U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

August 25, 2015

Exemption No. 12593
Regulatory Docket No. FAA−2015−2412

Mr. Nathanial C. Brown
Carriere & Little, LLP
Counsel for Planet Inhouse, Inc.
8001 South Interport Boulevard, Suite 310
Englewood, CO 80112

Dear Mr. Brown:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated May 28, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of Planet Inhouse, Inc. (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial photography, aerial videography, precision agriculture, real estate, exterior structure inspections, UAS training[1], and volunteer search and rescue missions.

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner.

[1] The petitioner requested authority to conduct UAS training. At this time, the FAA is unable to authorize UAS operations for training until a further assessment is completed. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner. However, the petitioner is permitted to train its own pilot in commands and visual observers in accordance with condition no. 14 and the other conditions and limitations in this exemption.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Inspire 1, DJI S800 EVO, and DJI Phantom 2.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates,* and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[2]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

[2] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, Planet Inhouse, Inc. is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, Planet Inhouse, Inc. is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Inspire 1, DJI S800 EVO, and DJI Phantom 2 when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC

must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative.

Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder’s MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on August 31, 2017, unless sooner superseded or rescinded.

Sincerely,

/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

May 28, 2015

U.S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

RE: Exemption Request under § 333 of the FAA Modernization and Reform Act of 2012 of the Federal Aviation Regulations from 14 CFR Part 21; 14 CFR §§ 45.23(b); 61.113 (a) & (b); 61.315(a) & (c); 91.7(a); 91.9(b); 91.103; 91.109(a); 91.119(c); 91.121; 91.151(a); 91.203; 91.405(a); 91.407(a)(1); 91.409(a)(2); 91.417(a) & (b).

Dear Sir or Madam,

Pursuant to § 333 of the Federal Aviation Administration ("**FAA**") Modernization and Reform Act of 2012, Pub. L. No. 112-95 (2012), 126 Stat. 11 (the "**Reform Act**"), the FAA's general exemption authority under 49 USC § 44701(f), and 14 CFR Part 11, Planet Inhouse, Inc. (hereinafter, the "**Petitioner**"), an owner and operator of small Unmanned Aircraft Systems ("**UAS**"), hereby petitions for exemptions from 14 CFR Part 21, Subpart H (Airworthiness Certificates), 14 CFR §§ 45.23(b), 61.113(a) & (b), 61.315(a) & (c), 91.7(a), 91.9(b)(2), 91.103(b)(1), 91.109(a), 91.119(c), 91.121, 91.151, 91.203(a) & (b), 91.405(a), 91.407(a)(1), 91.409(a)(1) & (2), and 91.417(a) & (b). The proposed exemptions, if granted, would allow Petitioner to conduct commercial operations of small UAS for purposes to include: aerial photography, aerial videography (marketing), precision agriculture, real estate, exterior structure inspections, UAS training, and volunteer search and rescue missions under the conditions outlined herein and as may be established by the FAA in granting the above requested exemptions.

As described more fully below, based on the small size of Petitioner's UAS, the qualifications and experience of Petitioner's pilot, and the limited, controlled-access environments within which Petitioner will operate, the requested exemptions clearly fall within the safety parameters envisioned by Congress as set forth in § 333 of the Reform Act. Additionally, the enhanced safety achieved by replacing significantly larger manned aircraft carrying crew and flammable fuel with small UAS weighing less than 55 pounds under the specific guidelines and procedures proposed by Petitioner gives the FAA good cause to find that the UAS operations enabled by this petition are in the public interest. Thus, the requested exemptions should be granted.

THE NAME AND ADDRESS OF PETITIONER:

Planet Inhouse, Inc.
Attn: Todd Hillhouse, President
P.O. Box 411306
Melbourne, FL 32941
321-895-4359
todd.hillhouse@planetinhouse.com

COUNSEL FOR PETITIONER:

Nathanial C. Brown
Carriere & Little, LLP
8001 S. Interport Blvd, Ste 310
Englewood, CO 80112
720-961-5386
nbrown@carrierelittle.com

BACKGROUND OF PETITIONER

Petitioner is a multifaceted digital media, film, and video production company founded by Todd Hillhouse in 2001 to bring together the best minds and talent in order to produce powerful messages, content, and visual elements for a variety of clients and industries. Mr. Hillhouse is a FAA licensed private pilot and holds a valid 1st class medical certificate, and Mr. Hillhouse has extensive experience as a hobbyist UAS pilot. Mr. Hillhouse's background in aviation, film, video, and photography production, and his knowledge and experience with UAS and wireless communications provide a level of trust that will ensure the integrity and safety of all UAS operations conducted by Petitioner pursuant to the requested exemptions.

Petitioner has a long standing reputation for excellence and safety and serves as an entryway for their clients to attain a dedicated and award winning team that serves much like an in-house media department with unprecedented, world-class production capabilities. Petitioner seeks to build on its years of safe and successful productions and leverage Mr. Hillhouse's aviation skills and knowledge to offer the widest possible range of UAS services in a manner consistent with the parameters set forth in § 333 of the Reform Act. Petitioner seeks the requested exemptions to permit Petitioner to offer commercial UAS services for a variety of industries and applications, including:

- Aerial surveying and mapping
- Precision Agriculture inspections
- Aerial photography
- Aerial videography and video marketing
- Real estate marketing and inspections
- Exterior structure inspections
- Public entity support operations
- UAS training, and
- Volunteer search and rescue operations

Petitioner plans to conduct operations under the requested exemptions using the DJI Inspire 1, DJI S800 EVO, and DJI Phantom 2 small UAS.

REQUESTED EXEMPTIONS

Petitioner requests relief from the following regulations:

- 14 CFR Part 21;
- 14 CFR § 45.23(b);
- 14 CFR § 61.113(a) & (b);
- 14 CFR § 61.315(a) & (c);
- 14 CFR § 91.7(a);
- 14 CFR § 91.9(b)(2);
- 14 CFR § 91.103(b)(1);
- 14 CFR § 91.109(a);
- 14 CFR § 91.119;
- 14 CFR § 91.121;
- 14 CFR § 91.151(a);
- 14 CFR § 91.203;

- 14 CFR § 91.405(a);
- 14 CFR § 91.407(a)(1);
- 14 CFR § 91.409(a)(2);
- 14 CFR § 91.417(a) & (b)

EXTENT OF RELIEF SOUGHT BY PETITIONER AND REASONS FOR SEEKING SUCH RELIEF

14 CFR Part 21, Subpart H: Airworthiness Certificates

This section establishes the procedural requirements for the issuance of airworthiness certificates and other airworthiness approvals. Given the size, weight, speed, and limited operating area associated with the UAS to be utilized by Petitioner, an exemption from 14 CFR Part 21, Subpart H (Airworthiness Certificates), subject to certain conditions and limitations, is warranted, and meets the requirements for an equivalent level of safety under 14 CFR Part 11 and § 333 of the Reform Act. 49 USC § 44701(f) and § 333 of the Reform Act both authorize the FAA to exempt aircraft, including UAS, from the requirement for an airworthiness certificate upon consideration of the size, weight, speed, operational capabilities, proximity to airports and populated areas, and operation within visual line of sight. The UAS operated without an airworthiness certificate in the restricted environment and under the conditions and limitations proposed by Petitioner will be at least as safe, or safer, than a conventional aircraft (fixed wing or rotorcraft) operating with an airworthiness certificate issued under 14 CFR Part 21, Subpart H, and not subject to the proposed limitations and conditions.

The UAS to be operated by Petitioner (DJI Inspire 1,[1] DJI S800 EVO,[2] and DJI Phantom 2[3]) all weigh much less than 55 lbs. fully loaded, will be operated at a speed of no more than 50 knots, will carry neither a pilot nor passengers, will carry no explosive or flammable materials or fuel, and will be operated exclusively in predetermined, controlled-access environments. Petitioner's UAS will use a radio frequency spectrum for operation and control that complies with Federal Communications Commission ("**FCC**") requirements, and will be operated only in accordance with the procedures proposed herein and as may be established by the FAA.

Petitioner's UAS will be equipped with redundant safety mechanisms allowing safe operation after experiencing certain in-flight failures. If a lost-link event occurs, including loss of ground communications or loss of GPS signal, Petitioner's UAS will have the ability to perform a pre-coordinated, predictable, automated flight maneuver and return to a predetermined location within a designated security perimeter for landing.

Unlike operations of other civil aircraft, operations under the requested exemptions will be tightly controlled and monitored by both the pilot in command ("**PIC**") and a Visual Observer ("**VO**") in order to ensure the Petitioner's UAS remains within operational limitations and to ensure the safety of operations. These enhancements to current safety practices and regulations provide a greater degree of safety to the public and property owners than conventional aircraft operations conducted by aircraft with an airworthiness certificate. Lastly, there is no intrinsic credible threat to national security posed by UAS due to the size, speed, restricted operational environments, lack of explosive materials and flammable fuels or other liquids, and inability to carry passengers or a substantial external load.

[1] See Appendix A
[2] See Appendix B
[3] See Appendix C

14 CFR § 45.23(b): Display of Marks

This section requires that "[w]hen marks include only the Roman capital letter "N" and the registration number is displayed on limited, restricted, or light-sport category aircraft or experimental or provisionally certificated aircraft, the operator must also display on that aircraft near each entrance to the cabin, cockpit, or pilot station, in letters not less than 2 inches nor more than 6 inches high, the words "limited," "restricted," "light-sport," "experimental," or "provisional," as applicable."

Even though the Petitioner's UAS will have no airworthiness certificate, an exemption may be necessary as the UAS will have no entrance to the cabin, cockpit, or pilot station on which the word "experimental," etc., can be placed. Also, given the size of Petitioner's UAS, two-inch lettering will be impossible. Petitioner understands the need for markings and will mark all of its UASs in the largest possible lettering on the UAS fuselage so that anyone observing Petitioner's UAS will be able to see the markings.

14 CFR § 61.113(a) & (b): Private Pilot Privileges and Limitations: Pilot in Command (PIC) and 14 CFR § 61.315(a) & (c): Sport Pilot Privileges and Limitations

These sections limit private pilots and sport pilots to non-commercial operations. Because Petitioner's UAS will not carry a pilot or passengers, the proposed operations can achieve the equivalent level of safety of current operations by requiring the PIC operating Petitioner's UAS to have a private pilot's or sport pilot's license rather than a commercial pilot's license to operate Petitioner's small UAS. Unlike a conventional aircraft that carries the pilot and passengers, Petitioner's UAS are remotely controlled with no persons onboard. The area of operation will be controlled and restricted, and all flights will be planned and coordinated in advance. The risks associated with the operation of Petitioner's UAS are so diminished from the level of risk associated with commercial operations contemplated by 14 CFR Part 61 when drafted, that allowing operations of Petitioner's UAS as requested with a private pilot or sport pilot as the PIC exceeds the present level of safety achieved by 14 CFR §§ 61.113(a) & (b) and 61.315(a) & (c).

14 CFR § 91.7(a): Civil Aircraft Airworthiness

This section prohibits any person from operating a civil aircraft unless it is in an airworthy condition. As there will be no airworthiness certificate issued for Petitioner's UAS, should this exemption be granted, no FAA regulatory standard will exist for determining airworthiness. Given the size of the aircraft and the requirements contained in the UAS manufacturer's manuals[4] and use of safety checklists[5] prior to each flight, an equivalent level of safety will be provided. In accordance with the pertinent part of 14 CFR § 91.7(b), the PIC for all of Petitioner's UAS operations shall be responsible for determining whether the aircraft is in a safe condition for flight, including the use of pre-flight safety checklists.[6]

[4] *See* Appendix A, Appendix B, and Appendix C

[5] *See* Appendix D

[6] *Id.*

14 CFR § 91.9(b)(2): Civil Aircraft Flight Manual, Marking, and Placard Requirements

This sections provides in pertinent part that "[n]o person may operate a U.S.-registered civil aircraft … For which an Airplane or Rotorcraft Flight Manual is not required by § 21.5 of this chapter, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination thereof." Petitioner's UAS, given their size and configuration, have no ability to carry a physical flight manual on the aircraft. The equivalent level of safety will be maintained by keeping the flight manual at the ground control point where the PIC operating Petitioner's UAS will have immediate access to it.

14 CFR § 91.103(b)(1): Preflight Action

This regulation requires each PIC to take certain actions before flight to insure the safety of each flight. As FAA approved rotorcraft flight manuals will not be provided for the aircraft, an exemption will be needed. Petitioner will comply with the other applicable procedures and requirements stated in § 91.103(a) & (b). Specifically, the PIC will take all action including reviewing weather, flight battery requirements, aircraft performance data, and landing and takeoff distances before initiating a flight. The PIC will also account for all relevant site-specific conditions in their preflight procedures.[7] Risks presented by sun glare will be mitigated by the PIC's and VO's ability to see other air traffic and initiate a return-to-home sequence if needed.

14 CFR § 91.109(a): Flight Instruction

This section provides in pertinent part that "[n]o person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls." UAS, by their design, do not have functional dual controls. Flight control is accomplished through the use of a control box that communicates with the aircraft via radio communications. Given the size and speed of Petitioner's UAS, an equivalent level of safe training can be achieved without dual controls because no pilot or passengers are aboard the UAS and all persons will be a safe distance away in the event that the UAS experiences any difficulties during flight instruction. The FAA has approved exemptions for flight training without fully functional dual controls for a number of aircraft and for flight instruction in experimental aircraft. *See* Exemptions Nos. 5778K and 9862A.

14 CFR § 91.119: Minimum Safe Altitudes

This section establishes minimum safe altitudes for operation of civil aircraft. § 91.119(d) allows helicopters to be operated at less than the minimums prescribed, provided the person operating the helicopter complies with any route or altitudes prescribed for helicopters by the FAA. Similarly, § 91.119(c) provides that, over other than congested areas, no person may operate an aircraft below an altitude of 500 AGL, except over open water or sparely populated areas. As this exemption is for a UAS that closely mimics the flight characteristics of a helicopter, and the exemption requests authority to operate at altitudes no higher than 400 feet AGL, an exemption may be needed to allow such operations.

As set forth herein, Petitioner's UAS will never operate at higher than 400 feet AGL, nor beyond visual line of sight ("**VLOS**") of the PIC and VO, whichever is closer. It will, however, be operated in a

[7] *Id.*

restricted area with individuals tasked with ensuring public safety, and where buildings and people will not be exposed to operations without their pre-obtained consent and training.

The equivalent level of safety will be achieved given the size, weight, and speed of Petitioner's UAS as well as the restricted environments within which they will be operated. No flight will be taken without the permission of the property owner. Because of the advance notice to the property owner and the participants in the UAS operation, all affected individuals will be aware of the planned flight operations. Compared to flight operation with manned aircraft or rotorcraft weighing far more than Petitioner's UAS and the lack of flammable fuels onboard, any risk associated with Petitioner's operations is far less than that presently presented by conventional aircraft operating at or below 500 feet AGL. In addition, the low-altitude operations of Petitioner's UAS will ensure separation between Petitioner's UAS operations and the operations of conventional aircraft that must comply with § 91.119. Furthermore, the manufacturer of Petitioner's UAS, DJI, has implemented Firmware updates that limit UAS flights around airports, along with distance and elevation limits.

14 CFR § 91.121: Altimeter Settings

In pertinent part, this section requires each person operating an aircraft to maintain cruising altitude by reference to an altimeter that is set to "…the elevation of the departure airport or an appropriate altimeter setting available before departure." As Petitioner's UAS may not have a barometric altimeter, but instead a GPS altitude readout, an exemption may be needed. An equivalent level of safety will be achieved by the PIC confirming the altitude of the launch site shown on the GPS altitude indicator, and prior to each flight, a zero altitude initiation point will be established and confirmed for accuracy by the PIC. The PIC will also ensure effective pairing with multiple GPS sources to guarantee accurate detection of altitude.

14 CFR § 91.151(a): Fuel Requirements for Flight in VFR Conditions

This section prohibits a person from beginning "a flight in an airplane under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing, and, assuming normal cruising speed—(1) during the day, to fly after that for at least 30 minutes; or (2) at night, to fly after that for at least 45 minutes."

The battery powering Petitioner's UAS provide approximately 12-15 minutes of powered flight in hover mode without payload. Thus, Petitioner's UAS will not be able to meet the 30 minute reserve requirement contained in 14 CFR § 91.151(a). Operating Petitioner's UAS in a tightly controlled area where only people or property owners or official representatives who have signed waivers will be allowed, with less than 30 minutes of reserve power, does not engender the type of dangers that § 91.151(a) was intended to alleviate given the size and speed of Petitioner's UAS. Petitioner believes that an equivalent level of safety can be achieved by prohibiting Petitioner's PIC from beginning any flights unless, considering the wind and forecast weather conditions, there is enough available power for Petitioner's UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer, whichever is greater. This restriction would be more than adequate to return the Petitioner's UAS to its planned landing zone from anywhere in its limited operating area. FAA has granted similar exemptions; *see e.g.* Exemption Nos. 2689F, 5745, 10673, and 10808.

14 CFR § 91.203(a) & (b): Civil Aircraft: Certifications Required

This regulation provides in pertinent part that "(a)…no person may operate a civil aircraft unless it has within it the following: (1) an appropriate and current airworthiness certificate… (b) No person may

operate a civil aircraft unless the airworthiness certificate required by paragraph (a) of this section … is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew."

Petitioner's UAS fully loaded weighs less than 55 pounds and is operated without a pilot, passengers, or crew onboard. As such, there is no is ability or place to carry certification and registration documents or to display them on Petitioner's UAS. An equivalent level of safety will be achieved by keeping these documents at the ground control station where the PIC will have immediate access to them, to the extent they are applicable to Petitioner's UAS. FAA has issued numerous exemptions to this section; *see e.g.* Exemption Nos. 9565, 9665, 9789, 9789A, 9797, and 10700.

14 CFR §§ 91.405(a), 91.407(a)(1), 91.409(a)(1) & (2), and 91.417(a) & (b): Maintenance Inspections

These regulations require that an aircraft operator or owner "shall have that aircraft inspected as prescribed in subpart E of this part and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in part 43 of this Chapter…;" and others shall inspect or maintain the aircraft in compliance with Part 43.

Given that these sections and Part 43 apply only to aircraft with an airworthiness certificate, these sections will not apply to Petitioner. Petitioner will strictly adhere to the safety and maintenance procedures included in all applicable UAS manufacturer's instructions and operating manuals.[8] To the extent such information is not included in the guidelines as developed by the manufacturers, Petitioner will undertake to develop and document maintenance, overhaul, replacement, and inspection requirements, and procedures to document and maintain maintenance records with regards to Petitioner's UAS.[9] An equivalent level of safety will be achieved because Petitioner's UAS are very limited in size and will carry small payloads and operate only in restricted areas for limited periods of time. If mechanical issues arise, Petitioner's UAS can land immediately and will be operating from no higher than 400 AGL. The Petitioner will ensure that its UAS are in working order prior to initiating each flight, perform regular maintenance, and keep a log of any maintenance performed. Moreover, Petitioner is the person most familiar with the aircraft and is best suited to maintain the aircraft in an airworthy condition in order to ensure safe operations.

EQUIVALENT LEVEL OF SAFETY

Petitioner proposes that the exemptions requested herein apply to civil aircraft that have the characteristics and that operate within the limitations listed herein. Petitioner's requested exemptions will not adversely affect safety, and Petitioner's proposed operational limits will provide for at least an equivalent or even greater degree of safety than for similar operations conducted using conventional, manned aircraft, due to the size, speed, and limited operating area of Petitioner's UAS.

The UAS Petitioner plans to operate are small, multi-rotor rotorcraft, each weighing much less than 55 pounds including their payload. They will operate, under normal conditions, at a speed of no more than 50 knots. Operations will be performed by a fully qualified and trained UAS PIC, as outlined below, to ensure that Petitioner's UAS will "not create a hazard to users of the national airspace system or the public." Given the small size of Petitioner's UAS and the pre-planned, controlled-access environment within which they will operate, Petitioner believes that these operations fall squarely within that zone of safety in which Congress envisioned that the FAA must, by exemption, allow commercial operations of UAS to commence immediately. Also, operation in a secured, pre-defined area will prevent the possibility of a national

[8] See Appendix A, Appendix B, and Appendix C

[9] See Appendix E, Appendix F, and Appendix G

security issue. The operation of Petitioner's UAS by knowledgeable aviation professionals with experience in the national airspace system ("**NAS**") will serve to enhance safety, add to the public benefit, and reduce environmental impacts related to current methods of aerial operations of the kind proposed by Petitioner.

The limitations and conditions to which Petitioner agrees to be bound when conducting commercial operations under this petition include but are not limited to the following, at a minimum:

1. Safety will be the first and foremost consideration for all of Petitioner's UAS operations.
2. Petitioner will conduct operations using only the DJI Inspire 1, DJI S800 EVO, and DJI Phantom 2 UASs, each of which weighs less than 55 pounds fully loaded.
3. Petitioner's UAS PIC will be required to be an FAA licensed airman with at least a Sport Pilot certificate and hold at least an FAA Third Class Medical certificate or valid driver's license.
4. Petitioner's UAS PIC will be responsible at all times for the safe operation of each flight conducted pursuant to the requested exemptions.
5. All flights will be operated within VLOS of the PIC at all times.
6. All operations will utilize a visual observer ("**VO**"). The VO will be used to maintain VLOS with the UAS so long as the PIC also always maintains VLOS capability, and the PIC and VO will at all times remain close enough to be able to communicate verbally during flight operations. The PIC will be responsible for ensuring that the VO can perform the duties required by the VO.
7. The UAS will operate at no more than 50 knots, and in no case will UAS be operated at airspeeds greater than the maximum operating airspeed recommended by the UAS manufacturer.
8. This exemption, if granted, and all other documents needed to operate Petitioner's UAS and conduct operations in accordance with the limitations and conditions as set forth herein and as established by the FAA will at all times be kept with the PIC at the ground control station and will be immediately available upon request.
9. Petitioner's UAS will utilize GPS navigation, failsafe, return-to-home ("**RTH**"), and/or flight abort safety features.
10. The PIC will be prohibited from beginning a flight unless, considering the wind and forecast weather conditions, there is enough available power for Petitioner's UAS to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer, whichever is greater.
11. Flights will be operated at an altitude at or below 200 feet above ground level ("**AGL**") under normal conditions, and will never exceed 400 feet AGL.
12. Petitioner will not allow its PIC to operate unless the PIC demonstrates the ability to safely operate Petitioner's UAS in a manner consistent with how the UAS will be operated as proposed herein, including evasive and emergency maneuvers and maintaining appropriate distances from persons and property, and including familiarization with applicable airspace restrictions and the UAS operations manuals.
13. Operations will never be conducted at night. Daytime operations will only be conducted under Visual Flight Rules ("**VFR**") conditions.
14. Petitioner's UAS will only be operated within a pre-planned, controlled-access flight perimeter sized so as to allow the PIC and VO to maintain VLOS with the UAS at all times during flight operations.
15. A briefing will be conducted in regard to each planned UAS operation, and the safety thereof, prior to operation at each new location.

16. All persons not directly involved with UAS flight operations will be prohibited from entering the flight perimeter unless there exists therein barriers or structures sufficiently robust to protect nonparticipating persons from the UAS and/or debris in the event of an accident.
17. All UAS operations will be conducted over private or controlled-access property with permission from the property owner or property controller or their respective authorized representative. Permission from the property owner or controller or their authorized representative will be obtained prior to each operation.
18. If the UAS loses communications or loses its GPS signal, it will have the capability to return to a pre-determined location within the flight perimeter.
19. The PIC will have the power, and the duty, to abort all flight operations in the event of unpredicted obstacles or emergencies.

The Requested Exemptions Promote the Public Interest

The enhanced safety achieved by replacing significantly larger manned aircraft carrying crew, passengers, and flammable fuel with small UAS carrying no passengers, crew, or flammable fuel under the specific guidelines and procedures proposed by Petitioner gives FAA good cause to find that the UAS operations enabled by this petition are in the public interest. Moreover, by replacing the manned aircraft traditionally used for the kinds of operations proposed by Petitioner with small UAS, Petitioner will be able to provide aerial operations services at a greatly reduced cost, making these kinds of services available to a greater range of businesses and consumers, thereby enhancing the utility of aerial operations and benefitting the economy as a whole. Similarly, the small, electric, battery-powered UAS utilized by Petitioner will benefit the public as a whole by greatly reducing the pollution and ecological impact associated with traditional aircraft and rotorcraft operations.

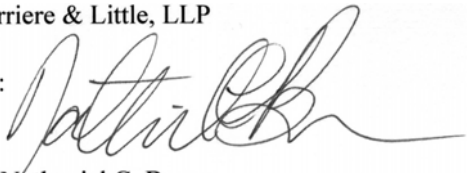
Congress and the FAA, through passage of the Reform Act and in numerous Exemptions *(see e.g.* Exemption No. 11062), have already recognized that UAS provide a greater degree of flexibility and safety than traditional manned aircraft when used within certain operational limits and for the kinds of operations proposed herein by Petitioner. Granting Petitioner exemption to operate its UAS commercially furthers economic growth and public safety while limiting the ecological impacts of aerial operations. Thus, FAA has good cause to grant this petition.

Conclusion

For the forgoing reasons, the exemptions requested by Petitioner herein should be granted and Petitioner should be permitted to conduct commercial UAS operations in accordance with the limitations and conditions proposed herein and as established by the FAA.

Respectfully submitted,

Carriere & Little, LLP

By: 

Nathanial C. Brown
Counsel for Petitioner
Planet Inhouse, Inc.

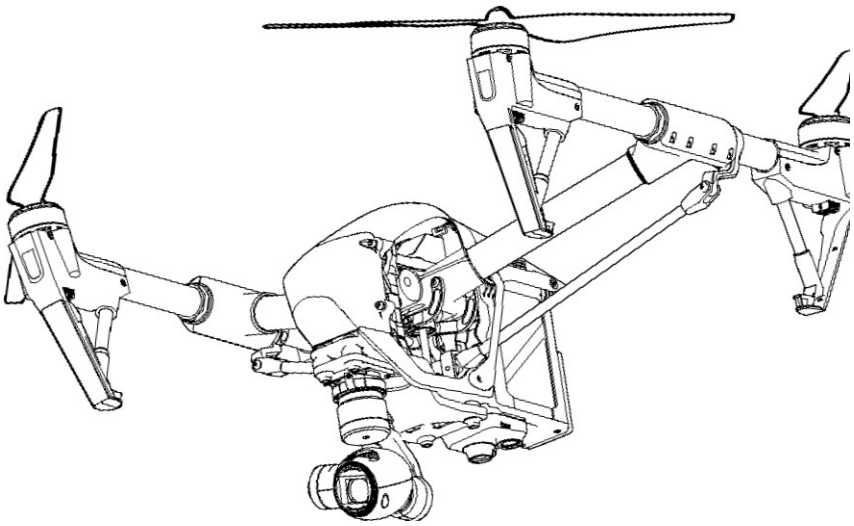
APPENDIX A

DJI Inspire 1—Operations Documents

INSPIRE 1

User Manual G]J

2015.3



Using this manual

Legends

Warning Important Hints and Tips Reference

Before Flight

The following tutorials and manuals have been produced to ensure you to make full use of your Inspire 1.

1.Disclaimer
2.In the Box
3.Inspire 1 Quick Start Guide
4.Safety Guidelines
5.Inspire 1 User Manual
6.Intelligent Flight Battery Safety Guidelines

Watching all the tutorial videos and reading the Disclaimer before flight is recommended. Afterwards, prepare for your first flight by using the Inspire 1 Quick Start Guide. Refer to this manual for more comprehensive information.

Watch the video tutorials

Please watch the tutorial video below to learn how to use Inspire 1 correctly and safely:

www.dji.com/product/inspire-1/video

Download the DJI Pilot app

Download and install the DJI Pilot app before use. Scan the QR code or visit "http://m.dji.net/djipilot" to download the app.

For the best experience, use mobile device with Andriod V 4.1.2 or above. Requires iOS 8.0 or later.

 © 2015 DJI. All Rights Reserved.

Contents

Using this manual

Legends 2
Before Flight 2
Watch the video tutorials 2
Download the DJI Pilot app 2

Product Profile

Introduction 6
Feature Highlights 6
Assemble the Aircraft 7
Aircraft Diagram 9
Remote Controller Diagram 9

Aircraft

Flight Controller 12
Flight Mode 12
Flight Status Indicator 12
Return to Home (RTH) 13
Dynamic Home Point 15
Vision Positioning System 16
Flight Recorder 17
Attaching and Detaching the Propellers 17
DJI Intelligent Flight Battery 18

Remote Controllers

Remote Controller Profile 24
Remote Controller Operations 24
Dual Remote Controllers Mode 29
Remote Controller Status LED 31
Linking the Remote Controller 32
Remote Controller Compliance Version 33

Gimbal and Camera

Camera Profile 35
Gimbal 36

© 2015 DJI. All Rights Reserved.

DJI Pilot App

Camera 40
Map 43
Academy 43
User Center 43

Flight

Flight Environment Requirements 45
Flight Limits and Flight Restriction Area 45
Preflight Checklist 49
Calibrating the Compass 49
Auto Take-off and Auto Landing 50
Starting/Stopping the Motors 51
Flight Test 51

FAQ

Appendix

Specifications 57
Intelligent Orientation Control (IOC) 60
How to Update Firmware 61
FCC Compliance 62

 © 2015 DJI. All Rights Reserved.

Product Profile

This chapter describes the features of Inspire 1, instructs you to assemble the aircraft and explains the components on the aircraft and remote controllers.

© 2015 DJI. All Rights Reserved.

Product Profile

Introduction

The Inspire 1 is brand new quadcopter capable of capturing 4K video and transmitting an HD video signal (up to 2km) to multiple devices straight out of the box. Equipped with retractable landing gear, it can capture an unobstructed 360 degree view from its camera. The built-in camera has an integrated gimbal to maximize stability and weight efficiency while minimizing space. When no GPS signal is available, Vision Positioning technology provides hovering precision.

Feature Highlights

Camera and Gimbal: Up to 4K video recording and 12 megapixel photo capture. Reserved mounting space for ND filters for better exposure control. New quick-release mount allows you to remove the camera with ease.

HD Video Downlink: Low latency, HD downlink powered by an enhanced version of the DJI Lightbridge system. It also provides dual controllers mode.

Landing gear: Retractable landing gear that enables an unobstructed panoramic view from the camera.
DJI Intelligent Flight Battery: 4500 mAh DJI Intelligent Flight Battery employs new battery cells and a battery management system.

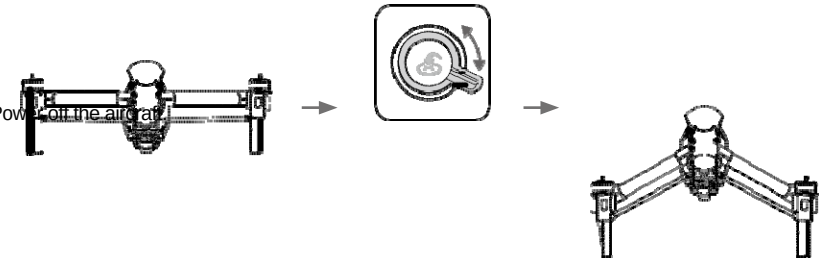
Flight Controller: The next generation flight controller system provides a more reliable flight experience. A new flight recorder stores the flight data from each flight, and Vision Positioning enhances hovering precision when no GPS is available.

Assemble the Aircraft

Unlocking Travel Mode

The aircraft is in Travel Mode during delivery. Follow these steps to change it to Landing Mode before your first flight:

1. Insert the Intelligent Flight Battery into the battery compartment.
2. Power on the Remote Controller and the Intelligent Flight Battery.
3. Toggle the Transformation Switch up and down at least four times.
4. Power off the aircraft.



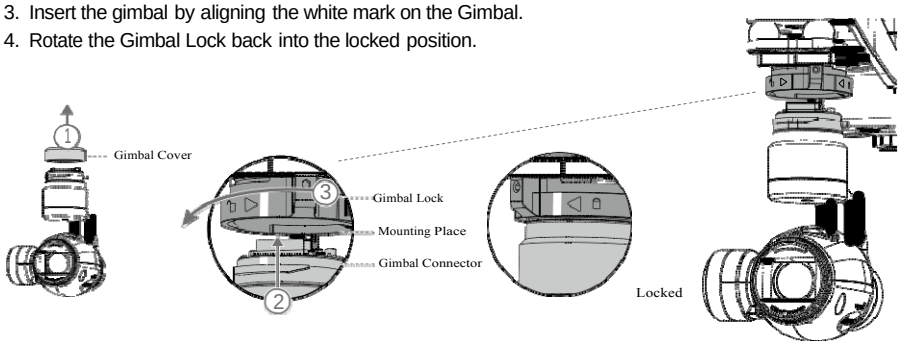
Travel Mode　　Toggle×4　　Landing Mode

 © 2015 DJI. All Rights Reserved.

⚠
- Battery must be fully charged before using it for the first time. Refer to "Charging the Intelligent Flight Battery" (P21) for more information .
- If you have purchased the dual remote controller version, you must use the Master remote controller to deactivate Travel Mode. Refer to "Setting Up Dual Remote Controllers Mode" (P30) section for more infromation about Master remote controller.
- Be sure to remove the gimbal from the aircraft before switch from Landing Mode to Travel Mode.
- Place the aircraft on the smooth and reflective surface (e.g. table or tile) before switching between the travel modes to the landing mode. Do not place the aircraft on the rough and sound-absorbing surface (e.g. carpet) before switching between the travel modes and landing mode.

Installing Gimbal and Camera

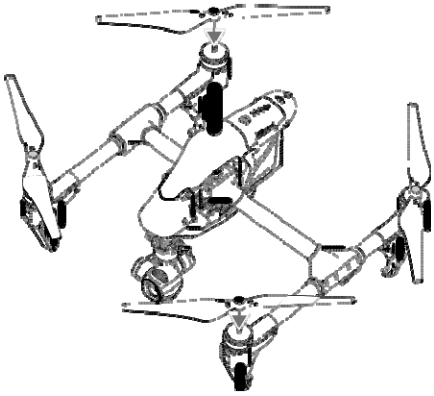
1. Remove Gimbal Cover.
2. Rotate the Gimbal Lock to the unlocked position (to the right when facing the nose of the aircraft).
3. Insert the gimbal by aligning the white mark on the Gimbal.
4. Rotate the Gimbal Lock back into the locked position.



⚠ Ensure the Micro-SD card is correctly inserted into the camera.

Attaching Propellers

Attach propellers with the black nut onto motors with the black dot and spin counter-clockwise to secure. Attach propellers with gray nut onto motors without a black dot and spin clockwise to secure.



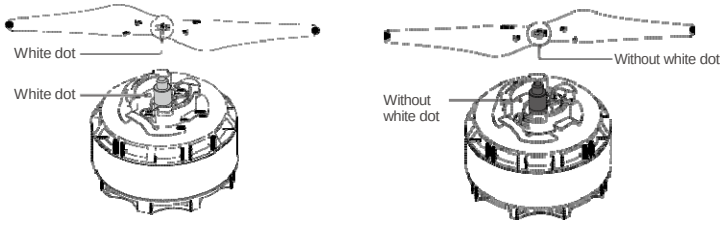
© 2015 DJI. All Rights Reserved.

⚠ Place all propellers onto the correct motor and tighten by hand to ensure security before flight.

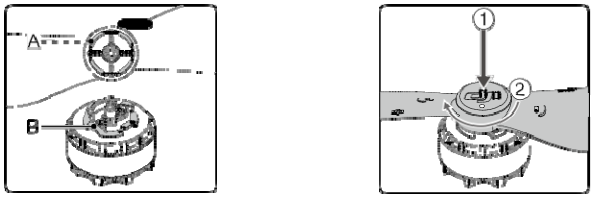
Attaching 1345s Quick-Release Propellers

The 1345s Quick-Release propeller is the upgrade version of the propellers that greatly enhance the reliability of the propeller during the flight. Following the steps below to attach the 1345s Quick-Release propellers.

1. Install the propellers with a white dot onto the mounting plates that have a white dot, and install the propellers without a white dot onto the mounting plates that do not have a white dot.



