



GANNET[™] User Manual

PRO AND LITE FORMATS

GANNET CC

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LEGAL NOTICE AND DISCLAIMER

1. REGULATORY NOTICE

As the purchaser of this remotely piloted aircraft system ("drone"), your attention is drawn to the following in respect of the operation of this drone:

- 1.1. Operation of this drone in South Africa is subject to compliance with the requirements prescribed by the South African Civil Aviation Regulations ("the Regulations").
- 1.2. You should familiarise yourself with these Regulations and ensure that your operation of this drone is compliant with these regulations.
- 1.3. Amongst other requirements, the Regulations prescribe that for private use –
 - 1.3.1. the drone can only be used for your personal and private purposes where there is no commercial outcome, interest or gain from the use;
 - 1.3.2. the drone can only be operated over property which you, as the operator or pilot of the drone, own or where you have the owner of the property's permission; and
 - 1.3.3. the drone can only be used in Restricted Visual Line of Sight which means within 500 meters from where you stand while operating the drone, and not exceeding the height of the highest obstacle within 300 meters from where you stand while operating the drone, and during which you can maintain direct unaided visual contact with the drone to manage its flight and collision avoidance;
- 1.4. Amongst other requirements, the Regulations prescribe for all other use, including use for the purposes of commercial gain –
 - 1.4.1. the drone must first be approved by the South African Civil Aviation Authority for use by way of an RPA Letter of Authority (RLA);
 - 1.4.2. the drone must be registered by the South African Civil Aviation Authority before use; and
 - 1.4.3. you, as the operator or pilot of the drone, must hold an RPA Pilot License.
- 1.5. If you are using this drone outside of South Africa, you should familiarise yourself with, and ensure that you comply with, any laws and regulations that are applicable to the operation of remotely piloted aircraft systems in your country.
- 1.6. While operating the drone you must observe all statutory requirements relating to liability, privacy and any other laws.

2. OPERATION OF THE DRONE

- 2.1. The operation of the drone is subject to you complying with our operating instructions included with the drone, particularly to you complying with the technical parameters and operation of the drone.

3. WARRANTIES

- 3.1. The operation of the drone is subject to you warranting, and you hereby do warrant, that the drone will not be operated, in South Africa, in contravention of the South African Civil Aviation Regulations or, in any country outside of South Africa, in contravention of any regulations applicable to the operation of the drone in the relevant country outside of South Africa.

4. LIABILITY

- 4.1. We, i-Arc cc T/A Gannet, the manufacturer and distributor of this drone, disclaim all liability from the operation of the drone resulting in –
 - 4.2. collision with other aircraft.
 - 4.3. injury to or death of any person; and
 - 4.4. damage to any property.
- 4.5. We disclaim all liability resulting from you breaking any applicable laws (in any relevant jurisdiction) while or by operating the drone, including but not limited to privacy laws, laws against terrorist and related activities and aviation laws.
- 4.6. The limitations of liability apply to the fullest extent that they are permissible by law.

GENERAL

5. By using the drone, you acknowledge, accept, and agree to this Legal Notice and Disclaimer completely.
6. Any subsequent onward resale of the drone is subject to you making the new owner or operator of the drone aware of this Legal Notice and Disclaimer, and the terms of this Legal Notice and Disclaimer will endure any changes in ownership or legal possession of the drone.

Disclaimer

These warnings and safety precautions are very important; please read the following carefully and follow the instructions in this operating manual to ensure safety.

Propeller safety

The Gannet Pro's propeller is very hard and very sharp. The material of their composition is carbon fibre. This material makes the propeller has a high strength and improves the flight of the quad copter.

- When updating the firmware of your flight controller or the aircraft's current problems, make sure the propeller is removed from the aircraft to prevent the propeller from injuring you and others.
- When one of the propellers is damaged, do not fly, as the damaged propeller can cause the aircraft's manipulator to deteriorate or even be unmanageable, which can be very dangerous.
- Make sure the propellers are installed in the correct order and that the propeller retaining clips and screws are in place.

