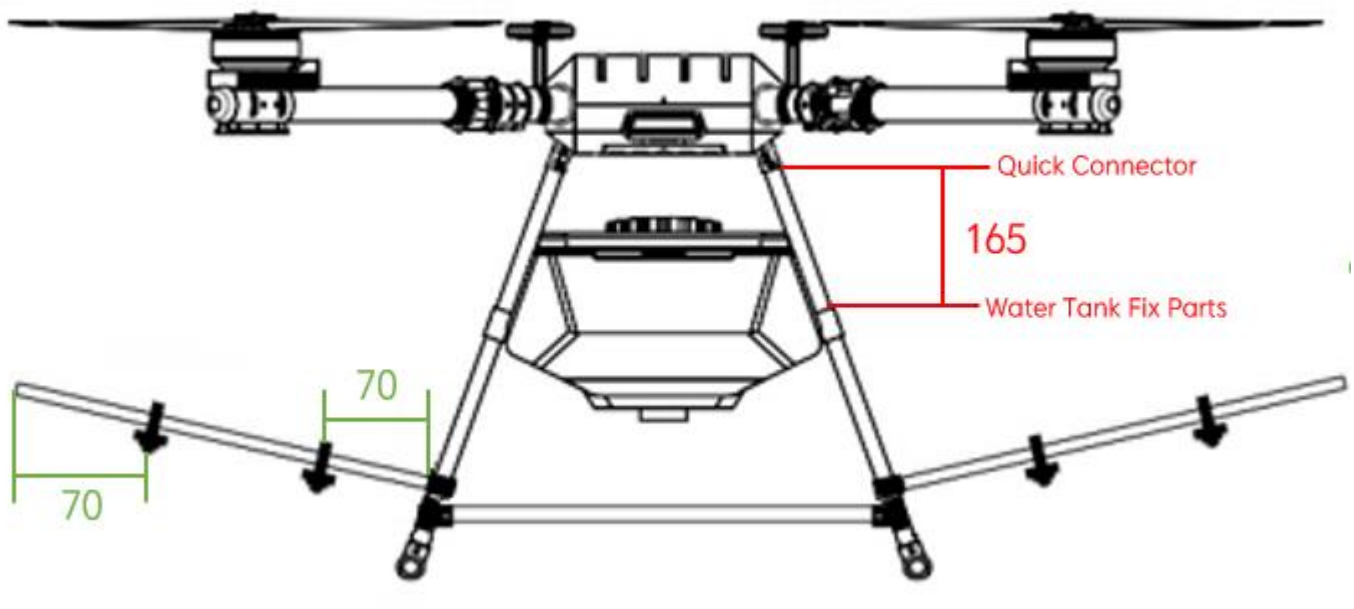
PREX9-Q16 Assembly Manual

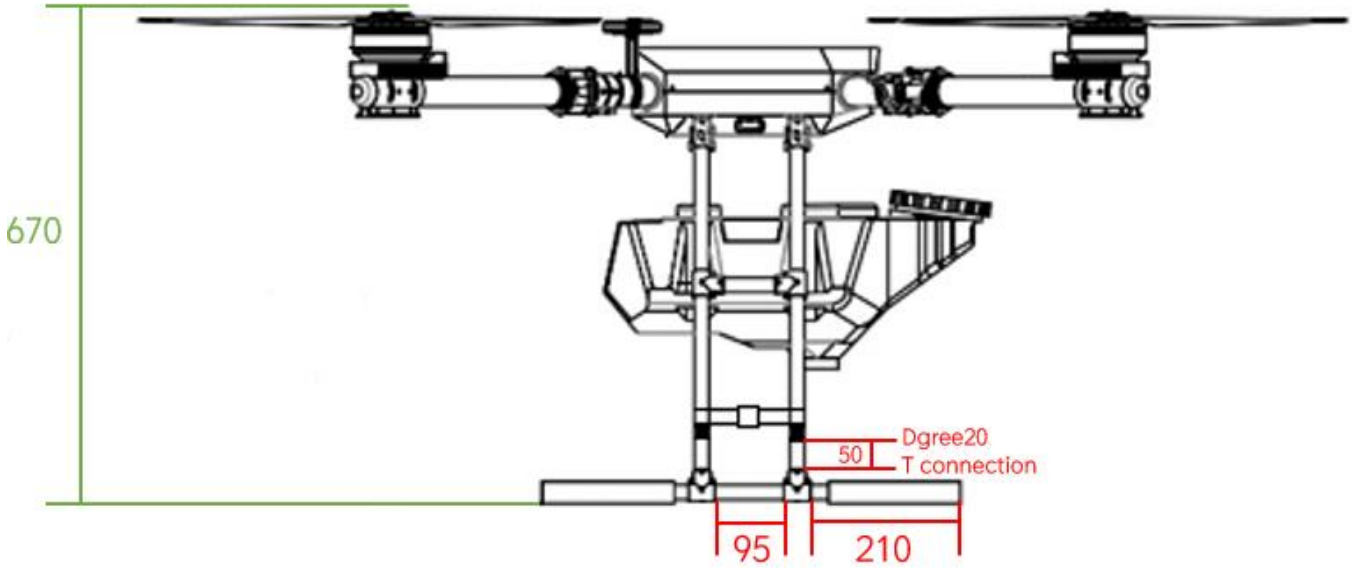
Assembly Preparation

Assembly Order

Q16 Assembly Drawings

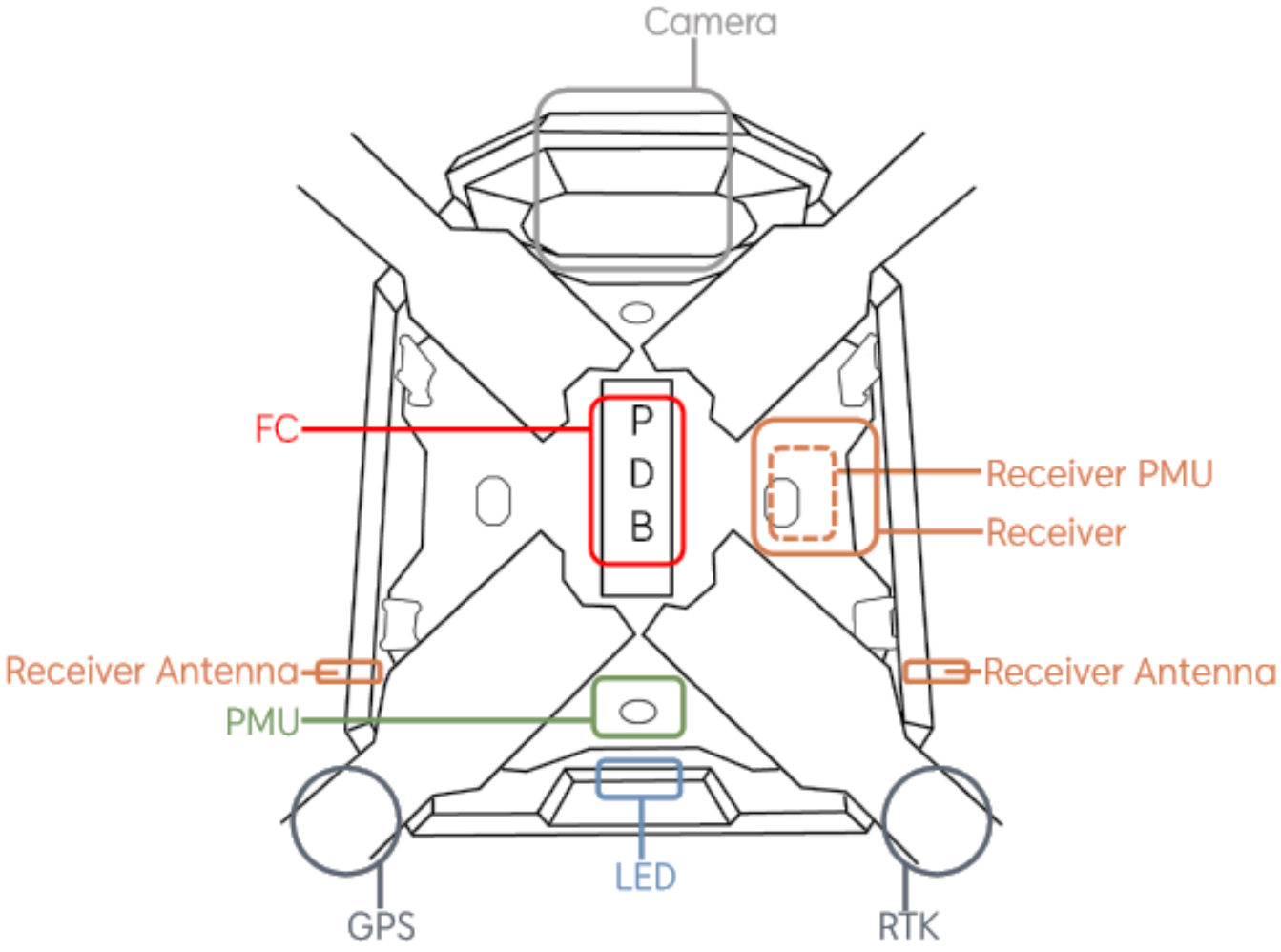


Unit (mm)

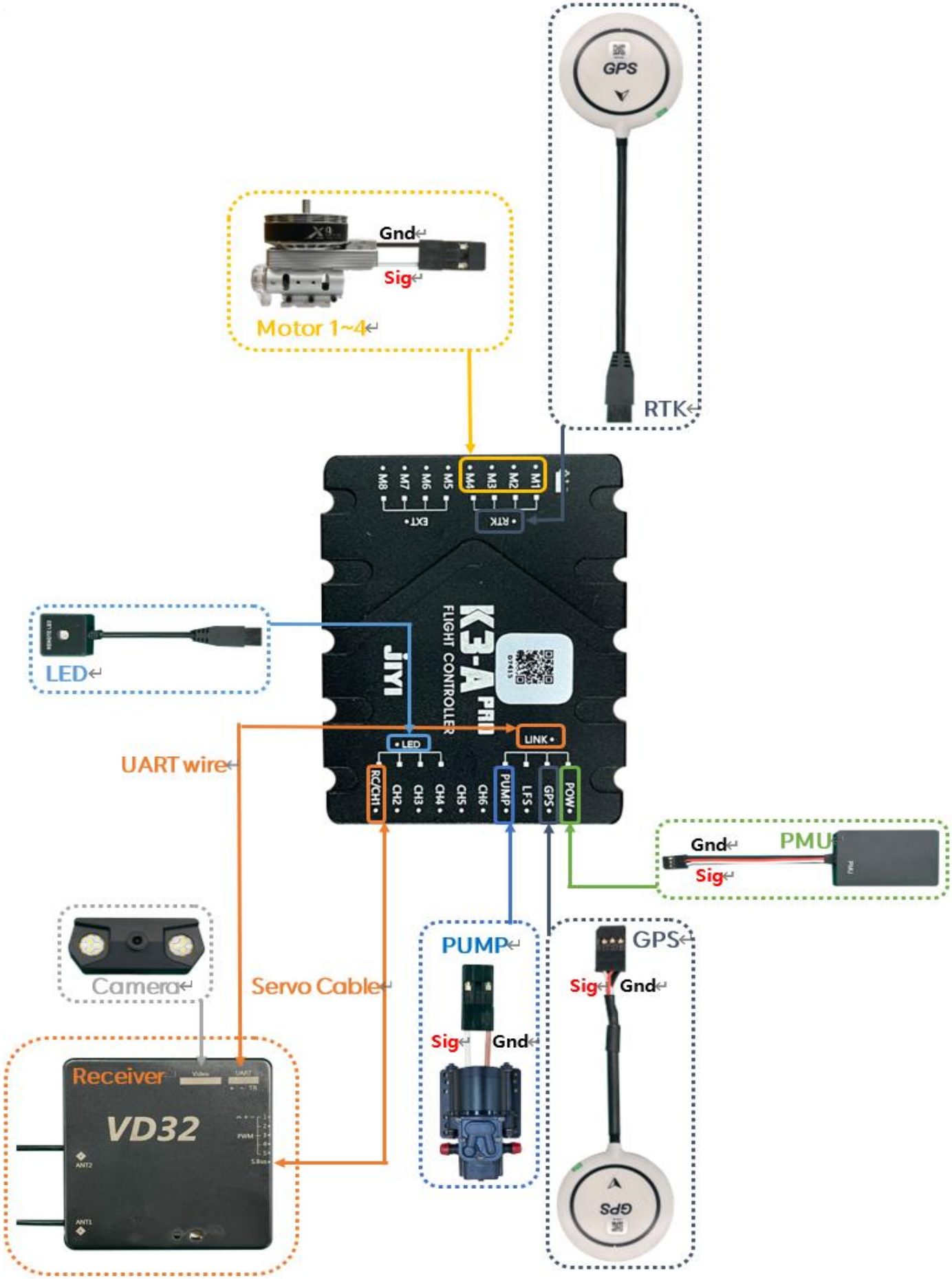


Unit (mm)