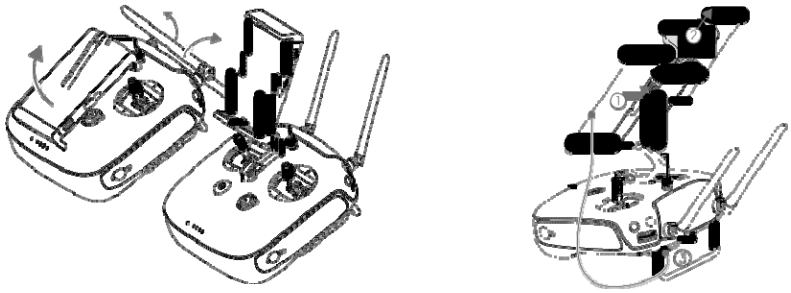
2. Align the hook (A) on the propellers with the securing spring (B), then press down the propeller onto the mounting plate then rotate the propellers according to the lock direction until it is secured.



Preparing Remote Controller

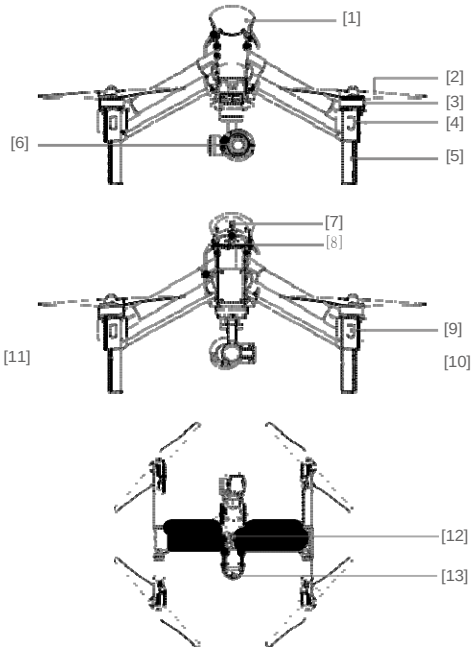
Tilt the Mobile Device Holder to the desired position then adjust the antenna as shown.

1. Press the button on the side of the Mobile Device Holder to release the clamp, adjust it to fit then attach your mobile device.
2. Connect your mobile device to the remote controller with a USB cable.
3. Plug one end of the cable into your mobile device, and the other end into the USB port on the back of the remote controller.



 © 2015 DJI. All Rights Reserved.

Aircraft Diagram



[1] GPS

[2] Propeller (P17)

[3] Motor

[4] Front LED (P12)

[5] Landing gear

[6] Gimbal and Camera (P35)

[7] Intelligent Flight Battery (P18)

[8] Aircraft Micro-USB Port

[9] Rear LED (P12)

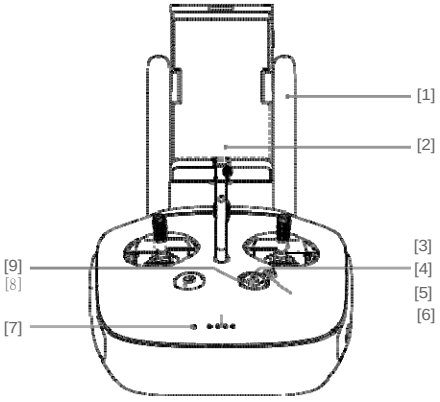
[10] Camera Micro-USB Port

[11] Camera Micro-SD Card Slot (P35)

[12] Vision Positioning Sensors (P16)

[13] Aircraft Status Indicator (P13)

Remote Controller Diagram



[1] Antennas (P29)

Relays aircraft control and video signal.

[2] Mobile Device Holder

Mounting place for your mobile device.

[3] Control Stick

Controls aircraft orientation.

[4] Return Home (RTH) Button (P13)

Press and hold the button to initiate Return to Home (RTH).

[5] Transformation Switch (P27)

Toggle the switch up or down to raise or lower the landing gear.

© 2015 DJI. All Rights Reserved.

[6] Battery Level LEDs

Displays the current battery level.

[7] Status LED

Displays the power status.

[8] Power Button

Used to power on or power off the remote controller.

[9] RTH LED

Circular LED around the RTH button displays RTH status.

[10] Camera Settings Dial

Turn the dial to adjust camera settings. Only functions when the remote controller is connected to a mobile device running the DJI Pilot app.

[11] Playback Button

Playback the captured images or videos.

[12] Shutter Button

Press to take a photo. If in burst mode, the set number of photos will be taken with one press.

[13] Flight Mode Switch

Used to switch between P, A and F mode.

[14] Video Recording Button

Press to start recording video. Press again to stop recording.

[15] Gimbal Dial

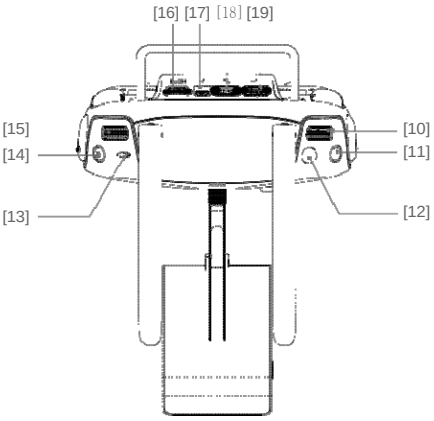
Use this dial to control the tilt of the gimbal.

[16] Mini-HDMI Port

Connect an HD compatible monitor to this port to get a live HD video preview of what the camera sees.

[17] Micro-USB Port

For connecting the remote controller to your computer.

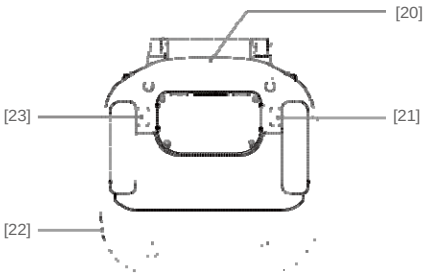


[18] CAN Bus Port

Reserved for future use.

[19] USB Port

Connect to mobile device to access all of the DJI Pilot app controls and features.



[20] GPS Module

Used to pinpoint the location of the remote controller.

[21] Back Left Button

Customizable button in DJI Pilot app.

[22] Power Port

Connect to a power source to charge the remote controller's internal battery.

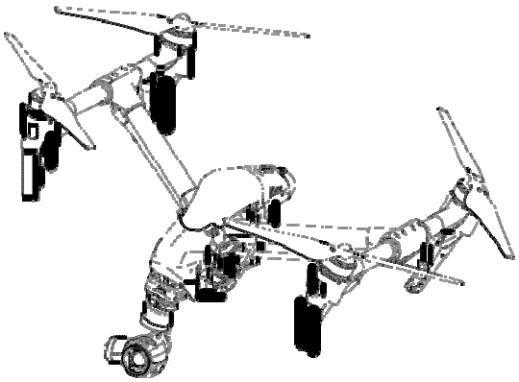
[23] Back Right Button

Customizable button in DJI Pilot app.

 © 2015 DJI. All Rights Reserved.

Aircraft

This chapter describes the features of the Flight Controller, Vision Positioning System and the Intelligent Flight Battery.



© 2015 DJI. All Rights Reserved.

Aircraft

Flight Controller

The Inspire 1's flight controller is based on DJI flight controller with several enhancements such as new flight mode and new safe mode. Three safe modes are available: Failsafe, Return Home and Dynamic Home Point. These features ensure the safe return of your aircraft if the control signal is lost. A flight recorder stores crucial flight data for each flight.

Flight Mode

Three flight modes are available. The details of each flight mode are found in the section below:

P mode (Positioning) : P mode works best when GPS signal is strong. There are three different states of P mode, which will be automatically selected by the Inspire 1 depending on GPS signal strength and Vision Positioning sensors:

P-GPS: GPS and Vision Positioning both are available, and the aircraft is using GPS for positioning.

P-OPTI: Vision Positioning is available but the GPS signal is not. Aircraft is using only Vision Positioning for hovering

P-ATTI: Neither GPS or Vision Positioning available, aircraft is using only its barometer for positioning, so only altitude is controlled.

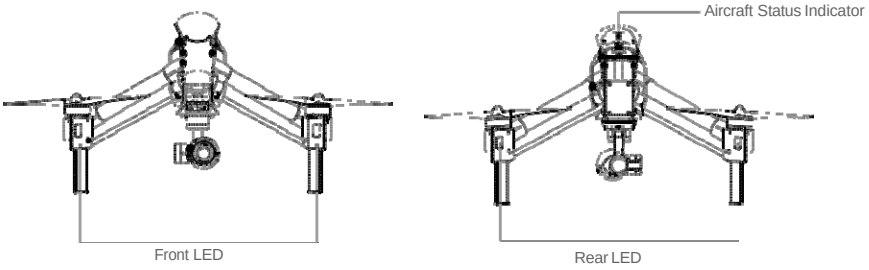
A mode (Attitude): The GPS and Vision Positioning System is not used for holding position. The aircraft only uses its barometer to maintain altitude. If it is still receiving a GPS signal, the aircraft can automatically return home if the Remote Controller signal is lost and if the Home Point has been recorded successfully.

F mode (Function): Intelligent Orientation Control (IOC) is activated in this mode. For more information about IOC, refer to the IOC in Appendix.

Use the Flight Controller mode switch to change the flight mode of the aircraft, refer to the "Flight Mode Switch" on P27 for more information.

Flight Status Indicator

The INSPIRE 1 comes with the Front LED, Rear LED and Aircraft Status Indicator. The positions of these LEDs are shown in the figure below:



The Front and Rear LED show the orientation of the aircraft. The Front LED displays solid red and the Rear LED displays solid green.

Aircraft Status Indicator shows the system status of the flight controller. Refer to the table below for more information about the Aircraft Status Indicator:

 © 2015 DJI. All Rights Reserved.

Aircraft Status Indicator Description

Normal	
Ⓡ Ⓖ Ⓨ ..... Red, Green and Yellow Flash Alternatively	Power on and self-check
Ⓖ Ⓨ ..... Green and Yellow Flash Alternatively	Aircraft warming up
Ⓖ ····· Green Flashes Slowly	Safe to Fly (P mode with GPS and Vision Positioning)
Ⓖ X2 ..... Green Flashes Twice	Safe to Fly (P mode with Vision Positioning but without GPS)
Ⓨ ····· Yellow Flashes Slowly	Safe to Fly (A mode but No GPS and Vision Positioning)
Warning	
Ⓨ ..... Fast Yellow Flashing	Remote Controller Signal Lost
Ⓡ ····· Slow Red Flashing	Low Battery Warning
Ⓡ ····· Fast Red Flashing	Critical Low Battery Warning
Ⓡ ····· Red Flashing Alternatively	IMU Error
Ⓡ —— Solid Red	Critical Error
Ⓡ Ⓨ ····· Red and Yellow Flash Alternatively	Compass Calibration Required

Return to Home (RTH)

The Return to Home (RTH) brings the aircraft back to the last recorded Home Point. There are three cases that will trigger RTH procedure; they are Smart RTH, Low Battery RTH and Failsafe RTH.

	GPS	Description
Home Point		The Home Point is the location at which your aircraft takes off when the GPS signal is strong. You can view the GPS signal strength through the GPS icon ( ). If you are using the Dynamic Home Point setting, the Home Point will be updated to your current position as you move around and when the Aircraft Status Indicator blinks green.

Smart RTH

Using the RTH button on the remote controller (refer to "RTH button" on P28 for more information) or the RTH button in the DJI Pilot app when GPS is available to enables smart RTH. The aircraft return to the latest recorded Home Point, you may control the aircraft's orientation to avoid collision during the Smart RTH. Press the Smart RTH button once to start the process, press the Smart RTH button again to exit Smart RTH and regain the control.

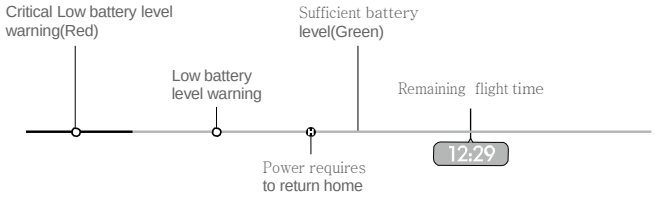
© 2015 DJI. All Rights Reserved.

Low Battery RTH

The low battery level failsafe is triggered when the DJI Intelligent Flight Battery is depleted to a point that may affect the safe return of the aircraft. Users are advised to return home or land the aircraft immediately when these warnings are shown. DJI Pilot app will advise user to return the aircraft to the Home Point when low battery warning is triggered. Aircraft will automatically return to the Home Point if no action is taken after 10 seconds countdown. User can cancel the RTH by pressing once on the RTH button. The thresholds for these warnings are automatically determined based on the current aircraft altitude and its distance from the Home Point.

Aircraft will land automatically if the current battery level can only support the aircraft to land to the ground from the current altitude. User can use the remote controller to control the aircraft's orientation during the landing process.

The Battery Level Indicator is displayed in the DJI Pilot app, and is described below



Battery level indicator

Battery Level Warning	Remark	Aircraft Status Indicator	DJI Pilot app	Flight Instructions
Low battery level warning	The battery power is low. Please land the aircraft.	Aircraft status indicator blinks RED slowly.	Tap "Go-home" to have the aircraft return to the Home point and land automatically, or "Cancel" to resume normal flight. If no action is taken, the aircraft will automatically go home and land after 10 seconds. Remote controller will sound an alarm.	Fly the aircraft back and land it as soon as possible, then stop the motors and replace the battery.
Critical Low battery level warning	The aircraft must land immediately.	Aircraft status indicator blinks RED quickly.	The DJI Pilot app screen will flash red and aircraft starts to descend. Remote controller will sound an alarm.	The aircraft will begin to descend and land automatically.
Estimated remaining flight time	Estimated remaining flight based on current battery level.	N/A	N/A	N/A

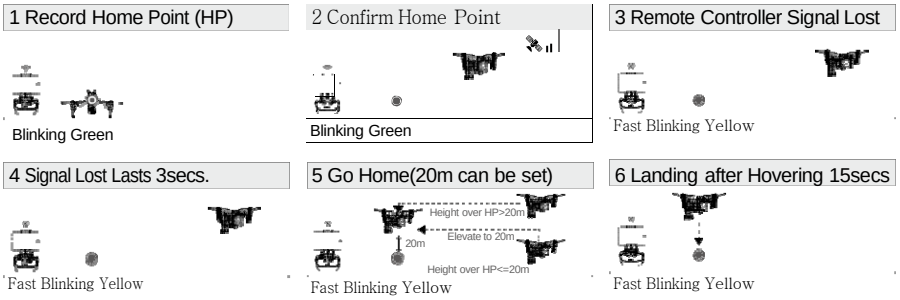
 © 2015 DJI. All Rights Reserved.

- When the critical battery level warning activates and the aircraft is descending to land automatically, you may push the throttle upward to hover the aircraft and navigate it to a more appropriate location for landing.
- Color zones and markers on the battery level indicator reflect estimated remaining flight time and are adjusted automatically, according to the aircraft's current status.

Failsafe RTH

Failsafe RTH is activated automatically if remote controller signal (including video relay signal) is lost for more than 3 seconds provided that Home Point has been successfully recorded and compass is working normally. Return home process may be interrupted and the operator can regain control over the aircraft if a remote controller signal is resumed.

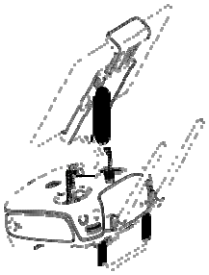
Failsafe Illustration



- Aircraft automatically descends and lands if RTH is triggered when the aircraft flies within a 20 meter (65 feet) radius of the Home Point.
- Aircraft cannot avoid obstruction during the Failsafe RTH, therefore it is important to set an reasonable Failsafe altitude before each flight. Launch the DJI Pilot app and enter "Camera" view and select "MODE" to set the Failsafe altitude.
- Aircraft will stop ascending and immediately return to the Home Point if you move the throttle stick if the aircraft reaches 20 m altitudes or beyond during Failsafe.

Dynamic Home Point

Dynamic home point is useful in situations when you are in motion and require a Home Point that is different from the takeoff point. GPS module is located at the position shown in the figure below:



Ensure the space above the GPS module is not obstructed when using Dynamic Home Point.

© 2015 DJI. All Rights Reserved.

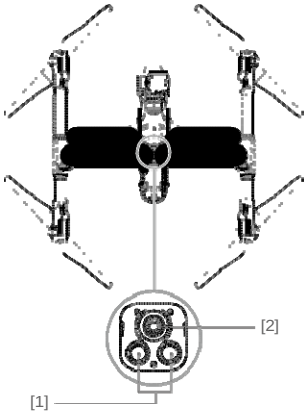
There are two options for Dynamic Home Point.
1. Set the aircraft current coordinate as the new Home Point.
2. Set the remote controller's coordinate as the new Home Point.

Setting Up Dynamic Home Point

Follow the steps below to setup Dynamic Home Point:
1. Connect to the mobile device and launch the DJI Pilot app and go to the "Camera" page.
2. Tap"and select"", to reset the remote controller's coordinates as the new Home Point.
3. Tap"and select"", to reset the aircraft's coordinates as the new Home Point.
4. The aircraft status indicator blinks green to show Home Point is set successfully.

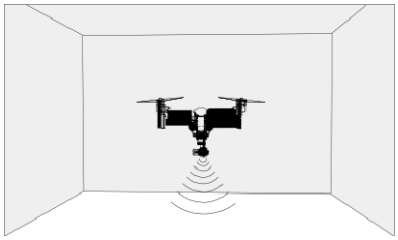
Vision Positioning System

DJI Vision Positioning is a positioning system that uses ultrasonic and image data to help the aircraft identify its current position. With the help of Vision Positioning, your Inspire 1 can hover in place more precisely and fly indoors or in other environments where there is no GPS signal available. The main components of DJI Vision Positioning are located on the bottom of your Inspire 1, including [1]two sonar sensors and[2]one monocular camera.



Using Vision Positioning

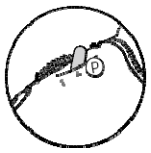
Vision Positioning is activated automatically when the Inspire 1 is powered on. No manual action is required. Vision Positioning is typically used in the indoor environment where no GPS is available. By using the sensors on the Vision Positioning system, Inspire 1 can perform precision hovering even when no GPS is available.



 © 2015 DJI. All Rights Reserved.

Follow the steps below to use Vision Positioning:

1. Toggle the switch to "P" as shown the figure to the right:
2. Place the Inspire 1 on a flat surface. Notice that the Vision Positioning system cannot work properly on surfaces without pattern variations.
3. Power on the Inspire 1. The aircraft status indicator will flash twice in green light, which indicates the Vision Positioning system is ready. Gently push the throttle up to lift off, and the Inspire 1 will hover in place.



⚠ The performance of your Inspire 1's Vision Positioning System is subject to the surface you are flying over. The ultrasonic waves may not be able to accurately measure the distance over sound absorbing materials, and the camera may not function correctly in suboptimal environments. The aircraft will switch from "P" mode to "A" mode automatically if both GPS and Vision Positioning System are not available. So operate the aircraft cautiously when in any of the following situations:

- Flying over monochrome surfaces (e.g. pure black, pure white, pure red, pure green).
- Flying over a highly reflective surfaces.
- Flying at high speeds(over 8m/s at 2 meters or over 4m/s at 1 meter).
- Flying over water or transparent surfaces.
- Flying over moving surfaces or objects.
- Flying in an area where the lighting changes frequently or drastically.
- Flying over extremely dark (lux < 10) or bright (lux > 10,000) surfaces.
- Flying over surfaces that can absorb sound waves (e.g. thick carpet).
- Flying over surfaces without clear patterns or texture.
- Flying over surfaces with identical repeating patterns or textures (e.g. tiles with same design).
- Flying over inclined surfaces that will deflect sound waves away from the aircraft.
- In the event of loss of remote controller's signal, the aircraft will hover for 8 seconds and then auto-land if it is in "P" mode.

- Keep the sensors clean at all times. Dirt or other debris may adversely affect the effectiveness of the sensors.
- The effective hovering altitudes of the aircraft is from 0 to 2.5 meters.
- Vision Positioning system may not function properly when the aircraft is flying over water.
- Vision Positioning system may not be able to recognize pattern on the ground in low light conditions (less than 100lux).
- Do not use other ultrasonic devices with frequency of 40 KHz when Vision Positioning system is in operation.
- Vision Positioning system may not be able to stabilize the aircraft when flying close to the ground (below 0.5 meters) in fast speed.

⊘ Keep the animals away from the aircraft when Vision Positioning system is activated. The sonar sensor emits high frequency sound that is only audible to some animals.

Flight Recorder

Flight data is automatically stored in the internal storage device of the aircraft. User can gain access to these data through the DJI Pilot app. This includes flight duration, orientation, distance, aircraft status information, speed, and other parameters.

Attaching and Detaching the Propellers

Use only DJI approved propellers with your Inspire 1. The grey or black nut on the propeller indicates the rotation direction of the propeller and where it should be attached. To attach the propellers properly,

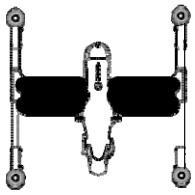
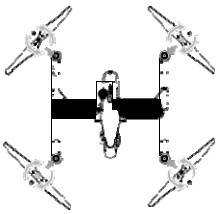
© 2015 DJI. All Rights Reserved.

match the nut with the dots on the motors of your Inspire 1:

Propellers	Grey cap(1345)	Black cap(1345R)
Figure		
Attach On	Motors without a black dot	Motors with a black dot
Legends	 Lock : Turn the propellers in the indicated direction to mount and tighten Unlock : Turn the propellers in the indicated direction to loosen and remove	

Attaching the Propellers

1. Attach the propellers with a grey nut onto a motor without a black dot and spin the propellers clockwise to secure them in place. Attach the propellers with a black nut onto a motor with a black dot and spin the propellers counter clockwise to secure its position. Be sure to completely tighten each propeller by hand before flight.

⚠
- Ensure propellers are attached to its corresponding motors, otherwise the aircraft cannot take off.
- Handling the propellers with care.
- Manually tighten each of the propellers on the corresponding motors to ensure it is attached firmly.

Detaching the Propellers

Hold the motor still. Then spin the propeller in the unlock direction indicated on the propeller itself.

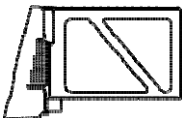
Detaching 1345s Quick-Release Propellers

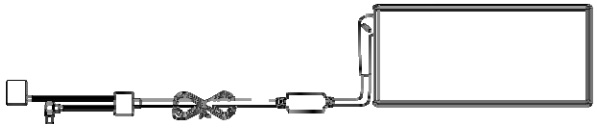
Press the 1345s Quick-Release propellers downward firmly then rotate the propeller in the unlock direction to unlock the propellers.

⚠
- Check that the propellers and motors are installed correctly and firmly before every flight. Ensure
- that all propellers are in good condition before each flight. DO NOT use old, chipped, or broken propellers.
- To avoid injury, STAND CLEAR of and DO NOT touch propellers or motors when they are spinning.
- ONLY use original DJI propellers for a better and safer flight experience.

DJI Intelligent Flight Battery

The DJI Intelligent Flight Battery has a capacity of 4500mAh, voltage of 22.2V, and smart charge-discharge functionality. It can only be charged with an appropriate DJI approved charger.


Intelligent Flight Battery


Charger

 © 2015 DJI. All Rights Reserved.

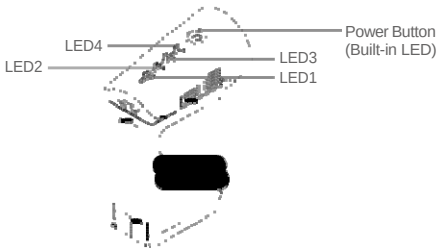
⚠ Battery must be fully charged before using it for the first time. Refer to "Charging the Intelligent Flight Battery" P21 for more information .

DJI Intelligent Flight Battery Functions

1. Battery Level Display: LEDs display the current battery level.
2. Battery Life Display: LEDs display the current battery power cycle.
3. Auto-discharging Function: The battery automatically discharges to below 65% of total power when it is idle (press the power button to check battery level will cause battery to exit idle state) for more than 10 days to prevent swelling. It takes around 2 days to discharge the battery to 65%.It is normal to feel moderate heat emitting from the battery during the discharge process. Discharge thresholds can be set in the DJI Pilot app.
4. Balanced Charging: Automatically balances the voltage of each battery cell when charging.
5. Over charge Protection: Charging automatically stops when the battery is fully charged.
6. Temperature Detection: The battery will only charge when the temperature is between 0 °C(32°F) and 40°C (104°F).
7. Over Current Protection: Battery stops charging when high amperage (more than 10A) is detected.
8. Over Discharge Protection: Discharging automatically stops when the battery voltage reaches 18V to prevent over-discharge damage
9. Short Circuit Protection: Automatically cuts the power supply when a short circuit is detected.
10. Battery Cell Damages Protection: DJI Pilot app shows warning message when damaged battery cell is detected.
11. Battery Information History: Show the last 32 entries of battery information records that include warning messages and so on.
12. Sleep Mode: Sleep mode is entered after 10 minutes of inactivity to save power.
13. Communication: Battery voltage, capacity, current, and other relevant information is provided to the aircraft's to the main controller.

⚠ Refer to Disclaimer and Intelligent Flight Battery Safety Guidelins before use. Users take full responsibility for all operations and usage.

Using the Battery



Powering ON/OFF

Powering On: Press the Power Button once, then press again and hold for 2 seconds to power on. The Power LED will turn red and the Battery Level Indicators will display the current battery level.

Powering Off: Press the Power Button once, then press again and hold for 2 seconds to power off.

© 2015 DJI. All Rights Reserved.

Low Temperature Notice:

1. The performance of the intelligent Flight Battery is significantly reduced when flying in a low temperature environments (those with air temperatures below 5℃). Ensure that the battery is fully charged and the cell voltage is at 4.43 V before each flight.
2. Using the Intelligent Flight Battery in extremely low temperature environments (those with air temperatures below -10℃) is not recommended. When flying in environments with temperatures between 5℃ and -10℃, the Intelligent Flight Battery should be able to achieve the appropriate voltage levels (above 4.2 V), but it is recommended that you apply the included insulation sticker to the battery in order to prevent a rapid drop in temperatures.
3. If the DJI Pilot app displays the "Critical Low Battery Level Warning" when flying in low temperature environments, stop flying and land the aircraft immediately. You will still be able to control the aircraft's movement when this warning is triggered.
4. Store the Intelligent Flight Battery in a room temperature environment and ensure that its temperature exceeds 5℃ before using it in the low temperature environment.
5. When using the Inspire 1 in a low temperature environment, begin by allowing the aircraft to hover at a low altitude, for approximately one minute, to heat the battery.
6. To ensure optimum performance, keep the Intelligent Flight Battery's core temperature above 20℃ when in use.

⚠ In cold environments, insert the battery into the battery compartment and allow the aircraft to warm up for approximately 1-2 minutes before taking off.

Checking the battery level

The Battery Level Indicators display how much remaining power the battery has. When the battery is powered off, press the Power Button once. The Battery Level Indicators will light up to display the current battery level. See below for details.

The Battery Level Indicators will also show the current battery level during charging and discharging. The indicators are defined below.

: LED is on. : LED is flashing.

: LED is off.

Battery Level				
LED1	LED2	LED3	LED4	Battery Level
●	●	●	●	87.5%~100%
				75%~87.5%
●	●	●	○	62.5%~75%
				50%~62.5%
●	●	○	○	37.5%~50%
				25%~37.5%
●	○	○	○	12.5%~25%
				0%~12.5%
○	○	○	○	=0%

 © 2015 DJI. All Rights Reserved.

Battery life

The battery life indicates how many more times the battery can be discharged and recharged before it must be replaced. When the battery is powered off, press and hold the Power Button for 5 seconds to check the battery life. The Battery Level Indicators will light up and/or blink as described below for 2 seconds:

Battery Life				
LED1	LED2	LED3	LED4	Battery Life
◁	◁	◁	◁	90%~100%
				80%~90%
◁	◁	◁	◁	70%~80%
				60%~70%
◁	◁	◁	◁	50%~60%
				40%~50%
◁	◁	◁	◁	30%~40%
				20%~30%
◁	◁	◁	◁	below 20%

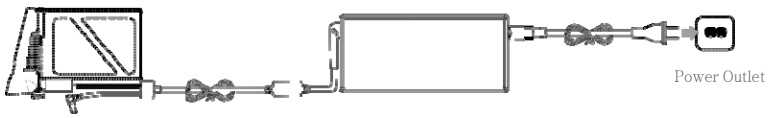
⚠ When battery life reaches 0%, it can no longer be used.

For more information about the battery, launch DJI Pilot app and check the information under the battery tab.

Charging the Intelligent Flight Battery

1. Connect Battery Charger to a power source (100-240V 50/60Hz).
2. Open the Protection Cap and connect the Intelligent Flight Battery to the Battery Charger. If the battery level is above 95%, turn on the battery before charging.
3. The Battery Level Indicator will display the current battery level during charging.
4. The Intelligent Flight Battery is fully charged when Battery Level Indicators are all off.
5. Air cool the Intelligent Flight Battery after each flight. Allow its temperature to drop to room temperature before storing it for an extended period.

⚠
- Do not charge the Intelligent Flight Battery and remote controller with standard charger (model: A14-100P1A) at the same time, otherwise the charger may overheat.
- Always turn off the battery before inserting it or removing it from the Inspire 1. Never insert or remove a battery when it is powered on.



© 2015 DJI. All Rights Reserved.

Battery Level Indicators while Charging				
LED1	LED2	LED3	LED4	Battery Level
				0%~25%
				25%~50%
				50%~75%
				75%~100%
				Fully Charged

Aircraft

Charging Protection LED Display

The table below shows battery protection mechanisms and corresponding LED patterns.

Battery Level Indicators while Charging					
LED1	LED2	LED3	LED4	Blinking Pattern	Battery Protection Item
				LED2 blinks twice per second	Over current detected
				LED2 blinks three times per second	Short circuit detected
				LED3 blinks twice per second	Over charge detected
				LED3 blinks three times per second	Over-voltage charger detected
				LED4 blinks twice per second	Charging temperature is too low (<0°C)
				LED4 blinks three times per second	Charging temperature is too high (>40°C)

After any of the above mentioned protection issues are resolved, press the button to turn off the Battery Level Indicator. Unplug the Intelligent Flight Battery from the charger and plug it back in to resume charging. Note that you do not need to unplug and plug the charger in the event of a room temperature error, the charger will resume charging when the temperature falls within the normal range.

⚠ DJI does not take any responsibility for damage caused by third-party chargers.

How to discharge your Intelligent Flight Battery:

To effectively calibrate the battery capacity, it is recommended to charge and discharge the battery thoroughly for every 10 charge-and-discharge cycle. User should install the battery onto the aircraft and then power on the aircraft to initiate the discharge process, discharge the battery until the aircraft is powered off automatically. User should then fully charge the battery to ensure the battery is working at its optimal.

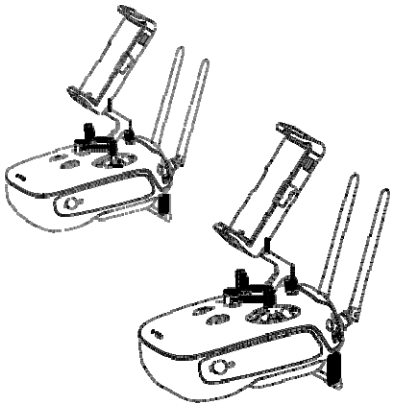
Slow: Place the Intelligent Flight Battery into the Inspire 1's Battery Compartment and power it on. Leave it on until there is less than 5% of power left, or until the battery can no longer be turned on. Launch the DJI Pilot app to check battery level.

Rapid: Fly the Inspire 1 outdoors until there is less than 5% of power left, or until the battery can no longer be turned on.

 © 2015 DJI. All Rights Reserved.

Remote Controllers

This chapter describes the features of the remote controller that includes aircraft and remote controller operations and dual remote controller mode.



© 2015 DJI. All Rights Reserved.

Remote Controller

Remote Controller Profile

The Inspire 1 Remote Controller is a multi-function wireless communication device that integrates the video downlink ground system and aircraft Remote Controller system. The video downlink and aircraft Remote Controller system operate at 2.4 GHz with maximum transmission distance of 2km. The remote controller features a number of camera functions, such as taking and previewing photos and video, and controlling gimbal motions. The remote controller is powered by a 2S rechargeable battery. The current battery level is displayed by LEDs on the front panel of the remote control.

- Compliance Version: The Remote Controller is compliant with both CE and FCC regulations.
- Operating Mode: Control can be set to Mode 1 , Mode 2.
- Mode 1: The right stick serves as the throttle.
- Mode 2: The left stick serves as the throttle.

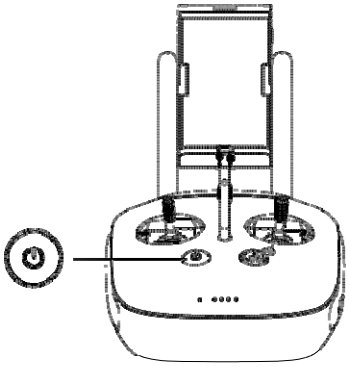
⚠ Do not operate more than 3 aircrafts within in the same area (size equivalent to a soccer field) to prevent transmission interference.

Remote Controller Operations

Powering On And Off The Remote Controller

The Inspire 1 remote controller is powered by a 2S rechargeable battery with a capacity of 6000mAh. The battery level is indicated by the Battery Level LEDs on the front panel. Follow the steps below to power on your remote controller:

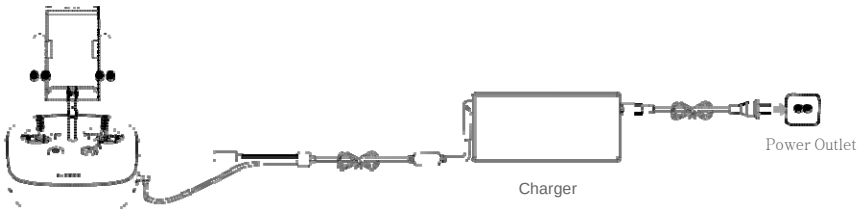
1. When powered off, press the Power Button once and the Battery Level LEDs will display the current battery level.
2. Then, press and hold the Power Button to power on the remote controller.
3. The Remote Controller will beep when it powers on. The Status LED will blink green (slave remote controller blinks solid purple) rapidly, indicating that the remote controller is linking to the aircraft. The Status LED will show a solid green light when linking is completed.
4. Repeat step 2 to power off the remote controller after finish using it.



Charging Remote Controller

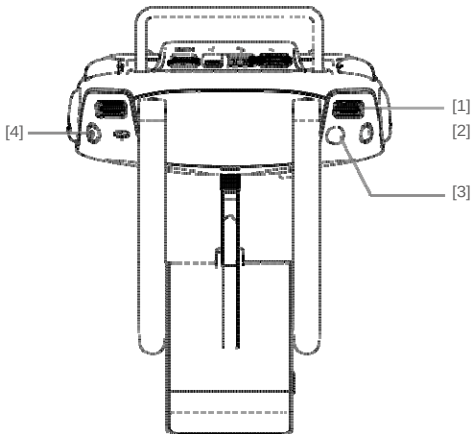
Charge the remote controller via supplied charger.

 © 2015 DJI. All Rights Reserved.



Controlling Camera

Shoot videos or images and adjust camera settings via the Shutter Button, Camera Settings Dial, Playback Button and Video Recording Button on the remote control.



[1] Camera Settings Dial

Turn the dial to quickly adjust camera settings such as ISO and shutter speed without letting go of the remote controller. Move the dial button to left or right to view the pictures or videos in playback mode.

[2] Playback Button

Press to view images or videos that have already been captured.

[3] Shutter Button

Press to take a photo. If burst mode is activated, multiple photos will be taken with a single press.

[4] Recoding Button

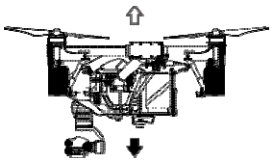
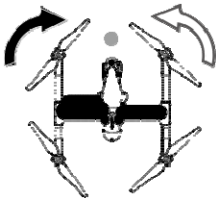
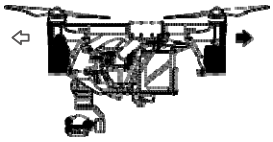
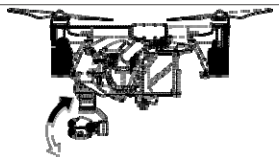
Press once to start recording video, then press again to stop recording.

Controlling Aircraft

This section explains how to use the various features of the remote controller. The Remote Controller is set to Mode 2 by default.

© 2015 DJI. All Rights Reserved.

Stick Neutral/ mid point: Control sticks of the Remote Controller are placed at the central position.
Move the Stick: The control stick is pushed away from the central position.

