

WooKong-M Quick Start Guide

V 1.02

2013.05.30 Revision

For Firmware Version V5.22

& Assistant Software V2.00

Please strictly follow these steps to mount and connect the autopilot system on your multi-rotor, as well as to install the Assistant Software on your computer or ios equipment.

Thank you for purchasing this DJI product. Please regularly visit the WooKong-M web page at **www.dji-innovations.com**. This page is updated regularly. Any technical updates and manual corrections will be available on this web page. Due to unforeseen changes or product upgrades, the information contained in this manual is subject to change without notice.

This manual is only for basic assembly and configuration; you can obtain more details and advanced instructions when using the assistant software. To assure you have the latest information, please visit our website and download the latest manual and current software version.

Index

INDEX	2
TRADEMARK	2
DISCLAIMER & WARNING	3
SYMBOL INSTRUCTION	3
ASSEMBLY & CONFIGURATION	4
<i>STEP1</i> ASSEMBLY	4
<i>STEP2</i> SOFTWARE AND DRIVER INSTALLATION ON A PC.....	6
<i>STEP3</i> CONFIGURATION BY ASSISTANT SOFTWARE ON A PC.....	6
<i>STEP4</i> COMPASS CALIBRATION	7
BASIC FLYING TEST	8
<i>STEP1</i> ABOUT THE CONTROL MODE SWITCH.....	8
<i>STEP2</i> START & STOP MOTOR	8
<i>STEP3</i> CHECKING LIST BEFORE FLYING	8
ADVANCED FUNCTIONS	10
<i>A1</i> CONTROL MODE KNOWLEDGE	10
<i>A2</i> START & STOP MOTOR KNOWLEDGE.....	11
<i>A3</i> INTELLIGENT ORIENTATION CONTROL (IOC) FLIGHT (WITH GPS MODULE).....	12
WM ASSISTANT FOR IOS	16
<i>STEP1</i> ASSEMBLE THE LED BLUETOOTH MODULE	16
<i>STEP2</i> WM ASSISTANT INSTALLATION	16
<i>STEP3</i> PARAMETER CONFIGURATION PROCEDURES	16
<i>STEP4</i> FLYING TEST PROCEDURES	17
HOW TO ACTIVATE MORE FUNCTIONS	17
APPENDIX	18
FIRMWARE & ASSISTANT SOFTWARE UPGRADE.....	18
PORT DESCRIPTION.....	19
LED DESCRIPTION	20
SPECIFICATIONS	21
FAQ	22
FIX THE TBE (TOILET BOWL EFFECT) PROBLEM	22
REINSTALL THE GPS IN AN OFFSETTING ANGLE.....	22
CE STATEMENT :	23

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Disclaimer & Warning

Please read this disclaimer carefully before using the product. By using this product, you hereby agree to this disclaimer and signify that you have read them fully.

THIS PRODUCT IS NOT SUITABLE FOR PEOPLE UNDER THE AGE OF 18.

WooKong-M is an autopilot system designed for serious multi-rotor enthusiasts providing excellent self-leveling and altitude holding, which completely takes the stress out of flying RC multi-rotors for both professional and hobby applications. Despite the product having a built-in autopilot system and our efforts in making the operation of the controller as safe as possible when the main power battery is connected, we strongly recommend users to remove all propellers when calibrating and setting parameters. Make sure all connections are good, and keep children and animals away during firmware upgrade, system calibration and parameter setup. DJI Innovations accepts no liability for damage(s) or injuries incurred directly or indirectly from the use of this product in the following conditions:

1. Damage(s) or injuries incurred when users are drunk, taking drugs, drug anesthesia, dizziness, fatigue, nausea and any other conditions no matter physically or mentally that could impair your ability.
2. Damage(s) or injuries caused by subjective intentional operations.
3. Any mental damage compensation caused by accident.
4. Failure to follow the guidance of the manual to assemble or operate.
5. Malfunctions caused by refit or replacement with non-DJI accessories and parts.
6. Damage(s) or injuries caused by using third party products or fake DJI products.
7. Damage(s) or injuries caused by mis-operation or subjective mis-judgment.
8. Damage(s) or injuries caused by mechanical failures due to erosion, aging.
9. Damage(s) or injuries caused by continued flying after low voltage protection alarm is triggered.
10. Damage(s) or injuries caused by knowingly flying the aircraft in abnormal condition (such as water, oil, soil, sand and other unknown material ingress into the aircraft or the assembly is not completed, the main components have obvious faults, obvious defect or missing accessories).
11. Damage(s) or injuries caused by flying in the following situations such as the aircraft in magnetic interference area, radio interference area, government regulated no-fly zones or the pilot is in backlight, blocked, fuzzy sight, and poor eyesight is not suitable for operating and other conditions not suitable for operating.
12. Damage(s) or injuries caused by using in bad weather, such as a rainy day or windy (more than moderate breeze), snow, hail, lightning, tornadoes, hurricanes etc.
13. Damage(s) or injuries caused when the aircraft is in the following situations: collision, fire, explosion, floods, tsunamis, subsidence, ice trapped, avalanche, debris flow, landslide, earthquake, etc.
14. Damage(s) or injuries caused by infringement such as any data, audio or video material recorded by the use of aircraft.
15. Damage(s) or injuries caused by the misuse of the battery, protection circuit, RC model and battery chargers.
16. Other losses that are not covered by the scope of DJI Innovations liability.

Certifications

This product is approved with quality standards such as CE, FCC and RoHS.

