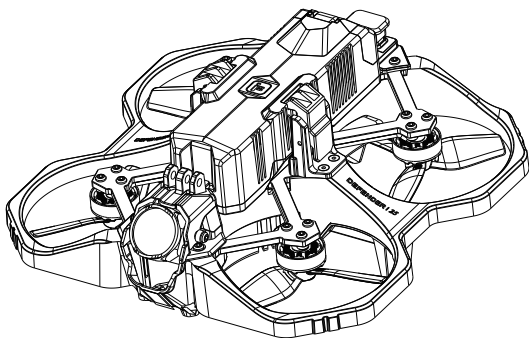


Defender 25 HD (03)

User Manual



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Disclaimer

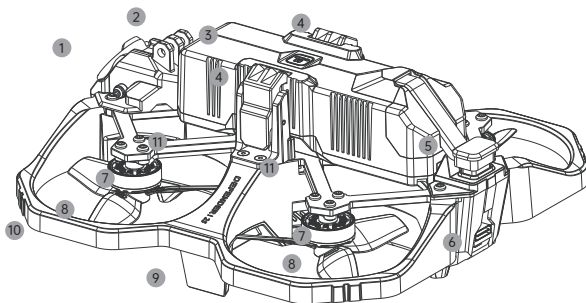
1. This product is a multi-rotor aircraft, equipped with powerful motors and sharp propellers, has fast flight speed, but also has a certain hazard when operating, need to be used with caution.
2. This product is not a toy and requires some basic knowledge to control, so please pay special attention to the warnings and cautions before you start using it. iFlight reserves the right to update this Disclaimer.
3. By using this product, you are deemed to have understood, acknowledged and accepted all of the terms and conditions of this document and you undertake to be responsible for your own actions and all consequences arising therefrom. You undertake to use this product only for legitimate purposes and agree to all of the terms and conditions of this document and any related policies or guidelines that iFlight may establish.

Product Profile

Introduction

At sub 249g takeoff weight, the Defender25 doesn't require registration in most countries. The compact and lightweight design also makes it easy to carry and store. It will be your best travel buddy to redefine your FPV adventure. The built-in 2.5inch propeller guards were designed to fly bold. You'll experience a complete new creative freedom to fly whenever and wherever. The durable injection molded frame does not only prevent damage to your motors or propellers, but also protects the environment of small flight errors. The maximum hovering flight time is up to 10 minutes with Defender 25 900mAh battery.

Parts Name

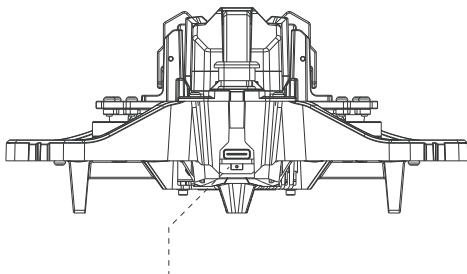


1. O3 Camera
2. Naked GoPro Mount
3. Defender 25 Battery
4. Battery Buckle
5. Battery Plug
6. FC USB adapter
7. Motors
8. Propellers
9. Landing Gear (Built-in VTX antennas)
10. Propeller guard
11. Carbon Upper Plate

Aircraft

·Battery Level Indicator

The Defender 25 has an battery level indicator on the back.



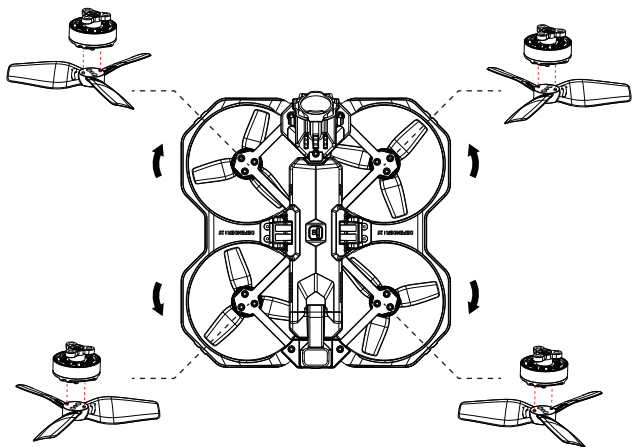
The battery level LEDs display the current battery level.

