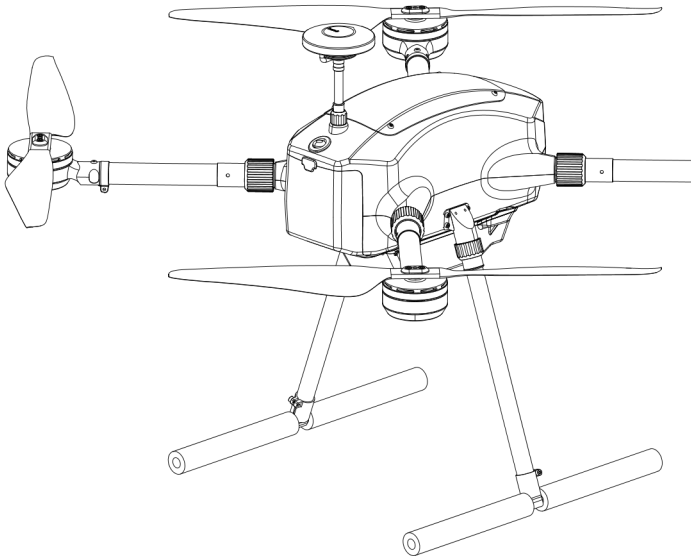
M690PRO

Long Flight Time Flight platform



USER MANUAL

T-DRONES®

01 MAIN FEATURES

Being a platform of ultra-light, long endurance and multiple applications, this aircraft can be employed for various missions with corresponding equipment including aerial photography, mapping and surveying,meteorological monitoring, surveillance, military supervision and geoexploration etc. Custom solutions are also available.

The endurance of M690PRO reaches up to 55mins (1kg payload). The abundant flight time enables more mission accomplishment in one flight. It can be adapted to a variety of devices with flexible and diverse mounting methods.It is easy for the M690PRO to shuttle in different environments with long communication distance, excellent protection capability and a portable backpack.

02 FEATURES

- Ultra-light materials and structural optimization to obtain longer flight time.
- The low center of gravity design makes the aircraft more reliable.
- Enhanced protection level;Ease of use.
- The arms, landing gears and propellers can be folded and disassembled quickly.
- Chute design for easy installation of battery.
- No tools required. Only 3 minutes to get ready to fly.

03 SPECIFICATIONS

Wheelbase	700mm	Frame Weight	1.96kg (incl. Propulsion system & FC)
Weight(no payload)	3.96kg	Battery Weight	2.23kg (Smart battery), 1.95kg (Li-ion battery)
AUW	6kg	Max. Ascending Speed	5m/s
Max.descending Speed	3m/s	Max.cruising Speed	15m/s
Hover Precision	Vertical ±0.2m; Horizontal ±0.1m (Without RTK)	Hover Time	1kg payload≥55mins； 2kg payload≥40mins
Protection Level	IP54	Wind Resistance Level	14m/s
Working Environment	- 15℃~50℃	Propulsion System	T-MOTOR
Control System	PIXHAWK	Unfolded Size	550*550*445mm (Excl. Props)
Folded Size	283*278*175mm (incl. Landing gears; excl. props)	Packing	420*370*280mm (standard) ； 510*420*340mm (Backpack)
Package Weight	6.6kg		

04 PRECAUTIONS

UNBOXING WARNING

For the safety and steady operation of drones during assembly and calibration, please make sure all parameters are at the proper values before takeoff.

INSPECTIONS BEFORE TAKEOFF

Please carry out proper debugging and checks on every part of the drone Any minor neglect may result in severe damages or accidents.

FRAME CHECK

1.Before power on the system, please check on the appearance and condition of the mechanical parts and propellers. If there are stains and cracks on the propellers, please replace them with new ones. Make sure: the rotation direction of the propellers are correct; propellers are tightened; no interference in rotation when turning them by hand.