Symbol Instruction



Forbidden(Important)



Cautions



Tip

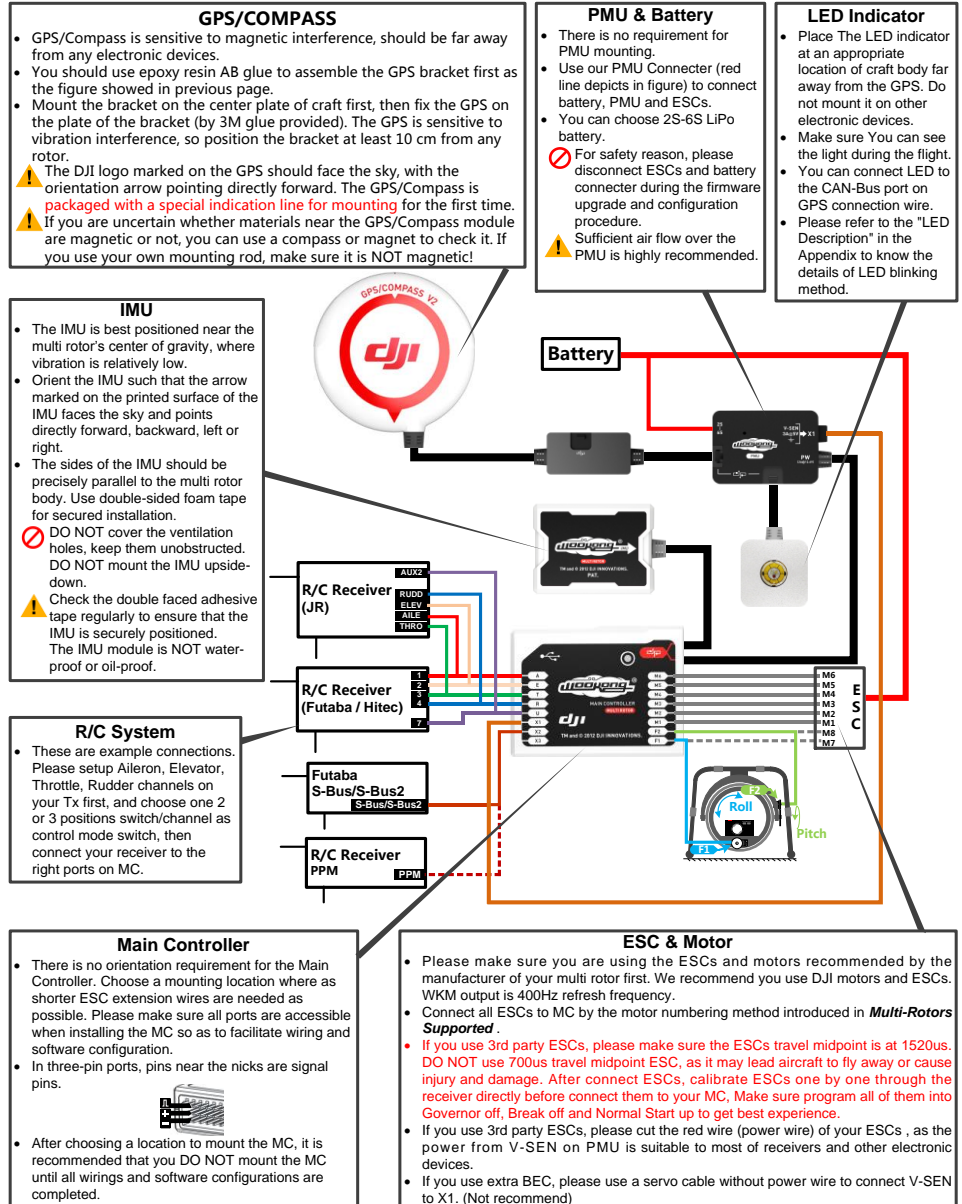


Reference

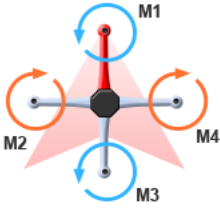
Assembly & Configuration

Step 1 Assembly

Install the main controller, VU module and receiver to the aircraft, and connect them according to the following diagram. Refer to the Port Description for more details.



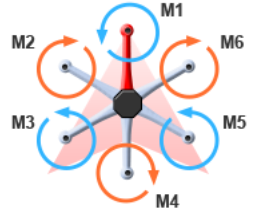
Multi-Rotors Supported



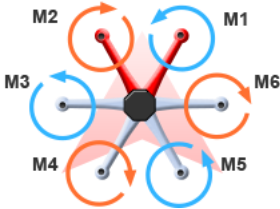
Quad-rotor I



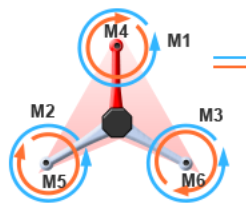
Quad-rotor X



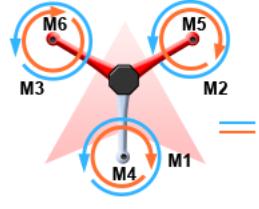
Hexa-rotor I



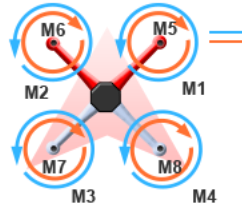
Hexa-rotor V



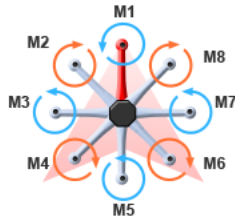
Hexa-rotor IY



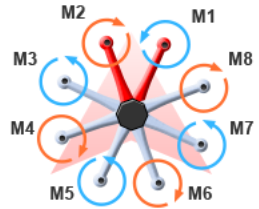
Hexa-rotor Y



Octo-rotor X



Octo-rotor I



Octo-rotor V



- To coaxial propellers: Blue propeller is at Top; Red propeller is at Bottom. Otherwise all propellers are at top.