Indicator Light

	Solid Green	Approx 100% power
	Solid Light Green	Approx 80% power
	Solid Yellow	Approx 60% power
	Solid Orange	Approx 40% power, low battery
	Solid Red	Approx 20% power, low battery alarm
	Blinks Red Slowly	Approx 0% power, severe low battery alarm

· Propellers

There are two types of Defender 25 propellers, which are designed to spin in different direction. Make sure to match the propellers and motors by following the instructions.



The propeller with logo marks facing upwards, and mount the marked propellers onto the motors according to the direction marks.

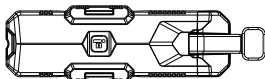
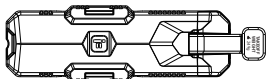
(Slightly rotate the propeller to align the positioning holes and insert them, and then use a screwdriver to fasten the screws)

· Caution

1. Please handle carefully to prevent accidental scratching or crushing.
2. Please use official iFlight propeller only. DO NOT mix propeller types.
3. Make sure that the propellers are properly installed and tightened before each flight.
4. Make sure that all propellers are in good condition before each flight.
5. DO NOT use aged, chipped, or broken propellers.
6. To avoid injury, stay away from rotating propellers or motors.
7. Make sure the motors are mounted securely and rotating smoothly.
8. Land the aircraft immediately if a motor is stuck and unable to rotate freely.
9. DO NOT block any of the ventilation holes on the motor or the body of the aircraft.

·Battery

The Defender25 comes with a stock 4S 550mAh. An Endurance 900mAh battery is optional. The rated voltage of both batteries is 14.8V and the rate is 60C.



1. Please read these safety instructions and warnings before using or charging your batteries.
2. Lithium polymer batteries are volatile. Failure to read and follow these instructions may result in fire, personal injury and damage to property. Do not charge / discharge a battery inside your house, garage, building or vehicle.
3. iFlight and its distributors and retailers assume no liability for failure to comply with these warnings and safety guidelines.
4. By purchasing iFlight related products, the buyer assumes all risks associated with this product. If you do not agree with this condition, please return the products immediately before use.

·Before charging/discharging

1. Inspect the battery for any damages. Do not charge a damaged, swelling, or leaking battery.
2. Inspect the voltage for each battery cell. If the cell voltage is significantly lower than the normal voltage (3. 3V per cell) or voltage of each cell has significant difference, the battery may be in defective condition. Do not charge the battery.
3. Make sure the wire connection polarity is correct, do not short circuit the battery.
4. Verify the lithium polymer charger is in good condition.

·Precautions for charging/discharging

1. Never charge a lithium polymer battery with a charger designed for NiCd, NiMH, or any other type of battery chemistry. Use ONLY charger designed for LiPo battery. Failure to do so may cause a fire, which may result in personal injury and property damage.
2. Never leave while battery is in charging process. Do not charge the battery unattended.
3. Do not over charge the battery. Do not charge a battery pack to a level over 4.25V per cell.
4. Do not short circuit the battery. Make sure the wire connection polarity is correct.
5. Do not charge/discharge battery at of recommended temperature range (Charge: 32 to 110 degrees F; Discharge: 32 to 140 Degrees F).
6. Always place the battery in a fire resistant surface or fire safety container alone when charging/discharging. The middle of a cement driveway is a good example of a safe location.
7. Do not allow LiPo cells to overheat at any time. Cells which reach greater than 140 degrees F will usually become damaged and will catch fire.
8. Do not charge/discharge battery inside house, garage, vehicle, building and away from any combustible material.
9. Do not over discharge the battery. Do not discharge a battery pack to a level below 3.3V per cell.

10. Do not allow the electrolyte to get into eyes or on skin. Wash affected areas immediately if they come into contact with electrolyte.

Do not alter or modify connectors or wires of a LiPo battery pack. Do not have contact with a leaky/damaged battery directly.

11. Do not assemble LiPo cells or pre-assembled packs together with other LiPo cells or packs.

12. Inspect batteries if crash, battery should be placed in a safe area for observation for at least 30 minutes after crash.

Caution: The battery may be in high temperature!

