CADDXFPV PROTOS

User Guide

V1.1

2025.09 Edition

Reading Instructions

Usage Recommendations

CADDXFPV provides training videos and the following documentation:
1.Safety Warnings
2.Quick Start Guide
3.User Manual
It is recommended to first watch the training videos and read the Safety Warnings, then review the Quick Start Guide to understand the usage process.
For detailed product information, please refer to the User Manual.

Obtain Training Videos

Click the link below or scan the QR code to watch the training video and ensure correct and safe use of this product.

Contents

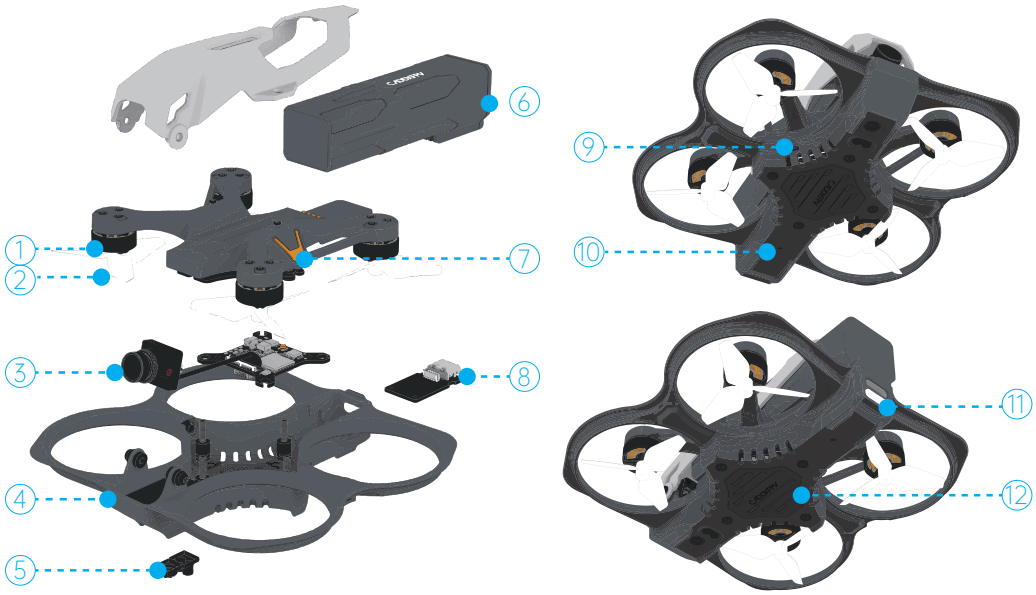
Product Overview

Introduction

PROTOS is a digital HD FPV (First-Person View) Drone independently developed by CADDXFPV. Weighing just over 100 grams with powerful performance, it is currently the smallest and most highly integrated true HD digital FPV kit on the market. Whether flying indoors or outdoors, it delivers a smooth and immersive flight experience.

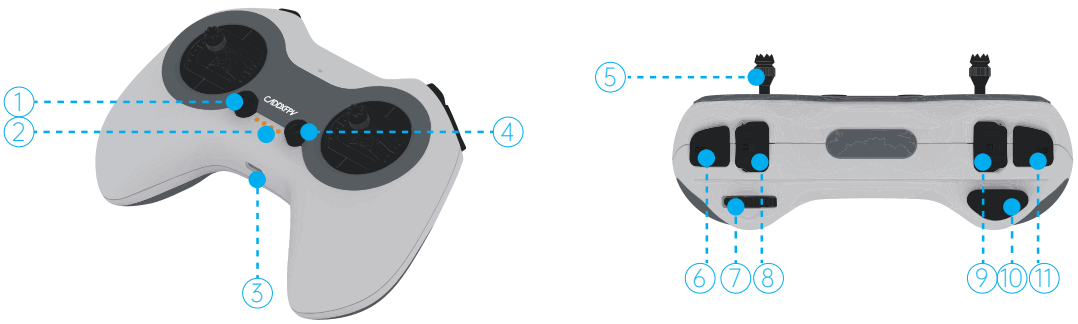
Part Name

■ PROTOS



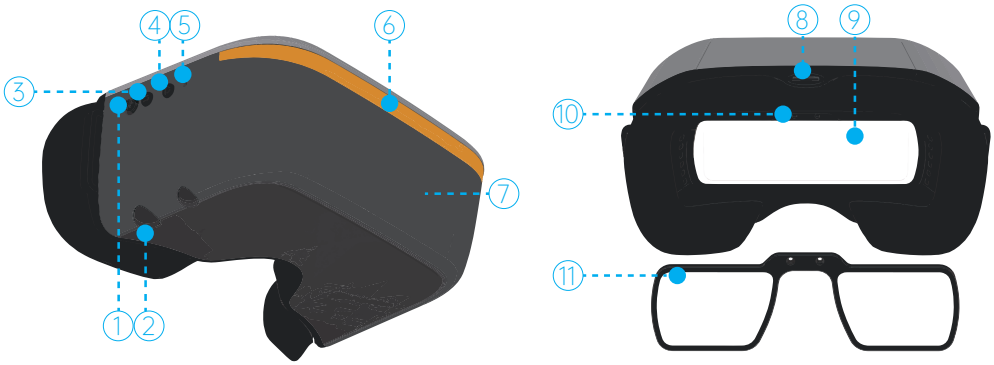
1. Motor
2. Propeller
3. Ascent Lite
4. Injection-Molded Frame
5. Optical Flow Sensor Module
6. 2S Battery
7. Indicator Light
8. Type-C
9. Linking Button
10. Boot Button
11. Switch Button
12. Aluminum Alloy Heat Sink

