Quick Start Guide

1 Assembly

IMU
- The IMU is best positioned near the Multi-Rotor's center of gravity, where vibration is relatively low.
- Orient the IMU such that the arrow marked on the printed surface of the IMU faces the sky, the arrowhead is to the head of craft.
- The sides of the IMU should be precisely parallel to the multi rotor body. Use double-sided foam tape for secured installation.
- IMU Module is precise, please carefully preserved. DO not extend the data cable at will.

GPS Compass
- GPS Compass is sensitive to magnetic interference, should be far away from any electronic devices. Please use our GPS bracket to mount GPS module.
- GPS is sensitive to vibration interference, please firm the GPS bracket. The YS-X6 logo marked on GPS should face the sky, the arrowhead is to the head of craft. Please DO NOT extend data cable at all.
- The AP can work only with GPS/Compass connected.

Autopilot Box
- No direction request on AP mounting but right position to avoid using ESC extending cables.
- Make sure all interfaces are expose, to help connecting easily and upgrading firmware.
- Once the position of AP is confirmed. Recommend to firm AP after completing wiring and software settings.

RC Receiver
- This is only connection example, please set aileron/elevator/throttle/ direction/ actuator control channel on your RC Tx ready first.
- Select two 3-way switches as the switch of controlling modes, and then connect the receivers to the right channels of AP.

LED
- Mount LED at the right position and far away from GPS.
- Make sure the light can be in sight during flight.

WIFI
Please keep far away from GPS/COMPASS while mounting.
Please carefully preserve

Power Calculation

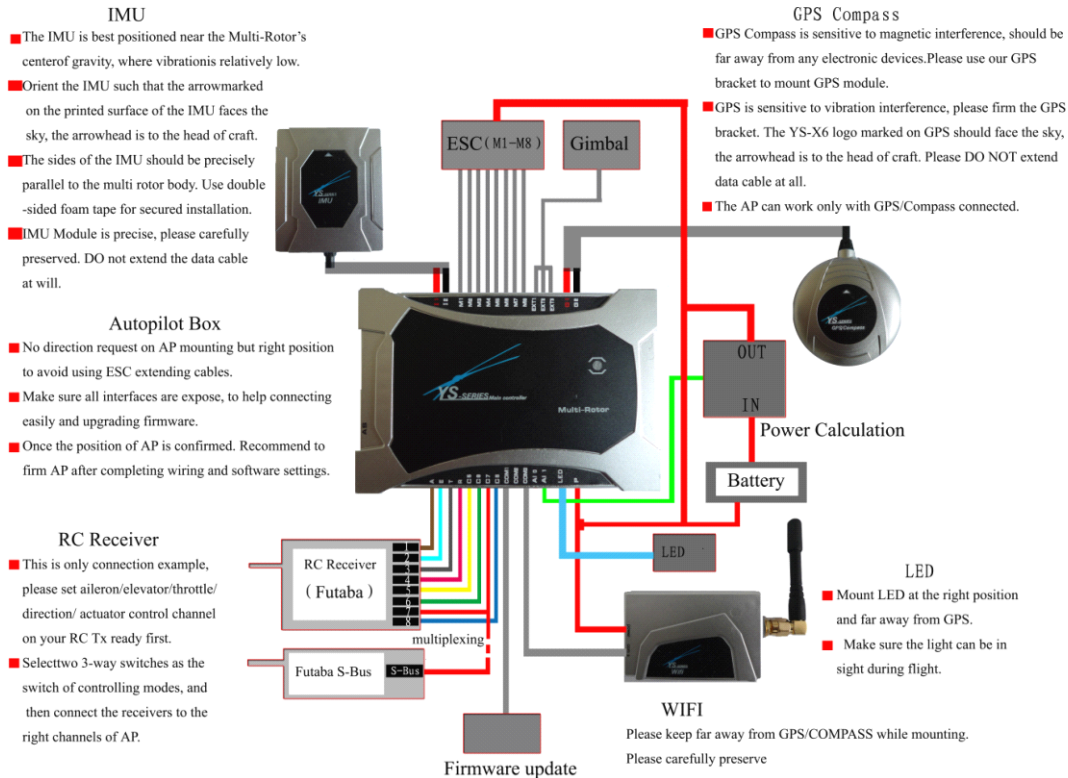Firmware update

Notices:

• The power supply range of MC (Autopilot) and WIFI is 3s~6s(Power remains a little), namely 10.8V~25.5V, MC provides 5.7V power to RC receiver automatically, no need to add any out-built power module. After correct connection and powering it, the autopilot will complete initialization in few seconds and LED light starts to blink in red for three times continuously, indicating the connection is correct and motivated successfully.

• The above "the light blinks in red for three times" is a sign to check whether all hardware are working normally or not, all data connection is based on this. After powering if no "the light blinks in red for three times", please contact Zero UAV (Beijing) Intelligence Technology Co. Ltd. or its distributors directly. Otherwise, please check the assembly carefully referring to the above illustration.

Attention:

Any wrong connection of IMU or GPS may result in burning out the devices！

- When ESC and motors working,they will produce serious magnetic interference, so GPS and magnetic sensor module must be installed by nonferrous to keep far away from motor and ESC (especially the Octo-rotor), and the arrow is towards aircraft nose. Otherwise, the aircraft will fly circling around and incorrectly hover. As there are rich eletric current in the batterywire which can produce magnetic field, users must place the batterywire far away from GPS and magnetic sensor module, otherwise the craft will fly in circle in GPS mode.

- When using gimbal, user need to power on the servo. Just leave one ESC powered on if ESCs come with bec function and dump others' power. Plug the battery of one servo to any of the M1~M8 if ESCs come without bec function.

Warning:

When using image transmission, users must make the image transmission far away from IMU to avoid the interference.

2 Debugging and WIFI Set

It must be installed to the Mobile memory card. Android system can be installed automatically via running file installation once in the file manager. Apple system can be installed after APP jailbreak, please refer to" Apple Installation Instructions"

Tips:

If the serial number of YS-X6 is：YS-X6-Serial No. N(Example: YS-X6-10112N)，It indicates that the WIFI module is integrated with router function and works in point-to –point.If the serial number has no "N", then the WIFI module is ordinary without router function.