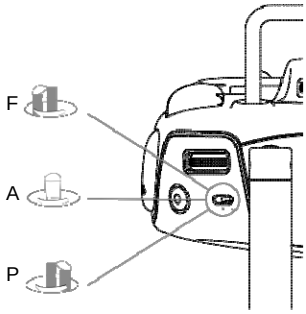
Remote Controller (Mode 2)	Aircraft (● indicates nose direction)	Remarks
		Moving the left stick up and down changes the aircraft's elevation. Push the stick up to ascend and down to descend. Push the throttle stick up to takeoff. When both sticks are centered, the Inspire 1 will hover in place. The more the stick is pushed away from the center position, the faster the Inspire 1 will change elevation. Always push the stick gently to prevent sudden and unexpected elevation changes.
		Moving the left stick to the left or right controls the rudder and rotation of the aircraft. Push the sick left to rotate the aircraft counter clock-wise, and push the stick right to rotate the aircraft clockwise. If the stick is centered, the Inspire 1 will stay facing its current direction. The more the stick is pushed away from the center position, the faster the Inspire 1 will rotate.
		Moving the right stick up and down changes the aircraft's forward and backward pitch. Push the stick up to fly forward and down to fly backward. The Inspire 1 will hover in place if the stick is centered. Push the stick further away from the center position for a larger pitch angle (maximum 35°) and faster flight.
		Moving the right stick control left and right changes the aircraft's left and right pitch. Push left to fly left and right to fly right. The Inspire 1 will hover in place if the stick is centered. Push the stick further away from the center position for a larger pitch angle (maximum 35°) and faster flight.
		Gimbal Dial: Turn the dial to the right, and the camera will shift to point upwards. Turn the dial to the left, and the camera will shift to point downwards. The camera will remain in its current position when dial is static.

 © 2015 DJI. All Rights Reserved.

Flight Mode Switch

Toggle the switch to select the desired flight mode. You may choose between; P mode, F mode and A mode.

Figure	Flight Mode
F	F mode
A	A mode
P	P mode



P mode (Positioning) : P mode works best when GPS signal is strong. There are three different states of P mode, which will be automatically selected by the Inspire 1 depending on GPS signal strength and Vision Positioning sensors:

P-GPS: GPS and Vision Positioning both are available, and the aircraft is using GPS for positioning.

P-OPTI: Vision Positioning is available but the GPS signal is not. Aircraft is using only Vision Positioning for hovering

P-ATTI: Neither GPS or Vision Positioning available, aircraft is using only its barometer for positioning, so only altitude is controlled.

A mode (Attitude): The GPS and Vision Positioning System is not used for holding position. The aircraft only uses its barometer to maintain altitude. If it is still receiving a GPS signal, the aircraft can automatically return home if the Remote Controller signal is lost and if the Home Point has been recorded successfully.

F mode (Function): Intelligent Orientation Control (IOC) is activated in this mode. For more information about IOC, refer to the IOC in Appendix.

The Flight Mode Switch is locked in P mode by default. To unlock the switch, launch the DJI Pilot app, enter the "Camera" page, tap "MODE", and then activate "Multiple Flight Mode" .

Transformation Switch / RTH Button

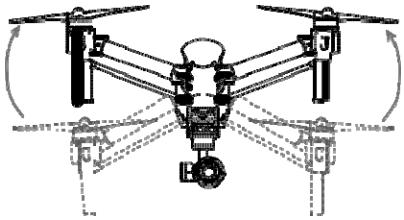
The Transformation Switch / RTH Button combination serves two functions. Toggle the switch up or down to raise or lower the landing gear. Or, press the button to activate the Return to Home (RTH) procedure.

Transformation Switch

This switch has two positions. The effect of toggling the switch to any of these positions is defined below:

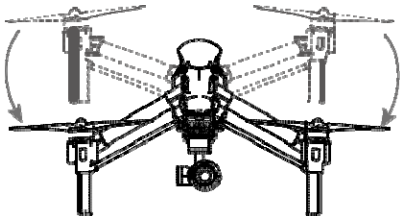


1. Raise: Raise the landing gear to its upper most position.



© 2015 DJI. All Rights Reserved.

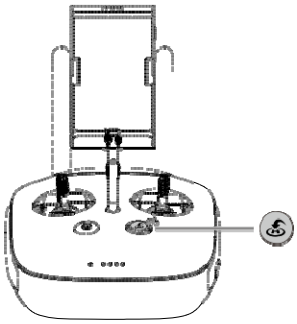
2. Lower: The landing gear will lower to its lowest position for landing.



⚠ Do not raise the landing gear when the aircraft is on the ground. Ensure the landing gear is lowered before landing.

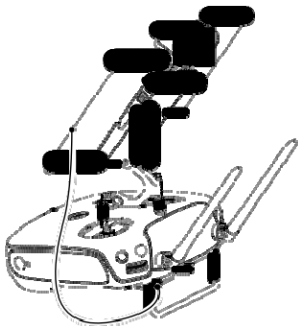
RTH button

Press and hold this button to start the Return to Home (RTH) procedure. The LED around the RTH Button will blink white to indicate the aircraft is entering RTH mode. The aircraft will then return to the last recorded Home Point. Press this button again to cancel the RTH procedure and regain the control of the aircraft.



Connecting Mobile Device

Tilt the Mobile Device Holder to the desired position. Press the button on the side of the Mobile Device Holder to release the clamp, and then place your mobile device into the clamp. Adjust the clamp to secure your mobile device. Then connect your mobile device to the remote controller with a USB cable. Plug one end of the cable into your mobile device, and the other end into the USB port on the back of the remote controller.



 © 2015 DJI. All Rights Reserved.

Optimal Transmission Range

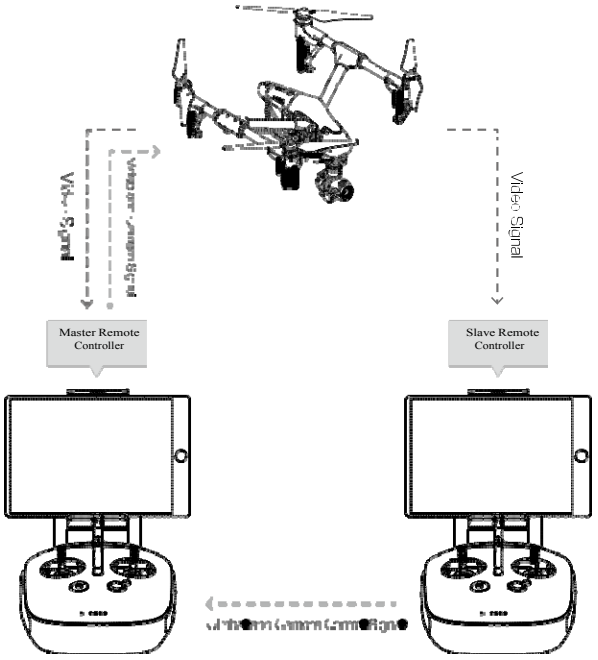
The signal transmission between aircraft and remote controller perform best within the range that displayed in the picture shown below:



Ensure the aircraft is flying within the optimal transmission range. Adjust the distance and position between the operator and the aircraft to achieve optimal transmission performance.

Dual Remote Controllers Mode

More than one remote controller can connect to the same aircraft in Dual Remote Controller mode. In Dual Controllers mode, the "Master" remote controller operator controls the orientation of the aircraft, while the "Slave" remote controller controls the movement of the gimbal and camera operation. When multiple "slave" remote controllers (max of 6) are connect to the aircraft, only the first connected "slave" remote controller is able to control the gimbal, the remaining "slave" remote controller can view the live feed video from the aircraft and set the camera parameters, but they cannot control the gimbal.



© 2015 DJI. All Rights Reserved.

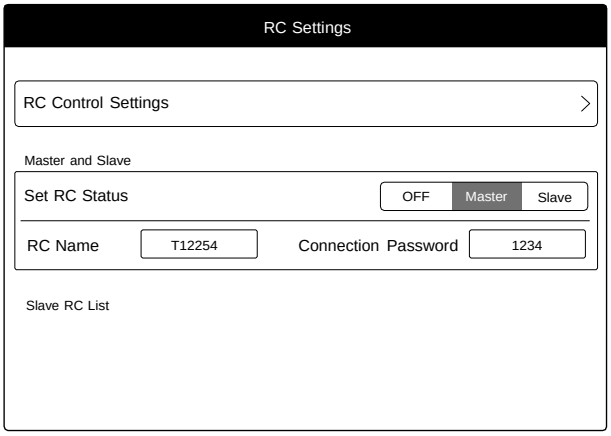
⚠ Use the gimbal dial on the remote controller to control the pitch movement of the camera in the single remote controller mode, however, you cannot control the pan movement of the camera.

Setting Up Dual Remote Controllers Mode

Dual Remote Controllers mode is disabled by default. Users must enable this feature on the “Master” remote controller by through the DJI Pilot app. Follow the steps below for setup:

“Master” Remote Controller:

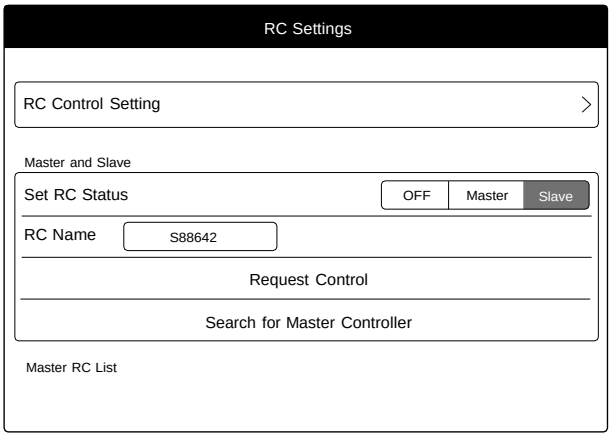
1. Connect the remote controller to your mobile device and launch the DJI Pilot app.
2. Go to the Camera page, and tap to enter the remote controller settings window.
3. Tap “Set RC Status” to enable Master-and-Slave mode.
4. Select “Master” in the “Set RC Status” section to set the remote controller as “Master” remote controller.



5. Enter the connection password for the “Slave” remote controller.

“Slave” Remote Controller:

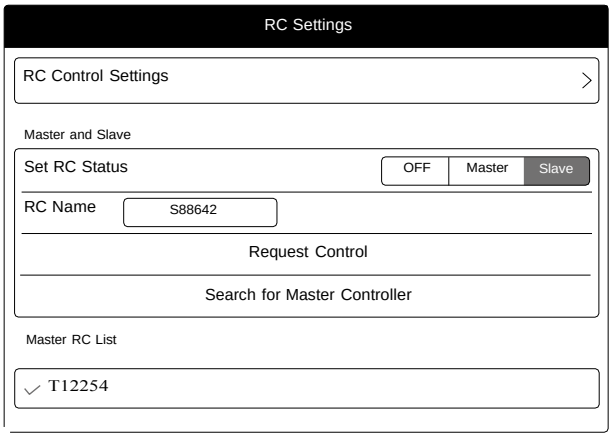
1. Tap “Search for Master Controller” to search the “Master” remote controller.



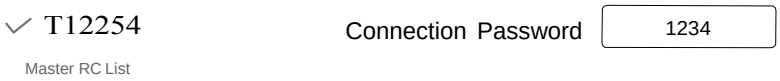
 © 2015 DJI. All Rights Reserved.

⚠ Remote controller cannot link to the aircraft if the remote controller is set as "Slave". Meanwhile, the "Slave" remote controller cannot control the orientation of the aircraft. Reset the remote controller to "Master" in DJI Pilot app if you wish to link the remote controller to the aircraft.

2. Search the "Master" remote controller in the surrounding area in the "Request Control" section.

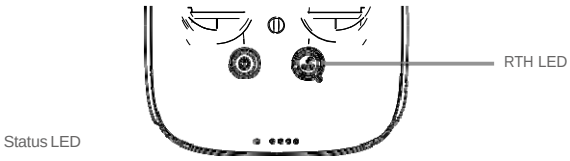


3. Select the "Master" remote controller from the "Master RC List" and input the connection password to connect to the desired "Master" remote controller.



Remote Controller Status LED

The Status LED reflects connection status between Remote Controller and aircraft. The RTH LED shows the Return to Home status of the aircraft. The table below contains details on these indicators.



© 2015 DJI. All Rights Reserved.

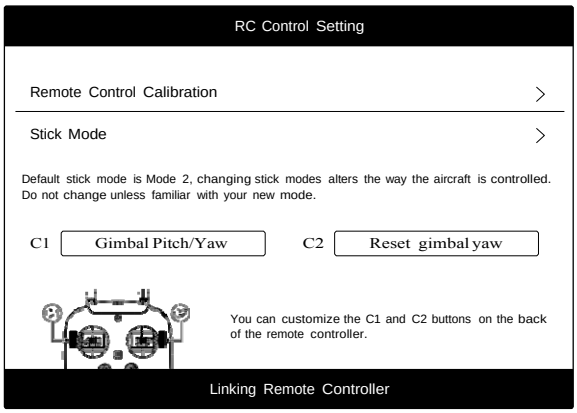
Status LED	Alarm	Remote Controller Status
Ⓡ —— Solid Red	♪ chime	The remote controller set as "Master" but it is not connected with the aircraft.
Ⓖ —— Solid Green	♪ chime	The remote controller set as "Master" and it is connected with the aircraft.
Ⓟ —— Solid Purple	D-D-	The remote controller set as "Slave" but it is not connected with the aircraft.
Ⓑ —— Solid Blue	D-D- ♪chime	The remote controller set as "Slave" and it is connected with the aircraft.
Ⓡ ····· Slow Blinking Red	D-D-D·····	Remote controller error.
Ⓡ Ⓖ / Ⓡ Ⓨ ····· Red and Green/ Red and Yellow Alternate Blinks	None	HD Downlink is disrupted.
RTH LED	**Sound**	**Remote Controller Status.**
Ⓦ —— Solid White	♪chime	Aircraft is returning home.
Ⓦ ····· Blinking White	D · · ·	Sending Return to Home command to the aircraft.
Ⓦ ····· Blinking White	DD ·· ·· ··	Aircraft Return to Home in progress.

⚠ The Remote Status Indicator will blink red, sound an alert, when the battery level is critically low.

Linking the Remote Controller

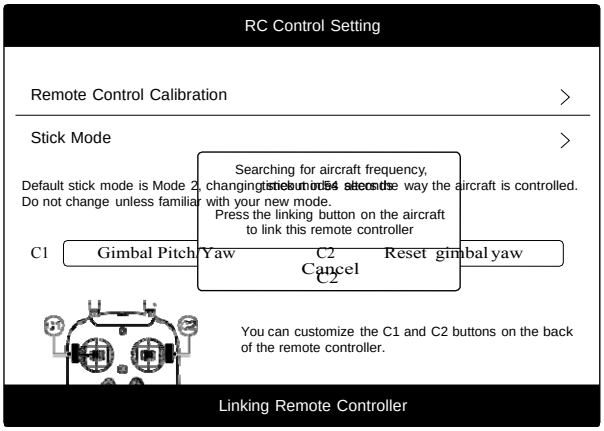
The remote controller is linked to your aircraft before delivery. Linking is only required when using a new remote controller for the first time. Follow these steps to link a new remote controller:

1. Power on the remote controller and connect to the mobile device. Launch DJI Pilot app.
2. Power on the Intelligent Flight Battery.
3. Enter “Camera” view and tap on and then tap “Linking Remote Controller” button as shown below.

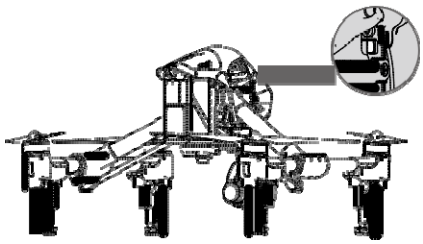


 © 2015 DJI. All Rights Reserved.

4. The remote controller is ready to link. The Remote Controller Status Indicator blinks blue and "beep" sound is emitted.



5. Locate the Linking button on the front of the aircraft, as shown in the figure shown below. Press the Linking button to start linking. The Remote Controller Status Indicator will display solid green if Link is succeed.



⚠
- Remote controller cannot link to the aircraft if the remote controller is set as "Slave". Meanwhile, the "Slave" remote controller cannot control the orientation of the aircraft. Reset the remote controller to "Master" in DJI Pilot app if you wish to link the remote controller to the aircraft.
- Remote controller will disconnect from the linked aircraft if a new remote controller is linked to the same aircraft.

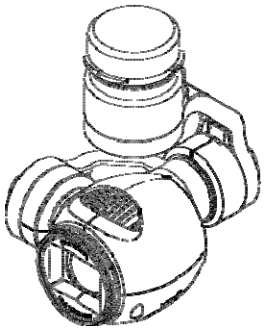
Remote Controller Compliance Version

The remote controller is compliant with both CE and FCC requirements.

© 2015 DJI. All Rights Reserved.

Gimbal and Camera

This chapter provides the technical specifications of the camera and explains the working mode of the gimbal.



 © 2015 DJI. All Rights Reserved.

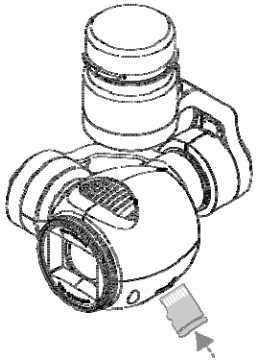
Camera and Gimbal

Camera Profile

The on-board camera supports 4K video capture up to 4096x2160p24 and 12M pixel photos capture by using the 1/2.3 inch CMOS sensor. You may export the video in either MOV or MP4 format for editing. Available picture shooting modes include burst, continuous, and timer mode. A live preview of what the camera is seeing before you shoot videos and pictures is supported through the DJI Pilot App.

Camera Micro-SD Card Slot

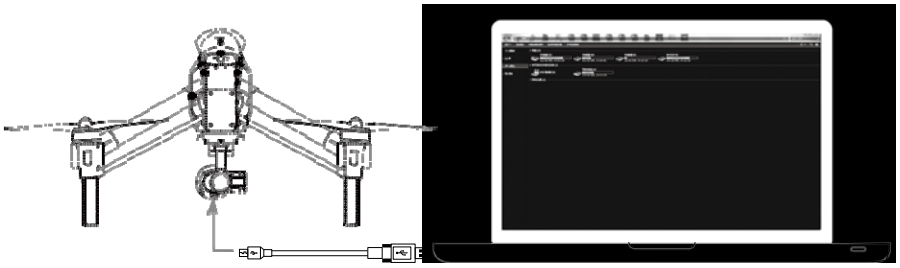
To store your photos and videos, plug in the micro-SD card into the slot shown below before powering on the Inspire 1. The Inspire 1 comes with a 16GB micro-SD card and supports up to a 64GB micro-SD card. A UHS-1 type micro-SD card is recommended, because the fast read and write capability of these cards enables you to store high-resolution video data.



⊘ Do not remove micro-SD card from the Inspire 1 when it is powered on.

Camera Data Port

Power on the Inspire 1 and then connect a USB cable to the Camera Data Port to download photos or videos from the camera to your computer.



⚠ Power on the aircraft before attempting to download the files.

© 2015 DJI. All Rights Reserved.

Camera Operation

Use the Shutter and Record button on the remote controller to shoot the images or the videos through the DJI Pilot app. For more information about how to use these buttons, refer to "Controlling Camera" P25.

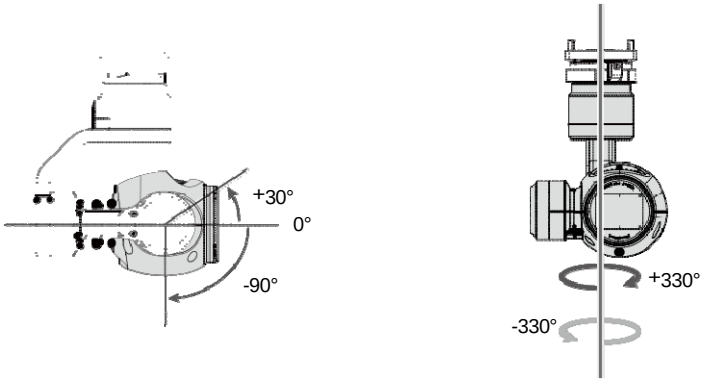
ND Filter

Attach an ND filter to the front of the camera to reduce over-exposure and "jello" effect.

Gimbal

Gimbal Profile

The 3-axis Gimbal provides a steady platform for the attached camera, allowing you to capture stabilized images and video. The Gimbal can tilt the camera up to 120 degrees and rotate 360 degrees.



Use the gimbal dial on the remote controller to control pitch movement of the camera by default. Note that you cannot control the pan motion of the camera by default. Enable the "Master-and-Slave" mode and set the remote controller to "Slave" state if you wish to control both the pan and pitch movement of the camera.

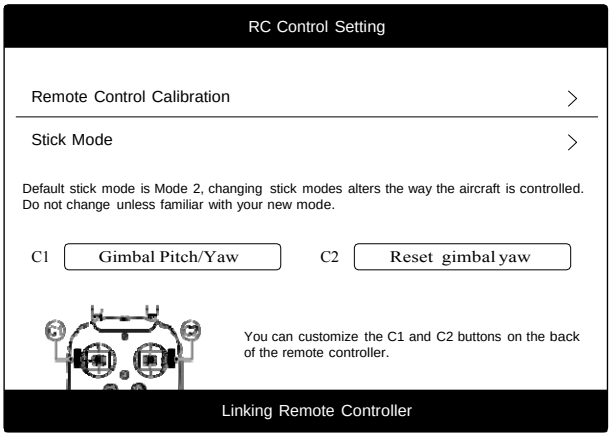
⚠ Use the gimbal dial on the remote controller to control the pitch movement of the camera in the single remote controller mode, however, you cannot control the pan movement of the camera.

Pan Control

Follow the instructions below to use the gimbal dial to control the pan movement of the gimbal:

1. Power on the aircraft and remote control, launch DJI Pilot app and enter "Camera" page.
2. Tap "RC Control Settings" icon and select either C1 or C2 customizable button as the gimbal pitch/yaw switching button.
3. Select "Gimbal Pitch/Yaw" from the dropdown list.

 © 2015 DJI. All Rights Reserved.

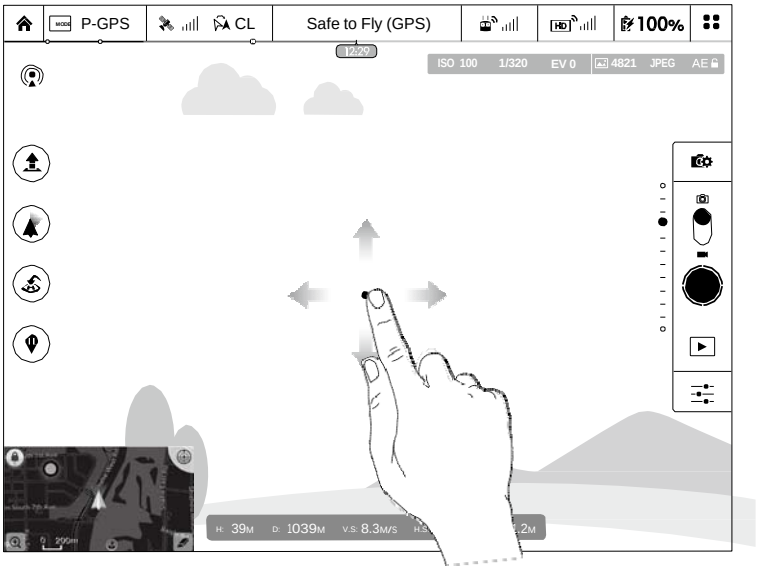


Press C1 or C2 button to switch from pitch mode to yaw mode. You may use the gimbal dial to pan the gimbal under yaw mode. Press C1 or C2 again to exit yaw mode.

Using DJI Pilot App to Control Gimbal

Follow the steps below to use DJI Pilot app to control the gimbal orientation:

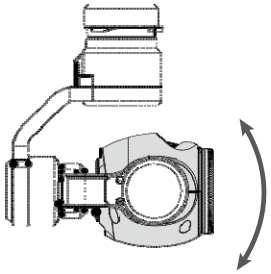
1. Launch DJI Pilot app, enter "Camera" page.
2. Tap and press on the screen until a blue circle is shown.
3. Slide to control the gimbal orientation within the "Camera" page as shown below.



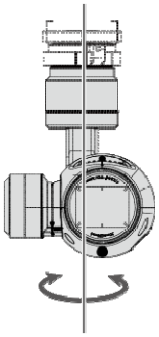
© 2015 DJI. All Rights Reserved.

Gimbal Operation Modes

Three Gimbal operation modes are available. Switch between the different operation modes on the Camera page of the DJI Pilot App. Note that your mobile device must be connected to the remote controller for changes to take effect. Refer to the table below for details:



Pitch



Pan

	Follow Mode	The angle between Gimbal's orientation and aircraft's nose remains constant at all times. One user alone can control the pitch motion of the Gimbal, but a second user is required to control the pan motion using a second remote controller.
	FPV Mode	The Gimbal will lock to the movements of the aircraft to provide a First-Person-View flying experience.
	Free Mode	The Gimbal's motion is independent of the aircraft's orientation. One user alone can control the pitch motion of the Gimbal, but a second user is required to control the pan motion using a second remote controller.
	Re-alignment	Tap to force the Gimbal orientation to re-align with aircraft's orientation by panning from gimbal's current orientation. Pitch angle will remain unchanged during the re-alignment.

- Gimbal motor error may occur in these situations: (1) Gimbal is placed on uneven ground. (2) Gimbal has received an excessive external force, e.g. a collision. Please take off from flat, open ground and protect the gimbal after powering up.
- Flying in heavy fog or cloud may make the gimbal wet, leading to a temporary failure. The gimbal will recover when it dries out.

 © 2015 DJI. All Rights Reserved.

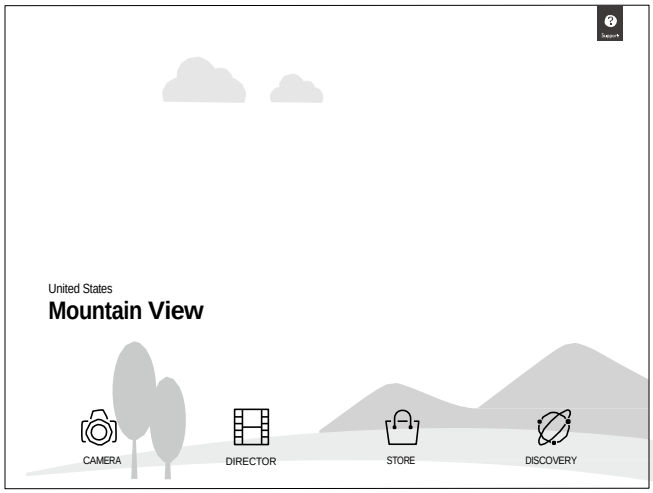
DJI Pilot App

This chapter describes the four main GUI of the DJI Pilot app.

© 2015 DJI. All Rights Reserved.

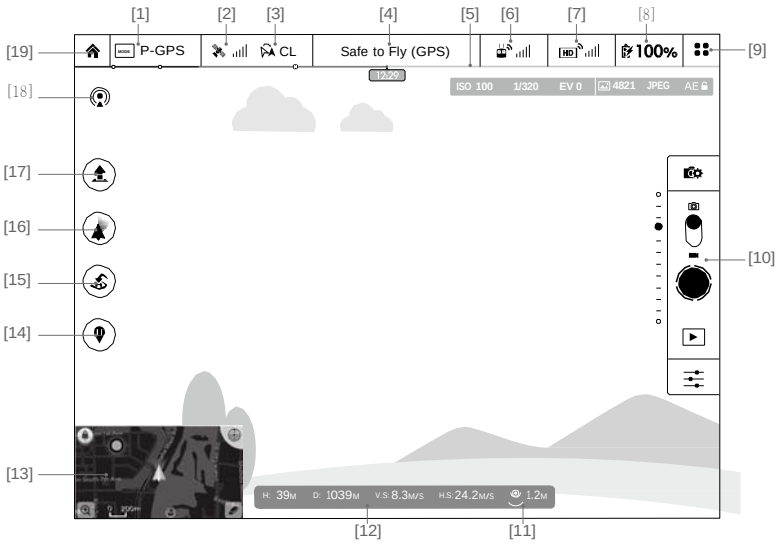
DJI Pilot App

The DJI Pilot app is a new mobile app designed specifically for the Inspire 1. Use this app to control the gimbal, camera and other features of your flight system. The app also comes with Map, Store a User Center, for configuring your aircraft and sharing your content with friends. It is recommended that you use a tablet for the best experience.



Camera

The Camera page contains a live HD video feed from the Inspire 1's camera. You can also configure various camera parameters from the Camera page.



 © 2015 DJI. All Rights Reserved.

[1] Flight Mode

MODE: The text next to this icon indicates the current flight mode.

Tap to configure the MC (Main Controller) Settings. These settings allow you to modify flight limits and set the gain values.

[2] GPS Signal Strength

: This icon shows the current strength of GPS signals. Green bars indicate adequate GPS strength.

[3] IOC Settings

CL : This icon displays the IOC setting when the aircraft has entered F-mode. Tap to view the IOC settings menu and select the desired IOC setting.

[4] System Status

Safe to Fly (GPS) : This icon indicates the current aircraft system status and GPS signal strength.

[5] Battery Level Indicator

: The battery level indicator provides a dynamic display of the battery level. The colored zones on the battery level indicator represent the power levels needed to carry out different functions.

[6] Remote Controller Signal

: This icon shows the strength of remote controller's signal.

[7] HD Video Link Signal Strength

HD : This icon shows the strength of the HD video downlink connection between the aircraft and the remote controller.

[8] Battery Level

100%: This icon shows the current battery level.

Tap to view the battery information menu, set the various battery warning thresholds, and view the battery warning history.

[9] General Settings

: Tap this icon to view the General Settings page. From this page, you can set flight parameters, reset the camera, enable the quick view feature, adjust the gimbal roll value, and toggle the flight route display.

[10] Camera Operation Bar

Shutter and Recording Settings

: Tap to enter various camera value settings, including color space for the recording, resolution of the videos, image size and so on.

Shutter

: Tap this button to take a single photo. Press and hold this button to select single shot, triple shot or time-lapsed shooting modes.

© 2015 DJI. All Rights Reserved.

Record

: Tap once to start recording video, then tap again to stop recording. You can also press the Video Recording Button on the remote controller, which has the same functionality.

Playback

: Tap to enter the playback page. You can preview photos and videos as soon as they are captured.

Camera Settings

: Tap to set ISO, shutter and auto exposure values of the camera.

[11] Vision Positioning

: This icon shows the distance between the surface and the Vision Positioning System's sensors.

[12] Flight Telemetry



The Vision Positioning Status icon is highlighted when the Vision Positioning is in operation.

Flight attitude is indicated by the flight attitude icon.

(1) The red arrow shows which direction the aircraft is facing.
(2) Light blue and dark blue areas indicate pitch.
(3) The angle of the boundary between the light blue and dark blue areas indicates the roll angle.

[13] Map

Display the flight path of the current flight. Tap to switch from the Camera GUI to the Map GUI.



[14] Home Point Settings

: Tap this button to reset the current home point. You may choose to set the aircraft take-off location, the remote controller's current position, or the aircraft's current position as the Home Point.

[15] Return to Home (RTH)

: Initiate RTH home procedure. Tap to have the aircraft return to the latest home point.

[16] Gimbal Operation Mode

Refer to "Gimbal Operation Mode" P38 for more information.

© 2015 DJI. All Rights Reserved.

[17] Auto Takeoff/Landing

/ : Tap to initiate auto takeoff or landing.

[18] Livestream

: Livestream icon indicates the current video feed is broadcasting live on YouTube. Be sure the mobile data service is available on the mobile device.

[19] Back

: Tap to return to the main GUI.

Director

Director is an automatic video editor built into the DJI Pilot app. After recording several video clips, simply tap "Director" from the app's home screen. You can then select a template and a specified number of clips, which are automatically combined to create a short film that can be shared immediately.

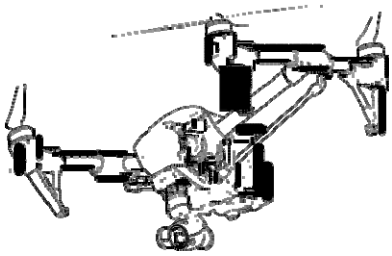
Store

Tap "Store" to visit the official DJI Online Store to see the latest information about DJI products and easily buy new products.

Discovery

Sync pictures and videos to your mobile device, view flight logs, and check your DJI account status in "Discovery". Use your registered DJI account to login to "Discovery".

© 2015 DJI. All Rights Reserved.



Flight

This chapter describes the flight safety and flight restrictions.

 © 2015 DJI. All Rights Reserved.

Flight

Once pre-flight preparation is complete, it is recommended to use the flight simulator to learn how to fly safely. Ensure that all flights are carried out in a suitable location.

Flight Environment Requirements

1. Do not use the aircraft in severe weather conditions. These include wind speed exceeding 10m/s , snow, rain and smog.
2. Only fly in open areas. Tall buildings and steel structures may affect the accuracy of the on-board compass and GPS signal.
3. Avoid from obstacles, crowds, high voltage power lines, trees or bodies of water.
4. Minimize electromagnetic interference by not flying in area with high levels of electromagnetism, including mobile phone base stations or radio transmission towers.
5. Aircraft and battery performance is subject to environment factor such as air density and temperature. Be very careful when flying 14700 feet (4500 meters) or more above sea level as battery and aircraft performance may be reduced.
6. The Inspire 1 cannot operate within the polar areas in “P” mode.

Flight Limits and Flight Restriction Area

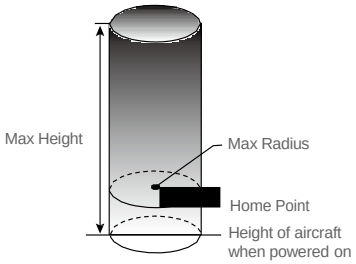
Flight limits on height and distance can be set. The details of these flight limits are described in the following section.

All unmanned aerial vehicle (UAV) operators should abide by all regulations from such organizations as the ICAO (International Civil Aviation Organization), FAA and their own national airspace regulations. For safety reasons, the flight limits function is enabled by default to help users use this product safely and legally. The flight limits function includes height limits, distance limits and No Fly Zones.

When operating in P Mode, height, distance limits and No Fly Zones work together to manage flight. In A mode only height limits work and flights cannot go higher than 120 meters.

Max Height & Radius Limits

Max Height & Radius limit flying height and distance, and the user may change these settings in the DJI Pilot App. Once complete, your Inspire 1 will fly in a restricted cylinder that is determined by these settings. The tables below show the details of these limits.



© 2015 DJI. All Rights Reserved.

GPS Signal Strong Ⓖ·····Blinking Green			
	Flight Limits	DJI Pilot App	Aircraft Status Indicator
Max Height	Flight altitude must be under the set height.	Warning: Height limit reached.	None.
Max Radius	Flight distance must be within the max radius.	Warning: Distance limit reached.	Rapid red flashing Ⓡ ····· when close to the max radius limit.

GPS Signal Weak Ⓨ·····Blinking Yellow			
	Flight Limits	DJI Pilot App	Aircraft Status Indicator
Max Height	Flight height restricted to 120m and under.	Warning: Height limit reached.	None.
Max Radius	No limits		

⚠ • If you fly out of the limit, you can still control the Inspire 1, but cannot fly it further.
• If the Inspire 1 flies out of the max radius in Ready to Fly (non-GPS) mode, it will fly back within range automatically.

No-Fly Zones

All No-Fly Zones are listed on the DJI official website at http://flysafe.dji.com/no-fly. No-Fly Zones are divided into Airports and Restricted Areas. Airports include major airports and flying fields where manned aircraft operate at low altitudes. Restricted Areas include borders between countries or sensitive sites. The details of the No-Fly Zones are explained below:

Airport:

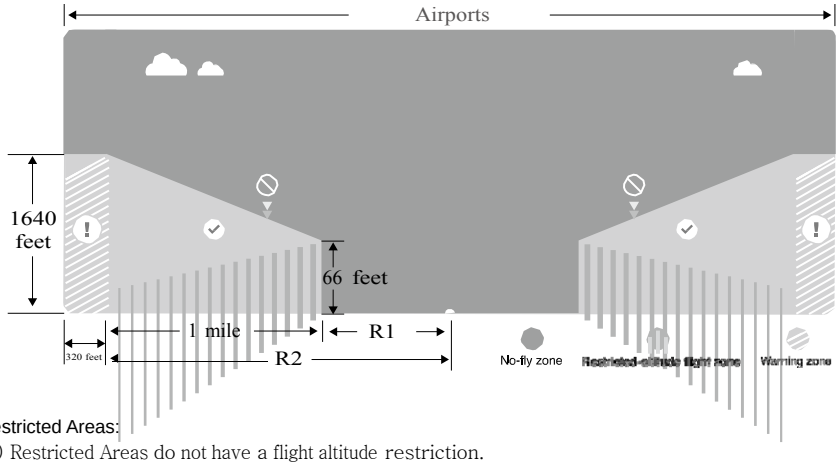
(1) Airport No-Fly Zones are comprised of Takeoff Restricted Zones and Restricted-Altitude Zones. Each zone features circles of various size.