Precautions

- This quadcopter can be extremely dangerous and cause personal injury. Be careful when flying and operating it. Please follow the content of this manual and comply with relevant laws and regulations when flying.
- Before each flight please ensure that all parts of the aircraft are properly installed and that the order of rotation of the four motors is in accordance with the rotation sequence in this manual. If the wrong installation or the wrong direction of motor rotation will cause the aircraft to be unable to fly, and it may cause damage to the aircraft.
- We strongly recommend that you use the simulator for the first flight. It is recommended to use the simulator to practice flying. When flying, please fly in open areas and in no men areas, and under- stand the meaning of different flight modes.
- The lithium batteries should be taken out of the aircraft in time after each flight. When not in use for a long time, the lithium batteries should be placed in a fireproof container to avoid accidents. When flying in GPS mode, if you find that the aircraft is flying unstable or uncontrolled. Switch the flight mode to attitude mode in time, then you can get full control of the aircraft to avoid accidents.
- When you need to fly in GPS mode (Green), please make sure that GPS base 3D positioning (GPS 3D positioning is green LED status light flashing 6 times or red light flashing more than 6 times), when GPS 3D positioning, unlock the motor When the aircraft records the current position as the return point, when the return mode is executed, the aircraft will automatically return to the current takeoff point and perform an automatic landing.

Features

Long battery life

The GANNET PRO has a built-in high-capacity, optional high-performance 451X) mAh 65 lithium polymer battery that guarantees an unloaded hover time of 25 minutes with sufficient working time.

Powerful power system

Gannet Pro power system built-in 400B high performance waterproof brushless motor, t355 self-locking propeller, 40A ESC, such a powerful power mix, can give you a stable flight experience and powerful load capacity.

High performance flight controller

Gannet Pros built-in high-performance DJI NAZA-M-V2 (Gannet Lite NAZA Lite) multi-rotor flight controller provides you with a comfortable handling and a stable flight experience. 1 variety of flight modes are built in to meet your diverse flight needs. (Admission software system requirements: Windows XP sp3 / Windows 7 / Windows 8 support iPhone Bluetooth adjustment)

Stable and reliable waterproof kit (**Gannet Pro Versions**)

GANNET PRO's are equipped with a high-stability waterproof kit to prevent rain, dust, and the like from entering the interior of the aircraft, effectively solving the problem that conventional aircraft cannot work in water.

Component List



Components List Breakdown

- GANNET PRO / LITE / PRO PLUS waterproof aircraft host (including optional XS Release + optional camera)
- 10-channel 2.4GHz digital remote controller
- 150W smart balance charger
- 12" / 13" / 15" quick release self-locking propeller x 4
- 4500MAh/ 5200MAh/ 8000MAh lithium polymer power battery x1
- Paper manual x 1
- Carry Case Optional x1

***Different configurations, the packing list will be different, please refer to the actual configuration list at the time of purchase.**

Warnings:

Battery:

- NEVER store the battery fully charged or flat.
 - If used the bring the voltage up with your charger to the storage level of 15,1V- 15,4V.
 - If charged fully and not used you will have to discharge the battery to 15,1V- 15,4V either by flying the drone or by using the discharge function on the charger, flying even just hovering can achieve this the fastest.
 - At this Voltage, the battery will stay healthy for long periods
- NEVER leave a charging battery unattended, keep watch on the charging process & react to any potential problems that may occur.
- NEVER charge a hot battery, always let it cool down first,
- Always use the supplied charger,
- NEVER exceed a 1C charge Amperage best to charge the battery at 5-6A it is slower but safer
- NEVER store LiPo batteries in any location that exceeds 25°C (80° F) (e.g. in a car, garage, or in the sun)
- NEVER let the battery's positive and negative leads to touch. This can cause the battery too short and lead to a FIRE.
- NEVER charge a swollen or ballooned battery (even if swollen upon purchase). Continuing to charge a battery that has begun to swell will result in a fire.