■ CADDXFPV Alink



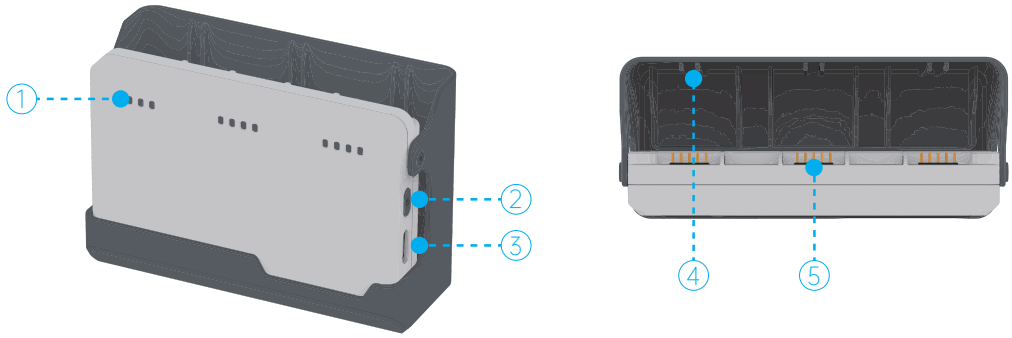
1. Linking Button
2. Indicator Light
3. Type-C
4. Power Button
5. Control Joystick
6. SD Momentary Button
7. S1 Limit Roller
8. SC 3-position Switch
9. SB 3-position Switch
10. SE Latching Button
11. SA Momentary Button

■ Ascent Goggles



1. 5D Button
2. Power Connector
3. Return Button
4. REC Button
5. Linking Button
6. LED Light
7. Built-in Antenna
8. Micro SD Card Slot
9. 4.5 inch LCD Display
10. Glasses Mounting Hole
11. Glasses Frames

■ 2S Charger



1. Status Indicator Lights (Each set has LEDs 1–4 from left to right, total of three sets)
2. Function Button (Mode Switch /Firmware Update)
3. Type-C
4. Battery Positioning Slot
5. Battery Plug

1.First Use

■ 1.1 Preparing PROTOS

1.1.1 Take the PROTOS Drone out of the packaging. Before flying, remove the front camera ens protective cover and the protective film of the bottom optical flow module lens.
1.1.2 Check whether the propellers are installed correctly (See 3. User Guide > 3.1 PROTOS > 3.1.1 Propeller Installation).
1.1.3 Tip: When the PROTOS Drone is not in use, do not insert the battery into the fuselage nose cover to avoid running out of power and shortening the battery life.

■ 1.2 Preparing CADDXFPV Alink

1.2.1 Charge via the USB Type-C port on the CADDXFPV Alink remote controller. All four indicator lights remain solid when fully charged.
1.2.2 Check whether the maximum operating range of the joysticks, knobs, and other switches

is normal.
1.2.3 Calibrate the joysticks and knobs (see 3. User Guide > 3.2 CADDXFPV Alink Remote Controller > 3.2.2 Operating Instructions②).
1.2.4 Note: Do not bump or drop the remote controller, as the precision components inside the joysticks may be damaged, which could result in loss of control of the Drone.

■ 1.3 Preparing Ascent Goggles

1.3.1 Adjust the elastic headband of the flight goggles to a suitable size and wear them. Fine-tune the fit according to your comfort.
1.3.2 If you have poor eyesight, you can use the included eyeglass frames to fit prescription lenses and install them inside the flight goggles.
1.3.3 Note: When the flight goggles are not in use, disconnect the power cable to prevent battery over-discharge, which may reduce its lifespan or render it unusable.

■ 1.4 Preparing 2S Charger

1.4.1 The module battery must be fully charged before first use.
1.4.2 Use the included 2S charger to charge or discharge the module battery sequentially.
1.4.3 Please use the included power adapter and dual Type-C cable to perform charging and discharging operations (see 3.3 PROTOS 2S Charger/Module Battery > 3.3.1 2S Charger②).
1.4.4 Note: Charging must be supervised at all times. When charging is not required, disconnect the power once the battery is full to prevent overcharging hazards. Batteries can be stored in the charger with the power disconnected.

2.Pre-Flight Preparation

■ 2.1 Flight Safety

2.1.1 Before officially flying, it is recommended to use the LIFTOFF simulator for flight training or train under the guidance of an experienced user. Minors should use this product accompanied by a guardian.
2.1.2 Before flying, select an appropriate flight location according to local laws and regulations, and ensure that weather and environmental conditions are suitable for flight.
2.1.3 During flight, strictly comply with local laws, regulations, and related rules. Do not exceed the safe flight altitude.
2.1.4 Always monitor the surrounding environment of the Drone's current position during flight to avoid harming others or damaging public property.

■ 2.2 Flight Restrictions

2.2.1 This product is suitable for FPV beginners, FPV instruction,tiny drone lovers. It is defined as an entry-level FPVdrone and is not a drone in the legal sense. Therefore, no electronic fence or flight height limit is set.
2.2.2 Users should pay attention to the current flight altitude and signal strength during flight to avoid collisions with obstacles or losing control due to exceeding the remote control range (see 3. User Guide > 3.1 PROTOS > 3.1.6 Flight/Function Modes).
2.2.3 The ideal control distance for this Drone is 150m ± 50m. In environments with strong electromagnetic interference, determine the effective flight distance based on actual conditions. Always monitor the signal strength displayed in the flight goggles during flight to avoid unnecessary property damage.

2.2.4 Note: Do not fly in no-fly zones. CADDXFPV is not legally responsible for any consequences resulting from improper use of this product.
2.2.5 If multiple PROTOS Drone are flown simultaneously, ensure that operators maintain a distance of at least two meters from each other, and set the video transmission channels as far apart as possible to minimize interference from adjacent frequencies.

