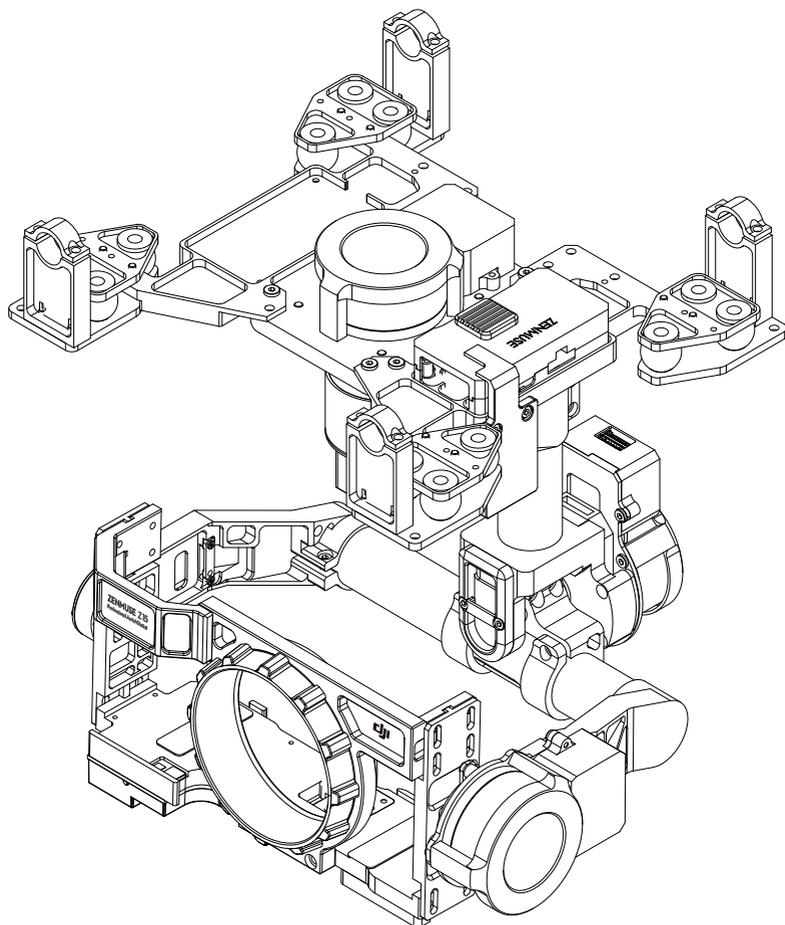


Zenmuse Z15-A7

User Manual

V1.2 2015.09



Warning & Disclaimer

The Z15-A7 gimbal has been calibrated specifically for the designated camera and lens before it leaves the factory. Please mount only the designated camera and lens to the Z15-A7. Do not add any other component/device (such as filters, etc.) to the camera. Please use the original camera battery, otherwise performance may be hindered and internal malfunctions or damage may occur.

Only use the Z15-A7 gimbal with Flight Control Systems developed by DJI (such as the A2 or WooKong-M, and **please upgrade to the latest firmware**) for the greatest stability and precision. Please download the corresponding Assistant software and upgrade your Flight Control System's firmware, otherwise the Z15-A7 may not function properly. When the main battery power is connected, please be careful and operate the Flight Control System in the safest way possible. It is strongly recommended that you remove all propellers, use the R/C or flight pack battery power system, and keep children away during gimbal calibration and parameter setup. Carefully follow the appropriate steps to mount and connect the gimbal to your aircraft. Use this manual as well as the related Assistant. Please respect the AMA's National Model Aircraft Safety Code.

As DJI has no control over the use, setup, final assembly, modification (including use of non-specified DJI parts i.e. motors, ESCs, propellers, etc.) 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. DJI assumes no liability for damage(s) or injuries incurred directly or indirectly from the use of this product.

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Manual Tips

Legend



Important



Tips

Designated Camera and Lens Type for the Z15-A7 Gimbal

Camera Type: Sony ILCE-7S, Sony ILCE-7R

Lens Type: Sony FE 35mm f2.8 ZA

Camera Battery Type for the Z15-A7 Gimbal: NP-FW50 (new version)



- Ensure to use the new NP-FW50 battery for the Sony ILCE-7S and Sony ILCE-7R camera, which has been produced by Sony after Jun 1, 2014. It is all black and weighs 40 g.
- The Z15-A7 supports both Sony ILCE-7S and Sony ILCE-7R camera. It has been calibrated for the Sony ILCE-7S camera by default. Balancing the tilt and pan axis is required if you are using the Sony ILCE-7R on the Z15-A7.

Firmware versions of supporting DJI Flight Control Systems

WooKong M: V5.26 A2: V2.1 or above

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Product Profile

The Z15-A7 is a sophisticated gimbal specifically designed for aerial creativity. It has a built-in independent IMU module, special servo drive module, HDMI-HD/AV module, infrared remote control module, and more. The Z15-A7 performs well in all modes, including Orientation-locked, Non orientation-locked, and FPV (Reset).

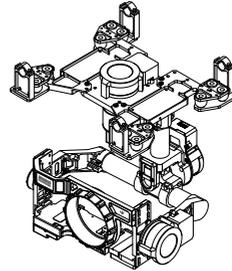
| Working Modes | | | |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| | Orientation-locked | Non orientation-locked | FPV (Reset) |
| Gimbal Direction | Gimbal pans with aircraft's nose. | Gimbal pan and aircraft's nose move separately. | Gimbal pan and aircraft's nose are synchronized. |
| Gimbal and Aircraft's Nose Relative Angle | The gimbal direction maintains the same relative angle to the aircraft's nose. | The relative angle between the gimbal direction and aircraft's nose is controllable. | The relative angle between the gimbal direction and aircraft's nose is 0°. |
| TX Control | Controllable | Controllable | Uncontrollable |
| Attitude Stability* | YES | YES | YES |
| Vibration Reduction | YES | YES | YES |
| Stick Movement Definition | Roll is locked level in stick commands from 0-2/3 and rotates in commands from 2/3-endpoint; Pan stick commands control the rotation angle and are limited to 360°; Tilt stick commands control the rotation velocity of the gimbal. | Stick commands for gimbal rotation velocity are relative to total stick movement. The stick's center position velocity is 0°/s. Its endpoint is the maximum velocity. | — |
| Linear Control | YES | YES | — |

Note*: Attitude stability means that the gimbal's Roll/Tilt will not follow the aircraft's Roll/Pitch movement.

In the Box

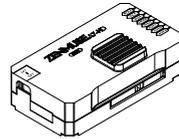
Gimbal × 1

The Z15-A7 gimbal includes built-in servo drive modules, an independent IMU module, an infrared remote control module and a HDMI-HD/AV module.



Gimbal Controller Unit (GCU) × 1

Connect the GCU to your Flight Control System using the CAN-Bus cable. The GCU will control the gimbal's pan, roll and tilt movements. Connect the GCU to a video downlink for a video signal.



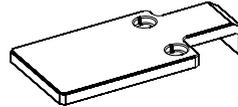
Mounting Bracket × 4

For mounting the gimbal to the landing gear.



Mounting Board for Receiver × 1

For attaching the GCU and providing a convenient mount for the receiver or other devices.



Camera Mounting Screw × 1

A standard tripod mounting screw.



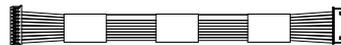
Screw Package × 1

For mounting the gimbal to your aircraft (M2.5*8 cap head screw).



10-Pin to 9-Pin Cable × 2

For connecting the GCU to the gimbal.