·Charging the Battery

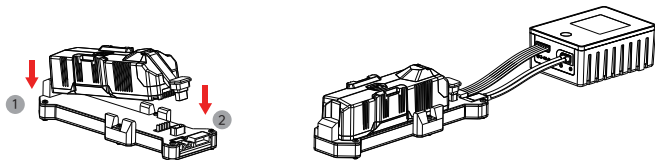
1. Make sure the battery is fully charged before each flight.

2. Attach the battery to the charging adapter board and insert the balance and discharge heads of the battery into the balance and discharge heads of the charging adapter board respectively.

3. Then insert the balance head and discharge head of the charging adapter board into the regular rc charger (if you only have a balance charger, just insert the balance plug).

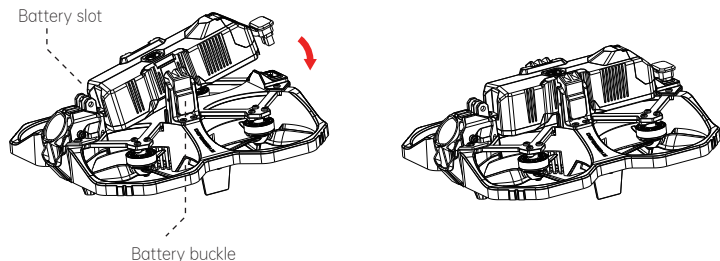
4. Set the corresponding charging parameters on the conventional charger, press the charging button and start charging.

5. When the charger indicates that charging is complete, please remove the battery from the charging adapter board.



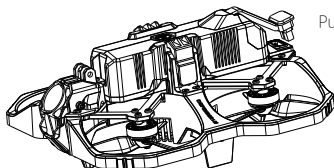
·Installing the Battery

Remove the battery, tilt down one of the buckles and align it with the position of the buckles, then press the whole battery down until you hear the click, connect the battery connector to ensure the battery is securely installed and connected.

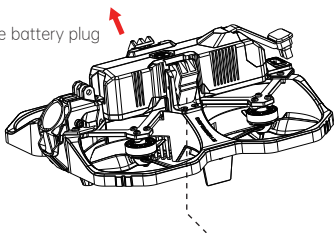


·Removing the Battery

Pull out the battery plug, then press the buckles on both sides of the battery and remove the battery.



Pull out the battery plug



press the buckles on both sides,
remove the battery

Flight Operation

· Aircraft Preparation

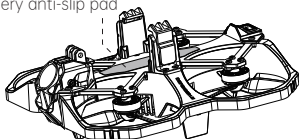
The aircraft will be shipped with batteries installed by default, but will not be powered up, and a dust plug will be installed in advance to ensure that the power plug will not be accidentally touched during transport.



Dust plug

1. Remove the dust plug.

Battery anti-slip pad



2. Attaching the battery anti-slip
pad and install the battery.

•Activation and Binding

Aircraft, goggles and remote control instructions

The Defender 25 is equipped with the DJI O3 Air Unit, it is recommended for use with DJI Goggles 2 and Commando 8 Radio Transmitter. For more information on the use of the DJI O3 Air Unit, please refer to the DJI_O3_Air_Unit_User_Manual.

•Activation

Defender 25 must be activated before using for the first time. Please power on the Defender 25 and DJI Goggles 2 separately, connect to the USB-C port of the devices and then run DJI Assistant 2(Consumer Drone Series)to update. Refer to DJI_O3_Air_Unit_User_Manual for details.



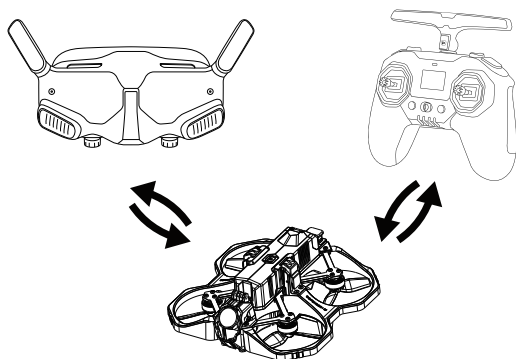
Note

1. Please make sure that the device is activated before use, otherwise some functions will be limited.
2. If the air unit is not activated, the radio transmission power is limited (≤ 25 mW) and the interface menu cannot be controlled by the goggles with which it is paired.
3. If the goggles are not activated, only the binding operation is available and the interface menu cannot be controlled. Note that when the pairing is complete, the device is on a common channel and cannot be set to another channel, which makes it susceptible to interference from other VTX module.