Follow these steps:

- STOP the charging process and disconnect battery immediately
- Disconnect battery from the charger immediately.
- Place it in an open non-flammable area.
- Watch it for approx. 30 minutes from a safe distance.
- Follow proper procedure to dispose of battery
- ALWAYS inspect the battery to make sure there are no signs of damage, deformity, or swelling before charging. If there are, STOP charging the battery and follow the proper procedure to dispose of the battery.
- ALWAYS charge batteries in a fireproof container and away from combustible material. Do NOT charge on surfaces that can catch fire – this includes wood, cloth, carpet, or in the application's device.
- ALWAYS store LiPo batteries in cool, dry places between 5-25°C (40-80° F)
- If the battery reaches high temperatures in the event of a crash, follow these steps:
 - Disconnect battery immediately from the drone
 - Place it in an open non-flammable area.
 - Watch it for approx. 30 minutes from a safe distance.
 - If the battery appears to be stable (no signs of damage or swelling) proceed to put it back into use with caution.
- Keep LIPO batteries out of reach of children or pets.
- Avoid discharge the battery to below 14,6V rested (14,2V in flight) doing so can cause permanent battery damage,
- NEVER discharge below 14V is sure to cause permanent damage,
- Handle the battery with care, dropping it may cause permanent total damage

Drone:

- Installing the Propellers,
 - always ensure that the correct propellers is installed on the correct motors, they are match marked with either no markings as for Front Right and Back Left or with circles as for the Front Left and Back Right motors
 - make sure the propellers are slightly nipped tight so that they can not unscrew themselves.
- Installing the Battery install,
 - Slide it in with the terminal downwards and securely plug in the connector, it can only go in one way with the black negative wire to the left.
 - close the battery door and loosely tighten the retaining screws to ensure a good seal, do not over tighten them,
 - from time to time add a little lubrication to the screw threads to prevent corrosion damage on the threads.
- Setting up the release,
 - the release must be set to let go approximately 400-500g higher than the load that will be flown. Over tightening it can result in a failed release
 - Do not fully tighten it up as that will lock the load in so that it can not release.

On startup

- ALWAYS switch on the remote first, failure to do so can result in a fly away, on power up of the drone a rapidly flashing orange indicator light on the drone will indicate that the remote is not on. In this instance power the drone off, power the remote on and after waiting at least 3 seconds power the drone on again,
- Always ensure the two right hand toggle switches are flipped to the top for GPS and Normal flight modes,
- NEVER move the drone during initial warmup, if you did please power down for at least 3 seconds and restart, the second time round it will already be warm and will boot up much faster,
- NEVER power down and restart in rapid succession as the drone takes a few seconds to power down fully,
- On initial power up the indicator LED will flash orange at a rate of about one flash per second, this indicates warming up,
- After warmup, the indicator LED may flash orange and red in succession this means the drone requires a compass calibration, follow the calibration steps,
- If no calibration is needed the LED will change to flash either Red Red Green or Red Red Orange. This indicates what flight mode you are in whilst the drone is looking for satellites Green = GPS and Orange = Atti,
- If the n LED changes to rapid orange flashes it is in RTH mode,
- Once good GPS lock is obtained in GPS mode the flashes will change to a steady Green flash, as soon as the home point is saved 5 rapid Green flashes will indicate this and it is safe to fly.

Take off and flight

- Always stand well clear of the drone, carbon fibre propellers can be very dangerous and must be avoided, never try to stop spinning propellers by hand,
- Arm the drone by pushing inwards and down with both controller sticks,
- When safe, give gradual power by increasing the throttle/elevation/Left control stick gradually, DO NOT give rapid full throttle, the drone will take off dangerously fast,

