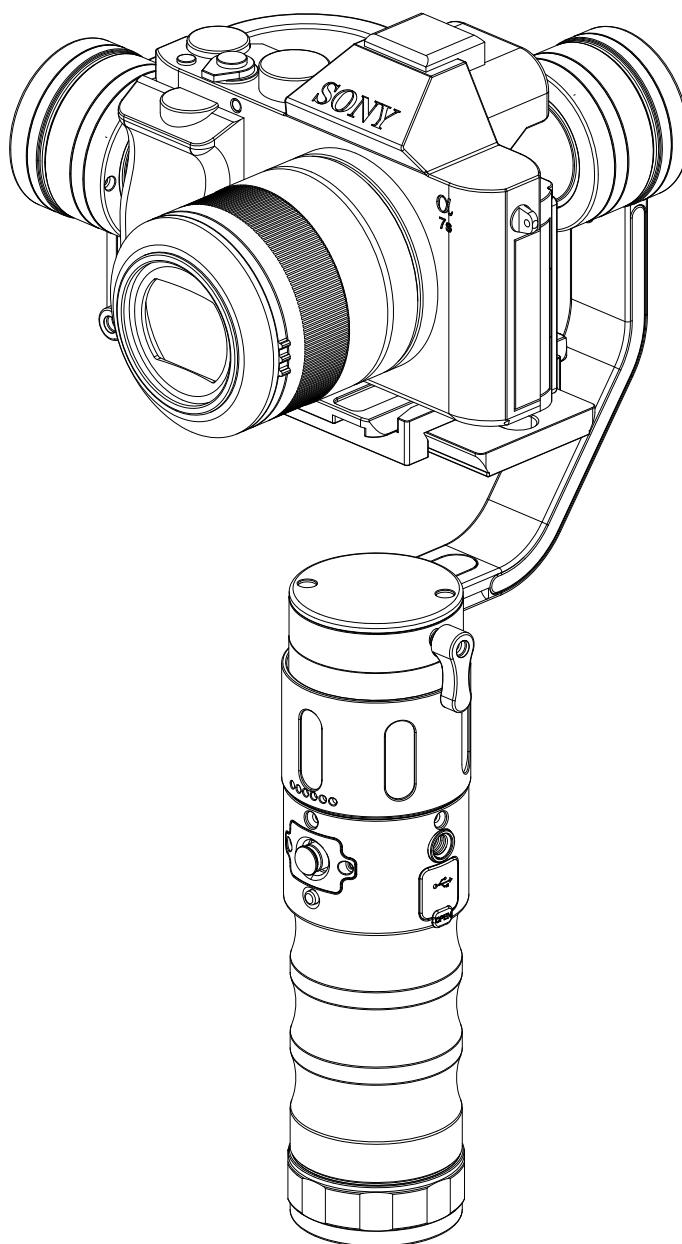




# 3-axis Handheld Stabilizer Gimbal Beholder MS-PRO

## Instruction Manual

V1.0 2017.03



# Table of Contents

<b>Introduction</b>	
About the MS-PRO	2
<b>Product Description</b>	
What's Included	3
Charging the Batteries	4
Installing the Battery Holder	6
Camera Installation and Balance	7
<b>Getting to Know the MS-PRO</b>	
Powering On	11
Modes of Operation (Profiles)	12
OLED Display	13
Extensions and Extra Features	13
<b>Compatible Camera Models</b>	
List of Supported Cameras	13
<b>Gimbal Working Angles</b>	
Operable Camera Angles	14
<b>Precautions and Safety</b>	
Precautions	14
Safety	15
<b>Copyright</b>	
Copyright/Trademark Statement	17
<b>Product Specifications</b>	
Technical Specifications	18
<b>Frequently Asked Questions</b>	
FAQ	19

# About the MS-PRO



The Beholder MS-PRO is the newest upgrade to the popular Beholder MS1 gimbal. It is a three-axis gyro-stabilizer with an encoder motor and a 32-bit control board. The MS-PRO is compatible with most mirrorless cameras weighing less than 900 grams, including other small cameras, cell phones, and GoPro cameras.

Whether filming fast-paced actions or aiming for high or low-angle shots, this device will help you correct shakes or swaying and will balance and smooth the picture in order to achieve professional grade image stabilization.

The MS-PRO uses a 32-bit system, which has a variety of shooting modes through the mode selection button. The 32-bit encoder system allows the MS-PRO to respond more quickly. By having an encoder with the motor, the gimbal is more stable, and more accurate than ever before.

The Gimbal can be turned on with a camera at any angle. By manually holding the camera at a certain position, the gimbal will hold the camera at the held position and support angled shots. The gimbal supports the camera in all 360 degrees while maintaining great stability, supports flip screen cameras, and has provisions for an external remote control (wired or wireless remote control).

By attaching a monopod to the gimbal, you can simulate a drone shot, low and high follow shots, dolly shot, and many other different angles. It reduces any types of jitter from the footage. The Beholder MS-PRO includes a USB port to allow for easy firmware and software upgrades.