- Please select the Mixer type in the assistant software according to your aircraft.

Step 2 Software and Driver Installation on a PC

1. Please download the drive installer and the assistant software from DJI website.
2. Connect the autopilot system and the PC via a USB cable, and power on the autopilot system.
3. Run the driver installer, and follow the instructions strictly to finish installation.
4. Run the assistant software installer, and follow the instructions strictly to finish installation.

Step 3 Configuration by Assistant Software on a PC

1. Power on the PC. Make sure your computer is connected to the Internet for the first time you use.
2. Switch on the transmitter first, and then power on the autopilot system. Connect the autopilot system to the PC with a USB cable. DO NOT break the connection until setup is finished.
3. Run the Assistant Software.
4. Observe the indicators on the left bottom of the software.  They are the connection indicator and communication indicator in order.) If the communication indicator is blinking, that the software is ready, please go to next step.
5. Select the “Info” option. Check the software and the firmware version.
6. Select the “Basic” option. Please follow step-by-step for your first-time-configuration. Basic configuration is necessary, including Mixer Type, Mounting, RC, and Gain settings.
7. You can click the “Advanced” option for more parameter settings. Advanced setting is optional. There are settings of Motor, FailSafe, Intelligent Orientation Control (IOC), Gimbal, Low-Voltage Alert, and Flight Limits. Read the instruction in the assistant software to obtain more details.
8. Select the “Viewer” option and check all parameters.



- You may be required to fill register information for your first-time-usage.
- If the communication indicator is on, please double check the connections.
- Basic configuration is necessary before you go to the “Basic Flying Test”.



- If the software and the firmware upgrade are available, please upgrade the assistant software and the firmware by referring to the Appendix.
- This step is required to use together with the assistant software to obtain more details.

Recommended Settings for the users with F450/F550/S800/Z15.

	Configuration Information					Basic				Attitude	
	Motor	ESC	Propeller	Battery	Weight	Pitch	Roll	Yaw	Vertical	Pitch	Roll
F450	DJI-2212	DJI-30A	DJI-8 Inch	3S-2200	890 g	150	150	100	105	150	150
F550	DJI-2212	DJI-30A	DJI-8 Inch	4S-3300	1530 g	170	170	150	140	170	170
S800	DJI-4114	DJI-40A	DJI-15Inch	4S-3300	1530 g	170	170	150	140	170	170
S800 +Z15	DJI-4114	DJI-40A	DJI-15Inch	6S-10000	6100 g	240	240	200	200	220	220

Step4 Compass Calibration

Without GPS module, please skip this step. If you use with GPS module, follow step-by-step for calibration.



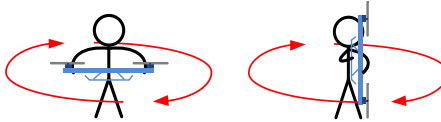
DO NOT calibrate your compass where there is strong magnetic interference, such as magnetite, car park, and steel reinforcement under the ground.

DO NOT carry ferromagnetic materials with you during calibration, such as keys or cell phones.

Compass module CANNOT work in the polar circle.

Calibration Procedures

1. Quickly switch the control mode switch from **Manual Mode** to **GPS ATTI Mode** and back to **Manual Mode** for 6 to 10 times. The LED indicator will turn on solid BLUE.
2. Rotate your Multi-rotor around the horizontal axis (about 360°) until the LED changes to solid GREEN, and then go to the next step.
3. Hold your Multi-rotor vertically and rotate it (its nose MUST be downward) around the vertical axis (about 360°) until the LED turns off, meaning the calibration is finished.



4. The LED indicator will show whether the calibration is successful or not.
 - If the LED keeps WHITE for 3 seconds, meaning the calibration is successful, and then calibration mode will exit automatically.
 - If the LED keeps flashing quickly RED, the calibration has failed. Switch the control mode switch one time to cancel the calibration, and then re-start from step 1.



1. You don't need to rotate your multi-rotor on a precise horizontal or vertical surface, but keep at least 45° difference between horizontal and vertical calibration.
2. If you keep having calibration failure, it might suggest that there is very strong magnetic interference around the GPS & Compass module, please avoid flying in this area.
3. When to do re-calibration.
 - The flight field is changed.
 - The multi-rotor mechanical setup has changed, including the following situations:
 - a) If the GPS & Compass module is re-positioned.
 - b) If electronic devices are added, removed or re-positioned (Main Controller, servos, batteries, etc).
 - c) When the mechanical structure of the multi-rotor is changed.
 - If the flight direction appears shifting (meaning the multi-rotor doesn't "fly straight").
 - The LED indicator often indicates abnormality blinking when the multi-rotor spins. But it is normal for this to happen only occasionally.

Basic Flying Test

Step 1 About the Control Mode Switch

The autopilot system can work in Manual Mode and ATTI. Mode without a GPS module. After connecting to the GPS module, GPS ATTI. Mode is available. Follow the bellow steps to enter the different control modes.

1. Use a 3-position switch on the transmitter as mode control switch.
2. Make sure to take off the aircraft in ATTI. Mode in every flight.
3. Hover the Aircraft. Release all joysticks and then flip the control mode switch to the GPS ATTI. Mode or Manual Mode (NOT RECOMMENDED).

Step 2 Start & Stop Motor

Star Motor : Pushing throttle stick before takeoff will not start motors. You have to execute any one of following four Combination Stick Commands (CSC) to start motors



Stop Motor :The default setting of stop motor is Immediately. For the immediately mode, in any control mode, once motors start and throttle stick is over 10%, motors will stop immediately when throttle stick is back under 10% again. In this case, if you push the throttle stick over 10% within 5s after motors stop, motors will re-start, CSC is not needed. If you don't push throttle stick after motors start within 3s, motors will stop automatically.