(2) R1 depends on the size and shape of the airport, and is an area around the airport that is a Takeoff Restricted Zone, inside of which take-off and flight is prevented.

(3) From R1 to R1+ 1 mile around the airport, the flight altitude is limited on a 15 degree incline, starting at 65 feet (20 meters) from the edge of airport and radiating outward. The flight altitude is limited to 1640 feet (500 meters) at R1+1 mile.

(4) When the aircraft is within 320 feet (100 meters) of the No-Fly Zones, a warning message will appear in the DJI Pilot app.

 © 2015 DJI. All Rights Reserved.

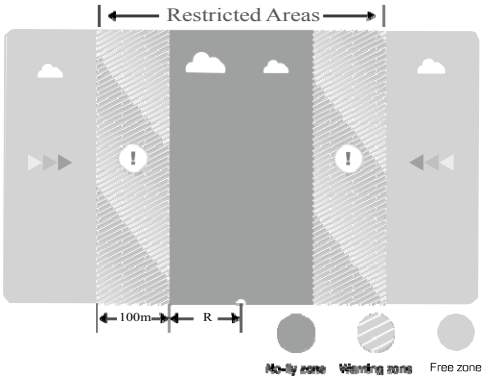


Restricted Areas:

(1) Restricted Areas do not have a flight altitude restriction.

(2) R around the designated Restricted Area is a Take-off Restricted area. Aircraft cannot takeoff within this zone. The value of R varies depending on the definition of the Restricted Area.

(3) A "warning zone" has been set around each Restricted Area. When the aircraft is within 0.6 miles (1 km) of this zone, a warning message will appear in the DJI Pilot app.



© 2015 DJI. All Rights Reserved.

GPS Signal Strong	Blinking Green		
Zone	Restriction	DJI Pilot App Prompt	Aircraft Status Indicator
No-fly Zone 	Motors will not start.	Warning: You are in a No-fly zone. Take off prohibited.	 ..... Red flashing
	If the aircraft enters the restricted area in A mode but P mode activates the aircraft will automatically descend to land then stop its motors after landing.	Warning: You are in a No-fly zone, automatic landing has begun. (If you are within 1.5 mile radius)	
Restricted-altitude flight zone 	If the aircraft enters the restricted area in A mode but P mode activates, it will descend to a safe altitude and hover 15 feet below the safe altitude.	Warning: You are in a restricted zone. Descending to safe altitude. (If you are between the range of 1.5 mile and 5 mile radius) Warning: You are in a restricted zone. Max flight height restricted to between 10.5m and 120m. Fly Cautiously.	
Warning zone 	No flight restriction applies, but there will be warning message.	Warning: You are approaching a restricted zone, Fly Cautiously.	
Free zone	No restrictions.	None.	None.

Semi-automatic descent: All stick commands are available except the throttle stick command during the descent and landing process. Motors will stop automatically after landing.

- When flying in the safety zone, aircraft status indicator will blink red quickly and continue for 3 seconds, then switch to indicate current flying status and continue for 5 seconds at which point it will switch back to red blinking.
- For safety reasons, please do not fly close to airports, highways, railway stations, railway lines, city centers and other special areas. Try to ensure the aircraft is visible.

 © 2015 DJI. All Rights Reserved.

Preflight Checklist

1. Remote controller, aircraft battery, and mobile device are fully charged.
2. Propellers are mounted correctly and firmly.
3. Micro-SD card has been inserted if necessary.
4. Gimbal is functioning as normal.
5. Motors can start and are functioning as normal.
6. DJI Pilot app connected to the aircraft.

Calibrating the Compass

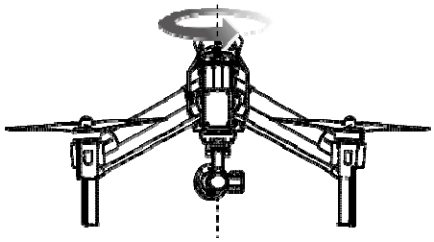
IMPORTANT: Make sure to calibrate the compass in every new flight location. The compass is very sensitive to electromagnetic interference, which can cause abnormal compass data leading to poor flight performance or even failure. Regular calibration is required for optimum performance.

- DO NOT calibrate your compass where there is a chance of strong magnetic interference, such as magnetite, parking structures, and steel reinforcements underground.
- DO NOT carry ferromagnetic materials with you during calibration such as keys or cellular phones.
- DO NOT calibrate beside massive metal objects.

Calibration Procedures

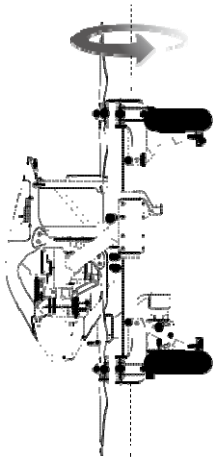
Choose an open space to carry out the following procedures.

1. Ensure that the compass is calibrated. If you did not calibrate the compass as part of your pre-flight preparations, or if you have moved to a new location since the last calibration, tap Aircraft Status Indicator bar in the app and select "Calibrate", then follow the on-screen instructions.
2. Hold and rotate the aircraft horizontally 360 degrees, and the Aircraft Status Indicator will display a solid green light.



© 2015 DJI. All Rights Reserved.

3. Hold the aircraft vertically with nose pointing downward, and rotate it 360 degrees around the center axis. Recalibrate the compass if the Aircraft Status Indicator show solid red.



⚠ If the Aircraft Status Indicator blinks red and yellow after the calibration, move your aircraft to a different location to carry out compass calibration.

Calibrate the compass before each flight. Launch DJI Pilot App, follow the on-screen instruction to calibrate the compass.

When to Recalibrate

1. When compass data is abnormal, and the Aircraft Status Indicator is blinking red and yellow.
2. When flying in a new location, or a location that is different from your last flight.
3. When the mechanical structure of the Inspire 1 has changed, i.e. changed mounting position of the compass.
4. When severe drifting occurs in flight, i.e. the Inspire 1 does not fly in straight lines.

Auto Take-off and Auto Landing

Auto Take-off

Use auto take-off to take off your aircraft automatically if the Aircraft Status Indicator displays blinking green. Follow the steps below to use auto take-off:

1. Launch DJI Pilot app, enter "Camera" page.
2. Ensure the aircraft is in "P" mode.
3. Go through the pre-flight checklist.
4. Tap"⏫", and confirm flight condition. Slide to confirm and take-off.
5. Aircraft takes off and hovers at 1.5 meters above ground.

 © 2015 DJI. All Rights Reserved.

Auto-Landing

Use auto-landing to land your aircraft automatically if the Aircraft Status Indicator displays blinking green. Follow the steps below to use auto-landing:

1. Ensure the aircraft is in "P" mode.
2. Check the landing area condition before tapping "⬇", to perform landing.
3. Aircraft lowers the landing gear and proceed to land automatically.

Landing gear will automatically raise when the aircraft reaches an altitude of 1.2m for the first time, and automatically lower every time it descends to 0.8m. Users can turn this feature ON/OFF in the Pilot app.

Starting/Stopping the Motors

Starting Motors

The Combination Stick Command (CSC) listed below are used to start the motors instead of simply pushing the stick up. Ensure that you perform the CSC in one motion.



Stopping Motors

There are two methods to stop the motors.

Method 1: When the Inspire 1 has landed, push the throttle down ① then conduct CSC ② Motors will stop immediately. Release both sticks once motors stop.

Method 2: When the aircraft has landed, push the throttle down and hold. The motors will stop after 3 seconds.



⚠ Do not perform CSC when aircraft is in midair, otherwise the motors will be stopped.

Flight Test

Take off/Landing Procedures

1. Place the aircraft on open, flat ground with battery indicators facing towards you.
2. Power on the remote controller and your mobile device, then the Intelligent Flight Battery.
3. Launch the DJI Pilot App and enter the Camera page.
4. Wait until the Aircraft Indicator blinks green. This means the Home Point is recorded and it is safe to fly now. If it flashes yellow, it means Home Point is not recorded, and you should not take off.
5. Push the throttle up slowly to take off or using Auto Take-off to take off.

© 2015 DJI. All Rights Reserved.

6. Shoot photos and videos using the DJI Pilot app.
7. To land, hover over a level surface and gently pull down on the throttle slowly to descend.
8. After landing, execute the CSC command or hold the throttle at its lowest position for 3 seconds or more until the motors stop.
9. Turn off the Intelligent Flight Battery first, followed by the Remote Controller.

⚠
- When the Aircraft Status Indicator blinks yellow rapidly during flight, the aircraft has entered Failsafe mode.
- A low battery level warning is indicated by the Aircraft Status Indicator blinking red slowly or rapidly during flight.
- Watch video tutorials about flight for more flight information.

Video Suggestions and Tips

1. Work through the checklist before each flight.
2. Select desired gimbal working mode in the DJI Pilot app.
3. Aim to shoot when flying in P mode only.
4. Always fly in good weather, such as sunny or windless days.
5. Change camera settings to suit you. These include photo format and exposure compensation.
6. Perform flight tests to establish flight routes and scenes.
7. Push the sticks gently to make aircraft movements stable and smooth.

 © 2015 DJI. All Rights Reserved.

FAQ

© 2015 DJI. All Rights Reserved.

Troubleshooting (FAQ)

1. How can I put a GoPro camera on the Inspire 1?
   The Inspire 1 does not currently support GoPro attachments. The gimbal is designed to hold DJI cameras only.

2. When will ground station functionality be available?
   The Inspire 1 does not currently support ground station. Ground station will be available with future firmware updates.

3. Is the camera's exposure automatic?
   The exposure can be set to Auto, for automatic changes, or Manual, if you wish to use a specific setting.

4. Can I see the size of images through the app?
   Yes, you can preview image or video sizes through the DJI Pilot app.

5. How much weight can the Inspire 1 carry without its included camera?
   We do not recommend flying with any payload other than the included DJI gimbal and camera.

6. Do you have an LCD monitor available for the Inspire 1?
   No, DJI does not sell LCD or HD monitors for the Inspire 1. However, you can output the live streaming video to a compatible monitor or mobile device of your own.

7. How long does it take to charge the battery? Does it comes with a charger?
   Yes, all Inspire 1 units come with standard TB47 charger.
   With the standard TB47 100W charger, it takes 85min to fully charge a 4500mAh battery.

8. Are the two remote controllers the same? Should I setup the remote controllers in the app or somewhere else to control the camera and aircraft separately?
   The two remote controllers are physically identical. You can set the remote controllers to either "Master" or "Slave" through the DJI Pilot app if you wish to use dual controller mode.

9. Where can I find info on the simulation application that plugs into the trainer port? Can you suggest a simulation program?
   There is no trainer port on the remote controller for the Inspire 1.

10. Can the mobile device holder be used on the Phantom 2 series remote controller?
    No, it cannot. The mobile device holder can only be used with the Inspire 1 remote.

11. Does the Inspire 1 have a SD card included?
    The Inspire 1 comes with a 16GB micro-SD card. It supports SD cards up to 64GB.

12. Can I upgrade and buy a second remote controller if I only buy a single remote controller now?
    Yes.

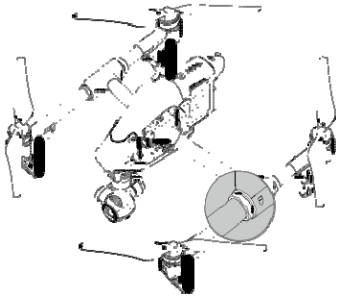
13. How big is the Inspire 1?
    Its length x height x width dimensions without the propellers attached are 44 x 30 x 45cm (17.3 x 11.8 x 17.7in).

 © 2015 DJI. All Rights Reserved.

14. What flight controller does the Inspire 1 use?
The Inspire 1 uses its own new flight controller.

15. Which motors and propellers does the Inspire 1 come with?
The Inspire 1 uses 3510 motors and 1345 propellers.

16. Aircraft frame arm joints appear loosen, is that normal?
The space of the joins shown in the below figure is normal and it will not affect the performance of aircraft, do not adjust the position of the screws on your own.



17. Failed to complete self-check?
Place the aircraft on the flat surface before powering on. Do not move the aircraft during the self-check.

© 2015 DJI. All Rights Reserved.

Appendix

© 2015 DJI. All Rights Reserved.

Appendix

Specifications

Aircraft	
Model	T600
Weight (Battery Included)	2935 g
Hovering Accuracy (P Mode)	Vertical: 0.5 m Horizontal: 2.5 m
Max Angular Velocity	Pitch: 300°/s Yaw: 150°/s
Max Tilt Angle	35°
Max Ascent Speed	5 m/s
Max Descent Speed	4 m/s
Max Speed	22 m/s (ATTI mode, no wind)
Max Flight Altitude	4500 m
Max Wind Speed Resistance	10 m/s
Max Flight Time	Approximately 18 minutes
Motor Model	DJI 3510
Propeller Model	DJI 1345
Indoor Hovering	Enabled by default
Operating Temperature Range	-10° to 40° C
Diagonal Distance	559 to 581 mm
Dimensions	438x451x301 mm
Gimbal	
Model	ZENMUSE X3
Output Power (With Camera)	Static: 9 W; In Motion: 11 W
Operating Current	Station: 750 mA; Motion: 900 mA
Angular Vibration Range	±0.03°
Mounting	Detachable
Controllable Range	Pitch: -90° to +30° Pan: ±320°
Mechanical Range	Pitch: -125° to +45° Pan: ±330°
Max Controllable Speed	Pitch: 120°/s Pan: 180°/s

© 2015 DJI. All Rights Reserved.

Camera	
Name	X3
Model	FC350
Total Pixels	12.76M
Effective Pixels	12.4M
Image Max Size	4000x3000
ISO Range	100-3200 (video) 100-1600 (photo)
Electronic Shutter Speed	8 s to 1/8000 s
FOV (Field Of View)	94°
CMOS	Sony EXMOR 1/2.3"
Lens	20mm (35mm format equivalent) f/2.8 focus at ∞) 9 Elements in 9 groups Anti-distortion
Still Photography Modes	Single shoot Burst shooting: 3/5/7 frames Auto Exposure Bracketing (AEB): 3/5 bracketed frames at 0.7EV Bias Time-lapse
Video Recording Modes	UHD (4K): 4096x2160p24/25, 3840x2160p24/25/30 FHD: 1920x1080p24/25/30/48/50/60 HD: 1280x720p24/25/30/48/50/60
Max Bitrate Of Video Storage	60 Mbps
Supported File Formats	FAT32/exFAT Photo: JPEG, DNG Video: MP4/MOV (MPEG-4 AVC/H.264)
Supported SD Card Types	Micro SD Max capacity: 64 GB. Class 10 or UHS-1 rating required.
Operating Temperature Range	0° to 40° C
Remote Controller	
Name	C1
Operating Frequency	922.7MHz~927.7 MHz (Japan Only) 5.725~5.825 GHz;2.400~2.483 GHz
Transmitting Distance	2 km (Outdoor And Unobstructed)
EIRP	10dBm@900m, 13dBm@5.8G, 20dBm@2.4G
Video Output Port	USB, Mini-HDMI
Power Supply	Built-in battery
Charging	DJI charger
Dual User Capability	Host-and-Slave connection

 © 2015 DJI. All Rights Reserved.

Mobile Device Holder	Tablet or Smart Phone
Output Power	9 W
Operating Temperature Range	-10° to 40° C
Storage Temperature Range	Less than 3 months: -20° to 45° C More than 3 months: 22° to 28° C
Charging Temperature Range	0-40° C
Battery	6000 mAh LiPo 2S
Charger	
Model	A14-100P1A
Voltage	26.3 V
Rated Power	100 W
Battery (Standard)	
Name	Intelligent Flight Battery
Model	TB47
Capacity	4500 mAh
Voltage	22.2 V
Battery Type	LiPo 6S High voltage battery
Energy	99.9 Wh Net
Weight	570 g
Operating Temperature Range	-10° to 40° C
Storage Temperature Range	Less than 3 months: -20° to 45° C More than 3 months: 22° C to 28° C
Charging Temperature Range	0° to 40° C
Max Charging Power	180 W
Battery (Optional)	
Name	Intelligent Flight Battery
Model	TB48
Capacity	5700 mAh
Voltage	22.8 V
Battery Type	LiPo 6S
Energy	129.96 Wh
Net Weight	670 g
Operating Temperature Range	-10 to 40° C
Storage Temperature Range	Less than 3 months: -20 to 45° C More than 3 months: 22° to 28° C
Charging Temperature Range	0° to 40° C

© 2015 DJI. All Rights Reserved.

Max Charging Power	180 W
Vision Positioning	
Velocity Range	Below 8 m/s (2 m above ground)
Altitude Range	5-500 cm
Operating Environment	Brightly lit (lux > 15) patterned surfaces
Operating Range	0-250 cm
DJI Pilot App	
Mobile Device System Requirements	iOS version 7.1 or later; Android version 4.1.2 or later
Supported Mobile Devices	* iPhone 6 Plus, iPhone 6, iPhone 5S, iPad Air 2, iPad Mini 3, iPad Air, iPad Mini 2, iPad 4;* Samsung Note 3, Samsung S5, Sony Z3 EXPERIA;* Note: It is recommended that you use a tablet for the best experience

Intelligent Orientation Control (IOC)

IOC allows users to lock the orientation of aircraft in different fashions. There are three working modes for IOC and you may select the desired IOC modes from the DJI Pilot app. IOC only works under F mode, and user must toggle the flight mode switch to "F" mode to activate IOC. Refer to the table below:

Course Lock (CL)	Its forward direction is pointing to the nose direction when recording, which is fixed until you re-record it or exit from CL.
Home Lock (HL)*	Record a Home Point (HP), and push Pitch stick to control the aircraft far from or near to the HP.
Point of Interest (POI)*	Point of Interest. Record a point of interest (POI), the aircraft can circle around the POI, and the nose always points to the POI.

*Home Lock and Point of Interest feature are coming soon.

Prerequisites of IOC

Use the IOC feature under the following condition:

Modes IOC	GPS enabled	GPS	Flight Distance Limits
Course Lock	No	None	None
Home Lock	Yes		Aircraft ≥10m Home Point
POI	Yes		Aircraft 5m~500m Point of Interest

Using IOC

Enable the IOC feature by tapping "Enable IOC" in the setting page of the DJI Pilot app. Toggle the Flight Mode Switch to "F" mode and follow the on-screen instruction to use IOC feature.

 © 2015 DJI. All Rights Reserved.

How to Update Firmware

Follow the process described below to upgrade the aircraft, remote controller and battery.

Updating the Aircraft Firmware

Step 1- Check Battery and SD Card Capacity

Ensure the Intelligent Flight Battery has at least 50% power and there is at least 100MB of free space on the SD card.

Step 2- Prepare the Firmware Update Package

1. Download the firmware update package from the official DJI website (http://www.dji.com/product/inspire-1).
2. Insert the SD into your PC. Extract the all downloaded files into the root directory of the SD card. Remove the SD card from your PC. Ensure the Inspire 1 is powered off then insert the SD card into the SD card slot on the Inspire 1 camera.

Step 3- Update the Aircraft

1. Ensure the remote controller is powered off and then power on the aircraft. Upgrade will begin automatically after aircraft is powered on.
2. It will take approximately 25 minutes to complete the firmware update. The camera will sound a short pulse of "D-D-D-D" beeping sound to indicate the upgrade is in progress and sound a "D---DD" beeping sound to indicate the update is complete with success.
3. Check the upgrade status by opening the ".txt" file that is automatically generated after the update. The update is successful if the text "result: successful" is in the document. Try upgrading the firmware again if the text "result: failed" is found or the gimbal sound a long beep sound.

Updating the Remote Controller Firmware

Step 1- Check Battery and SD Card Capacity

Remote controller firmware is included in the aircraft firmware update package. Use the same update package file that is downloaded from the DJI official website. Ensure the remote controller battery level is above 50%.

Step 2- Prepare the Firmware Update Package

1. Extract all downloaded files into the root directory of an SD card or USB thumb drive.
2. Insert the SD card into a SD card reader or the USB disk onto the remote controller USB port when remote controller powered off. If you do not have a SD card reader, you may insert the SD card into the gimbal and connect the gimbal with remote controller to upgrade the remote controller.

Step 3- Update the Remote Controller

1. Power on the remote controller and wait 60 seconds until the upgrade begins. Do not power off the remote controller during the update.
2. It will take approximately 10 minutes to complete the firmware update. The camera will sound a beeping sound and the Status LED on the remote controller shows solid blue to indicate the update is in progress. The Status LED on remote controller shows solid green and beeping sound will stop if the upgrade is completed with success. The Status LED on remote controller shows solid red if upgrade is failed. Try upgrade again.

© 2015 DJI. All Rights Reserved.

Updating Intelligent Flight Battery Firmware

The Intelligent Flight Battery is upgraded during the aircraft firmware upgrade process. It is recommended to keep the upgrade package files in your SD card. The upgrade will start automatically after power cycling the aircraft.

⚠
- Do not perform firmware update while the aircraft is still flying in the air. Only carry out firmware update when the aircraft is landed.
- Be sure to update the remote controller's firmware to the latest version after you upgrade the aircraft's firmware.
- The remote controller may become unlinked from the aircraft after updating. Re-link the remote controller and aircraft.
- Confirm the update results according to the gimbal sounds. It is normal for the aircraft to sound or the LED to blink during the update process.
- Ensure there is only one firmware package file stored on your SD card.
- Only storage devices that are formatted for FAT32 and exFAT file systems are supported for aircraft and remote controller firmware updates.
- Delete any automatically generated txt files (xxx_GS.TXT) in the SD card when updating multiple remote controllers.

FCC Compliance

FCC Compliance

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.
Changes or modifications not expressly roved by the party responsible for compliance could void the user's authority to operate the equipment.

Compliance Information

FCC Warning Message

Any Changes or modifications not expressly roved by the party responsible for compliance could void the user's authority to operate the equipment.
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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

 © 2015 DJI. All Rights Reserved.

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.

IC RSS warning

This device complies with Industry Canada licence-exempt RSS standard (s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference,including interference that may cause undesired operation of the device.

Le présent areil est conforme aux CNR d'Industrie Canada licables aux areils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

(1) l'areil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'areil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement:

This equipment complies with IC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

Any Changes or modifications not expressly roved by the party responsible for compliance could void the user's authority to operate the equipment.

KCC Warning Message

"해당무선설비는 운용 중 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다 ."

"해당 무선설비는 운용 중 전파혼신 가능성이 있음"

NCC Warning Message 低功率電波輻射性電機管理辦法

第十二條經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

© 2015 DJI. All Rights Reserved.

The content is subject to change.

Download the latest version from

www.dji.com/support

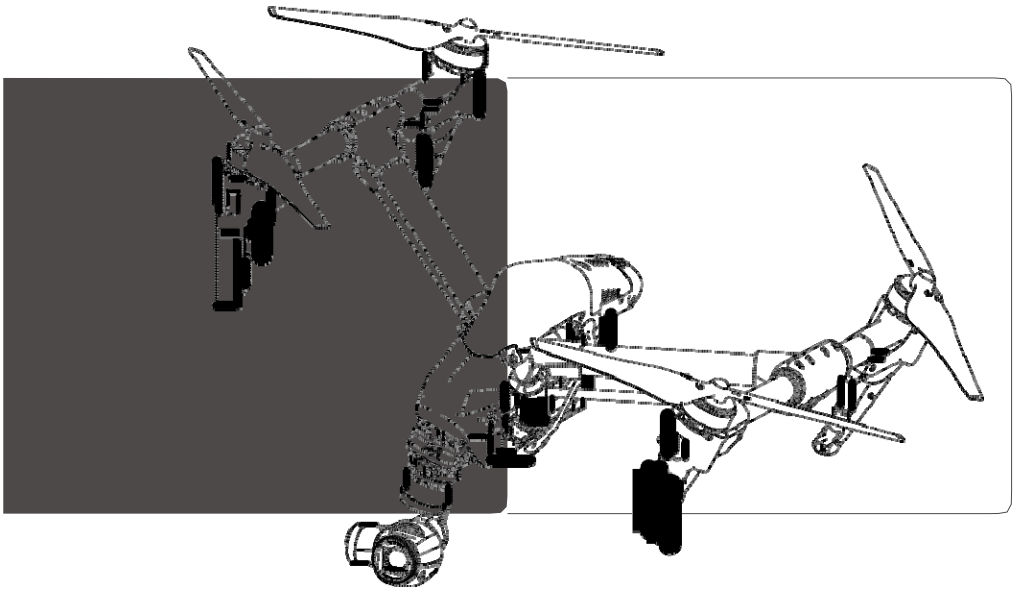
© 2015 DJI. All Rights Reserved.

INSPIRE 1

Safety Guidelines

安全使用指南

V1.0 2014.12



Reading Inspire 1 Manuals

The following tutorials and manuals have been produced to help you make full use of your DJI Inspire 1:

1. In The Box
2. Disclaimer and Warning
3. Intelligent Flight Battery Safety Guidelines
4. INSPIRE 1 Safety Guidelines
5. INSPIRE 1 Quick Start Guide
6. INSPIRE 1 User Manual

Check all of the included parts listed in the In The Box document. Read the Disclaimer and Warning, Intelligent Flight Battery Safety Guidelines, and INSPIRE 1 Safety Guidelines before flight. Then prepare for your first flight by using the INSPIRE 1 Quick Start Guide and watching all of the tutorial videos. If you have questions, refer to the INSPIRE 1 User Manual for more comprehensive information. Experienced users, particularly those who have previously used DJI products, may choose to skip to the Inspire 1 Quick Start Guide to begin preparing for flight.

EN

Individual Parts

Remote Controller

1. Linking is required if you wish to replace your remote controller or receiver, or add a new remote controller. Refer to the user manual for more information about how to link the aircraft.
2. If the remote controller is powered on and has not been used for 5 minutes, it will sound an alert. After 10 minutes it will automatically power off. Move the sticks or perform some other action to cancel the alert.
3. A Slave remote controller cannot be linked with the aircraft and cannot control the aircraft's flight. You may change it to a Master remote controller via the DJI Pilot app, and then link it to the aircraft to control flight.
4. Ensure the Mobile Device Holder is firmly in place and does not slip.
5. For the GPS in the remote controller to function properly, and the Dynamic Home Point to be accurate, ensure the DJI logo is facing the sky and keep the remote controller away from any metal objects.
6. Repair or replace the remote controller if damaged. A damaged remote controller antenna will greatly decrease performance.
7. When on the go, you may charge the remote controller from the aircraft's Intelligent Flight Battery.

Camera

1. Photos or videos cannot be transmitted or copied from the camera if the Intelligent Flight Battery is powered off.
2. Be sure to power off the Intelligent Flight Battery correctly, otherwise your camera parameters will not be saved and any recorded videos may be damaged.
3. Test the camera by shooting a few test images to check that it is operating correctly before shooting important pictures.
4. Respect the privacy of others when using the camera. Make sure you comply with local privacy laws, regulations and moral standards.
5. Check camera settings before use to make sure you can adjust them to fit your needs.

Gimbal

1. The gimbal and gimbal connector are very delicate. Handle with care and do not touch the gimbal connector, as any damage will cause it to function abnormally.
2. A gimbal motor error may occur if: (1) The aircraft is placed on uneven ground or other objects obstruct the gimbal's full range of motion, or (2) The gimbal has undergone an excessive impact, e.g. a collision. Please only takeoff from flat, open areas and protect the gimbal after powering up.
3. Hold the gimbal firmly when detaching or reattaching it, so it does not drop.
4. Do not add any payloads to the gimbal, as this may cause the gimbal to function abnormally, or even

 © 2014 DJI. All Rights Reserved.

lead to motor damage.

5. Precision elements in the gimbal may be damaged by a collision or impact, which will cause the gimbal to function abnormally.

Compass

1. Ensure the compass is calibrated before every flight. Failure to calibrate may lead to a poor flight performance or even failure.
2. DO NOT calibrate your compass where there is a chance of strong magnetic interference. This includes areas where there are massive metal objects, parking structures, steel reinforcements underground, or under bridges.
3. DO NOT carry ferromagnetic materials with you during calibration, such as keys or mobile phones.
4. The compass should always be recalibrated when moving from indoor spaces to outdoor spaces.
5. If the rear LED shows a solid red light, compass calibration has failed. Please recalibrate.
6. After successful calibration, the compass may become abnormal when you put the aircraft on the ground. This is because of magnetic interference that may be underground. Move the aircraft to another location and try again.

Parameter Settings

The Inspire 1 features a built-in flight control system to make operation as safe as possible. However, it is good practice to remove all propellers before switching it on for calibration or changing other parameter settings.

Battery

Refer to the Intelligent Flight Battery Safety Guidelines and battery sticker for usage and maintenance information.

Storage and Transportation

1. Store the Intelligent Flight Battery and remote controller in a cool, dry place away from direct sunlight, to ensure the built-in LiPo battery does not overheat. Recommended storage temperature: between 22°C and 28°C for storage periods of more than three months. Never store in environments outside the temperature range of -20°C to 45°C.
2. Do not allow the camera to come into contact with, or become immersed in, water or other liquids. If it gets wet, wipe dry with a soft, absorbent cloth. Turning on an aircraft that has fallen into water may cause permanent component damage. Do not use substance containing alcohol, benzene, thinners or other flammable substances to clean or maintain the camera. Do not store the camera in humid or dusty areas.
3. Always keep all parts out of the reach of children, as the cables, straps or small parts may be dangerous if swallowed. If swallowed, go to the hospital immediately.
4. Detach the gimbal from the Inspire 1 when storing for a long period of time or transporting over long distances. Also replace the Gimbal Cover when storing.

Maintenance and Upkeep

1. Check every part of the aircraft if it is violently impacted. If you have any problems or questions, please contact a DJI authorized dealer.
2. Old, chipped, or broken propellers or motors should never be used.
3. Regularly check the Battery Level Indicators to see the current battery level and overall battery life. When the battery life reaches 0%, it can no longer be used.
4. After every 50 hours of flight time, DJI recommends you perform a thorough inspection of your Inspire 1 and all of its parts and components to ensure the safe operation of your aircraft.

© 2014 DJI. All Rights Reserved.

Flight Environment Requirements

1. Do not use the aircraft in severe weather conditions. These include wind speed exceeding 10m/s, snow, rain, smog, heavy wind, hail, lightning, tornado or hurricane.
2. Do not use the aircraft in dust or sandstorms.
3. Fly in open areas, as tall buildings or steel structures may affect the accuracy of the onboard compass and block the GPS signal.
4. Keep the aircraft away from obstacles, people, animals, high voltage power lines, trees, and bodies of water when in flight.
5. Avoid interference between the remote controller and other wireless equipment. Make sure to turn off the Wi-Fi on your mobile device.
6. Do not fly near areas with magnetic or radio interference. These include but are not limited to: high voltage lines, large scale power transmission stations, mobile base stations and broadcasting towers. Failing to do so may compromise the transmission quality of this product, cause remote controller and video transmission errors may affect flight orientation and location accuracy. The aircraft may behave abnormally or fall out of control in areas with too much interference.
7. P mode is unavailable in polar zones. Users can use ATTI mode instead.
8. Do not fly the aircraft within no-fly zones specified by local laws and regulations.

EN

Flight Warnings

Failsafe and Return to Home

1. Return to Home will not work if the GPS signal is insufficient or GPS is not active.
2. Press the RTH Button on the remote controller to bring the aircraft back to the Home Point instead of turning off the remote controller.
3. Tall buildings may adversely affect the Failsafe function. Please adjust the aircraft location, altitude and speed while returning home to avoid obstacles.
4. Make sure to always fly the aircraft within the transmission range of the remote controller.
5. When updating the Home Point, do not block the GPS signal of the remote controller and ensure the new Home Point is correct on the live map.
6. Do not update the Home Point near tall buildings, as the GPS may be blocked and lead to an incorrect location being stored.
7. Only use the Failsafe and Return to Home functions in case of emergency, as they may be affected by the weather, the environment, or any nearby magnetic fields.

Low Battery

1. When the Critical Battery Level Warning activates and the aircraft is descending automatically, you may push the throttle upward to hover the aircraft and navigate it to a more appropriate location for landing.
2. When battery warnings are triggered, please bring the aircraft back to the Home Point or land to avoid losing power during flight.

Vision Positioning System

1. The Vision Positioning System cannot work properly over surfaces that do not have pattern variations. The effective altitude for Vision Positioning System to function correctly is less than 2.5 meters.
2. Vision Positioning System may not function properly when the aircraft is flying over water.
3. Vision Positioning System may not be able to recognize patterns on the ground in low light conditions (less than 100 lux).
4. Keep your pets away from the aircraft when Vision Positioning System is activated, as the sonar sensors emit high frequency sound that is only audible to some pets.
5. Note that Visual Positioning System may not function properly when the aircraft is flying too fast or too low.

© 2014 DJI. All Rights Reserved.

Transformation Function

1. Ensure the landing gear is lowered before landing.
2. Stay away from the aircraft when it is transforming to prevent injury.
3. DO NOT attempt to catch the aircraft, as the landing gear will lower if the Visual Positioning system detects an object and may cause injury.
4. Keep the aircraft arms clean, otherwise transformation may be affected.
5. Never apply lubricants to aircraft arms.

Others

1. If you are using a phone as your mobile display device, be sure to continue flying safely if you receive an incoming call.
2. Land as soon as possible if there is an alert shown on the DJI Pilot app.
3. Upon landing, power off the aircraft first, then switch off the remote controller.

EN

Preflight Checklist

1. Check that all parts are in good condition. Do not fly with aging or damaged parts.
2. Remote controller, Intelligent Flight Battery and mobile device are all fully charged.
3. Propellers are mounted correctly and securely.
4. Lens is clear.
5. Micro-SD card has been inserted, if necessary.
6. Gimbal is functioning as normal.
7. Gimbal is correctly attached to the aircraft.
8. Motors can start and are functioning as normal.
9. The DJI Pilot app can connect to the camera and all firmware has been updated to the latest version.

© 2014 DJI. All Rights Reserved.

INTELLIGENT FLIGHT BATTERY

Safety Guidelines

智能飞行电池

安全使用指引

V1.0 2014.12



English

Battery Use

- Never use non-DJI batteries. Go to www.DJI.com to purchase new batteries. DJI takes no responsibility for any accidents caused by non-DJI batteries.
- Never use or charge a swollen, leaky or damaged battery. If so, contact DJI or its designated dealers for further assistance.
- Never install or remove the battery from the aircraft when it is turned on. Do not insert or remove batteries if the plastic cover had been torn or compromised in any way.
- The battery should be used in temperatures from -10℃ to 40℃. Use of the battery above 50℃ can lead to a fire or explosion. Use of battery below -10℃ can lead to permanent damage.
- Do not use the battery in strong electrostatic or electromagnetic environments. Otherwise, the battery control board may malfunction and a serious accident may happen during flight.
- Never disassemble or pierce the battery in any way, or the battery may catch fire or explode.
- Electrolytes in the battery are highly corrosive. If any electrolytes splash onto your skin or eyes, immediately wash the affected area with fresh running water for at least 15 minutes then see a doctor immediately.
- Check the condition of the battery if it falls out of the aircraft. Make sure the battery is NOT damaged or leaking before putting it back to the aircraft.
- Land the aircraft immediately when the low battery level warning activates in the DJI Pilot app.
- Do not allow the batteries to come into contact with any kind of liquid. Do not leave batteries out in the rain or near a source of moisture. Do not drop the battery into water. If the inside of the battery comes into contact with water, chemical decomposition may occur, potentially resulting the battery catching on fire, and may even lead to an explosion. If the battery falls into water with the aircraft during flight, take it out immediately and put it in a safe and open area. Maintain a far distance from the battery until it is completely dry. Never use the battery again, and dispose of the battery properly as described in Battery Disposal below.
- Do not heat batteries. Put out any battery fire using sand or a dry powder fire extinguisher. Never use water to put out a battery fire.
- Do not charge the Intelligent Flight Battery and remote controller at the same time, otherwise the charger may overheat.
- Do not leave batteries in a microwave oven or in a pressurized container.
- Do not place loose battery cells on any conductive surface, such as metal-toppled table.
- Do not put the loose cells in pocket, bag or drawer where they may short-circuit against other items or where battery terminals could be pressed against each other.
- Do not drop or strike batteries. Do not place heavy objects on batteries or charger. Avoid dropping batteries.
- Clean battery terminals with a dry and clean cloth.
- Do not attach the batteries to the wall or car charger sockets directly, always use a DJI approved adapter. DJI takes no responsibility if the battery is charged using a non-DJI charger. Never leave the battery unattended during charging. Do not charge the battery near flammable materials or on flammable surfaces such as carpet or wood. Do not charge battery immediately after flight, because the battery temperature may be too high. Do not charge the battery until it cools down to near room temperature. Charging battery outside of the temperature range of 0℃-40℃ may lead to leakage, overheating, or battery damage. Charge and discharge the battery completely once every 20 charge/discharge cycles. Discharge the battery until there is 0% of power or until it can no longer be turned on, then recharge it to the maximum capacity. This power cycling procedure will optimize the battery life.
- DJI intelligent battery is designed to stop charging when it is full. However it is good practice to monitor charging progress and disconnect the batteries when fully charged.
- Disconnect charger when not in use. Examine charger regularly for damage to the cord, plug, enclosure or other parts. Do not clean the charger with denatured alcohol or other flammable solvents. Never use a damaged charger.