2.Please make sure that: the motor installation is tight.If it is not loose, stop flying and fix the motor installation with appropriate tools; there is no jamming with the motor when rotated by hand; the motor coil is clean; and there is no obvious bend with the shaft.

3.Please make sure the frame is firm and the screws are not loose.

4.Please make sure the battery is installed correctly, and it is sufficiently charged.

5.Please make sure the center of gravity of the UAV is correct.

GROUND STATION CHECK

1.To avoid damage, please make sure if series or parallel circuits are required when connecting batteries.

2.Unlock and pull the throttle slightly to check if the motors rotate normally after pairing.

3.Check on all the electronic devices and make sure they works normally.

4.Calibrate the magnetic compass as per the manual.

5.Test flight to see if the aircraft proceed as per the preset route or if the route requires any adjustment.

6.During the test flight, it is necessary to observe the status of the UAV lights and the number of GPS stars displayed by the ground station in advance to make a timely prediction.

7.Make sure the remote control distance of the flight is six to seven meters on the left and right sides of the UAV. Avoid standing directly behind the tail of the UAV.

8.After completion, power on and let GPS adapt to the weather, so that the UAV can adapt to the weather during operation and fly perfectly.

9.Before take-off, the number of GPS stars must be 17 or more, and make sure the surrounding conditions are favourable for take-off.

IN FLIGHT

1.The pilot must always pay attention to the UAV's attitude, flight time, aircraft position and other important information.

2.When flying at a distance, the security person is required to report the real-time status of the UAV through the intercom.

3.It is necessary to ensure that the UAV has enough power to return safely.

4.When flying beyond the visual range, it is necessary to closely monitor the UAV attitude, altitude, speed, battery voltage, number of GPS satellites and other important information displayed in the ground station.

5.After takeoff, pay attention to the flight status of the UAV, grasp the flight data of the UAV in real time, and ensure that the flight data indicators are in good condition.

6.If the UAV encounters a major failure and inevitably crashes, it must first ensure the safety of personnel.

AFTER LANDING

1.After landing, ensure that the remote control is locked, and then cut off the power supply of the UAV.

2.Check the battery power. Inspect UAV appearance and equipment loaded.

3.Tidy up the equipment after the demonstration.

PRECAUTIONS

1.When debugging the UAV, it is necessary to ensure that the propeller is not installed on the motor (it is forbidden to debug the aircraft when the propeller is installed on the motor, otherwise accidents may occur).

2.Close takeoff is strictly prohibited. Keep a distance of more than 5 meters from the UAV when taking off.

3.It is strictly prohibited to suddenly push the throttle to take off to avoid uncontrollable accident.

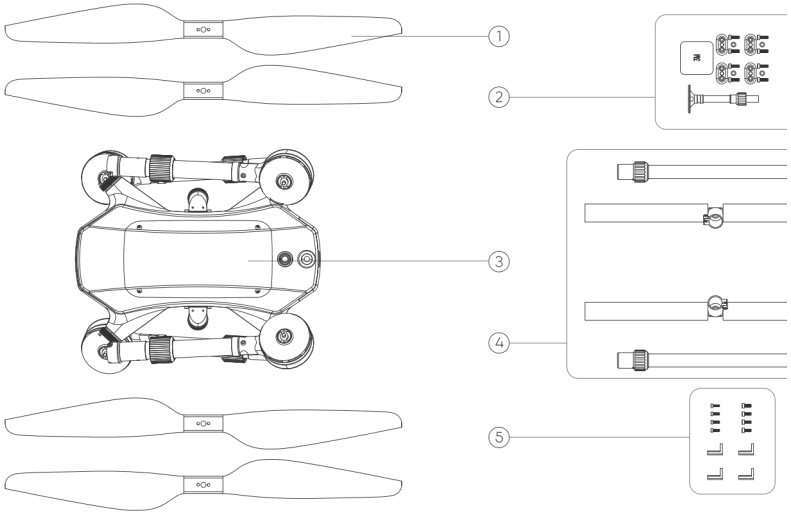
4.It is strictly forbidden for non-test personnel to move the remote control to avoid accidents caused by misoperation.

