NAZA-M Quick Start Guide V 1.0

Thank you for purchasing this DJI product. Please regularly visit the NAZA-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.

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

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 **1**

DISCLAIMER & WARNING **2**

CAUTIONS **3**

TRADEMARK **4**

ASSEMBLY &CONFIGURATION **5**

STEP1 ASSEMBLY 5

STEP2 SOFTWARE AND DRIVER INSTALLATION 6

STEP3 ASSISTANT SOFTWARE USAGE 6

STEP4 COMPASS CALIBRATION 7

FLYING TEST **8**

STEP1 CONTROL MODE KNOWLEDGE 8

STEP2 START & STOP MOTOR KNOWLEDGE 9

SETP3 FLYING TEST 10

STEP4 INTELLIGENT ORIENTATION CONTROL (IOC) FLIGHT (WITH GPS MODULE) 12

APPENDIX **14**

FIRMWARE & ASSISTANT SOFTWARE UPGRADE 14

REINSTALL THE GPS IN AN OFFSETTING ANGLE 14

PORT DESCRIPTION 15

LED DESCRIPTION 16

SPECIFICATIONS 17

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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.**

NAZA-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 NAZA-M 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.

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Cautions

For safety reasons, please pay serious attention to all following items:

1. **For big aircraft that is larger than 650 or with heavy load, WKM is recommended.**
2. **When the aircraft is set up with all of the equipment that you are going to use, please ensure the aircraft center of gravity is lie on the center line of the frame. So that the aircraft can bear its load in the vertical direction of frame center.**
3. **When the main controller mounted, try your best to mount the main controller at the center of the frame, and do not mount the main controller upside-down. Make sure main controller is parallel to the aircraft horizon, so as to prevent the aircraft from drifting in horizontal direction.**
4. **Make sure the ESC ports of the main controller is pointing to the aircraft nose direction, otherwise serious damage will occur to your aircraft.**
5. **Disconnect ESCs and battery or remove all propellers during firmware upgrade, configuration and system setup!**
6. **You have to reboot the main controller and redo the Tx calibration after you make any changes to the RC system.**
7. **Please always switch on the transmitter first, then power on the multi-rotor before takeoff! Power off the multi-rotor first, then switch off the transmitter after landing!**
8. **Whether you are using the gimbal control in assistant software or not, there is always power output from F1 and F2 ports during the configuration. So never connect these ports to any ESC which is wired with propellers and motors.**
9. **Do NOT set the failed-safe position of throttle under 10% of endpoint.**
10. **Throttle stick position should always be higher than 10% from cut-throttle during the flight!**
11. **The NAZA-M has Low voltage protections If you are seeing a Red Flashing light, You should land your multi-rotor ASAP to prevent your multi-rotor from crashing or other harmful consequences!**
12. **It suits for any control mode to stop motors using the Immediately 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% in 5 seconds after motors stop, motors will re-start; Combination Stick Command (CSC) doesn't need. However, if you don't push throttle stick in three seconds after motors start, motors will stop automatically.**
13. **By, motors will start or stop immediately when you execute CSC using Intelligent mode to stop motors. During the normal flight, only pulling the throttle stick under 10% will not stop motors in any control mode. You have to execute CSC to re-start motors if they stop during the flight.**
14. **Red light quick blinking indicates battery voltage is low, please land ASAP.**

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15. **Do NOT move any command sticks during system start and self-check! Please contact us if the last four green blinks are abnormal.**
16. **GPS/Compass is sensitive to magnetic interference. YOU should be as far away from any electronic devices as possible.**
17. **Do not fly in GPS Mode when the signal is not good (red light blinks)!**
18. **GPS module is optional (Nonstandard). If you are using the GPS module, users should read contents about GPS matching in indicators; users without GPS module can skip contents about GPS.**
19. **If users set GPS ATTI. Mode in Control Mode Switch without connecting to GPS module, the M.C. will switch GPS ATTI. Mode into ATTI. Mode automatically, and LED indicator will blink yellow blinks.**
20. **Once entering Fail-Safe Mode, the aircraft with GPS will automatically shut off when landed; the aircraft without GPS will not automatically shut off when landed.**
21. **Make sure all connections are correct and attachment contacts are in good condition before flight.**
22. **Keep wireless video transmission equipment a distance away from the main controller (>25cm), to prevent any interference from the wireless video transmitter.**