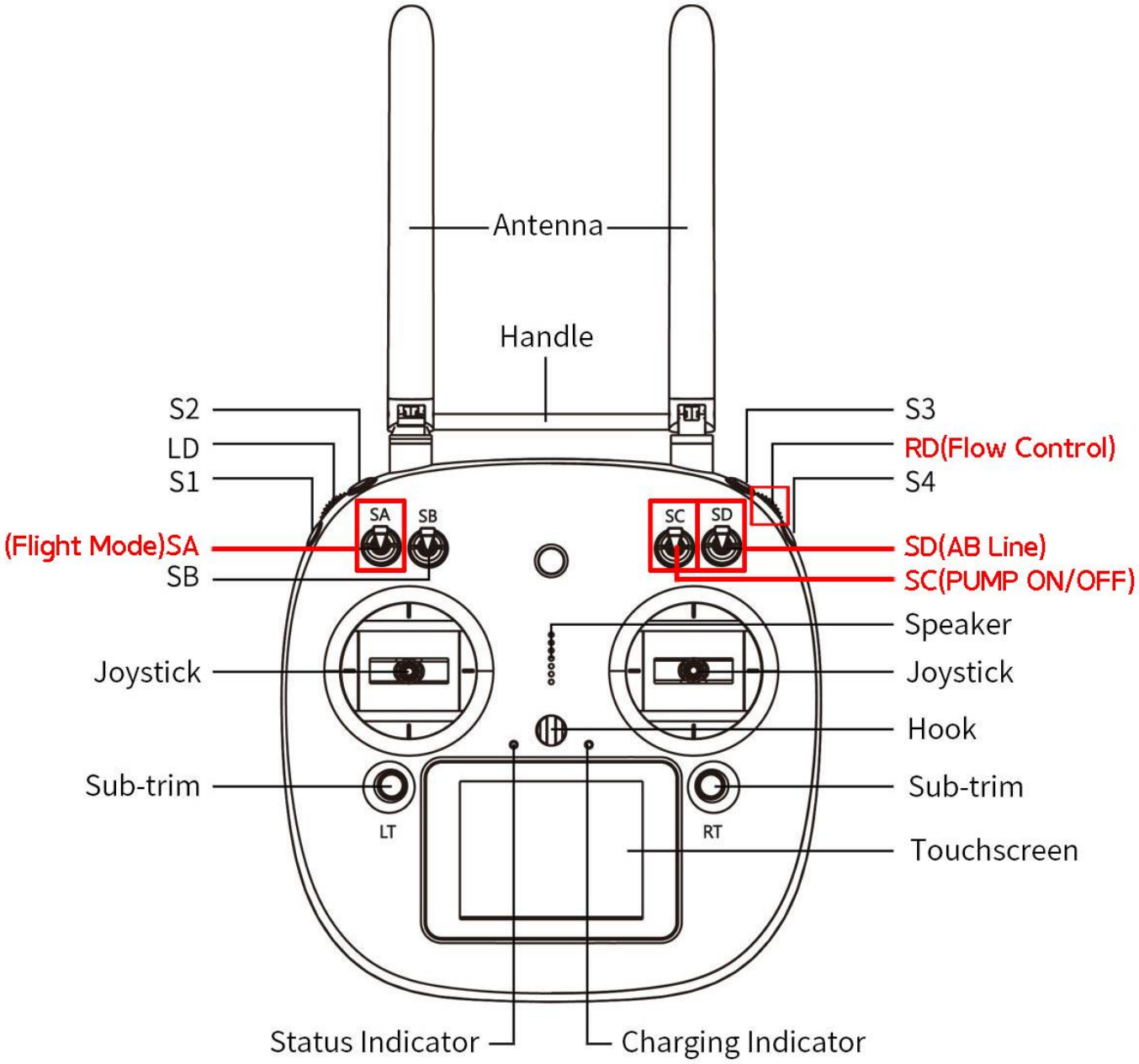
Q16 Interior Layout

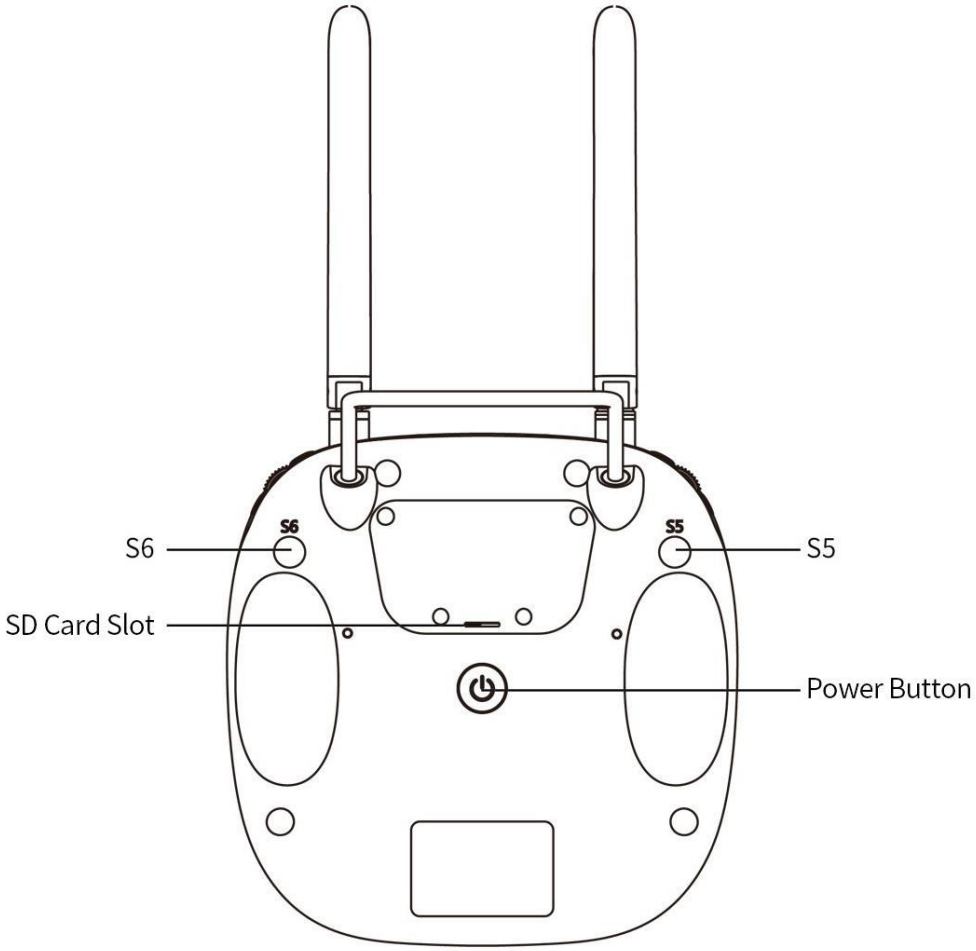


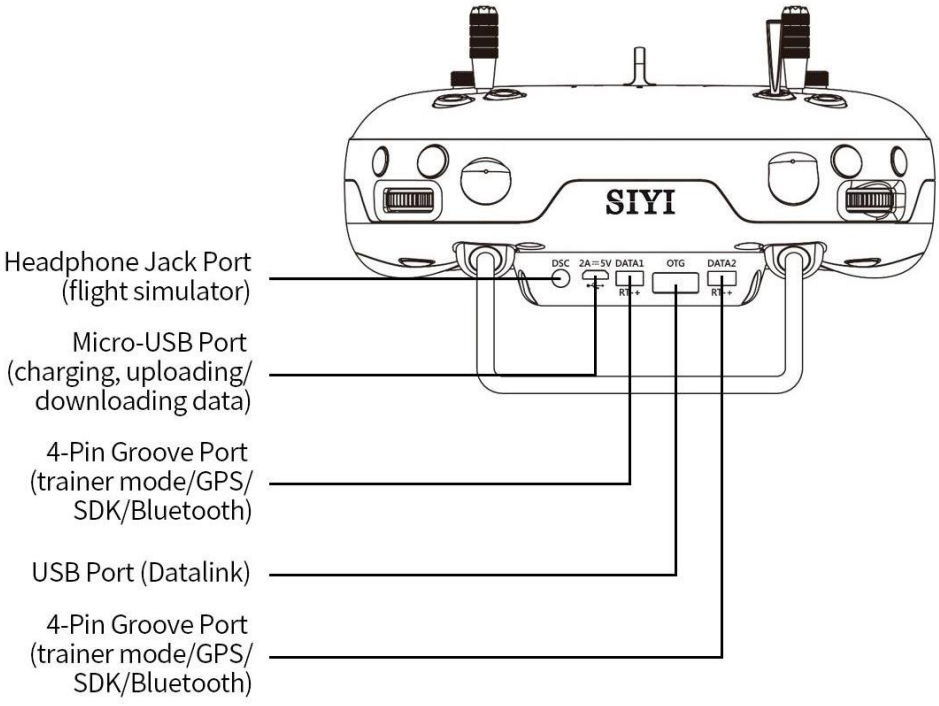
Q16 Wiring Diagram



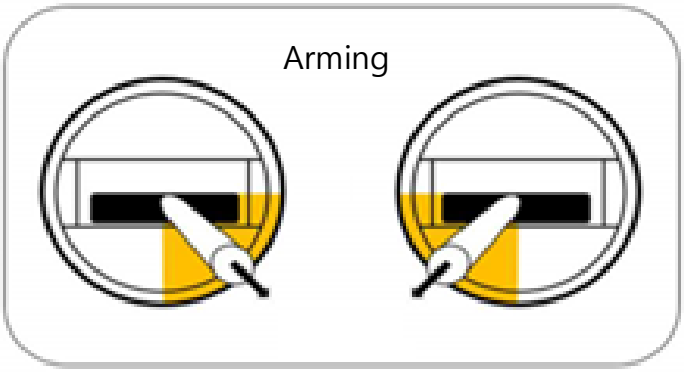
Q16 Control Key

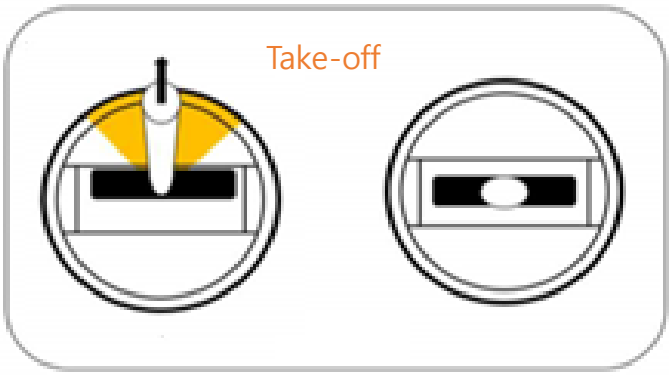


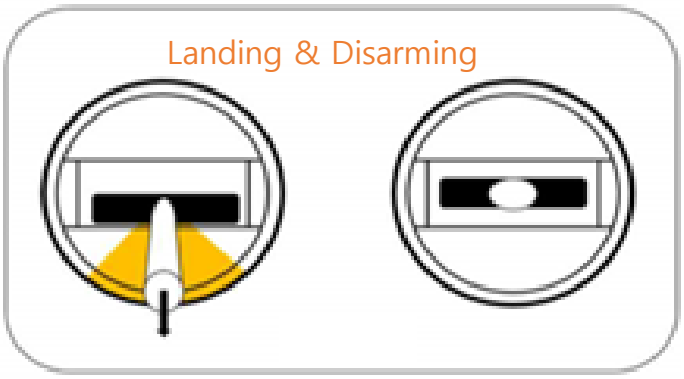

S6
S5
S6
S5
SD Card Slot
Power Button

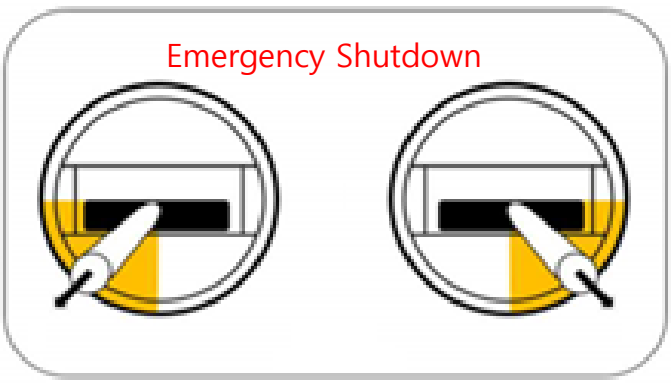

SIYI
DSC
2A⎓5V
DATA1
OTG
DATA2
Headphone Jack Port
(flight simulator)
Micro-USB Port
(charging, uploading/
downloading data)
4-Pin Groove Port
(trainer mode/GPS/
SDK/Bluetooth)
USB Port (Datalink)
4-Pin Groove Port
(trainer mode/GPS/
SDK/Bluetooth)

Q16 Flight Control







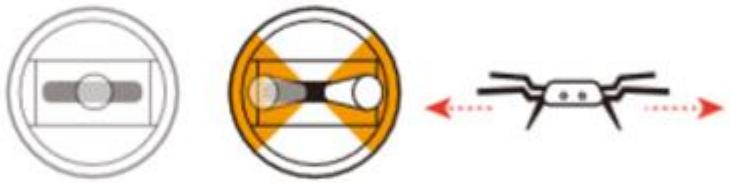
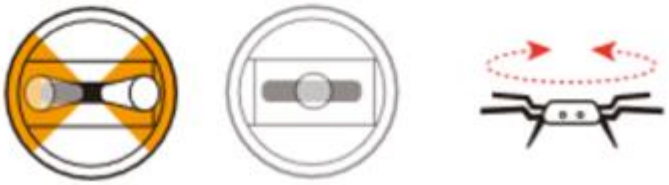


During Take-off, Landing Control, move the Joystick slowly and take off and land because there is a risk of falling if you move the Joystick quickly.

When the drone is in the Disarming Control after landing, pull down the Joystick completely and hold the motor until it stops.

Emergency Shutdown Control is used only in emergency situations because the motor is stopped immediately after execution regardless of flight situation and drone condition.

Flight Modes (SA switch)		
		
Attitude mode	GPS mode	AB mode

Flight Control
 up/down(throttle)
 altitude hold
 forward/backward(pitch•elevator)
 left/right(roll•aileron)
 turn(yaw•rudder)

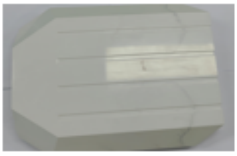
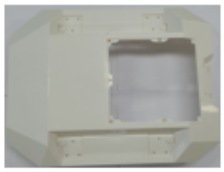
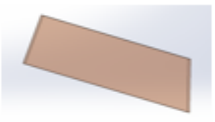
Q16 LED Indicator

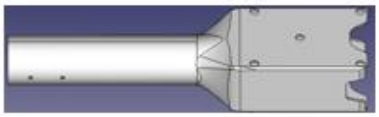
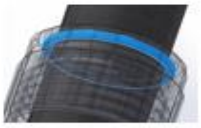
List		Color	State
Power	Power on		Blinking alternately
Arming	Start		Blinking alternately
	Fail		Lighting up
Flight mode	Attitude mode		1 Blinking repeat
	GPS mode		2 Blinking repeat
	AB mode		3 Blinking repeat
GPS siganl	lost or not received		3 Blinking repeat
	Risk level		2 Blinking repeat
	insufficient level		1 Blinking repeat
Compass Calibration	Starting calibration mode		Blinking alternately
	Horizontal calibrating		Lighting up
	Horizontal calibration completed		Lighting up
	Vertical calibrating		Lighting up
	Vertical calibration completed		Blinking alternately
	Fail		Lighting up
Low voltage alarm	First alarm		3 Blinking repeat
	Second alarm		1 Blinking quick
Abnormal condition	Transmitter signal lost		1 Blinking quick
	Compass status is abnormal		Blinking alternately
	GPS signal lost		Blinking alternately
	Vibration is severe		Blinking alternately

Required Parts 1

ITEM		Quantity
	Q10 Kit	1
	K3A-PRO	1
	Servo Cable_15cm	1
	UART wire for K3A-PRO	1
	VD32	1
	Receiver Extend Cable (XT60H-m to XT60H-f)	1
	X9 Motor CW_40mm	2
	X9 Motor CCW_40mm	2
	3411 Paddle Set CW(include Hub)	2
	3411 Paddle Set CCW(include Hub)	2
	3411 Propeller Sponge	4
	HobbyWing Water Pump 5L	1
	16L Water Tank + Battery Plate Set	1
	Battery Extend cable (AS150U-f to XT90-m*2 Wire)	1

››Q16 Kit Parts

Q10 Kit ITEM		Quantity
	Canopy(TOP)_Q10	1
	Canopy Grill(front)_Q10	1
	Canopy Grill(rear)_Q10	1
	Canopy(Bottom)_Q10	1
	Canopy Cover(Bottom)_Q10	1
	LED Cover	1
	LED Cover Board	1
	PDB (PDB+XT60-f 10EA+AS150U-m)	1
	Stand off_6mm (PDB)	8
	Aluminum Plate_Q10	1
	Carbon Plate_Q10	1
	Frame support bracket	4
	Arm Waterproof Outside Rubber	4

	Side Waterproof Rubber	2
	GPS Bracket	2
	Carbon Folding Arm_40 Degrees	4
	Carbon Folding Arm_390mm + Arm Hinge	4
	Arm Cap	4
	Arm Cap Rubber ring	4
	Arm Waterproof Damper	4
	Arm Joint	4
	Arm Holder(L)	2
	Arm Holder(S)	2
	Arm Lnner Nut plate	8
	Arm Stand off(M4 60mm)	4
	Arm Holder Stand off(M3 45mm)	4
	Water Tank Fix Parts	4

	Water Tank Retaining Bolts(4pcs)	1
	Landing Leg•Horizontal Bar(Carbon_500mm)	5
	AS150U Holder Set	1
	Aluminum Landing Pipe(580mm)	2
	Landing Sponge	4
	T Connection	4
	Degree 20	2
	Quick Connector	4
	Expansion Nozzle Bar	2
	Expansion Nozzle Bracket	2
	Two-Way Nozzle	2
	One-Way Nozzle	2

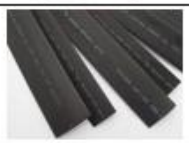
K3APRO	
	FC
	PMU
	LED
	GPS
	RTK
	K3A-PRO USB wire

▸▸K3A-PRO Parts

››VD32 Parts

VD32	
	Transmitter
	Receiver(Receiver+PMU+Antenna)
	Camera
	OTG wire(5pin•Ctype)

Required Parts 2

ITEM	
	XT60H-m + sheath
	Velcro Tape_Hook•Loop
	Mesh Tube_1/2 pie
	Heat Shrink Tube_5cm(12mm)
	Pneumatic Pipe Air Hose Tube_6X4
	Pneumatic Pipe Air Hose Tube_10X6.5
	Pneumatic Pipe Air Hose Tube_12X8
	One-Touch Fitting PL12-02 PUL 12-10 PGT 10-6-6
	Hex Socket Cap Screw - Stainless Steel M4 18, 14, 12, 10, 8 mm M3 20, 16, 12, 10, 8 mm M2 8mm
	Button Head Hex Socket Cap Screw - Stainless Steel M3 5mm
	Hex Lock Nut - Stainless Steel M4 M3
	Washer - Stainless Steel M4 M3

Required Tools

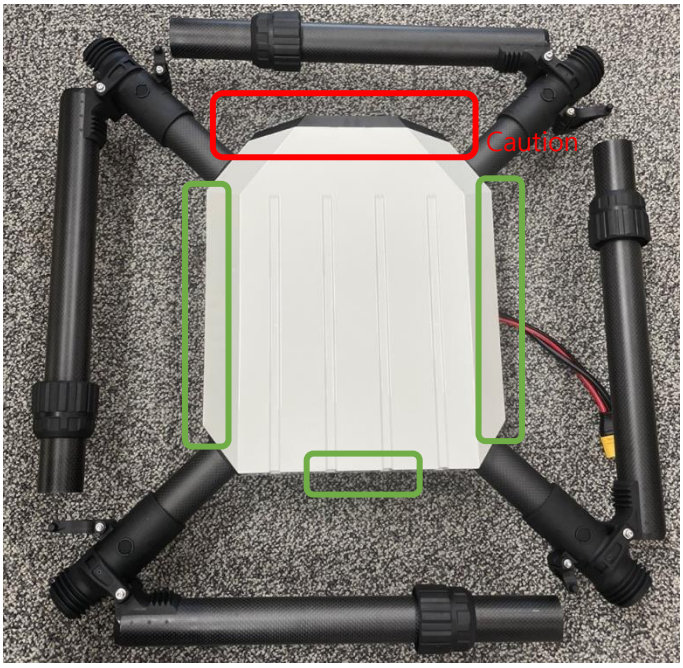
ITEM	
	Drill
	Scissors
	Nipper
	Driver Handle
 1.5mm 2mm 2.5mm 3mm 4mm	Hex Screwdriver Bit 1.5mm 2.0mm 2.5mm 3.0mm 4.0mm
	Aluminum Level
	Drill bit
	Monkey Spanner
	Cross Driver
	Loctite 242

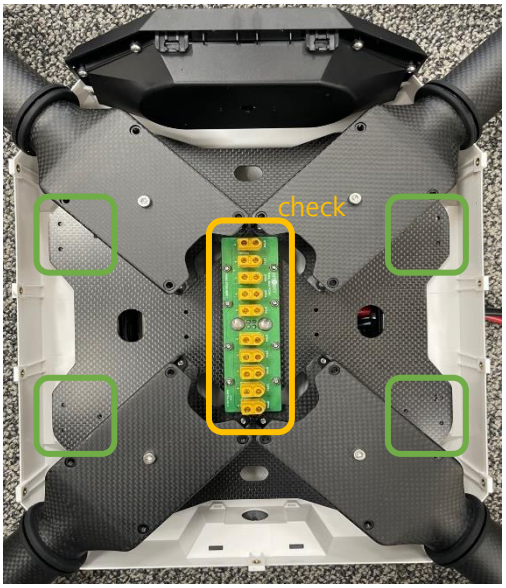
	Cable Tie
	Teflon Tape or Loctite 5113
	PVC Tape
	3M Double Sided Tape
	Heating Gun
	Soldering Iron
	Solder
	Soldering Vise

※ Precautions for Assembly

1. Incorrect assembly can cause personal injury, so be sure to read the assembly manual before assembling.
2. When assembling, always pay attention to safety.
3. Know the exact name of the part.
4. Assemble according to the dimensions of the Q16 drawing.
5. To prevent accidents, use locking tightness 242, an anti-screw anti-locking agent, to tighten bolts.
6. If you tighten the bolt with an electric drill, it may break the bolt if it is too strong, so tighten it with a low torque and use the electric drill and tighten it once more with your hand using the driver handle.
7. You should be fully aware of the drone status through LED indicators.
8. If you do not understand this assembly manual, do not assemble it.

1. Head Separation





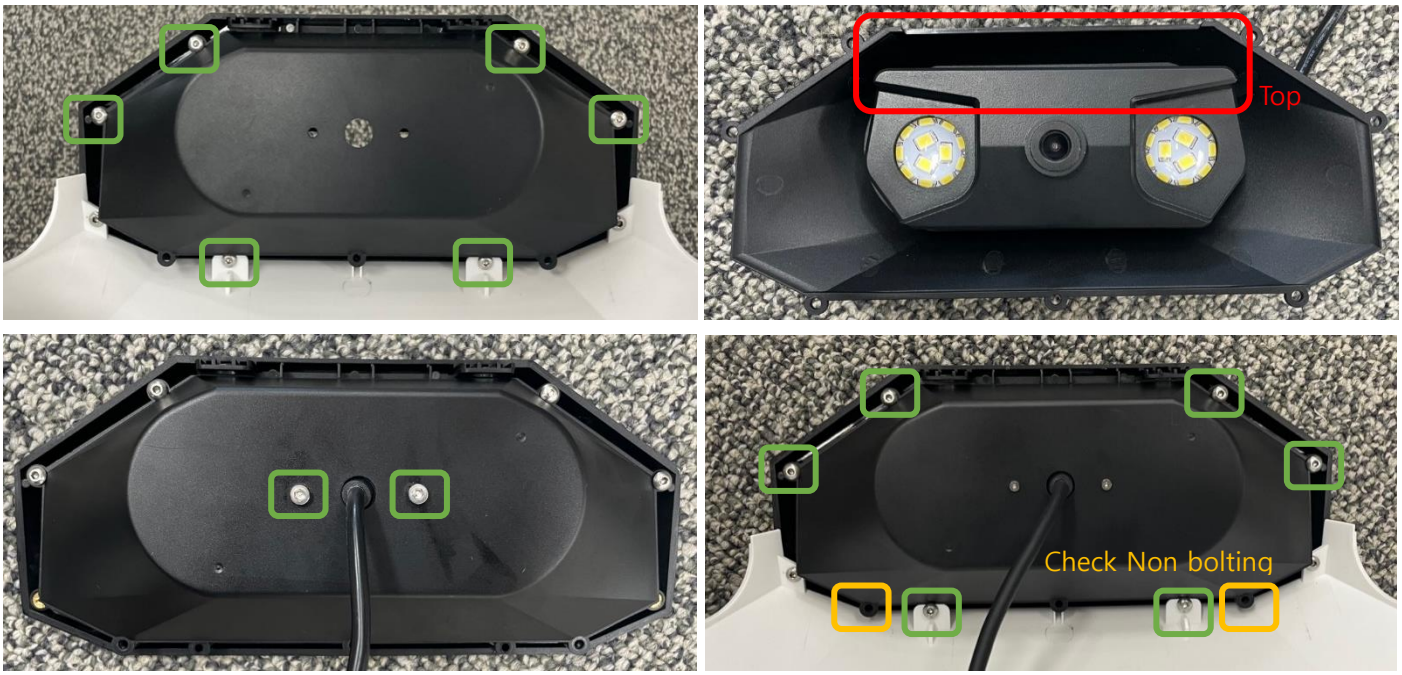
1) Loosen the upper canopy bolt, and separate the upper canopy and the upper aluminum plate.

