

# Yunux-long120 Manual



## User Instruction

### 1.1 Safety Instruction

- ◆ The product is not suitable for the ones who are less than eighteen or who do not have full capacity for civil conduct.
- ◆ The product have bigger fuselage size, high speed rotary and strong flight dynamics. At running time, it have a certain dangerous possibilities . Not in accordance with the requirement operation and usage will cause to potential danger and hurt.
- ◆ When using this product, please keep away from restricted zones,such as airport, military facilities ect..
- ◆ When using this product, please keep away from mobile phone base stations, high power transmitting equipment, and other high electromagnetic interference environments.
- ◆ When using this product, please keep away from army and kinds of manned craft flight area.
- ◆ Don't use this product in rain, thunder, sandstorm, fog snow ,high wind ,and low temperature and other bad environments.
- ◆ When flying in more than three kilometers. Environmental factors can lead to flight performance degradation, please care of using it.
- ◆ When operating this product fly in low sky .Please always keep UAV and people & animals in a safe distance of ten meters
- ◆ When using this product in desert area, please keep UAV within the range of operator's eyes
- ◆ Don't hover or fly over the crowd, Don't be delight in scaring others.
- ◆ When it is close to the crowd ,please land this UAV as soon as possible and guide people to keep and avoid potential accident.

- ♦ Don't operate it in the area of children playing.
- ♦ If not in the extreme necessary condition, please do not power off when flying in the air.
- ♦ You can not fly it you are in drinking , tired, drugs, physical ,discomfort, etc. .
- ♦ Please inspect it before using very time, including but not limited to parts of fastness, organism and propeller of cracks, and abrasion ,battery ,the effectiveness of light. When error happens, please stop using immediately and replace the corresponding parts.
- ♦ Abnormal working state of the UAV maybe happen accidentally, don't open the propellers and forcibly fly with wrong.
- ♦ Do not try to prevent the moving parts while working.

## 1.2 Inspection

- ♦ Before flying, ensure the battery is fully charged
- ♦ Ensure all the parts are installed firmly, and all the screws are tight as required.
- ♦ Ensure all the wires are correctly linked.
- ♦ Ensure all parts goes well. If it is broken or aging, please replace timely.
- ♦ Before flying, carefully check the propellers installation direction 、 rotation direction, control and others.
- ♦ Ensure all the propellers are fine, no any scratch and tightly installed.

## 1.3 Environment

- ♦ While flying, please ensure the drone away from the crowds, dangerous goods, high buildings etc.. Please fly the drone in a dedicated space.
- ♦ The drone working temperature is between -20℃~50℃.
- ♦ Ensure the drone fly within the permit of local law and regulations.

- ♦ To fly the drone safely as required, please fly it within the legal altitude according to local regulations.

## 1.4 Operation

- ♦ Remove the battery if it does not fly, to avoid flying it when touching the remote control once.
- ♦ Please remove the batteries once landing. Do not move the drone when it is in power.
- ♦ Do not touch the joy stick mistakenly, and prevent start the drone.
- ♦ When it is powered, please stand in the safe distance of above 10 meters.
- ♦ Ensure the propellers completely stop and power off.
- ♦ Please switch it to the manual operation mode when errors happen. Please keep away from the crowd.
- ♦ When the battery is damaged, please ensure it is stored in the disposal area and avoid spontaneous combustion. In order to protect environment, please don't throw batteries randomly. And consult the maker about the proper disposal method.
- ♦ During the flight, don't fly overload and do not cause any potential dangers.
- ♦ When low battery is warning, please return as soon as possible.
- ♦ Ensure that the remote control and battery is enough, to ensure that firmware has been updated to the latest version.
- ♦ Ensure flying sites outside of the restricted areas and is proper for flight . .
- ♦ Please make sure do not fly or operate the drone when you are drunk or with medicine limitation.
- ♦ Be familiar with the remote control operation & each flight mode, and ensure you

know how to operate the control condition.

- ♦ User shall know and obey all the law and regulations about UAV flight.