The MS-PRO has 20 hours of standby time, with an OLED display that shows the current battery level. Users can better understand the battery level, charge the battery on time, and eliminate sudden low battery situations. The OLED screen can also display the current switch mode in real time so that users can know the current shooting mode.

## **WARNING**



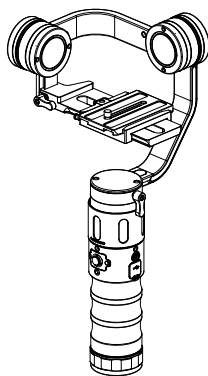
To reduce fire or shock hazard, do not expose the unit to rain or moisture.

# What's Included



After you've received the product and before you use it, please check whether the package contains all the items in the following inventory. If any item is missing, please get in touch with the dealer to resolve the situation.

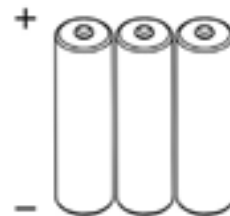
1. MS-PRO Body
2. The Battery Holder
3. 3 x 18650 Battery
4. Camera Quick Release Plate
5. 1/4" Screw
6. Power Adapter or USB Cable (dependent on the country's specifications)



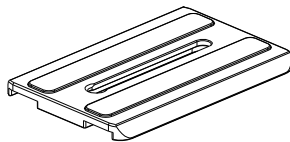
MS-PRO Body



Battery Holder



18650 Batteries\*3



Quick Release Plate



1/4" Screw

# Charging the Batteries



## Battery charging and inserting

For best performance, please use ikan IB-18650-26 batteries. The LED indicator will turn red while charging and green if the batteries are fully charged.

Connect the battery holder (Fig. 1) to the USB power supply before the batteries are installed in the holder. The LED will turn green to indicate the USB power can be used. Disconnect the battery holder and insert the three batteries. Connect the battery holder to the charger again. The LED indicator will turn red to indicate the batteries have started to charge. If less than three batteries are placed in the battery holder, the indicator light displays green to indicate that charging has not started. The battery holder can only charge all three batteries at once.

Note: The battery holder can only be used as a charger stand temporarily. When the battery LED indicator turns green to indicate the completion of charging, the batteries are only charged to 80% of the battery capacity. For 100% charge, please buy a professional charge adapter or use ikan's ICH- SC4 smart charger.

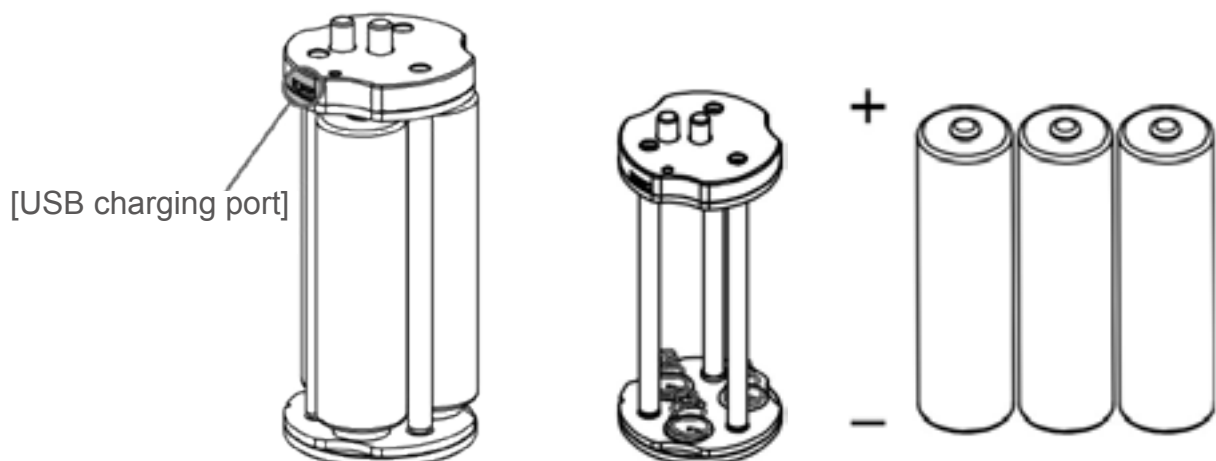
The battery holder charge time is 3-4 hours.

### WARNING



When using the battery holder as a charger, the USB power supply must meet the minimum requirements.

The common USB port may not supply enough power to charge the batteries. A USB adapter rated at a minimum of 2.5A/12.5W or more may be needed.



# Charging the Batteries



## Recommendations

- We recommended using a dedicated charger like the ikan ICH-SC4.
- If the product is not used for a long time, charge the batteries up to 70% of their capacity and store them in a cool, dry place.
- If you need more batteries, try to purchase ikan IB-18650-26-3PK official batteries or other reliable batteries with a protection circuit to avoid overcharging and damaging the batteries. Using damaged or different capacity batteries may result in failing to start up the Beholder MS-PRO.
- Hint: Currently, the maximum capacity of an 18650 battery is 3500mah. Try to avoid fake suppliers advertising a huge capacity.