•Binding

Before binding the Defender 25, DJI Goggles 2, and Commando 8, please make sure that the firmware of the air unit and the goggles are updated to the latest version.

1. Power on the aircraft and the goggles separately.
2. After power on, press the binding button on the air unit, the status indicator on the air unit blinks red.
3. Press the binding button of the goggles, the goggles will start to beep continuously.
4. Make sure the distance between the air unit and the goggles is within 0.5m. When the binding is successful, the status indicator will be on green, the beeping of the goggles will stop and the VTX will be displayed. Complete the frequency pairing between the air unit and the goggles.
5. Refer to the Commando 8 user manual for details on binding between the aircraft and the remote control.



Note

1. Due to the fast binding of ELRS, make the receiver enter the binding mode first, and then let the remote control enter the binding mode.
2. After the binding is completed, it is recommended to re-power the receiver.
3. The distance between the receiver and the remote control should be at least 1m during binding.
4. The receiver firmware version and the HF head firmware version should be consistent. If you encounter a situation where you can not bind, you can try to upgrade the receiver and HF head firmware to the latest firmware and then try to bind.
5. If you encounter a situation where binding is not possible, try to restart the remote control and receiver.

·Pre-Flight Check

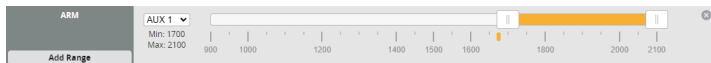
1. The batteries of the goggles, remote control equipment, intelligent flight batteries and mobile devices are fully charged.
2. The propeller is correctly and securely installed.
3. Whether the battery is installed and connected securely, and whether the goggles battery is properly connected.
4. Whether the motor can be booted normally after power on.
5. Are the goggles running properly and displaying the VTX picture.
6. Ensure that the goggles antenna is securely installed and the remote control antenna is deployed.



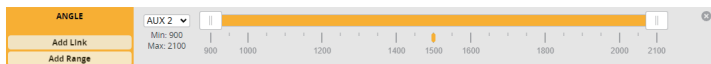
1. **Arming message** / Display the current armed/disarmed status of the aircraft. Will disappear after disarm and does not appear until it is armed.
2. **Battery cell voltage** / Display the average cell voltage of the battery in real time
3. **Current draw (Amps)** / Real time display of the total electric current of the aircraft.
4. **mAh used** / Use max. 90% of battery capacity
5. **Warnings** / Monitor the aircraft and issue a warning when information or status is abnormal (low battery, battery power reminder, battery warning, ESC communication failure, anti-turtle mode, battery over-discharge, flight control temperature, disarmed, connection quality, analog buzzer, etc.)
6. **Aircraft name** / Display the name of the aircraft
7. **Aircraft voltage**
8. **VTX and remote signal strength and bit rate**
9. **Goggles power display**
10. **Flight mode** / ANGL = Angle(self leveled), AIR = Arco
11. **LQ (connection quality)**
12. **RSSI DBM** / Counting negative. Warning at -100, safe range -95-0.
13. **Disarm timing** / Displays the current timing after disarming.

Note: The OSD messages and positions may be adjusted according to different versions, iFlight reserves the right of final interpretation.

Function Description



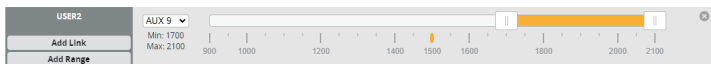
- ▲ ARM: ARM/DISARM channel switch for arm and disarm the aircraft, default factory setting is AUX1, low range for arm, high range for disarm. The icon is lit to indicate unlocked, the icon is grey to indicate locked.



- ▲ ANGLE: self-level channel switch, used to turn on the self-level flight mode, the default factory setting is AUX2, this mode remains on throughout the flight. The icon is illuminated to indicate self level mode is on, the icon is grey to indicate non-self-level mode.