■ 2.3 Inspection Items

2.3.1 Check whether the critical parts of the Drone are loose or deformed. The critical parts of the Drone are as follows:

① Brushless Motors — check for loose screws or wobbling during rotation
② Propellers — check for deformation, worn or missing edges, or abnormal vibration during operation
③ Arms — check for obvious deformation or cracks
④ Protective Canopy — check for deformation or visible cracks
⑤ Lens and Camera — check for looseness or inability to fix the angle

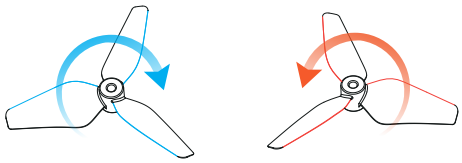
If any of the above issues occur, try tightening the affected part or replacing it with the included spare components. If you cannot resolve the issue yourself, return the product for factory repair to avoid unknown risks during flight.
2.3.2 Check that the propellers are installed correctly to prevent flight malfunctions caused by reverse or incorrect installation (see 3. User Guide > 3.1 PROTOS > 3.1.1 Propeller Installation).
2.3.3 Ensure that the Drone is properly connected to the remote controller and flight goggles to prevent unexpected disconnections during takeoff, which could cause flight accidents.
2.3.4 Check the remaining battery levels of the module battery, flight goggles, and remote controller to avoid unexpected power loss during flight, which may lead to accidents.
2.3.5 Verify the angle of the front HD camera (see 3. User Guide > 3.1 PROTOS > 3.1.3 Camera Angle Adjustment) to prevent incorrect flight attitude judgments after takeoff.
2.3.6 If using a third-party remote controller to operate the PROTOS Drone, check that the Drone's maneuvering attitude and all functions correspond correctly to the channels and switches on your controller before takeoff to prevent misoperation during flight.
2.3.7 Note: CADDXFPV assumes no legal responsibility for accidents or consequences arising from improper use or issues not related to product quality.

3.Operating Instructions

■ 3.1 PROTOS

3.1.1 Component Installation

① Installing the Propellers
Before leaving the factory, PROTOS comes with propellers pre-installed. We do not recommend replacing them with other types of propellers, as this may cause the drone to malfunction or exhibit abnormal behavior during use. If a propeller is damaged and needs replacement, please use the spare propellers included in the package. Remove the damaged propeller, align the central mounting hole of the front side of the spare propeller (the curved convex side) with the motor's central shaft, and press it down until the top of the shaft is flush with the bottom of the propeller. If you are unsure how to identify the positions of the four propellers, place the Drone facing forward on a flat surface and view it from behind. The rotation directions of the four motors and their corresponding propellers are as follows:



CW
Reverse Propeller

CCW
Standard Propeller

1) Front Right Motor: Counterclockwise Rotation (CCW – Standard Propeller)
2) Rear Left Motor: Counterclockwise Rotation (CCW – Standard Propeller)
3) Front Left Motor: Clockwise Rotation (CW – Reverse Propeller)
4) Rear Right Motor: Clockwise Rotation (CW – Reverse Propeller)

Attention! The propellers rotate with the front side facing up. When viewed from the side, the blades rotate around the central mounting hole toward the higher edge of the blade. Please install and check the propellers in the correct order. Incorrect installation may cause the Drone to lose control and could result in injury to the user or others, as well as unnecessary trouble.

② Installing the Battery

Align the module battery with the battery compartment and push it in. When you hear a "click" and the battery does not wobble or come out easily, the module battery is properly installed.

1) Attention! Installing the battery while it still has available power will directly power on the Drone.Please exercise caution.
2) Ensure that the remote controller and flight goggles are powered on before performing this operation (refer to the CADDXFPV Alink Remote Controller and Ascent Goggles User Guide).

③ Battery Removal

Lift the long slot on top of the canopy upward, and with your other hand, slightly raise the battery from the rear of the Drone and pull it out firmly. This is the proper way to remove the battery.

1) At this point, if the Drone is powered on, it will be immediately powered off.

2) Do not store a module battery that has entered power-off protection in the Drone's battery compartment. It should be promptly removed for charging and activation (refer to the 2S Charger user guide for module battery use).

3.1.2 Connect to a Computer

IInsert the module battery and turn on the aircraft. The tail button and the indicators on both sides of the Drone will light up. Press the tail button and select the internal module you want to connect:

① Indicator light is green

At this time, the top Type-C port is connected to the flight controller module. Using a data cable to connect to a computer allows you to upgrade the flight controller firmware (see 3. User Guide > 3.1 PROTOS > 3.1.2 Connect to Computer). Do not remove the battery during the connection process, as this will disconnect the flight controller from the computer and may cause the firmware upgrade to fail or damage the flight controller.

Warning! We do not recommend replacing the aircraft's firmware with other flight controller firmware. If you attempt to do so, CADDXFPV assumes no legal responsibility for any consequences.

② Indicator light is orange

At this time, the top Type-C port is connected to the CADDXFPV Ascent digital video transmission module. By connecting to a computer with a data cable, you can use the dedicated tool to upgrade the video transmission firmware. Please note: do not remove the battery or forcibly disconnect during the firmware upgrade process, as this may cause the built-in video transmission module to fail or become damaged.

③ DFU Mode

1) Ensure the drone's indicator light is green before powering off. Turn the drone over. There's a small hole in the center of the rear bottom that houses the Boot button.

2) First, plug the data cable into the Type-C port on the rear of the drone (note: do not connect the other end of the cable to a computer yet).

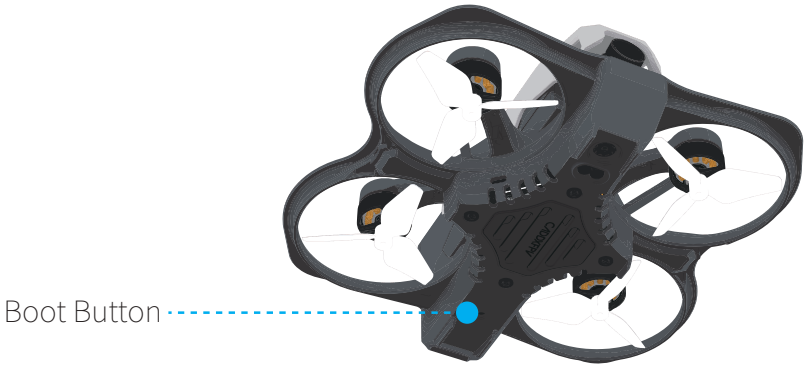
3) Now use a SIM card inserter or other insulated tool to insert the cable vertically while holding the Boot button pressed.

4) Plug the other end of the cable into a computer USB port. Once the power is on, release the Boot button. (It's recommended to insert a battery to provide additional power to the flight controller.)

The flight controller is now connected to the computer and enters DFU mode.

Firmware upgrades can be performed in this mode. For warning information, refer to 3. Instructions

> 3.1 PROTOS Drone > 3.1.2 Connecting to a Computer ①), as shown below.