7-Pin Cable × 1

For connecting the GCU to the Lightbridge air system.



8-Pin to 6-Pin Cable × 2

For connecting the GCU to the gimbal.



Servo Cable Package × 1

For connecting the GCU and the receiver.



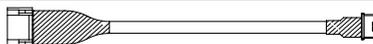
AV Video Power Cable × 1

For connecting the GCU and the wireless video transmission module, and transmitting the AV signal.



iOSD Mark II Cable × 1

For connecting the GCU to the DJI iOSD Mark II.



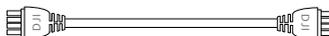
Micro-USB Cable × 1

For adjusting parameters and upgrading firmware via a PC.



CAN-Bus Cable × 1

For the CAN-Bus Flight Control System.

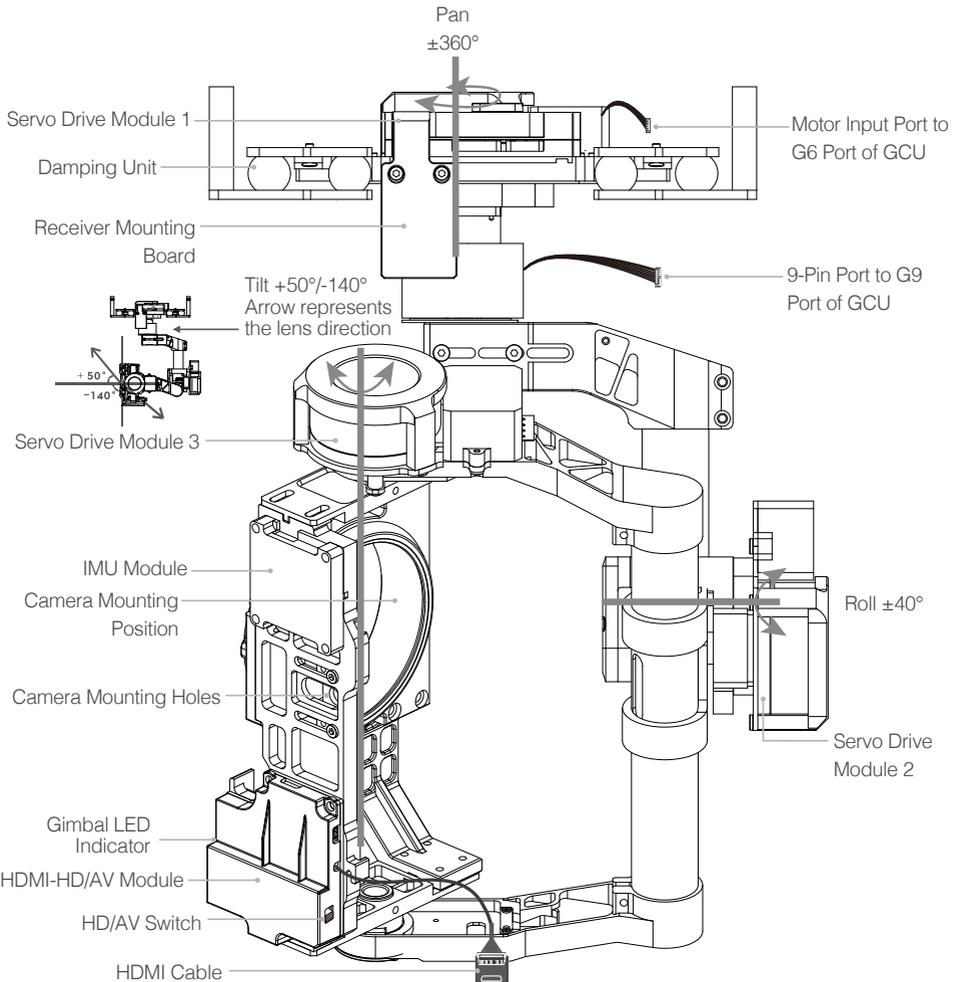


Spare Package × 1

Vibration Absorbers, Spare Screws, and Mounting Bracket

Z15-A7 Diagram

- ⚠ To avoid motor damage, ensure there is nothing blocking the rotation of the servo drive modules.
 - Clear obstacles or immediately cut off the power if any blockage occurs.
-
- 💡 The servo drive modules have two motor command input ports and one private encoder port.
 - The HDMI-HD/AV module converts HDMI to HD (or AV) using a cable connected to the camera HDMI port; it also transforms the TX signal to an infrared remote control module for shutter control and video recording.

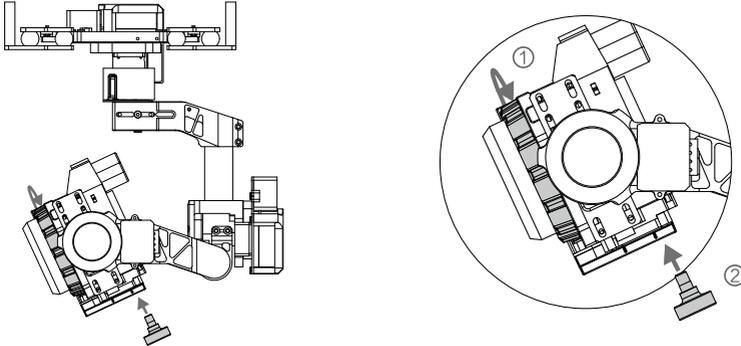


Mount

Power off the camera during the mounting process.

Mounting the Sony ILCE-7S Camera

1. Mount the camera onto the gimbal as shown and tighten the lens retaining ring.
2. Adjust the camera position and tighten the camera mounting screw.

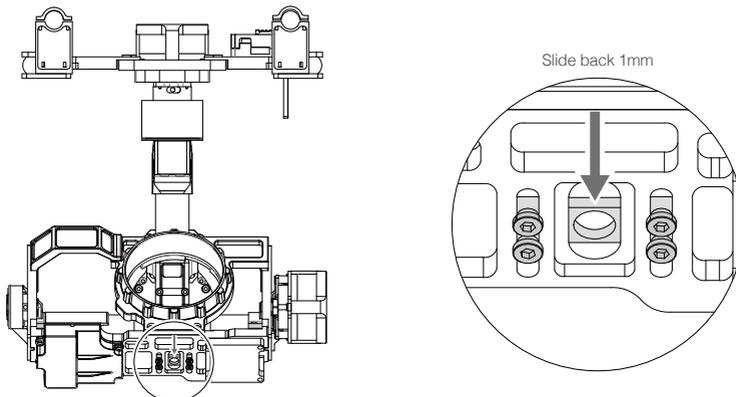


Mount

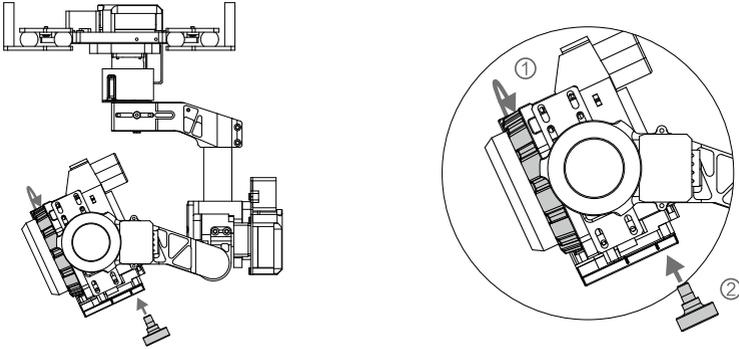
Mounting the Sony ILCE-7R Camera

If you are using the Sony ILCE-7R camera on the Z15-A7, follow the steps below to mount the camera and balance the tilt and pan axis.