## 1.5 Compass Calibration Requirements

- ♦ Compass has to be calibrated before using the first time. If else, it cannot work and will affect flying safety. Calibration tips:
- ♦ Please do not calibrate it in the place close to the high-magnetic field or big metal materials, such as high-voltage, magnet, parking lot, concrete iron building, etc.
- ♦ When calibrating, please do not bring the magnetic materials, such keys and cellphone.
- ♦ If it is calibrated indoor, please do not re-calibrate it outdoor. It prevents that the two magnet differences cause the potential flying data errors.
- ♦ Magnetic field location is different, please make sure re-calibrate when it changes to the place far away from the previous one

## 2.Copter parameters

|                                     |                                    |
|-------------------------------------|------------------------------------|
| The takeoff weight (with battery)   | 17kg                               |
| The maximum load                    | 8kg                                |
| The maximum takeoff weight (MTOW)   | 25kg                               |
| The maximum endurance               | 120min (15℃ to 30℃, low altitude ) |
| The wheelbase of symmetrical motor  | 160cm                              |
| The whole size (with arm)           | 170cm                              |
| The anti-wind capability            | Fresh breeze                       |
| The anti-rain capability            | Lightrain                          |
| The maximum horizontal flight speed | 50km/h                             |
| Maximum rising speed                | 3m/s                               |
| The maximum landing speed           | 2m/s                               |
| The altitude limit                  | 6000m                              |
| The hovering accuracy               | ±0.5m                              |
| The operating temperature range     | -20℃ to 50℃                        |

## Installation Instruction

Most components has been assembled before delivery. User should install the remained parts as the following introduction. Any consequences caused by privately refitting shall be undertaken by users.

### 2. Installation steps

#### 2.1 Selecting the Arm

According to the number on the arm and the body number, M1-M6 should be installed accordingly.



#### 2.2 Connecting plug

Ensure that the three-phase three pole wire connection plug between the motor and the electrical regulator is securely plugged in



#### 2.3 Connecting the boom

Connect according to the positioning installation port.

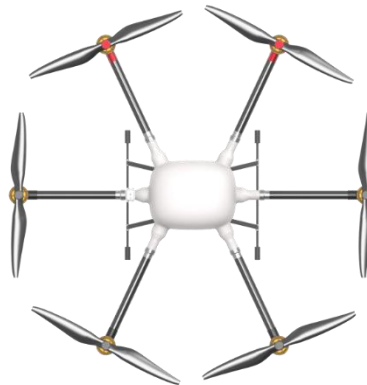


## 2.4 Installing the boom

Tighten until the thread is fully engaged and cannot be tightened.



## 2.5 Complete installation



## 2.6 Placing batteries

Check the battery for any damage, bulges, or dents, and ensure that the battery is securely fastened before fastening the cover.

Place the battery as shown in the following figure, with the four bolt installation positions as the reference center of gravity.

### 3.1 Surrounding inspection

Whether there are any notches or cracks on the propeller blades; Check for any jamming or abnormal noise when rotating the motor; The body structure is tightly connected, etc.

### 3.2 Remote Control Inspection

Organize the antenna and check if the control channel joystick and mode switch are stuck or missing; The remote control is turned on, and all indicator lights are on to complete the startup.

H12 remote control: Please ensure that each pole position is normal. Otherwise, the opportunity will trigger a beep and beep alarm.

Attention: First turn on the power of the remote control, and then power on the aircraft!

Use your phone to check the magnetic compass direction of the current drone nose and report it to the ground station personnel.

### 3.3 Connecting the power supply

Ensure that the AS150 plug of the main power supply is firmly plugged in, and the avionics circuit will be powered on. The flight control will enter a self check state, and the six motors will respond synchronously with a beep sound. At this time, it is strictly prohibited to shake the body, and wait for the self check to pass. The LED light will display the current mode status. (Check that the plug is securely inserted and the battery is secured, and fasten the compartment cover!)

**Attention: Plug in black first and then red when connecting to the power; Turn off the red color first and then turn off the black color.**

### 3.4 Unlock Flight Test

After arriving at the mission point or transitioning, for the first task execution, the flight status should be determined manually by taking off (it is recommended to first simulate the load, or at least conduct no-load testing).

(1) Routine inspection of the aircraft and ground station before flight, control:  
American/Japanese/other.

(2) First, check the motor output through the ground station inspection panel and the "actuator" to see if it is normal;

Manual locking and unlocking (inner or outer eight), as well as ground station unlocking



and locking functions;

After lightly pushing the throttle lever beyond the center position by one grid, check the synchronization of the motor output;

Take off and depart, hover at a low altitude of 1.5 meters to confirm the status before conducting high-altitude flight tests.

(3) Control flight test in attitude remote control and attitude position mode, throttle positioning test.

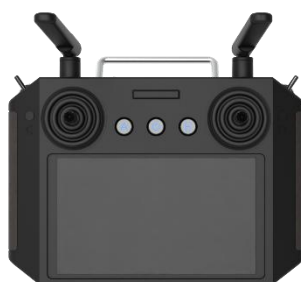
(4) Large action maneuver testing: response and feedback.

(5) Lock the landing and check the status of the power motor (temperature, manual rotation check for jamming and abnormal noise).

(6) Flight mode: The SE gear of the remote control, the leftmost attitude remote control mode, middle neutral, and rightmost attitude position mode. The ground station remote control panel can be double clicked to adjust the desired flight mode.