# Installing the Battery Holder



Instructions to use the battery holder

Mount the 18650 batteries with the negative electrode of the battery (-) towards the spring (Fig. 2). Push the three 18650 batteries inward.

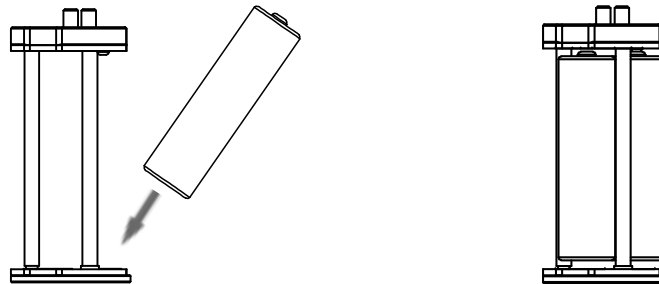


Fig. 2. Inserting batteries into the battery holder

Install the battery holder into the battery compartment with the two electrical terminals toward the direction of insertion (Fig. 3)

## WARNING



Before starting the gimbal, make sure the camera is properly mounted on the stabilizer and perfectly balanced.

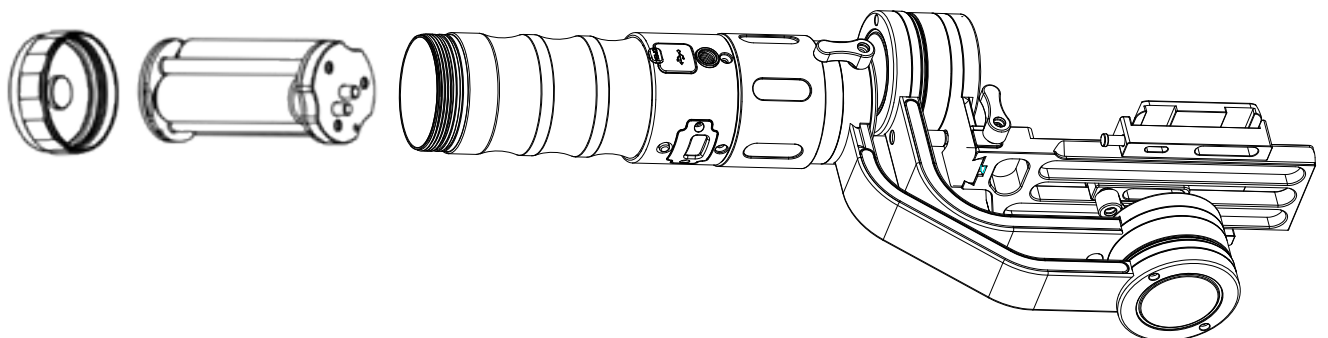


Fig. 3. Inserting the battery holder into gimbal handle

# Camera Installation and Balance ▲

## WARNING



Before installing the camera and adjusting the balance, remove the camera lens cover, attach the lens hood, and insert a memory card and camera batteries, as well as any other accessories. The camera should be fully ready to shoot.

## STEP 1

Mount the camera quick release

- Remove the quick release plate from the gimbal.
- Attach the quick release plate to the camera (Fig. 4). Be careful not to twist it too tight at this point.
- Make sure the quick release plate direction is facing forward toward the lens.