Please refer to the instructions of A1 and A2 in the Advanced Functions section, to learn more about the Control Mode and Stop Motor details.

Step 3 Checking List before Flying



- Make sure you have assembled your multi-rotor correctly.
- Make sure you have done the configuration procedure correctly.
- Make sure all connections are in good condition.
- Make sure batteries are fully charged for your transmitter, autopilot system and all devices.
- Any of the following mistakes will lead to a dangerous accident, double check all these items: Rotation direction of motor is opposite / Propeller installation mistake / Main controller installation mistake / Wrong connection between the main controller and ESC.
- Always switch on the transmitter first, then power on multi-rotor! (Power off multi-rotor first, then switch off the transmitter after landing!)
- Make sure the GPS signal is good, only one Red LED blinking or without Red LED blinking. Otherwise multi-rotor will drift without stick commands.



- When system is powered on, you MUST NOT move your multi-rotor or sticks on transmitter until the system initialization is finished (about 5 second).
- Please AVOID using the autopilot system in areas of urban area with crowded buildings, tunnels and under bridges, where will GPS signal is most likely blocked.



- In ATTI Mode, throttle stick center position is for 0m/s along the vertical direction. You should keep the position of throttle stick higher than 10% from cut-throttle during the flight!
- Please do the fly test and gain tuning with ATTI. Mode in the open air without heavy wind!
- Refer to the indication in the software: Basic->Gain for more details.

Step 4 Flying Procedures

1. If in GPS ATTI. Mode, place the aircraft in an open space without buildings or trees. Take off the aircraft after 6 or more GPS satellites are found (RED LED blinks once or no blinking). If in Manual Mode or ATTI. Mode, you can skip this step.
2. Place the aircraft three meters away from you and others (especially child), to avoid accidental injury.
3. Start-up
 - ✓ Switch on the transmitter, and then power on autopilot system! You MUST NOT move your multi-rotor or sticks on transmitter until the system initialization is finished (about 5 second).
 - ✓ Push both sticks of transmitter to the left bottom or right bottom to start the motors.
 - ✓ Release the yaw, roll and pitch sticks and keep them at the neutral position, avoiding the aircraft to tilt to one side. At the same time raise the throttle stick from the bottom quickly. The motors will stop if you do not push the throttle stick from the bottom within 3s and you will need to execute the start-up procedure again. When the aircraft is on the point of leaving the ground, continue to push the throttle stick upwards to take off from the ground, pay attention not to push the stick excessively.
 - ✓ Pay attention to the aircraft movement at any time when flying, and use the sticks to adjust the aircraft 's position. Keep the yaw, roll, pitch and throttle sticks at the neutral position to hover the aircraft at the desired height.
4. Lower the aircraft slowly. Pull the throttle stick to the bottom and then push the sticks to the left bottom or right bottom to stop the motors after landing. (Also, with throttle stick under 10%, and after landing 3s the motors will stop automatically)
5. Power off the autopilot system, and then switch off the transmitter after landing.



- DO NOT fly near to any ferromagnetic substances, to avoid strong magnetic interference with the GPS. Otherwise, it may cause the aircraft to FailSafe, crack or even fly away.



- If the LED flashes quickly YELLOW then this indicates battery voltage is low, land ASAP.
- It is recommended to land the aircraft slowly, to prevent the aircraft from damage.
- If the transmitter indicates low-battery alarm, please land ASAP. In this condition the transmitter may cause the aircraft to go out of control or even crash.
- The LED will blink White to indicate huge cumulative yaw errors caused by spinning the craft continuously. In this case, you can stop or slow down the spinning, and continue flying after the White blinking has stopped, so as to have better flight performance.



- If Low-Voltage Alarm is set, the aircraft will act according to the configuration of the Assistant Software once Low-Voltage Alarm is triggered.
- If Fail-Safe function is set, the aircraft will act according to the configuration of the Assistant Software once Fail-Safe is triggered.



- Refer to the LED Indicator Description in the Appendix.

Advanced Functions

A7 Control Mode Knowledge

Please read the Control Mode Knowledge clearly before usage, to know how to control the aircraft.

Different control modes will give you different flight performances. Please make sure you understand the features and differences of the three control modes.

	GPS ATTI. Mode (With GPS Module)	ATTI. Mode	Manual Mode
Rudder Angular Velocity	Maximum rudder angular velocity is 150°/s		
Command Linearity	YES		
Command Stick Meaning	Multi attitude control; Stick center position for 0° attitude, its endpoint is 35°.		Max-angular velocity is 150°/s. No attitude angle limitation and vertical velocity locking.
Altitude Lock	Maintain the altitude best above 1 meter from ground.		NO
Stick Released	Lock position if GPS signal is adequate.	Only attitude stabilizing.	NOT Recommend
GPS Lost	When GPS signal has been lost for 3s, system enters ATTI. Mode automatically.	Only performing attitude stabilizing without position lock.	---
Safety	Attitude & speed mixture control ensures stability		Depends on experience.
	Enhanced Fail-Safe	Auto Level Fail-Safe	
Applications	AP work	Sports flying.	---

A2 Start & Stop Motor Knowledge



Both Immediately Mode and Intelligent Mode are available in the Assistant Software:
Advanced->Motor->Stop Type.

If necessary, please select the Intelligent Mode in the Assistant Software.

By using the Intelligent Mode, different control mode has different way of stopping motors.

- In Manual Mode, only executing CSC can stop motors.
- In ATTI. Mode or GPS ATTI. Mode, any one of following four cases will stop motors:
 - a) You don't push throttle stick after motors start within three seconds;
 - b) Executing CSC;
 - c) Throttle stick under 10%, and after landing 3 seconds.
 - d) The slope angle of multi-rotor is over 70°, and throttle stick under 10%.