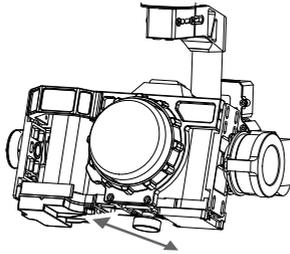
1. Loosen the screws on the bottom of the gimbal of the positioning board. Slide the positioning board about 1 mm back as shown below and then tighten the screws.



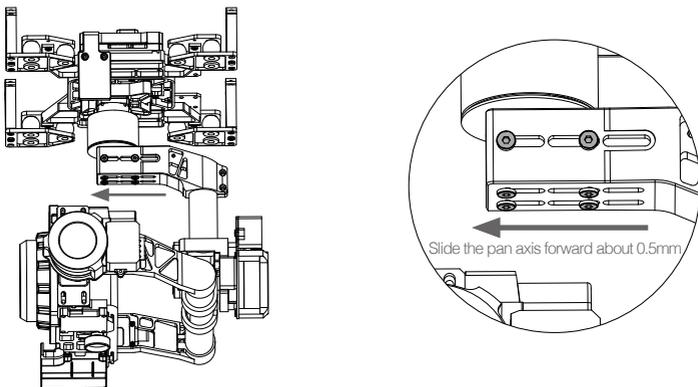
2. Mount the camera onto the gimbal as shown and tighten the lens retaining ring. Then tighten the camera mounting screw.



3. Rotate the camera to any tilt angle, if it stays in position, then proper balance has been achieved. Otherwise adjust the camera's position by sliding the positioning board until the proper balance is achieved.



4. Loosen the eight screws on the connection point of the pan axis. Then slide the pan axis forward about 0.5mm and tighten the screws. When the proper balance is achieved, the pan axis will stay in position after rotating the gimbal 90 degrees. Balancing is complete.

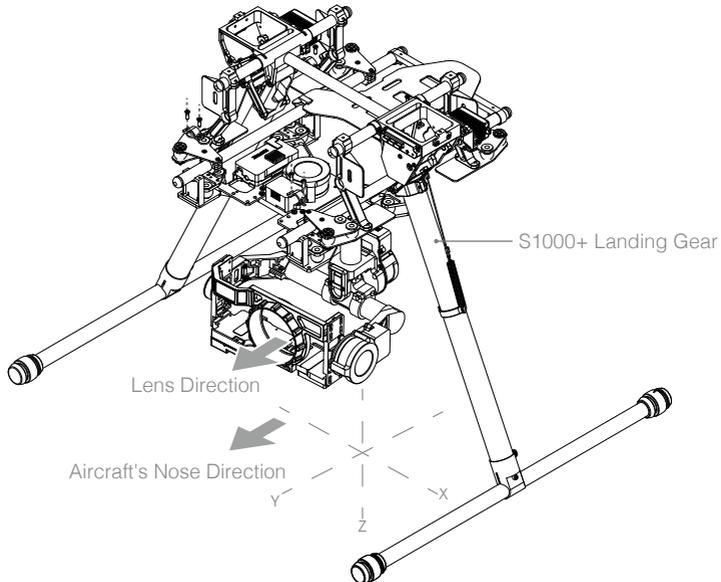


 Whenever you test the gimbal, ensure all the screws on the gimbal are tightened.

Mounting the Gimbal to the Landing Gear

The following diagram shows the gimbal mounted on a DJI S1000+. Mount the gimbal onto the landing gear with the mounting brackets. Tighten the screws and use thread-locking fluid.

You may also mount the gimbal onto different landing gear by referring to this diagram.

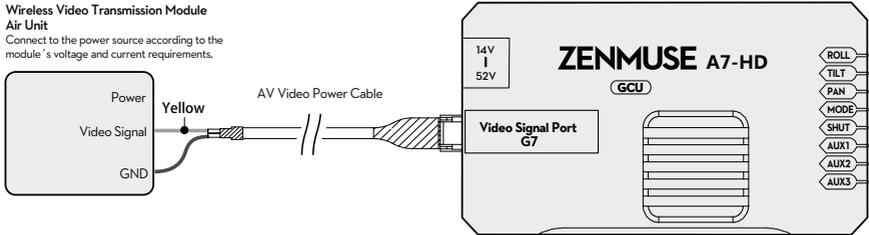


- 
- Ensure the lens is pointing in the same direction as the aircraft's nose.
 - Ensure the top and bottom plates of the damping unit stay parallel when mounting. This prevents stretching and distortion.
 - Maintain good overall balance when mounting in order to ensure the center of gravity is balanced on each of the three axis lines.
 - The gimbal's center of gravity has been set by the factory. The center of gravity directly determines the gimbal's overall performance. Follow the instructions in this manual to adjust the center of gravity if you are using the Sony ILCE 7R camera, otherwise do not adjust the gimbal's center of gravity.
 - The gimbal is highly precise and depends on this precision for optimal performance. Do not remove any screws on the gimbal, as this may result in poor performance or damage to the gimbal.
 - Do not unplug any cables attached to the gimbal ports or change the mechanical structure.
 - Make sure the wiring is correct, otherwise the gimbal may behave abnormally.

Video Signal Transmission

A wireless video transmission module is required for remote video.

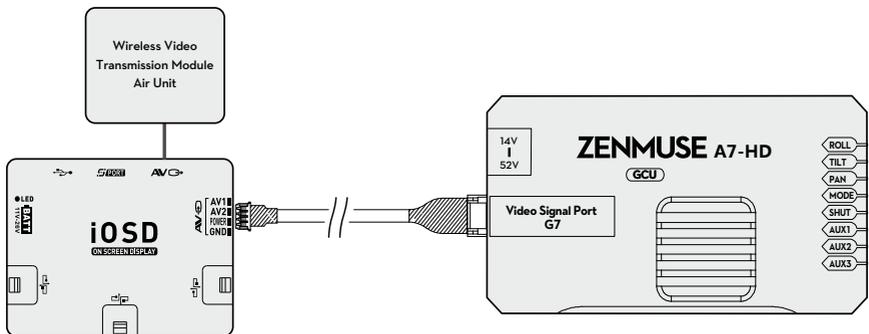
A. AV Wireless Video Transmission



1. Solder the AV Video Signal and GND cables to the wireless video transmission module (Air Unit) as shown above.
2. Plug the AV video power cable into the GCU's G7 port.
3. Toggle the HD/AV Switch to the AV position. (See Page 7 for the location of the HD/AV Switch)
4. Power on the gimbal. If the gimbal LED indicator blinks yellow, it is functioning normally. If the LED indicator shows a constant yellow light, the video signal is lost. Check the connections between the camera and the HDMI video input.

- ⚠ Complete the connection between the wireless video transmission module and the GCU before powering on the gimbal.
- A standard AV video power cable is recommended.
- Be sure to solder the AV video power cable to the wireless video transmission module correctly. As the cable carries power, ensure the cables are insulated or wrapped to prevent a short circuit.
- Connect the wireless video transmission module to a power source, as the GCU cannot supply power. Make sure the power source provides a safe voltage for your own devices according to the wireless video transmission module's requirements.