Battery Storage

- Keep batteries out of the reach of children and pets.

- Do not leave the battery near heat sources such as a furnace or heater. Do not leave the batteries inside of the vehicle on hot days. The ideal storage temperature is 22℃-28℃.
- Keep the battery dry. Never drop the battery into water.
- Do not drop, strike, impale, or manually short-circuit the battery.
- Keep the battery away from metal objects such as necklaces and hairpins.
- Discharge the battery to 30%-50% of the battery level if it will not be used for 7 days or more. This can greatly extend the battery life.
- Battery discharges automatically to below 65% when it is idle for more than 10 days to prevent the battery from swelling. It takes around 2 days to discharge the battery to 65%, It is normal that you may feel moderate heat emits from the battery during the discharge process. Set the discharging thresholds in the DJI Pilot app.
- The battery will enter hibernation mode if depleted and stored for a long period. When in hibernation mode, if you try to power on the battery, the battery power LED will show a solid red light and the battery level LEDs will all be off. You cannot manually turn off the battery power LED in this state. Leave the battery unattended for 5 minutes, and then it will power off. Recharge the battery to bring it out of hibernation.
- Remove batteries from the aircraft when stored for an extended period.
- Dispose of the battery into specific recycling boxes only after a complete discharge. Do not place the battery into regular rubbish bins. Strictly follow your local disposal and recycling regulations of batteries.
- If the power on/off button of the Intelligent Flight Battery is disabled and the battery cannot be fully discharged, please contact a professional battery disposal/recycling agent for further assistance.

Notice

- Before carrying the Intelligent Flight Battery on a airline flight, it must first be fully discharged. This can be done by using it in your Inspire 1 or by connecting your remote controller to the battery using the Remote Controller Charging Cable. Only discharge the battery in a fireproof location.
- Store Intelligent Flight Batteries in a ventilated location.
- Should you require to carry the battery onto the plane, it is recommend to discharge the battery to the range between 10% and 20% in order to ensure the safety of the battery.

中 文

使 用

- 严禁使用非 DJI 官方提供的电池。如需更换，请到 DJI 官网查询。因使用非 DJI 官方提供的电池而引发的电池事故、飞行故障，DJI 概不负责。
- 在将电池安装或者拔出于飞行器之前，请保持电池的电源关闭。请勿在电池电源打开的状态下，拔插电池，否则可能损坏电源接口。
- 电池应在环境温度为 -10℃至 40℃之间使用。温度过高，会引起电池着火，甚至爆炸。温度过低，电池寿命会受到严重损害。
- 禁止在强静电或者磁场环境中使用电池。否则，电池保护板会失灵，导致飞行器发生严重故障。
- 禁止以任何方式拆解或用尖利物体刺破电池。否则，会引起电池着火甚至爆炸。
- 电池内部液体有强腐蚀性。如有泄露，请远离。如有溅射到人体皮肤或者眼睛里，请立即用清水冲洗至少 15 分钟，并立即就医。
- 若电池从飞行器中掉落，再次使用前，务必确保电池外观无损，无破损、无漏液、无变形等问题。
- 若飞行器进入低电量报警模式，应尽快降落并停止飞行，更换新电池或者对电池进行充电。
- 请勿将电池浸入水中或将其弄湿。电池内部接触到水后可能会发生分解反应，引发电池自燃，甚至可能引发爆炸。如果电池在飞行器飞行过程中或其它情况下意外坠入水中，请立即拔出电池并将其置于安全的开阔区域，这时应远离电池直至电池完全晾干。晾干的电池不得再次使用，应该按照本文的废弃方法妥善处理。
- 若电池发生起火，应立即采用“窒息灭火法”，如使用沙子或固体或干粉灭火器进行灭火。严禁用水来灭火。
- 电池若出现膨胀、破损等情况，请勿继续使用，否则会有起火、爆炸等危险。如果出现此情况应做废弃处理。
- 请勿将电池直接连接到墙上插座或车载点烟式插座上。
- 禁止将电池投入火中或放在高温环境下。
- 禁止用导线或其它金属物体致使电池正负极短路。
- 如果电池发出异味、发热、变形、变色或出现其它任何异常现象，不得使用；如果电池正在使用或充电，应立即从用电器或充电器上取出并做废弃处理。
- 如果电池的端子变脏，使用前用干布擦干净。否则电池会接触不良，从而引起能量损耗或无法充电。

充 电

- 电池必须使用 DJI 官方提供的专用充电器进行充电。对于使用非 DJI 官方提供的充电器进行充电所造成的一切后果，DJI 将不予负责。
- 请留意充电过程以防发生意外。充电时请将电池和充电器放置在水泥地面等周围无易燃、可燃物的地面。
- 禁止在飞行器飞行结束后，立刻对电池进行充电。此时，电池处于高温状态，强制充电会对电池寿命造成严重损害。建议待电池降至室温，再对电池进行充电。理想的充电环境（0-40℃）可大幅度延长电池的使用寿命。
- 电池每经过约 20 次充放电后，需要进行一次完整的放电和充电过程（将电池充满电，然后放电至电量为 0% 或电池自动关闭，再充满电）以保证电池工作在最佳状态，否则电池电量显示不准确。
- 请留意充电过程以防发生意外。充电时请确保周围没有易燃、可燃物。

储 存

- 禁止将电池放在靠近热源的地方，比如阳光直射或热天的车内、火源或加热炉。电池的理想的保存温度为 22℃ - 28℃。
- 存放电池的环境应保持干燥。请勿将电池置于水中或者可能会漏水的地方。
- 请将电池存放在儿童接触不到的地方。如果儿童不小心吞咽电池，应立即寻求医疗救助。
- 禁止机械撞击电池、碾压、坠落、人为短路、刺穿电池。
- 禁止将电池与金属项链、发夹或者其他金属物体一起贮存或运输。
- 超过 7 天不使用电池，请将电池放电至 30%-50% 电量存放，可大大延长电池的使用寿命。
- 若长时间不使用电池，建议将电池充电至高于 65% 电量并开启存储自放电模式，存放在专用电池箱内。每隔 3 个月左右重新充放电一次以保持电池活性。切勿将电池放完电长时间存储，以避免电池进入过放电状态，无法恢复使用。
- 若电池电量严重不足且闲置时间过长，则电池将进入深度睡眠模式。在该模式下，电源开关指示灯显示红色常亮，但电量指示灯熄灭，而且即使按下电源开关也无法关闭电池，此为正常现象。在该模式下静置电池 5 分钟后，所有指示灯将熄灭。若需要将电池从深度睡眠中唤醒，需对电池充电以启动唤醒程序。

废 弃

- 务必将电池彻底放完电后，才将电池置于指定的电池回收箱中。电池是危险化学品，严禁废置于普通垃圾箱。相关细节，请遵循当地电池回收和弃置的法律法规。
- 如电池因为电源开关失灵而无法完成彻底放电，请勿将电池直接弃置于电池回收箱，应联系专业电池回收公司做进一步的处理。
- 当电池寿命为 0% 时，建议更换电池。对于报废电池，请先将电池放电至电量为 0 再进行废弃处理。

- 如果需要将电池彻底放电，可使用遥控器户外充电线对遥控器充电的方式。操作时请将电池放在无可燃物的区域进行。
- 不使用的电池一定要妥善保管，不要随意放置。防止一些非主观因素导致的意外起火（如压在杂物下）。
- 电池是一种高危高能的化学品，为了您和他人的安全，带上飞机或邮寄前一定要确保电池电量在 10% -20% 之间，可杜绝起火的风险。

The content is subject to change.

Download the latest version from

www.dji.com/support

© 2014 DJI. All Rights Reserved.

INSPIRE 1
Maintenance Manual

V1.0 2015.2

To ensure that your aircraft continues to offer optimal performance and to ensure flight safety, it is recommended that comprehensive maintenance be performed after every 200 flights or 50 flight hours. This manual is intend to help users maintain their aircraft and maximize its continued reliability.

I. Checking the Battery

1. Check the battery for damage and deformities. If there are any signs of damage to the battery, stop using it and discharge the battery to 10% or below for disposal. Do not disassemble the battery for any reason.
2. Check the battery pins and rub them clean with an eraser if any residue is observed. This will help to ensure a more reliable connection.
3. Check the metal battery power connectors for damage. If the connectors appear burnt, try to clear them. This can be done by inserting a piece of sandpaper (1mm thick) into the connectors to polish the metal.
4. Check the contact pins in the battery compartment to ensure that the pins are clear. They should be able to establish easy contact with the battery connectors and should not be bent.
5. Check the electrodes on the battery. If they appear burnt, polish them with sandpaper. If there is serious erosion, send the battery in for repairs.
6. Check the plastic components of the battery bracket to see it is in good condition and that all screws are secure. This prevents the battery from becoming loose during flight.
7. Check the power cables between the arms and the center plate, if the cables are worn, contact DJI to arrange repairs.
8. For long term storage, please refer to the “Intelligent Flight Battery Safety Guidelines” and check the battery once a month to prevent the battery cell from being damaged.
9. Run the DJI Pilot App to confirm that all battery cells are at similar voltage levels and stay at the same level when the battery is fully charged. If all cells maintain voltage levels above 3.7V but any cell is 0.2V higher or lower than the others, contact DJI for analysis. You can also check the battery cell warning history. If any warning are reported, contact DJI.

II. Checking the Transformation System

1. Check the servomotor cables for wear. Also confirm that the connection points are still in good condition.
2. Check the lead screws and contact DJI Support to arrange repairs if any bending or damage is discovered. Clean the lead screws with WD-40 spray if they show signs of rust.
3. Listen to the servomotors during the transformation, if there is abnormal noise, it may indicate that the servomotors worn.
4. After the landing gear rises, check the lead screws and bearings. If any dirt or dust is found, clean and grease the bearings.
5. Check the lead screws. If there is any scratches, dents, or plastic particles underneath them, contact DJI Support to arrange repairs.

III. Checking the Aircraft

1. Confirm that all the screws are still adequately tightened.
2. Check the aircraft for breaks or damage. If there is any reason to believe that detectable damage might affect flight safety, consult with DJI Support.
3. Check the carbon tubes of the arms for damage.
4. Check the dampers on the landing gears. If they are loose, secure them with 502 glue.
5. Ensure that there are no obstacles on or around the GPS module or around the antennas on the landing gear. Remove any obstacles (such as tapes with conductive material) that might affect or block the signal.
6. Check that the right and left landing gear rest at the same tilt angle.

© 2015 DJI. All Rights Reserved.

IV. Checking the Motors

1. Check the rotors to confirm that they have not become loose.
2. Detach the propellers and start the motors. Listen carefully. If there is any abnormal noise, please replace the motors. This may be a sign that the bearings have been worn out.
3. Detach the propellers and start the motors. Carefully examine the edge of the rotor and confirm that the shaft is perfectly centered on the motor. Check for any abnormal or excessive vibration. If any problems are detected, contact DJI Support to order replacement motors.
4. Check for deformities by confirming that the gap between the motor and motor base is even. If not contact DJI Support to order replacement motors.
5. Ensure that the screws used to secure the motor base are tight and the plastic components around the motors are in good condition. If not please tighten the screws and contact DJI to repair any broken plastic components.

V. Checking the Propellers

1. Check the propellers. If there is any bending, breakage or cracking on a propeller, do not use it.
2. Attach the propeller to the motor, turn on the aircraft, and place it on the ground. Stand 1 meter away from the aircraft and observe the rotating propellers. If you can see two distinct propeller outline layers, when looking at a spinning propeller from the side, this propeller is damaged and should not be used.

VI. Checking the IMU

1. Open DJI Pilot app to check the condition of the IMU and perform an advanced IMU calibration. Please place the aircraft in a cool environment and on a flat, stable surface (if the landing gear is damaged, support the aircraft with four objects of equal height). Do not touch the craft during the calibration.
2. Turn on the aircraft and listen for any abnormal noise or vibration from the fan located on the front of the aircraft. If any irregularity is detected, replace the fan.

VII. Checking the Control and Video Transmission System

1. Check the 4 antennas on the landing gear to ensure that they are secure. Also check for any bending or damage.
2. Check the antennas of the remote controller for damage
3. Check the neck strap for damage or wear, replace if necessary.

VIII. Checking the Gimbal and Camera

1. The quick-mount connector for the camera is a particularly vulnerable component. If the gimbal fails to initialize when turned on, fails to work after initialization, or fails to transmit video to the app (while OSD data is displayed), the quick-mount connector may be worn. In this case, replace the rubber mat, circuit board, and/or connector on the gimbal quick-mount.
2. Check the metal contacts on the quick mount connector board, if any contact is bent, replace the quick-mount connector.
3. Check the contact pins on the quick-mount connector board, if there is any dirt, rub it clean with an eraser. If any contact pins are worn out it should be replaced.
4. Confirm that the gimbal is able to properly stabilize itself. If its stabilizing performance deteriorates, contact DJI to arrange repairs.
5. Listen for any abnormal noise from the fan when the gimbal is turned on. This may indicate unusual vibration and the fan should be replaced.

IX. Checking the Vision Positioning System

1. Check the lens of the camera. If any dirt or residue is detected, gently clean the lens.
2. Check for and remove objects that might block the sensors.
3. Ensure that the Vision Positioning System is securely installed on the aircraft.
4. Detach the propellers and turn on the aircraft. Hold the aircraft 1-2 meters above a surface with rich patterns, under good lighting conditions. Change the Flight Mode switch to P Mode on the controller and check the DJI Pilot app. If the app displays an altitude value and indicates that P-OPTI mode is active, the Vision Positioning System should function normally.

Support Center Contact Info:

http://www.dji.com/support

The content is subject to change.

Download the latest version from
http://www.dji.com/product/inspire-1/download

© 2015 DJI. All Rights Reserved.

APPENDIX B

DJI S800 EVO—Operations Documents

Spreading Wings S800 EVO User Manual

V 1.10

February 07, 2014 Revision

www.dji.com

Disclaimer

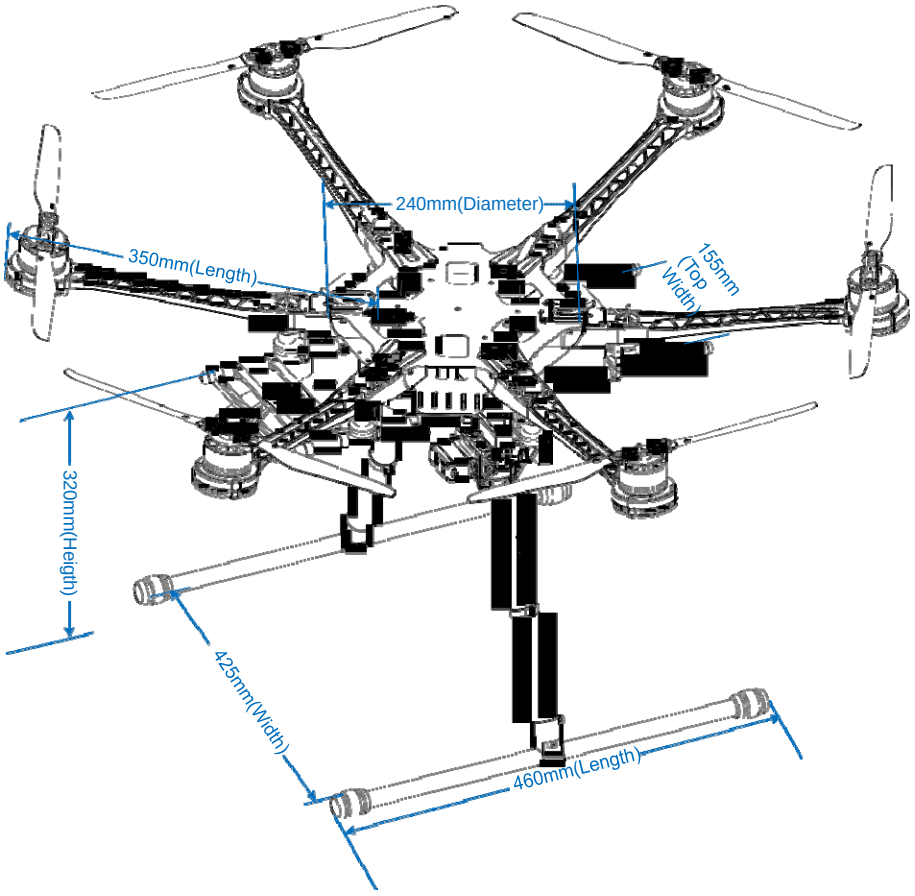
Thank you for purchasing this DJI product. Please regularly visit the S800 EVO web page at www.dji.com, which is updated regularly. Product information, technical updates and manual corrections will be available on this web page. Due to unforeseen changes or product upgrades, the information contained in the manual is subject to change without notice.

Read this disclaimer carefully before using this product. By using this product, you hereby agree to this disclaimer and signify that you have read them fully. Please strictly follow the manual to assemble and use the product. The manufacturer and seller assume no liability for any resulting damage or injury arising from the operation or use of this product.

DJI is registered trademark of DJI Innovations. Names of product, brand, etc., appearing in this manual are trademarks or registered trademarks of their respective owner companies. This product and manual are copyrighted by DJI Innovations with all rights reserved. No part of this product or manual shall be reproduced in any form without the prior written consent or authorization of DJI Innovations. No patent liability is assumed with respect to the use of the product or information contained herein.

Profile

S800 EVO is a multi-rotor designed for aerial photograph which integrates reinforced mechanical structures, stabilized dynamical system and high-efficiency power supply. Integrated designs make assembly and configuration become especially easy and fast; retractable landing gear, foldable propellers and collapsible GPS Mount are conveniently portable for optimal user experiences. Retractable landing gears and vibration dampers coordinate to create omnidirectional aerial view and high quality photograph. Combined with professional DJI multi-rotor autopilot system S800 EVO will achieve hovering, cruising and other steady flight elements, which can be applied for aerial photography and other aero-modeling activities.



Contents

Disclaimer 2

Profile 3

Contents 4

Product Usage Cautions 5

In The Box 6

Tools Needed 6

Center Frame Wiring 7

Attach Electric Equipment to Center Frame 8

Mount Frame Arms 10

Mount Landing Gear 12

- 1 Assembly & Connection 12
- 2 Travel Calibration 13
- 3 Transmitter Setting 14
- 4 Usage 14
- 5 Mount Battery Bracket 16

Assembly 17

Install the IMU Mount (Optional) 18

Appendix 19

- ESC Sound 19
- ESC LED 19
- Specifications 20

FAQ (Trouble Shooting) 21

- Solder ESC 21
- Assemble the Vibration Absorber of Motors 21

Spare Parts Listing 22

Product Usage Cautions

When flying, the fast rotating propellers may cause serious damage(s) and injuries. Therefore, please fly with a high safety in mind at all time.

Assembly Cautions

(1) Mount the GPS Module with a bracket, to avoid interference with the power board of center frame.

(2) For IMU mounting, make sure the arrow direction marking on the IMU is pointing to the aircraft nose.

(3) The receiver is strongly recommended to be attached under the bottom board of center frame, and the head of antenna is downward without any obstacle. Otherwise the aircraft may be out of control, since the wireless signal may be lost.

(4) Mount the arms correctly.

a) Center frame ⊗ ⟷ Arm ⊗

b) Center frame ◎ ⟷ Arm ◎

(5) For removing screws in the bottom board, please proceed with cautious, avoiding damages. Do not remove any other screws fixed with glue.

(6) Notice matching the indications is very important, please pay attention to them.

Flight Cautions

(1) With DJI WKM autopilot system, make sure the output signal of WKM F1~F2 and M1~M6 are all normal, to avoid serious damages and injuries.

(2) Keep flying the multi-rotor a distance from people, building, high-voltage lines, tall trees, water, etc.

(3) Make sure to use 6S LiPo battery for power supply.

(4) Do not get close to or touch the working motors and propellers, which will cause serious injury.

(5) Do not over load the multi-rotor.

(6) Make sure the propellers and the motors are installed correctly and firmly before flying.

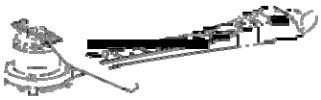
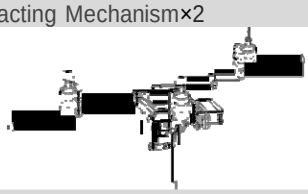
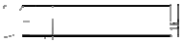
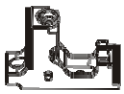
(7) Make sure all parts of product are in good condition before each flight. Do not fly with wore or broken parts.

(8) Strongly recommend you to use DJI parts as much as possible.

Others

(1) If you have any problem you cannot solve, please contact your dealer or DJI customer service.

In The Box

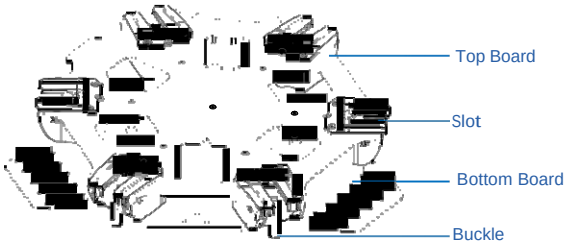
Center Frame×1	Frame Arm×6
	
Retracting Mechanism×2	Landing Gear Support Tube ×2
	
Base Pipe×2	H Frame Connection Pipe×1、Spring×2
Package of 3-PIN Servo Cable ×1	Silicone Rubber Damper ×4
	
Package of Battery Tray×1	Package of IMU Mount×1
	
GPS Fixed Seat×1	Screw Package for Frame×1 Screw Package for Landing Gear×1
	
Out of The Box Guidance ×2	

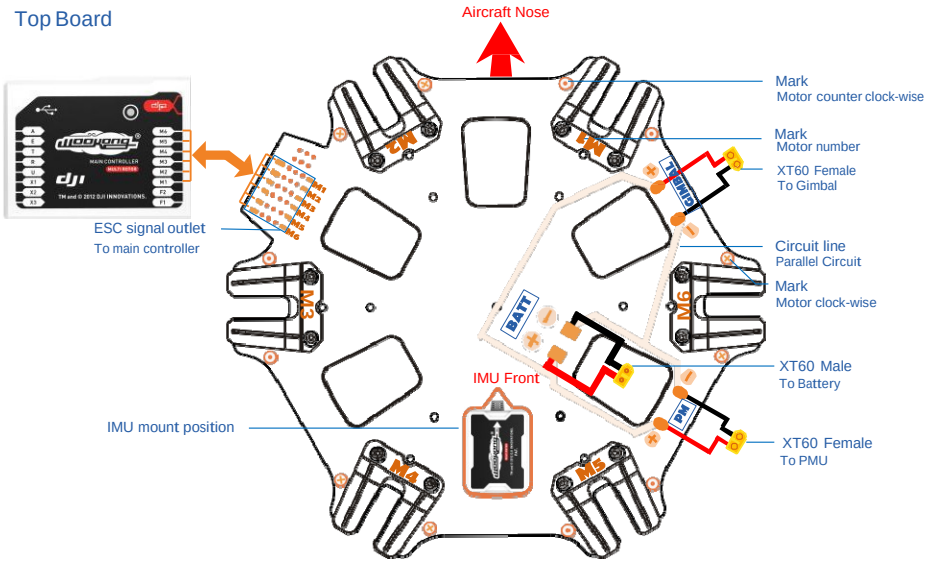
Tools Needed

2.0mm Hex Wrench, 2.5mm Hex Wrench	For mounting screws.
Thread Locker	For fastening screws.
Nylon Cable Tie	For binding devices and wires.
Scissors	
Diagonal Cutting Pliers	
Foam Double Sided Adhesive Tape	For fixing receiver, controller and other modules.

Center Frame Wiring

The top board is a power distribution board, and the bottom board is for loading autopilot system components.





Notes:

(1) For IMU mounting, make sure the arrow direction marking on the IMU is pointing to the aircraft nose.

(2) Connect the 3-pin connectors (M1~M6) of servo cable from WKM M.C. to ESC signal socket (M1~M6) on center frame markings accordingly.

(WKM M.C. M1 ⟷ ESC signal socket M1, ... , WKM M.C. M6 ⟷ ESC signal socket M6)

Tips:

(1) The main battery power leads, gimbal and PMU leads are on the bottom surface of the top board.

(2) Markings ⊗ and ⊙ stand for the propeller rotation direction. ⊗ means clock-wise, and ⊙ means counter clock-wise.

(3) If other lead connector is required, please cut the original connector and solder on the new one. (But NOT Recommend.)

Attach Electric Equipment to Center Frame

1. (Fig.1)Remove the screws in the bottom board.
2. (Fig.2)Attach the IMU module into IMU position in the center frame. Ensure the IMU casing is out of touching the top board edge, as vibration can cause IMU mal-function.
3. (Fig.2)Please attach DJI Autopilot System parts onto the bottom board (not including GPS modules.
4. (Fig.2)Connect the Autopilot System and receiver. Please refer to DJI WKM User Manual for details.
5. (Fig.3)Please fix all the screws to bottom board, and use adequate thread locker.
6. (Fig.4)Attach the GPS Fixed Seat to the top board (near to the M3), then mount the GPS Module to the GPS Fixed Seat with a bracket.
7. Configure Autopilot System. Please refer to DJI WKM User Manual.

Note:

(1) Make sure to mount the IMU module at the IMU position first, and the mount orientation is correct.

(2) Mount the GPS with a bracket, to avoid interference from center frame power board.

(3) Make sure the USB port of the M.C. is pointing outwards for easy access.

(4) Please wire neatly. Make sure the wires will not be cut by the edge of frames.

(5) Install the screws with appropriate strength to prevent damage threads.

(6) Watch out clamping fingers when folding the GPS Bracket.

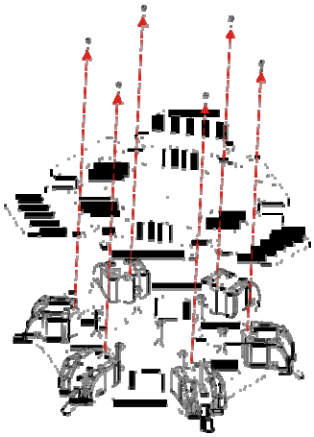


Fig.1 Remove the screws

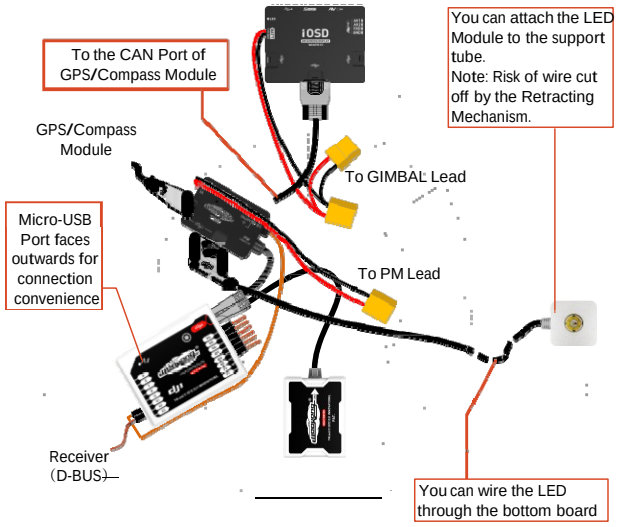


Fig.2 Attach the Autopilot System

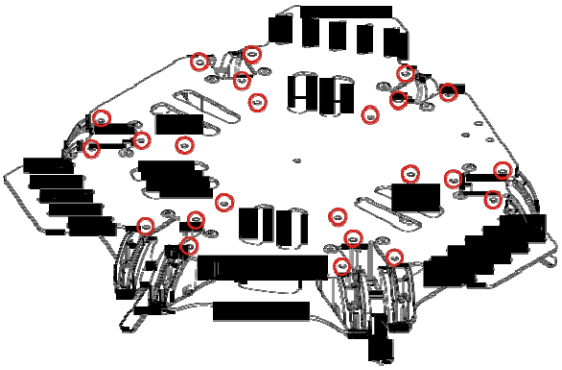


Fig.3 Fix the screws

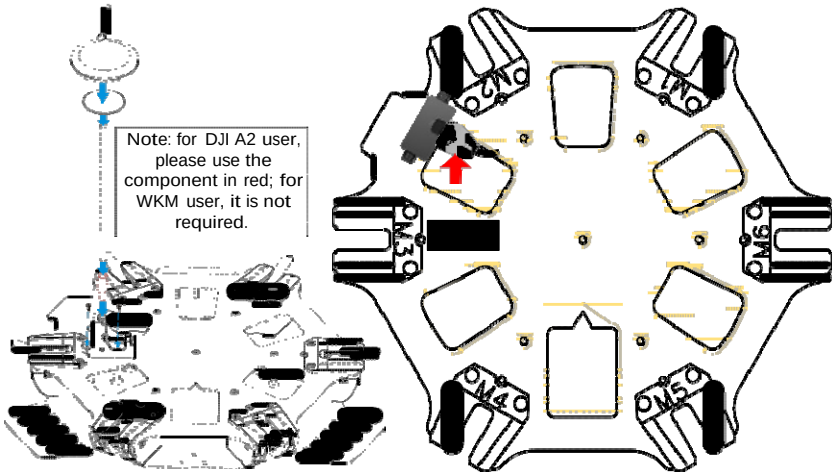


Fig.4 Mount the GPS Fixed Seat and GPS module

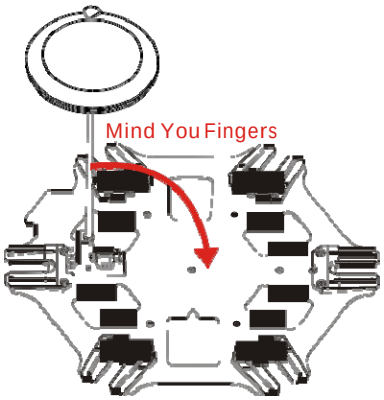
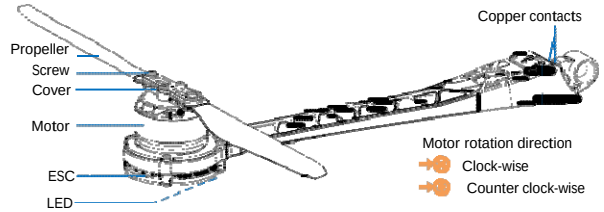


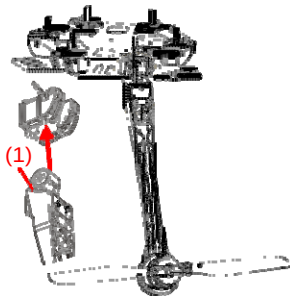
Fig.5 Note of folding the GPS Bracket

Mount Frame Arms

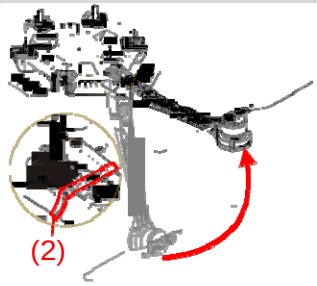
Step 1



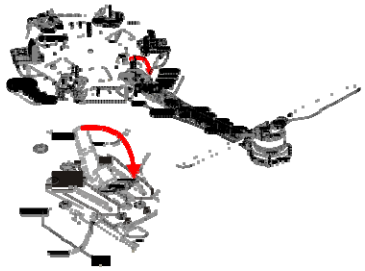
Step 2



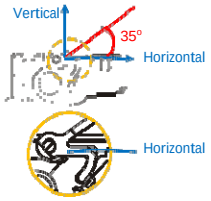
Step 3



Step 4



Step 5



Step1: Check the arms.

(1) Make sure the copper contacts are in good condition without bend or severe wear.

(2) Make sure the propellers are without crack, and screws in propeller cover tight.

(3) Make sure the motors are mounted firmly, and rotate freely.

(4) We recommend you to mount the arms with red propeller cover to M1 and M2 to indicate the nose of aircraft.

(5) Distinguish the marks ⊗ and ◎ on the arms.

Arm ⊗ ⟷ Center frame ⊗

Arm ◎ ⟷ Center frame ◎

Step2: Insert the frame arm into center frame vertically.

Step3: Slowly rotate the frame arm upward until positioned completely.

Step4: Press down the buckle to lock the arm. Make sure the arm does not move.

Step5: Make sure the buckle is pressed down correctly, about 35° under normal circumstances.

Notes:

(1) Please add some lubricant at the position (1) if it is hard to press down the buckle.

(2) Slowly rotate the frame arm to prevent from breaking the copper contacts.

©2012 DJI Innovations. All Rights Reserved.

(3) Please refer to (2) to make sure the arm is perfectly positioned.

(4) Make sure to use appropriate strength to press down the buckle correctly.

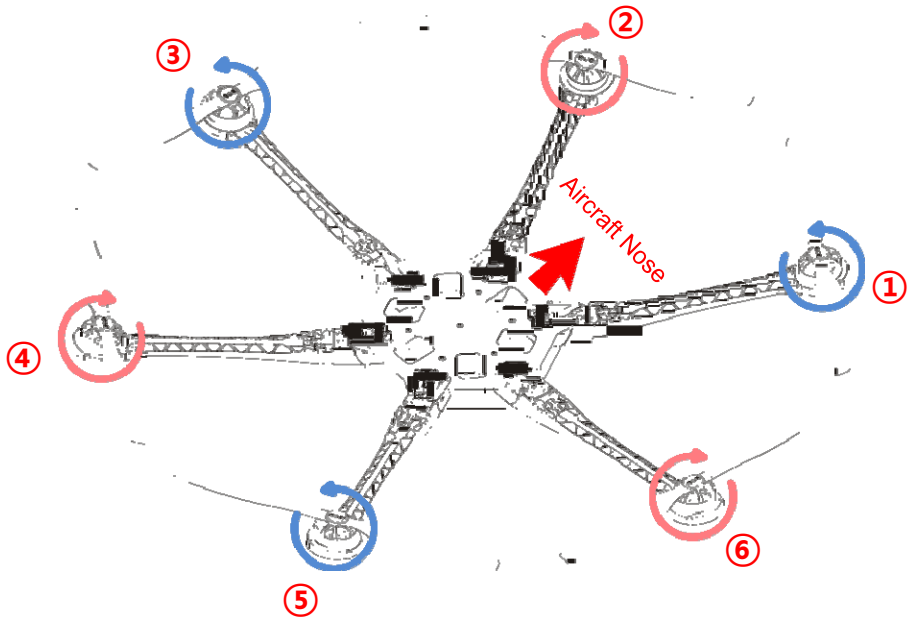
(5) Do not hot plug arms.

Tips:

(1) LED is on after motor start.

Step 6 Double Check

Arms①②are aircraft nose, arms④⑤ are aircraft tail. See from top, motors on arms①③⑤ rotate counter clockwise; motors on arms②④⑥ rotate clockwise.