3.1.3 Adjusting the Camera Angle

The PROTOS Drone does not come with a gimbal. The front HD camera on this product must be manually adjusted for its angle. The adjustment method is as follows:

① For beginners or non-professional users: We recommend tilting the camera downward so that the lens forms an elevation angle of approximately 10°~20° relative to the ground. This helps reduce perceived flight speed during operation and allows simultaneous observation of both the forward and ground environment.

② For experienced users: To experience higher flight speeds, you can tilt the camera upward so that the lens forms an elevation angle of approximately 20°–30° relative to the ground. This makes it easier to observe the forward environment during high-speed flight.

Adjust the camera according to your personal needs, and learn to observe the differences in the view inside the flight goggles at different camera angles. Mentally associate the current flight attitude with the camera's placement angle. This will help you learn how to properly operate the Drone in stunt mode (ACRO mode; see 3. User Guide > 3.1 PROTOS > 3.1.5 Status Indicator④).

3.1.4 Onboard Integrated ELRS 2.4GHz Receiver

The PROTOS Drone has a built-in ELRS 2.4GHz receiver. The binding procedure is as follows:

① Activate the binding mode using the module battery:

1) Lift and hold the battery latch on top of the canopy.
2) Insert the module battery into the canopy to power on the Drone.
3) Two seconds after powering on, remove the module battery to turn off the Drone.
4) Repeat the above steps three times, and on the third insertion, keep the Drone powered on. At this point, the built-in ELRS receiver enters binding mode and awaits binding.

② Activate the binding mode using USB power:

1) Insert a USB Type-C data cable into the Type-C port at the rear of the Drone.
2) Connect the other end of the cable to a computer or power adapter to supply power to the Drone.

3) Two seconds after powering on, unplug the cable (from the power source) to turn off the Drone.
4) Repeat the above steps three times, and on the third power-on, keep the Drone powered. At this point, the built-in ELRS receiver enters binding mode and awaits binding.

③ Bind the Remote Controller:

1) Press the binding switch on the remote controller (for the CADDXFPV Alink remote controller binding method, see 3. User Guide > 3.2 CADDXFPV Alink Remote Controller > 3.2.3 Operating Instructions②) and wait for the remote controller and PROTOS Drone to complete the binding process. Note: The binding process may take approximately 5–10 seconds, so please be patient.
2) After binding is completed, the status indicator lights on both sides of the PROTOS drone will change from flashing purple to the color corresponding to the current flight mode (orange, blue, red, cyan).

3.1.5 Status Indicator Lights

There are two status indicators on each side of the drone, indicating the drone's current status (based on the default PROTOS drone firmware). The indicators are as follows:

① Rapidly flashing purple: The drone is in an abnormal state or arming is prohibited. In this state, the drone cannot arm.
② Solid Orange: The drone is in Position mode. In this state, arming and flight are possible.
③ Solid Blue: The drone is in Angle mode. In this state, arming and flight are possible.
④ Solid Red: The drone is in Acro mode. In this state, arming and flight are possible.
⑤ Solid green: The drone is in Anti-Turtle (FLIP) mode. While in this mode, you can arm and reverse the motors, but you cannot fly normally..
⑥ Short Red Flashing: Mode change or invalid arm.
⑦ Two quick green flashes: The gyroscope (IMU) has completed leveling calibration.
⑧ Slow Flashing Yellow: The battery is low. Please fly with caution.
⑨ Fast Flashing Yellow: The battery has reached the minimum safety threshold. Please land immediately to avoid a protective power outage due to low battery voltage. (Refer to the module battery and 2S Charger instructions.)

3.1.6 Flight/Function Modes

To cater to both novice and advanced users, the PROTOS drone's default firmware provides the following three flight and function modes for you to choose from:

① Poshold Mode

In this mode, the drone automatically maintains its altitude during flight, remaining in position even without any user input. If a minor collision or displacement occurs, the drone will detect the surface texture within its range and automatically return to its current hovering position. The maximum flight speed in this mode is 3 meters per second (3m/s), and the maximum ascent and descent speed is 1.5 meters per second (1.5m/s). The flight control indicator light will be orange, indicating that the downward optical flow and laser ranging modules are operating. When flying in this mode, please note the following points:

1) Altitude Limit: The effective altitude indoors is between 20 cm and 4 meters, and outdoors, between 20 cm and 2 meters.
2) When taking off in Hold Mode, push the remote controller's throttle stick approximately one notch above center. The drone will automatically ascend and hover above the ground. At this point, position the throttle stick slightly above center and wait for the drone to stabilize before proceeding.
3) If the drone is in Hold Mode (POSHOLD) and exceeds the above altitude limits, it will automatically switch to Altitude Hold Mode (ALTHOLD). In this mode, the drone will only maintain its current altitude and will not be able to hover.

4) If the drone is in Altitude Hold Mode and descends to within the above effective altitude, it will automatically switch back to Hold Mode and can now hover normally. (Please note that any jitter caused by attitude correction when switching modes in mid-flight is normal.)
5) During flight, if the drone is in a dynamic environment or has no texture, a weak texture, or a reflective surface, fixed-point hovering may be impaired or impossible.
6) To switch to this mode, the throttle must be below 75%, the other joysticks must be centered, and the sensor below the optical flow module must be clear. Otherwise, the switch will fail.

② ANGLE Mode

In this mode, the drone automatically maintains a level attitude during flight, but does not automatically hover at its current position.
Unlike fixed-point mode, this mode requires some experience. The flight control indicator light turns blue.
This mode limits the drone's maximum throttle (80%) and the maximum roll and pitch angles (based on a level attitude, the maximum pitch angle in each direction is ±30°). When flying in this mode, please note the following.

1) Angle mode does not have an active braking function.
2) Angle mode does not have an altitude hold function, requires the operator to precisely control the throttle to maintain altitude and speed.
3) To switch to this mode, the throttle value must be below 75% and the other joysticks must be centered.