- If the drone starts to move in slow circular movements it can indicate that the compass calibration is not optimal for this position, you can land and recalibrate it a short distance away to reduce possible interference. Also note that telephones and smart watches can cause interference and should be kept away from the drone during calibration,
- If the circular movement is minor, momentarily switch the drone to Atti and back to GPS, this cancels the "hunting" of the GPS and steadies the drone, Home point remains in the original position,
- Avoid sudden rapid or full control stick movements, gentle controlled movements will result in a more enjoyable flight experience,
- First low battery warning is given at 15,2V pay close attention to this. If unloaded the drone can still fly for several minutes but best be on your way back to land.
- Never attempt to fly just one more bait on a low battery
- At 14,2V the drone will not have any more power to fly and will land/descend where it is.
- NEVER overload the drone, higher loads drain the battery faster, too high loads can also damage the battery
- When loaded keep the flight time as short as possible, fly at a steady speed and do not waist time hovering in place unnecessarily as it will drain the battery rapidly.
- Do not fly in strong gusting winds unless you are an experienced pilot and even then take care and fly with caution
- **RTH (return to home)** should only be used when absolutely necessary, it is safer to fly the drone back yourself, if it is hard to judge the orientation, switch to home lock in which event pulling back on the right-hand control will bring the drone closer to you regardless of the drones orientation. when you do use RTH keep an eye on the drone to ensure that the drone is performing the command and should it deviate, return to GPS mode so that the drone can be flown back manually.

General warnings and care

- Familiarize yourself with your local drone laws and abide by them
- Do not fly near known sources of high interference, this includes Cell phone towers, railroad lines and power lines, never calibrate the drones compass near such a source of interference, this includes cell phones and smart watches
- Do not unnecessarily expose the drone to water, especially salt water, although every precaution has been made to prevent corrosion by using corrosion resistant materials and corrosion protective coatings on the exposed parts both internal and external, it should be noted that salt water is highly corrosive and can in a matter of hours cause damage if not thoroughly removed and cleaned.
- Do not leave the drone in direct sunlight for prolonged periods, it can heat the battery up and cause failures, it can also cause hull over pressure weakening the seals.
- NEVER intentionally land the drone at a distance away for you on the water, whilst the radio communication in flight is well over 1,6km (1 mile) it cannot be assured that radio communication will always be maintained whilst the drone is floating on the surface far away from you as water blocks all radio waves.
- Motor bearings need to be lubricated regularly with a good machine oil that is solvent free.
- NEVER fly with cracked, chipped or damaged propellers, they can easily fail mid-flight under load and cause a crash, if a damaged propeller is found discard it immediately keeping only the propeller quick release,
- If the drone has been exposed to salt water, rinse it directly after the flight with running fresh water to wash away all salt. Dry with a cloth and lubricate the motor bearings, both upper and lower,

- Always disconnect the battery when packing away the drone this is to avoid accidentally powering the drone on and discharging the battery completely,
- If the drone stops responding to any command and just hovers in place, switch the remote off completely, this will activate RTH and the drone should return home unless there is severe interference preventing this,
- When removing the battery, pull gently on the connector whilst wiggling it, do not jerk or pull on the wires only,
- Add a bit of lubricant to the landing gear retaining rubbers from time to time, it helps them slide in easier locking them in place.
- If landed in water where there is a temperature variation the drone may draw water into the flight bladder, when this happens altitude control may be temporarily affected whilst the water runs out of the bladder, if this happens take some care with manual altitude control till it is restored
- NEVER attempt hand catching the drone as a novice pilot, the large carbon propellers are extremely dangerous and can inflict serious injury.
- Always stand well clear of the drone when taking off and landing
- NEVER fly the drone over people especially not whilst carrying any load

Remote controller

GANNET LITE

The remote control has been coded with the receiver of the aircraft at the factory, and the parameters have been debugged. If it is not necessary, please do not modify the settings of the remote control and not touch the fine-tuning buttons of each channel of the remote controller. Otherwise, the aircraft/remote controller will not work.

(The picture of remote control below is the left-hand throttle) RSA
GANNET LITE



Switch	Position	Function	Switch	Position	Position
SWC	Up	GPS mode	SWC	UP	OFF
	Middle	Attitude Mode		Middle	Navigation Lock
	Down	Return mode		DOWN	RETURN POINT LOCK

Note: The remote control dials the dial switch to the top, otherwise the remote control will display a warning.