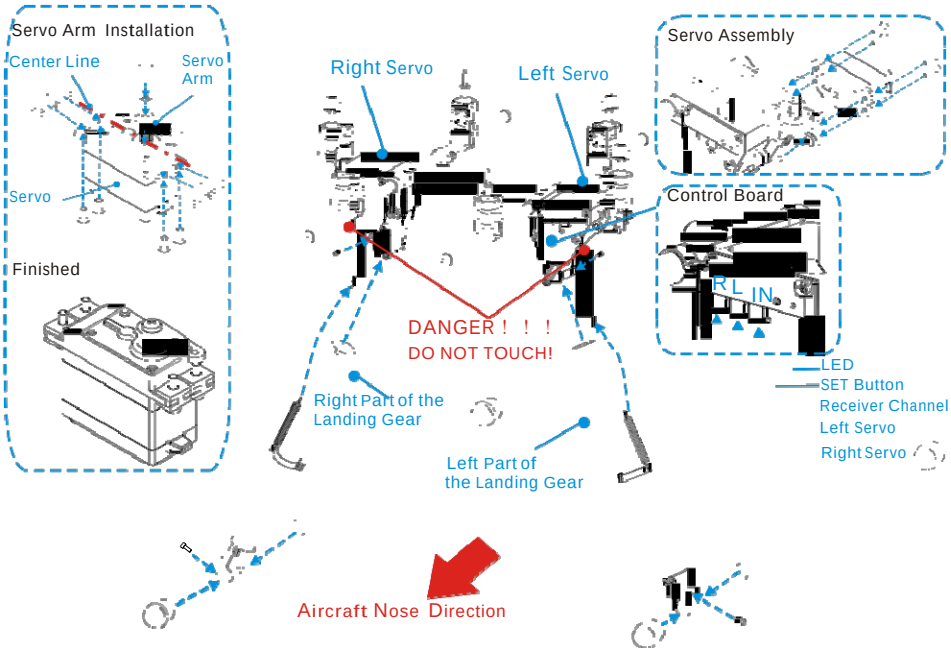


Mount Landing Gear

By using a 2-position switch of R/C transmitter, you can control the landing gear to retract remotely.

1 Assembly & Connection

The part with the control board attached is defined as left, and the other part is right. Make sure to make a distinction between the left and the right servos.



step1:	Servo Installation (If the servos have already been installed, please skip this step.)

1. (Shown in the Fig) Define and mark the two HS-7954SH servos from Hitec as left servo and right servo.
2. Connect the left servo to the [L] port on the control board, and the right servo to the [R] port.
3. Keep pressing the SET button with aid of a small tool, and then power on. You will see the yellow LED beside SET button flashes quickly, and then wait until the servos have finished their position initialization.
4. Make sure the servo arm is parallel to the servo's center line.
5. Power off, assemble the left and right servos to the left and the right parts of the landing gear.

Tips: If you use your own servos, it is recommended to use the dedicated programmer from Hitec to enlarge the servo travel from 120° to 150°, and then install servos by the above steps. Servos from DJI have been enlarged servo travel.

step2:	Mechanical Assembly

1. Assemble the left and right parts respectively, and then fix the screws at the joints with appropriate thread locker.
2. Connect the left and right parts with connecting rod.
3. For safety reasons, make sure to connect the springs to both parts.

step3: Electrical Connections

1. Plug the cables from the servos into the correct ports on the control board. Make sure the right servo is connected to the [R] port, and the left servo to the [L] port.
2. Connect the required 2-position switch of R/C receiver to the [IN] port.

2 Travel Calibration

If the Landing Gear you got has been installed with the servos, please skip this step. Otherwise, calibrate the system using the following procedures.

1. For safety reasons, please keep your hands away from any link mechanism to avoid injury.
2. Make sure the [R], [L] and [IN] connections are correct and firmly connected.
3. Hang the Landing Gear in the air during calibration, as the landing gear will move.
4. Keep pressing the SET button using a small tool and power on. You can see the LED flashes YELLOW quickly, and then press the SET button once again. The system begins auto calibration with the indication of the LED flashing YELLOW slowly. DO NOT obstruct any moving part during auto calibration.
5. The left-part is calibrated, the left link mechanism first moves up then moves down automatically. Then the right-part is calibrated, the right link mechanism first moves up then moves down automatically.
6. After calibration, both left and right parts are in the [Lower] position, and the LED is solid GREEN on. Then the landing gear will work normally.

Notes:

(1) If the LED is solid YELLOW on during calibrating, it means that there is something wrong with the calibration, please re-do the Servo Installation of the Assembly & Connection section, since the servo arm might be installed with a wrong angle.

(2) Please avoid any obstruction during calibrating. If the landing gear is blocked from moving, please recalibrate the landing gear by the above steps.

(3) If the [R] and [L] servo cables are reversed, the travel will not be measured correctly. Please connect correctly and recalibrate the landing gear using the above steps.

3 Transmitter Setting

Select a 2-position switch (default setting is OK) of Transmitter as the control input of the landing gear, and then make sure the corresponding port of receiver is connected to the [IN] port on control board.

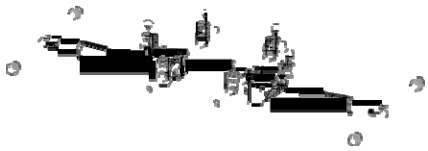
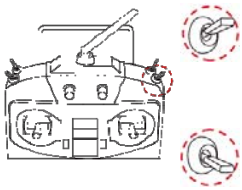


Fig. 1



Retracted：Toggle the switch to this position to retract the landing gear (Fig.1)

Lower：Toggle the switch to this position to lower the landing gear (Fig. 2)

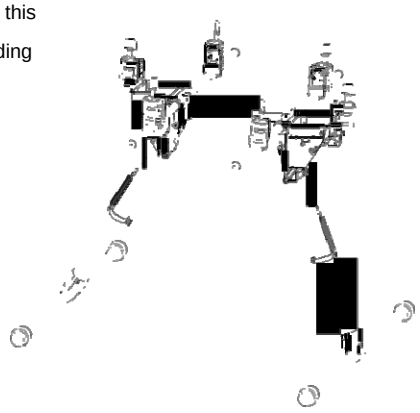


Fig. 2

Tips:

(1) If the switch of Transmitter has FailSafe function, set the FailSafe value to the [Lower] position, so that the landing gear will be in [Lower] status when the receiver enters FailSafe mode, to land the aircraft safely.

(2) To avoid false switch triggering, you can use the slide lever or other trim as the landing gear's control switch.

4 Usage

The landing gear can be used by following the steps below after assembly & connection.

1. Make sure the transmitter & receiver batteries are fully charged.
2. Toggle the switch to the [Lower] position, and then turn on the transmitter.
3. Make sure the [R], [L] and [IN] connections are correct and firmly connected.
4. Make sure the Landing Gear is at the [Lower] position, and then power on the system. If the green LED is solid on, then this is a normal start. If the LED flashes GREEN slowly, please re-calibrate the system according to the procedure of Travel Calibration.
5. Make sure to toggle the switch to the [Retracted] position ONLY AFTER you takeoff the aircraft.
6. When the aircraft is landing, please toggle the switch to the [Lower] position for a safe landing.

Tips

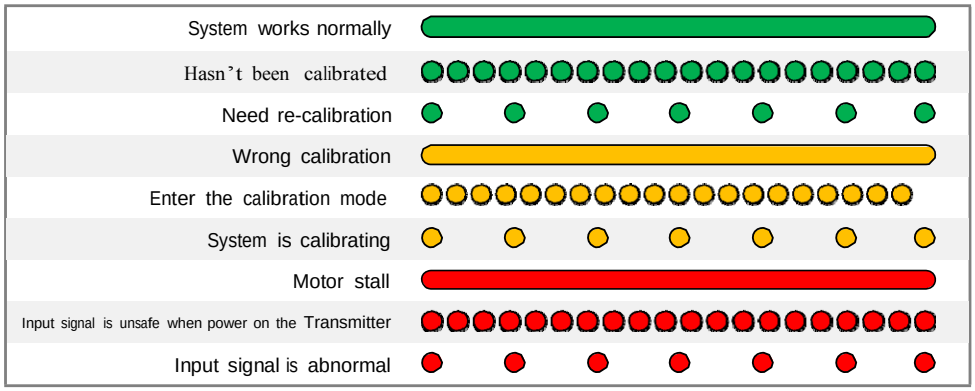
(1) The system will turn off the servo power temporarily within 3 seconds after the landing gear has reached the target position.

(2) When powering on the system, if the Transmitter switch is at the [Retracted] position, which is the unsafe signal for the landing gear, the LED will quickly flash RED. Toggle the switch to the [Lower] position.

(3) If there is an abnormal signal or no signal input into the [IN] port the LED will slowly flash RED. Please check the receiver and the connections.

(4) If the power consumption of servos is too large during usage, the LED will be solid RED on. If this status lasts more than 4 seconds, the landing gear will lower and the LED will flash GREEN slowly. Please re-calibrate the system.

LED Indicator

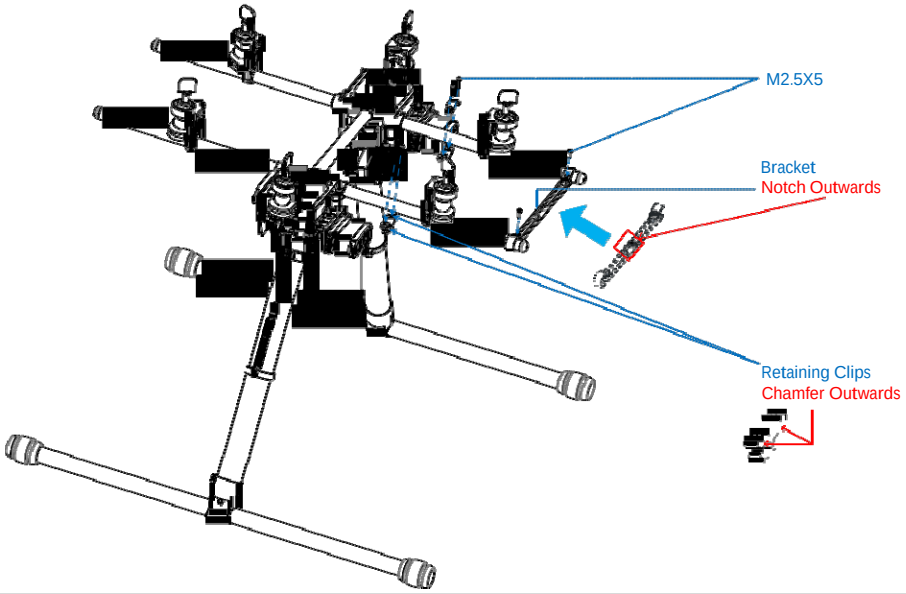


Specifications

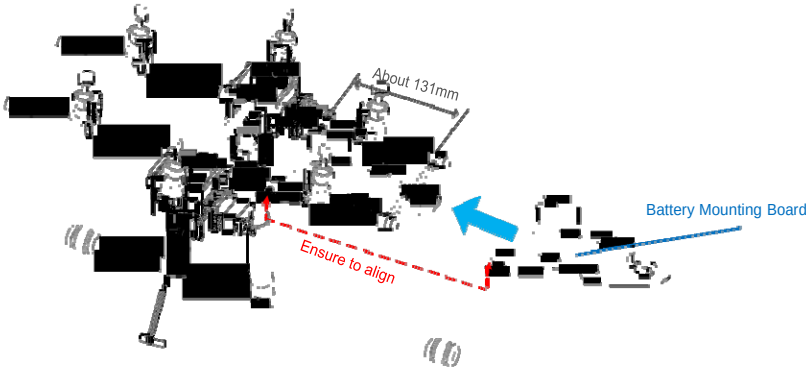
Parameter	Range	Parameter	Range
Working Voltage	3S~6S (LiPo)	Input Signal	PWM (High-Pulse Width 800us~2200us)
Working Current	Max 1A@6S	Output Signal	PWM(Mid Position is 1520us) in 90Hz
Working Temperature	-20~70°C	Output Voltage	6V
Total Weight	875g	Servo Travel	150° (Minimum120°)

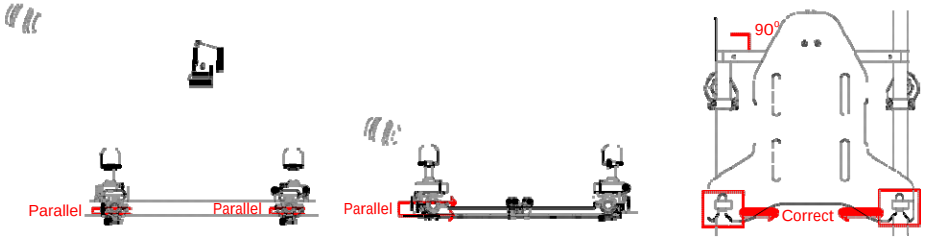
5 Mount Battery Bracket

Step1: Mount the retaining clip and the bracket, fix screws (but not tighten).



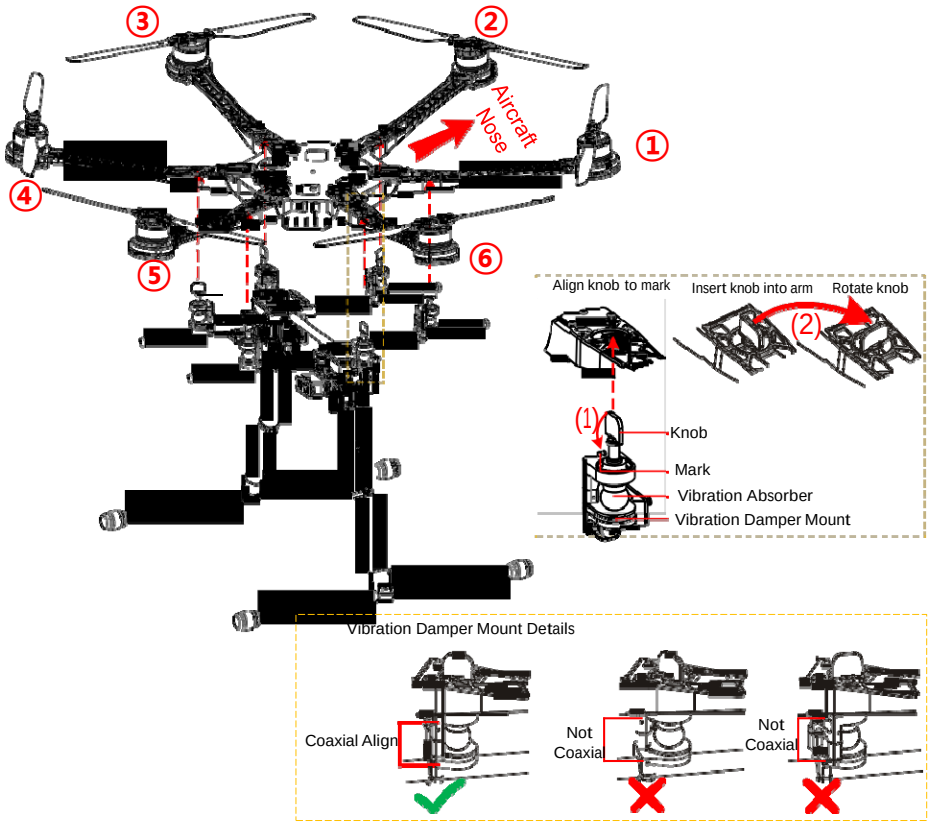
Step2: Place the battery mounting board and adjust its position, and then tighten all screws.





Assembly

Assembly



1. Align all knobs on H frame to the marks; refer to fig (1).
2. Lie frame and Landing Gear horizontally, insert knobs into arms ③ and ⑥ first, and then adjust to insert the others into the arms.
3. Make sure the Vibration Damper Mount is correct, and then rotate the knob to the end, as fig (2) shown.

Notes:

- Ensure all knobs on the H frame aligned to the marks, and they would go through the arms successfully.

Install the IMU Mount (Optional)

If you wish to achieve a smooth and steady fight, carry out the following procedures to install the IMU Mount.

1. (Fig.1) Remove the screws to dismount the Battery Bracket.
2. (Fig.2) Fix the IMU Mount and remount the Battery Bracket.
3. (Fig.3) Adjust the IMU Mount and the Battery Bracket, and then fix all the screws.
4. (Fig.4) Attach the IMU Module; make sure that the arrow on LOGO is pointing to the aircraft nose.

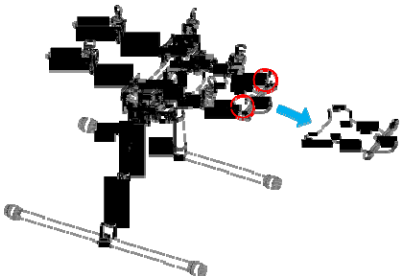


Fig.1

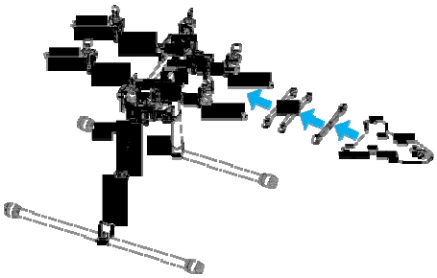


Fig.2

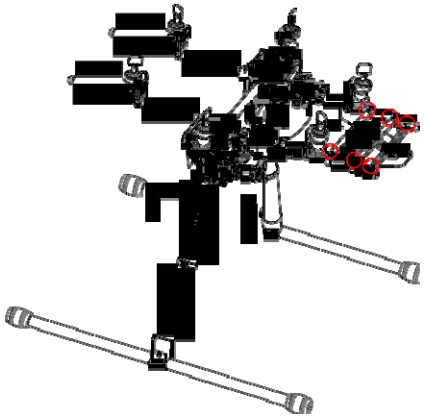


Fig.3

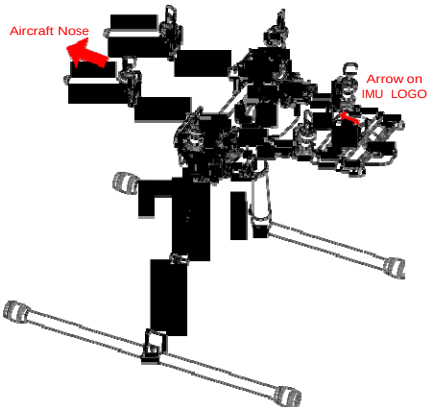


Fig.4

Appendix

ESC Sound

ESC State	Sound
Ready	♪1234567--B--B
Throttle stick is not at bottom	BBBBBB...
Input signal abnormal	B--------B--------B...
Input voltage abnormal	BB---BB---BB---BB...

ESC LED

ESC State	LED
Standby	Off
Motor rotating	Solid Red or Green On
Motor rotating at full throttle position	Solid Yellow On

Tips:

DJI ESCs are specially designed for multi-rotors. When use with DJI autopilot systems, you do not have to setup any parameters or calibrate travel range.

Specifications

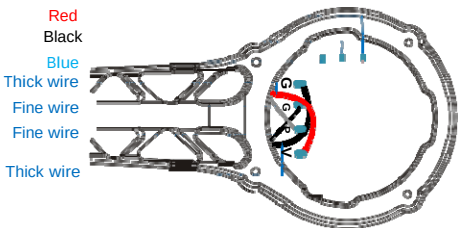
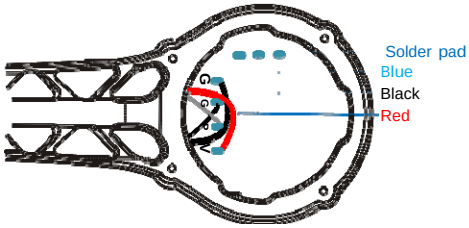
Frame	
Diagonal Wheelbase	800mm
Frame Arm Length	350mm
Frame Arm Weight (with Motor, ESC, Propeller)	356g
Center Frame Diameter	240mm
Center Frame Weight	550g
Landing Gear Size	460mm(Length)×425mm(Width)×320mm(Height) (Top width: 155mm)
Retractable Landing Gear Weight (Including Battery Tray)	1050g
Motor	
Stator Size	41×14mm
KV	400rpm/V
Max Power	500W
Weight (with Cooling Fan)	158g
ESC	
Current	40A OPTO
Voltage	6S LiPo
Signal Frequency	30Hz ~ 450Hz
Drive PWM Frequency	8KHz
Weight (with Radiators)	35g
Foldable Propeller (1552)	
Material	Engineering plastic
Size	15×5.2 inch
Weight	13g
Flight Parameters	
Takeoff Weight	6.0Kg ~ 8.0Kg
Total Weight	3.7Kg
Power Battery	LiPo (6S、10000mAh~15000mAh、15C(Min))
Max Power Consumption	3000W
Hover Power Consumption	800W(@ Takeoff Weight 6.7Kg)
Hover Time	Max: 20 min (@15000mAh&6.7KgTakeoff Weight)
Working Environment Temperature	-10 ~ +40 °C

FAQ (Trouble Shooting)

Solder ESC

Make sure to solder the thick wires and fine wires correctly, when solder ESC to frame arm.

Clockwise and counter clockwise motor should be soldered to ESC correctly by different color order.

For arms	For arms
	

Assemble the Vibration Absorber of Motors

The soft gasket is a part of the Vibration Absorber and it has a thick end and a thin end, it's important to assemble the soft gaskets in correct approach adhere to the diagram below.

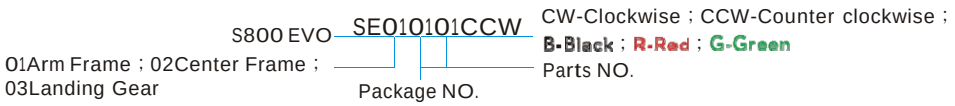
Propeller CCW: the thick ends of the gaskets (A) are upwards, the thick ends of the gaskets (B) are downwards.

Propeller CW: the thick ends of the gaskets (C) are downwards, the thick ends of the gaskets (D) are upwards.

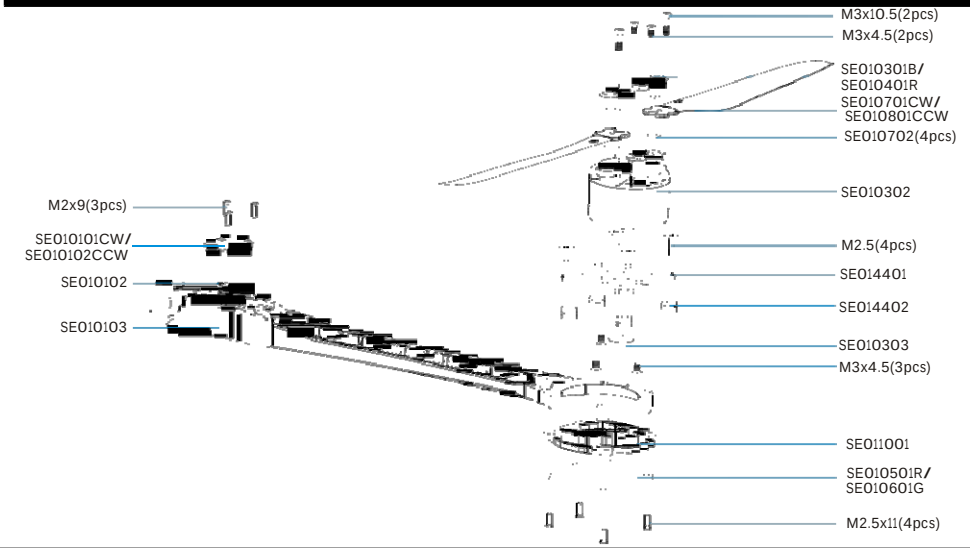
Propeller CCW	Propeller CW
	

Spare Parts Listing

If S800 EVO needs component replaced, please refer to the following diagram to identify the component NO., and then make a purchase of corresponding package. Each package includes screws needed. The Components Number is defined as bellow.

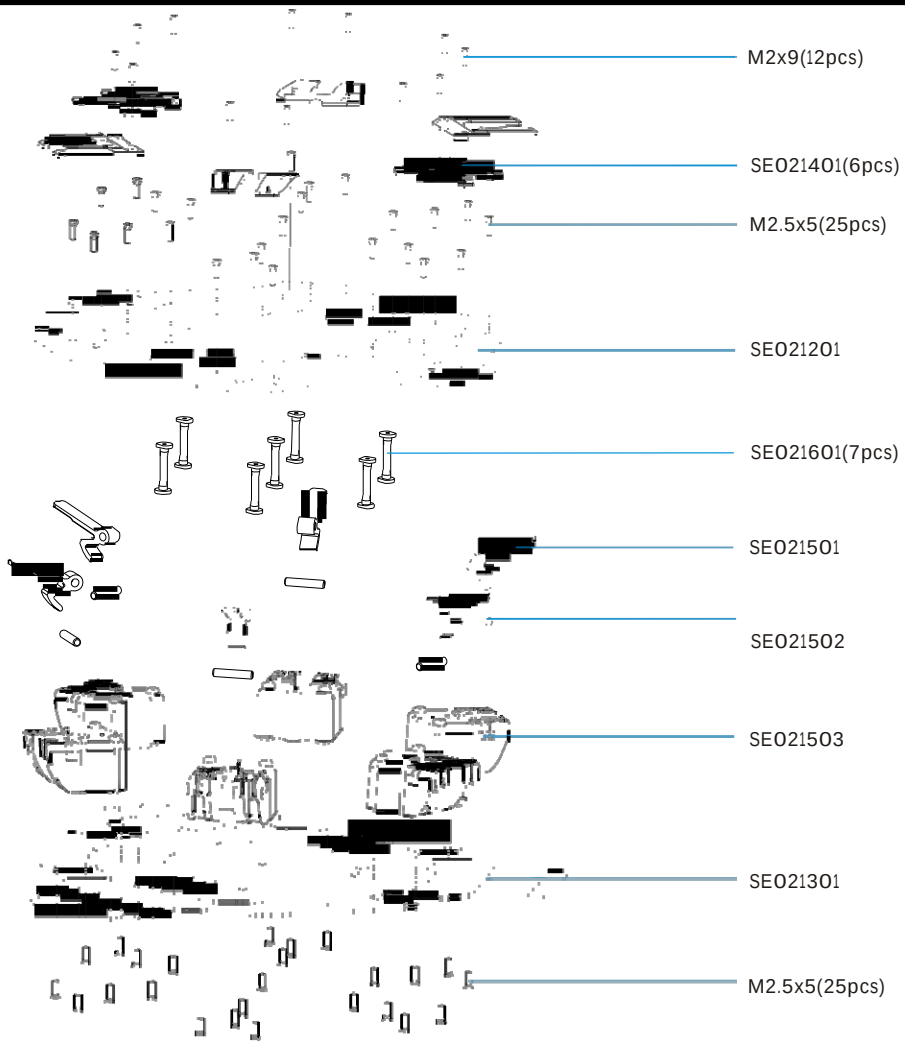


Frame Arm



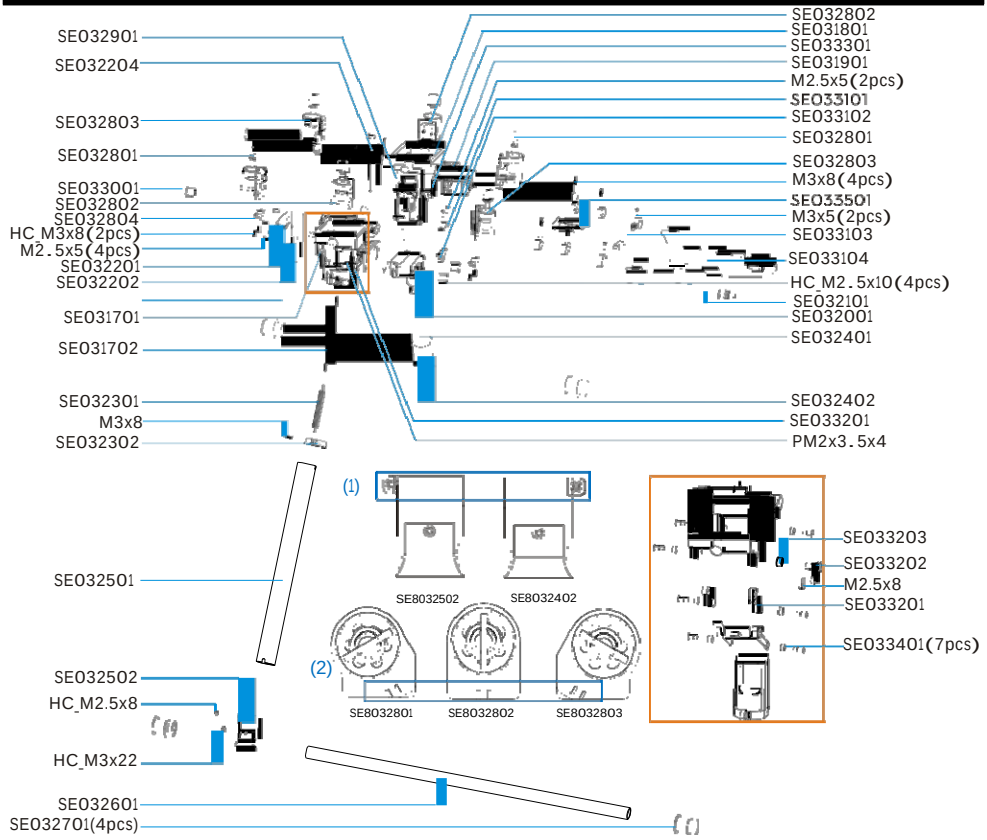
Package NO.	Name	Components Number
1	Frame Arm (Counter Clockwise)	SE010101CCW、SE010102、SE010103、M2x9
2	Frame Arm (Clockwise)	SE010102CW、SE010102、SE010103、M2x9
3	Motor with black Prop cover	SE010301B、SE010302、SE014402、SE014401 、SE010303 、M2.5x5、M3x4.5
4	Motor with red Prop cover	SE010401R、SE010302、SE014402、SE014401 、SE010303 、M2.5x5、M3x4.5
5	ESC with Red Led	SE010501R
6	ESC with Green Led	SE010601G
45	1552 Folding Propellers(both CW&CCW)	SE010701CCW、SE010801CW、SE010702、M3x10.5
9	Washer for Propeller	SE010702
10	ESC Heat Sink	SE011001

Center Frame



Package NO.	Name	Components Number
11	Center Frame	SE02120 1、SE02130 1、SE02140 1、SE021501、SE02150 2 、SE02150 3、SE02160 1、M2x9、M2.5x5
12	Center Frame Top Board	SE02120 1、M2x9、M2.5x5
13	Center Frame Bottom Board	SE02130 1、M2.5x5
14	Top Board Cover	SE02140 1、M2x9
15	Arm Mounting Bracket	SE02150 1、SE02150 2、SE02150 3、 M2x9、M2.5x5
16	Aluminum Brace for Center Frame	SE02160 1、M2.5x5

Landing Gear



Note1: (1) Left Support Tube right Support Tube are different; (2) Left set, middle set and right set of Damping Unit are different.

Package NO.	Name	Components Number
17	Retract Module(Left)	SE031701、SE031702
18	Retract Module(Right)	SE031801、SE031702
19	HITEC Servo (Right)	SE031901、HC_M2.5x10
20	HITEC Servo (Left)	SE032001、HC_M2.5x10
21	Carbon Tube of H-Frame	SE032101、HC_M2.5x8
22	Control Board	SE032201、SE032202、SE032203、SE032204、M2.5x5
23	Spring	SE032301、SE032302、SE031702、M3x8
24	Support Tube (Right)	SE032401、SE032402、M3x8、HC_M2.5x8、HC_M3x8
25	Support Tube (Left)	SE032501、SE032502、M3x8、HC_M2.5x8、HC_M3x8

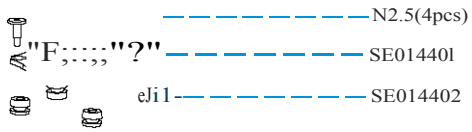
26	Base Tube	SE032601、SE032701
27	Silicone Rubber Damper	SE032701
28	Damping Unit (Set)	SE032801、SE032802、SE032803、SE032804、HC_M3x8
29	Aluminum Tube of H-Frame	SE032901
30	Silicone Rubber of H-Frame	SE033001
31	Battery Tray	SE033101、SE033102、SE033103、SE033104、M2.5x5、M3x5
32	Control arm of Retractable Module(Left)	SE033201、SE033202、SE033203、M2.5x8
33	Control Arm of Retractable Module(Right)	SE033301、SE033202、SE033203、M2.5x8
34	Shaft Sleeve of Retract Module	SE033401
35	IMU Mount	SE033501 、M3x8

Others



Package NO.	Name	Components Number
36	GPS Holder	SE033601
37	Screws Package	M3x8(10pcs)、HC_M2.5x10(10pcs)、M2.5x5(30pcs)、M2x9(10pcs)、M3x4.5(10pcs)、M2.5x8(5pcs)、M2.5x11(10pcs)、M3x 10.5(15pcs)、HC_M3x8(10pcs)、HC_M2.5x8(10pcs)、HC_M3x22(5pcs)
38	Blade Holder	SE033801

Package NO.	Name	Components Number
39	Battery Mount Board	SE033104、Velcro straps
40	Frame Arm with Prop CCW &Red LED	Package NO. 1、4、5、7、10
41	Frame Arm with Prop CW &Red LED	Package NO. 2、4、5、8、10
42	Frame Arm with Prop CCW &Green LED	Package NO. 1、3、6、7、10
43	Frame Arm with Prop CW &Green LED	Package NO. 2、3、6、8、10



Package NO.	Name	Components Number
44	Vibration absorber of Notor	SE014401, SE014402, N2.5

©2013-2014 DJI Innovations. All Rights Reserved

APPENDIX C

DJI Phantom 2—Operations Documents

PHANTOM 2 User Manual V1.4

For PHANTOM 2 Flight Controller Firmware version V3.10
& PHANTOM 2 Assistant version V3.8
& PHANTOM RC Assistant version V1.1
2015.01

Congratulations on purchasing your new DJI product. Please thoroughly read the entire contents of this manual to fully use and understand the product.

It is advised that you regularly check the PHANTOM 2's product page at www.dji.com which is updated on a regular basis. This will provide services such as product information, technical updates and manual corrections. Due to any unforeseen changes or product upgrades, the information contained within this manual is subject to change without notice.

DJI and PHANTOM 2 are registered trademarks of DJI. Names of product, brand, etc., appearing in this manual are trademarks or registered trademarks of their respective owner companies. This product and manual are copy righted by DJI with all rights reserved.

If you have any questions or concerns regarding your product, please contact your dealer or DJI Customer Service.

©2013-2015 DJI. All Rights Reserved.

Content

CONTENT **2**

IN THE BOX **4**

LEGEND **4**

1. PHANTOM 2 AIRCRAFT **5**

1.1 Built-in Flight Control System Instructions 5
1.2 Connections with Other DJI Products 5
Important Notes of Using with Other DJI Products *6*
Connections with Other DJI Products *7*
1.3 LED Flight Indicators Description 11
1.4 Notes for PHANTOM 2 using with other DJI products 12

2 PROPELLERS **13**

2.1 Assembly 13
2.2 Disassembly 13
2.3 Notes 13

3 REMOTE CONTROLLER **14**

3.1 Power on the Remote Controller 14
3.2 Remote Controller LED Indicator Status 15
3.2.1 Remote Controller Power LED Indicator Status *15*
3.2.2 Remote Controller Battery Level Indicator Status *15*
3.3 Antenna Orientation 16
3.4 Remote Controller Operation 16
3.5 Linking the Remote Controller & Built-in Receiver 18

4 INTELLIGENT BATTERY **19**

4.1 Charging Procedures 19
4.2 Install the Battery 20
4.3 Battery Usage 20
4.4 Description of the Battery Level Indicator 21
4.5 Correct Battery Usage Notes 22

5 CALIBRATING THE COMPASS **23**

©2013-2015 DJI. All Rights Reserved.

5.1 Calibration Warnings 23
5.2 Calibration Procedures 23
5.3 When Recalibration is required 23

6 FLIGHT 24

6.1 Flying Environment Requirements 24
6.2 Starting the Motors 24
6.3 Takeoff/Landing Procedures 24
6.4 Failsafe Function 25
6.5 Low Battery Capacity Warning Function 27
6.6 Flight Limits Function 27
Max Height & Radius Limits 27
6.7 Flight Limits of Special Areas 28
6.8 Conditions of Flight Limits 30
Disclaimer 30

7 ASSISTANT INSTALLATION AND CONFIGURATION 31

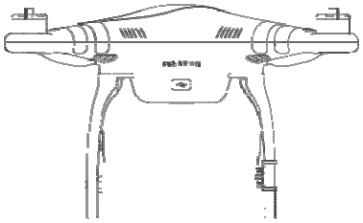
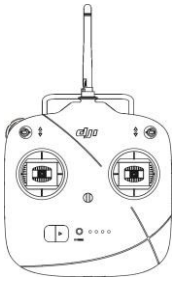
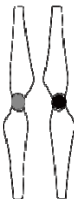
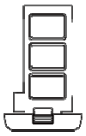
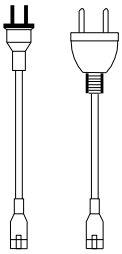
7.1 Installing Driver and PHANTOM 2 Assistant 31
7.2 Using the PHANTOM 2 Assistant on a PC 32
7.3 Firmware upgrade of PHANTOM 2 33
7.4 PHANTOM RC Assistant Description 33

8 APPENDIX 35

8.1 Specifications 35
8.2 LED Flight Indicators Description 35

©2013-2015 DJI. All Rights Reserved.