③ Aerobatic Mode (ACRO)

In this mode, the drone transfers all control authority to the user, unlocking the maximum throttle value (100%) and not automatically maintaining altitude and level attitude. This mode is the most difficult of all modes and is also a common way to play with a drone. It is recommended that operators have proficient drone flying experience or have learned acrobatic mode in a simulator before attempting this mode. The flight control indicator light turns red, and the flight control no longer limits the drone's maximum roll and pitch angles. When flying in this mode, please note the following points:

1) Stunt Mode does not have an automatic return function. Unless the operator intervenes, the drone maintains its current attitude during flight. Please note: The joystick no longer simply controls flight direction; it fully controls the drone's attitude in the air. Joystick pressure only controls the drone's angular velocity during the corresponding maneuver (the drone rolls around its X, Y, and Z axes, with the speed of the roll being called angular velocity, measured in degrees per second).

a. The drone's factory firmware has a preset angular rate (rate) switch, which you can think of as joystick sensitivity.
b. Function channel CH8, the CADDXFPV Alink remote controller uses a three-position SC switch: high (500°/s), medium (400°/s), and low (300°/s).
c. The lowest setting is recommended for beginners, the medium setting for advanced training, and the highest setting for acrobatic maneuvers.

Returning the joystick to center does not affect the drone's attitude.
2) Angle mode does not have an altitude hold function. During flight, the operator must precisely control the throttle to maintain the correct altitude and speed. The hovering throttle position for this mode is between 30% and 35%, depending on the battery voltage of the current module.
3) To switch to this mode, the throttle position must be below 45% and the other joysticks

must be centered.

4) When switching to Acro mode during flight, please note that the hovering throttle position for Acrobatic mode is lower than that for Stabilized and POSHOLD modes. Therefore, the drone's altitude will fluctuate significantly when switching between these modes, requiring prompt refueling to maintain altitude. This operation carries certain risks, so proceed with caution.

④ Flip Mode (FLIP)

This mode is a standard flight mode for unusual situations, primarily used when the drone's attitude is incorrect after landing and correction is required.

The flight control indicator light turns cyan. In this mode, the throttle stick is disabled, the drone cannot fly directly, and the ESC switches to reverse mode. When using this mode to correct the drone's attitude, please note the following points:

1) This mode can only be activated before unlocking. After unlocking, the motor is in a disabled state and will not enter the idle state. Please pay attention to safety and be careful to avoid mis-operation after unlocking.

a. If you accidentally touch the Flip Mode switch (SD rebound button on the CADDXFPV Alink remote controller, function channel CH9) after arming, the drone will be unable to switch to normal flight mode under any circumstances.

b. If you accidentally turn off the Flip Mode switch, the flight mode will directly switch to the mode corresponding to the current mode switch (SB three-position switch on the CADDXFPV Alink remote controller, function channel CH7).

c. If you accidentally touch the Flip Mode switch, you must immediately turn it off. Do not attempt to switch flight modes in this state. This may cause the drone to lose control and crash.

2) After entering this mode and arming the Ascent Goggles, only use the roll or pitch stick to adjust the drone's attitude (follow the Flip mode arrow on the center screen). Do not use the directional sticks, as this may damage the drone.

3) Quickly and decisively adjust the drone's attitude by moving the roll or pitch stick to its maximum position in one direction. The motors will automatically reach the appropriate speed to flip the drone. If a successful flip is not successful on the first try, try again. However, avoid prolonged use of the sticks, as prolonged reversal may damage the motors or ESCs.

4) After successfully adjusting the drone's attitude using this mode, immediately turn off the flip mode switch and re-arm the drone before resuming normal flight.

⑤ Buzzer Mode

This mode is not flight mode. When the function is activated, the motors emit a continuous beeping sound to indicate the current position of the drone, making it easier to find it.

1) For CADDXFPV Alink remote controllers, use the SA Rebound switch to enable/disable this function.

2) The function channel is CH6.

⑥ IMU Calibration Mode

This mode is not flight mode, but is used to calibrate the drone's horizontal deviation caused by multiple impacts or drops. The flight control indicator light flashes green twice. This mode operates automatically. After activation, the drone must remain horizontally still until calibration is complete. No stick movement is required during this process. Instructions for using this mode are as follows:

1) This mode can only be used in the locked state.

2) Place the drone on a level surface.
3) Stick Operation Methods
a. Lower the left stick and move it right to its full range of travel and hold.
b. Center the right stick and move it downward to its full range of travel and hold.
c. After the sticks are correctly engaged, the calibration menu will appear on the headset screen.

d. Release both joysticks. The menu will remain displayed. Use the right joystick to select the desired option. The current option will flash rapidly.
a) IMU CALIBRATION
b) EXIT
e. Use the left joystick to move right to select the desired option.
4) The first quick green flash indicates calibration has begun, the second quick green flash indicates calibration is complete, and the red light will flash if calibration fails.
5) We recommend waiting for approximately 10 seconds after calibration before attempting any flight operations for optimal calibration results.

The above describes all functions of the PROTOS drone's default firmware. Please read and understand them carefully to avoid accidental injury to yourself or others due to unfamiliarity with the product's functions.

3.1.7 Video Transmission Module

The PROTOS drone has a built-in Ascent digital image transmission module, which can be connected to the included goggles for FPV flight. To link the module, power on the drone and wait for the built-in image transmission module to start (the green light flashes). Insert a SIM card reader or other small insulating stick into the module's link hole. Press the link button on the module. the indicator light will turn solide red, indicating the module is in the linking state. Once successfully linked to the goggles, the indicator light will turn solid green.

3.1.8 Safety Mechanisms

This product is a professional, entry-level model drone, not a children's toy. To prevent user error, the PROTOS drone's factory default firmware incorporates the following safety mechanisms:

① Arming is prohibited when the throttle stick is not in the lowest position: This mechanism prevents the drone from suddenly accelerating and taking off after arming, resulting in loss of control. Therefore, arming cannot be performed when the throttle stick is not in the lowest position.
② Failsafe: If the drone is disconnected from the remote controller in any state, it will automatically enter a locked state and will not be able to automatically arm. If the drone is in flight, it will crash. Users should avoid flying in crowded areas to avoid accidental injury to others due to signal loss.
③ Mode Switching Conditions: To accommodate novice users, the factory default firmware of this product sets mode switching restrictions, which are described below.