• Serial number of YS-X6 with "N" (work in point-to-point),   shown as below:
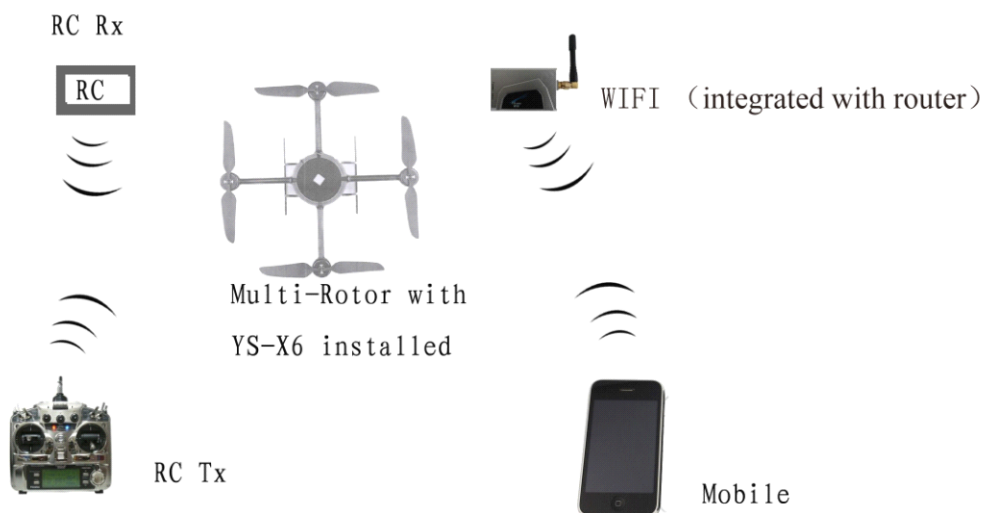
Communication: Wireless router is no need. After WIFI works, your Phone or Tablet will search for a wireless network whose name is YS-X6-Serial No.N (Example: YS-X6-10112N), then please put in the password:12345 and connect it. If the communication is successful, data will be displayed when GCS is

enabled. Please refer to the appendix4 to configurate the Wifi to be ordinary if your phone can't be compatible with Wifi module whose serial number comes with "N".

• Serial number of YS-X6 without "N", shown as below:
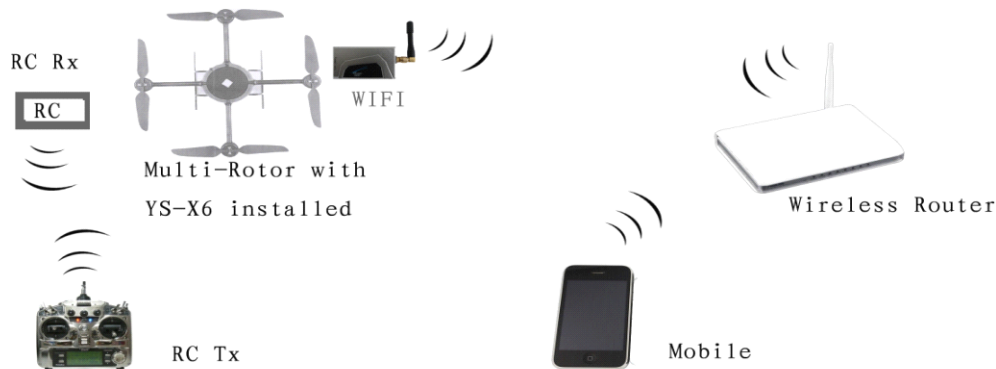
Communication: Wireless router is needed to build AP. Set SSID of the router as"YS-X6-Serial No." (Example: YS-X6-10112N) (Note: The letters must be in Capital), password is 82890430, use WPA2-PSK AES as encryption method and set Router IP as 192.168.1.1 (Phone with hot spot also can be used instead of router, but must make sure SSID and password can be set up on the phone, in same way IP should be: 192.168.1.1) The indicator light on WIFI will be going on in blue if the WIFI module successfully connected to AP.

Then enable the WLAN on Phone/Tablet to connect to router.

Tips:

• All the flight data can be saved to the files as following after WIFI data connected.

To Android: the file with name of "T+runtime" saved in folder "Yshj" under root directory of Phone/Tablet；

TO   Apple   (IOS   5.0/5.0.1/5.1/5.1.1   ):   the   folder: /private/var/mobile/documents/yswifi

• The file can be used for data analysis through the Replay Tool on PC.
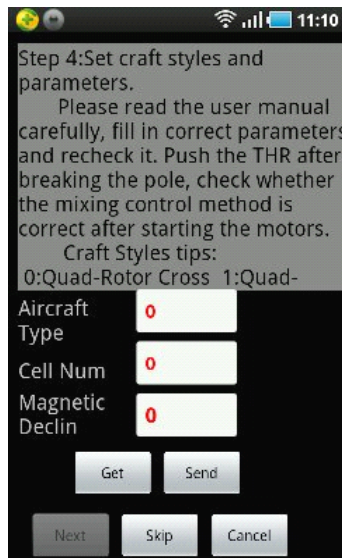
3. Installation Guide

After connecting all data, you can set up the below options as showing in " Installation Guide" of GCS "Settings" (If the data is not connected, please read the above two steps carefully).

Please refer to the diagram as below:

(1)Channel Calibration.

(2)Check CH5 & CH6, set up F/S (Fails safe).

(3)ESC stroke calibration (This step is no need for special ESCs such as XA).

(4)Set up aircraft type and parameters. Fill in local magnetic declination (to West is positive, to East is negative).

(5)Check the configuration direction of IMU & GPS.

After completing the installation guide, can start to fly manually to have a test.

Step 1: Channel Alignment。
    Please press the button "Channel Alignment" and confirm it, and then push/pull all pole positions of the RC Tx to the maximum/minimum or the leftmost/rightmost within 5 seconds. After 5 seconds the AP will finish the auto-collection. Please confirm whether the

Rundder L40   Aileron L40
Elevator Push40 Throttle 97

Channel Alignment

Next   Skip   Cancel

Step 2:Check CH5/CH6 channel, set F/S.
    Please carefully confirm whether the CH5/CH6 channel is correct: check whether the flight status bar on GCS data interface is switched to "Manual" "Circle position" "Auto waypoint circling" and "Back Landing" when moving CH5 / CH6.