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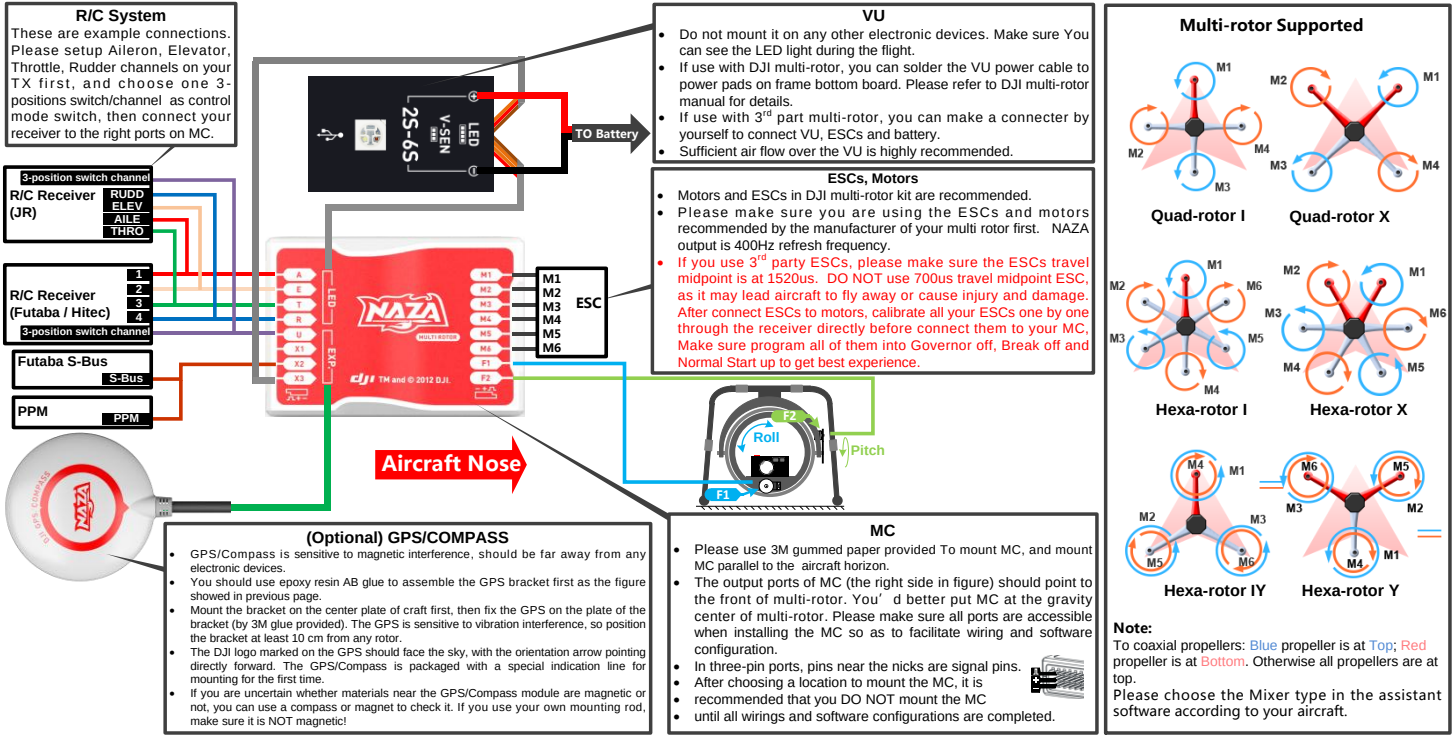
Assembly &Configuration

Step1 Assembly

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



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*Step*2 Software and Driver Installation

1. Please download driver DJI Driver Installer.exe and NAZA-M assistant software from DJI website.
2. Connect the NAZA-M and the PC via USB cable, power on the NAZA-M system.
3. Run DJI Driver Installer.exe, and follow the instructions strictly to finish installation.
4. Run the assistant software installer, and follow the instructions strictly to finish installation.