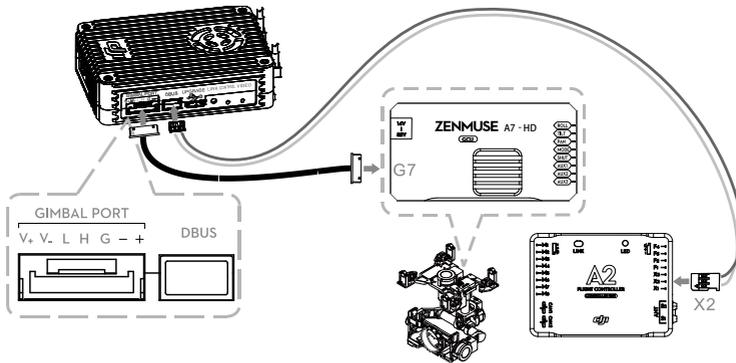
B. DJI iOSD Mark II and AV Wireless Video Transmission



1. Connect the iOSD Mark II cable to the GCU's G7 port.
2. Complete the other connections between the iOSD Mark II cable and the wireless video transmission module, according to their manuals.
3. Toggle HD/AV Switch to the AV position. (See Page 7 for the location of the HD/AV Switch)
4. Power on the gimbal. If the gimbal LED indicator blinks yellow, it is functioning normally. If the LED indicator shows a constant yellow light, the video signal is lost. Check the connections between the camera and the HDMI video input.

 Make sure to connect the wireless video transmission module and the iOSD Mark II cable to the GCU before powering on.

C. DJI Lightbridge Air System



This example is based on a Z15-A7 gimbal and the A2 flight control system.

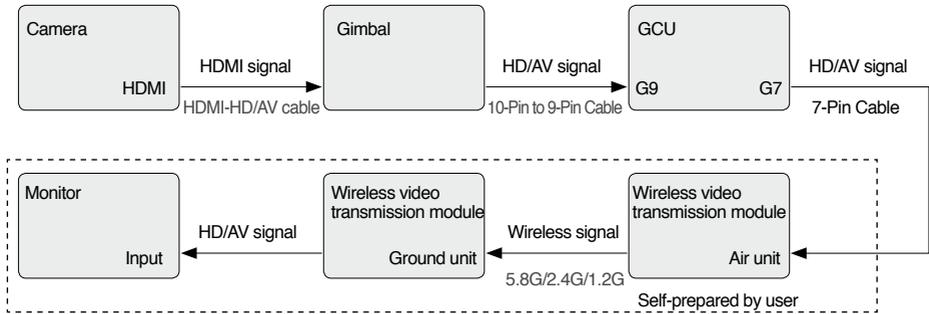
1. Connect the Gimbal Port on the Lightbridge Air System to the G7 port on the Z15-A7 GCU using the supplied HD video power cable (7-pin cable).
2. Connect the DBUS port on the Lightbridge Air System to the DBUS port (X2 port) on the A2 flight control system. Toggle the HD/AV switch to the HD position.
3. Refer to the Lightbridge and A2 flight control system manuals to complete the connection.

 • To transmit gimbal and aircraft signals, connect the RC receiver to the DJI Lightbridge ground system when connecting the GCU.

- Always connect the wireless video transmission module to the GCU before powering on.
- A standard HD video power cable (7-pin cable) is recommended.
- Complete the other connections according to the Lightbridge user manual.
- If the gimbal LED indicator blinks red continuously, please power cycle the gimbal. (Power it off, then power it back on)

 If the video signal does not transmit, check each step.

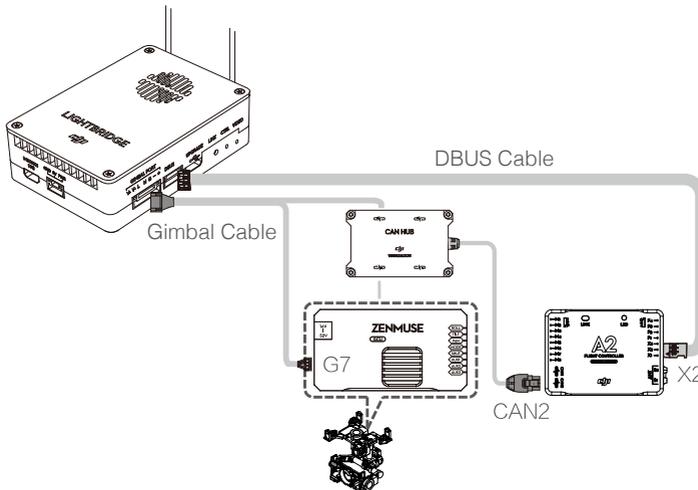
The following diagram shows how a video signal is transmitted from the gimbal.



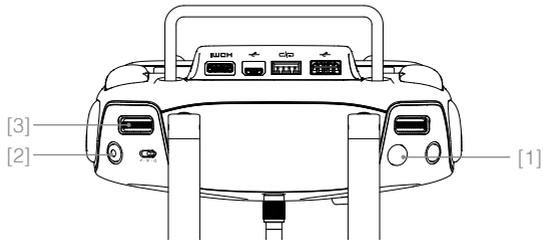
D. DJI Lightbridge 2

Connect the system as follows:

1. Connect the G7 port on the DJI HD gimbal and the CAN BUS port on the flight controller to the gimbal port on the Air System.
2. Connect the X2 DBUS port on the flight controller to the DBUS port on the Air System.
3. Refer to the user manuals for the gimbal and flight controller for details.



- Only use the DJI HD gimbal and DJI flight controller with the latest firmware. The GCU firmware for the HD gimbal must be v2.6 or above.
- If you are using the DJI A2 Flight Controller, connect the gimbal cable to the CAN 2 port on the flight controller.



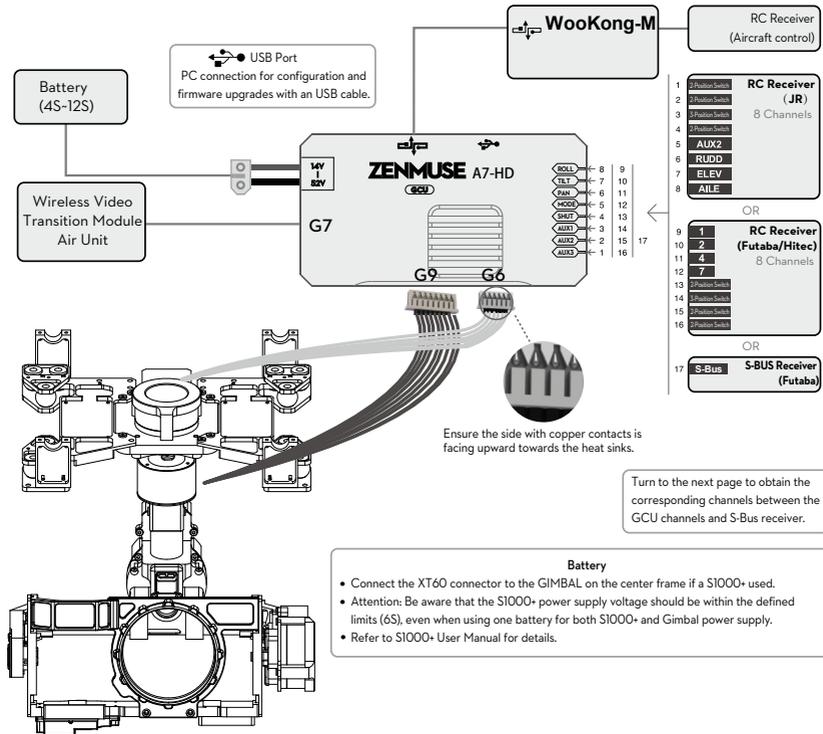
Press the shutter button [1] on the Ground System to capture photos. Press the record button [2] to record video. Turn the Gimbal Dial [3] to adjust the tilt motion of the camera.

In Dual Ground System Mode, the pan, tilt or roll motion of the camera can be controlled by the Slave Ground System, depending on your settings in the DJI GO app. Refer to the Lightbridge 2 User Manual for details.