- ▲ USER1: Video transmitter power supply switch, used to manually turn off the VTX when idle to safe power and prevent overheating. The default factory setting is AUX10, this mode is always on. To adjust please access the Betaflight Modes tab and define the active or inactive range with the yellow slider.

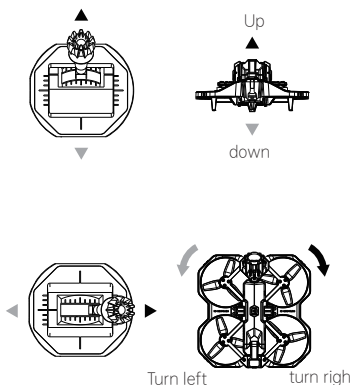


- ▲ USER2: The Naked GoPro control switch, to control the Naked GoPro's start/stop recording on the remote control channel. It is factory set to AUX9 by default. When in the low position, toggle the corresponding channel switch back and forth once to start or stop recording.

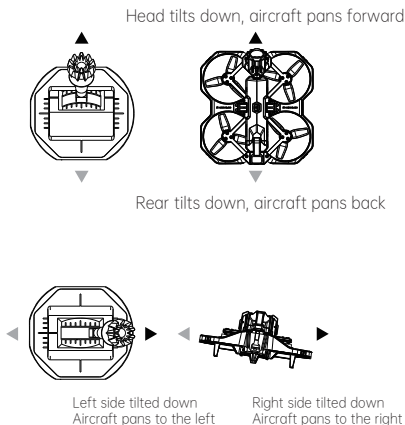
Basic Flight Instruction

The remote control throttle control method is shown in Mode 2 as an example, as shown below.

Left throttle

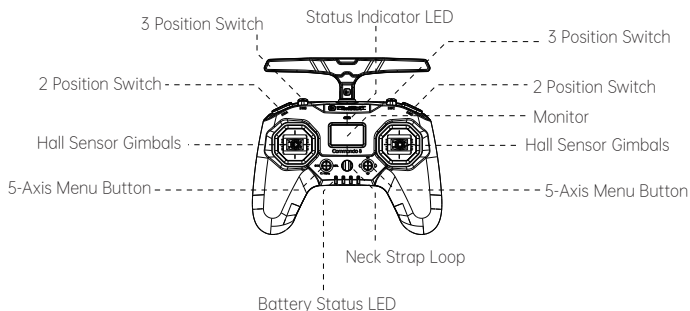


Right throttle



The diagrams are for illustration purposes only. When control the throttle, do not pull it quickly, but slowly and efficiently.

Remote Control Button Definition

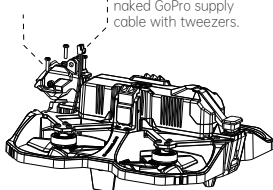


·Nake GoPro Additional Instruction

Naked Gopro Installation and Power Supply

1

Remove the camera protection cover.

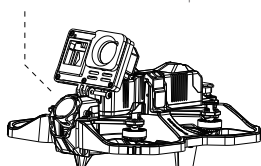


2

Remove the reserved naked GoPro supply cable with tweezers.

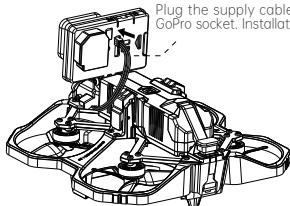
3

After removing the power cable, reinstall the camera and protective cover, then attach the naked GoPro to the hole in the protective cover.

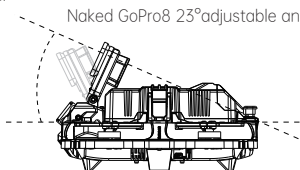


4

Plug the supply cable into the naked GoPro socket. Installation is complete.



Naked GoPro8 23°adjustable angle



Flight Instruction

·Flight

After completing the pre-flight preparation, it is recommended to train your flying skills and practice flying safety. Make sure that all flights are carried out in an open area. Strictly abide by local laws and regulations when flying.