Caution) When removing the top canopy, carefully remove the part that is coupled to the camera bracket as there is a risk of damage.

2) Loosen and remove the stand-off and quick connector bolts that are coupled to the bottom carbon plate and the bottom canopy.

Check point) Check the soldering condition of the PDB, and if there is a shortage, remove it and re-solder it.

2. Camera and Bracket Connections



1) Loosen and remove the bottom canopy, camera bracket, and front grill bolts.

2) Assembly the camera onto the camera bracket and tighten it with an M3-8mm bolt.

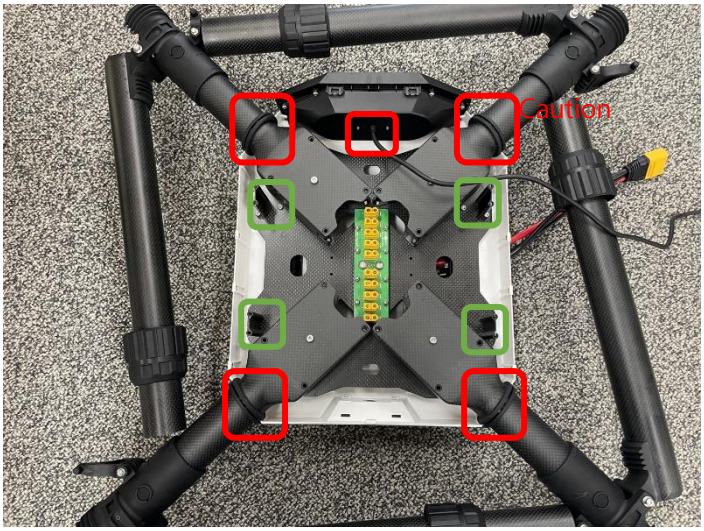
   Caution) Assemble the camera bracket and the top of the camera properly.

3) Tighten the camera bracket and the front grill with a round head M3-5mm bolt.

   Check) Do not tighten the lower part of the camera bracket for camera replacement.

4) Tighten the camera bracket to the bottom canopy with a round head M3-5mm bolt.

3. Head Assemble



1) Combine bottom canopy and bottom plate carbon plate.

Caution) The bottom canopy and the arm waterproof rubber must be correctly combined.

Caution) Be careful not to catch the camera cable between the bottom canopy and the bottom carbon plate when joining.

2) Tighten the stand-off and quick connectors to the bottom canopy with M3-14mm (stand-off), M3-12mm bolts.

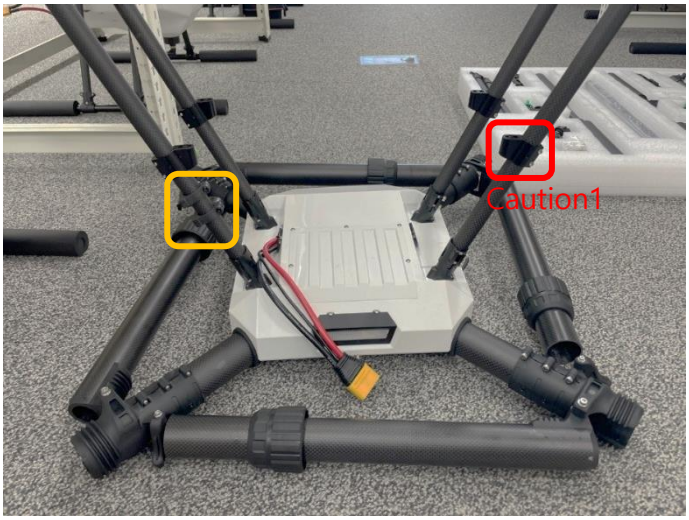
4. Leg Assemble

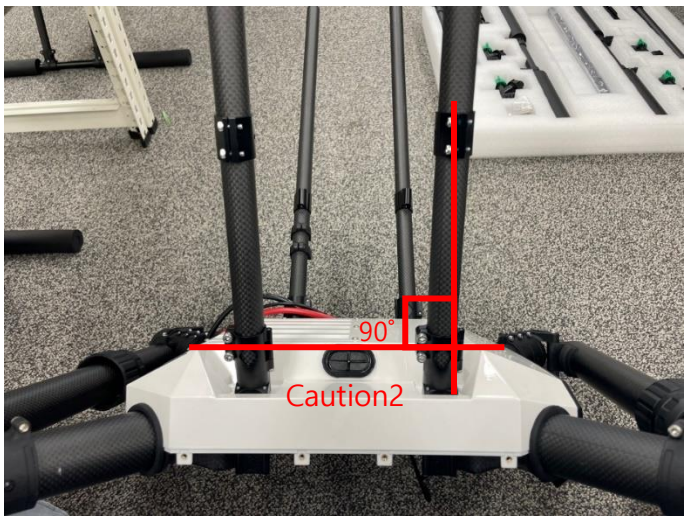
1) Place the water tank fixing bracket 145mm apart and fix it to the Leg using the M3-10mm bolt.

Caution 1) Since the top and bottom of the water tank fixing bracket are different, combine them as shown in the picture.

2) Connect the AS150U bracket holder to one of the Legs.

Caution 2) The bolt holes of the AS150U bracket holder shall be combined as shown in the photo (The photo shows the back of the bolt hole).





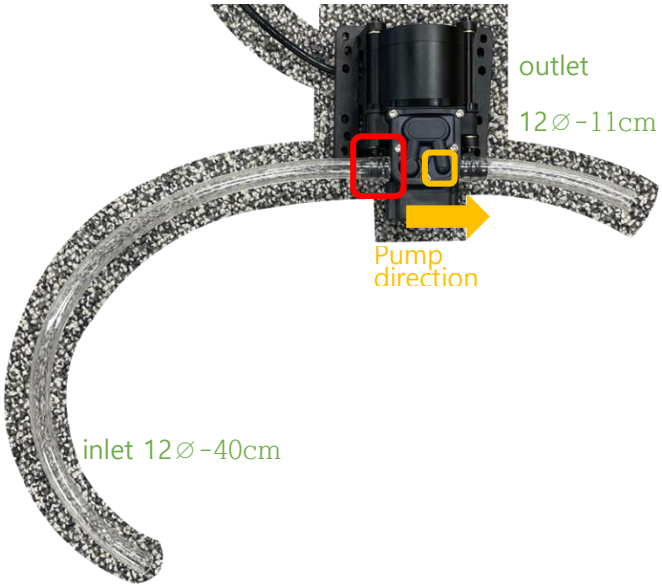
3) Turn the head upside down and join the leg to the quick connector.

Check) The legs to which the AS150U bracket holder is coupled are joined to the left rear quick connector based on when the head is upside down. (When the drone is upright, the AS150U bracket holder should be on the right rear leg of the fuselage.)

Caution 1) Check the top and bottom of the water tank fixing bracket and combine them.

Caution 2) The head and the water tank fixing bracket bolt must be engaged at right angles.

5. Water tank pre-work



1) Combine the cap under the pump and the PL6-02 fitting.

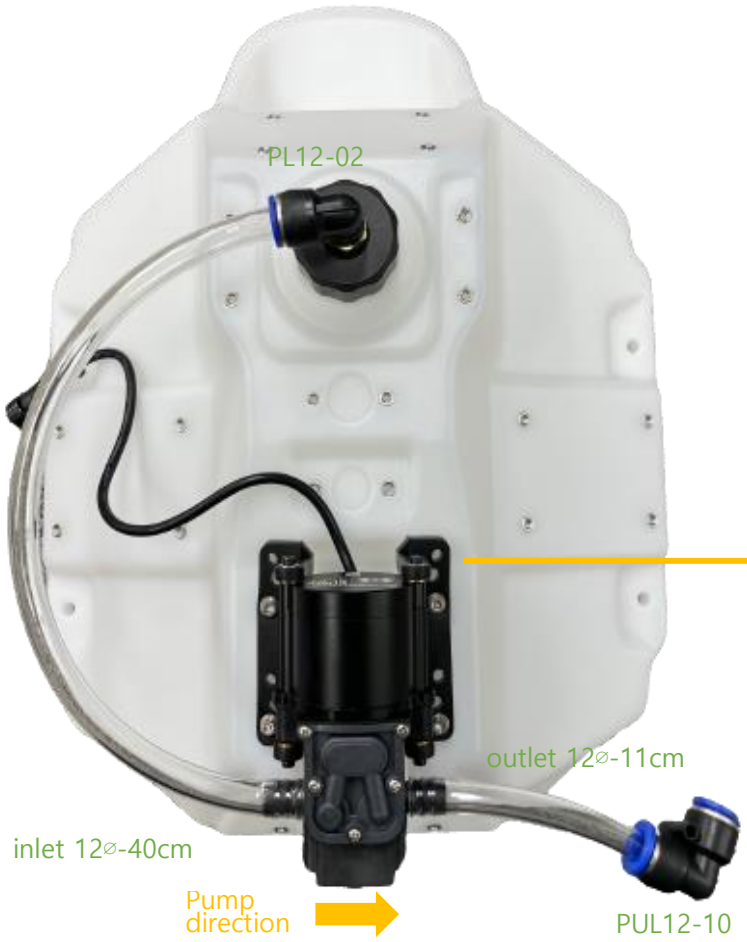
   Check) Wrap the Teflon tape (or Loctite 5113) around the thread of the PL6-02 fitting to prevent leakage of pesticides.

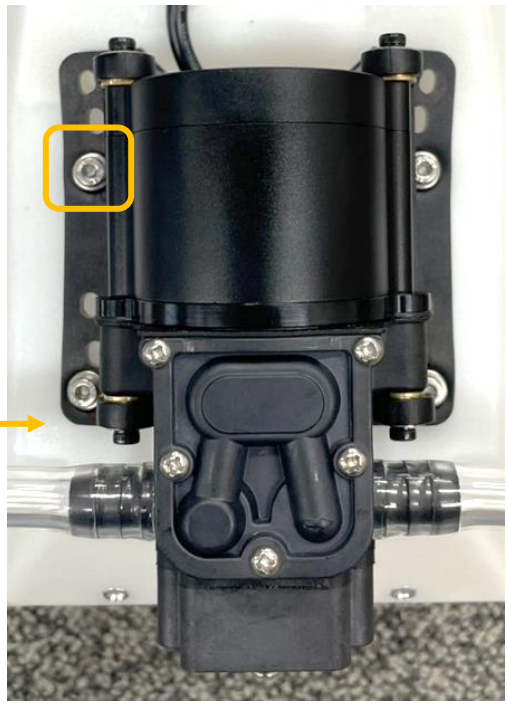
   Caution) When combined with a water tank, check if there are two waterproof rubbers and a chemical filter.

2) Connect a 12∅-40cm hose tube to the inlet of the pump and a 12∅-11cm hose tube to the outlet of the pump.

   Check) confirm the inlet and outlet through the direction of the arrow (=the direction in which the drug flows) indicated on the pump.

   Caution) Make the hose tube flexible with a heating gun and connect it to the pump. (Careful that excessive use of the heating gun may result in excessive expansion of the hose tube and easy removal from the pump.)





3) Fit the pump to the water tank with M4 washer and M4-12mm bolt.

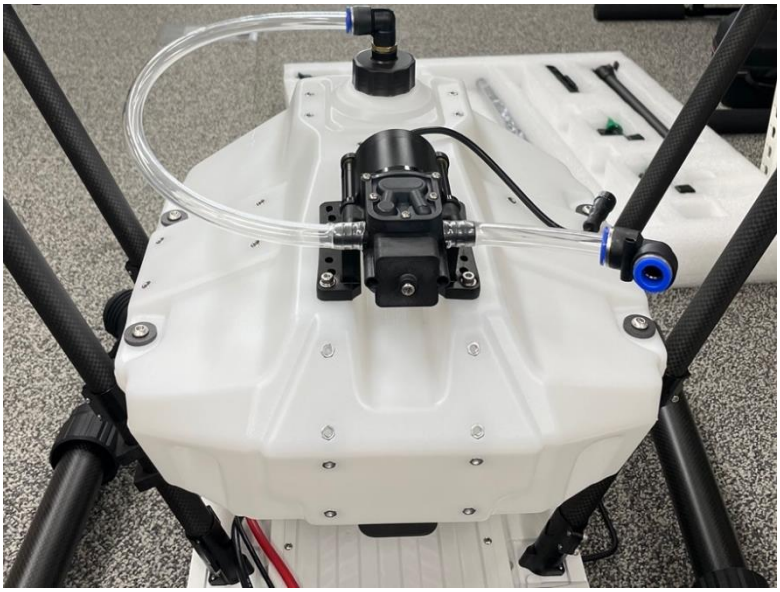
   Check) Tighten the pump's rubber damper only to the point where it is slightly pressed.

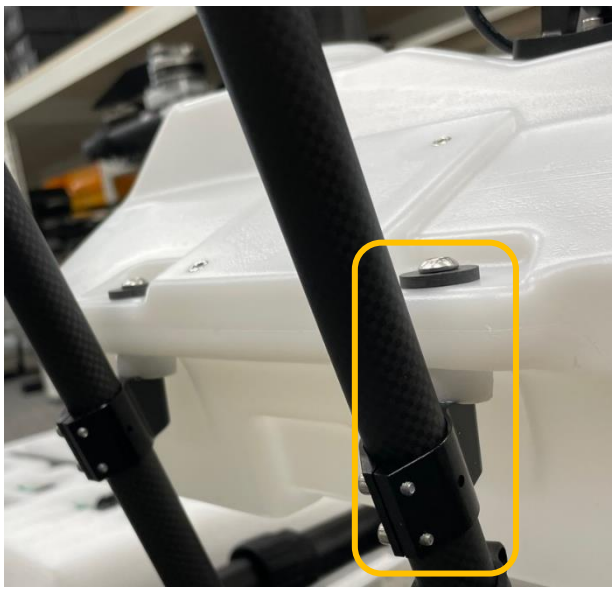
   Caution) If the bolt is fastened with too strong a torque, the nut in the water bottle will turn with the bolt and the bolt will not be able to be removed later, so be careful.

4) Connect the hose tube of the pump inlet to the PL6-02 fitting of the bottom lid of the water tank.

5) Connect the PUL12-10 fitting to the hose tube at the pump outlet.

6. Water tank Assemble



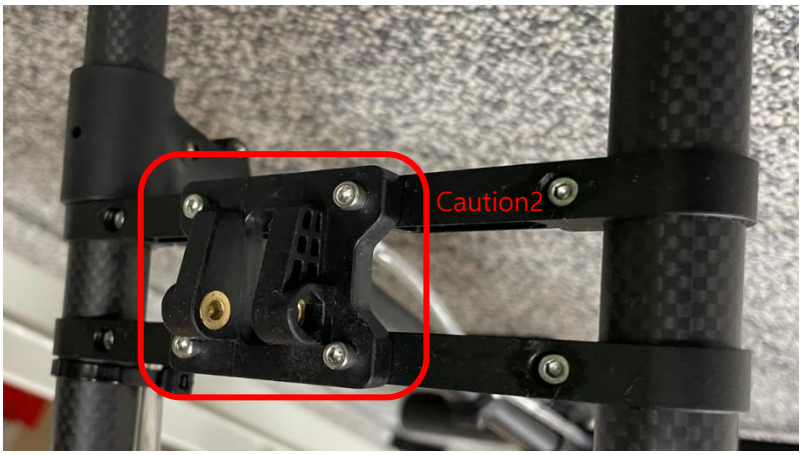


1) Combine the water tank fixing bracket and the water tank with the water tank fixing bolt.

Check) The rubber damper of the water tank fixing bolt shall be installed between the water tank and the water tank fixing bracket.

Caution) Correctly align the bolt holes of the water tank fixing bolt and the water tank fixing bracket so that the bolts can be fastened in a straight line.

7. Assemble Foot and Horizontal Bar



1) Fit the expansion nozzle bracket and degree 20 on the leg.

Check) Fit the expansion nozzle bracket first and install the degree 20.

Caution 1) Check the direction of the degree 20 and attach it to the front leg of the drone.

Caution 2) Check the direction of the expansion nozzle bracket before installing it.

2) After mounting the foot at intervals on both sides, tighten the T connection using the M3-20mm (Center) and the M3-10mm (Side) bolts.

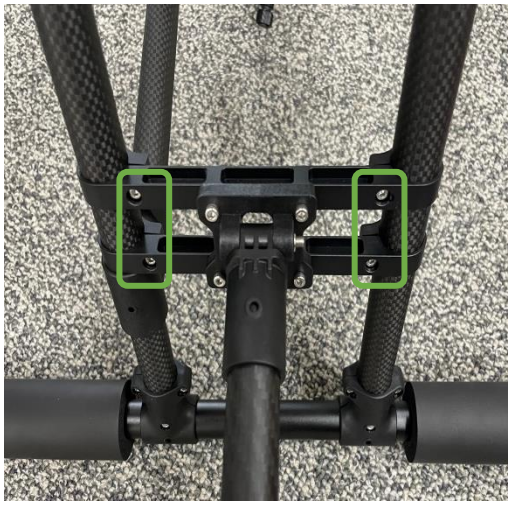
Check) Foot end point to T Connection = 210mm, T Connection distance = 95mm

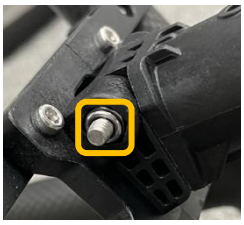
Caution) When the aircraft is upright, the foot must be horizontal to the floor without lifting or shaking. (If the foot is not level with the floor, loosen the M3-20mm and M3-10mm bolt of the T Connection with the aircraft upright and then re-tighten it.)

3) After fit horizontal bar keep away the Degree 20 by 45mm from the T Connection and tighten the M3-20mm (center) and M3-10mm (side) bolts.

Caution) The horizontal bar must be fully mounted on the Degree 20.

8. Assemble Expansion nozzle

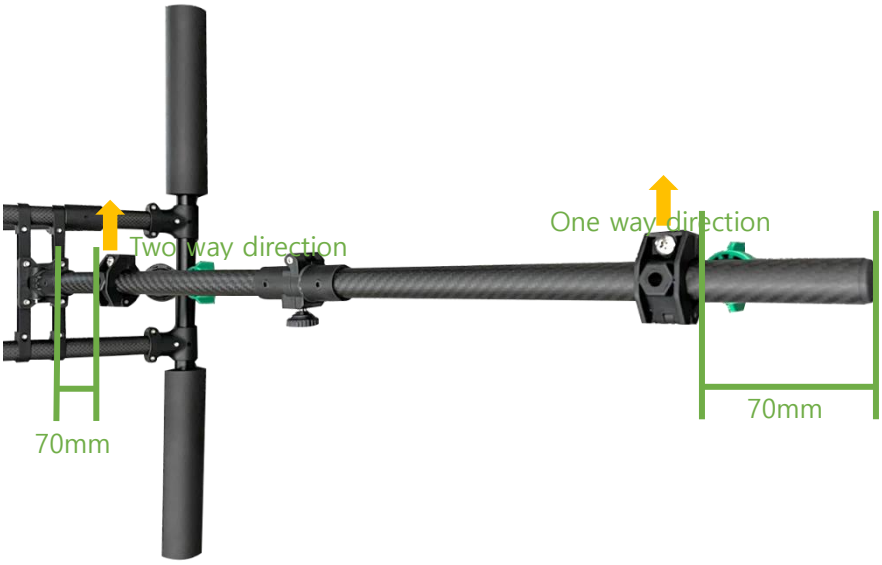




1) Place the expansion nozzle bracket on the degree 20 and secure the M3-14mm bolt.