GCU Wiring

GCU Wiring

The gimbal should be used with an A2 or WooKong-M flight control system. The GCU wiring is based on WooKong-M. For WooKong-M, connect to any spare CAN-Bus port on the flight control system via a CAN-Bus cable.



GCU Wiring

WooKong-M

Please refer to your WooKong-M User Manual for all connection and configuration details.

Gimbal Control Unit (GCU)

1. Make sure all ports are accessible when installing your MC so as to facilitate wiring and software configuration.
2. In 3-pin ports, the pins near the nicks are the signal pins.
3. Use the 6-pin cable for the G6 port, and the 10-pin to 9-pin cable for the G9 port.
4. DO NOT cover the heat sinks, and keep them unobstructed at all times.
5. The GCU module is NOT water or oil proof.



RC Receiver

1. The diagram on the previous page shows example connections. The aircraft signal will transmit through the DJI Lightbridge ground system. After connecting to Lightbridge, it is not necessary to connect with an RC receiver.
2. Prepare 2 TXs, one for gimbal control, and the other for aircraft control. Refer to the [2-Pilot Solution](#) for more details. If only one receiver is used for both aircraft and gimbal control, refer to the [1-Pilot Solution](#) for more

details.

3. Setup the Aileron, Elevator, and Rudder channels on the gimbal control TX. The command stick will control gimbal rotation velocity. The center position is 0, and the end point is maximum velocity in both clockwise and counter clockwise directions. (The end point is 100%)
4. Choose one 3-position switch/channel to use as the Z15-A7 Working Mode switch. (MODE)
5. Choose one 2-position switch/channel to use as the camera shutter control switch (SHUT), and another 2-position switch to use as the camera lens orientation switch in Reset Mode (AUX2).
6. Choose one 2-position switch/channel to use as the camera video recording control switch (AUX3).
7. Please refer to the Wookong-M User Manual for aircraft control settings.
8. Connect the receiver to the GCU correctly.

GCU Ports

The following table shows the connections between the GCU channels and the relevant TX channels.

| TX Channels | | GCU Channels | Indications |
|---------------------------|--------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JR | Futaba/Hitec | | |
| AILE | 1 | ROLL | For roll axis control (left/right). Velocity is zero if disconnected. |
| ELEV | 2 | TILT | For tilt axis control. Velocity is zero if disconnected. |
| RUDD | 4 | PAN | For pan axis control. Velocity is zero if disconnected. |
| AUX2 | 7 | MODE | For Working Mode switch. |
| 2-position switch channel | | SHUT | For camera shutter control. |
| 2-position switch channel | | AUX1 | Reserved channel. |
| Or Futaba S-Bus channel | | AUX2 | When AUX2 is connected to a 2-position switch channel, it is used as a camera orientation (down or forward) switch in FPV Mode (Reset). The camera orientation is forward if disconnected. Or if you are using a S-Bus receiver, connect the receiver to the AUX2 port. |
| 2-position switch channel | | AUX3 | For camera video recording control. |

The following table shows the corresponding relationship between the GCU and the S-Bus channels.

| S-Bus Channels | GCU Channels | S-Bus Channels | GCU Channels |
|----------------|--------------|----------------|--------------|
| 1 | ROLL | 5 | SHUT |
| 2 | TILT | 8 | AUX1 |
| 4 | PAN | 9 | AUX2 |
| 7 | MODE | 6 | AUX3 |

Working Mode/AUX2 Switch Setup

Working Mode Switch Settings

For whichever 3-position switch you select to use as the Working Mode switch, wire the relevant channel from the receiver to the MODE port. At each switch position, use end-point fine tuning to set a channel AUX2 (JR) or 7 (Futaba/Hitec) for all three Working Modes:

| | |
|------------------------|--------------------------------|
| Orientation-locked | Back to center |
| FPV (Reset) | MODE channel end-point 60%~90% |
| Non orientation-locked | MODE channel end-point 60%~90% |

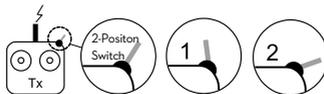
- ⚠ The gimbal will work in Orientation-locked mode if the MODE channel is disconnected.
- FPV mode is the default startup mode when the MODE channel is connected.
- The Working Mode from the previous power cycle will be retained if the cable between MODE and the RC receiver is disconnected during operation.

- 💡 For a 3-position switch, you may assign:
Position-1 to Non orientation-locked
Position-2 to Orientation-locked
Position-3 to FPV Mode (Reset)
Position-1 and Position-3 can be inversely assigned.
- One 2-position switch can be assigned for any two of the working modes, if preferred.



AUX2 Switch Settings

The Z15-A7 supports toggling the camera lens down or forward in FPV Mode (Reset). Please choose a 2-position switch for this function and wire the relevant channel of the receiver to the AUX2 port. You may assign: Position-1 to DOWN; Position-2 to FORWARD; or reverse the assignment.



- ⚠ This function will only work in FPV Mode (Reset).
- When this function is active, if the Working Mode is ever changed to FPV Mode (Reset), the gimbal will force the camera lens to face forward or down, depending on current the location of the AUX2 switch.
- The camera orientation is forward if AUX2 is disconnected.

- 💡 If AUX2 is connected to a Futaba S-Bus channel, it is then used as the input channel for S-Bus control.

Shutter Control

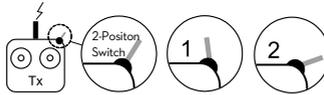
The Z15-A7 gimbal can transform a TX command into a shutter control signal. Select a 2-position switch/channel to use for remote shutter control.

For whichever 2-position switch you select, connect the correct receiver channel to the SHUT port. Toggling the 2-position switch works as follows:

Position-1 → Position-2: Take one photo

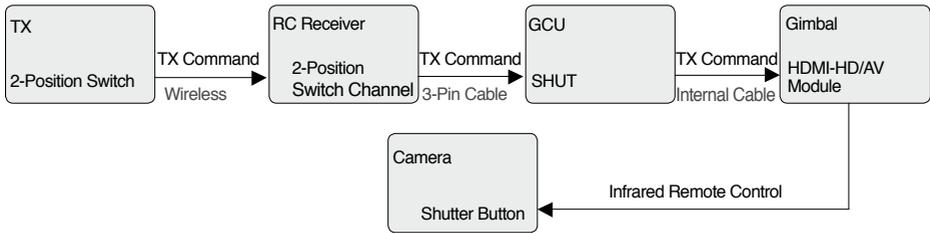
Position-2 → Position-1: Reset switch position (no shutter effect or action)

Position-1 → Position-2: Take another photo



 If the shutter control does not work correctly, please check each step.

The following diagram shows how the shutter control works.



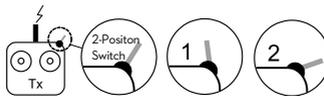
Shutter Control/Video Recording Control

Video Recording Control

The Z15-A7 supports starting and stopping your camera's video record function by using a 2-position switch through AUX3. Connect the relevant channel of the receiver to the AUX3 port. Toggle the switch to start/stop recording.

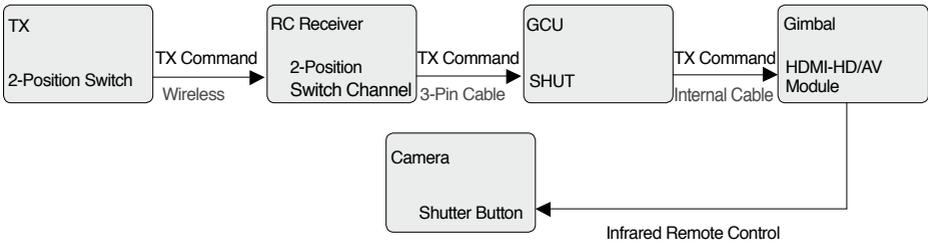
Position-1: Start recording

Position-2: Stop recording



 If the video recording control does not work correctly, please check each step.