Flight Mode: Auto Hovering

Checked

Next   Skip   Cancel

Step 3:ESC stroke calibration.
    Please get into the settings first (Flight status displays "Settings", break the pole as V-shaped to open THR insurance and push the THR pole position to the maximum within 5 seconds, power on the ESC after completing above operation. Pull the THR pole back to the Minimum after a

Throttle   7
Flight Mode: Auto Hovering

Init Setup

Next   Skip   Cancel

Tips:

• About magnetic declination

Please refer to the below website for magnetic declination

http:// magnetic-declination.com/

http://www.ngdc.noaa.gov/geomagmodels/struts/calcDeclination

• About RC transmitter：

The RC transmitter must be set to fixed-wing mode and do not set any mix-control. Any channel can't be inverted on FUTABA RC transmitter, but all of the channels on Jr and WFLY RC transmitters need to be inverted.

For the RC transmitters of other branch, after channel calibration, check whether the actual servo operation is the same as "Manual servo position" showing on GCS , orientation/aileron/elevator display as left/right and push/pull, hands off RC transmitter control displys as Neutral position, the max servo position is 40, example: the max left servo displays as left40; the mini throttle displays as 7 and the max as 90. It's correct if the actual servo operation is the same as "Manual servo position" showing on GCS and if not same need to reset channel to be reverse on transmitter.

4 Magnetic Course Calibration

There is no need to calibrate the magnetic course in manual mode, and the "Course angle" in data page of GCS will keep displaying as 0. But in GPS mode , the magnetic course calibration must be finished before take-off. Ferromagnetic substances placed on multi-rotor or around its working environment will affect the reading of earth magnetic for digital compass, it also reduces the accuracy of the multi-rotor control, or even reads incorrect heading. Calibration will eliminate such influences, and ensure MC system performs well in a non-ideal magnetic environment. The magnetic data will display once after calibration and be saved to the autopilot.

Notice:

Only changed to GPS mode, the actual course angle will display in Course angle in data page of GCS.

STEP1 Calibration in horizontal:

Enter Calibration by elect "Horizontal Alignment" from "Magnetic Compass" in "Setting" page of GCS and click OK to send the command to autopilot. After confirmation，the status bar in the middle will display "Success" meaning the autopilot received the command of Horizontal Alignment, can start the Calibration: Rotate your aircraft 2~3 laps along with the horizontal surface, ask a helper to monitor the Attitude angle changing in Data and try best to keep Pitch and Roll value smaller than 3 (you can also check the blinking light which is connecting with autopilot, if the light is keeping on it means attitude is good, if the light is off it means the attitude is too big). After completing 2-3 laps horizontal rotation, then go to the next step;

STEP2 Calibration in vertical:

 Rotate the craft nose vertically facing the ground, select "Vertical Alignment" from "Magnetic Compass" in GCS and click "OK" to send

the command to autopilot. After it says "Success" meaning the autopilot received the command of Vertical Alignment and then the roll and pitch will change close to 0 degree slowly via checking the attitude angle in "Data"(namely changed reference coordinate system, it's level when the craft head face the ground).Then hold your Multi-rotor vertically and rotate it along with its vertical axis keeping the attitude angle smaller than 3, after completing 2-3 laps vertical rotation,then go to the next   step; you can also check the blinking light which is connecting with autopilot, constantly light on means attitude is good, if attitude is too big the light will turn off .

STEP3

After rotating, in settings page click on Magnetic Compass --- save Magnetic Compass---OK. After you finish the calibration, the GCS will go to "Control" interface automatically. After waiting for scores of seconds（the purple light keeps going on during data reading）, mobile will display the magnetic sensor data of AP, only look the red and blue circle in the middle of cross coordinates, if they are close to standard round, then indicates a successful calibration and data in good condition.

Two round circles will show whether the calibration was successful or not:

If two round circles show up in the "Control" interface (one blue circle one red circle), calibration succeeds, can exit ;

If no circle or only one circle shows up in the "Control" interface, the calibration has failed. Enter calibration by selecting " Horizontal Asignment" and then re-start from step 1for re-calibration.

Successful Calibration Image:
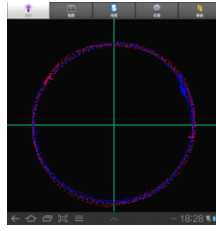
Tips：

After correct assembly and successful magnetic compass calibration once, no need to recalibrate without any constructional reconfiguration or only upgrade the firmware.

5 Control Priority

Notices:

• User must select two 3-position switches and set them to CH5 & CH6 by RC transmitter.

• Three modes can be switched through CH5, Manual/Manual Altitude Holding /GPS. (Note:the flight status on "data" page in GCS display "manual" "manual" "auto-hover")

• CH6 can work only when CH5 stays at position 3 (namely GPS mode). CH6 is for switching modes among Auto-hovering/ Auto-navigation /Auto-returning home & landing.

• The switch of RC receiver is button which showing "Receiver off" or "Receiver on" in GCS, used to turn off/on the RC receiver on craft ,namely any operation is useless for aircraft if receiver displays "RC off" , which equals there is no RC receiver on the craft.

It is strongly not suggested to close the receiver (RC off) if user doesn't know well about the system!

• Mobile RC Status means whether the cross operation is enabled or not in the mobile RC interface, enable the GC software and click on" RC on", there is a "round circle" showing on the "cross" ,indicating "Mobile RC status "has been enabled ".Select " RC off" ,there is no round circle on the cross ,indicating "Mobile RC status" has been off.