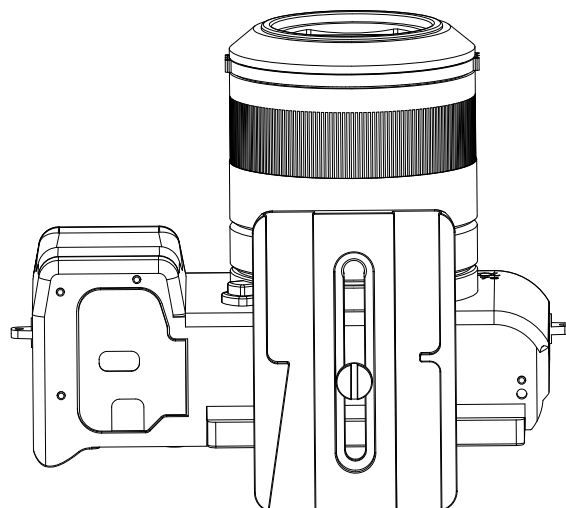


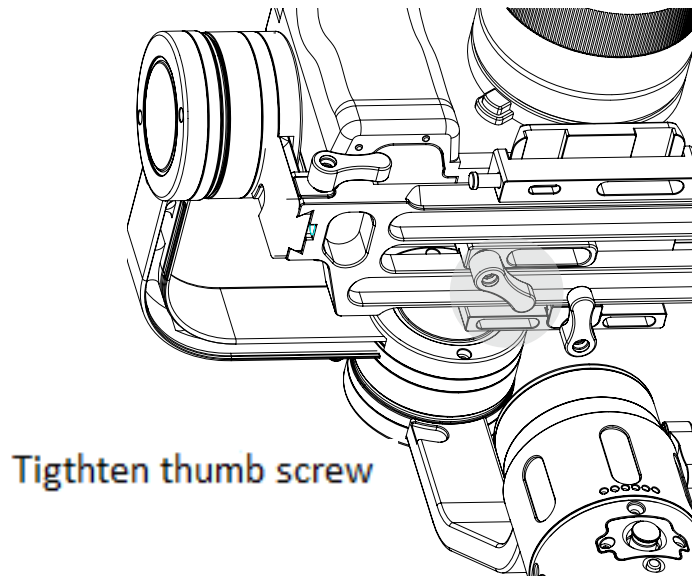
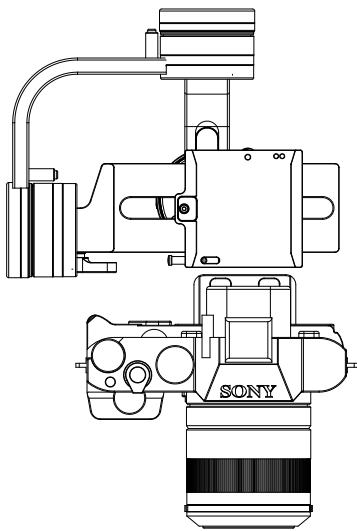
Fig. 4. The camera is attached to the quick release plate



## STEP 2

Install the camera on gimbal base

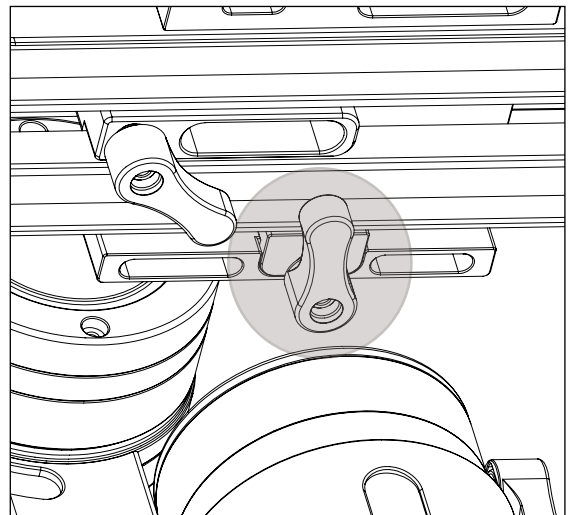
- Install the camera with quick release mounted into the Beholder MS-PRO bottom mount base (Fig.5).
- Slightly adjust the position of the camera into the base until you find a horizontal balance.
- Shift the camera as close to the pitch motor as possible. Use the base plate positioning if needed.
- Tighten the thumb screws.
- Use a screwdriver to tighten the 1/4 quick release screw.



## STEP 3

Adjust the gimbal roll – left and right balance

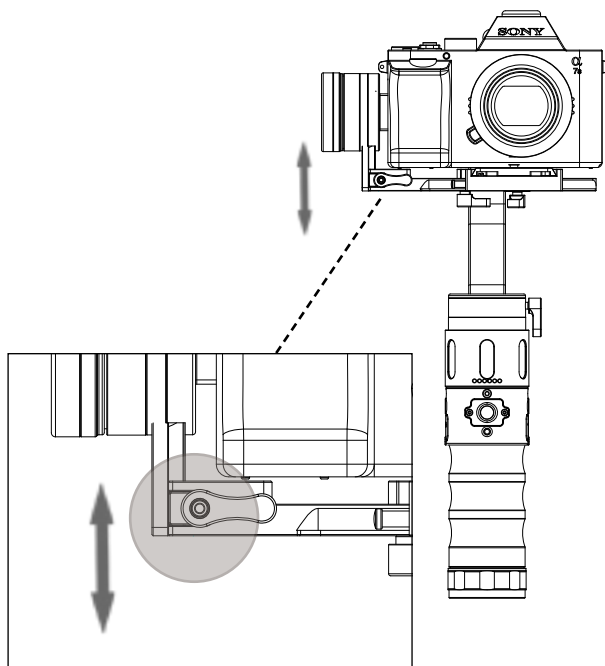
- Release the roll thumb M4 screw and make the arm to be the shortest then tighten the M4 screw.
- Slide the roll arm left or right until the camera finds a balance position and doesn't lean left or right.
- Tighten the thumb screws.