For Intelligent Mode



- In ATTI. / GPS ATTI. Mode, it has landing judgment, which will stop motors.
- Start motors in ATTI. / GPS ATTI. Mode, you have to execute CSC and then push throttle stick over 10% in 3 seconds, otherwise motors will stop after 3 seconds.
- During normal flight, only pull throttle stick under 10% will not stop motors in any control mode.
- For safety reason, when the slope angle of multi-rotor is over 70° during the flight in ATTI. / GPS ATTI. Mode (may be caused by collision, motor and ESC error or propeller broken down), and throttle stick is under 10%, motors will stop automatically.

For Both Intelligent Mode & Immediately Mode



- If you choose the Immediately Mode, you **SHOULD NOT** pull throttle stick under 10% during flight, because it will stop motors. If you do it accidentally, you should push the throttle stick over 10% in 5s to re-start motors
- When transmitter commands are valid under any control modes, the motors will start or stop immediately when you execute CSC. It has nothing to do with the current throttle stick position. Please **DO NOT** execute CSC during flight without a good reason.



- If you choose Intelligent, throttle stick under 10% will trigger landing judgment in any control mode. In this judgment, pitch, roll and yaw controls are denied except throttle, but multi-rotor will still auto level.
- In any control mode, **DO NOT** pull throttle stick under 10% during normal flight without any reason.



- The two cut off types will only work correctly if the transmitter calibration is correct.
- In failed-safe, CSC is denied by the main controller, motors will hold their state.

4.3 Intelligent Orientation Control (IOC) Flight (with GPS module)

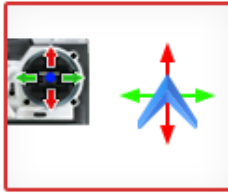
Definition of Forward Direction: Multi-rotor will fly along this direction when you push the elevator stick.

Graphic Description: → Forward direction

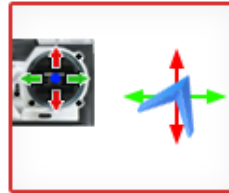
Step 7/Before You Start

Usually, the forward direction of a flying multi-rotor is the same as the nose direction. By using IOC, wherever the nose points, the forward direction has nothing to do with nose direction. The red and blue arrows on the transmitter are corresponding to pitch and roll operations in the following diagram.

- In course lock flying, the forward direction is the same as a recorded nose direction. All the following requirements are met: the autopilot system is in ATTI. Mode or GPS ATTI. Mode.

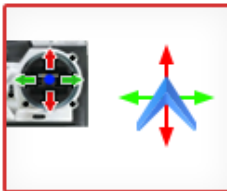


Normal flying

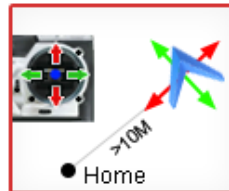


Course Lock Flying

- In home lock flying, the forward direction is the same as the direction from home point to multi-rotor. All the following requirements are met: 6 or more GPS satellites are found, in GPS ATTI. Mode, and the aircraft is further than 10m away from the home point.



Normal flying

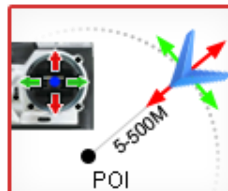


Home Lock Flying

- In POI (POI, Point Of Interest) flying, the roll channel controls the multi rotor circular flight speed around a fixed point, the pitch channel is used for controlling the diameter around the fixed point, the throttle is used to control the height around the fixed point. All the following requirements are met: 6 or more GPS satellites are found, in GPS ATTI. Mode, and the aircraft is further than 5m (and less than 500m) away from the Point of Interest.



Normal flying






POI Flying

Step 2 IOC Switch Setting



Refer to the assistant software; click the "Advanced" to find the "IOC".

Before using the IOC function, you have to choose a 3-position switch on your transmitter as the IOC switch, which is also used for recording the orientation, home position or point of interest in corresponding modes. There are three IOC control mode options, and you should select one in the assistant software.

Options \ Switch	Positon-1 	Positon-2 	Positon-3 
Control 1	OFF	Course Lock	Home Lock
Control 2	OFF	Course Lock	POI
Control 3	OFF	POI	Home Lock



The above table is for example. The function of the switch position may be reversed since the normal/reversed setting of the switch channel. Toggle the switch and observe the slider position of channel X2 on the assistant software screen, the corresponding area should turn blue.

Step 3 Method of Forward Direction, Home Point & POI Recording

If you use the IOC function, **please be aware of the Forward Direction of Course Lock Flying, the home point of Home Lock Flying, and the Point of Interest of the POI Flying.** There are two ways to record the forward direction and the home point: Manually and Automatically. You may choose any one record method.

If the IOC switch is set as the above table; you can do the manual recording according to the following table.

	Manually
Course Lock	Control 1 : Toggle the switch from Positon-1 to Positon-2, and back to Positon-1 quickly 3 to 5 times. Control 2 : The same as above.
Home Lock	Before takeoff and after 6 or more GPS satellites have been found. Control 1 : Toggle the switch from Positon-2 to Positon-3, and back to Positon-2 quickly 3 to 5 times Control 3 : The same as above.
POI	Before takeoff and after 6 or more GPS satellites have been found. Control 2 : Toggle the switch from Positon-2 to Positon-3, and back to Positon-2 quickly 3 to 5 times. Control 3 : Toggle the switch from Positon-1 to Positon-2, and back to Positon-1 quickly 3 to 5 times.
	Automatically
Course Lock	30 seconds after you power on the autopilot system.
Home Lock	Before takeoff, the current position of the aircraft will be saved as home point when you push the throttle stick for the first time after 6 or more GPS satellites have been found.
POI	None



- LED will blink GREEN quickly if Forward Direction and POI recording is successful.
- LED will blink CYAN quickly if Home Point recording is successful.
- DO NOT toggle the switch between Position-1 to Position-3, since it may change the recording of the Position-2.