5.Under NO circumstances should anyone touch the UAV in landing.

6.It is strictly prohibited to pick up the UAV when the propellers are rotating after the aircraft lands.

05 ASSEMBLY

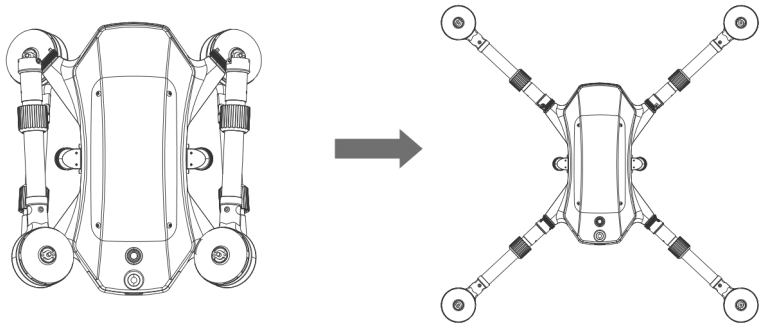
1. Content (Figure 1)



(Figure 1)

1 Propeller: 2 Pairs
2 Motor accessories: 1 bag (GPS stick*1, 3M tape*5, motor accessories*4)
3 Body: 1PC
4 Landing gear: 2 Sets
5 Gimbal parts: 1 bag (gimbal hook*4, M2.5*8 screw*4

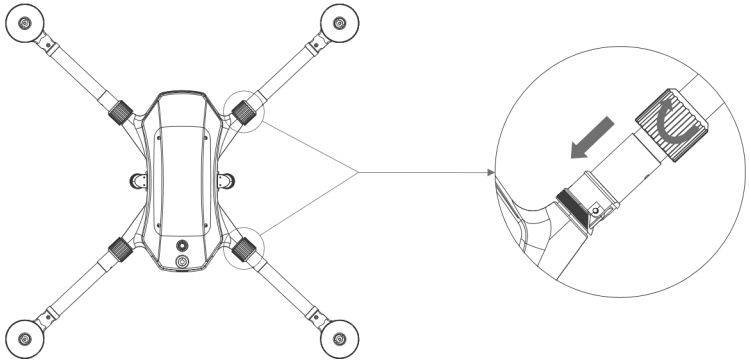
2. Take out the frame and spread. (Figure 2)



(Figure 2)

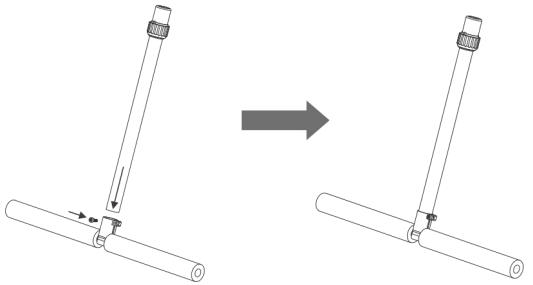
5. Attach the landings gears to the frame as per Figure 5. Assembly completes as shown Figure 6. (Please be aware of the

3. Spread the arms to 180 degrees and turn the folding rings as per the instruction and secure the arms.(Make sure the arms are lined up with the frame, otherwise, they might get stuck and cause damage to the thread.)(Figure 3)