## STEP 4

Adjust the gimbal pitch - up and down balance

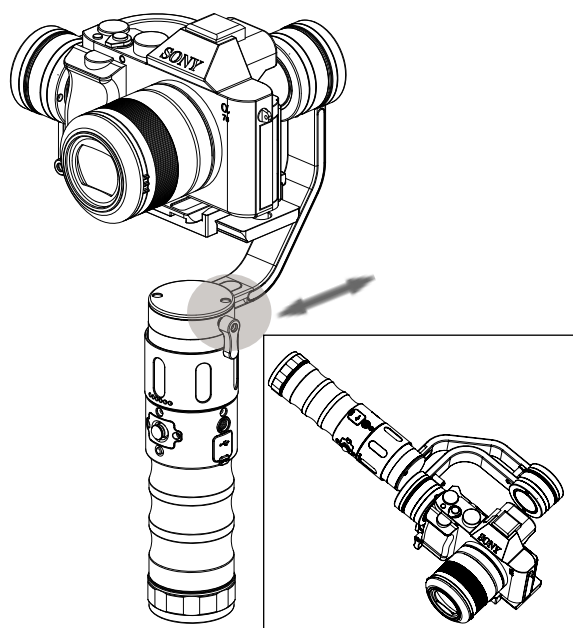
- Loosen the camera plate M4 thumb screw to adjust the pitch level (M4 thumb screw – in Fig. 7)
- Move the camera plate arm up and down, until the camera stays in place at any lens angle.
- Tighten the thumb screws.



## STEP 5

Adjust the gimbal pan– forward and backward balance

- Loosen the pan motor left thumb screw
- Tilt the gimbal handle 45 degrees forward.
- Move the pan arm to the left side or to the right side at 90 degrees and observe the direction it tends to move when released.
- If the pan arm tends to go up/ backward, then the gimbal is front heavy: move the pan arm back slightly and repeat the side test.
- If the pan arm tends to move down/ forward, it means the gimbal is back heavy: move the pan arm slightly forward and repeat the side test.
- When in balance, the pan arm should stay at any position around the handle when the handle is tilted forward.
- Tighten the thumb screws



### Recommendations

- After adjusting the camera installation, check that each knob is fully tightened.
- Do not overtighten the screw wrench to avoid stripping the screw.
- For very small cameras and lenses, if you cannot reach the balance as per the steps above, replace the camera or lens.

### TIP

- Before starting the gimbal, make sure the camera is properly mounted on the stabilizer and perfectly balanced.
- Beholder MS-PRO uses the latest 32-bit systems, a multi-processor technology and inductive motor technology, with greatly improved torque. Therefore, it's able to start and level the camera if it is out of balance, but for shot stability, battery life and power saving, we strongly recommend you find the best balance first and then power the gimbal on and shoot the video.

# Power ON



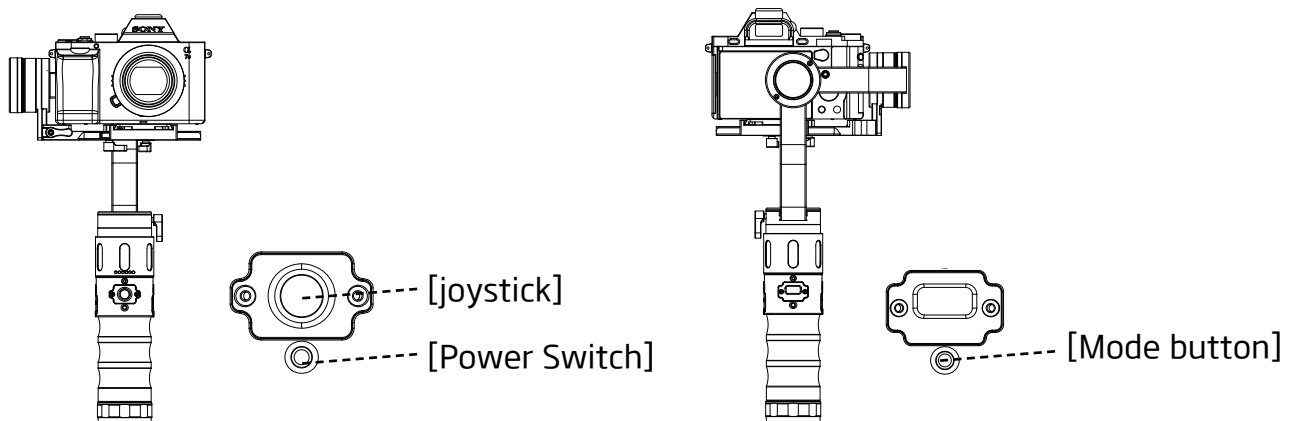
Starting the gimbal in default profile

- Press the power button for two solid second to power the gimbal on.
- The gimbal start in Pan follow mode.(Profile 2)
- Use the five-way joystick (Fig. 9 [1]) to control the camera tilt and pan direction.

Push the joystick up or down for tilt up and down.

Push the joystick to left or to right to pan camera to left or right.