2) Attach the expansion nozzle to the expansion nozzle bracket and assemble the bolt and nut.

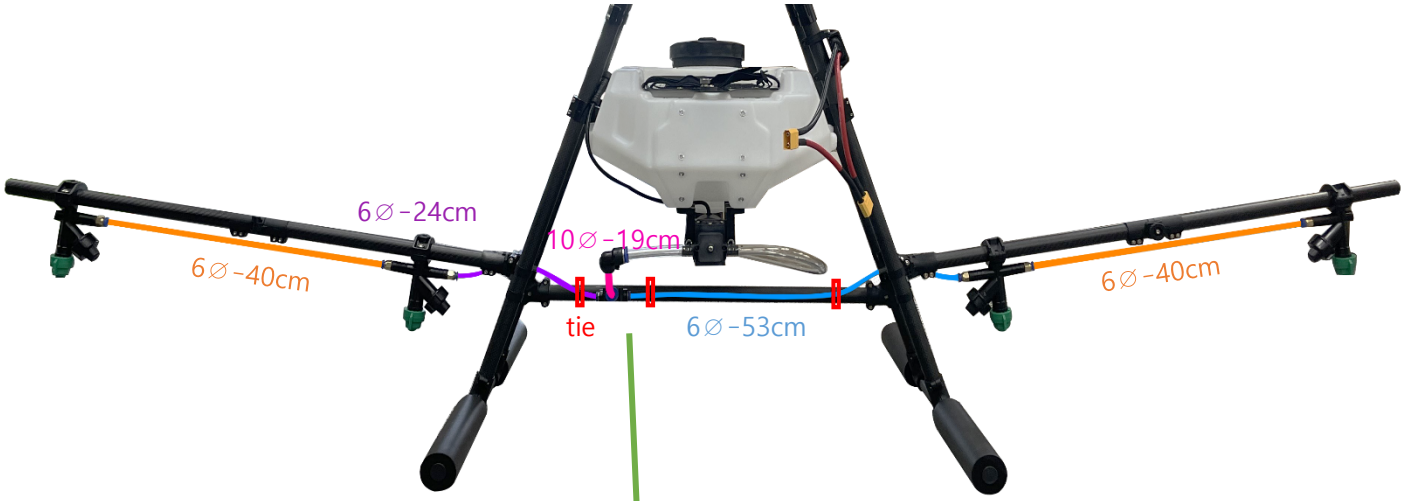
Check) The bolt head hole is circular, and the nut hole is hexagonal.

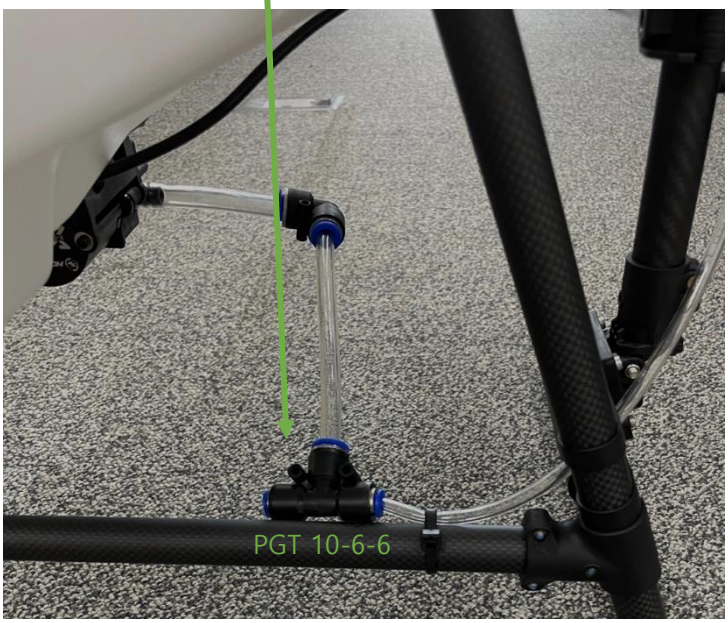


3) Position the two-way nozzle and the one-way nozzle on the expansion nozzle bar as shown in the figure above and fix it with a cross screwdriver.

Check) The bolts of the two-way nozzle and the one-way nozzle shall be in the same direction.

9. Hose Tube Connection



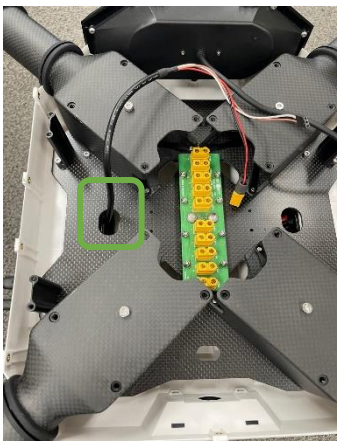


1) Cut and connect the hose tube according to the prescribed size and length.

Caution) When fixing the host tube with a cable tie, do not press the hose tube too hard.

10. Landing Part last task



1) Attach the AS150U-m cable to the AS150U holder bracket and fasten it with the M3-8mm bolt.

2) Fix the AS150 holder attached to the Leg by tightening the M3-8mm bolt.

3) Attach the 15cm velcro tape to the battery plate and connect the battery strap to the groove.

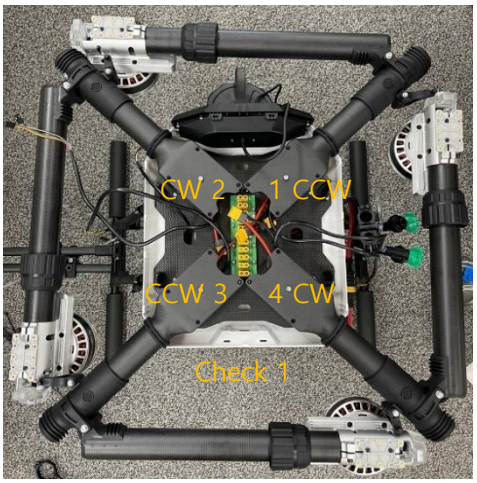
   Check) Battery plate : Velcro tape hook

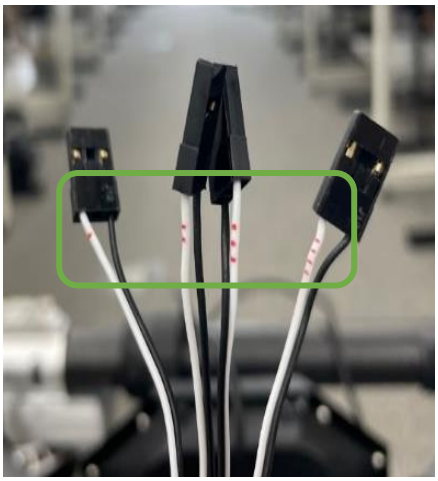
   Battery : Velcro Tape Loop

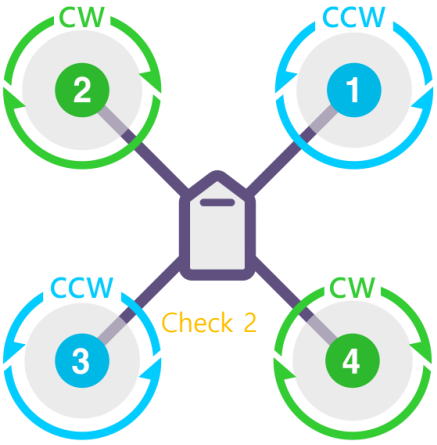
4) Connect the Pump and Pump cable and tie the cable to the Leg behind the left.

   Pass the terminal part of the pump cable through the left side waterproof rubber so that it is inside the head.

11. Preparing to assemble the motor and place the equipment







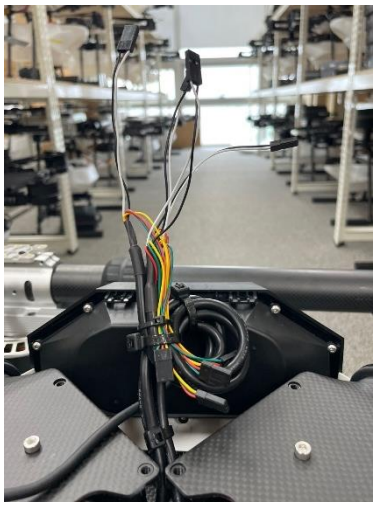
1) Mount the X9 motor on the arm

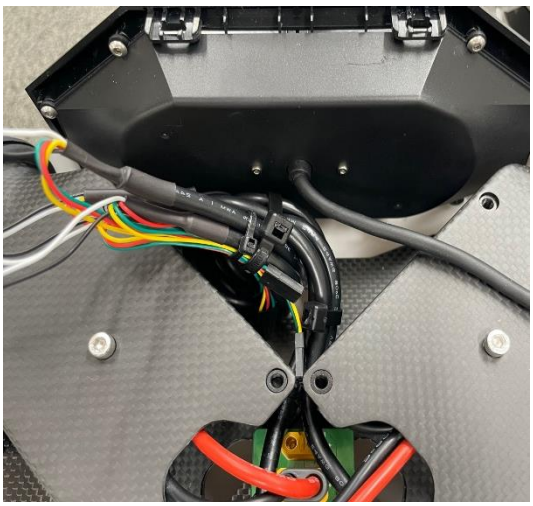
Check) The order of the arms is counterclockwise from 1 o'clock.

Check 1) The direction of the motor is No. 1 CCW, and it is mounted alternately.

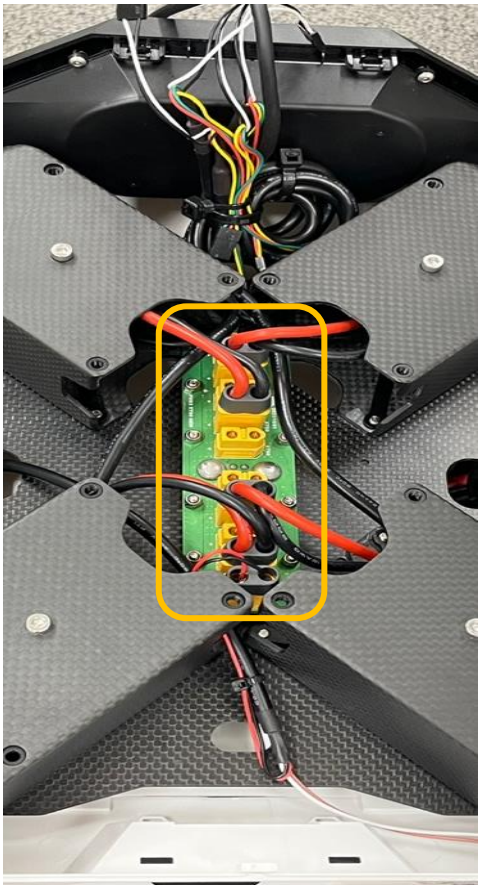
2) Mark the number of the motor on the signal line(white/black).

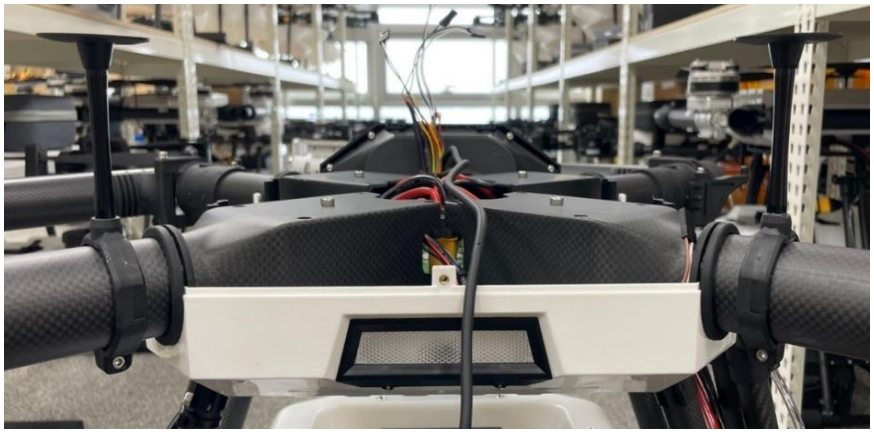
Check) Do not use red/yellow/green line of the motor.

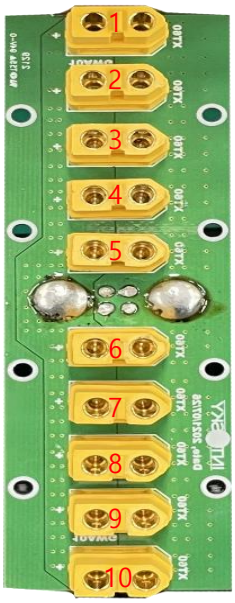




3) Gather the cables at the top and arrange the cables using a tie.







4) Connect the motor power cables to XT60-f, PDB Nos. 2, 4, 7, and 9.

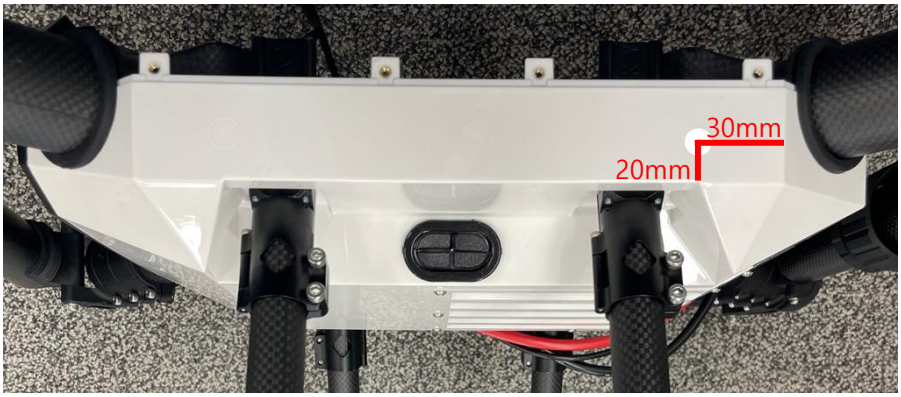
5) Connect the Pump power cable to No. 10 XT60-f of the PDB and pull the signal line to the bottom.

6) Cut and attach 3M double-sided tape to the inside of the GPS bracket according to the size, and attach it 15mm apart from the arm waterproof rubber of the 3rd and 4th arms.

Check) Since the GPS bracket is polygonal and the arm is circular, use 3M double-sided tape to secure the bracket.

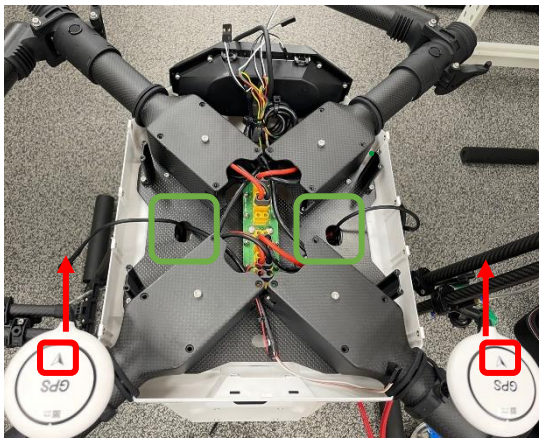
7) After leveling the GPS bracket, tighten it using the M3 8mm bolt.

Caution) When leveling the GPS bracket, the drone must be level with the floor.



8) Drill holes 7∅ in both sides behind the bottom canopy (receiver antenna hole).

12. Arrangement



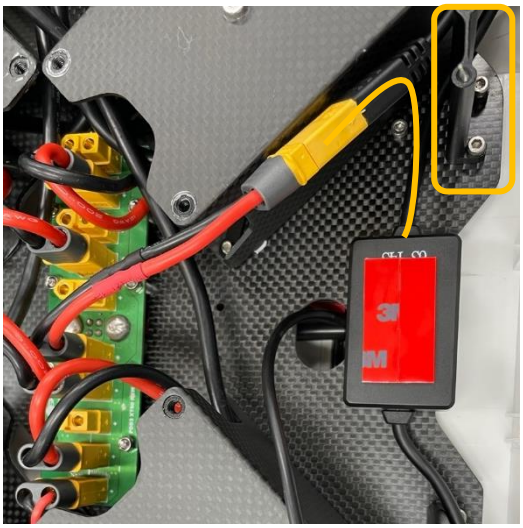
1) Attach the GPS •RTK to the GPS bracket using the 3M double-sided tape enclosed in the FC box.

   Check) Left bracket: GPS, Right bracket: RTK (Cable shape is different, so be careful.)

   Caution) Because GPS and RTK play an important role in positioning drones, the arrows marked on GPS and RTK should be correctly attached so that they look straight ahead.

2) Secure the GPS and RTK cable to the bracket with a tie and pass through the side waterproof rubber on each side to bring it inside the head.

   Caution) When fixing the cable, the cable should be secured in a relaxed manner without tightening and the tie should not be tightened strongly.



3) Connect the extension cable to the receiver power cable and connect it to PDB No. 6 XT60-f.

Check) Since the XT60-m of the power cable is long, an extension cable is used to mount the aluminum plate.

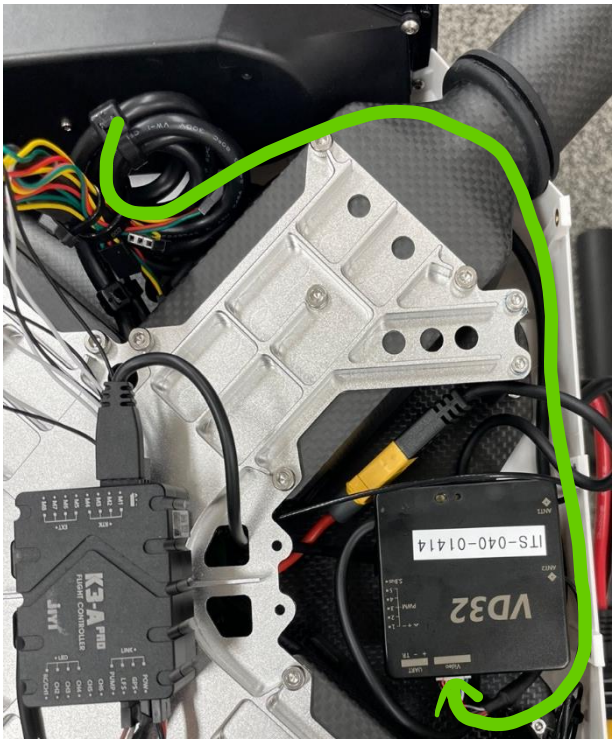
4) Attach the receiver PMU to the same position as the photo using a 3M double-sided tape, and attach the receiver on top of it.

Check) Make sure that the receiver power cable is not caught in the stand-off.

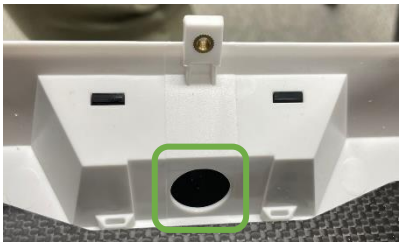
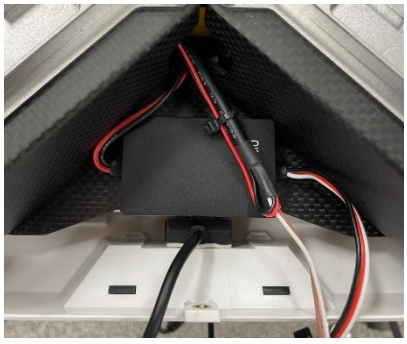
5) Attach the antennas to both antenna holes and tie the cables using a tie.

Check) When installing the antenna, insert the washer inside and outside the drone.