Step 4 IOC Flying Test

Then you can do **Course Lock, Home Lock, and POI flying test**

Carry out an IOC flight by the following procedure. The Control Mode LED will blink GREEN to indicate the IOC mode only when the main controller is really to fly in Course Lock, Home Lock modes or POI.

During the same flight	STEP1: Record	STEP2: ON	STEP3: OFF	STEP4: ON again
Course Lock				
Switch Setting	Record the forward direction	Set Control Mode switch at GPS or ATTI position, Toggle IOC switch from OFF to Course Lock position	Toggle IOC switch to OFF position	Toggle IOC switch from OFF to Course Lock position
Home Lock				
Switch Setting	Record the home point	Set Control Mode switch at GPS position, Toggle IOC switch from OFF to Home Lock position	Toggle IOC switch to OFF position	Toggle IOC switch from OFF to Home Lock position
POI				
Switch Setting	Record the POI	Set Control Mode switch at GPS position, Toggle IOC switch from OFF to POI position	Toggle IOC switch to OFF position	Toggle IOC switch from OFF to POI position

Aircraft moving direction when pull pitch stick Aircraft moving direction when pull roll stick

● Home point Aircraft (the arrow is pointing to the direction of the aircraft nose)

IOC FLYING NOTES !!!



When Multi-rotor is flying by home lock far away from you and the home point, please DO NOT toggle the IOC switch many times quickly so as to avoid the change of home point without your attention.



- Home lock flying requires that 6 or more GPS satellites are found and the aircraft is further than 10m away from the home point.
- In POI flying, avoid using POI in areas where the GPS signal might be lost or the transmitter /receiver signal might be lost (such as built up urban areas), to make sure 6 or more GPS satellites are found. And the multi-rotor is required to fly further than 5m (and less than 500m) away from the Point of Interest.
- Continuously spinning will cause a yaw error. In this case, you can stop or slow down the spinning, so as to have better flight performance.
- If the IOC flying requirement is not satisfied, the autopilot system will quit IOC control mode. Please be aware of the LED indicator, to know the current control mode of the autopilot system.



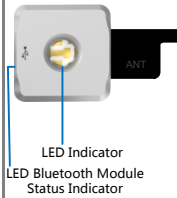
- Before you do the home lock flight, you have to fly the aircraft out of the 10m range around home point, and then flip the IOC switch to Home Lock position to fly in home lock when all the requirements are met. If you have already toggled the IOC switch to Home Lock position when the aircraft is still in 10m range around home point, and this is the first time you are going to fly in home lock during the current flight, then if all the requirements are met, the main controller will change into home lock automatically when Multi-rotor flies out the 10m range around home point..
- When you are flying in home lock mode, if the aircraft is back into the 10m range around home point, or you switch into ATTI. Mode, or the GPS signal becomes weak, the autopilot system will fly in course lock by the current forward direction automatically. But this forward direction is NOT the recorded forward direction. If you open the course lock now, it will fly in course lock still by the earlier recorded forward direction.
- We suggest that you should know clearly that, by which lock method you are going to fly, and the locked forward direction or home point, before you switch on IOC mode during the flight.



- Refer to the LED Description in the Appendix for more details.

WM Assistant for ios

Step 1 Assemble the LED Bluetooth Module



The LED Bluetooth Module is necessary if you are using the WM Assistant. This module is only for the ios equipment, not for android equipment. Its Operating Temperature range is from -5°C to $+60^{\circ}\text{C}$. Please refer to the Assembly & Configuration -> Step1 Assembly to attach the module.

This module has a USB interface for configuration and firmware upgrades when connecting to PC. The “LED Indicator” tells the status of autopilot system, and the “LED Bluetooth Module Status Indicator” tells whether the LED Bluetooth Module is working or not. The built-in Bluetooth is for wireless communication between the autopilot system and mobile equipment, with a maximum communication distance of 50m.

Step 2 WM Assistant Installation

Please search the WM Assistant from the App Store by your ios device, download and install it.

Step 3 Parameter Configuration Procedures

1. Prepare an ios equipment that supports Bluetooth 4.0, and turn on the Bluetooth.
2. Switch on the transmitter first, power on the autopilot system. The LED Indicator blinks (●●●.....) when self-check. After that, check the LED Bluetooth Module Status Indicator, if it is solid red on, then the LED Bluetooth Module is working normally.
3. Run the WM Assistant. The LED Indicator blinks Purple and Yellow alternately (●●) when the WM Assistant is connected to the autopilot system. Make sure your ios device is connected to the Internet for the first time you use, to register account. And also you can login with the PC assistant account.
4. Run the WM Assistant. Set up the name and password for autopilot system according to the App start.
5. Observe the indicators on the left bottom of the software. (●●● They are connection indicator and communication indicator in order.) On the WM Assistant, if the communication indicator is on, please double check the connections and driver installation; otherwise if the indicator is blinking, go to next step.
6. Select the “Basic” option. Please follow step-by-step for your first-time-configuration. Basic configuration is necessary. Click the icon (?) to get the configuration details.
7. You can click the “Advanced” option for more parameter settings. Advanced setting is optional. There are Motor, Enhanced Fail-Safe, Intelligent Orientation Control (IOC), Gimbal, Low-voltage Alarm, Flight Limits, etc.
8. Select Viewer and check all parameters.
9. Select “More” to obtain more details. Including: (Parameter)Import-Export, Restore Factory Settings, Account, Main Controller List, Information(including Hardware ID, IMU, Loader, Firmware, SN and Functions Activation Status), Rate WM Assistant, Feedback, About(Help Document, Disclaimer)