The OLED shows the current condition

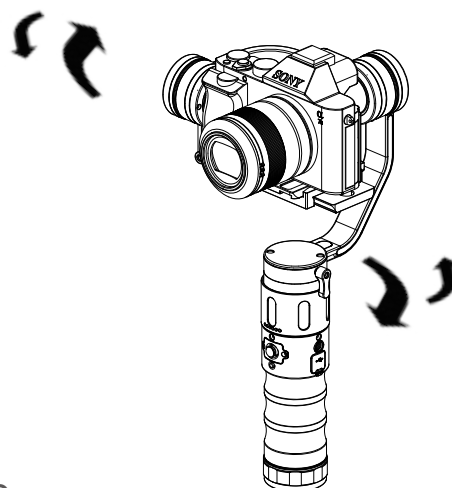


# Modes of Operation (Profiles)



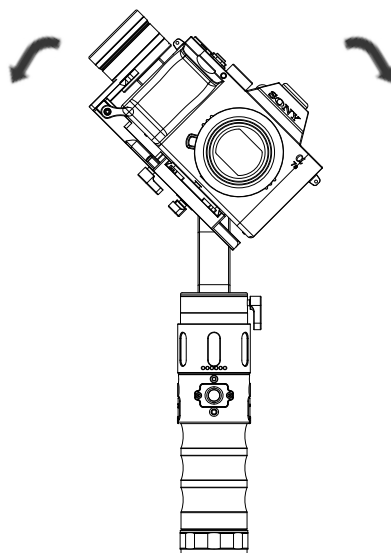
Switching the gimbal to different modes of operation (profiles)

- Press the mode button one time, which is located under the OLED screen to enter Lock Mode (Profile 1): camera will hold the direction and not follow, pan, or tilt.
- Press the mode button twice to enter Pan-Follow Mode (Profile 2): The gimbal follows pan and holds the tilt position.
- Press the mode button three times to enter Follow Mode (Profile 3): The camera follows the tilt and pan directions.
- Press the mode button four times to enter Full Follow Mode (Profile 4): The gimbal will follow roll, pitch, and pan.
- Press the mode button five times to enter Profile 5: This will level roll and bring the pitch to the horizon.
- Press the mode button and hold for six seconds to calibrate the gyroscope.

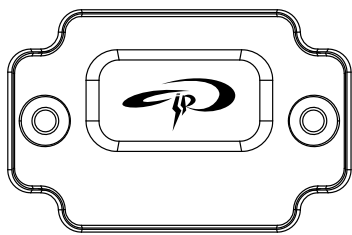


## TIP

Any of the profiles can be set to hold a specific angle or position manually. Take the camera with one hand and hold it in the desired position for 2 seconds. The system will automatically save the desired angle.

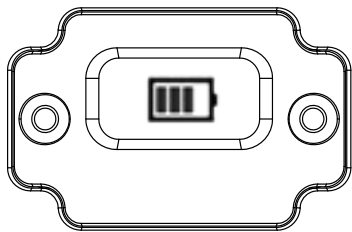


# OLED Display



Boot interface company logo

Charge:



85% to 100%



65% to 85%



45% to 65%



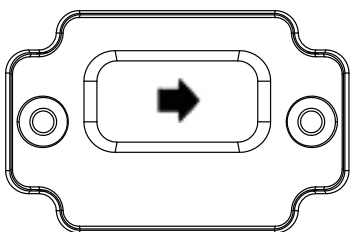
30% to 45%



10% to 30%



10% or less



joystick right direction



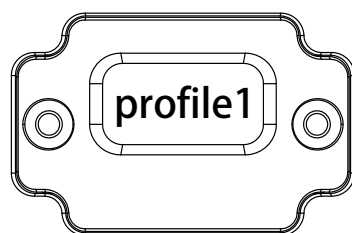
joystick tilt up



joystick left direction



joystick tilt down



profile1: Press mode button once: Lock mode

profile2: Press mode button twice: Pan Follow mode

profile3: Press mode button three times: Follow mode

profile4: Press mode button four times: 3-Axis Follow mode

profile5: Press mode button five times: Return to the Home position

Note:

Press and hold the mode button for 6 seconds to start gyro calibration. Do not move the gimbal while calibration is in the process. In case gimbal is moved, please redo the calibration. Usually the calibration takes about 5 seconds during this time the gimbal shut off and restart the motors.