## **4、 Operation and Safety**

### **4.1 H12 remote control (dual circuit Chinese version)**



### **4.2 Remote control inspection**

#### **(1) Power check**

Android embedded system, battery level display, built-in 10Ah battery, standby battery life of 6-20 hours.

#### **(2) Antenna deployment**

The position of the antenna towards the aircraft varies, and the strength of the received signal varies;

When the horizontal and vertical adjustment angles of the remote control antenna are at 90 °, the signal strength is at its maximum;

Try not to point the antenna head towards the aircraft, and never hold the antenna or metal conductive objects in contact with the antenna;

Avoiding the simultaneous operation of other high-intensity communication devices in the same frequency band can cause certain interference effects.

### (3) Channel inspection

Four control levers, check for blockages and loose contact positions;

Check for blockages or missing switches, levers, and rollers in various functional channels.

### (4) Link Inspection

Is the data link status indicator light on the remote control lit up normally.

### (5) Remote Control Function Switch



#### a. Mode switch: E gear (upper left corner toggle switch)

The leftmost position is attitude mode - attitude remote control mode

Middle position is neutral - none

The rightmost position is the positioning mode - attitude position remote control mode

#### b.Unlocking and locking:

Control unlocking and locking through the ground station remote control panel. (Default operation)

Control the start and stop of the motor through the lever breaking action of the remote control. (Emergency Operations)



Both the inner eight and outer eight can be unlocked and locked. It is recommended to unlock the inner eight and lock the outer eight.

c. Takeoff and Landing:

Push the throttle lever upwards until the aircraft takes off and leaves the ground. After reaching the required altitude, the lever will return to the center.

Pull down the throttle lever until the aircraft lands, hold it at the lowest position for 2 seconds, and the motor stops locking.

d. Note: The default control method for the remote control at the factory is: Molde 2 from the United States.

Control the altitude and direction of flight through the left joystick,

Control forward and backward, as well as fly left and right through the right joystick.

### 4. 3 Compass calibration

a. Situations that require recalibration

b. The compass data is abnormal, and the aircraft status indicator light is flashing red and yellow alternately.

c. The flight site is far from the previous compass calibration site.

d. The mechanical structure of the aircraft has changed.

e. During flight, there is severe drift, drawing circles, or inability to fly in a straight line.

f. The difference between the displayed pointing value of the magnetic compass ground station and the actual pointing value is greater than 5 degrees.

### 4.4 Calibration steps

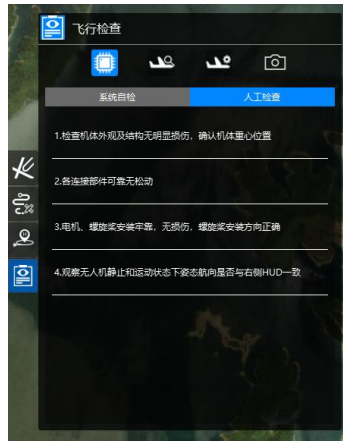
a. Please choose an open and open area (away from magnetic field interference, indoor

calibration is strictly prohibited), and follow the steps below to calibrate the compass.

b. Use Master Easy or Master MultiRotor specialized tuning software to perform advanced calibration on the flight control magnetic compass. Please strictly follow the software calibration process prompts to complete the operation.

c. When performing advanced calibration of the magnetic compass, both the internal magnetic compass of the flight control and the satellite compass module will be calibrated simultaneously. After completing the advanced calibration, a pre takeoff check - magnetic compass status check is required.

(This calibration is very important, and the calibration results directly affect flight safety)



Manual inspection of structural connections and the current and actual orientation of the magnetic compass, with a deviation of generally within 5 degrees, is normal.

### (3) Inspection of rotor motor



Automatically obtain the aircraft model and display the current flight layout diagram.

After confirming the safety of personnel and equipment, drag the sliding bar button to the right to start checking the rotation status of the multi rotor motor for the actuator.

Motor rotation: The default rotation is similar to the "idle" state, and the time can be customized.

Execution inspection: Rotate in sequence to check the motor status;

Self selected rotation check motor status.

### (4) Automatic takeoff and climb altitude

Green represents the connection; Red connection lost; Grey unconnected.

Check the feedback on the joystick function





Rocker status check: Select the mode corresponding to the remote control and check if the joystick feedback is normal.

Mode switching check: Turn the SE mode switching switch and observe if the pop-up mode status is normal.



## 5. Safe operation

5.1 Before flying, please confirm again whether the installation direction of the propeller is correct.

5.2 The first arm on the right front in the direction of the nose is number 1, and the counterclockwise direction is M1 counterclockwise, M2 clockwise, M3 counterclockwise, M4 clockwise, M5 counterclockwise, and M6 clockwise.