*Step*3 Assistant Software Usage

1. Make sure your computer is connected to the Internet for the first time you use.
2. Switch on the transmitter first, then power on multi-rotor. Connect the NAZA-M to the PC with a USB cable. DO NOT break the connection until setup is finished.
3. Run the NAZA-M Assistant Software。
4. If the communication indicator is on, please double check the connections and driver installation; otherwise if the indicator is blinking, go to next step.
5. Select Info→Software and Firmware. Check whether the assistant software and the firmware upgrade are available. If available, please upgrade the assistant software and the firmware by referring to the appendix. Otherwise, go to next step.
6. Select Basic. Please follow step-by-step for your first-time-configuration. (Basic configuration is necessary)
7. You can click the Advanced option for more parameter settings. (Advanced function is optional. There are IMU Calibration、Low-voltage Alarm、Enhanced Fail-Safe, etc. Read the instruction in the assistant software to obtain more details.)
8. Select Viewer and check all parameters.

Note:

- You may be required to fill register information for your first-time-usage.
- It will auto detect the software version when you open the assistant software and prompt the Check for Updates window if your version is not the latest one.
- Do not disconnect the main controller and the PC when you are using the assistant software.

Recommended Settings for using F330/F450/F550

	Configuration Information					Basic Gain				Attitude Gain	
	Motor	ESC	Propeller	Battery	Weight	Pitch	Roll	Yaw	Vertical	Pitch	Roll
F330	DJI-2212	DJI-18A	DJI-8 Inch	3S-2200	790 g	140	140	100	110	140	140
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

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Step4 Compass Calibration

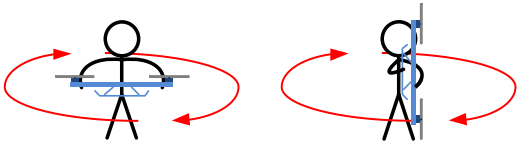
Without GPS, please skip this step

Note:

- Don't 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 (or from ***ATTI. Mode*** to ***GPS ATTI. Mode*** and back to ***ATTI. Mode)***, The LED indicator will turn on constantly yellow.
2. Rotate your Multi-rotor around the horizontal axis (about 360°) until the LED changes to constant green, and then go to the next step.
3. Hold your Multi-rotor vertically and rotate it (its nose is 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 was successful or not.
   - If the calibration was successful, 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.

Tips:

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.
- When the multi-rotor mechanical setup has changed:

  a) If the GPS/Compass module is re-positioned.

  b) If electronic devices are added/removed/ re-positioned (Main Controller, servos, batteries, etc).

  c) When the mechanical structure of the multi-rotor is changed.
- If the flight direction appears to be shifting (meaning the multi-rotor doesn't "fly straight").
- The LED indicator often indicates abnormality blinking when the multi-rotor spins. (It is normal for this to happen only occasionally)

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Flying Test

*Step*1 Control Mode Knowledge

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

When you use the NAZA-M system, there are three control modes for selection. NAZA-M can work in Manual Mode and ATTI. Mode without a GPS module. After connection to the GPS module, GPS ATTI. Mode is available. Please pay attention because the GPS ATTI. Mode is dependent on the number of GPS satellites acquired by the main controller.

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 200°/s		
Command Linearity	YES		
Command Stick Meaning	Multi attitude control; Stick center position for 0˚ attitude, its endpoint is 45˚.		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.	---

How to enter the different control mode?

1. Use a 3-position switch on the TX 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).

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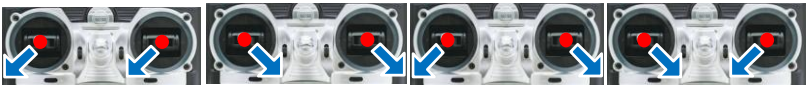
*Step*2 Start & Stop Motor Knowledge

Please read this section carefully before flying. Select the motor Stop Type in the Assistant Software: Advanced->Motor->Stop Type. The default setting is Immediately.