1) When switching between all modes, all joysticks except the throttle must be centered to prevent accidental operation.
2) When switching between Poshold and Angle modes, the throttle stick must be kept below 75% of its travel and held for at least one second.
3) When switching between Acro mode, the throttle stick must be kept below 45% of its travel and held for at least one second.

3.1.9 Notes

To ensure a more pleasant flight experience, please be aware of the following points:

① The metal heat sink located on the bottom of the PROTOS drone will generate high temperatures if powered on for extended periods. If the drone is not in flight, heat dissipation will be lost and the drone will shut down as a protective measure if the temperature exceeds 100℃/212℉. Do not touch it during this time to prevent burns.
② The PROTOS drone has an auto-lock feature. To prevent misoperation, the drone will automatically lock and stop its motors if the following conditions are met:

1) After unlocked, the drone will remain stationary for 10 seconds without any operation or attitude change.
2) After landing, the drone will remain stationary for more than 4 seconds without any operation or attitude change.
3) A severe impact occurs during flight.

Please note: To prevent the sensor from misjudging the environment, causing the drone to automatically lock or lose its attitude when lowering the throttle, we recommend flying at least 30 cm above any obstacles below for a good flight experience.
③ Do not touch the motors and propellers while they are in operation! This may cause injury.
④ If you are a non-professional user or a beginner, do not attempt to take off the drone by placing it on your palm or using other specialized methods. CADDXFPV recommends that you only place the drone on a flat, clear surface for takeoff.
If you attempt to use specialized methods for takeoff, CADDXFPV assumes no legal responsibility for any consequences.

■ 3.2 CADDXFPV Alink

3.2.1 This product is equipped with a built-in ELRS 2.4GHz RF module and a 10-channel RC model remote controller. It can be used to control any RC model equipped with an ELRS 2.4GHz receiver.

3.2.2 CADDXFPV Alink Remote Controller Operating Instructions

① Power Button

The round button on the right side of the front panel of the remote controller is the power button. The operation method is as follows:

1) When the remote controller is off, short press the power button to display the remaining battery level (refer to the indicator lights).

2) When the remote controller is off, long press the power button. When the four lights turn on in sequence and remain solid, and the “do–re–mi, do–mi” sound is heard, the controller is powered on.

3) When the remote controller is on, short press the power button to mute the receiver disconnect alert sound. When the remote controller is on, long press the power button. When the four lights turn off in sequence and the “mi–re–do” sound is heard, the controller is powered off.

② Linking / Calibration Button

The round button on the left side of the front panel of the remote controller is the binding and calibration button. The operation method is as follows:

1) Short press has no function in any state.

2) When powered on, double-click this button. The buzzer will emit two “beeps,” and the four lights will flash twice to enter binding mode. After successful binding, a “do-mi” sound will be heard, and the indicator lights remain solid.

3) When powered on, long press this button. The buzzer will emit a “beeee—” sound, the four lights will flash twice and then turn off, entering joystick calibration mode.

a. Place all joysticks and wheels in their physical center positions. Short press the binding button again; the buzzer will emit “beep-beep” and the four lights will flash alternately. This indicates the start of the calibration process.

b. Move each joystick sequentially to its maximum and minimum positions (the four corners within the movement range; do not use excessive force). The four lights will light up in order from left to right, representing channels 1, 2, 3, and 4. Move the wheels left and right to their travel limits. At this point, the travel calibration is complete.

c. Long press the button again; the buzzer will emit “do-re-mi” and the indicator lights remain solid. The remote controller saves the joystick and wheel calibration, completing the calibration process.

③ Joystick Layout

The product is factory-set to Mode 2 (American style), with the first four channels in the order A, E, T, R, as shown below:

1) [CH1] — AIL: Controls roll, causing the Drone to move left or right during flight.

2) [CH2] — ELE: Controls pitch, causing the Drone to move forward or backward during flight.

3) [CH3]——THR:Controls the throttle, causing the Drone to ascend or descend during flight.

4) [CH4]——RUD: Controls yaw, causing the Drone to turn left or right during flight.

Note: In POSHOLD mode, the throttle is incremental—center for hover, push up to ascend, push down to descend. In Angle mode and Acro mode, the throttle is direct—how much you push determines motor speed. Precise throttle control is required to operate the Drone in these modes.

④ Function Switches

In addition to the four joystick channels, this product provides six extra channels for use: five buttons on the front panel of the remote controller and one rotary knob. The corresponding functions for these switches are pre-configured at the factory, as shown below:

1) SA — Spring-loaded Button (CH6): Used to activate the buzzer function.
2) SB — 3-Position Toggle Switch (CH7): Used to switch flight modes.
3) SC — 3-Position Toggle Switch (CH8): Used to adjust the rate in Acro (ACRO) mode.
4) SD — Spring-loaded Button (CH9): Used to toggle the Turtle (FLIP) mode.
5) SE — Latching Switch (CH5): Used to arm/disarm the Drone.
6) S1 — Limited Rotary Wheel (CH10)

Note: Mode switching and Turtle function (see 3. User Guide > 3.1 PROTOS > 3.1.6 Flight / Function Modes④) should be tested only in a safe flying environment (see 2. Pre-flight Preparation > 2.1 Flight Safety / 2.2 Flight Restrictions). Please take note.

⑤ FPV Flight Simulator

This product can be directly connected to a computer using a Type-C data cable. The Type-C port is located at the center of the back of the remote controller. Once connected, you can use an FPV simulator for practice.

3.2.3 Battery Life and Charging Operations

① Battery Level Indicator

Located at the center of the front panel of the remote controller, there are four indicator lights. When powered on, they display the remaining battery level by default. From left to right, the four lights indicate:

(1)10-25%　(2) 26-50%　(3) 51-75%　(4) 76-100%

A solid light indicates the current battery range, while a flashing light indicates the battery is approaching the threshold of that range.

② Battery Life

When fully charged, the remote controller can operate for approximately 3 hours. If left inactive for a long time, it will emit two short “beep-beep” sounds at intervals, and the indicator lights will flash. When the battery is low, it will beep intermittently. At this point, the remote should be charged promptly to avoid automatic shutdown during use, which could cause the Drone to lose control.