## Extra Features



Extensions and extra features

- 3/8 standard screw holes, connecting rods 1/4 or 3/8 turn screws sold separately.
- Mini USB for controlling the gimbal via wired joystick
- Handle screw for an external monitor and microphone, lights, etc.
- Genuine universal quick release plate Manfrotto 577 series, such as 501PL, 701, etc. 50mm width Quick Edition

## Compatible Cameras

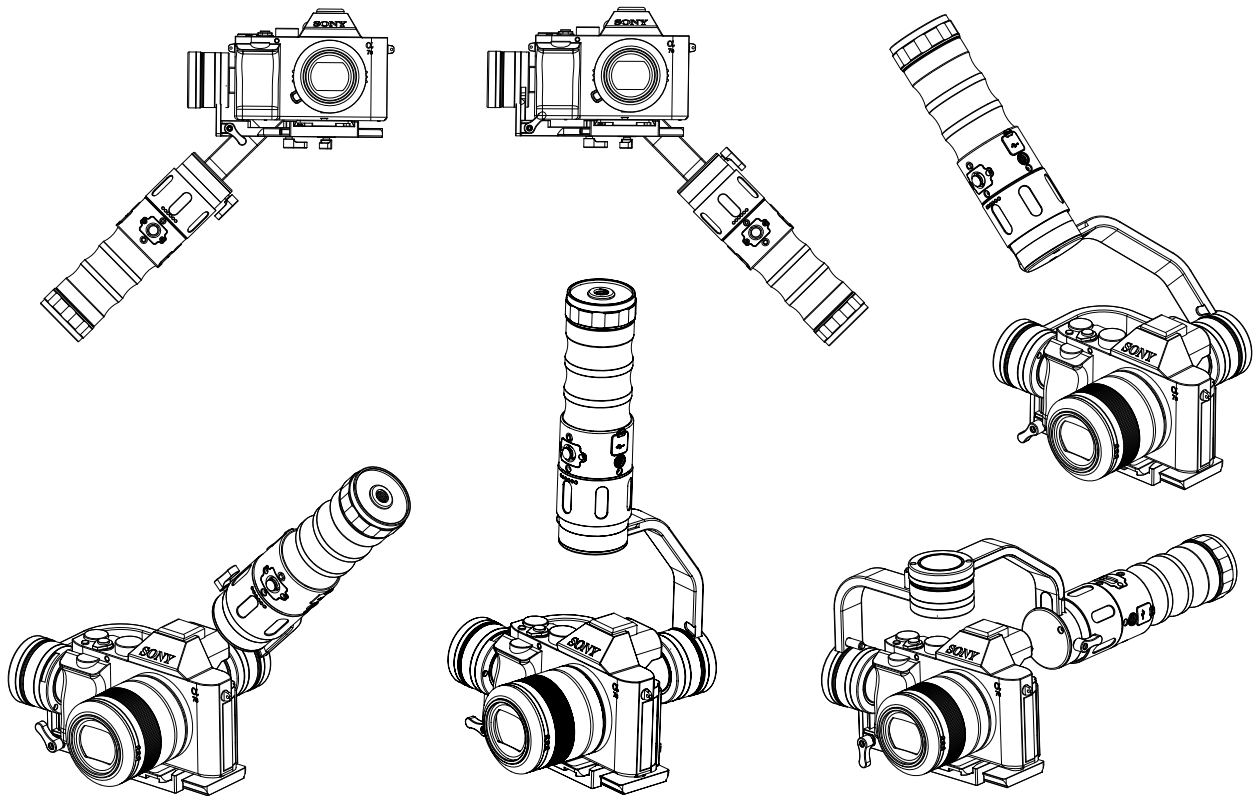


Compatible camera models

- The Beholder MSPRO supports lighter than 200-900gram mirrorless cameras, Gopro cameras, and smartphones.
- List of supported cameras:
- Mirrorless: A6300, A7R2, A7S + 24- 70 / 16- 35, GH4 + 12- 35, GH3 + 14- 140 and so on.
- Compact cameras: RX100, LX100

# Gimbal Working Angles

Handheld camera angle range



## Precautions

Things to consider before use

The Beholder MS-PRO is shipped from the factory with perfect calibration. However, after a long period of unused or if the temperature difference is too large, it may cause the gyroscope to drift automatically or to tilt during use.

Gyro Correction:

Place the Beholder MS-PRO horizontally on the table, power on the gimbal and press and hold the menu button for 6 seconds. The system automatically enters the gyroscope calibration mode. The motors lose power for 5 seconds. After that, the automatic system calibration is complete and the stabilizer can resume normal use.

Note:

1. During the calibration process, hold the gimbal handle on the table as stable as possible.
2. The mini USB port is designed only for a wired joystick and can't be used for charging.
3. In order to obtain a better shooting experience in the use of MSPRO when shooting, avoid any collision and do not use excessive force.



## Important safety instructions

1. Do not get too close to a magnetic field or the source of extreme heat and fire.
2. Using and storing this product under high temperature and humidity, water, or highly corrosive environment can cause the device an internal fault.
3. Protect the power cord to avoid trampling or backlog, particularly at plugs, sockets and other parts.
4. Do not use incompatible power supply, charger or batteries that may cause a fire, explosion or other hazard. Use only manufacturer approved equipment and matching accessories to meet safety standards. Other types of accessories may cause problems with the product or a security incident.
5. For a long-term out of use of this product, please remove the battery, wrap it in a dust-proof packaging and place it in a dry environment.
6. Do not use the device during a thunderstorm or it may result in equipment malfunction or a risk of lightning strike.
7. Do not expose the battery to excessive heat in the environment, such as sunlight, fire or similar factors.
8. Do not expose this appliance to dripping or splashing liquids.
9. Do not place conductive objects at the battery holder electrical terminal, or contact the battery ends, in order not to cause the battery to short-circuit or cause burns and other physical injuries due to the battery overheat.
10. Do not expose the battery near any heat sources such as sunlight, heaters, microwave, oven, stove, radiator, or other instruments that produce heat (including amplifiers).
11. If the battery is used improperly, there may be an explosion hazard. In order to reduce the risk of fire or burns, do not disassemble, crush, puncture, short external connections, expose to heat or throw in fire.