RC Status	CH5 Status	Mobile RC Status	CH6 Status	Craft Status	Priority
RC off	X	Auto-Enable	X	When controlling by mobile, there is a "round circle" showing on the "cross". When losing WIFI or signal exceeding 10s, auto-returning home and landing. (This mode is not commanded to hobbyists.)	1
RC on	CH5 Manual	X	X	In full manual mode, it's controlled by RC transmitter only. Note: No strong actions/ No high speed when flying in manual mode.	2
	CH5 Auto (In position 3)	Mobile "Control on"	CH6 position 1	When controlling by mobile, there is a "round circle" showing on the "cross", please check the mobile status, it has nothing to do with the RC Transmitter.	3
			CH6 position 2	Enabling waypoints on mobile can get into "Auto-navigation" mode. (Make sure the waypoints is uploaded)	
			CH6 position 3	"Auto-return home & landing" mode	
		Mobile "Control" off	CH6 position 1	"GPS auto-hover" mode, if the throttle is in the minimum, craft may go down fast, meanwhile the throttle should be maintained in middle-position.	4
			CH6 position 2	Enabling waypoints on mobile can get into "Auto-navigation" mode. (Make sure the waypoints is uploaded））	
			CH6 position 3	"Auto-return home & landing" mode	

Remark:

• **"X":** means irrelevant, any kind of status. When mobile remote control is enabled, there is a round circle showing on the cross. When Mobile transmitter is disabled, there is no round circle showing on the cross.

• **"RC status":** means "receiver on" and "receiver off" status in GCS。

• **"Priority"**: 1 means the highest.

6 Aircraft Type

To coaxial propellers: Blue propeller is at Top; Purple propeller is at Bottom. Otherwise all propellers are at top. The arrow means the orientation aircraft head should point to. Fill in "Aircraft Type" in the parameter settings with below numbers.

direct to the aircraft head
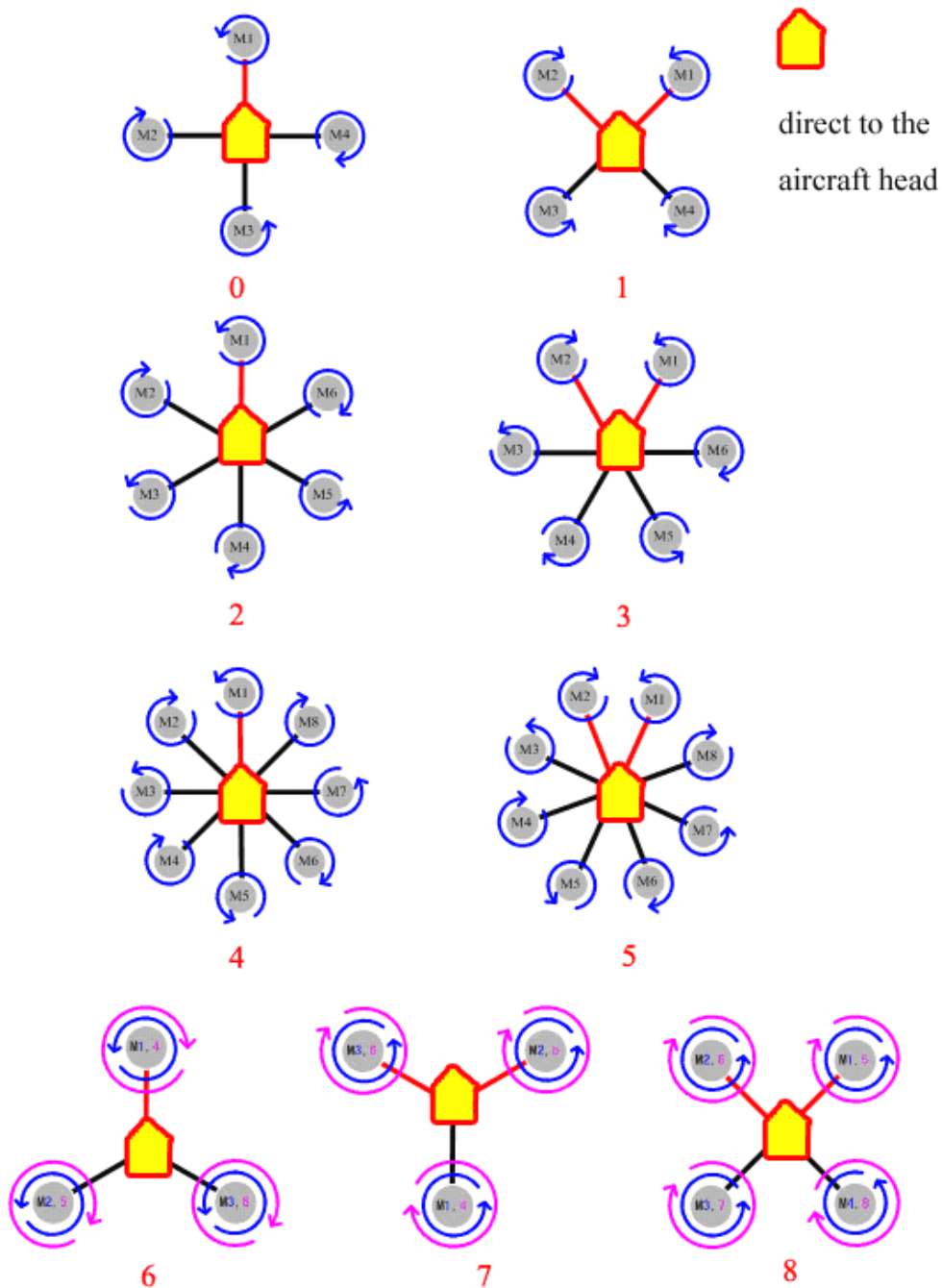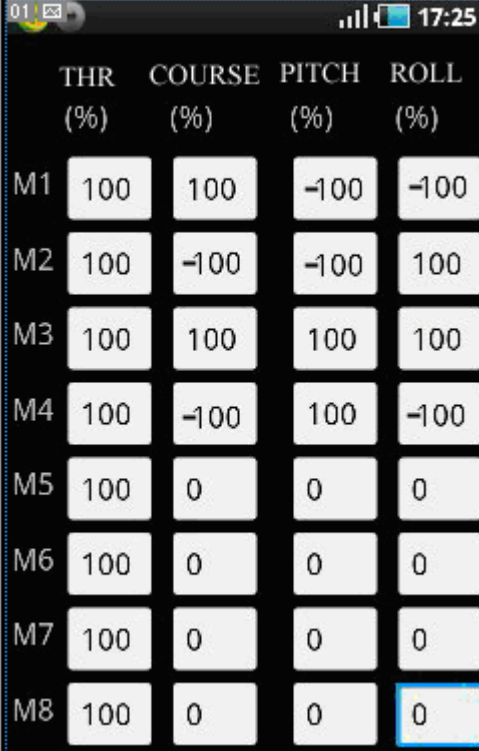
Customized Parameters

Tips:

Customized parameters can be setup by customers to allocate motor mix-control. And the proportion coefficient of pitch, toll and turning of each motor also can be customized for applying to the irregular Multi-rotor frame.

