for purposes that are proper and in accordance with local regulations, terms and any applicable policies and guidelines.

Do not modify or adjust the A1. The A1 has been calibrated before it leaves the factory. No modification or amending to the A1 is allowed. Please download the corresponding software. As Accsoon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. Accsoon assumes no liability for damage or injuries incurred directly or indirectly from use of this product.



Any questions when you using this product , please contact local distributor or Accsoon.

FCC Compliance Notice

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm during normal operation.



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