5.3 Before flying, please check the structure of the aircraft and ensure that the relevant equipment is securely connected.

5.4 Before flying, please ensure that the battery is fully charged and the pressure difference is normal.

5.5 Before flying, please take off at a safe takeoff weight to avoid danger.

5.6 During flight, please stay away from unsafe factors such as obstacles, crowds, buildings, high-voltage lines, tree obstructions, strong magnetic interference, etc.

5.7 During flight, please properly place the remote control to avoid accidental contact or loss.

b. Record the inspection results.

c. After the above operations are completed, report to the ground station operator and ask if the power operation should be carried out.

(3) Ground station preparation work

a. Foldable tables, chairs, and umbrellas for outdoor use; Flight logbook; Interphone; DV video equipment.

b. Ground station control console: laptop, data cable (two extra backup).

## **6.2 Pre flight inspection process**

(1) Power on preparation

After the preparation work is completed, the ground station operator notifies the pilot to power on the operation.

(2) Power on operation

a. Power on: Turn on the remote control, connect the corresponding equipment, connect the power supply, and power on the load.

b. Report: Inform the captain of the power on status.

## **6.3 Takeoff Inspection Process**

In the case of long-distance transfer or long-term transportation, magnetic compass calibration, pre takeoff inspection process, and manual flight inspection must be carried out after the first arrival at the work site.

## **6.4 Implementation of Flight Projects**

(1) Route upload and download

The route planning has been completed and uploaded/downloaded. Please pay attention to the display of various information at the ground station for any abnormalities.

(2) Set the return point

The drone will hover and wait at the designated return point.



To use the Yunux Long UAV series products, it is necessary to carefully read the entire user manual and familiarize oneself with the product functions before proceeding with the operation.

**Declaration Warning:** This has a significant impact on the safe use of this product and your legitimate rights and interests

If this product is not operated correctly, it may cause serious harm to oneself or others; Or cause property damage such as product damage.

This product is an industry level application platform, which is different from consumer grade drones in operation and requires many precautions to ensure personal and equipment safety. After a period of familiarization with the operation, the operator should understand the logical behavior of the aircraft in each flight mode and out of control mode in order to operate and use it safely, and must possess technical and psychological abilities in emergency response.

Do not hand over or lend to personnel who are not familiar with this product for operation, otherwise they will not be responsible.

We must strictly follow the Yunux Long UAV product manual when using this product. The manual will be updated periodically, and any incorrect information should be promptly reported to our technical personnel or relevant responsible persons.

Our company reserves the right to withhold timely notification of updates to the user manual. If there is a need, please contact our technical personnel or relevant responsible persons without further notice.

Users need to independently understand the local laws and regulations related to industry level unmanned aerial vehicles. If necessary, please apply and report the use of this product to the relevant department on your own.

Please read this document carefully before using the product to understand your legal rights, responsibilities, and safety guidelines.

Once using Yunux Long UAV products, it is deemed that you have understood, recognized, and accepted all the terms and contents of this statement. The user promises to be responsible for their actions and all consequences arising therefrom.

The user promises to use this product only through legitimate means, and agrees to these terms and any relevant policies and guidelines formulated by Yaoyu Aviation based on its product characteristics, and promises to comply with the relevant laws and regulations formulated by the Civil Aviation Administration of China (CAAC).

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Before using the Yunux Long UAV series products, ensure that you are familiar with the product's functions, understand relevant flight restriction information and current technical restrictions, and understand whether the emergency return process has touched the no fly restrictions and local laws and policies related to flight. If you have any questions while using this product, please contact Yuniverse Aviation or Yuniverse Aviation's agent.

## **Statement on the Operating Standards for Yunux Long 120 UAV T Version**

By using Yunux Long UAV products, users are deemed to have automatically accepted this statement.

Before using the Yunux Long UAV product, users need to carefully read the "Yunux Long 120 UAV T-version Operation Standard". If there are any unclear questions or doubts, please contact the technical support or relevant person in charge of Yaoyu Aviation.

Users who use Yunux Long UAV products are considered to have read the "Yunux Long 120 UAV T Version Operation Standard" in detail and have the ability to use it.

The Yunux Long 120 UAV T version product belongs to the special category of aviation equipment, and users are required to use it in accordance with relevant regulations and are responsible for any actions taken during use.

We reserve the right to modify any part of this manual without prior notice to the user, in order to provide the latest and most advanced products and technologies to the user. The latest information can be authorized to be downloaded by contacting after-sales technical personnel.

The latest version authorized by our company shall prevail for product related information.

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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.

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

**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 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.

RF warning for Portable device: The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.