1 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



2 Stop Motor : We provide two options to stop motors: Immediately, Intelligent.

- Immediately Mode: By using this 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 5 seconds after motors stop, motors will re-start, CSC is not needed. If you don't push throttle stick after motors start in three seconds, motors will stop automatically.
- Intelligent Mode: By using this 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%.

Notes(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.

Notes(for Intelligent Mode & Immediately Mode):

- If you choose the Immediately, 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.
- 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.
- In failed-safe, CSC is denied by the main controller, motors will hold their state.

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*Setp*3 Flying Test

Checking List before Flying

For the ATTI. Mode & GPS ATTI. Mode

- 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, NAZA-M and other devices on your multi-rotor
- Any of the following mistakes will leads 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
- 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!
- Always switch on the transmitter first, then power on multi-rotor! (Power off multi-rotor first, then switch off the transmitter after landing!)
- 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.
- In ATTI Mode, after power on and before motors start, if Yellow or Green LED double blinks without move any stick, this means you have moved any stick during system start up and check. You should reboot the main controller before you try to fly.
- Please wait for the NAZA-M to warm up gradually (with the LED blinks Yellow 6 times quickly after the Control mode LED blinks). Make sure not to fly the aircraft until the yellow blinking disappears.
- After power on and before the motors start-up, when the aircraft is stationary, if the LED blinks Green 6 times quickly after the Control mode LED blinks, please connect to the Assistant Software to do IMU basic calibration. When the aircraft is moved, it is normal.
- After the system start and self-checking has finished, if the LED blinks Red, Yellow and Green continually, that means the IMU data is abnormal. The NAZA-M system will not work, please connect to the Assistant Software and follow the tips to do operation.

More for the GPS ATTI. Mode

- 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).
- 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.
- Please avoid using the NAZA-M system in areas of Urban area with crowded buildings, Tunnels and Under bridges, where will GPS signal is most likely blocked.
- If it blinks red and yellow lights alternately ( ), that means the compass error is too big, it can be caused by the following three cases:
  - ◆ There are ferromagnetic substance around; first make sure that the compass has been calibrated correctly, you can lift the aircraft up (about 1m from the ground), and stay away from the surrounding possible ferromagnetic material object, if there is no red and yellow flashing after lifting it up about 1m from the ground, then it will not affect the flight.
  - ◆ The compass module had been put near a magnet. Sensor magnetization will lead to some abnormal action even out of control.
  - ◆ The compass is not properly calibrated; in this situation please calibrate the compass correctly again, please see the section of Compass Calibration for details.

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Flight Test

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 3 meters away from you and others, to avoid accidental injury.
3. Start-up
   - ✓ Always switch on the transmitter first, then power on multi-rotor! Keep the aircraft and the sticks of the TX stationary until the system start and self-check has finished (🔴🟢🟡🔴🟢🟡🔴🟢🟡🟢🟢🟢).
   - ✓ Push both sticks to the left bottom or right bottom (shown as the following chart), 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 3 sec 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 rapidly 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 3sec the motors will stop automatically)
5. Please always power off the Multi-rotor first, and then switch off the transmitter after landing.

FLYING NOTES !!!

- ✓ If in GPS ATTI. Mode, keep the aircraft flying in the open space without obstruction. Pay attention to the GPS satellite status indicator LED. If the GPS signal is bad (red LED blink twice or three times), switch to ATTI. Mode. You may use the GPS ATTI. Mode again after the GPS signal is back to normal
- ✓ If the Multi-rotor LED flashes quickly Red then this indicates battery voltage is low, please land ASAP.
- ✓ If Low-Voltage Alarm is set, the aircraft will act according to the configuration of the Assistant Software once Low-Voltage Alarm is triggered. Make sure you remember what you have set before.
- ✓ If Fail-Safe function is set, the aircraft will act according to the configuration of the Assistant Software once Fail-Safe is triggered. Make sure you remember what you have set before.
- ✓ We recommend that you take off the aircraft in ATTI. Mode.
- ✓ DO NOT fly near to ferromagnetic substances, to avoid strong magnetic interference with the GPS.
- ✓ It is recommended to land the aircraft slowly, to prevent the aircraft from damage when landing.
- ✓ If the TX indicates low-battery alarm, please land ASAP. In this condition the TX may cause the aircraft to go out of control or even crash.
- ✓ If the LED lights Red, please hover the aircraft until it turns off, so as to have better flight performance.