• **Customized throttle parameters:** all of them must be 100.

• **Customized course angle parameters:** to make the aircraft rotate to right, the changing method of corresponding motor speed should be decreased to -100, and increase to 100.

• **Customized pitch parameters:** to make the aircraft head be downward, the changing method of corresponding motor speed should be decreased to -100, and increase to 100.

• **Customized toll parameters:** to make the aircraft roll to right, the changing method of corresponding motor speed should be decreased to -100, and increase to 100.

Now let's take the Quad-X parameters setting for an example:

	THR (%)	COURSE (%)	PITCH (%)	ROLL (%)
M1	100	100	-100	-100
M2	100	-100	-100	100
M3	100	100	100	100
M4	100	-100	100	-100
M5	100	0	0	0
M6	100	0	0	0
M7	100	0	0	0
M8	100	0	0	0

In GCS, please click on "Setting"--"Parameters Define" to fill in the parameters, after verification change the parameter of aircraft type to 10.

Warning:

 if the parameters are incorrectly setup, after powering autopilot on or the "aircraft type" is changed to 10, the motors will immediately rotate with high speed, so it's strongly suggested that take off all of the propellers before filling in the defined parameters to ensure your absolute safety!)

And then click on "Setting"--"Parameters Define"--"Get" to verify the changing is successful. Repower autopilot on after verification, push the throttle stick to the minimum position to make the motor rotate in slow speed and meanwhile carefully check whether the mix-control is consist with settings, after verification can start to fly .

7 Arm/Disarm motors and Failsafe

Enable Motors Protection

Any time after landing or before take-off, only if it is in manual mode and the throttle stick is at the bottom position, the motors can be locked up completely after 5 seconds; After locked up, motors won't rotate even if push the throttle stick. Only through "enable insurance" on phone or through motor arming （please refer to the tips of **Motor Arming** in part 9 **Flight**）the motors can be unlocked.

Disarm motor

Only in manual mode and without holding altitude, the motors stop rotating with pulling the throttle stick back to the bottom. Other time, if pull back the throttle stick to the bottom, the motors won't stop rotating but only decrease altitude.

Attention:

During flying, if there is no accidents please do not switch to manual mode and push the throttle to the minimum at the same time, otherwise the motors will immediately stop rotating, craft will free-fall to the ground and never be

rebooted!

Tips:

Whenever need to stop the motors urgently, below ways can help:

(1) Switch CH5 to position 1, namely in manual mode but without holding altitude, what's more the throttle stick must be in the minimum.

(2) when mobile selects "RC off", click on "motor off " on mobile RC interface; Or enable the receiver "RC on", according to the method (1);

(3) After auto-returning home and landing on the ground, click on "motor off" on mobile RC cross interface and confirm; Or enable the transmitter, according to method (1);

(4) After landing on the ground in holding altitude or GPS mode, press the cross downward continuously, namely the throttle stick or RC throttle stick controlling landing is on the bottom position all the time, motor will stop rotating slowly till shut down completely and locked up.

WIFI Signal Lost

(1) When receiver enabled (RC on), if the WIFI signal loses more than 1 second, then control the aircraft by RC transmitter;

(2) When user select "receiver off " (RC off), all of the operations by transmitter are unavailable, craft control is managed as follows:

A. In " waypoints flight " mode, the flight will not be influenced if the WIFI signal loses, and aircraft will go back to the first waypoint to hover after finishing waypoints flight, then you need to judge whether WIFI signal has recovered, if the signal unrecoverable, then manage as following;

B. When it's not " waypoints flight " mode or aircraft hovers in the first waypoint after finishing waypoints flight, please wait 10 seconds if the WIFI signal loses, and continue to operate if signal can recover; If there is no signal 10 seconds later, then enable the returning & landing function; if the signal recovers again

during returning, then stop returning home instead of hovering. Continue to return home and land if the signal is not recovered again.

RC(receiver) Signal Lost

Users must refer to the instruction of RC transmitter to correctly set up F/S, set CH5 to position 3,CH6 to position 1, throttle stick to the middle position (installation guide has tips). If enable F/S for any reason in "RC on" status, the autopilot will be switched to auto- hovering status（continue flight path for 5 seconds in auto-waypoints mode, wait for 5 seconds and start to return home if the signal can't recover after 5 seconds.

8 Mobile Remote Control

(1) Phone Cross Control

During flight, when remote control is switched to "Auto-hover" of " GPS mode", the craft shall get into auto-hover. Meanwhile click GCS on mobile→ "enable control/disable control" to enable or disable the control operation.