If there is a sound of dripping after turning on the remote control, indicate that the battery voltage is too low, please replace the remote-control battery immediately.

Be sure to start the remote control before connecting the aircraft battery; when shutting down, first remove the aircraft battery and then turn off the remote controller.

Quadcopter

Please refer to this chapter to familiarize and understand the various components on your aircraft, including the steering of the motor, the layout of the aircraft before and after, and the description of each interface.

Clockwise rotation

Anticlockwise



Anticlockwise rotation

Clockwise
rotation

***Pay attention to distinguish the white marks on the props to correctly distinguish the head and tail**

Assembling

This chapter will guide you to familiarize and assemble the Gannet and learn more about the flight characteristics of the Gannet. It is recommended that you read this chapter carefully and follow the steps in this section to prepare for the Gannet before flight. Improper installation may cause the Gannet Pro to malfunction or damage the aircraft.

1. Landing gear installation

Insert the round carbon tube into the fixing hole.

2. Propeller installation

Install the intact propeller onto the Gannet Pro aircraft as shown below

Propeller with silver mark installed with accompanying white mark on motor.

No mark on the alternate propeller.

Note that the white mark on the arm which can distinguish the front direction of quadcopter.

Bait clasp controlling.

Turn on the remote control and ensure that SWD is in the top position, turn on the power of the aircraft; Turn SWD to the bottom, the dispenser will open; turn SWD to the top, and the dispenser will be closed. Sport release system will drop as per normal Gannet Sport release.



Compass Calibration

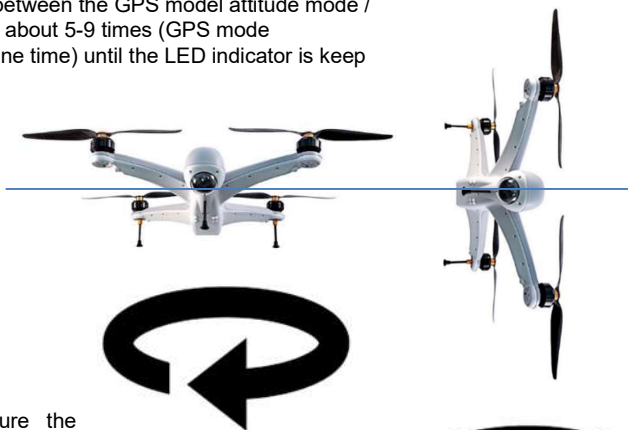


Attention!

1. Be sure to calibrate the compass when you are flying for the first time or changing a flight area.
2. When calibrating, please make sure the surrounding area is relatively empty, away from strong magnetic environment, such as magnetic field, high voltage line, parking lot, building area with underground steel bars etc
3. Do not carry magnets with you when calibrating, such as keys, mobile phones etc.
4. If there is a circle or hovering instability in the GPS hover mode during flight, please stop immediately and refer to the above requirements for the enjoyment to calibrate compass.

- 1) Turn on the female controller and turn on the quadcopter.
- 2) Quickly switch back and forth between the GPS model attitude mode / return mode of SWB switch for about 5-9 times (GPS mode - return mode - GPS mode is one time) until the LED indicator is keep yellow all the time:

- 3) Horizontal calibration and make the quadcopter direction of gravity axis and rotate about 360° until the green light is always on.



- 4) Vertical calibration. Make sure the aircraft is erected downwards, the direction of gravity is the axis rotation (about 360°), until the green flash is off, the calibration is completed.
- 5) If the calibration is successful; the calibration mode will automatically exit, and the LED will flash normally; the calibration will fail, and the red light will flash. Currently, switch the control mode again to cancel the current calibration state, and then recalibrate from the second step.



Introduction of motors start/stop

- 1) Pushing the throttle directly before take-off will not start the motor. Please turn the control mode switch to the attitude mode position, keep the body stationary (7 seconds), and perform any of the following four mast actions to start/stop the motor.