12. If the batteries leak, do not allow the liquid contact the skin or eyes. If you come in contact with the skin or eyes, wash with water immediately and go to hospital for medical treatment.
13. If battery discoloration, deformation, abnormal heat and other phenomena occurs, please stop using and replace the battery.
14. This product may contain small equipment and parts, keep the device and its accessories out of reach of children, children may damage the device or swallow small parts, beware of choking hazard.
15. Dispose of used batteries in accordance with local regulations.

# Copyright/Trademark Statement ▲

## Copyright/Trademark Statement

Beholder® and ikan® are certified trademarks, which cannot be used without our permission for any other purposes. The product has a number of patents so if copies of the product are found, the perpetrator will hold the relevant legal responsibility.

A regular dealer must obtain marketing authorization documents. Please visit an authorized dealer to purchase.

A list of distributors can be found on the website. In case the product is purchased on a non- authorized channel, we will not provide after-sales service for the product.

Product features, appearance or other functions may change over time. The company is free to implement and release any changes as desired.

### **Learn More:**

More dynamic information at official website: [www.beholder.cn](http://www.beholder.cn)

### **Support:**

Contact email: [beholder\\_cn@163.com](mailto:beholder_cn@163.com)

# Product Specifications



## Beholder MS-PRO technical specifications

<b>Model:</b>	MS-PRO 3-axis single handheld gimbal stabilizer
<b>Load Capacity:</b>	900g
<b>Battery:</b>	3x 18650 3.7v
<b>Battery Operating Time:</b>	Approx. 8-10 hours
<b>Battery Charging time:</b>	Approx. 3-4 hours
<b>Working temperature:</b>	-10 to 70 degrees Celsius
<b>Working angles:</b>	Pan: 360° Roll: 355°+-180° ( effective operating range ) Pitch: 355°+-180° ( effective operating range )
<b>Tripod Mounting Thread</b>	3/8"
<b>Accessory Mounting hreads</b>	1 x 1/4-20" Length 17cm
<b>Dimensions</b>	Width 13.4cm Height 31.4cm
<b>Weight</b>	1.94 lb ( 0.8kg) Canon: 5D / 6D / 7D + 16-35 f4.0 / f2.8, 24-105 f4.0, 24-70
<b>Camera Support:</b>	Mirrorless, 5D/6D/7D+16-35 f4.0/f2.8, 24-105 f4.0, 24-70 , A6300, A7 +24-70/ 16-35 、 GH4+12-35/14-40/7-14, RX100、 LX100.

# Frequently asked questions and answers

## 1. How do you charge the gimbal?

The Beholder MS-PRO can be charged in two ways: using the built-in battery holder micro USB or using a separate authorized dedicated charger (recommended) such as the ikan ICH-SC4.

Charging using the battery holder:

- Remove the battery cap cover on the bottom of the handle.
- Take the battery holder out.
- Connect the power cable to the Micro USB.
- Connect the other cable end to power supply.

Charging using a dedicated charger:

- Buy an authorized smart charger
- Release the battery holder.
- Take out the batteries and charge with fast charger.

### TIP

Fully charged 18650 batteries measure 4.21V through a volt meter.

## 2. After mounting the quick release plate, sliding it into the stabilizer seems difficult. How do you fix this?

Release the 1/4 screw about two turns and then insert to the gimbal QR base.

### TIP

After balancing the camera, mark the position with a pen. This will help you find the balance faster the next time you mount the same camera and lens.

**3. After balancing the camera, adjusting the camera' s center of gravity, and tightening the screws, the camera is still wobbly and unstable. Why?**

You need to put the rubber stickers onto the quick release plate and then put the camera back on.

**4. Why is my battery holder not charging?**

When using the battery holder as a charger, the USB power supply must meet the minimum requirements. The common USB port may not supply enough power to charge the batteries. A USB adapter rated at a minimum of 2.5A/12.5W or more may be needed. You can also purchase the Beholder multi-function intelligent charger.

**5. When I start up the stabilizer(the camera' s center of gravity has been adjusted), why is it always twisted to one side?**

This may be from gyro magnetic fields that are affecting the surrounding environment, leading to an incorrect gyro direction. Solution: Press and hold the mode button for about 6 seconds to enter the calibration mode. It can be used normally after calibration is complete.