If the LED Bluetooth Module Status Indicator does not be solid red on, then the LED Bluetooth Module works abnormally. There are following situations:

- (1) The main controller firmware version is not matched, please upgrade the main controller.
- (2) There is something wrong with the connection between the LED Bluetooth module and main controller, please check the connection.
- (3) The LED Bluetooth module is damaged, please contact your dealer.



ios Equipment List

- iPhone 4s
- iPhone 5
- iPod touch 5
- iPad mini
- iPad 3
- iPad 4



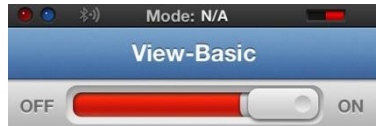
Refer to the WM Assistant for more details.

Step4 Flying Test Procedures

1. Slide the switch from OFF to ON, to start the main controller output according to the following chart.



Switch of the main controller output is OFF



Switch of the main controller output is ON

2. Start the motors.
3. The "View" page shows the relative parameters real-time when flying.
4. Go to the "Basic" and click into the "Gain" page to set the values of all gains real-time when flying.
5. Finish the flying and land your aircraft.



- After landing, if you are trying to configure the other parameters, please slide the switch from ON to OFF to enable other parameters configuration.



- LED indicator blinks Purple and Yellow alternately (●●) to inform you when you turn on or turn off the main controller output.

How to Activate More Functions

In the Future you might be asked to fill in the new S/N in the future if you brought new function upgrades. Fill-in the S/N and then click Write button. If you filled in an invalid S/N over 30 times, your MC will be locked and you have to contact our customer support.

Appendix

Firmware & Assistant Software Upgrade

Please follow the procedure for software and firmware upgrade; otherwise the autopilot system might not work properly. For SAFETY REASONS, DO NOT use power battery during firmware upgrade.



















1. Make sure your computer is connected to the Internet.
2. Please close all the other applications during the firmware upgrade, including anti-virus software and firewall.
3. Make sure the power supply is securely connected. DO NOT un-plug the power supply until firmware upgrade has finished.
4. Connect autopilot system to PC with USB cable, DO NOT break connection until firmware upgrade is finished.
5. Run Software and wait for connection.
6. Select Info→Software and Firmware.
7. DJI server will check your current software and firmware version, and get the latest software and firmware prepared for the unit.
8. If there is a software version more up-to-date than your current version, you will be able to click to download the new version. Please re-install the assistant software follow the prompts
9. If there is a firmware version more up-to-date than your current version, you will be able to click to update them.
10. Wait until Assistant software shows "finished".
11. Click OK and power cycle the unit after at least 5 seconds. Your unit is now up-to-date.



- After firmware upgrade, please re-configure the system using Assistant software.
- If the firmware upgrade failed, the autopilot system will enter waiting for firmware upgrade status automatically, please try again with the above procedures.

Port Description

Please remember the function of each port, which may help you to use the autopilot system efficiently.

Main Controller			
	A	For roll control (left/right)	
	E	For pitch control (front/back)	
	T	For throttle control	Or to gimbal roll servo
	R	For rudder control	Or to gimbal pitch servo
	U	For Control Mode Switch	
	X1	For voltage monitor (Connect with PMU V-SEN port)	
	X2	For D-Bus (S-Bus/S-Bus2 compatible)	Or for gain tuning Or for IOC switch
	X3	For gimbal pitch control	Or for gain tuning Or for switch go-home
	M6	To #6 rotor	
	M5	To #5 rotor	
	M4	To #4 rotor	
	M3	To #3 rotor	
	M2	To #2 rotor	
	M1	To #1 rotor	
	F2	To gimbal pitch servo	Or to #8 rotor
	F1	To gimbal roll servo	Or to #7 rotor
		Micro-B USB port: PC connection for configuration and firmware upgrades.	
		CAN-Bus port: MC uses CAN-Bus to power and communicate with other WKM modules.	
(In three-pin ports, pins near the nicks are signal pins.)			
Power Management Unit			
V-SEN		For monitoring battery voltage and supplying power to receiver and other electronic devices. (Connect with MC X1 port)	
		<ul style="list-style-type: none"> ● Orange wire (signal wire) output: 0V ~ + 3.3V ● Red wire (power wire) output: 3A@5V 	
PW		For supplying power to WKM system.	
		<ul style="list-style-type: none"> ● Output: Max 2A@6V 	

LED Description

Flight States					
	Manual Mode	Atti. Mode	GPS Atti. Mode	IOC	Tx Signal Lost
GPS satellites < 5	● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●
GPS satellites < 6	● ●	● ● ●	● ● ●	● ● ●	● ● ●
GPS satellites < 7	●	● ●	● ●	● ●	● ●
Attitude & GPS good		●	●	●	●
Attitude status fair	○ ○	● ○ ○	● ○ ○	● ○ ○	● ○ ○
Attitude status bad	○ ○ ○	● ○ ○ ○	● ○ ○ ○	● ○ ○ ○	● ○ ○ ○
IMU data Lost	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ●

Flashing indications of ●, ●, ● are: **Single flash**, all the transmitter sticks are at center position, multi rotor hovering; **Double flash**, transmitter stick(s) not at center position, speed command is not zero.