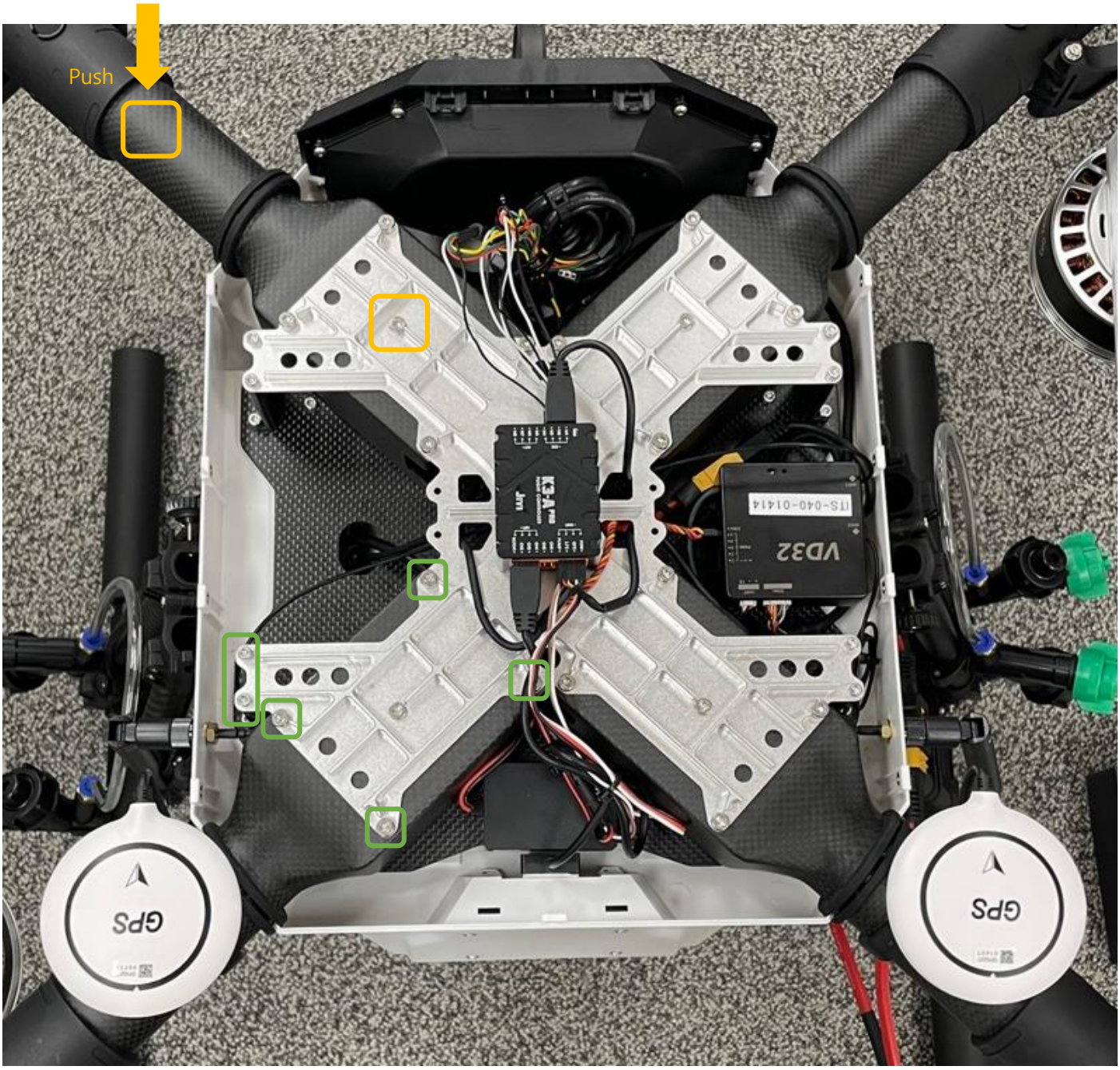
Caution) Be careful not to twist the antenna cables when tightening the nuts.



6) Connect the camera cable to the receiver video terminal by passing it under arm number one, and tie it up.
7) Connect the UART wire for K3A-PRO to the receiver UART terminal.
8) Connect the Servo cable to the receiver SBus terminal.
   Caution) The receiver shall be connected with the signal terminal of the cable facing up.

9) Attach the 3M double-sided tape to the LED and attach it to the center of the bottom canopy LED hole (see photo).
10) Connect the power cable of the PMU to No. 8 XT60-f of the PDB and attach it to the bottom of the carbon plate.



11) After installing the aluminum plate, tighten the M4-8mm (arm mount), M3-12mm (plate stand-off) bolts.

Check) If the bolt on the arm mount and the hole on the aluminum plate do not match, apply force to the arm mount (the arm mount moves slightly) and adjust the bolt to the hole position.

12) FC shall be attached to the center of the aluminium plate.

13) Connect the cable to the FC.

Check) Connect with reference to wiring diagram (page 6).

Caution) FC connects the ground terminal of the cable facing up.

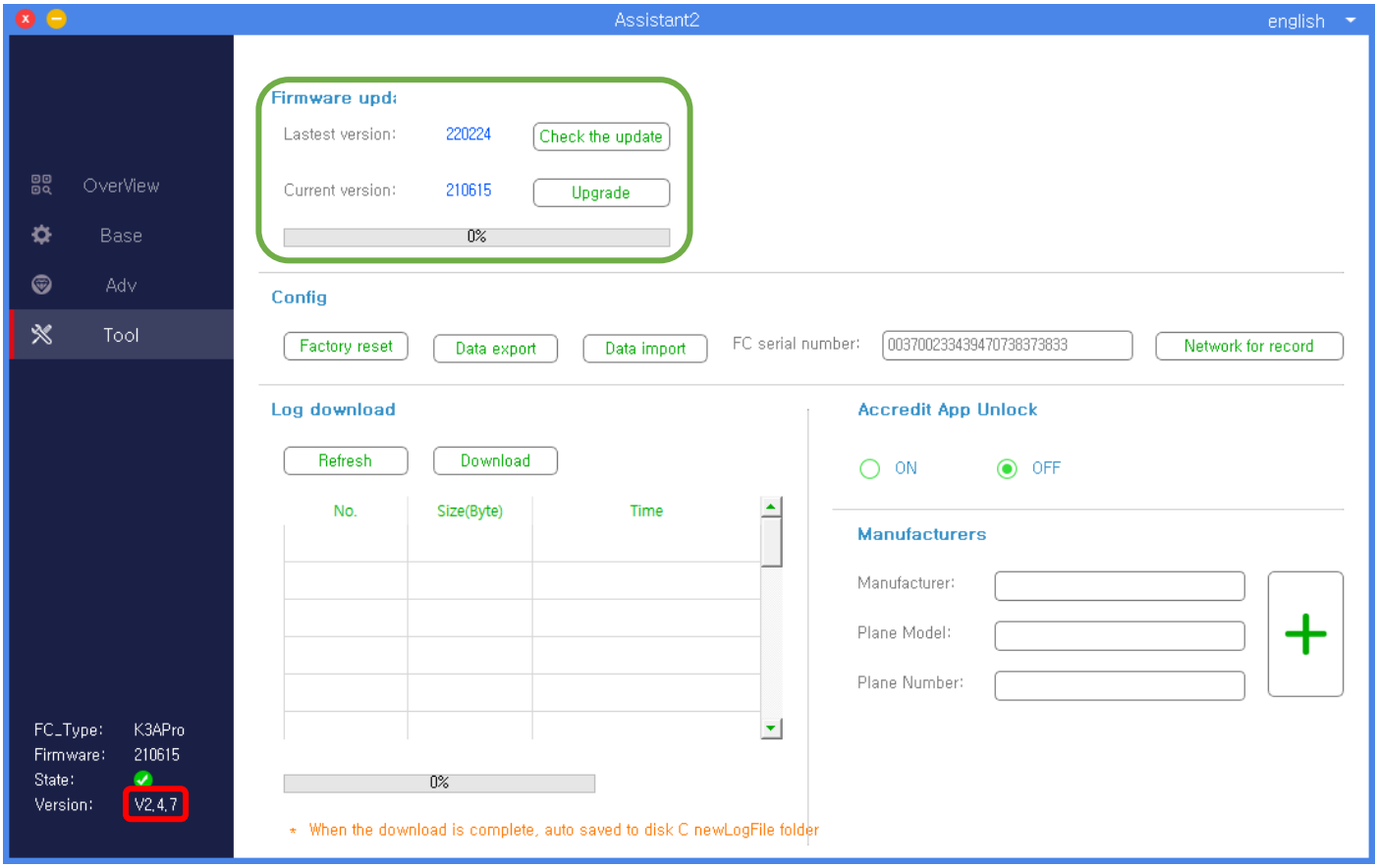
13. FC setting

1) Disconnect the UART wire connected to the FC LINK terminal, connect it to the PC using the K3A-PRO USB wire included in the FC box, and run the Assistant2 V2.4.7 program.

Check 1) UART wire : Transmit FC information to the controller through the receiver.

Check 2) K3A-PRO USB wire : Connect FC to PC.

Caution) ASSISTAN2 : K3A-PRO FC setting must use assistant V2.4.7.



2) Press Check the update to check the last version, and if it is different from the current version, press Upgrade to perform FC firmware upgrade.

Caution) Be careful not to disconnect the USB wire, shut down Assistant2, or interrupt the power supply of the PC during the upgrade. If this happens during the upgrade, the FC becomes a brick state and cannot be repaired.

3) Once the upgrade is completed successfully, shut down Assistant2 and rerun to ensure that the Current version matches the Last version.

4) In Assistant2, the setting is as follows.

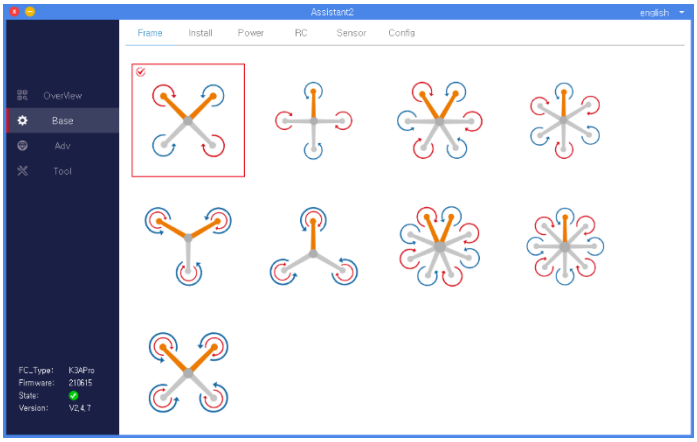
Base	Frame	 Quad X		
	Install	IMU Orientation	 forward	
		Gps Orientation	 forward	
		IMU Location(Unit : cm)	X	0.0
			Y	0.0
			Z	0.0
	Power	Base Gain	Roll	50
			Pitch	60
			Yaw	40
			Vertical	70
		Motor Idle	Anti-shake ← → Flexibility Medium	
	RC	Setting at the end		
	Sensor	Setting at the end		
	Config	Overrall Parameters	Max Angel	30.00
			Max Asc.V	5.00
			Max Des.V	3.00
		GPS-Speed Mode	Max Spead	6.00
		GPS-Angel Mode	Speed Damp	1.00
Adv	Adv Gain	Control Gain	Roll/Pitch	40
			Yaw	20
			Vertical	60
			AirLine	60
		Speed Gain	Horizontal	100
		Sensitive Gair	Attitude	5
			Brake	5
			Takk Off	5
		Performance	middle	
	Protect	Low Volt Protect	Stop+Land	
		Alarm Volt	First alarm(V)	43.80
			Second alarm(V)	42.60
		Calibrate Volt	Current Volt(V)	The current volt is displayed
			Measure Volt(V)	Setting at the end
		Return	Return Channel	N/A
			Alt	20.00
			Land speed	0.30
		Emergency Stop	Stop Channel	N/A

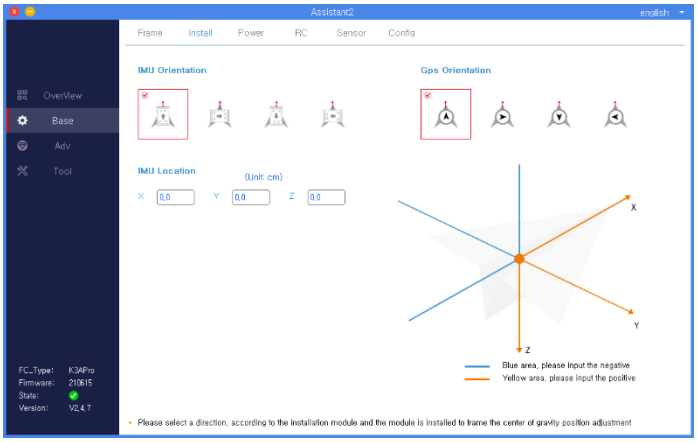
Adv	Pump	Pump Type	Single Pump		
		Pump Mode	Manual	Max Combine speed	6.00
				Min Combine speed	0.50
		Channel	pump mode	CH7	
			pump mode	CH10	
	Liquid	Don't touch setting			
	Plant	U-Sidesway	Open		
		AB homework	AB record	CH8	
			AB execute	N/A	
			swath(m)	5.00	
			speed(m/s)	5.00	
		AirLine	AirLine	N/A	
			speed(m/s)	5.00	
		Sidesway	Sidesway	CH9	
			swath(m)	5.00	
	Output	PWM Output channel	OUT1	N/A	
			OUT2	N/A	
	Fence	Alt Limit	Open	Alt(m)	30.00
		Distance Limit	Open	Radius(m)	300.00
		Trigger	Limit		
	Expand	Don't touch setting			

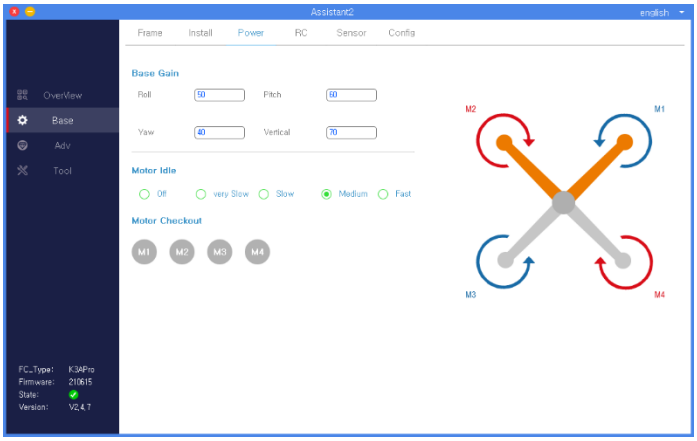
Caution 1) The Low Voltage Protect setting is a setting that automatically lands on the spot when the battery voltage reaches the second alarm voltage. The risk of accidents is very high if you set other settings, so make sure to set it to Stop+Land.

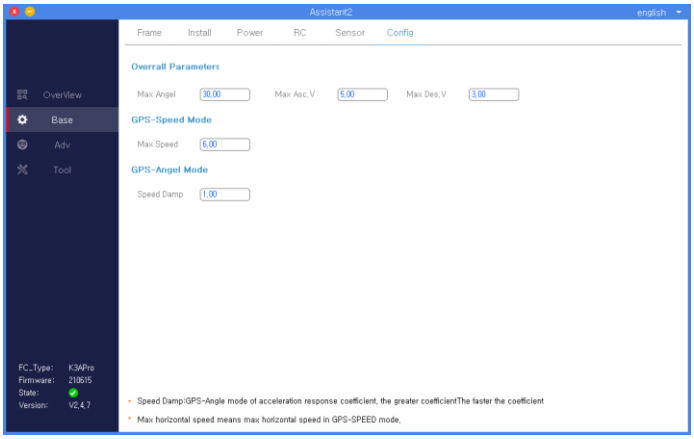
Caution 2) The Alarm Voltage setting is a setting that gives a warning through the LED when the battery reaches that voltage, and the voltage must be remembered.

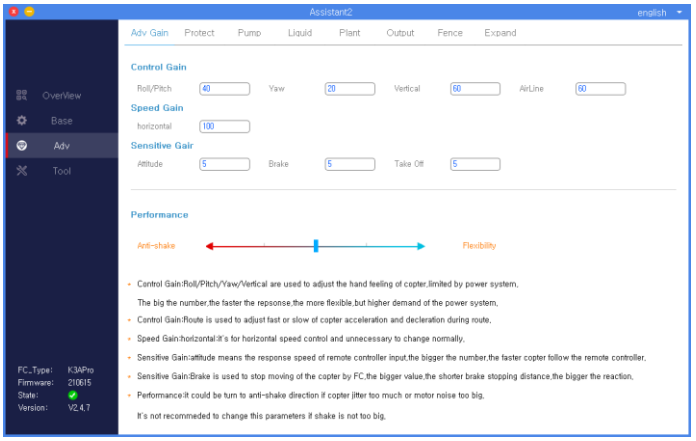
Caution 3) The Return and Emergency Stop settings must be set to N/A to prevent accidents.