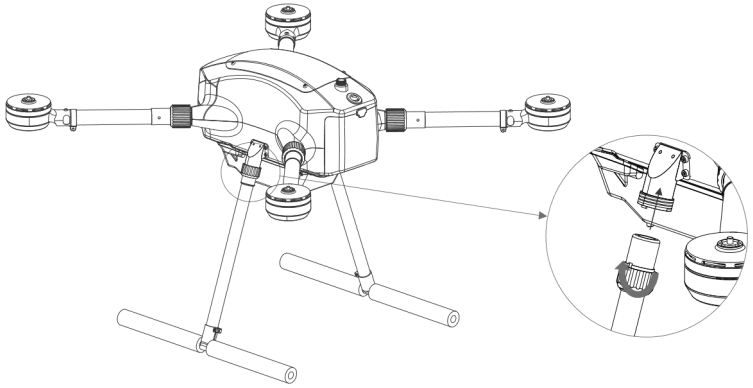
(Figure 3)

4. Assemble the landings gears to the frame as per Figure 4.

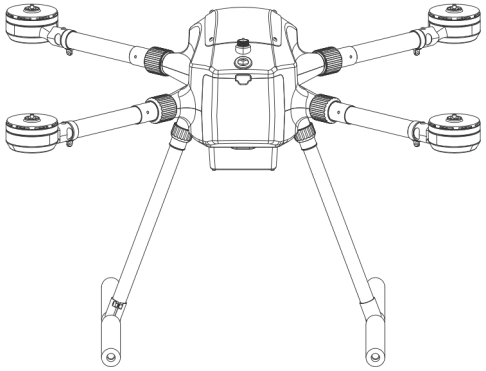


(Figure 4)

limiting structure on the landing gear, and make sure they are in place before secure the rings.)



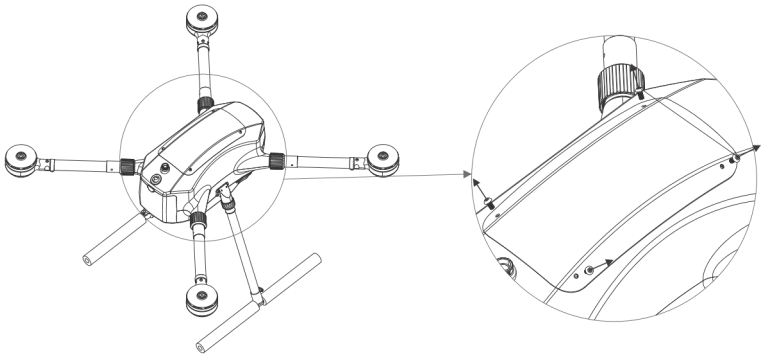
(Figure 5)



(Figure 6)

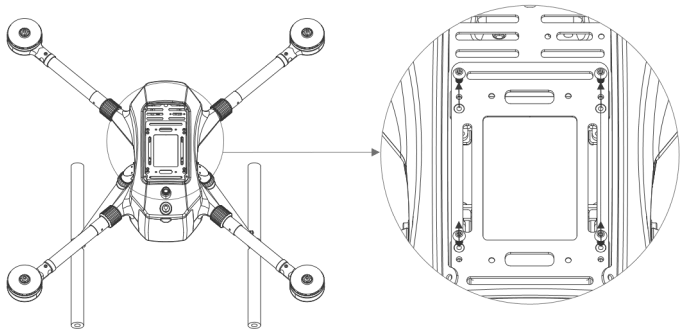
06 FC INSTALLATION (Pixhawk)

1. Remove the upper cover of the frame(Figure 7)



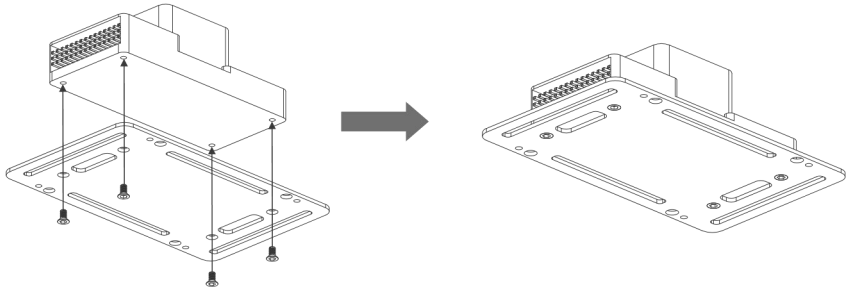
(Figure 7)