The following diagram shows how the shutter control works.



PC Assistant Tuning

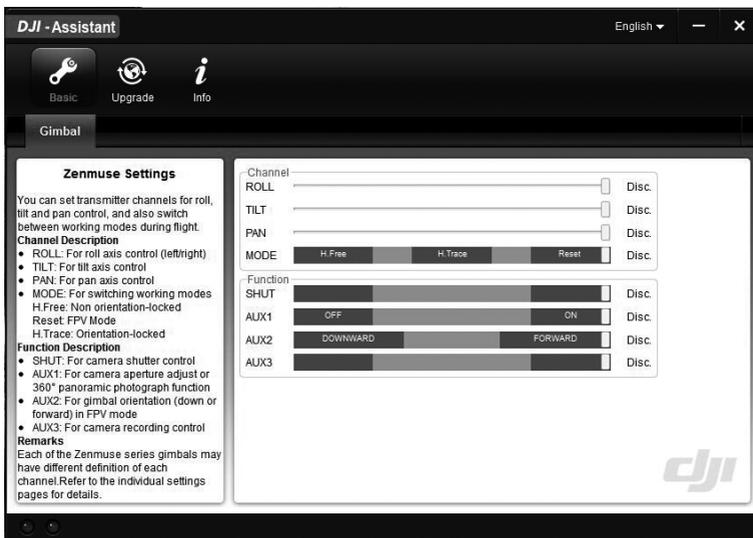
Installation and Usage

1. Ensure the most recent drivers are installed correctly. This should be done before using the A2 or WooKong-M software.
2. Download the appropriate Assistant installer from DJI.com.
3. Double click the Assistant installer and follow the steps to finish the installation.
4. Run Assistant.
5. Upgrade the firmware or configure parameters using Assistant as needed.

 The Assistant installer can be used on Windows XP, Win7, and Win8 (32 or 64 bit).

Basic Settings

You can set transmitter channels for roll, tilt and pan control, and also switch between working modes during flight. Move your cursor to each area or refer to this manual for more details.

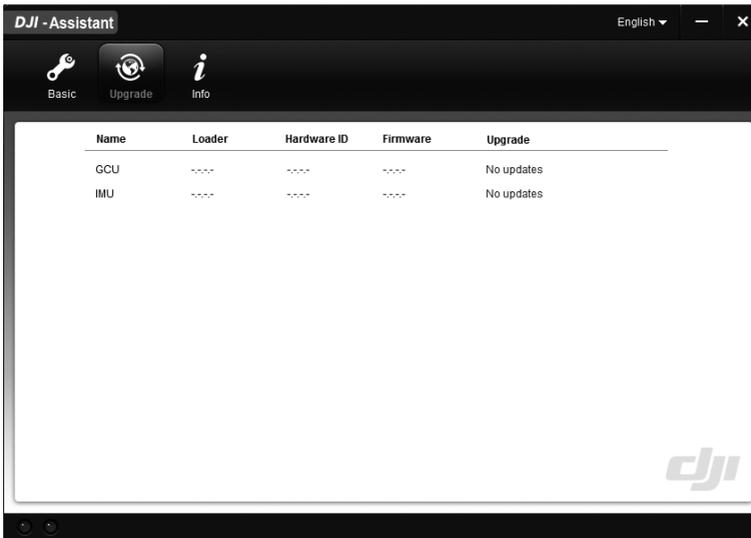


Upgrade

You can view the latest firmware version information on this page. Upgrade the firmware by following the steps below:

1. Connect the gimbal to your computer with a Micro-USB cable, and wait until the blue indicator LED in the Assistant is blinking.
2. Click "Upgrade".
3. Wait for the download to finish.
4. Click "Upgrade" again then click "Confirm".
5. Power cycle the gimbal after the upgrade is complete.

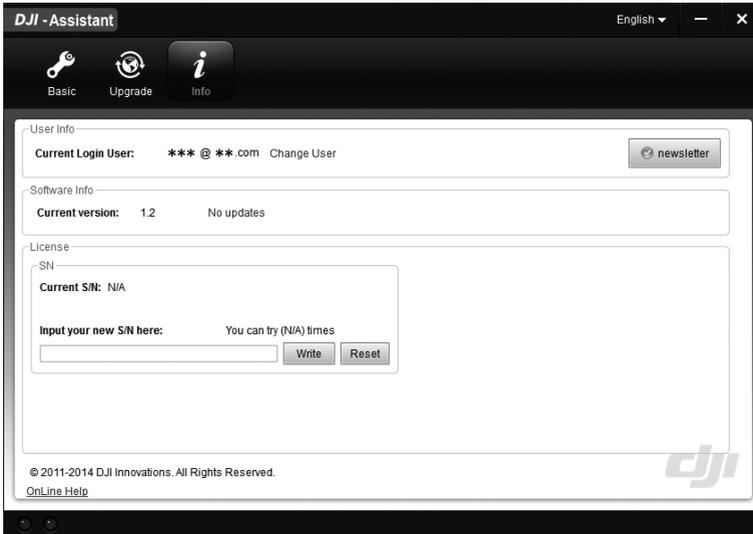
- ⚠ • Ensure your computer is connected to the internet.
- Close any antivirus programs and network firewalls during the upgrade.
- Ensure the gimbal is powered on during the upgrade.
- Do not disconnect the USB cable during the upgrade.
- Make sure that before turning on the gimbal it already has a camera mounted.
- Make sure there are no obstructions when turning on the gimbal.



Info

You can check the Assistant version via Info.

S/N is a 32 digit authorization code for function activations. The authorization code for your unit is filled in at the time of manufacture. In the future, you may be asked to fill in a new S/N if you require function upgrades. Fill in the S/N and then click the Write button. If you fill in an invalid S/N more than 30 times, your gimbal will be locked and you will have to contact DJI customer support.

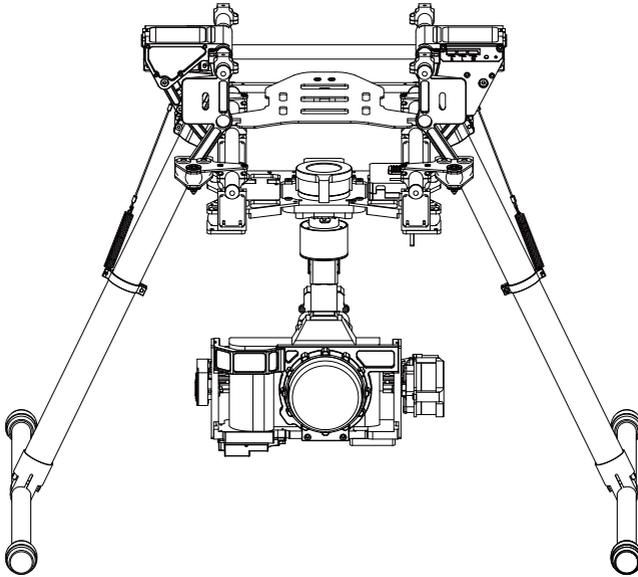


Pre-Flight Checklist

Pre-Flight Checklist

- ⚠ • Ensure the gimbal is properly installed and attached to the landing gear, and that the camera is mounted correctly and securely.
 - Before powering on, spin the gimbal through its complete rotation by hand on each axis to ensure nothing is blocking its movement.
 - Ensure all cables are connected correctly, without any plugged in backwards or into the wrong ports.
 - Ensure the AV video power cable is properly soldered and shielded if an AV video transmission module is used.
 - Verify TX settings.
 - Verify a proper connection between the GCU and the RC receiver.
 - Verify a proper connection between the GCU and the flight control system.
 - Ensure the latest Flight Control System firmware is installed.
-
- 💡 • Refer to the [Gimbal LED Indicator](#) section in the Appendix to understand the connection status between the camera and gimbal.
 - Refer to the [Troubleshooting](#) section in the Appendix if an abnormal situation occurs.