- 2) If the attitude mode/GPS mode, if the throttle is not pushed to more than 10% after stating the motor through the mast action, the remote controller will automatically enter the landing judgment, and will automatically stop after about 3 seconds.
- 3) Execute the above action to stop the motor and power off the aircraft (Note that you should not try the above four actions during flying)

INDTRODUCTION

GPS attitude mode (the SWB switch in the top)

Select the area without high-rise buildings and stay away from the strong magnetic environment, turn power on, LED red light flashes into the search star status, wait for about 30s, wait for LED red light flashes 6 times / red light does not flash when GPS has Successfully positioned, the remote control mode switch SWB is set to the GPS mode, the throttle stick is gently pushed to more than 50%, and the aircraft takes off to a certain height to loosen the throttle stick. Currently, the aircraft automatically hovers. At this time, when the user is activating the aileron and the lifter, the aircraft will maintain its current altitude for flight.

Attitude mode (SWB switch in the middle)

The remote-control switch mode SW8 switch is set to the attitude stabilization mode position, the stick is unlocked, and the throttle midpoint is taken up. due to the advanced algorithm of DJI NAZA-M-V2 flight control. In indoor or mindless environment, It is easy to hover or to set a high maneuvering flight without controlling the throttle stick.

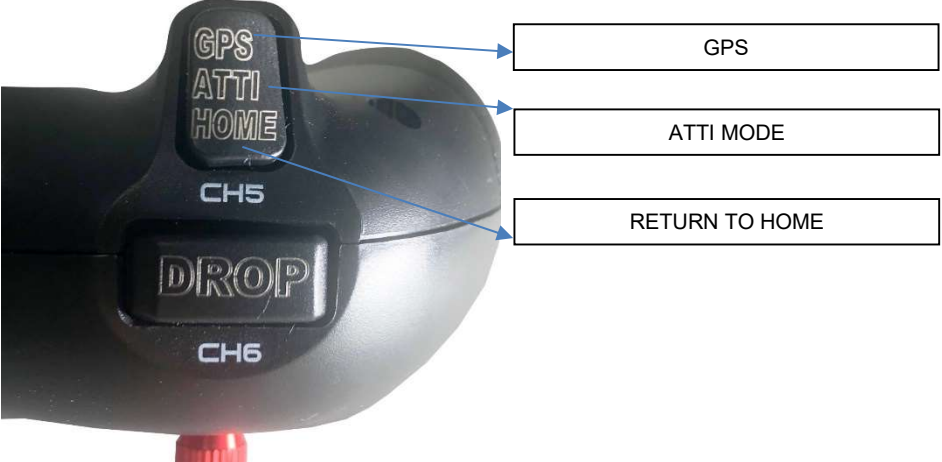
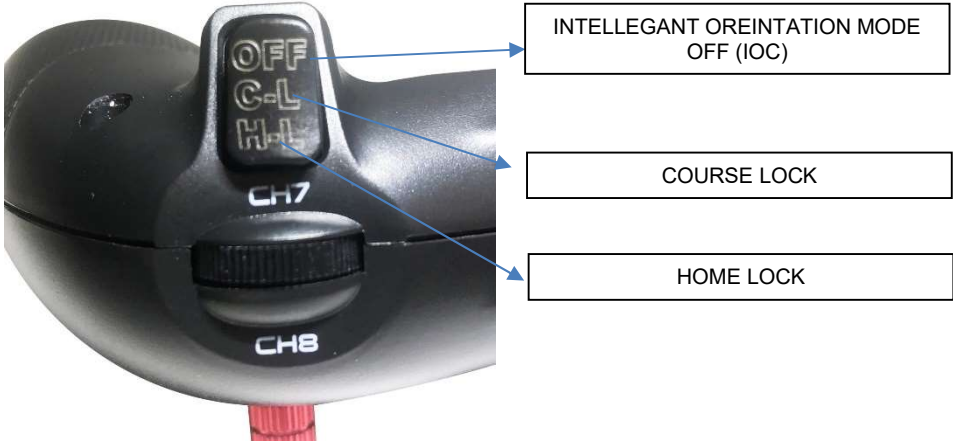
Note: When the flight control altitude stabilization mode is working, the UPS module does not anticipate in the work.