③ Charging

When the remote controller is powered off, it can be charged using the included power adapter and Type-C cable. During charging, the power status can be monitored via the battery level indicator lights.

3.2.4 Precautions / Important Notes

① Located at the center of the front panel of the remote controller is a small oval hole, which serves as the buzzer sound outlet. Do not insert sharp objects into this hole, as it may damage the buzzer.

② The gray elongated area at the center of the front panel is the cover for the extension antenna. Installing other high-gain antennas requires removing the back cover of the remote controller. If you are a beginner or not an experienced user, we do not recommend installing other antennas yourself. Any consequences resulting from such attempts are not the responsibility of CADDXFPV, please be aware.

3.2.5 Declaration for Micro-power Short-range Devices

① Compliance with specific clauses and usage scenarios outlined in the "Catalog and Technical Requirements for Micro-power Short-range Radio Transmission Equipment," including the types and performance of antennas used, as well as methods for control, adjustment, and switching.

② Unauthorized changes to usage scenarios or conditions, expansion of transmission frequency ranges, increase of transmission power (including the addition of external RF power amplifiers), and modification of transmission antennas are prohibited.

③ The device must not cause harmful interference to other lawful wireless stations, nor shall it claim protection against such interference.

④ The device must tolerate interference from industrial, scientific, and medical (ISM) applications emitting radio frequency energy, as well as interference from other lawful wireless stations.

⑤ If harmful interference is caused to other lawful wireless stations, use of the device must cease immediately and may only resume after measures have been taken to eliminate the interference.

⑥ When using micro-power devices within electromagnetic protection areas, such as aircraft, radio astronomy observatories, meteorological radar stations, satellite earth stations (including tracking, telemetry, control, ranging, reception, and navigation stations), and military or civilian wireless stations delineated by laws, regulations, national standards, or related provisions, compliance with electromagnetic protection requirements and regulations of the relevant industry authorities is mandatory.

⑦ The use of all types of model remote controllers is prohibited within a 5,000-meter radius centered on the airport runway.

⑧ Environmental conditions, such as temperature and voltage, during the operation of micro-power devices must be adhered to.

■ 3.3 PROTOS 2S Charger / Module Battery

3.3.1 2S Charger

A charging tool for module batteries that comes with the PROTOS. When used with the power adapter and Type-C power cable in the kit, it can automatically charge or discharge the module battery for storage. The usage is as follows

① Notes

1) When charging, please do so under supervision. When not using the charging hub for charging, please unplug and turn off the power in time

2) It is recommended to use the CADDXFPV-30W power adapter included in the kit or other USB power adapter that supports the USB PD fast charging protocol to power the 2S charging hub.

3) The ambient temperature will affect the charging time. Charging in a ventilated

environment at 25°C is the best option.

4) The PROTOS-2S charging hub is only suitable for the dedicated module battery of the PROTOS Drone. Do not use the charging hub to charge other types of batteries or use it for other purposes.

5) When using, please place it stably and away from fire, water and other hazardous chemicals. Pay attention to insulation and fire prevention.

6) Do not touch the metal terminals in the charging compartment with your hands or other objects. If foreign matter is attached to the metal terminals, wipe them clean with a dry cloth. Do not use a damp cloth, alcohol wipes, wet wipes, or other wet objects for cleaning.

7) Always charge low-battery modules promptly. It is recommended to store the batteries in the 2S Charging Hub or in the included carrying bag.

② Charging Steps

1) Use the included power adapter and Type-C data cable to supply power to the charger. When powered on, the status indicator lights will flash three times simultaneously, displaying the current firmware version in binary, then turn off (no battery inserted).

2) Align the positioning tab on the back of the module battery with the battery slot in the charger and insert it vertically until you hear a "click," indicating the battery is properly installed.

3) The charger will automatically charge the inserted batteries in sequence, from right to left on the side of the indicator lights. During charging, the status indicator lights display the current charging status (see "Status Indicator Description"). The factory default cutoff voltage is 4.25±0.03V per cell.

4) Charging time for a single battery is approximately 20 minutes, and fully charging all three batteries takes about 60 minutes.

③ Storage Steps

1) Refer to 3. User Guide > 3.3 PROTOS 2S Charger / Module Battery > 3.3.1 2S Charger③ 1/2 for instructions.

2) Press and hold the function button for 3 seconds. The three sets of status indicator lights will flash three times simultaneously, and the charger will enter charge/discharge storage mode. The storage sequence is from right to left on the side of the indicator lights. During the storage process, the status indicator lights display the current status (see "Status Indicator Description"). The factory default storage voltage is 3.85±0.03V per cell (long-term storage voltage).

3) Discharging a single battery from full charge to storage voltage takes approximately 50 minutes. Completing storage for all three batteries takes about 150 minutes.

④ Status Indicator Light Description

1) A set of lights changing from left to right from flashing to solid: the battery in the corresponding slot is charging.

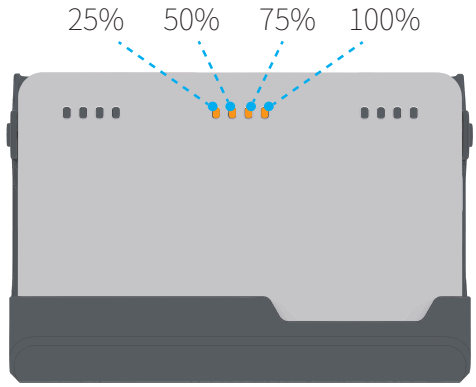
2) A set of lights running like a marquee from left to right: the module battery in the corresponding slot is in storage mode.

3) A set of lights solidly on: the module battery in the corresponding slot is fully charged.

4) LEDs 1 and 2 in a set of lights solidly on: the module battery in the corresponding slot has completed storage.

5) A set of lights flashing continuously: the module battery in the corresponding slot has an abnormal status.

6) LEDs 1–4 in a set of lights solidly on: the current module battery charge in the slot is 25% / 50% / 75% / 100%.



3.3.2 PROTOS Module Battery

This module battery is a dedicated battery, designed exclusively for the CADDXFPV PROTOS Drone. Do not use it for any other purposes.