Flight Test



1. Ensure the batteries are fully charged for your TX, GCU, and all of the other devices on your aircraft.
2. Make sure all connections and wiring are in good condition.
3. Switch on the TX.
4. Adjust the camera to a level position on the roll axis of the gimbal.
5. Power on the gimbal and wait for the self initialization test to complete. The roll, pan and tilt axis will rotate quickly at the same time.
6. After self-initialization, the camera lens will point towards the aircraft's nose and each axis of the gimbal should be in the position illustrated above.
7. The gimbal will then go into a second stage of initialization. At this time, each axis will rotate very slowly.
8. Once each axis stops moving, the gimbal is fully initialized and ready to use.
9. Toggle the assigned Working Modes switch on your TX and make sure it is working properly.
10. Switch the Working Modes to Non orientation-locked, FPV Mode (Reset), and Orientation-locked Mode respectively. Then push the controller sticks lightly in the Roll, Tilt and Pan directions to check that the gimbal moves in the corresponding directions. If not, see Working Mode/AUX2 Switch Setup to correct your settings.



- Power off the camera during the initialization.
 - If the gimbal does not match the diagram after initialization, please refer to the [Troubleshooting](#) section in Appendix.
-

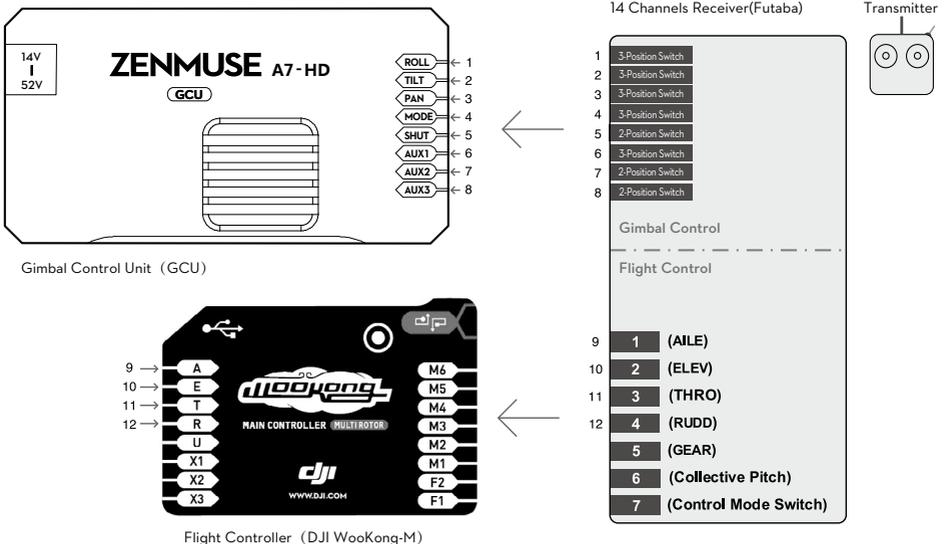
Appendix

Attention

For safety reasons, please pay careful attention to all of the following items:

1. To avoid motor damage, ensure nothing blocks the servo drive module's total range of movement.
2. Before powering on, spin the gimbal through its complete rotation by hand on each axis to ensure nothing is blocking the mechanical movement of the gimbal.
3. Be sure to mount the side of servo drive module 1 with the ports facing towards the aircraft's tail.
4. The gimbal's center of gravity has been preset. The gimbal balance is directly related to its performance. Follow the instructions in this manual to adjust the center of gravity if you are using the Sony ILCE 7R camera, otherwise do not adjust the gimbal's center of gravity.
5. The gimbal is a sophisticated device. Do not remove any screws from the gimbal. Doing so may result in poor performance or damage.
6. Do not unplug any cables attached to the gimbal ports or change the mechanical structure.
7. Make sure all wiring is correct, otherwise the gimbal may not operate correctly or efficiently.
8. Make sure to connect the wireless video transmission module to the GCU prior to powering on the system.
9. We recommend use of the included AV video power cable, if needed.
10. Be sure to solder the AV video power cable to the wireless video transmission module correctly. Ensure the cables are insulated and protected to prevent any type of short circuit.
11. Pay close attention to the voltage of S1000+ and be sure it is within the defined limits (6S) when using one battery for both the S1000+ and as a power supply for the gimbal.
12. Never touch the contact points of a power cable to the gimbal, this may lead to a short circuit of the gimbal, resulting in complete failure.
13. Before powering on, adjust the roll axis of the gimbal to be level.

1-Pilot Solution

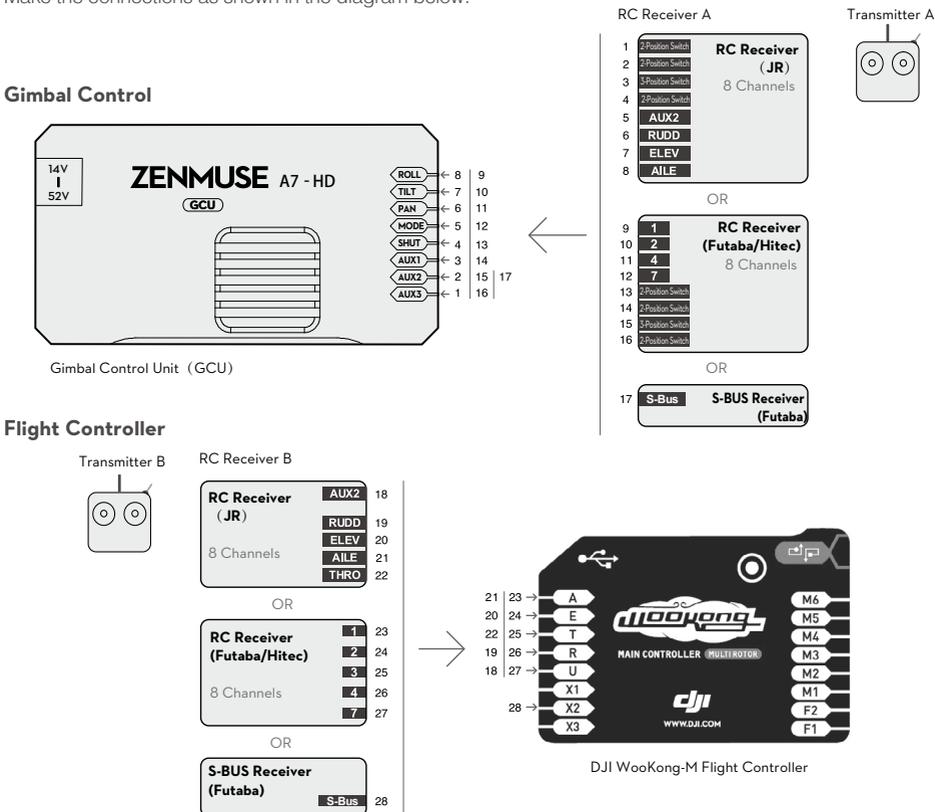


1. Prepare one 14-channel TX/RC receiver for the aircraft and gimbal control. Above is an example of the wiring configuration.
2. Setup the Aileron, Elevator, Throttle, and Rudder channels on your TX for aircraft roll, elevator, throttle, and rudder control. Also, connect the TX's AUX2 for aircraft control modes (Please refer to your Flight Control System's user manual).
3. Choose three 3-position switches to use for the gimbal Roll, Tilt, and Pan rotation control. The center position of each switch is 0 velocity, and the end point positions are maximum velocity.
4. Choose one 3-position switch/channel as the gimbal's Working Modes switch (MODE).
5. Choose one 2-position switch/channel as the camera shutter control switch (SHUT).
6. Connect the receiver to the GCU and Flight Control System correctly.