1. Take off the flight control mounting plate.(Figure 8)



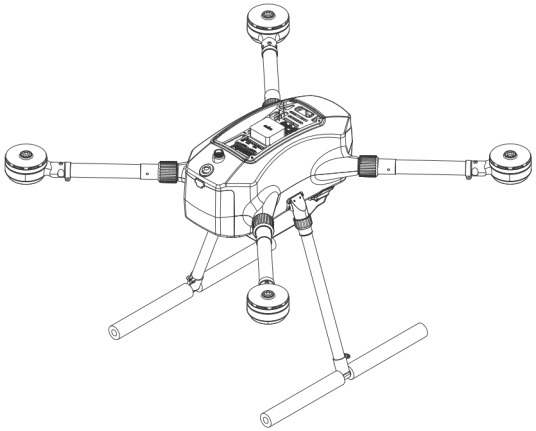
(Figure 8)

3. Fix the flight control on the plate.(Figure 9)



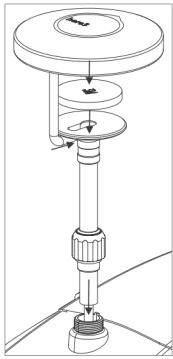
(Figure 9)

4. Set the mounting plate onto the frame.(Figure 10)



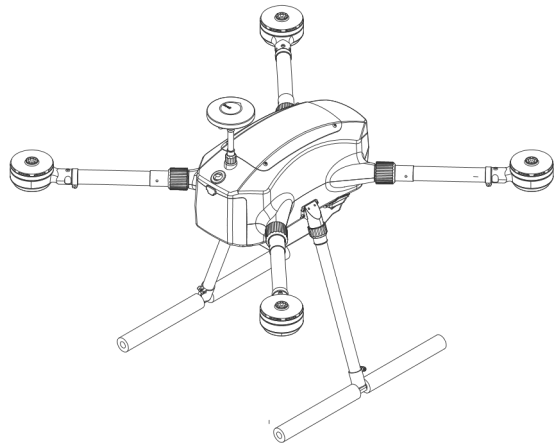
(Figure 10)

5.Put the GPS wire into the GPS holder from the side, and stick it to the holder with 3M tape. Then turn the GPS fixing ring clockwise to the frame. (Please be aware of the limiting structure on the GPS holder, and make sure they are in place before secure the rings.) (Figure 11)



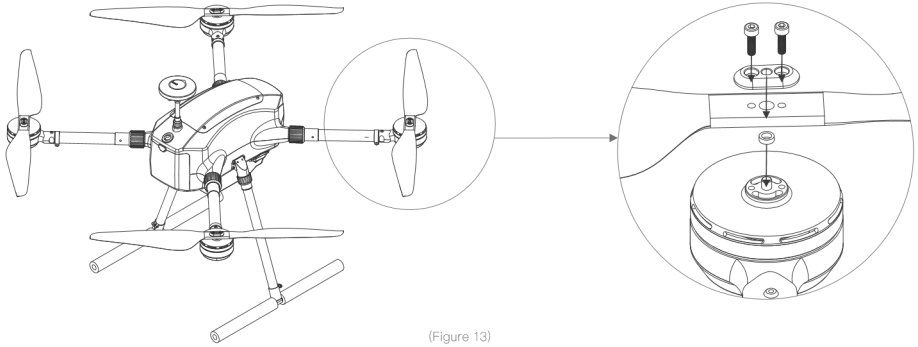
(Figure 11)

6.After all connection are made and flight control is adjusted, fix the top cover. (Figure 12)