In the Box

PHANTOM 2	Remote Controller-2.4GHz	Propeller Pair
		
Intelligent Battery	Charger	Plug Set
		
Screwdriver	Assistant Wrench	Cables
		
Micro-USB Cable	Screws	Accessories Box
		

Legend

Forbidden(Important) Caution Tip Reference

©2013-2015 DJI. All Rights Reserved.4 |

1 PHANTOM 2 Aircraft

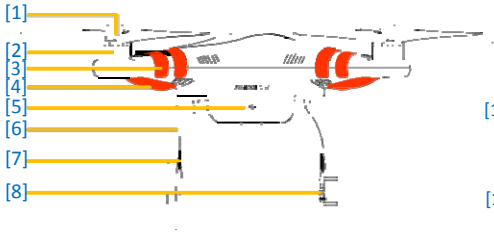


Figure 1-1

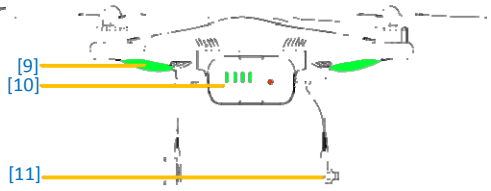


Figure 1-2

[1]Propeller [2]Motor [3]Front Side [4]Front LEDs [5]Micro-USB Port [6]Landing Gear [7]Receiver Antenna [8]CAN-Bus Connector [9]LED Flight Indicators [10]DJI Intelligent Battery [11]Compass

1.1 Built-in Flight Control System Instructions

The built-in flight control system is used to control the entire aircraft's functions in flight such as Pitch (forwards and backwards), Roll (left and right), Elevator (up and down) and Yaw (turn left or right). The flight controller contains the MC (Main Controller), IMU, GPS, compass, receiver.

The IMU (Inertial Measurement Unit) has a built-in inertial sensor and a barometric altimeter that measures both attitude and altitude. The compass reads geomagnetic information which assists the GPS (Global Position System) to accurately calculate the aircrafts position and height in order to lock the aircraft in a stable hover. The receiver is used to communicate with the remote controller and the MC acts as the brains of the complete flight control system connecting and controlling all the modules together.

The PHANTOM 2 can be configured in the Assistant, by choosing Naza-M mode or Phantom 2 mode.

This manual is for Phantom 2 mode. Please refer to the Naza-M V2 Quick Start Manual for more information.

1.2 Connections with Other DJI Products

PHANTOM 2 is compatible with other DJI products, including ZENMUSE H3-2D and H3-3D gimbal , iOSD mini , iOSD Mark II. Below are connections for these products and wireless video transmission module.

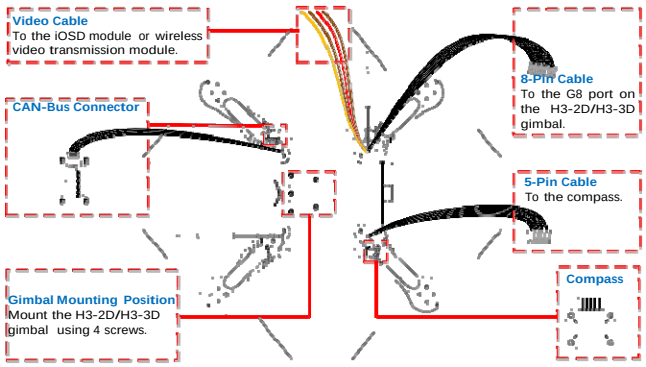


Figure 1-3

©2013-2015 DJI. All Rights Reserved.

(1) The video cable can provide power for the wireless video transmission module with a battery voltage (11.1V~12.6V) and a maximum current 2A.

(2) Make sure the working current of the wireless video transmission module you connect can work with an operational voltage between 11.1V~12.6V and the total working current of the iOSD and wireless video transmission module is under 2A, as an overcurrent will damage the central board's components. If the total current exceeds 2A, please be sure to provide power supplied from a separate power source for the wireless video transmission module.

(3) PHANTOM 2 uses a 2.4GHz RC system. To avoid communication interference, it's not recommended to use other 2.4GHz devices (including 2.4G Wi-Fi or 2.4G wireless video transmission module) except the 2.4G Bluetooth and 2.4G Datalink.

(4) Be sure to keep the wireless video transmission module and other communicating devices away from the compass during installation and connection to avoid interference.

(5) To improve the compatibility with ZENMUSE gimbals, the latest factory deliveries of PHANTOM 2 has updated to the Version 2 shown below. H3-2D/H3-3D gimbal can be directly installed for the Version 2 while for Version 1, a H3-3D adapter kit (coming soon) is required to install the H3-3D gimbal.

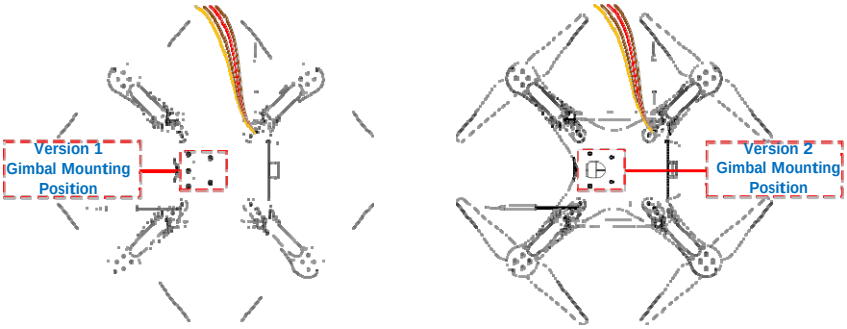


Figure 1-4

(6) When using the H3-3D gimbal, please connect the 8-Pin cable of PHANTOM 2 to the G8 port of H3-3D shown below.



Figure 1-5

©2013-2015 DJI. All Rights Reserved.

Connections with Other DJI Products

(1) Connecting the H3-2D and H3-3D gimbal and wireless video transmission module, the figure below uses H3-2D as an example.

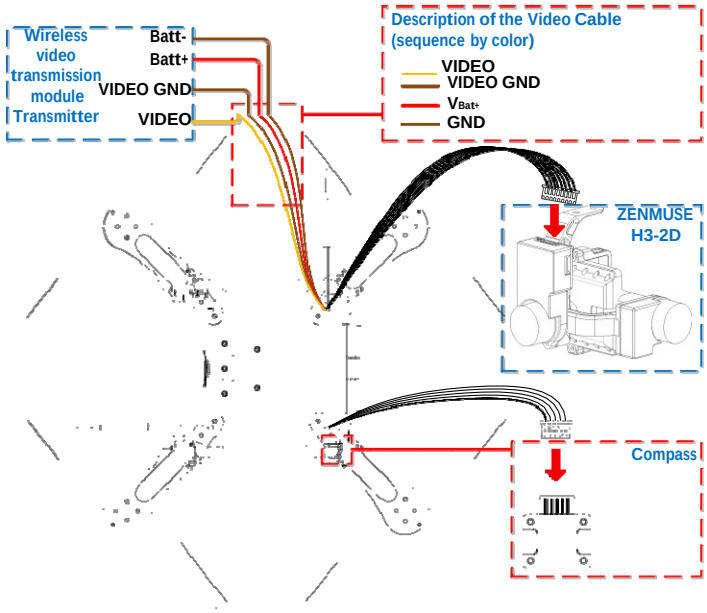


Figure 1-6

(2) Connecting the H3-2D and H3-3D gimbal, iOSD mini and wireless video transmission module, the figure below uses H3-2D as an example.

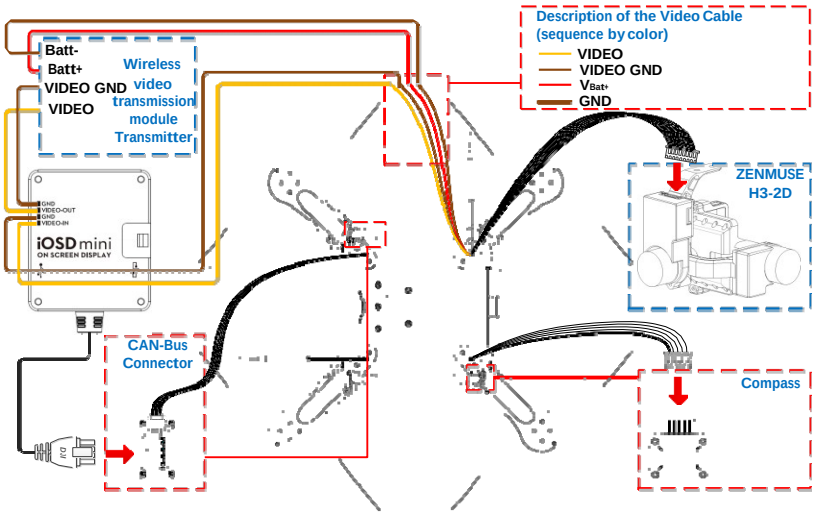


Figure 1-7

©2013-2015 DJI. All Rights Reserved.

（3）Connecting the H3-2D and H3-3D gimbal, iOSD mini and DJI specified wireless video transmission module AVL58, the figure below uses H3-2D as an example.

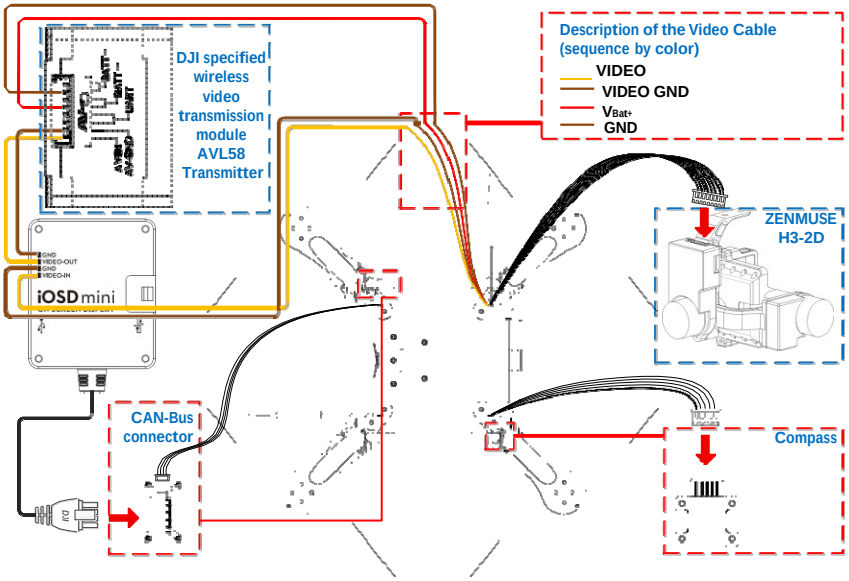


Figure 1-8

We recommend connecting the V_{Bat+} port of the video cable to the two BATT+ ports of the AVL58 simultaneously. The same is true of the GND port of the video cable and two BATT- ports.

（4）Connecting the H3-2D and H3-3D gimbal, iOSD Mark II and wireless video transmission module, the figure below uses H3-2D as an example.

©2013-2015 DJI. All Rights Reserved.

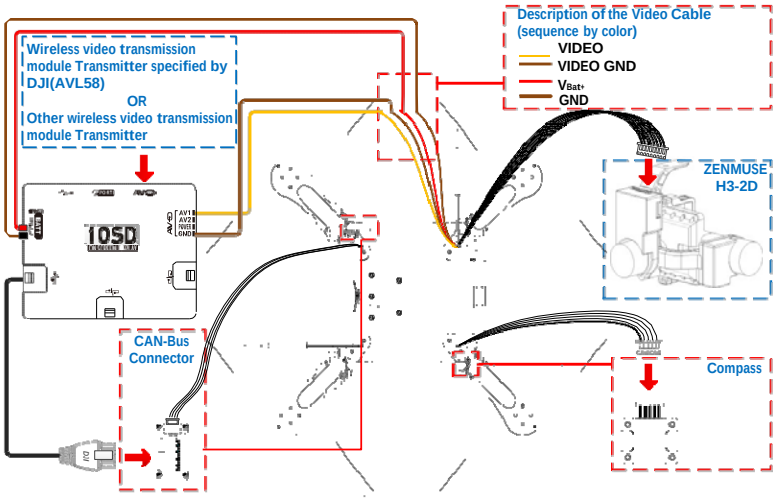
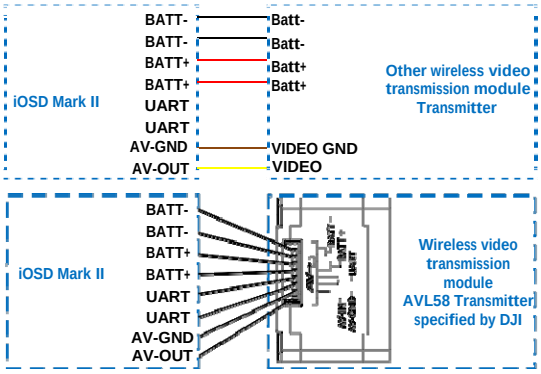


Figure 1-9

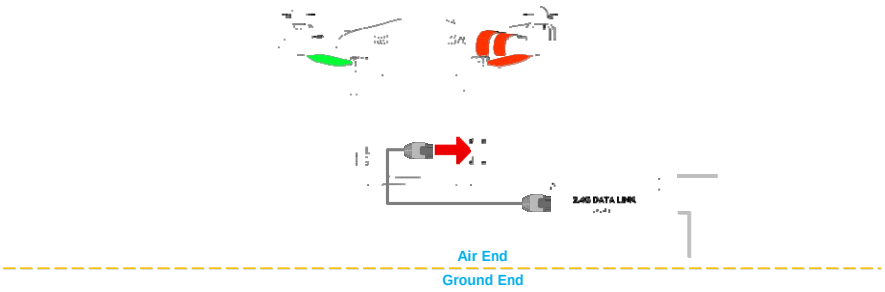
The diagram below illustrates the conneciton between the iOSD Mark II and the wireless video transmission module.



Use the 8-Pin cable in the iOSD Mark II package when connecting to the DJI specified wireless video transmission module AVL58.

（5）Using the iPad Ground Station

©2013-2015 DJI. All Rights Reserved.



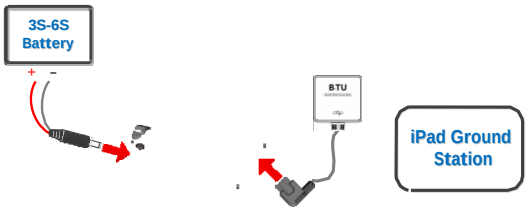
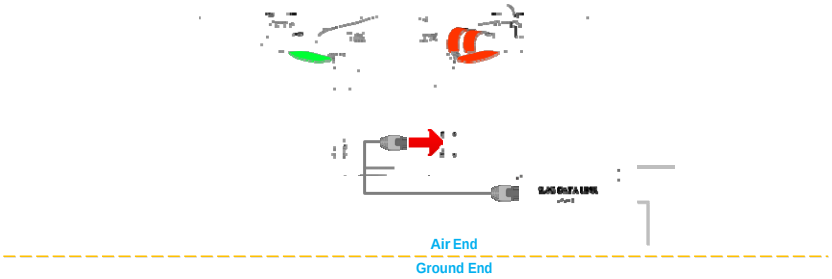


Figure 1-10

Connect the Air End of 2.4G Bluetooth Datalink to a spared CAN-Bus port of iOSD if an iOSD is used.

（6）Using the PC Ground Station



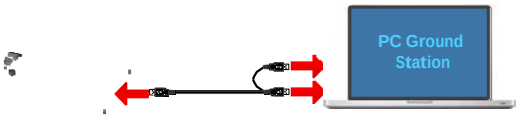
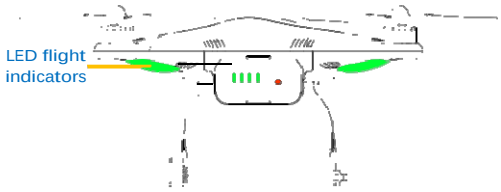


Figure 1-11

©2013-2015 DJI. All Rights Reserved.

1.3 LED Flight Indicators Description

1. LED flight indicators are used to show the aircraft's current status. Once powered on, the indicators will light up.



Aircraft in Normal status	Descriptions
	Power On Self-Test
	Warming Up & Aircraft cannot take off during warming up
	Ready to Fly
	Ready to Fly (non-GPS)
Aircraft in abnormal status	Warnings and errors
	Remote Controller Signal Lost
	1st Level Low Battery Capacity Warning
	2nd Level Low Battery Capacity Warning
	Not Stationary or Sensor Bias is too big
	Errors & Aircraft cannot fly.
	Compass data abnormal because of ferro-magnetic interference or the compass needs calibration.

(1) The LED indicators diagram above are for Phantom 2 mode. In Naza-M mode, LED indicators will work according to the Naza-M flight control system.

(2) Connect to the PHANTOM 2 Assistant for detailed information about warnings and errors.

2. The front LEDs are for indicating where the nose of the aircraft is. They light up solid red only after the motors have spooled up.



©2013-2015 DJI. All Rights Reserved.

1.4 Notes for PHANTOM 2 using with other DJI products

Before using PHANTOM 2 with other DJI products, users should connecting the products correctly and upgrade the firmware as requirements below .

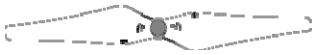
Items to upgrade	Firmware versions required	Assistant for upgrading	Assistant version
P330CB (built-in central board)	V1.0.1.19 or above	PHANTOM 2	V1.08 or above
Zenmuse H3-2D	CMU V1.0，IMU V1.6 or above	PHANTOM 2	V1.08 or above
iOSD Mark II	V3.01 or above	iOSD	V4.0 or above
iOSD mini	V1.06 or above	iOSD	V4.0 or above

*The iOSD Assistant is applied to both iOSD Mark II and iOSD mini.

©2013-2015 DJI. All Rights Reserved.

2 Propellers

PHANTOM 2 uses the original 9-inch propellers which are classified by the color of each central nut. Damaged propellers should be replaced by purchasing new ones if necessary.

Propellers	Grey Nut (9450)	Black Nut (9450 R)
Diagram		
Assembly Location	Attach to the motor thread that does not have a black dot.	Attach to the motor thread that has a black dot.
Fastening/Un-fastening Instructions	 Lock: Tighten the propeller in this direction.  Unlock: Remove the propeller in this direction.	

2.1 Assembly

1. (Figure 2-1) Remove the four warning cards from the motors after you've read them.
2. (Figure 2-2) Prepare the two grey nut propellers and two black nut propellers. Make sure to match the black nut propellers with the correctly marked black dot motors. Tighten the propellers according to the fastening instructions.

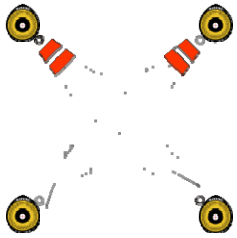


Figure 2-1

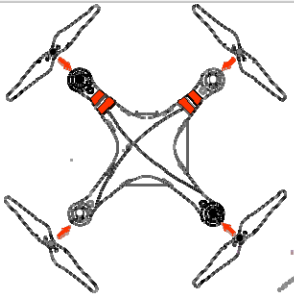


Figure 2-2

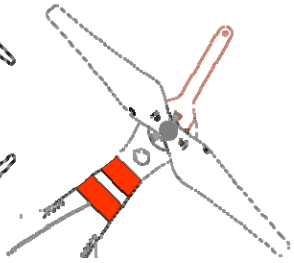


Figure2-3

2.2 Disassembly

(Figure 2-3) Keep the motor deadlocked in place with the assistant wrench (or one hand) and remove the propeller according to the un-fastening instructions.

2.3 Notes

1. Propellers are self tightening during flight. DO NOT use any thread locker on the threads.
2. Make sure to match the propeller nut colors with the corresponding motors.
3. It is advised to wear protective gloves during propeller assembly and removal.
4. Check that the propellers and motors are installed correctly and firmly before every flight.
5. Check that all propellers are in good condition before flight. DO NOT use any ageing, chipped, or broken propellers.
6. To avoid injury, STAND CLEAR of and DO NOT touch the propellers or motors when they are spinning.
7. ONLY use original DJI propellers for a better and safer flight experience.

©2013-2015 DJI. All Rights Reserved.

3 Remote Controller

The PHANTOM 2 remote controller can be configured in the PHANTOM RC Assistant. The sticks mode is Mode 2 on delivery.

⚠	For upgraded remote controller (models: NDJ6 or NRC900), select "Upgrade Version" in Phantom Assistant. For basic remote controller (models: DJ6 or RC900), select "Basic Version" in Phantom Assistant.

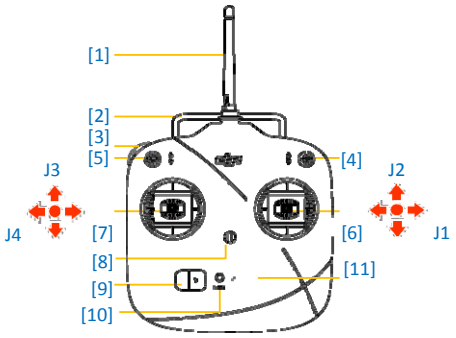


Figure 3-1

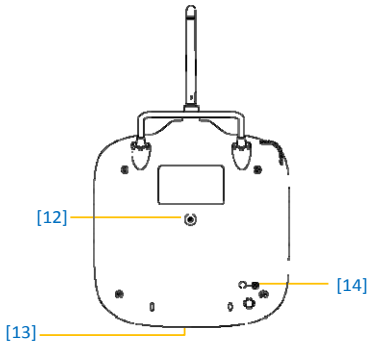
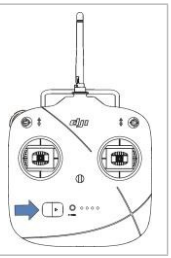


Figure 3-2

[1]Antenna [2]Carrying Handle [3]Left Dial [4]3-Position Switch S1 [5]3-Position Switch S2 [6]Joystick1(J1;J2) [7]Joystick2(J3;J4) [8]Neck Strap Attachment [9]Power Switch [10]Power Indicator [11]Battery Level Indicators LED1/LED2/LED3/LED4 (from left to right) [12]Trainer Port [13]Battery Charge & RC Assistant Port (micro-USB port) [14] Potentiometer

3.1 Power on the Remote Controller

1. Set the S1 and S2 switches to the upper most position and ensure both joysticks are at the mid-point position. Then toggle on the power switch.
2. Push the power switch to the right to power on the remote controller. If the power LED indicator is solid on, the remote controller is functioning normally. The battery level indicators display the current battery level.



⚠

1. Please make sure the battery level of remote controller is enough. If the low voltage warning alert sounds (refer to <Remote Controller Power LED Indicator Status>), please recharge the battery as soon as possible.
2. Charge the remote controller's battery by using the included micro-USB cable. Using the incorrect type of charging cable may cause damage.
3. Turn off the remote controller before charging. The power LED indicator will display solid red when charging is in progress. The LED indicators will display solid green when the battery is fully charged.

©2013-2015 DJI. All Rights Reserved.

3.2 Remote Controller LED Indicator Status

3.2.1 Remote Controller Power LED Indicator Status

Power LED Indicator	Sound	Remote Controller Status
	None	Functioning normally.
	None	Charging(remote controller is powered off)
	None	Remote controller joysticks calibration error, need to be re-calibrate.
	BB---BB---BB	Low voltage (from 3.5V-3.53V), recharge the remote controller.
	B-B-B.....	Critical low voltage (from 3.45V-3.5V). Recharge the remote controller immediately.
	B--B--B.....	Alert will sound after 15 minutes of inactivity. It will stop once you start using the remote controller.



The remote controller will power off automatically when battery voltage drops below 3.45V. Land and recharge the battery as soon as possible when the low voltage alert occurs to avoid loss of control during flight.

3.2.2 Remote Controller Battery Level Indicator Status

The battery level indicators will show the current battery level during both the discharging process. The following is a description of the indicators.

 : The LED is solid on  : The LED will blink regularly

 : The LED is light off

Discharging process				
LED1	LED2	LED3	LED4	Current battery level
				75%~100%
				50%~75%
				25%~50%
				12.5%~25%
				0%~12.5%
				<0%

©2013-2015 DJI. All Rights Reserved.

3.3 Antenna Orientation

The remote controller's antenna should point skywards without obstructions for maximum communication range during flight.

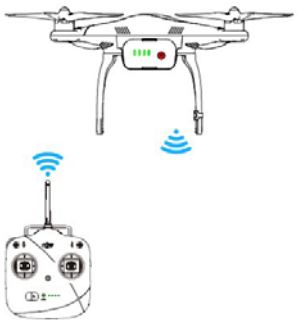


Figure 3-3

3.4 Remote Controller Operation

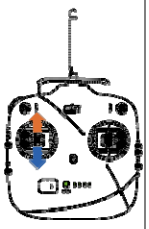
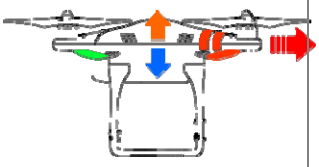
The operations of remote controller are based on mode 2 stick configuration.

Definitions

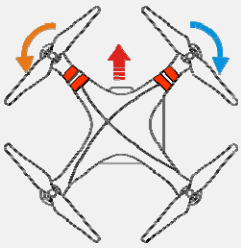
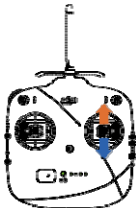
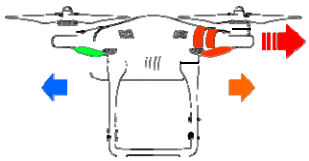
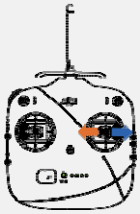
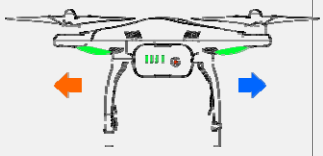
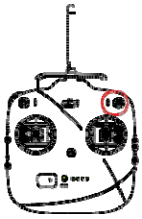
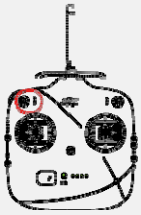
The 'stick neutral' positions and 'stick released' mean the control sticks of the remote controller are placed at the central position.

To 'move the stick' means that the stick of remote controller is pushed away from the central position.

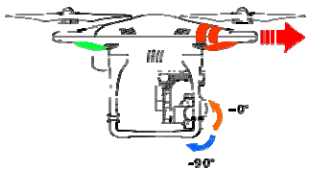
Slide Lever is used for the pitch control of the H3-2D and H3-3D gimbal.

Remote Controller (Mode 2)	Aircraft (nose direction)	Operation details
		The throttle stick controls aircraft altitude/elevation. Push the stick up and the aircraft will rise. Pull the stick down and the aircraft will descend. The aircraft will automatically hover and hold its altitude if the sticks are centered. Push the throttle stick above the centered (mid-point) position to make the aircraft take off. When flying, we suggest that you push the throttle stick slowly to prevent the aircraft from sudden and unexpected elevation changes.

©2013-2015 DJI. All Rights Reserved.

		The yaw stick controls the aircraft rudder. Push the stick left and the aircraft will rotate counter clock-wise. Push the stick right and the aircraft will rotate clock-wise. If the stick is centered, the aircraft will remain facing the same direction. The yaw stick controls the rotating angular velocity of the aircraft. Pushing the stick further away from center results in a faster aircraft rotation velocity.
		The pitch stick controls the aircraft's front & back tilt. Push the stick up and the aircraft will tilt and fly forward. Pull the stick down and the aircraft will tilt and fly backward. The aircraft will keep level and straight if the stick is centered. Pushing or pulling the stick further away from center will result in a larger tilt angle (maximum of is 35°) and faster flight velocity.
		The roll stick controls the aircraft's left & right tilt. Push the stick left and the aircraft will tilt and fly left. Push the stick right and the aircraft will tilt and fly right. The aircraft will keep level and straight if the stick is centered. Pushing the stick further away from center will result in a larger tilt angle (maximum of 35°) and faster flight velocity.
	 Position-1 Position-2 Position-3	S1 is for compass calibration. Toggle the S1 switch from position-1 to position-3 and back to position-1 at least 5 times, which will force the aircraft to enter into compass calibration mode. Users can configure position 3(bottom position) of the S1 switch to trigger the Failsafe in the Assistant.
	 OFF Course Lock point Lock Home	S2 is the IOC mode switch. IOC (Intelligent Orientation Control) function can be enabled in the Assistant when in Naza-M mode. Only use the IOC function after you are familiar with flying.

©2013-2015 DJI. All Rights Reserved.

		The left dial controls the pitch of the H3-2D and H3-3D gimbal. The position of left dial determines the pitch angle relative to the horizontal level. Turn the left dial to the right to make the gimbal pitch up. Turn the left dial to the left to make the gimbal pitch down. The gimbal will keep its current position if the dial is static.

(1) For 'Ready to Fly' the aircraft will hover when all sticks are released.

(2) For 'Ready to Fly (non-GPS)' the aircraft will only keep the altitude when all sticks are released.

3.5 Linking the Remote Controller & Built-in Receiver

PHANTOM 2 has a built-in receiver, the link button and indicator located on the bottom of the aircraft as illustrated in the Figure 3-4.

The link between the remote controller and aircraft is already established for you so you can initially skip this procedure. If you ever replace the remote controller, re-establishing the link is required.

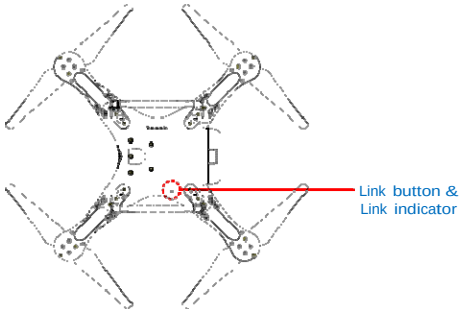


Figure 3-4

Linking procedures

1. Power on the PHANTOM 2.
2. Turn on the remote controller and place it 0.5m~1m away from the aircraft.
3. Push the link button with a thin object and hold it until the Link indicator blinks red, then release it.
4. When the Link indicator turns solid green, the link between the remote controller and the built-in receiver has been successfully established.

Link Indicator	Status
	The remote controller is turned off and there is no 2.4GHz signal around, please turn on the remote controller.
	The receiver is ready for linking.
	There is 2.4GHz signal around but the remote controller is not linked with the receiver,

©2013-2015 DJI. All Rights Reserved.

	please carry out the linking procedures.
	The remote controller is linked with the receiver successfully.

4 Intelligent Battery

The intelligent battery is specially designed for the PHANTOM 2, with a battery capacity of 5200mAh, voltage of 11.1V and charge-discharge management functionality. The battery should only be charged with the DJI charger.



Intelligent Battery



Charger

DJI Intelligent Battery Functions	
(1) Balance Charging	Automatically balance the voltage of each battery cell during charging.
(2) Capacity Display	Display the current battery level.
(3) Communicating	The main controller communicates with the battery via communication ports for battery voltage, capacity, current and other information.
(4) Overcharging Protection	Charging stops automatically when the battery voltage reaches 12.8V to prevent overcharging damage.
(5) Over Discharging Protection	Discharging stops automatically when the battery voltage reaches 8.4V to prevent over discharging damage.
(6) Short Circuit Protection	Automatically cuts off the power supply when a short circuit is detected.
(7) Sleep Protection	The battery will enter sleep mode after 10 minutes of inactivity to save power. The static current is 10nA in sleep mode when the battery is powered on without connecting to other devices.
(8) Charging Temperature Detection	The battery will charge only when its temperature is within 0℃~55℃. If the battery temperature is out of this range, the battery will stop charging.

(1) Before use, please read and follow the user manual, disclaimer, and the warnings on the battery. Users take full responsibility for all operations and usage.

(2) The battery should only be charged with the charger provided by DJI. DJI does not take any responsibility for operation of any charger from a third party.

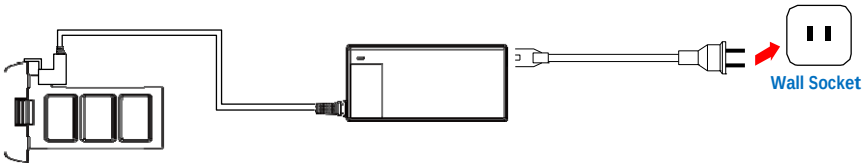
4.1 Charging Procedures

1. Connect the charger to a wall socket (Use the plug set if necessary).
2. Connect the battery to the charger. If the current capacity of the battery is over 75%, you should power on the battery to begin charging.
3. The Battery Level indicators display current capacity level as the battery charges. Please refer to battery

©2013-2015 DJI. All Rights Reserved.

level indicator description for details.

4. The battery is fully charged when the Battery Level indicator lights are off. Please disconnect the charger and battery when the charging is completed.



4.2 Install the Battery

Push the battery into the battery compartment correctly as the following diagram shows. Make sure to push the battery into the compartment until you hear a 'click' sound.

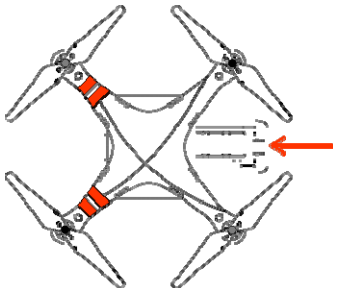


Figure 4-1

An incorrectly inserted battery may cause one of the following to occur: (1) Bad contact. (2) Unavailable battery information. (3) Unsafe for flight. (4) Unable to take off.

4.3 Battery Usage

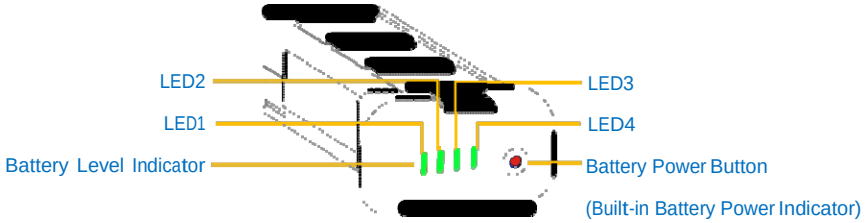


Figure 4-2

(1) Checking the battery level: When the battery is powered off; pressing the battery power button once will indicate the current battery level. Refer to < Battery Level Indicator Description> for details.

(2) Powering on: When the battery is powered off; press the battery power button once and then press and hold for 2 seconds to turn on the intelligent battery.

(3) Powering off: When the battery is powered on; press the battery power button once and then press and hold for 2 seconds to turn off the intelligent battery.

©2013-2015 DJI. All Rights Reserved.

(4) Checking the battery life: When the battery is powered off; press and hold the battery power button for 5 seconds to check the battery life. The battery level indicators will show the life and the battery power indicator will blink for 10 seconds, then all LEDs will light out and the intelligent battery will turn off. Refer to < Battery Level Indicator Description> for details.

 More battery information is available in the battery tab of the PHANTOM 2 Assistant.

4.4 Description of the Battery Level Indicator

The battery level indicators will show the current battery level during both the charging and discharging process as well as battery life. The following is a description of the indicators.

 : The LED is solid on  : The LED will blink regularly

 : The LED is light off

Charging process				
LED1	LED2	LED3	LED4	Current battery level
●	■	■	■	0%~25%
				25%~50%
●	●	●	■	50%~75%
				75%~100%
■	■	■	■	Full charged

Discharging process				
LED1	LED2	LED3	LED4	Current battery level
■	■	■	■	87.5%~100%
				75%~87.5%
■	■	■	■	62.5%~75%
				50%~62.5%
■	■	■	■	37.5%~50%
				25%~37.5%
■	■	■	■	12.5%~25%
				0%~12.5%
■	■	■	■	<0%

Battery life				
LED1	LED2	LED3	LED4	Current battery life
■	■	■	■	90%~100%

©2013-2015 DJI. All Rights Reserved.