2-Pilot Solution

- Two transmitters and two receivers are required.
- Transmitter A and receiver A are used to control the gimbal.
- Transmitter B and receiver B are used to control the aircraft.

Make the connections as shown in the diagram below:



Please refer to the [GCU Wiring](#) section for more details.

Port Descriptions

GCU

| | |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROLL | For roll axis control |
| TILT | For tilt axis control |
| PAN | For pan axis control |
| MODE | For working mode switch |
| SHUT | For camera shutter control |
| AUX1 | Reserved channel |
| AUX2 | For gimbal orientation (down or forward) switch in FPV mode ; S-Bus receiver |
| AUX3 | For video recording |
| G7 | <ol style="list-style-type: none"> 1. Connect to the wireless video transmission module, for transmitting AV or HD signals. 2. Connect to DJI Lightbridge, for transmitting HD, gimbal and aircraft control signals. |
| XT60 | Connect to the battery (or to GIMBAL if DJI S1000+ is used) |
| G6 | Connect to gimbal, for transmitting motor commands |
| G9 | Connect to gimbal, for transmitting the video signal |
|  | Micro-USB port: for PC connection (Assistant configuration and firmware upgrades) |
|  | CAN-Bus port: Use CAN-Bus to connect GCU to the flight control system |

Gimbal

| | |
|----------------------------|---------------------|
| HDMI-HD/AV Port | To camera HDMI port |
| Motor Command Input Port | To GCU G6 |
| 10-Pin to 9-Pin Cable Port | To GCU G9 |

Gimbal LED Indicator

| Description | LED Indicator |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| HD mode, HDMI-HD/AV module transmits normally |  LED is blinking green. |
| HD mode, without camera HDMI video input |  Green LED is constant on. |
| HD mode, DJI Lightbridge App video source has been set to "HDMI/AV" |  Yellow LED is constant on. |
| AV mode, HDMI-HD/AV module transmits normally |  LED is blinking yellow. |
| AV mode, without camera HDMI video input |  Yellow LED is constant on. |
| HD video transmission module and gimbal is disconnected |  LED is blinking red. |

Troubleshooting

| NO. | The Problem | The Cause | What to Do |
|-----|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | The gimbal keeps drifting after initialization. | <ul style="list-style-type: none"> (1) The TX trims are too high. (2) The GCU and Flight Control System have been disconnected. (3) The gimbal direction is not pointing in the same direction as the aircraft's nose. | <ul style="list-style-type: none"> (1) Adjust the TX trims. (2) Connect the GCU and Flight Control System. (3) Ensure the gimbal direction is pointing in the same direction as the aircraft's nose. |
| 2 | The gimbal is in an incorrect position after initializing. | Abnormal calibration after manufacturing. | Please contact your local dealer or DJI customer service. |
| 3 | Cannot distinguish the gimbal's direction when in use. | BVR (Beyond Visual Range) flight. | Switch to FPV Mode first, then to another Working Mode as needed. |
| 4 | The gimbal LED is blinking red. | <ul style="list-style-type: none"> (1) There is a disconnected cable between the gimbal and camera. (2) The camera is off. (3) Camera setup failure. | <ul style="list-style-type: none"> (1) Make sure all cables are securely connected. (2) Power on the camera. (3) Set the HDMI resolution to 1080i. |
| 5 | The gimbal's green or yellow LED is continuously on, but no video is displayed. | <ul style="list-style-type: none"> (1) The HDMI-HD/AV transmission module is disconnected from the camera. (2) The camera is powered off. (3) In HD mode, the DJI Lightbridge App video source has been set to "HDMI/AV". | <ul style="list-style-type: none"> (1) Check HDMI-HD/AV transmission module connection. (2) Power on the camera. (3) Change the DJI Lightbridge App video source to "HD Gimbal". |

Specifications

General

| | | |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Built-In Functions | <ul style="list-style-type: none"> • Three Working Modes Orientation-locked control Non orientation-locked control FPV mode (Reset) • Built-in independent IMU module • DJI gimbal special servos drive module • HDMI-HD/AV module | <ul style="list-style-type: none"> • Infrared remote control module • Wireless video transmission supported • Camera shutter/video recording control supported • Wide range voltage input supported • S-Bus Receiver supported |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Peripheral

| | |
|----------------------------------------|-----------------------------------------------------|
| Supported Camera | Sony ILCE-7S; Sony ILCE-7R |
| Supported Lens | Sony FE 35 mm f2.8 ZA |
| GCU Input Power | 4S~12S LiPo (Recommend 6S if with S1000+) |
| Control Requirement | At least four spare receiver channels |
| Assistant Software System Requirements | Windows XP SP3; Windows 7; Windows 8 (32 or 64 bit) |

Mechanical & Electrical Characteristics

| | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Working Current | <ul style="list-style-type: none"> • Static current: 200mA (@25V) • Dynamic current: 400mA (@25V) • Locked-motor current: 4A (@25V) |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|-----------------------|----------------|
| Operating Temperature | -10 °C ~ 50 °C |
|-----------------------|----------------|

| | |
|--------|--------|
| Weight | 1.3 Kg |
|--------|--------|

| | |
|------------|--------------------------|
| Dimensions | 210 mm × 204 mm × 246 mm |
|------------|--------------------------|

| | |
|------------|------|
| GCU Weight | 63 g |
|------------|------|

| | |
|----------------|-----------------------------|
| GCU Dimensions | 64.2 mm × 34.1 mm × 19.5 mm |
|----------------|-----------------------------|

Working Performance

| | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Load Weight (Reference Value) | 622 g(@Sony ILCE-7S with Sony FE 35 mm f2.8 ZA, battery, lens hood and SD Card) ; 580 g(@Sony ILCE-7R with Sony FE 35 mm f2.8 ZA, battery, lens hood and SD Card) |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|-------------------------|--------|
| Angular Vibration Range | ±0.01° |
|-------------------------|--------|

| | |
|------------------------------------|--------------------------------------------------------------|
| Maximum Controlled Rotation Speed* | Pan axis: ±130°/s Tilt axis: ±130°/s Roll axis: ±30°/s |
|------------------------------------|--------------------------------------------------------------|

| | |
|---------------------------|---------------------------------------------------------------------------------------------------------|
| Controlled Rotation Range | Pan axis control: ±360° continuous rotation Tilt axis control: +50°/-140° Roll axis control: ±40° |
|---------------------------|---------------------------------------------------------------------------------------------------------|

Note*: Gimbal's Maximum Controlled Rotation Speed corresponds to TX stick input pushed to 100% end-points.

The content is subject to change.

Download the latest version from
<http://www.dji.com/product/zenmuse-z15-a7>



If you have any questions about this document, please contact DJI by sending a message to DocSupport@dji.com.

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