Mobile remote control operation ways as below:

RC ON	Transmitter Interface Operation Ways	Craft Status
Circle area	Red: Not loacated; Green: located.	Keep still
Position Hold	DO NOT touch any area	Position hold.
Operation	1. Press the circle and move up/down 2. Press the circle and move left/right 3. Press the circle and move left top, left bottom, right tip, etc.	1. Move back and front 2. Move left and right 3. Move lefttop,leftbottom,etc
Climb/ Decline/Rota te	Click the circle and move in the range of the red cross: 1.Top 2.Bottom 3.Left 4.Right Note (1) The distance to the red dot means the flight speed. The farther ,the faster. (2) Press=moving,release=stop moving (3) Release=position hold immediately (4) The Maximum speed is 2.5 m/s	1、Climb 2、Decline 3、Rotate to the left 4、Rotate to the right

（2）Phone attitude mode

User can enable phone attitude control mode in phone remote control mode, click on "enable attitude" the transmitter interface will be changed to a blue cross, which indicates mobile attitude control mode has been enabled.
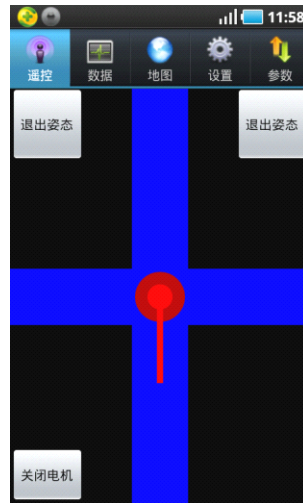
Phone attitude operation is shown as the form below:

Enable attitude	Transmitter Interface Operation Ways	Craft Status
Circle Status	Red:unlock Green:lock	----
Hover Operation	Keep the mobile phone flat and no click	Hover

		1front/back

Flight Operation	1 Mobile phone tilt to front/back
	
	2 Mobile phone tilt to left/right
	
	3Mobile phone tilt to
	        upleft/downleft/upright/downright
		2left/right
		
		3upleft/downleft/
		    upright/downr
		    ight move

Climb/Descend/Auto-rotate	1 click on right above the circle (inside the cross) 2 click on under the circle (inside the cross) 3 click on the left of the circle (inside the cross) 4 click on the right of the circle (inside the cross) Note: (1)The further click point from the circle the quicker craft moves (2)Pressing time equals craft moving time.	1 Climb 2 Descend 3 Left rotation 4 Right rotation

Notice:

The control mode can be switched between phone cross control and phone attitude control.

9 Flight

（1） Motor Arming

Unlock throttle: Move rod as V shaped when the throttle is in the bottom. After that push throttle stick to enable the motor in 5 seconds, and the motor insurance will be locked up automatically exceeding 5 seconds.

Notices:

Rod moving: Rudder in the left- most position, elevator in the bottom, aileron in the right-most position,throttle in the bottom. For the right or left throttle, user need to judge by self that the motor arming direction is 八 or V shape.

After moving rod as V shaped, motor will not be enabled automatically, user need to push the throttle stick to the minimum position to enable the motor after moving rod.

（2）Vibrating and Shaking

During flight, user need observe the "vibrate state" and "shake state " in "data" page to judge the shaking status of IMU. In stable flight, it is normal when the "vibrate state" and "shake state " range from 0~9, the smaller the number the smaller the shaking, the number will directly affect flying performance.

Tips:

Vibrating coefficient:the maximum acceleration of alternate motion(vibrate) in up&down/left&right/back&forth three directions.

Shaking coefficients:the maximum angular velocity of rotary movement around X/Y/Z three axises.

(3) Manual servo position and real servo position

Manual servo position

After channel calibration on transmitter, when user put the stick in the middle position, the value of rudder, elevator and aileron in "manual servo position" of GCS should be small (no more than 2) . If user already adjusted the trim and the manual servo position is not near the center, need to click on "Neutral Position" in "settings" to make the autopilot record the correct stick center position.

Real servo position

Real servo position is the relation of differential rotation speed outputted by motor to keep aircraft stable during flight.

Tips:

User can judge the balance of motors and propellers by observing the real servo position in level flying.

Example: when clockwise and anticlockwise propellers lose balance(suppose clockwise motor is not leveling, the reaction torque generated by which is smaller than that generated by anticlockwise motor), when in level flight and heading unchangeable, the real rudder position will keep stable with left to 5~7. With the same pulse width output, the reaction torque generated by clockwise motor is smaller than that generated by anticlockwise in the same rotation speed, which lead aircraft rotate to the right, autopilot will output levorotation torque automatically, namely the differential make the clockwise rotation speed faster and anticlockwise slower. In this condition, aircraft can fly normally and do not need hover any more, but the power consumption and temperature of clockwise motor are higher than the anticlockwise motor's.

So, it is suggested that user need to precisely detect the balance and level symmetry of motor and propeller to get a more stable flight. Until level flight and hovering, the rudder of real servo position will be smaller (1~2) or around neutral position.

(4) Auto-takeoff and Auto-landing

A.Semi-auto takeoff

When get 5 or more GPS satellites locks, switch CH5 to position 3 and CH6 to

position 1, that is the flight status is "auto-hovering", then push the throttle stick after moving rod in V shaped, when throttle stick is more than half, aircraft will take off automatically and auto-hover about 2~3 meters from the ground and getting into auto-hovering status.

B. Full-auto takeoff

Notice:

Aircraft can take off fully-automatic only if the aircraft has completed semi-automatic takeoff and the flying is successful.

Step 1 Wait until get 5 or more GPS satellites locked, put the THR stick in the minimum position, switch CH5 to GPS mode (position 3), CH6 to position 1.

Step 2 Click on "enable insurance", or move rods as V shaped to make the throttle unlocked, then continue the next step within 5 seconds.

Step 3 Click on "auto-takeoff ", the aircraft will be powered on and take off slowly, hovering in the height of 2~3 meters from ground.

Step 4 If the THR sticks is in the minimum position in auto-takeoff mode, if you want to control the flying altitude, must move the THR to the neutral position.

Notice:

If there are any accidents during take-off you can switch to manual mode by transmitter to control the craft .

C. Auto-returning home and Auto-landing

Autopilot will set the returning home position automatically when GPS has locked or aircraft takes off in manual/auto mode.

In GPS mode, when switch CH6 to position 3 or select "auto-return home & landing" in the mobile phone and meanwhile click on "OK",AP will enable auto-returning home & landing after 5 seconds; and the motor will auto-fly to 20 meters if the altitude is less than 20 meters, when aircraft returns the throttle servo doesn't work, the autopilot will descent to the ground automatically when reaching the start position and can interferes the landing position; After enabling "auto-returning", it can't prevent autopilot from

returning and auto-landing if switching CH6 back to "auto-hovering "and "auto-navigation", unless switch CH5 to manual position(position1/2) and then back to holding position to continue hovering.

(5)Click & Fly to point

MODE : in GPS auto-hover mode

Step1:

Click any point on the map and it can appear a yellow smile there.