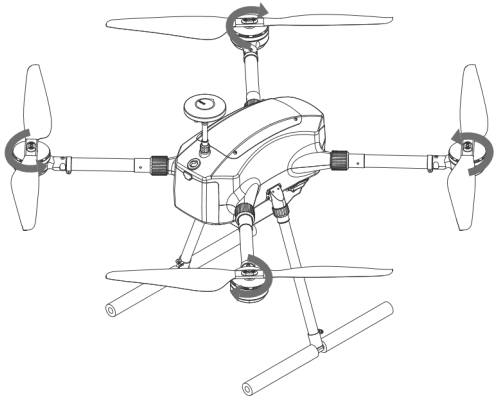


(Figure 12)

7.Install the propeller according to Figure 13. Propeller installation completed as shown Figure 14.
(Make sure CW and CCW are in place.)



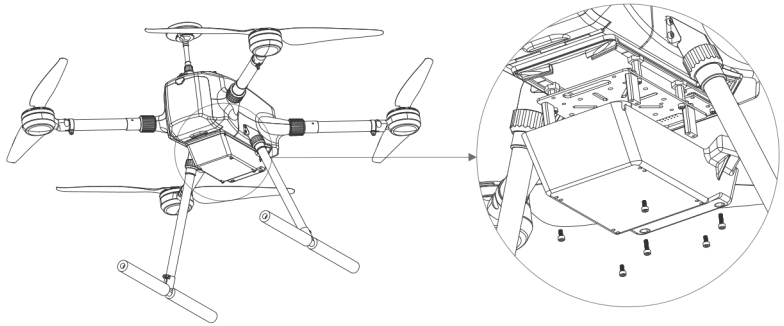
(Figure 13)



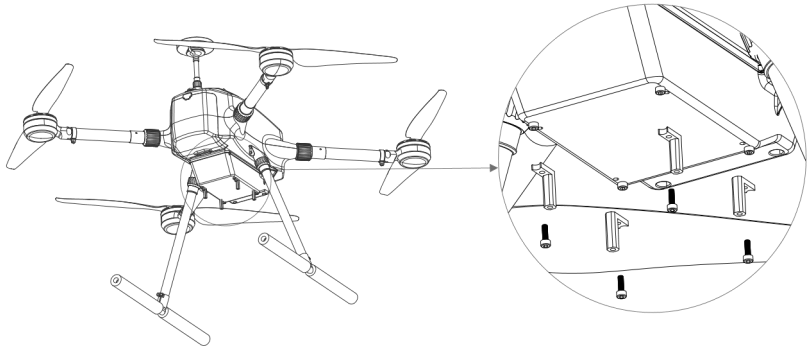
(Figure 14)

07 DISASSEMBLY OF GIMBAL SHELL AND ADAPTER

1.Remove gimbal shell.(Figure 15)

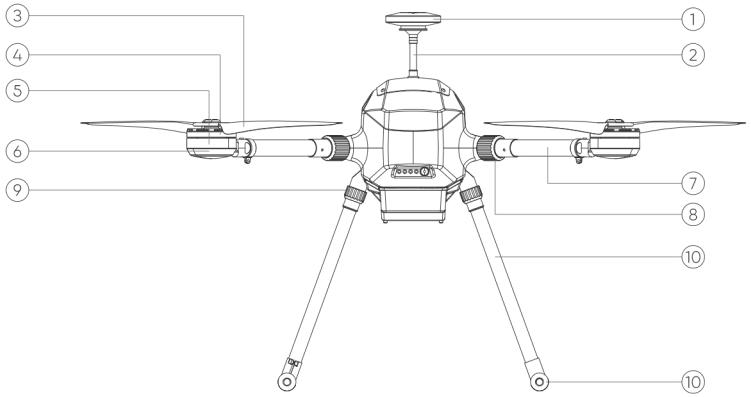


(Figure 15)



(Figure 16)