				80%~90%
■	■	■	■	70%~80%
				60%~70%
■	■	■	■	50%~60%
				40%~50%
■	■	■	■	30%~40%
				20%~30%
■	■	■	■	Less than 20%

4.5 Correct Battery Usage Notes

1. Never plug or unplug the battery into the aircraft when it is powered on.
2. The battery should be charged in an environment that is between 0℃ to 40℃, and be discharged in an environment that is between -20℃ to 50℃. Both charging and discharging should be in an environment where the relative humidity is lower than 80%.
3. It's recommended to charge and discharge the battery thoroughly once every 20 charge/discharge cycles. Users should discharge the battery until there is less than 8% power left or until the battery can no longer be turned on. Users should then fully recharge the battery to maximum capacity. This power cycling procedure will ensure the battery is working at its optimal level.
4. For long term storage please place the battery with only a 40~50% capacity in a strong battery box securely. We recommend discharging and charging the battery completely once every 3 months to keep it in good condition. The capacity should be varied in such a cycle (40%~50%)—0%—100%—(40%~50%).
5. It's suggested you purchase a new battery after you have discharged your current battery over 300 times. Please completely discharge a battery prior to disposal.
6. It's suggested that you purchase a new battery if the current battery is swollen or damaged in any way.
7. Never try to recharge or fly with a battery that is swollen or damaged in any way.
8. Never charge the battery unattended. Always charge the battery on a non-flammable surface such as concrete and never near any flammable materials.
9. Safety is extremely important and users can get more information in the DISCLAIMER.

©2013-2015 DJI. All Rights Reserved.

5 Calibrating the Compass

IMPORTANT: Make sure to perform the Compass Calibration procedures prior to the first flight.

The compass is very sensitive to electromagnetic interference which causes abnormal compass data and leads to poor flight performance or even flight failure. Regular calibration of the compass enables the compass to perform at its optimal level.

5.1 Calibration Warnings

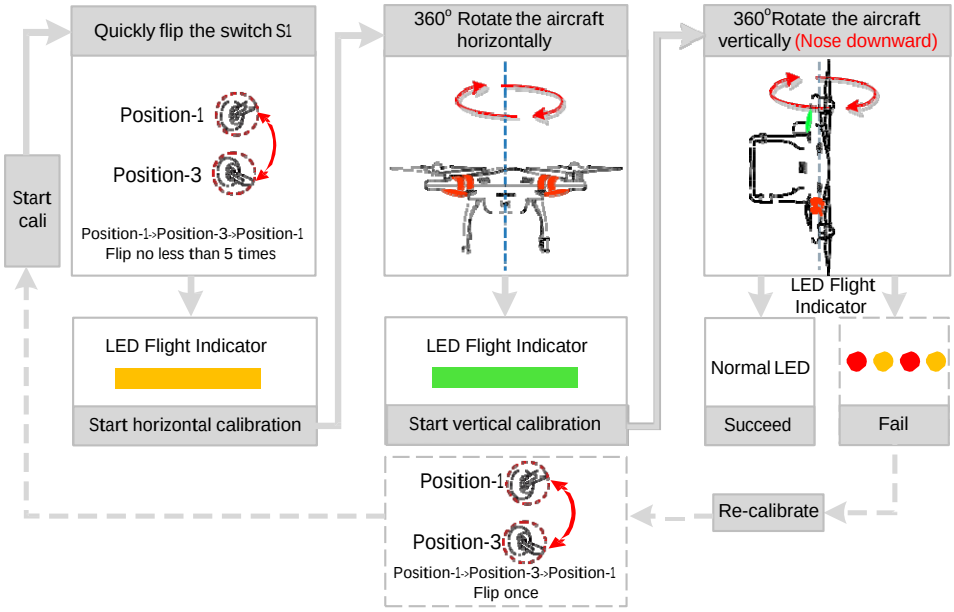
(1) DO NOT calibrate your compass where there is a possibility for the existence of strong magnetic interference such as magnetite, parking structures, and steel reinforcement underground.

(2) DO NOT carry ferromagnetic materials with you during calibration such as keys or cellular phones.

(3) Compass Calibration is very important; otherwise the flight control system will work abnormally.

5.2 Calibration Procedures

Please carry out the calibrating procedures in the flight field before flight. Please watch the quick start video of the PHANTOM 2 for more compass calibration details.



5.3 When Recalibration is required

(1) When Compass Data is abnormal, the LED flight indicator will blink alternating between red and yellow.

(2) Last compass calibration was performed at a completely different flying field/location.

(3) The mechanical structure of the aircraft has changed, i.e. changed mounting position of the compass.

(4) Evident drifting occurs in flight, i.e. the aircraft doesn't fly in straight lines.

©2013-2015 DJI. All Rights Reserved.

6 Flight

6.1 Flying Environment Requirements

(1) Before your first flight, please allow yourself some flight training (Using a flight simulator to practice flying, getting instruction from an experienced person, etc.).

(2) DO NOT fly in bad weather, such as rain or wind (more than moderate breeze) or fog.

(3) The flying field should be open and void of tall buildings or other obstacles; the steel structure within buildings may interfere with the compass.

(4) Keep the aircraft away from obstacles, crowds, power lines, trees, lakes and rivers etc.

(5) Try to avoid interference between the remote controller and other wireless equipment (No base stations or cell towers around).

(6) The flight control system will not work properly at the South Pole or North Pole.

(7) Never use the aircraft in a manner that infringes upon or contravenes international or domestic lays and regulations.

6.2 Starting the Motors

A Combination Stick Command (CSC) is used to start the motors. Push the sticks according to one of the options below to start motors. Once the motors have started, release both sticks simultaneously. The same CSC is used to stop the motors.

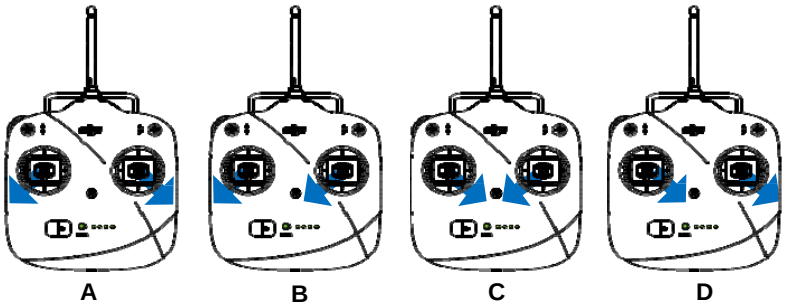


Figure 6-1

6.3 Takeoff/Landing Procedures

1. Start by placing the PHANTOM 2 on the ground with the battery level indicators facing you.
2. Turn on the remote controller.
3. Power on the aircraft by turning on the intelligent battery.
4. When LED flight indicator blinks green/yellow, the PHANTOM 2 is entering Ready to Fly/Ready to Fly (non-GPS) mode. Start the motors with the CSC command.
5. Push the throttle stick up slowly to lift the aircraft off the ground. Refer to <Remote Controller Operation> for more details.
6. Be sure you are hovering over a level surface. Pull down the throttle stick to descend. The stick will lock into

©2013-2015 DJI. All Rights Reserved.

place and the aircraft will descend steadily.

7. After landing, leave the throttle stick down for 3 to 5 seconds to stop the motors. Return throttle stick to middle position after the motors have stopped.

You SHOULD NOT execute the CSC during normal flight! This will stop the motors and cause the aircraft to descend rapidly and drop without any type of control.

(1) When the LED flight indicator blinks yellow rapidly during flight, the aircraft has entered into Failsafe mode, refer to <Failsafe Function> for details.

(2) A low battery capacity warning is indicated by the LED flight indicator blinking red slowly or rapidly during flight. Refer to the <Low Battery Capacity Warning Function> for details.

(3) Watch the quick start video about flight for more flight information.

(4) Aircraft and battery performance is subject to environmental factors such as air density and temperature. Be very careful when flying 3000 meters (9800 feet) or more above sea level, as battery and aircraft performance may be reduced.

(5) When used with a H3-3D gimbal, a GoPro camera, and the iOSD mini, your Phantom 2 will be very close to its maximum takeoff weight. It is not recommended that you attach the Phantom 2 propeller guards at this weight. Otherwise, the aircraft will be unable to fly normally.

6.4 Failsafe Function

The aircraft will enter Failsafe mode when the connection from the remote controller is lost. The flight control system will automatically control the aircraft to return to home and land to reduce injuries or damage. The following situations would make the aircraft fail to receive a signal from the remote controller and enter Failsafe mode:

(1) The remote controller is powered off.

(2) The remote controller is powered on but the S1 is toggled in the position triggering the Failsafe (this must have been configured in the PHANTOM 2 Assistant).

(3) The aircraft has flown out of the effective communication range of the remote controller.

(4) There is an obstacle obstructing the signal between the remote controller and the aircraft, essentially reducing the distance the signal can travel.

(5) There is interference causing a signal problem with the remote controller.

Failsafe works differently depending on the mode the aircraft is in when Failsafe mode is initiated whether it is in the Ready to Fly or Ready to Fly (non-GPS) mode.

Ready to Fly (non-GPS) ---- Automatic landing

The flight control system will try to keep the aircraft level during descent and landing. Note that the aircraft may be drifting during the descent and landing process.

Ready to Fly ---- Automatic go home and land

The flight control system will automatically control the aircraft to fly back to the home point and land.

©2013-2015 DJI. All Rights Reserved.

Home Point

When the aircraft is initializing the Ready to Fly status, the aircraft will record the current GPS coordinates as the home point. It is recommended to lift off only after Ready to Fly status is confirmed for the safety of being able to fly back to home point successfully in case the Failsafe mode is initiated.

Go Home Procedures

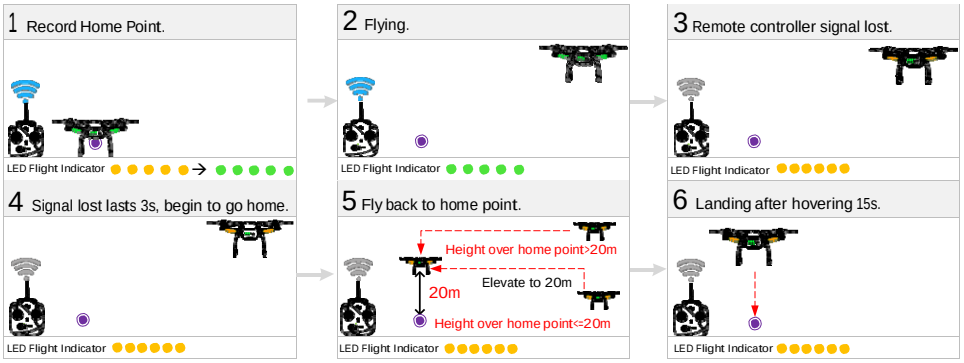


Figure 6-2

(1) In a Failsafe situation, if less than 6 GPS satellites are found for more than 20 seconds, the aircraft will descend automatically.

(2) When the aircraft is landing automatically, users can control the aircraft's position and altitude if the remote controller signal is recovered.

In Phantom 2 mode, users can set a new home point manually when the aircraft is in "Ready to fly" status as long as a home point has been recorded automatically. Quickly flipping the S2 switch of the remote controller from upper most to lower most positions 5 times or more will reset the current aircraft position as a new home point of PHANTOM 2. When successfully reset, you will see a series of rapid green blinks on the LED Flight Indicator. The definition of "home point" is:

(1) The home point is the place PHANTOM 2 returns to when the control signal is lost, which is recorded last time.

(2) The home point is used to calculate the horizontal distance between you and the aircraft, the distance will be displayed as D if using iOSD module.

Regaining Control during Failsafe Procedure

Position of Switch S1	Position-1	Position-2	Position-3 (No triggering the Failsafe)
How to regain control	When the S1 switch is switched to Position-1, toggle the S1 switch to any other position once to regain control. If remote controller's signal is recovered, control is returned back to the pilot.	Regain control as soon as signal is recovered.	

©2013-2015 DJI. All Rights Reserved.

6.5 Low Battery Capacity Warning Function

The low battery capacity warning alerts users when the battery is close to depletion during flight. When it appears, users should promptly fly back and land to avoid accidental damage. The PHANTOM 2 has two levels of low battery capacity warning. The first appears when the battery has less than 30% power and the second appears when it has less than 15% power.

(1) When battery power drops below 30% and LED indicator will blink red slowly.

(2) At lower than 15% the LED indicator will blink red rapidly, the PHANTOM 2 will also begin to descend and land automatically. After it has landed, keep the throttle stick at its lowest point or execute CSC.

(3) There is a hidden third low battery threshold in addition to the 1st and 2nd level warnings. This uses 10.65V as its threshold. Both this voltage threshold and the 2nd Level Low Battery Warning will trigger auto-landing. Altitude can be maintained if necessary by pushing up on the throttle stick.



(1) Remember to fly your PHANTOM 2 back as soon as you see a low battery capacity warning.

(2) Keeping the battery contact needles and pads clean is very important. Any dirt and dust may cause a communication failure.

6.6 Flight Limits Function

All UAV (unmanned aerial vehicle) operators should abide by all regulations from such organizations at ICAO (International Civil Aviation Organization) and per country airspace regulations. For safety reasons, the flight limits function is enabled by default to help users use this product safely and legally. The flight limits function includes height, distance limits.

In Ready to Fly status, height, distance limits works together to restrict the flight. In Ready to Fly (non-GPS) status, only height limit works and the flying height restricted to be not over 120m.



(1) The default parameters in the Assistant is compliant within the definitions of class G ruled by ICAO. (Refer to Airspace Classification to get more details). As each country has its own rules, make sure to configure the parameters to comply with these rules too, before using the PHANTOM 2.

(2) Users in Mainland China can refer to 民用航空空域使用办法.

Max Height & Radius Limits

The Max Height & Radius restricts the flying height and distance. Configuration can be done in the PHANTOM 2 Assistant. Once complete, your aircraft will fly in a restricted cylinder.

©2013-2015 DJI. All Rights Reserved.



Figure 6-3

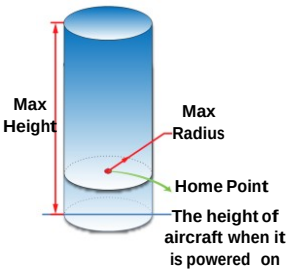


Figure 6-4

Ready to Fly			
	Limits	Ground Station	Rear LED flight indicator
Max Height	The flight height is restricted to fly under the max height.	Warning: Height limit reached.	None.
Max Radius	The flight distance is restricted to fly within the max radius.	Warning: Distance limit reached.	Rapid red flashings when close to the Max radius limit.

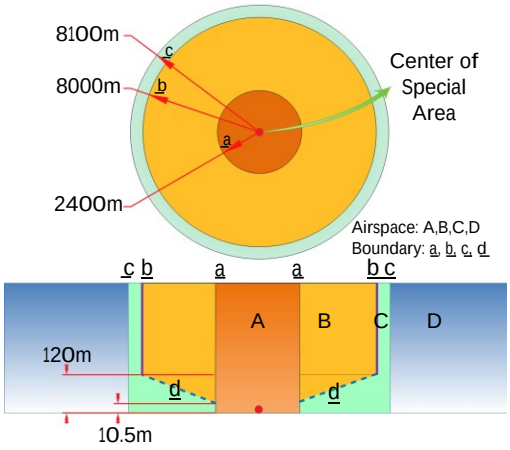
Ready to Fly(non-GPS)			
	Flight Limits	Ground Station	Rear LED flight indicator
Max Height	The flight height is restricted to fly under the minor height between the Max height and 120m.	Warning: Height limit reached.	None.
Max Radius	Not limited, no warnings or LED indicators.		

(1) If the aircraft flies out of the limits, you can still control your aircraft except to fly it further away.
(2) If the aircraft is flying out of the max radius in Ready to Fly (non-GPS) status, it will fly back within the limits range automatically if 6 or more GPS satellites have been found.

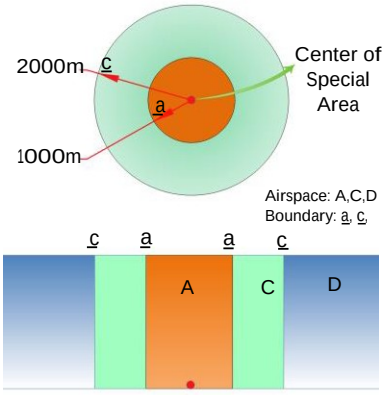
6.7 Flight Limits of Special Areas

Special areas include airports worldwide. All special areas are listed on the DJI official website. Please refer to http://www.dji.com/fly-safe/category-mc for details. These areas have been divided into category A and category B.

©2013-2015 DJI. All Rights Reserved.



Category A



Category B

Ready to Fly		
Airspace	Limits	Rear LED Flight Indicator
A Orange	Motors will not start.	●●●●●●
	If the Phantom flies into a special area in Ready to Fly (non-GPS) mode and Ready to Fly mode activates, it will automatically descend and land then stop its motors.	
B Yellow	If the Phantom flies into a special area in Ready to Fly (non-GPS) mode and Ready to Fly mode activates, it will descend to airspace C and hover 5 meters below edge d.	
C Green	No restrictions of flight, but the Phantom will not enter Category A, the aircraft can fly free, but it will not enter Airspace B through Boundary b & d. Around Category B sites, the phantom can fly freely, but it will not enter into Airspace A through Boundary a.	
D Blue	No restrictions.	None.

©2013-2015 DJI. All Rights Reserved.29 |

Semi-automatic descent: All stick commands are available except the throttle stick command during the descent and landing process. Motors will stop automatically after landing. Users will regain control once the motors have stopped. There is no need to toggle the S1 switch.

(1) When flying in the airspace (A/B/C) of restricted special area, LED flight indicators will blink red quickly and continue for 3 seconds, then switch to indicate current flying status and continue for 5 seconds at which point it will switch back to red blinking.

(2) For safety reasons, please do not fly close to airports, highways, railway stations, railway lines, city centers and other special areas. Try to ensure the aircraft is visible.

6.8 Conditions of Flight Limits

In different working modes and flight modes, flight limits will differ according to number of GPS satellites found. The following table demonstrates all the cases(√: available; ×:unavailable).

All flights are restricted by height, distance and special areas simultaneously.

Phantom mode			
Flight Status	Limits of Special Area	Max Height	Max Radius
Ready to Fly	√	√	√
Ready to Fly (non-GPS)	×	√	×

Naza-M mode				
Control Mode	number of GPS found	Limits of Special Area	Max Height	Max Radius
GPS	≥6	√	√	√
	< 6	×	√	×
ATTI.	≥6	√	√	×
	< 6	×	√	×
Manual	≥6	×	×	×
	< 6	×	×	×

Disclaimer

Please ensure that you are kept up to date with International and Domestic airspace rules and regulations before using this product. By using this product, you hereby agree to this disclaimer and signify that you have read this fully. You agree that you are responsible for your own conduct and content while using this product, and for any direct or indirect consequences caused by not following this manual, violate or disregard any other applicable local laws, administrative rules and social habits thereof.

©2013-2015 DJI. All Rights Reserved.

7 Assistant Installation and Configuration

7.1 Installing Driver and PHANTOM 2 Assistant

Installing and running on Windows

1. Download driver installer and Assistant installer in EXE format from the download page of PHANTOM 2 on the DJI website.
2. Connect the PHANTOM 2 to a PC via a Micro-USB cable.
3. Run the driver installer and follow the prompts to finish installation.
4. Next, run the Assistant installer and follow the prompts to finish installation.
5. Double click the PHANTOM 2 icon on your Windows desktop to launch the software.

The installer in EXE format only supports Windows operating systems (Win XP, Win7, Win8 (32 or 64 bit)).

Installing and running on Mac OS X

1. Download the Assistant installer in DMG format from the download page of PHANTOM 2 on the DJI website.
2. Run the installer and follow the prompts to finish installation.

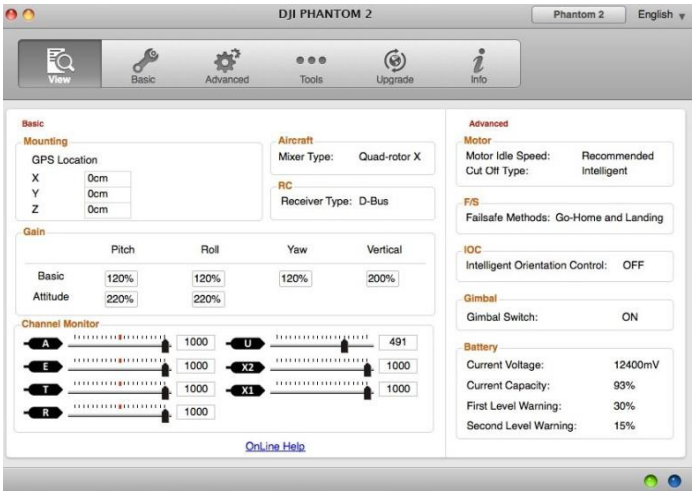


3. When launching for the first time if use Launchpad to run the PHANTOM 2 Assistant, Launchpad won't allow access because the software has not been reviewed by Mac App Store.



4. Locate the PHANTOM 2 icon in the Finder, press the Control key and then click the PHANTOM 2 icon (or right-click the PHANTOM 2 icon using a mouse). Choose Open from the shortcut menu, click open in the prompt dialog box and then software will launch.
5. After the first successful launch, directly launching of the software can be achieved by double-clicking the PHANTOM 2 icon in the Finder or using Launchpad.

©2013-2015 DJI. All Rights Reserved.

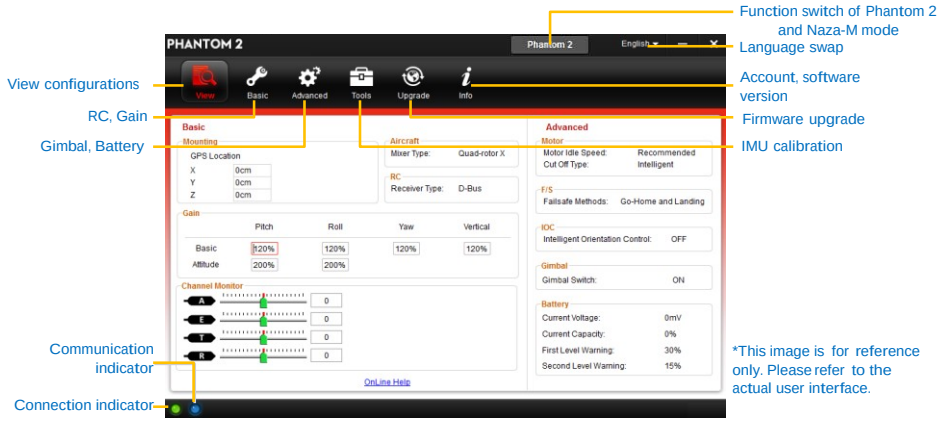


Installer in DMG format supports only Mac OS X 10.6 or above.

Usage of PHANTOM 2 Assistant on Mac OS X and Windows are exactly the same. The Assistant pages appear in other places of this manual are on the Windows for example.

7.2 Using the PHANTOM 2 Assistant on a PC

1. Start up the PC, power on the PHANTOM 2, then connect the PHANTOM 2 to the PC with a Micro-USB cable. DO NOT disconnect until configuration is finished.
2. Run the PHANTOM 2 Assistant and wait for the PHANTOM 2 to connect to the Assistant. Observe the indicators on the bottom of the screen. When connected successfully, the connection indicator is and communication indicator is blinking .
3. Choose [Basic] or [Advanced] configuration pages.
4. View and check the current configuration in the [View] page.



©2013-2015 DJI. All Rights Reserved.

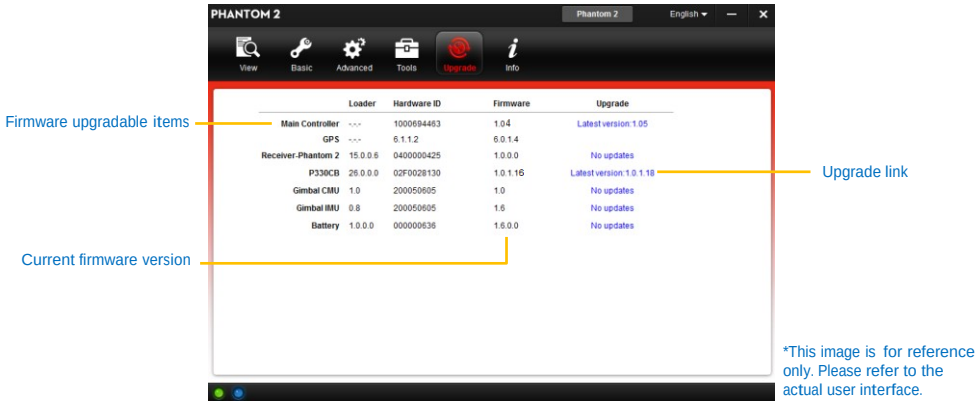
(1) Users should not enable the Naza-M function before finishing Advanced Flight Maneuvers procedure in the " PHANTOM Pilot Training Guide". If the Naza-M mode is enabled, users can switch the control mode between ATTI. Mode, GPS Mode or Manual Mode, and access the advanced settings (e.g. IOC). In addition, the LED located on the rear frame arms will display Naza-M flight status indications instead of the PHANTOM 2's indicators. Do not enable the Naza-M mode unless you are an experienced user or guided by a professional.

(2) You can change to the Phantom 2 mode by clicking the same button used to turn on the Naza-M mode. This operation will disable the Naza-M mode and enable Phantom 2 mode. All parameters will be returned to factory settings.

7.3 Firmware upgrade of PHANTOM 2

Please refer to the PHANTOM 2 Assistant to install driver and PHANTOM RC Assistant, and then follow the procedures below to upgrade the software and firmware; otherwise the PHANTOM 2 might not work properly.

1. An internet connection is required to upgrade PHANTOM 2's firmware.
2. Click the [Upgrade] icon to check the current firmware version and whether the installed firmware is the latest version. If not, click the relative links to upgrade.
3. Be sure to wait until the Assistant shows "finished". Click OK and power cycle the PHANTOM 2 after 5 seconds. Once completed, the firmware is up to date.



(1) DO NOT power off until the upgrade is finished.

(2) If the firmware upgrade failed, the main controller will enter a waiting for firmware upgrade status automatically. If this happens, repeat the above procedures.

Firmware upgradable items: (1) Main Controller (2) P330CB(Main Board) (3) Receiver (4) Gimbal CMU (5) Gimbal IMU (6) Battery

7.4 PHANTOM RC Assistant Description

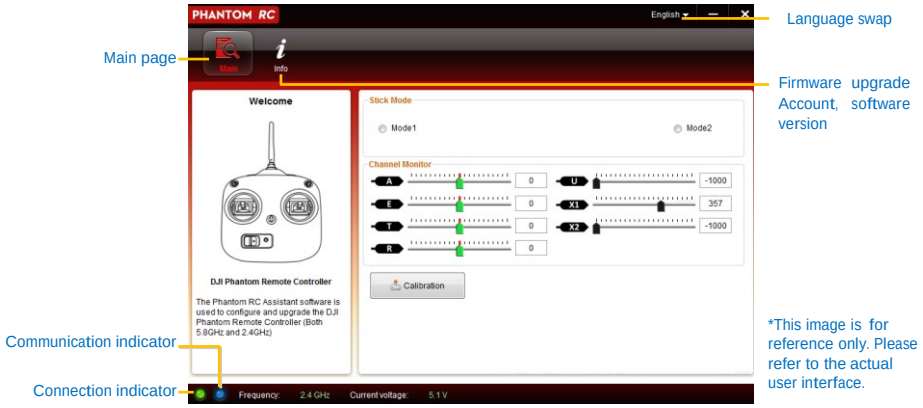
Please follow the procedures to finish the configuration of the remote controller.

©2013-2015 DJI. All Rights Reserved.

1. Turn off the remote controller and find the Micro-USB port on the bottom of it.
2. Start up the PC, power on the remote controller, and then connect the remote controller to the PC with a Micro-USB cable. DO NOT disconnect until the configuration is finished.
3. Run the PHANTOM RC Assistant and wait for the remote controller to connect to the Assistant. Observe the indicators on the bottom left of the screen. When connected successfully, the connection indicator is and communication indicator is blinking.
4. Finish configuration in the [Main] page.
5. Finish upgrade in the [Info] page if necessary.



Main Page of the 2.4GHz Remote Controller



©2013-2015 DJI. All Rights Reserved.

8 Appendix

8.1 Specifications

Aircraft	
Operating environment temperature	-10℃ to 50℃
Power consumption	5.6W
Supported Battery	DJI Intelligent battery
Weight (including the battery)	1000g
Take-off Weight	≤1300g
Hovering Accuracy (Ready to Fly)	Vertical: 0.8m; Horizontal: 2.5m
Max Yaw Angular Velocity	200°/s
Max Tilt Angle	35°
Max Ascent / Descent Speed	Ascent: 6m/s; Descent: 2m/s
Max Flight Speed	15m/s (Not Recommended)
Wheelbase	350mm
2.4GHz Remote Controller	
Operating Frequency	2.4GHz ISM
Communication Distance (open area)	1000m
Receiver Sensitivity (1%PER)	-97dBm
Working Current/Voltage	120 mA@3.7V
Built-in LiPo Battery Working Current/Capacity	3.7V, 2000mAh
DJI Intelligent Battery	
Type	3S LiPo Battery
Capacity	5200mAh, 11.1V
Charging Environment Range	0℃ to 40℃
Discharging Environment Range	-20℃ to 50℃

8.2 LED Flight Indicators Description

Aircraft in Normal status	Descriptions
	Power On Self-Test
	Warming Up & Aircraft cannot take off during warming up
	Ready to Fly
	Ready to Fly (non-GPS)
Aircraft in abnormal status	**Warnings and errors**
	Remote Controller Signal Lost
	1st Level Low Battery Capacity Warning

©2013-2015 DJI. All Rights Reserved.

	2"d Level Low Battery Capacity Warning
	Not Stationary or Sensor Bias is too big
	Errors & Aircraft cannot fly.*
	Compass data abnormal because of ferr o-magnetic interference or the compass needs calibration.

*Users can connect to the PHANTOM 2 Assistant to get detailed information about warnings and errors.

©2013-2015 **DJI.** All Rights Reserved.

SMART FLIGHT BATTERY
Safety Guidelines

SMART FLIGHT BATTERIE
Nutzungshinweise

BATTERIES INTELLIGENTES
Guide d'Utilisation

飞行器智能电池
安全使用指引

マルチコプター電池
安全使用ガイド

V1.0 2014.07

© 2014 DJI. All Rights Reserved.

English

Battery Use

- Never use non-DJI batteries. Go to www.DJI.com to purchase new batteries. DJI takes no responsibility for any accidents caused by non-DJI batteries.
- Never use or charge a swollen, leaky or damaged battery. If so, contact DJI or its designated dealers for further assistance.
- Do NOT install the battery into the battery compartment on the Phantom when turned on. Turn off the battery before installing it or removing it from the Phantom. Never install or remove the battery from the Phantom when it is turned on.
- The battery should be used in temperatures from -20℃ to 40℃. Use of the battery above 50℃ can lead to a fire or explosion. Use of battery below -20℃ can lead to permanent damage.
- Do not use the battery in strong electrostatic or electromagnetic environments. Otherwise, the battery control board may malfunction and a serious accident may happen during flight.
- Never disassemble or pierce the battery in any way, or the battery may catch fire or explode.
- Electrolytes in the battery are highly corrosive. If any electrolytes splash onto your skin or eyes, immediately wash the affected area with fresh running water for at least 15 minutes then see a doctor immediately.
- Check the condition of the battery if it falls out of the Phantom. Make sure the battery is NOT damaged or leaking before putting it back to the Phantom.
- Land the Phantom immediately when the low battery level warning activates in the DJI VISION App.
- Do not drop the battery into water. If the inside of the battery comes into contact with water, chemical decomposition may occur, potentially resulting the battery catching on fire, and may even lead to an explosion. If the battery falls into water with the Phantom during flight, take it out immediately and put it in a safe and open area. Maintain a far distance from the battery until it is completely dry. Never use the battery again, and dispose of the battery properly as described in Battery Disposal below.
- Put out any battery fire using sand or a dry powder fire extinguisher. Never use water to put out a battery fire.

Charging the Battery

- Batteries must be charged using a DJI approved adapter. DJI takes no responsibility if the battery is charged using a non-DJI charger. Never leave the battery unattended during charging. Do not charge the battery near flammable materials or on flammable surfaces such as carpet or wood.
- Do not charge battery immediately after flight, because the battery temperature may be too high. Do not charge the battery until it cools down to near room temperature. Charging battery outside of the temperature range of 0℃-40℃ may lead to leakage, overheating, or battery damage.
- Charge and discharge the battery completely once every 20 charge/discharge cycles. Discharge the battery until there is less than 8% power or until it can no longer be turned on, then recharge it to the maximum capacity. This power cycling procedure will optimize the battery life.

Battery Storage

- Do not leave the battery near heat sources such as a furnace or heater. The ideal storage temperature is 0℃-21℃.
- Keep the battery dry. Never drop the battery into water.
- Do not drop, strike, impale, or manually short-circuit the battery.
- Keep the battery away from metal objects such as necklaces and hairpins.
- Discharge the battery to 30%-50% of the battery level if it will not be used for 7 days or more. This can greatly extend the battery life.

Battery Disposal

- Dispose of the battery into specific recycling boxes only after a complete discharge. Do not place the battery into regular rubbish bins. Strictly follow your local disposal and recycling regulations of batteries.
- If the power on/off button of the smart battery is disabled and the battery cannot be fully discharged, please contact a professional battery disposal/recycling agent for further assistance.

Deutsch

Batterienutzung

- Benutzen Sie ausschließlich originale DJI

APPENDIX D

OpenPilot Preflight Checklist



Preflight Checklist

ENVIRONMENTAL::

□ Check for people, animals, property in the flight vicinity.
□ Notify any bystanders or nearby property owner of your intentions.
□ If flying FPV, discuss flight plan with your check-pilot.
□ If flying in controlled airspace, notify airspace authority of your intentions.
□ First Aid / Safety Kit on hand, stocked, readily accessible, and visible to anyone in the area

HARDWARE / EQUIPMENT::

== VISUALLY INSPECT THE AIRFRAME ==
□ Cracks (especially in high stress areas like joints)
□ Loose or damaged screws / fasteners / bands / straps / ties
□ Loose or damaged wiring
□ Loose or damaged connections (solder, plugs, etc)
□ Inspect prop mounts & screws & apply slight counter pressure on arms to check for loosened construction
□ For FPV, inspect/clean FPV and/or Gopro camera lens and ensure that cameras are secured
□ Battery/batteries fully charged, properly seated & secured
□ Remove props and test fail-safe behavior (if applicable)
□ Props are smooth and free of damage/defect (check blade, surface, & hub)
□ Tighten prop adapters (careful not to over tighten which may damage prop)
□ Ensure voltage alarm is connected
□ Ensure arming/idle timeout is properly configured (6-15 seconds is generally acceptable)
□ Check whether the right model is selected in the transmitter (if applicable)
□ Check your RC transmitter shows the right range and centering for all sticks
□ If desired, perform range test

PRE-FLIGHT::

== POWER UP ==
□ Batteries charged & secured
□ Position quad in a level, safe location for takeoff
□ For FPV, power up ground station, video receiver, goggles, etc
□ If using onboard video recorder (i.e., Gopro), turn on camera
□ All transmitter controls move freely in all directions
□ All transmitter trims in its neutral position
□ All transmitter switches in correct position (typically away)
□ Transmitter throttle to zero
□ Radio transmitter on
□ Connect/power on battery to airframe
□ Ensure led indicators & audible tones are all correct
□ Timer on (if applicable)
□ For FPV, check video in goggles
□ Scan for nearby people or animals
□ Stand clear - audibly, loudly announce the word "CLEAR!"
□ Arm flight controller

== PRE TAKEOFF ==
□ Increase throttle slightly listening for any abnormalities
□ Short 20-30 second hover at 3-5 feet
(listen for any weird vibrations or anything that sounds loose)

APPENDIX E

Sample Maintenance Log

Planet Inhouse, Inc. – UAS Maintenance Log

DATE	UAS	ITEM (Motors, ESC, etc.)	NOTES (maintenance performed, etc.)

APPENDIX F

Sample Battery Log

Planet Inhouse, Inc. – UAS Battery Log

DATE	BATTERY	FLIGHT TIME	NOTES (Charge Time, etc.)

APPENDIX G

Sample Flight Log

Planet Inhouse, Inc. – UAS Flight Log

DATE	UAS	BATTERY	FLIGHT AREA	FLIGHT TIME	NOTES (Client, Purpose of flight, etc.)