Flight Environment Requirements

1. Do not fly in severe weather conditions including strong wind, snow, rain, fog, etc.
2. Only fly in open areas without tall buildings and large metal structures around. Buildings with a large number of concrete irons will affect the signal and interfere with the flight. It is recommended to fly at least 10m away from buildings, poles, obstacles, etc.
3. When flying, please keep control within sight and away from obstacles, crowds, water, etc.
4. Please do not fly in areas with high voltage lines, communication base stations or transmission towers to avoid interference.
5. Do not take off from moving objects, such as cars and ships.
6. Do not use the aircraft in an environment at risk of a fire or explosion.

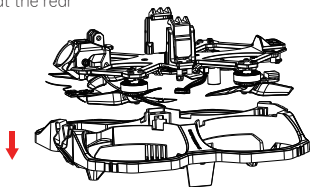
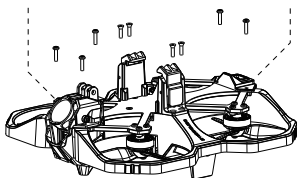
Maintenance

Propeller Guard Replacement and Disassembly

1. Remove the 9 screws as shown figure below, then gently remove the canopy and power plug on the rear, separate the frame from the props guard, gently unplug the cable connecting the AIO to the O3 air unit, and gently remove the receiver from the props guard.

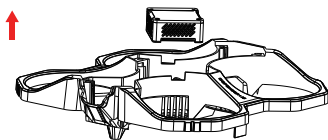
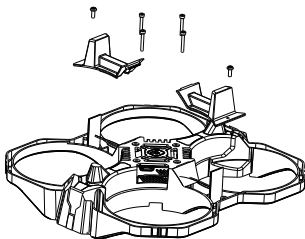
Remove the canopy

Remove the battery port at the rear



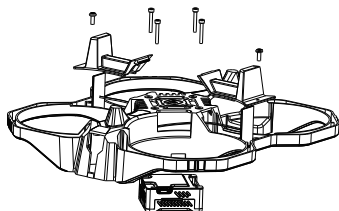
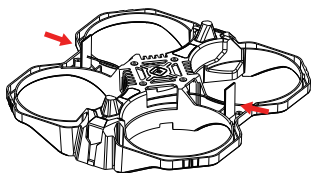
2. Flip the aircraft over, remove the 6 screws on the bottom as shown and remove the landing gears (antenna cover) from both sides of the aircraft and remove the antenna cables along the cable groove.

3. Gently remove the the O3 air unit, be careful not to pull out the air unit with force to avoid damaging the cables.



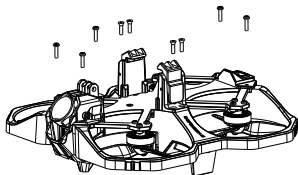
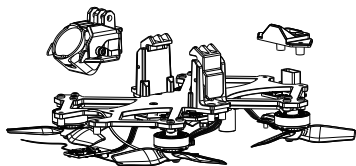
• Installation

1. Pass the two antennas boards through the hole in the center of the propeller guard, then attach the air unit and landing gears to the corresponding hole of the propeller guard. Fix the antenna cables in the cable slot and connect to air unit.



2. Install the canopy and battery port at the rear

3. Ensure that all the cables are completely placed inside the propeller guard, tighten the 9 screws to complete the installation.



Ensure that all parts are in place and that all screws are in a tightened position.

Battery Storage

1. DO NOT charge the battery immediately after flight as it may be too hot. Wait for the battery to cool down to room temperature before charging again.
2. For safety purposes, keep the batteries at a low power level in transit or when not in use for a long time. Discharge the battery to storage voltage, 3.85V per cell.
3. DO NOT store the battery near liquids or in wet areas.
4. DO NOT store the battery near an open flame or a source of ignition such as a heater.
5. Keep the batteries out of the reach of children.
6. Make sure that the battery is stored at room temperature: around 25 degrees Celsius.
7. Make sure that the battery has a large enough storage space (so that the batteries are not crushed against each other). For batteries not used for long periods of time, keep the storage voltage between 3.8 - 3.85V. Also ensure that the condition of the battery compartment is checked every two weeks and that the battery is charged and discharged once every two months to maintain the stability of the battery.

Aftersales Information

Visit <https://www.iflight-rc.com/en-support.html> to learn more about aftersales service policies, repair services, and support.



<https://www.iflight-rc.com>



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