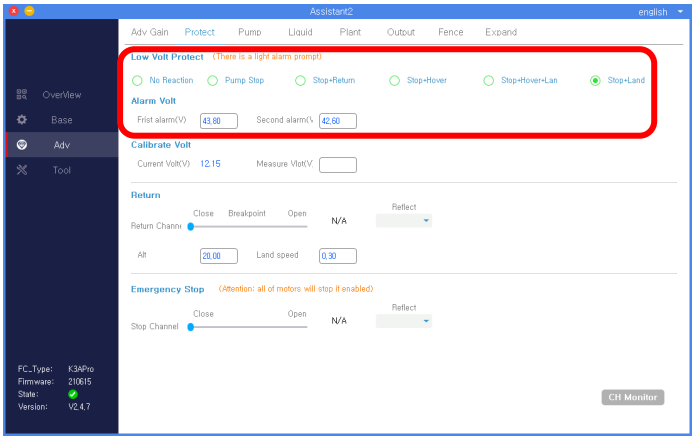

Assistant2
english
Frame
Install
Power
RC
Sensor
Config
OverView
Base
Adv
Tool
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

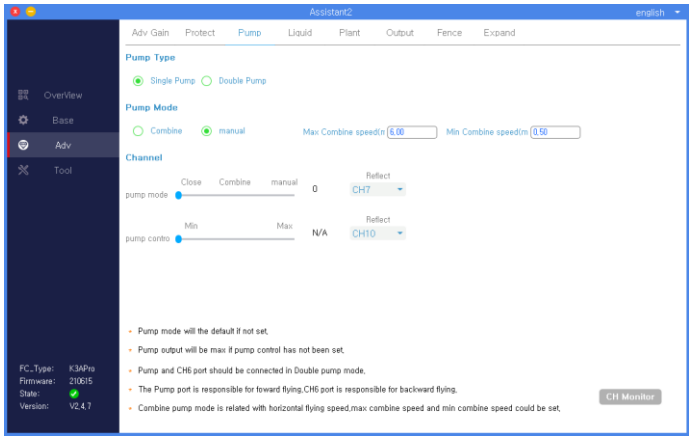

Assistant2
english
Frame
Install
Power
RC
Sensor
Config
IMU Orientation
Gps Orientation
IMU Location
(Unit: cm)
X
Y
Z
Blue area, please input the negative
Yellow area, please input the positive
Please select a direction, according to the installation module and the module is installed to frame the center of gravity position adjustment
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

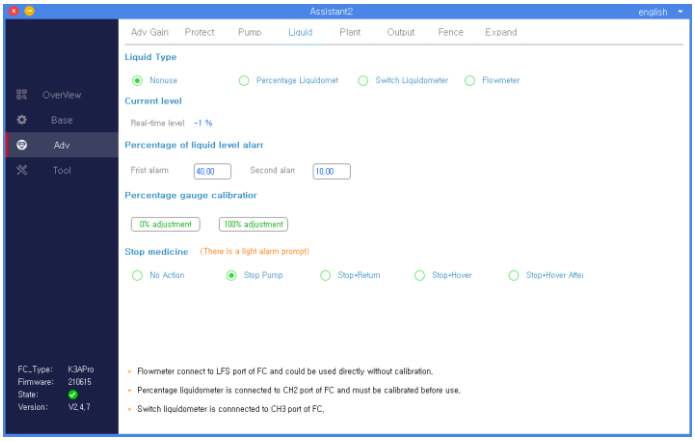

Assistant2
english
Frame
Install
Power
RC
Sensor
Config
Base Gain
Roll
Pitch
Yaw
Vertical
Motor Idle
Off
very Slow
Slow
Medium
Fast
Motor Checkout
M1
M2
M3
M4
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

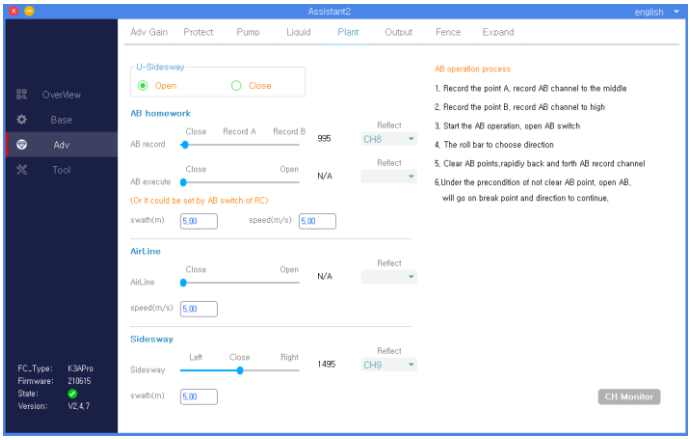

Assistant2
english
Frame
Install
Power
RC
Sensor
Config
Overrall Parameters
Max Angel
Max Asc.V
Max Des.V
GPS-Speed Mode
Max Speed
GPS-Angel Mode
Speed Damp
Speed Damp:GPS-Angle mode of acceleration response coefficient, the greater coefficientThe faster the coefficient
Max horizontal speed means max horizontal speed in GPS-SPEED mode.
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

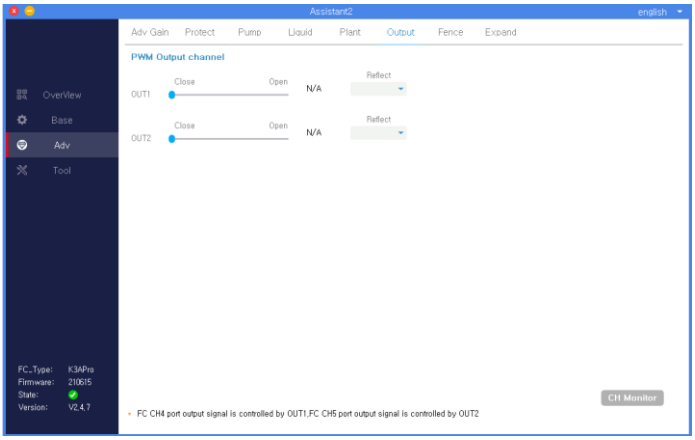

Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
Control Gain
Roll/Pitch
Yaw
Vertical
AirLine
Speed Gain
horizontal
Sensitive Gair
Attitude
Brake
Take Off
Performance
Anti-shake
Flexibility
Control Gain:Roll/Pitch/Yaw/Vertical are used to adjust the hand feeling of copter,limited by power system,
The big the number,the faster the repsonse,the more flexible,but higher demand of the power system,
Control Gain:Route is used to adjust fast or slow of copter acceleration and decleration during route,
Speed Gain:horizontal:it's for horizontal speed control and unnecessary to change normally,
Sensitive Gain:attitude means the response speed of remote controller input,the bigger the number,the faster copter follow the remote controller,
Sensitive Gain:Brake is used to stop moving of the copter by FC,the bigger value,the shorter brake stopping distance,the bigger the reaction,
Performance:it could be turn to anti-shake direction if copter jitter too much or motor noise too big,
It's not recommeded to change this parameters if shake is not too big.
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

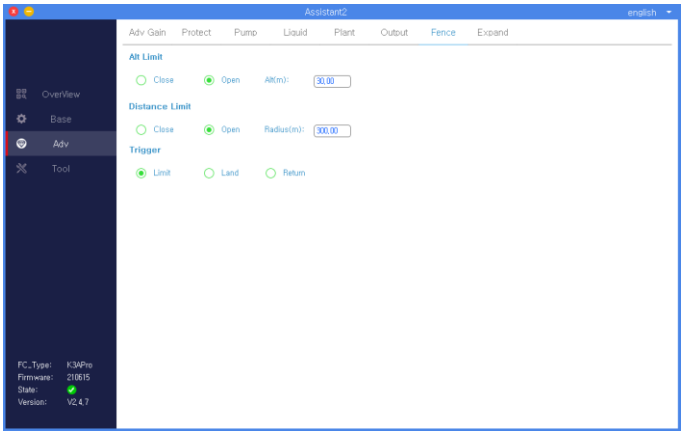

Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
Low Volt Protect
(There is a light alarm prompt)
No Reaction
Pump Stop
Stop+Return
Stop+Hover
Stop+Hover+Lan
Stop+Land
Alarm Volt
Frist alarm(V)
Second alarm(V
Calibrate Volt
Current Volt(V)
Measure Vlot(V:
Return
Close
Breakpoint
Open
Return Channe
N/A
Reflect
Alt
Land speed
Emergency Stop
(Attention: all of motors will stop if enabled)
Stop Channel
CH Monitor
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

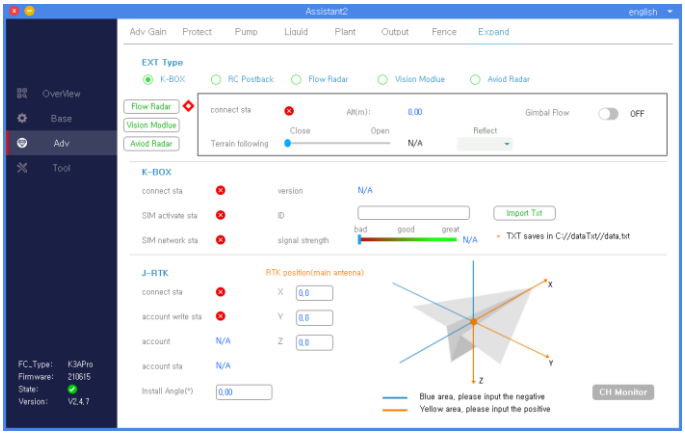

Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
Pump Type
Single Pump
Double Pump
Pump Mode
Combine
manual
Max Combine speed(m
Min Combine speed(m
Channel
Close
Combine
manual
pump mode
Reflect
CH7
Min
Max
pump contro
N/A
CH10
Pump mode will the default if not set,
Pump output will be max if pump control has not been set,
Pump and CH6 port should be connected in Double pump mode,
The Pump port is responsible for foward flying,CH6 port is responsible for backward flying,
Combine pump mode is related with horizontal flying speed,max combine speed and min combine speed could be set,
CH Monitor
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7


Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
Liquid Type
Nonuse
Percentage Liquidomet
Switch Liquidometer
Flowmeter
Current level
Real-time level
Percentage of liquid level alarr
Frist alarm
Second alarr
Percentage gauge calibratior
0% adjustment
100% adjustment
Stop medicine
(There is a light alarm prompt)
No Action
Stop Pump
Stop+Return
Stop+Hover
Stop+Hover Alter
Flowmeter connect to LFS port of FC and could be used directly without calibration,
Percentage liquidometer is connected to CH2 port of FC and must be calibrated before use,
Switch liquidometer is connnected to CH3 port of FC,
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7


Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
OverView
Base
Adv
Tool
U-Sidesway
Open
Close
AB homework
AB record
AB execute
(Or it could be set by AB switch of RC)
swath(m)
speed(m/s)
AirLine
Sidesway
AB operation process
1. Record the point A, record AB channel to the middle
2. Record the point B, record AB channel to high
3. Start the AB operation, open AB switch
4. The roll bar to choose direction
5. Clear AB points,rapidly back and forth AB record channel
6.Under the precondition of not clear AB point, open AB,
will go on break point and direction to continue.
CH Monitor
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

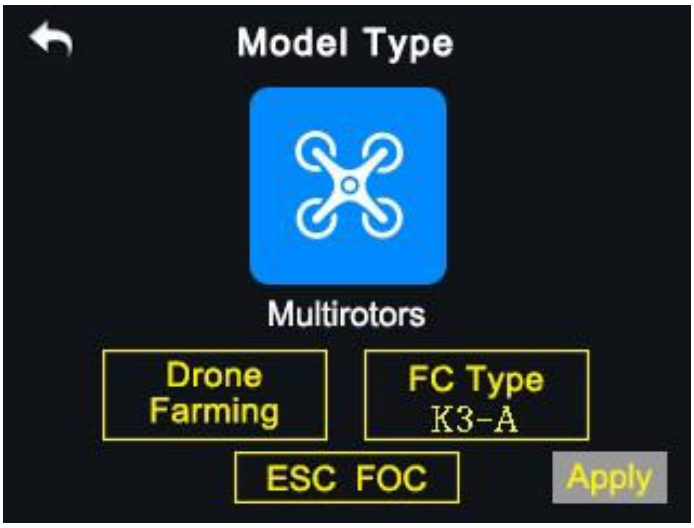

Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
OverView
Base
Adv
Tool
PWM Output channel
OUT1
OUT2
FC CH4 port output signal is controlled by OUT1,FC CH5 port output signal is controlled by OUT2
CH Monitor
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

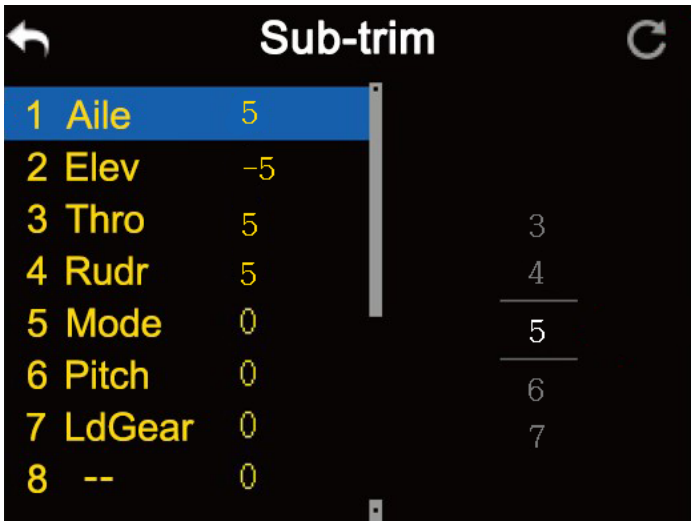

Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
OverView
Base
Adv
Tool
Alt Limit
Close
Open
Alt(m):
Distance Limit
Radius(m):
Trigger
Limit
Land
Return
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7


Assistant2
english
Adv Gain
Protect
Pump
Liquid
Plant
Output
Fence
Expand
OverView
Base
Adv
Tool
EXT Type
K-BOX
RC Postback
Flow Radar
Vision Modlue
Avlod Radar
connect sta
Alt(m):
Gimbal Flow
OFF
Terrain following
K-BOX
version
SIM activate sta
ID
Import Txt
SIM network sta
signal strength
bad
good
great
TXT saves in C://dataTxt//data.txt
J-RTK
RTK position(main antenna)
account write sta
account
account sta
Install Angle(°)
Blue area, please input the negative
Yellow area, please input the positive
CH Monitor
FC_Type: K3APro
Firmware: 210615
State:
Version: V2.4.7

14. Transmitter setting

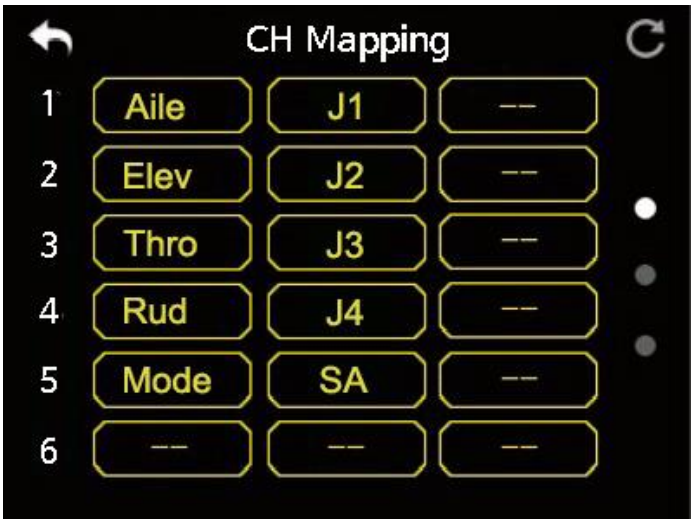
Model	Model Type	Multirotors			
		Drone		Farming	
		FC Type		K3-A	
		ESC		FOC	
	Sub-trim	Aile		5	
		Elev		-5	
		Thro		5	
		Rud		5	
	CH Mapping	1	Aile	J1	--
		2	Elev	J2	--
		3	Thro	J3	--
		4	Rud	J4	--
		5	Mode	SA	--
		6	--	--	--
		7	PUMP	SC	--
		8	MarkAB	SD	--
		9	--	--	--
		10	Flow	RD	--
		11	--	--	--
		12	--	--	--
		13	--	--	--
		14	--	--	--
		15	--	--	--
		16	--	--	--
	LowVol Alert	Power Vol		43.2v	
	Farm. Voice	SA	GPS	ATTITUDE	EXE. AB
		SB	--	--	--
		SC	SPR. OFF	--	SPR. OFF
		SD	--	RECORD A	RECORD B
		S2	--	--	--
		S3	--	--	--

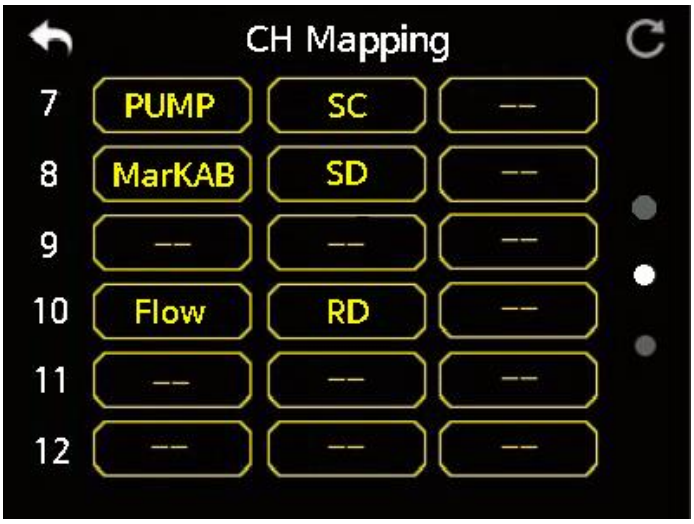


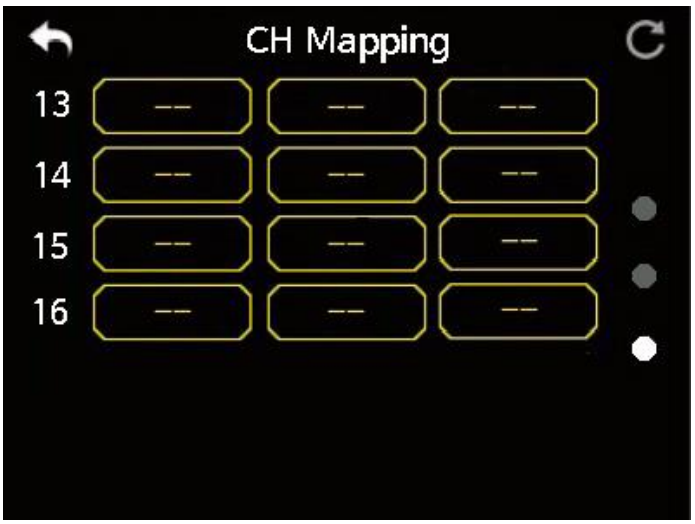


1) Setting ⚙ → Model → Model Type → Drone Farming, FC Type K3-A, ESC FOC set → Apply → Confirmation Sure? → YES

2) Setting ⚙ → Model → Sub-trim → Aile 5, Elev -5, Thro 5, Rud 5 set

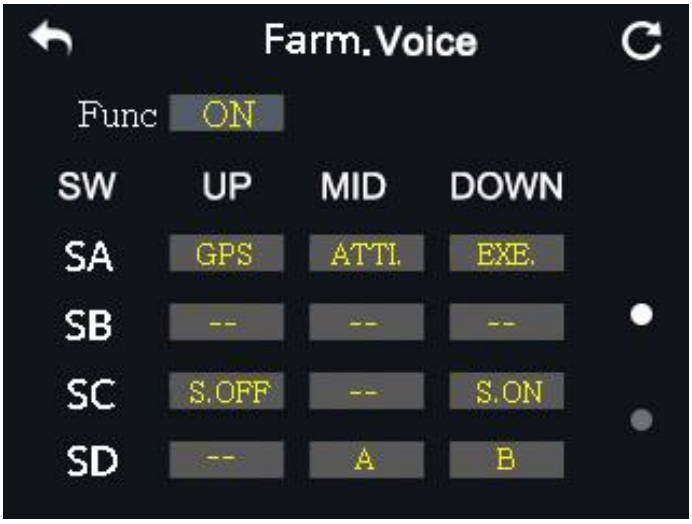


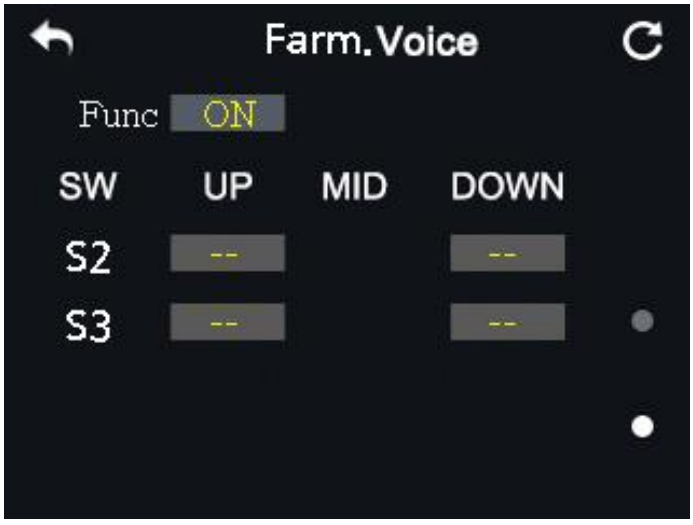




3) Setting ⚙ → Model → CH Mapping → 1, 2, 3, 4, 5, 7, 8, 10 Channel name and Transmitter key (joystick/switch/button/dial) set

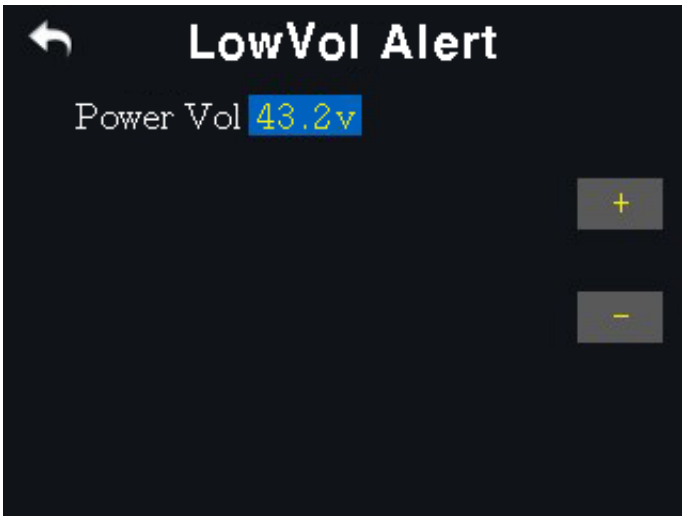
Caution) To prevent the transmitter's key mix, do not assign keys to unused channels.