Protection Mechanism: This module battery has a built-in low-voltage protection circuit. When the module detects that the battery voltage is too low (2.80V per cell), it will activate power-off lock protection, preventing the battery from continuing to supply current.

1) Battery Lock

If the built-in low-voltage protection module of the module battery is triggered while the Drone is in any state, the Drone will immediately power off. The battery must be charged and activated immediately.

2) Lock Activation

When the low-voltage protection module of the module battery is triggered, insert the battery into a powered-on charger. The battery will automatically activate and start charging within approximately 3 seconds (the charger must be in charging mode and properly powered; see "Charging Steps").

4.Product Specifications

■ 4.1 PROTOS

PROTOS	Flight Control	Caddx Protos Aio 1.0
	Video Transmission	Ascent Lite
	Motor Diagonal Distance	78mm
	Motor	1102 14000KV
	Propeller	HQprop U40mm×3GR-PC-1.5mm
	Weight	104.4g±1.5g
	Dimensions	110x102.8x41mm
	Flight Endurance	8.5min ±0.5min
	RC Receiver	ELRS 2.4GHz

FC	Main Control Chip	STM32-F405RGT6
	Gyroscope	BMI270
	Barometer	SPL06
	Onboard Receiver	ESP8285
	Receiver Protocol	ELRS 2.4GHz
	ESC Protocol Compatibility	Bluejay / BLHeli-S Optional
	ESC Maximum Current	12A (Single Channel)

VTX	VTX Model	Ascent Lite
	Image Sensor	1 / 2.8 inch Sensor
	FOV	147°
	Ratio	16:9
	Resolution	1080P 60FPS;720P 60FPS
	Power	25~100mW
	Built-in Storage	N/A
	Max Transmission Range	Max 3km
	Latency	Average delay 35ms

■ 4.2 Ascent Goggles

Name	Ascent Goggles
Communication Frequency	5.725-5.850GHZ
Transmit Power (EIRP)	FCC:<30dBm; CE:<14dBm; SRRC:<20dBm; MIC:<25dBm
I/O Interface	4Pin 3.5mm Plug, DC5.5*2.1mm, Micro SD Card Slot
Transmission Resolution	1080P60FPS, 720P60FPS
Code Rate	Max 50 Mbps
Minimum Latency	Average 32ms
Average Gain	4.9dBi
Polarization	LHCP
Transmission Distance	>4km
Channel	8
Screen Resolution	1920*1080 / 60Hz
Screen Material	LCD
Screen Size	4.5 Inch
Wide Voltage Input	6V~25.2V (2S~6S)
SD Card Slot	Support 256G
System	Ascent HD system

■ 4.3 Goggles Battery

Name	Goggles Battery
Weight	125g
Type-C Input	5V⩽3.3A / 9V⩽2.44A / 12V⩽1.84A; 15V⩽1.37A / 20V⩽1.04A
Type-C Output	5V / 3A,9V / 2.22A, 12V / 1.67A
XT30 Output	12V⩽1.66A
Nominal Voltage	7.2V
Cell Capacity	3000mAh
Li-ion Battery Energy	21.6Wh
Rated Capacity	1500mAh (12V1A)
Dimensions	71.3*41*27mm
Charging Time	≈1.5h
XT30 Compatibility	Walksnail Avatar / Ascent Series Goggles Products
XT30 Power Cable	XT30U-F to DC 5.5*2.1 (1.2meters)
Operating Time	Avatar Goggles L: ≈2h; Avatar Goggles X: ≈1.8h
Charging Temperature	0℃~35℃
XT30 Short-Circuit Protection	Support
Input/Output Interfaces	Type-C, XT30

■ 4.4 CADDXFPV Alink

Name	CADDXFPV Alink
Main Control Chip	AT32 F413RCT7
RF Module	ELRS 2.4GHZ
RF Protocol	CRSF
Max RF Power	100mW (20dB)
Number of Available Channels	10 Channels (including 4 joystick channels)
Joystick Type	Full-Bearing Hall-Sensor Joystick Assembly
Function Switch	1 x Latching Button / 2 x Momentary Buttons / 2 x 3-Position Toggle Switches / 1 x Scroll Wheel
Status Indicator Module	4 x Status Indicator LEDs / Buzzer
Charging & Communication Interface	USB-Type C
Battery Specification	Lipo 1s 1000mAh
Max Charging Power	5V / 1A / 3.50W
Charging Time	≈90:00 min
Operating Voltage Range	DC 3.50V~4.20V
Dimensions	158mmx108mmx58mm
Weight	180g±5g

■ 4.5 2S Charger

Name	2S Charger
Display	LEDx4
Channel	3 (Sequential Charging)
Function Selection	Charging, Storage
Battery Type	Li-ion 2S 840mAh Battery
Input Voltage	12–15V (PD Input, 5V Adapter Not Supported)
Output Voltage	8.7V
Input Current	Max.3A
Charging Current	Max.3A
Balancing Current	Max.0.21A
Charging Power	Max.25W
Discharging Power	Total Power: 5W (Max 1.6W per Channel)
Input Interface	Type-C
Operating Temperature	-10~45°C
Storage Temperature	-20°C~60°C
Dimensions	94x63x39.1mm
Weight	65±0.5g

■ 4.6 2S Battery

Name	2S Battery
Battery Type	Li-ion (Lithium-ion Battery)
Battery Capacity	840mAh
Battery Specification	2S1P (2 Cells in Series, 1 in Parallel)
Discharge Rate (C-Rate)	15C
Maximum Power	6.384Wh
Voltage Range	6.80V~8.70V
Max Charging Voltage	8.5V
Charging Method	2S Charger
Charging Time	≤20min
Protection Mechanism	When the voltage of a single cell drops below 2.8V, battery lock protection is triggered and charging is required to reactivate.
Dimensions	77.5x24x21mm
Weight	41.9g±0.5g

Online Technical Support

This manual may be updated without prior notice.
Please visit the CADDXFPV official website to check the latest version.

https://caddxfpv.com

If you have any questions or suggestions regarding this manual, please contact us via email:
Support@caddxfpv.com