Return mode (SWB switch in the bottom)

DJI NAZA-M-V2 flight control pre-flight master controller finding 6 or more satellites (red flashing one time or not flash) 0 seconds later, when the motor is started for the first time, the main t controller will record this position as the return point. If the aircraft is more than 10 meters away from home, the aircraft will automatically rise to 20 meters and return.

Intelligent Direction Control Mode (SWC-IDC Switch)

If you turn on the IDC function, be sure to know the flight forward (heading locked flight) and the return point (the return point locked flight).



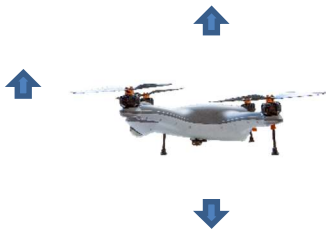
There are two methods of automatic recording and manual recording for recording the forward and returning points of the flight, and one of them can be used. When the heading/return point is recorded, the LED is successfully recorded with a flashing green light.

Switch description		
Switch	Position	function
SWC	Up	Off
	middle	Direction lock
	down	Return point lock

	Direction locked flight	Return point locked flight
Automatic recording	30 seconds after the aircraft is powered on	Before flight, 10 seconds after the main controller found 10 or more satellites. The position of the aircraft that is automatically recorded when you first start the motor is the return point.
Manual Recording	After the aircraft is powered on for 30 seconds. Switch IDC switch off and direction lock 3-5 times ("Off -> direction lock -> off is one time.	After the main control found 6 or more satellites, and the aircraft can hover autonomously, Switch the IDC switches direction lock and return point lock 3-5 times. (Direction lock -> return point lock -> Direction lock is one time.

Note: When manually recording, do not switch between closing and return point lock, which may cause the heading lock to be re-recorded.

Quadcopter
action Park the
front throttle
Control
quadcopter Rise
and fall

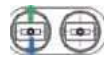


Remote controller instructions



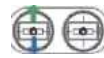
mode 1

Right hand is throttle



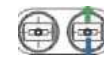
mode 2

left hand is throttle



mode 1

right hand is throttle



mode 2

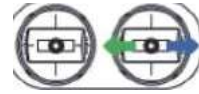
left hand is throttle

Control aircraft
forward and
backward



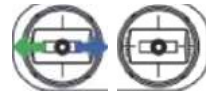
Remote Control Instructions

The aileron controls the flight to the left / right



mode 1 / mode 2

The direction axis controls the left/right rotation of



mode 1 / mode 2

Charger

1. Charger introduction

Charging steps

- 1) Power on the charger, and connect it as shown in the picture
- 2) Adjust the charger's menu and set the correct parameters:

Type of battery => LiPo / LiHV

Charging Method => BALANCE

Charging current => 1A - 10A

Number of cells => 22.2V (6S / 4S)

Confirm the settings are correct, press and hold



- 3) When the battery is fully charged, the charger will automatically stop charging and make a confirmation sound. Then, disconnect the battery.

Flight Control System

Type: DJI-NAZA-M-V2 / DJI NAZA LITE (GANNET LITE VERSION)

Working temperature: -10°CZ 50°C

Adjustment system requirements: Windows XP sp3/ Windows 7 /
Windows 8

Flight Characteristics

Hover precision (GPS mode): vertical direction: +/- 0.8m

horizontal direction: +/- 2.5m

Maximum tail rudder angular velocity	: 200° /s
Maximum tilt angle	: 35°
Maximum rising speed	: 6m/s
Maximum falling speed	: 4.5m/s
Maximum wind speed	: 8m/s
Maximum flight altitude	: 1500 m
Maximum horizontal flight speed	: 18 m/s (Windless)
Standard battery maximum load	: 1.2kg-1.5kg Hover
time(6S/4500mAh)* No load:	: 25min(Standard)