08 COMPONENTS

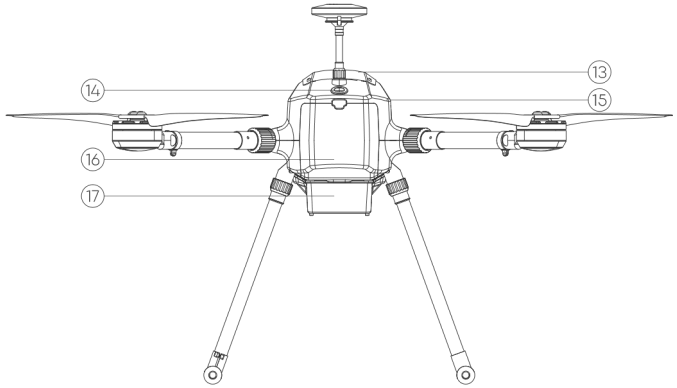


(Figure 17 Front view)

① GPS ② GPS holder ③ Propeller ④ Motor ⑤ Motor mount ⑥ LED cover

⑦ Carbon tube ⑧ Arm fixing ring ⑨ Landing gear fixing ring ⑩ Landing gear tube

⑪ Shock absorber ⑫ Power button



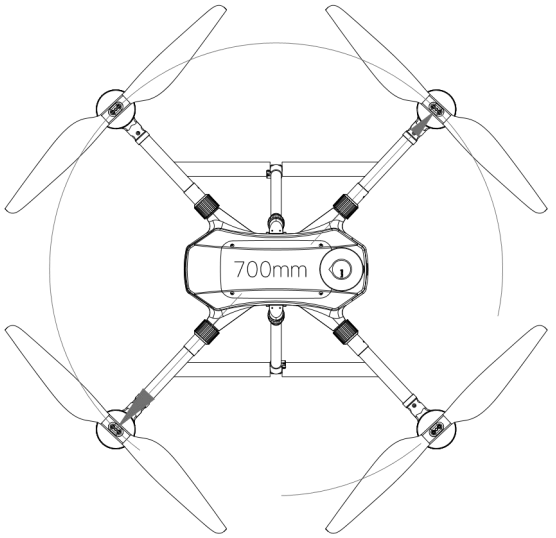
(Figure 18 Back view)

⑬Top cover ⑭ Switch button ⑮ Frame ⑯ Back cover ⑰ Gimbal shell

(Figure 19 Front view)

09 DIMENSIONS

1.Wheelbase.(Figure 19)

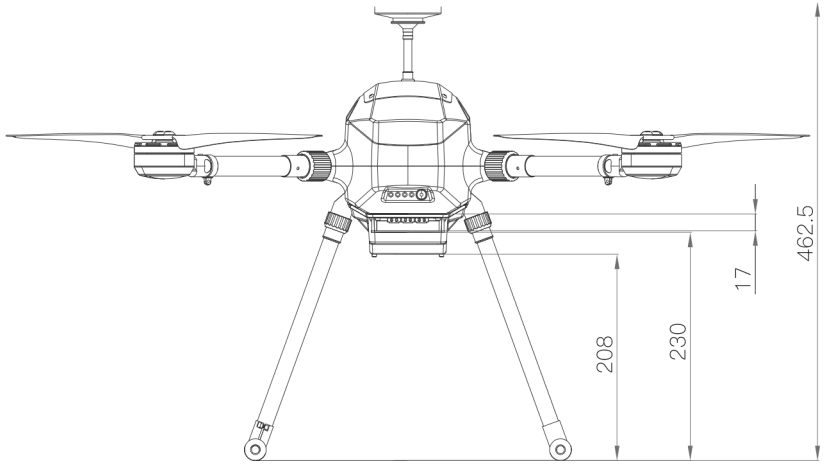


1.Other sizes (Figure 20&21)

a.FC installation height：40mm b.Battery case: 87.6mm*77.5mm

c.Inner size for gimbal: 17mm d.Mounting height for gimbal: 230mm

e.Gimbal shell height: 208mm f.Height of M690PRO: 462.5mm



(Figure 20)