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*Step*4 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

Nose direction Forward direction Home point Over 10m from Home point

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:

- In course lock flying, the forward direction is the same as a recorded nose direction. See the following figures (The red and blue arrows on the TX is corresponding to pitch and roll operations):

- In home lock flying, the forward direction is the same as the direction from home point to multi-rotor. See the following figures (The red and blue arrows on the TX is corresponding to pitch and roll operations):

Method of Forward Direction & Home Point Recording

If you use the IOC function, please keep the Forward Direction of Course Lock Flying and the home point of Home Lock Flying in mind at any time. There are two ways to record the forward direction and the home point: Manually and Automatically. You may choose any one record method.

	Course Lock Flight	Home Lock Flight
Automatically	30 seconds after you power on the NAZA-M.	Before takeoff, the current position of the Multi-rotor 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.
Manually	Switch the IOC switch between OFF and Course Lock quickly 3 to 5 times to record current nose direction as new forward direction after you power on the Multi-rotor 30s. (OFF ->Course Lock -> OFF is one time.)	When 6 or more GPS satellites are found, you can toggle the IOC switch between Course Lock and Home Lock quickly 3 to 5 times to record the current position of the Multi-rotor as the new home point. (Course Lock -> Home Lock -> Course Lock is one time.)

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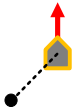
IOC Flying Test

Realize an IOC flight by the following procedure.

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

IOC FLYING NOTES !!!

- LED will blink quickly if recording is successful. LED will blink between and slowly to indicate the IOC mode only when the main controller is really to fly in course lock or home lock modes.
- Home lock flying requires that 6 or more GPS satellites are found and the aircraft is further than 10m away from the home point.
- 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 NAZA-M 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.
- 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.
- 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.
- 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.

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Appendix

Firmware & Assistant Software Upgrade

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

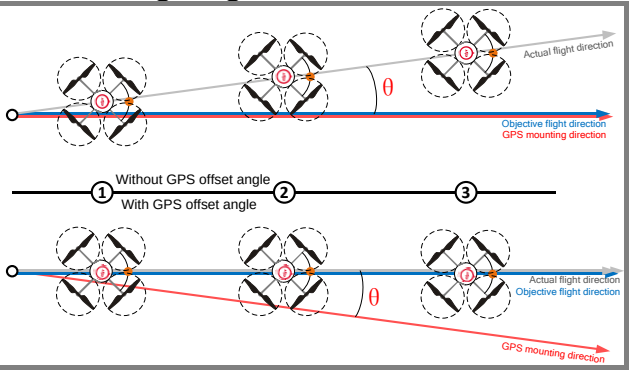
1. Make sure your computer is connected to the Internet.
2. Please close all the other applications during the firmware upgrade, including anti-virus software and firewall.
3. Make sure the power supply is securely connected. DO NOT un-plug the power supply until firmware upgrade has finished.
4. Connect NAZA-M 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. Wait until Assistant software shows “finished”. Click OK and power cycle the unit after at least 5 seconds.
10. Your unit is now up-to-date.

Note:

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

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.



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Port Description

Please remember the function of each port, which may help you to use the NAZA-M efficiently.

Main Controller			
A	For roll control (left/right)		
E	For pitch control (front/back)		
T	For throttle control		
R	For rudder control		
U	For Control Mode Switch		
X1	For gimbal pitch control	Or for gain tuning	
X2	For D-Bus (S-Bus compatible)	Or for gain tuning	Or for IOC switch
X3	For voltage monitor (Connect with VU V-SEN port)		
M1	To #1 rotor		
M2	To #2 rotor		
M3	To #3 rotor		
M4	To #4 rotor		
M5	To #5 rotor		
M6	To #6 rotor		
F1	To gimbal roll servo		
F2	To gimbal pitch servo		
LED	LED port, for LED wire connection from Versatile Unit		
EXP.	GPS port, for GPS module wire connection. (In three-pin ports, pins near the nicks are signal pins.)		
Versatile Unit			
V-SEN	V-SEN port: To the X3 port of the main controller, for monitoring battery voltage and supplying power ● Orange wire (signal wire) output: ±3.3V ● Red wire (power wire) output: 4A@5V		
LED	LED wire, to LED port of the main controller.		
	USB port: PC connection for configuration and firmware upgrades.		
Optional GPS & Compass			
	Connect to the EXP. port.		