4) Setting → Model → Farm. Voice → SA, SC, SD switch voice set

Check) Transmitter keys that are not used to prevent manipulation confusion do not set voice settings.



5) Setting → Model → LowVol Alert → Power Vol 43.2v set

Check) When the battery voltage value recognized by the controller reaches 43.2v, the low battery warning is given to the controller by voice and vibration.

15. Calibration setting

1) Connecting the Drone to the Battery.

Check) SUPERNOVA 12S 44.4V 16,000 mAh 25C 1 ea, or

SUPERNOVA 6S 22.2 V 16,000 mAh 25C 2 ea

Caution) When connecting, turn on the controller and connect the battery.

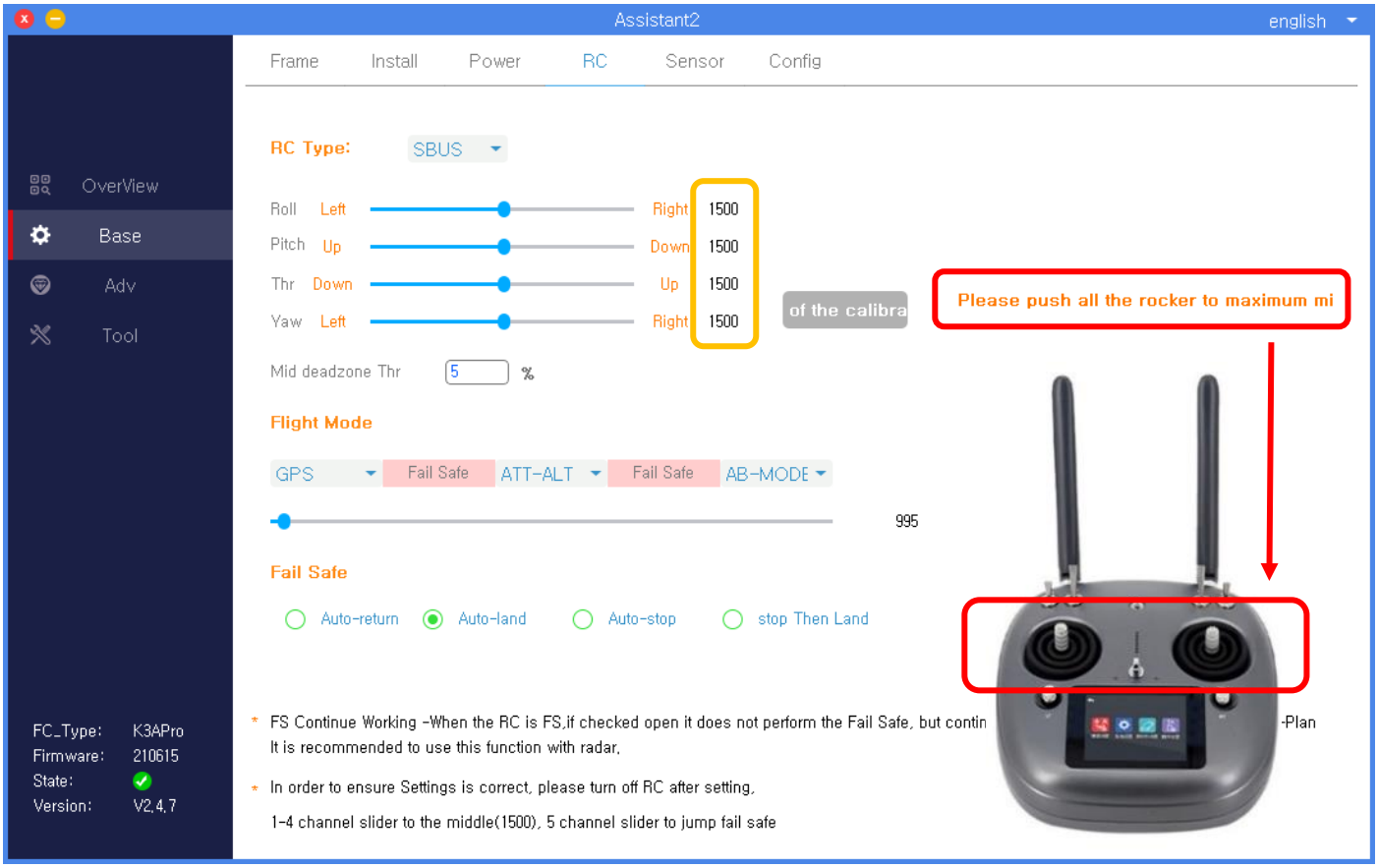
When disconnecting, disconnect the battery and turn off the control.

2) Assistant2 → Base → RC part

3) When FC and control are connected normally, it appears as above.

CAUTION) If it is not connected, it will be displayed as shown on the left.

4) Press RC Calibrate to start RC Calibration.

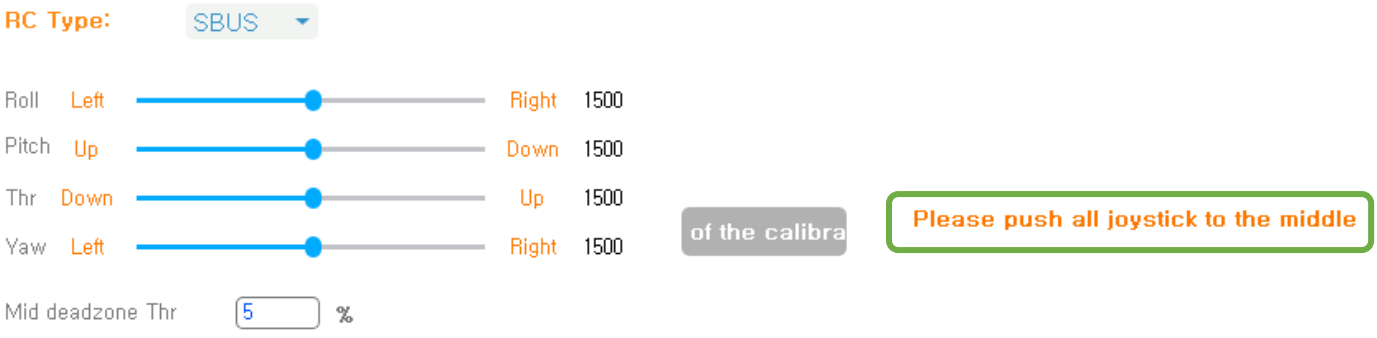


5) When the message "Please push all the rocker to maximum mi" is displayed, press "of the calibrate" with the control stick in the middle (without moving the stick).

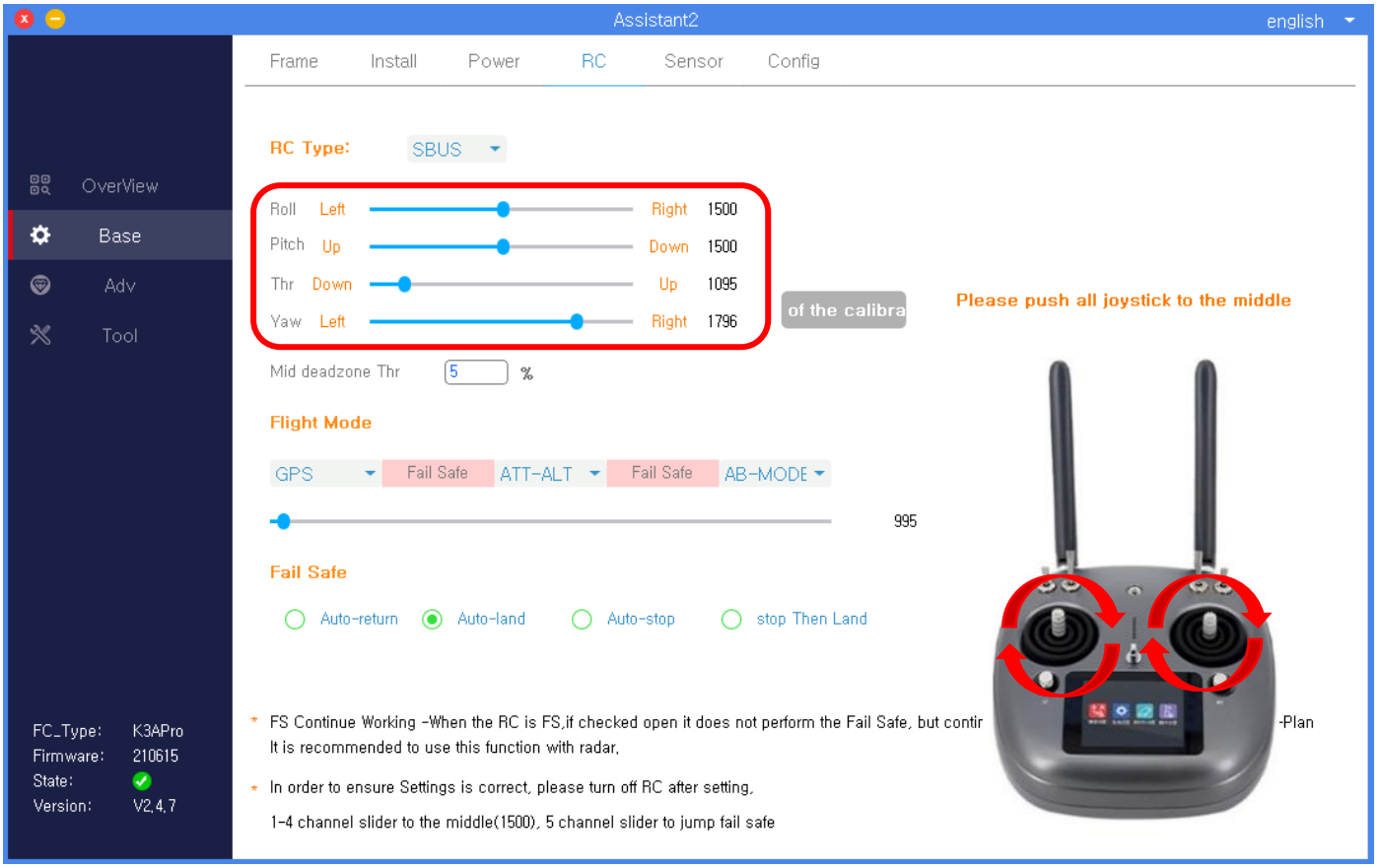
Check) median value: 1500

Caution) Be careful because the contents of the displayed message and the actions to be performed are different.

Note) Because it is a task to enter the center value of the control stick into FC, it is executed accurately.



6) When the message "Please push all joystick to the middle" is displayed, move the control stick to its maximum value and press "of the calibrate".



Check) Roll min~max : 1000~1500

Pitch min~max : 1000~1500

Thr min~max : 1055~1945

Yaw min~max : 1000~1500

Caution) Move the stick accurately from the minimum to the maximum.

7) When calibration is completed normally, the message "Successful calibration" is displayed.

8) Check that the flight mode settings are in the order of GPS, ATT-ALT, and AB-MODE, and then move the SA stick of the transmitter to confirm that the flight mode conversion is normal.

9) Fail Safe → Auto-land set.

Check) It is a setting that automatically lands in the event of a Fail Safe situation (ex. transmitter/receiver disconnection).

Caution) The risk of accidents is very high when setting up other settings comes to it, so make sure to set it to Auto-land.

10) Assistant2 → Base → Sensor part

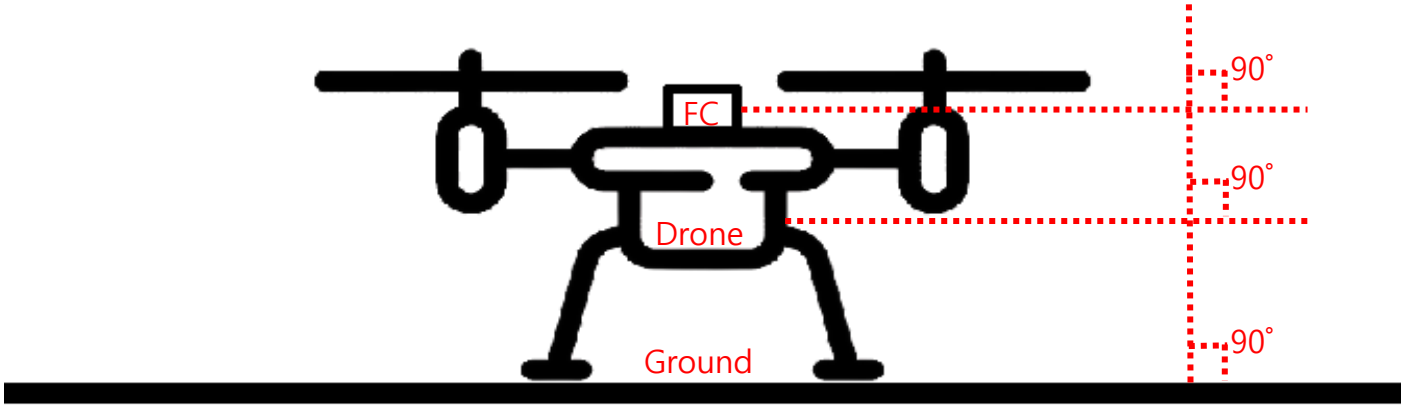
11) IMU calibration is performed by pressing IMU Calibrate while the floor, drone, and FC are horizontal.

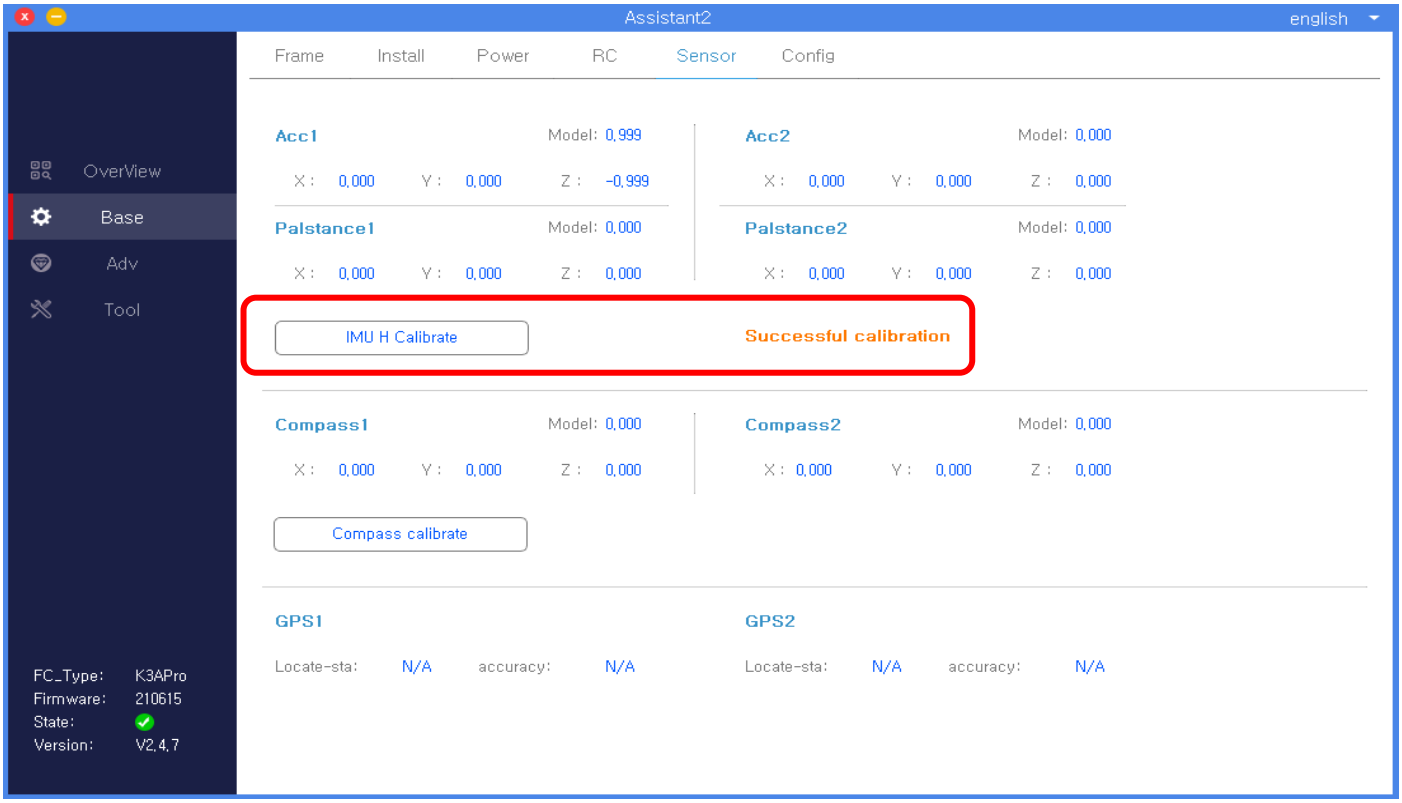
Check 1) All bolts on the aluminum plate must be fastened.

Check 2) Check the horizontal state using the horizontal meter.

Caution 1) When leveling FC, a horizontal meter without a magnet must be used.

Caution 2) It is a task to correct the horizontal state of FC, so it is carried out accurately.