Step2:

Click on "FlyToPP" button in Map page (the button will get gray if there is no click beyond a few seconds, then need to click on the map again and the yellow smile will appear), the yellow round smile will change to purple star smile. The operation of flying to the next position is same as above.

Remark:

Within 10 meters, craft moves in level ;and beyond 10 meters, the head of craft faces the target point.

Warning:

 If the point clicked on is too far, the craft will fly out of sight, so user need to be cautious when using the Fly to Point function.

(6)Target Lock

MODE: in auto-hover mode

Solution1:

Step1:

It will appear a yellow smile while clicking any point on the map;

Step2:

Click "PTZLock" button in map page. After yellow round smile changing to purple star smile, the aircraft head will keep facing the locked point;

Solution2:

Step1:

in any time (including before takeoff or manual/auto mode after takeoff) fly/take the craft to the target point to be the locked , then within 3 seconds switch between position1 and position3 on CH6 for three times(that is 1->3->1->3->1->3->1), FC will record the longitude&latitude of GPS where the craft locates as the target point to be locked.

Step2:

in GPS auto-hover mode, within 3 seconds switch between position1 and position2 on CH6 for three times(do not switch to position3 which is invalid, that is 1->2->1->2->1->2->1), then FC will enter target lock mode.

Tips:

After locking the target with solution1 or solution2, users can operate by transmitter or by RC mode on phone.

Remark1: When left aileron outputs in RC interface, the aircraft will hover clockwise around the target point. When the right aileron outputs, it will hover anti-clockwise.

Remark2: Pushing the stick can decrease the hovering radius and drag the stick can increase the hovering radius.

Remark3: After selecting "Quit FlytoPP/PTZ Lock" in "Tools" page or switch back to manual mode, the elevator operation and aileron operation will be normal. User can switch to manual mode and immediately back to GPS mode to continue the operation.

（7）Waypoints Flying

Step1:

In Map page of GCS, click "tools"-> " Design waypoints" to make the waypoints

designing. One click on map once can get one waypoint, get all waypoints one by one. Click "Default Tool" to complete the waypoints design.

Tips:

If the firmware version is later than Sept.15th,2012, each waypoint contains "Height", "Hovering time","Speed" and other key parameters, so must make sure that click each waypoint with finger to select "edit waypoint" and correctly setup.

"Height" indicates the point where craft is staying, which can be set as negative value below zero(when the takeoff position is too high and the craft need to fly under the takeoff position). If height between two waypoints are different ,craft will fly as climbing slop. The default value of height is 9999, that is to say since the altitude is too high to reach, craft will fly according to the present height.

"Hovering time" means the time that craft stays in the present position before going to the next waypoint(the default hovering time in first waypoint is 65535 seconds).

"Speed" means the flying speed that craft flies to the next waypoint from present position.

Step2:

After the waypoints design is completed, it can be saved as file which can be used next time. User can also click on "Upload Waypoints" to upload the waypoints to Autopilot. Please check whether each waypoint has been changed to blue to confirm a successful upload (orange indicates the upload is not successful), and then get into "Target Point" to check whether the number displays there is the same as uploaded waypoints, if not you need to upload once more;If any waypoint is not changed to blue, please also upload the waypoints once more.

Step3:

Click "Remove Waypoints" to make the blue waypoints recover to red; then

Select "Verify waypoint" from "Tool", download uploaded waypoints to ground Station for comparing, if all waypoints are blue it means the uploaded waypoints is the same with that in GCS and waypoints verification is successful. Otherwise need to upload waypoints once more.

Step4:

After switching CH5 to position 3 and CH6 to position 2, then click on "enable skyway" in setting page of GCS, the craft will fly to the first waypoint and hover There. Fill in "Change Target" with number 2 and upload it, the craft will fly to waypoint 2、3、4…and fly back to waypoint 1 and hover there after finishing all waypoints.

Notice:

If waypoints incorrectly uploaded, when switched to auto-navigation mode the aircraft will fly far away automatically and out of control.

Free control of craft heading:

In normal condition, when it's waypoints fly, craft nose will face fly orientation in real time. When user need to freely control the course of craft, in waypoints fly mode can click on "Intelligent course locked" in Setting page of GCS. At that time the "Intelligent course locked" doesn't present care free function, it presents free course mode. That is craft will fly according to "waypoints fly", however, the craft nose will not face the fly orientation in real time, but the course of craft can be freely controlled by rudder on RC transmitter. Click on Disable intelligent course locked and confirm, then the craft nose will face fly orientation again.

(8) Follow Me

This function must be used in the condition that GPS on phone is enabled and meanwhile GPS of this phone has located showing on "data" page of GCS. In GPS hover mode, after all the sticks on transmitter are set in the neutral position, user can click on "enable follow" in "setting"page, the craft can fly following the

mobile phone GPS and lock the craft nose orientation.

If to quit this function, just click on "Disable follow" on "setting" page.

（9）Care free

In GPS hover mode, "Carefree" can be used.

Option 1

Click on "enable course locked" button in "setting" page, autopilot can record the current orientation of craft nose. Then users can adjust the orientation of craft nose with rudder;when users operate the left/right aileron and push/pull sticks on transmitter, the autopilot will fly to the orientation as the course was locked, not the current orientation of craft nose.

Option 2

Within 5 seconds please switch between position1 and position2 on CH6 for five times(do not switch to position3 which is invalid, that is 1->2->1->2->1->2->1->2->1->2->1), then FC will enter intelligent course locked mode.

To exit "carefree", click on "disable course locked" button in "setting" page or switch to manual mode. User can switch to manual mode and immediately back to GPS mode to continue the operation.

10 Parameter Setup

Default Parameters

The Factory Default Parameters are shown as below. It is the Quad-X flying mode and can be applied to most crafts for direct flying.

Notice:

"PTZ Roll Sensitivity" & "PTZ Pitch Sensitivity" can directly affect the touch sensitivity of transmitter.

Please do NOT change the parameters of Roll/Pitch,THR P/I,Rotate P/D. If parameters are incorrectly changed, can push the THR to the minimum and switch to the manual mode, then click on Settings→ Default Settings, the parameters can recover to factory defaults.