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LED Description

Control Mode (with GPS module)

	Manual	ATTI.	GPS ATTI.	IOC
GPS Satellite number < 5	● ● ●	● ● ● ●	● ● ● ●	● ● ● ● ●
GPS Satellite number = 5	● ●	● ● ●	● ● ●	● ● ● ●
GPS Satellite number = 6	●	● ●	● ●	● ● ●
GPS Satellite number > 6	None	●	●	● ●
Flight Attitude is bad	▬	● ▬	● ▬	● ● ▬

Control Mode (without GPS module)

Manual	None
ATTI.	● ● ● ● ● ● ● ●

Tips:

When ▬ appears, please hover the aircraft until it disappears, so as to have better flight

Flashing indications of ATTI. Mode ● and GPS ATTI. Mode ● are:

- Before motors start: **Single blink**, all sticks (except throttle stick) at center; **Double blinks**, stick(s) (except throttle stick) not at center.
- After motors start and throttle stick is over 10% within 3 seconds: **Single blink**, all sticks at center; **Double blinks**, stick(s) not at center.

Blinking indications of IOC ● ● are:

- Before motors start: ● ● **blink**, all sticks (except throttle stick) return to center; ● ● ● **blink**, stick(s) (except throttle stick) not at center.
- After motors start and throttle stick is over 10% in 3 seconds: ● ● **blink**, all sticks return to center; ● ● ● **blink**, stick(s) not at center.

Compass Calibration

Begin horizontal calibration	▭
Begin vertical calibration	▭
Calibration or others error	● ●
Compass Error too Big	▬ ▭ ▬ ▭

Others

Record forward direction or home point	● ●
Tx signal lost	● ●
Low voltage / Other errors	● ●
System start and self-check	● ● ● ● ● ● ● ● ● ● ● ● ● ●
IMU abnormal data	● ● ● ● ● ● ● ● ● ● ● ● ● ● + ● ● ● ● ● ● ● ● ● ●
NAZA-M warm up after power on	Control Mode + GPS Satellite Number + ● ● ● ● ● ●
IMU Basic Calibration is needed/ Multi-rotor is moved after power on and before the motors start-up	Control Mode + GPS Satellite Number + ● ● ● ● ● ●

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Specifications

General	
Built-In Functions	● Three Modes of Autopilot ● Enhanced Fail Safe ● Low Voltage Protection ● S-Bus Receiver Support ● PPM Receiver Support ● 2-axle Gimbal Support
Peripheral	
Supported Multi-rotor	● Quad-rotor I4, X4; ● Hexa-rotor I 6, X6, IY6, Y6.
Supported ESC output	400Hz refresh frequency.
Recommended Transmitter	PCM or 2.4GHz with a minimum 4 channels.
Assistant Software System Requirement	Windows XP SP3; Windows 7
Electrical & Mechanical	
Working Voltage Range	● MC: 4.8V ~ 5.5 V ● VU: 7.2V ~ 26.0 V (recommend 2S ~ 6S LiPo)
Power Consumption	● MAX: 1.5W(0.3A@5V) ● Normal: 0.6W(0.12A@5V)
Operating Temperature	-10°C ~ 50°C(14F ~122F)
Weight	● MC: 25g ● GPS:21.3g ● VU: 20g
Dimensions	● MC: 45.5mm × 31.5mm × 18.5mm ● GPS & Compass: 46mm (diameter) x 9mm ● VU: 32.2mm × 21.1mm × 7.7mm
Flight Performance (can be effected by mechanical performance and payloads)	
Hovering Accuracy (GPS Mode)	● Vertical: ± 0.8m ● Horizontal: ± 2.5m
Max Yaw Angular Velocity	200°/s
Max Tilt Angle	45°
Max Ascent / Descent Speed	±6m/s

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