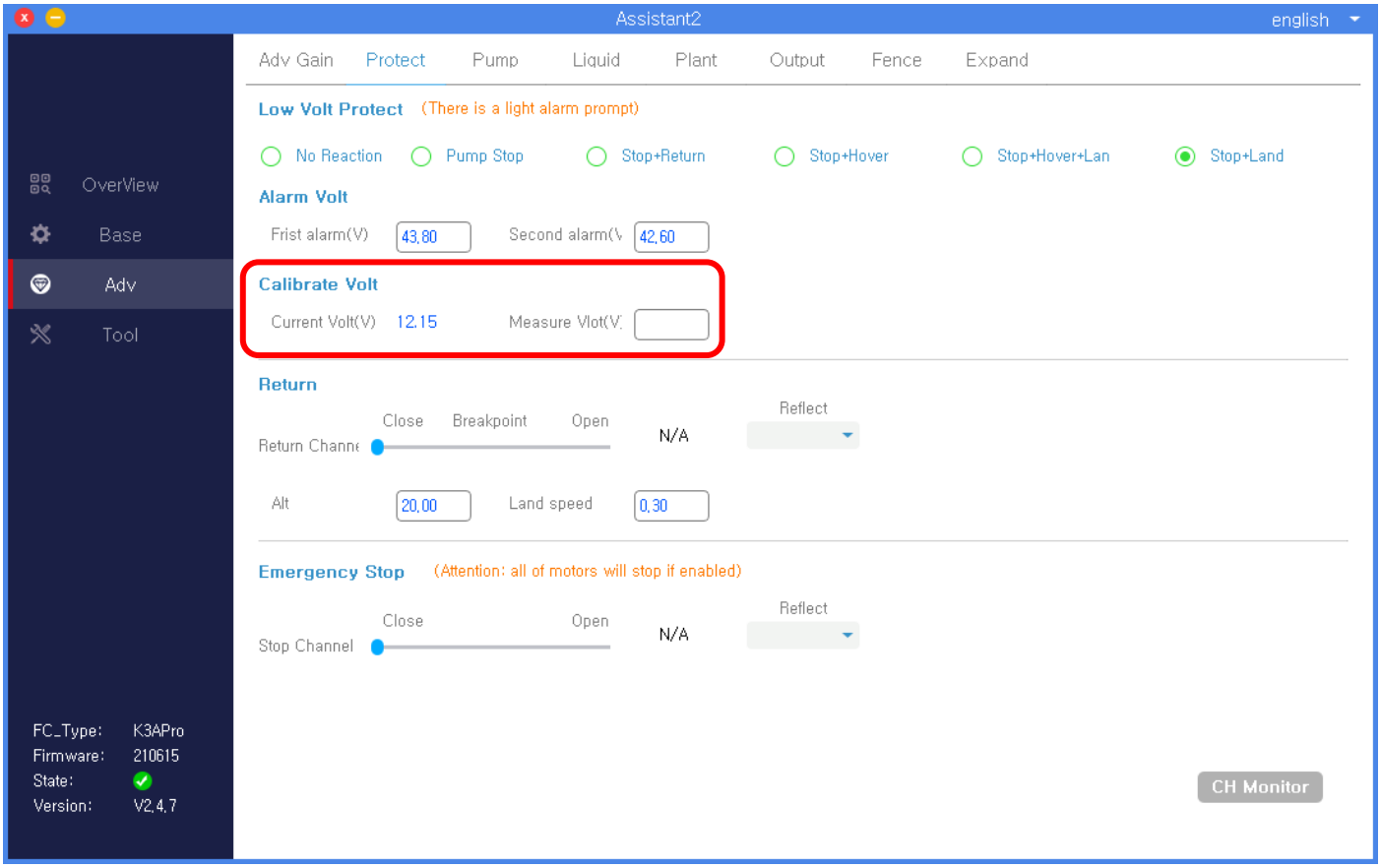


12) Successful calibration message is displayed when IMU calibration is completed normally.

13) Compass calibration should be performed in the presence of GPS signals (external), so after assembly and setting is completed and to flight test.

Check) Refer to "17. Compass Calibration" of page 56.

14) Assistan2 → Adv → Protect part



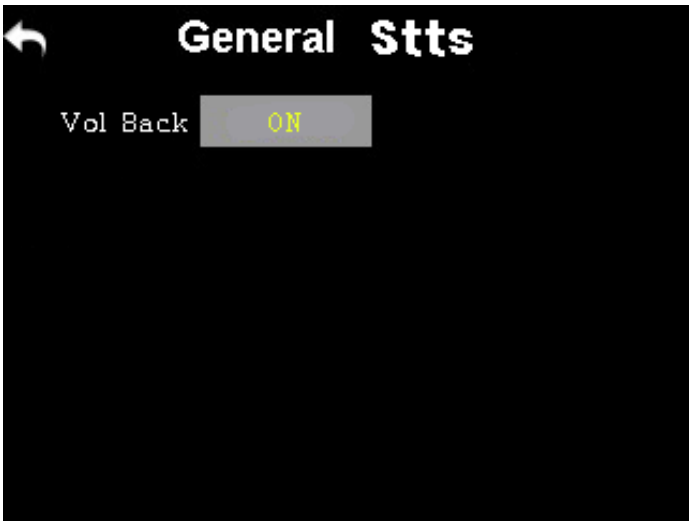
15) Calibrate Volt → Enter the current Battery Voltage value connected to the drone in Measure Volt(V) to perform battery calibration.

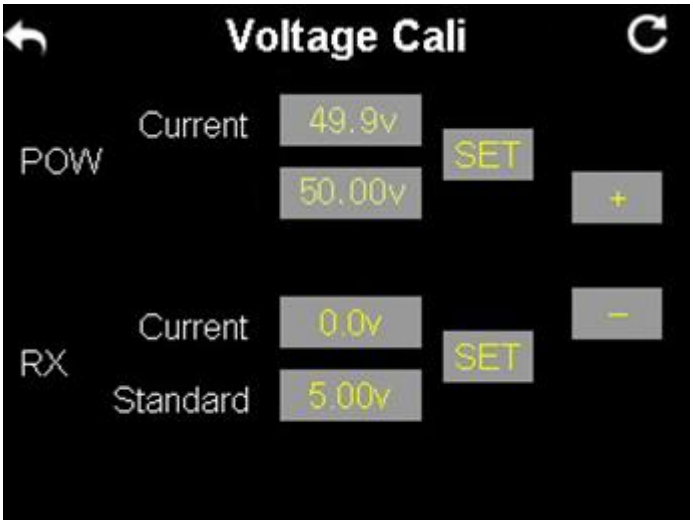
Check) After enter voltage value press Enter to confirm that the Current Voltage has been changed to the Battery Voltage value connected to the drone.

Caution) The current Battery Voltage value must be entered correctly before the FC can accurately set the Battery Voltage criteria.

Caution 1) During Transmitter Voltage Calibration, the battery must be connected to the drone.

Caution 2) The transmitter must be in a normal binding state on the receiver connected to the FC.





16) Setting ⚙ → Receiver → General Stts → "Vol Back" set ON.

17) Setting ⚙ → Receiver → Voltage Cali → POW → Cali Vol → Enter the Battery Voltage value connected with the drone → SET

18) When calibration is performed normally, the message "power calibration success" is displayed.

Caution) The current Battery Voltage value must be entered correctly to accurately set the Battery Voltage criteria recognized by the controller.

19) Disconnect the K3A-PRO USB wire connected to the FC LINK terminal and connect the UART wire.

20) Start in ATTI mode to check normal work and verify that the cable is properly connected to FC.

Check 1) Check whether the motor rotates normally and whether the direction of rotation (CW•CCW) is correct.

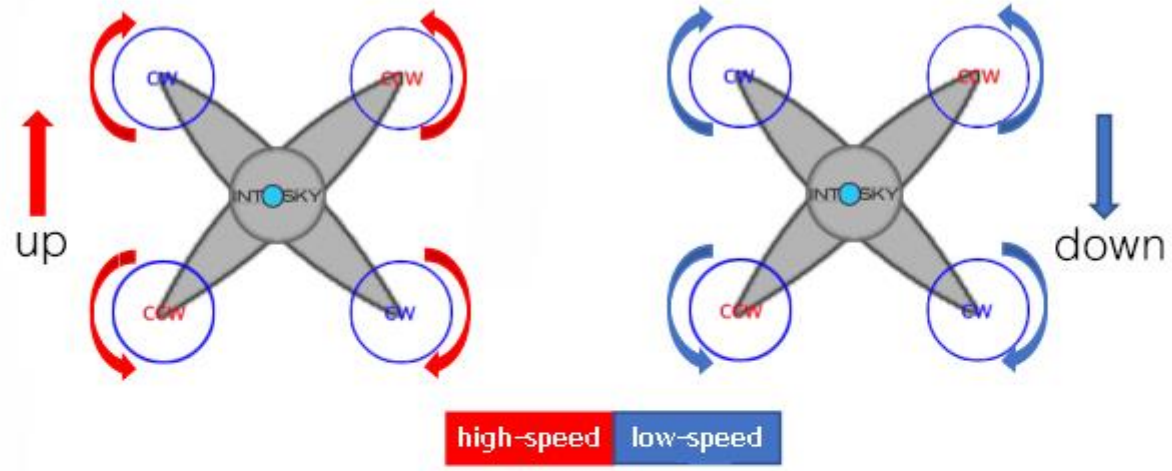
Check 2) Control the Aile (left and right) and Elev (forward and backward) to ensure that the motor stops and rotates in accordance with the control.

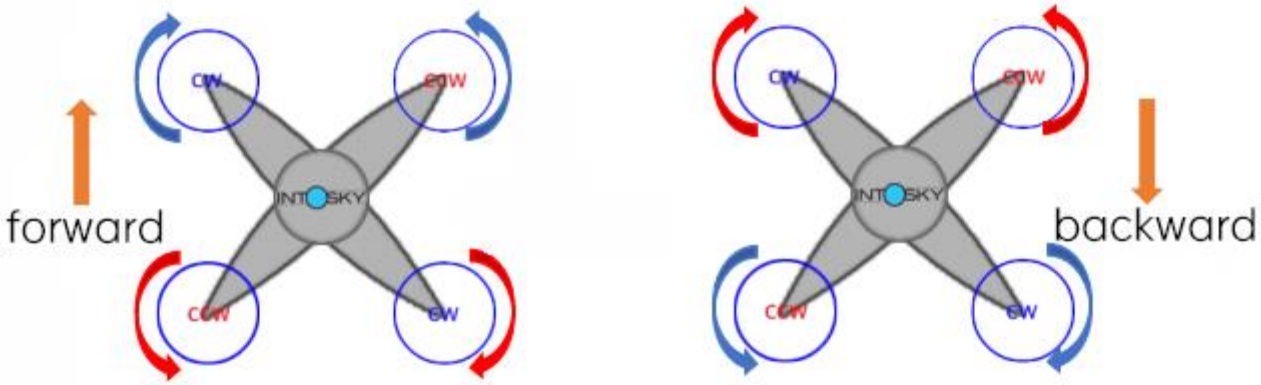
Check 3) check Control the Thro to see if the motor speed is accelerated and decelerated in accordance with the control.

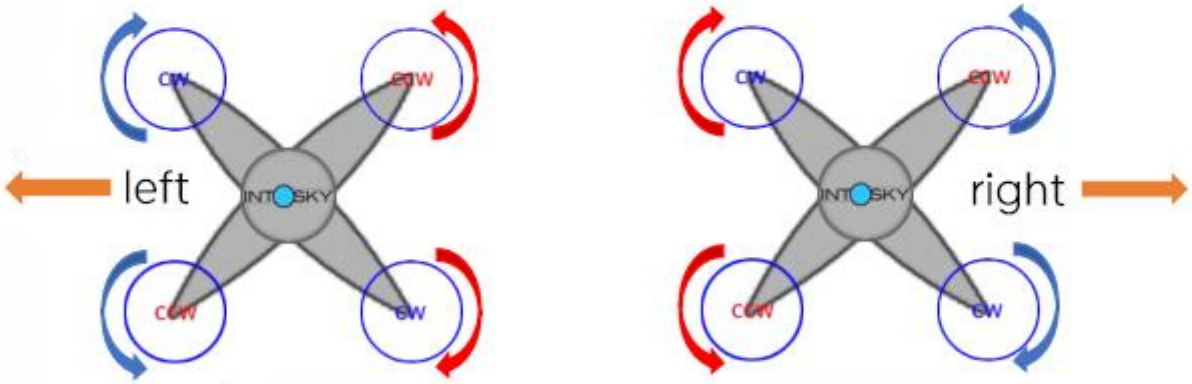
Check 4) Check the pump work.

Caution 1) When testing indoors, the propeller must not be installed.

Caution 2) GPS mode does not arming indoor.


up
down
high-speed
low-speed


forward
backward


left
right

16. Motor horizontal and prop installation

1) After installing the top canopy, tighten the round head M3-5mm bolt.

Check 1) When installing, adjust the camera bracket first, and then attach the rear part.

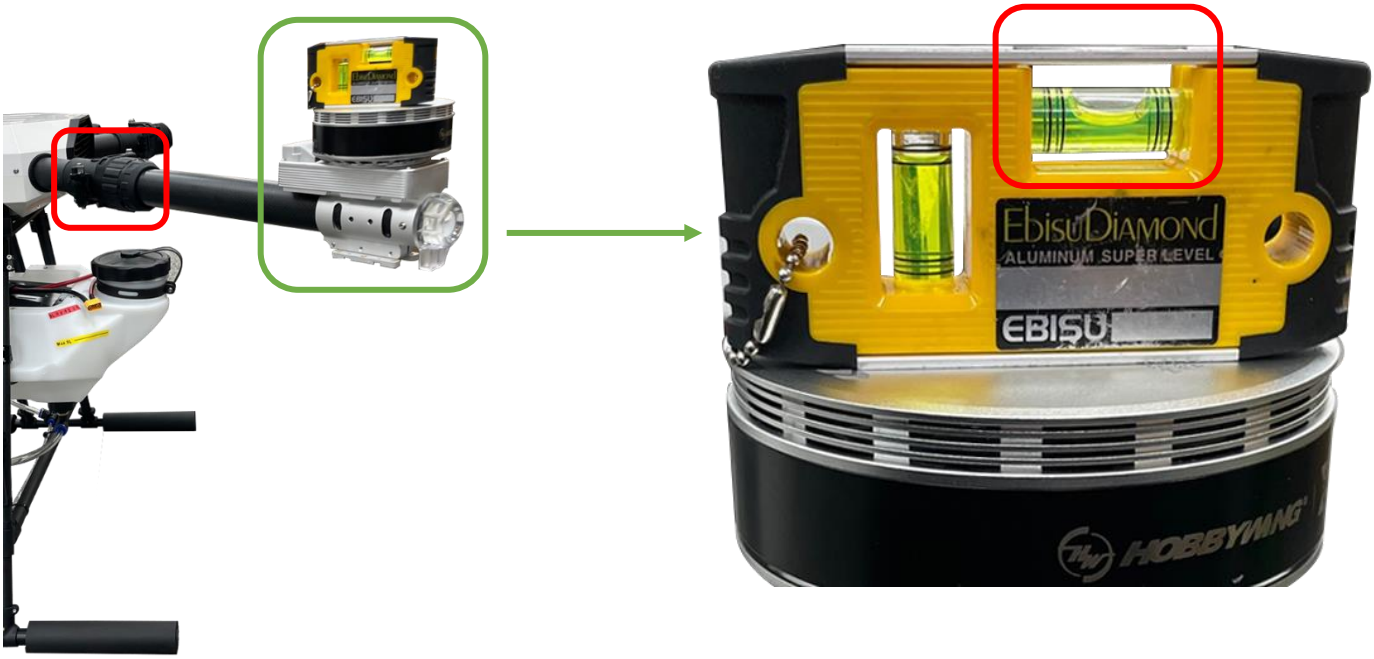
Caution 1) The top canopy and the arm waterproof rubber must be correctly aligned.

Caution 2) Tighten the bolts with low torque because there is a risk of damage to the canopy.

2) After aligning the arm holder with the motor hole, tighten the arm joint bolt if the motor is normally secured.

Check) If the motor is not correctly fixed to the arm holder, turn the Arm Joint to adjust the position and tighten the bolt.

Caution) The arm joint is fixed to the arm with a rivet, so be careful as it may break if you turn it with a strong force.



3) With the floor and drone horizontal, spread the folding arm, secure it with the arm cap, and horizontal installing the motor.

Check 1) Use stainless steel M4-18mm bolt (silver) instead of the existing bolt (black) fastened to the motor.

Check 2) With the bolts fastened loosely, adjust the horizontal and firmly fix them.

Caution 1) The folding arm must be fixed with the arm cap and then horizontal.

Caution 2) Push the motor to the end of the arm and horizontal it.

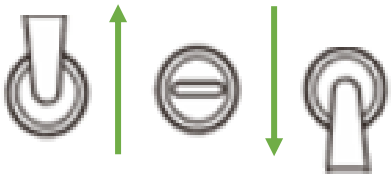
4) Fit the prop and motor in the same direction and tighten the M4-16mm bolts.

Caution) If the propellers and motors are not in the same direction, the drone may fall during takeoff and cause personal accidents, so make sure that they are mounted in the same direction.

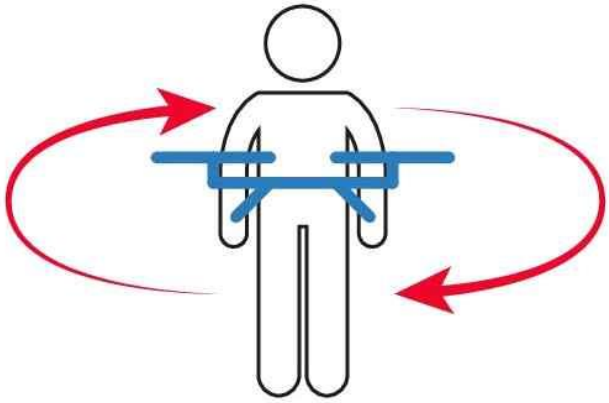
17. Compass Calibration

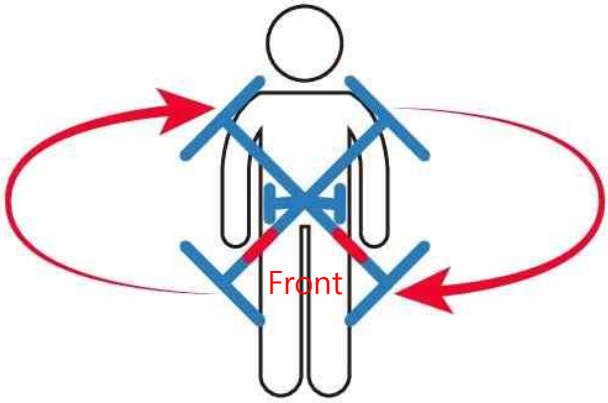
1) Turn on the transmitter and connect the drone to the battery.

Caution) Compass calibration must be outdoors with GPS signals.



2) If you move the SA stick up and down quickly, the Calibration mode is executed.





3) With the drone horizontal to the ground, lift at least 1M from the ground and rotate clockwise around the axis (center of the drone) to perform horizontal calibration.

4) With the front of the drone facing the ground, lift it from the ground for at least 1M and rotate clockwise around the axis (center of the drone) to perform vertical calibration.

Check 1) Calibration progress can be known through the drone LED.

Check 2) When calibration is completed, the calibration mode automatically exits and the status LED of the drone returns normally.

Caution 1) During calibration, there shall be no magnetic field interference nearby.

Caution 2) If the flight area is changed, calibration must be performed again in the changed area.

18. Flight Test

No.	List		
1	Safe distance of 15M and obstacle check		
2	Before the flight	Battery	Voltage check
3			Make sure the cable is loose
4		Drone	Motor•Propeller direction(CW•CCW) check
5			GPS•RTK bracket tightness and direction check
6			Flight mode LED change check
7		Transmitter	All switch•button•dial ON/OFF check
8			Joystick spin state check
9			Battery voltage check
10		Pump&Spray	Operating state check
11			Flow control check
12			Water leaks check
13	Start in GPS mode		
14	Arming	Drone	Vibration check
15		Motor	Check motor stop and rotation when operating Aile•Elev
16	In flight	Elevator	Forward-backward flight
17		Alieron	Left-right flight
18		Throttle	Up-down flight
19		Rudder	Left turn-right turn flight
20		Hovering	Hovering flight
21		Altitude	Maximum altitude 30M
22		Distance	Maximum radius 300M
23		AB mode	AB mode flight
24	Low voltage alarm	First alarm	Verify LED flashes yellow 3 times at 43.8V
25		Second alarm	Verify if the LED flashes yellow quickly at 42.6V
26	Fail safe	Low voltage	After LED warning, check if fail-safe(automatic landing) is working
27		Disconnection	Power off the transmitter to check that fail-safe(automatic landing) is working
28	After flight	Drone	Visual inspection of drone condition

Caution) If GPS signal is not sufficient, do not force yourself to fly in GPS mode.