Compass Calibration	
Begin horizontal calibration	
Begin vertical calibration	
Calibration finished	3 seconds
Calibration or others error	

Low Voltage Warning	
First level protection	
Second level protection	

Successful Recording	
Every time the aircraft records a home-point successfully	
Manually or Automatically Recording is successful in Couse Lock and POI flying	

Bluetooth Indication	
Turn on or off the main controller output of WM Assistant	
WM Assistant (ios) is connected to the autopilot system	

Main Controller LED	
MC is functioning correctly.	
Boot loader mode, MC is waiting for firmware upgrade.	
Firmware upgrade has finished. MC is waiting for reboot.	
Error occurred during firmware upgrade, MC reboot is required.	or

PMU LED	
PMU connection is correct.	
Connection between PMU and battery is wrong (polarity error).	

Specifications




General	
Built-In Functions	<ul style="list-style-type: none"> ● Three Modes Autopilot ● PPM Receiver Supported ● 2-axle Gimbal Support ● Enhanced Fail Safe ● S-Bus/S-Bus2 Receiver Supported ● Intelligent Orientation Control ● Multi Output Frequency Supported ● Low Voltage Protection
Peripheral	
Supported Multi-rotor	<ul style="list-style-type: none"> ● Quad-rotor: I4, X4; ● Hexa-rotor: I6, V6, Y6, IY6; ● Octo-rotor: X8, I8, V8.
Supported ESC output	400Hz refresh frequency.
Recommended Transmitter	Only PCM or 2.4GHz with minimum 7 channels and fail-safe function available on all channels.
Recommended Battery	2S - 6S LiPo
Assistant Software System Requirement	Windows XP SP3 / 7 / 8
Electrical & Mechanical	
Power Consumption	MAX 5W (0.9A@5V, 0.7A@5.8V, 0.5A@7.4V, 0.4A@8V)
Operating Temperature	-5°C to +60°C
Total Weight	<= 118g (overall)
Dimensions	<ul style="list-style-type: none"> ● MC: 51.2mm x 38.0mm x 15.3mm ● IMU: 41.4mm x 31.1mm x 27.8mm ● GPS & Compass: 50mm (diameter) x 9mm ● LED Indicator: 25mm x 25mm x 7mm ● PMU: 39.5mm×27.5mm×9.7mm
Flight Performance (can be effected by mechanical performance and payloads)	
Hovering Accuracy (GPS Mode)	<ul style="list-style-type: none"> ● Vertical: 0.5m ● Horizontal: 2m
Maximum Wind Resistance	<8m/s (17.9mph / 28.8km/h)
Max Yaw Angular Velocity	150deg/s
Max Tilt Angle	35°
Ascent / Descent	6m/s

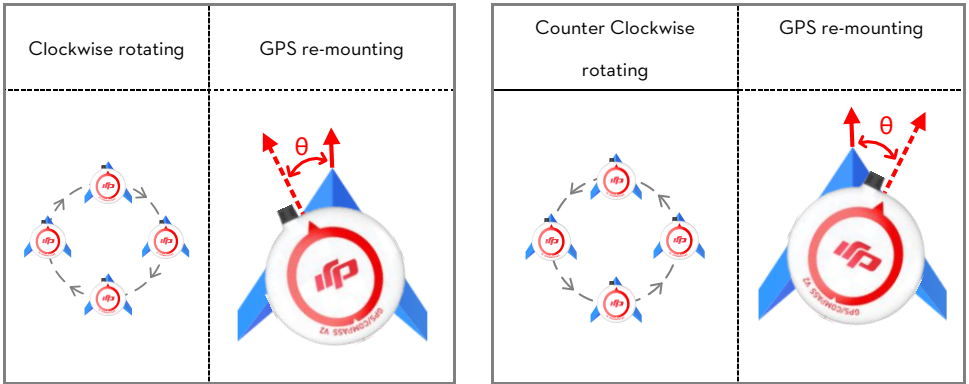
FAQ

Fix the TBE (Toilet Bowl Effect) Problem

When flying in GPS ATTI Mode and the compass calibration has been done correctly, should you find the aircraft rotating (Toilet bowl effect), or drifting when hovering. Please check the GPS module mounting orientation and then re-do the compass calibration. Carry out the following procedure to re-mount the GPS module.

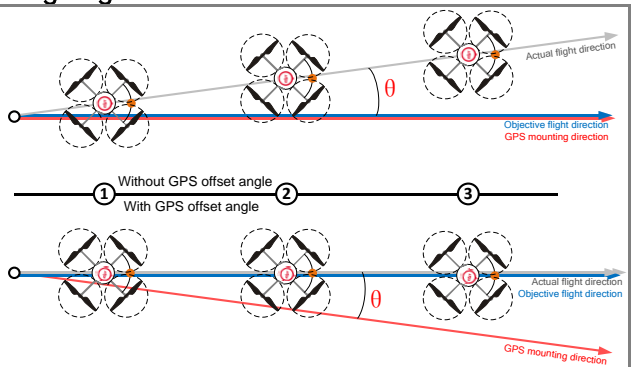
In the following diagram (view from the top), the aircraft can appear to be rotating in both clockwise and counter-clockwise direction, please re-mount the GPS module correspondingly.

 is the rotating direction of aircraft,
  is the nose direction of aircraft,
  is the arrow direction on the GPS module, θ is the offset angle for GPS re-mounting (about 10-30°)



Reinstall the GPS in an Offsetting Angle

Should you find the multi-rotor does not track straight in forward flight, you might try re-mounting GPS in an offsetting angle as showed in right figure. θ in the figure is the offsetting angle.



CE Statement :

Due to the used enclosure material, the devices shall only be connected to a USB.

Interface of version 2.0 or higher. The connection to so called power USB is prohibited.

Hereby, SZ DJI TECHNOLOGY CO. LTD declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.



FCC Statement :

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

This device complies with part 15 of the 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.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

NOTE: 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