The meaning of other parameters are as below：
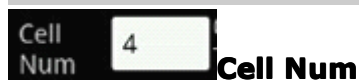
 Cell Num

The autopilot can calculate the low voltage alert according to the Cell Number filled in by users. When the mobile vibrates once each 2 seconds, it means the power is getting low and remind user to note. When the mobile keeps vibrating it means the power is getting very low and request the craft to land at once.

Ctrl Type

Complete default number 2.

1. Attitude mode, fit to adjust parameters/dynamic flight.

2. Acceleration mode, fit to static flight(autostability, common mode).

Magnetic Declination

Fill in local magnetic declination, deflection to West is Positive/to East is negative (most regions in China are deflecting to West).

Example: Magnetic declination in Beijing is 6° 30' to West, that is 6.5 degree, then fill in 6.5. When magnetic declination is more than +10degree(to west) or smaller than -10degree(to east), after that autopilot will rounding down decimal places and just leave the integers.

Please refer to the below website about magnetic declination

http://magnetic-declination.com/

http://www.ngdc.noaa.gov/geomagmodels/struts/calcDeclinat

Aircraft Type

Fill in mix control type, please refer to Part 6.

PTZ Roll Sensitivity

PTZ Pitch Sensitivity

EXT1 is the PTZ roll output and EXT2 is the PTZ pitch output. Roll/Pitch sensitivity is used to adjust the compensation angle of PTZ. If user feel the compensation angle is small, can fill in bigger number, on the contrary fill in smaller number (Note: negative value can be filled in to be reversed).

When using PTZ, transmitter must be enabled and CH7&CH8 are correctly set to two knob switches, making it more convenient that autopilot can read the CH7&CH8 to output the PTZ position.

Attitude Sensitivity

It is the revised coefficient of inclined angle generated by aircraft when resisting the external force.The bigger the number, the more sensitive to the external force, default value is 50, fit to most crafts.
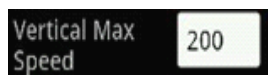
Vertical Max Speed `200` **Max Vertical Speed**

In GPS mode, the max default speed of up/down (unit:cm/s) is 200,that is 2m/sec., the max value can be set as 255.
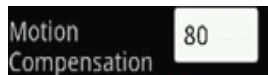
Motion Compensation `80` Motion Compensation

The default value is 80 fit to most crafts. When the sticks back to neutral position on transmitter, increase the value to get a more stable flying if the aircraft is shaking heavily. But it will result in high-frequency vibrating if the number is too big. Setup range:0~255.

Vertical Stable `150` Vertical Stable

It is available only in manual mode to increase the comfortable level of THR by manual, default value 150. The air pressure has big influence on motor stability when the value is too big. If the air pressure is not stable in windy days, too big number will affect the comfortable level of THR in manual mode and without holding altitude.

Max Speed `3.6 m/s` Max Speed

Setup of maximum flying speed.
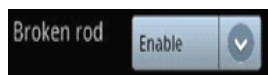
Broken rod `Enable` Motor arming

Setup of whether to use motor arming to remove throttle protection.

Protection `Enable` Protection

Setup of whether to enable the THR protection.

过载控制 `平缓` Overload control

The acceleration of craft in GPS hover mode can be selected.

Gentle, common and severe are optional.
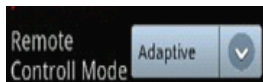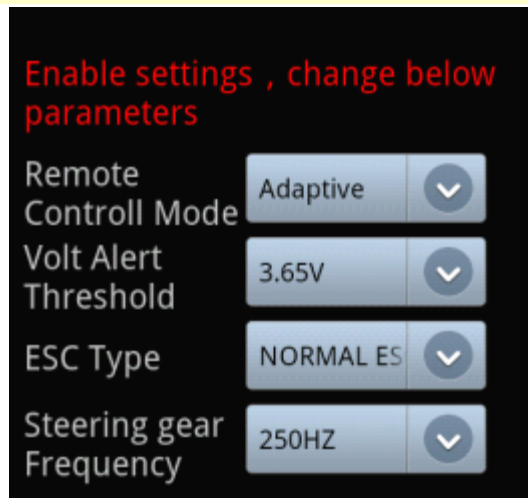
Remote Control Mode

User can select the options below according to yourself RC mode, do not set up incorrectly!

Self-adaptive: AP select the options according to the using RC Tx.The RC Tx must be enabled first before autopilot enabled.

Normal: Ordinary FUTABA Receiver, AP CH1 connect to Receiver CH1, AP CH2 connect to Receiver CH2.

S-BUS: Only connect AP CH7 to the Receiver S-BUS port.

PPM: PPM is supported, only connect AP CH8 to Receiver PPM.

Volt Alert Threshold

Fill in the alert voltage of each battery which is been using, need user to fill in

after measuring by self. Usually fill in 3.65.

ESC Type

Fill in the ESC type which is been using.

Steering gear Frequency

Input the correct value according to your servo type: 50HZ for Analog Servo, 250HZ and 333HZ for Digital Servo.

11 Power module & Speed sensor

When YS-X6 is connected with power management module, user can directly observe the present discharge current and battery consumption in "data " page of GCS.

If to use this function, user must first connect power management module with YS-X6(connect to A1N1 plug on YS-X6), push the throttle stick to the bottom, then repower YS-X6 on. After powering, FC will zero sensor automatically, the current discharge (ampere A) and battery consumption(MAH) start to output according to the detection by power management module.

12 Data Link connection extension

（1）Data link (on Craft) connection

Take off WIFI module from craft and install data link on craft, connect the data link to YS-X6 COM3 referring to WIFI module connection.

Data link on Craft

（2）Data link (on ground) connection

Connect the WIFI module, taken off from the craft, to another data link on ground (using cables come with data link), which can supply power with wireless router on ground together. That is there are three parts on the ground:data link, WIFI module, wireless router.

Communication (Data Links)

Data Link

Data Link

Lipo battery

3S −6s

RC Receiver

RC

Multi-rotor with

YS−X6 installed

WIFI

RC Transmitter

Wireless router

Mobile

Communication (Wifi)
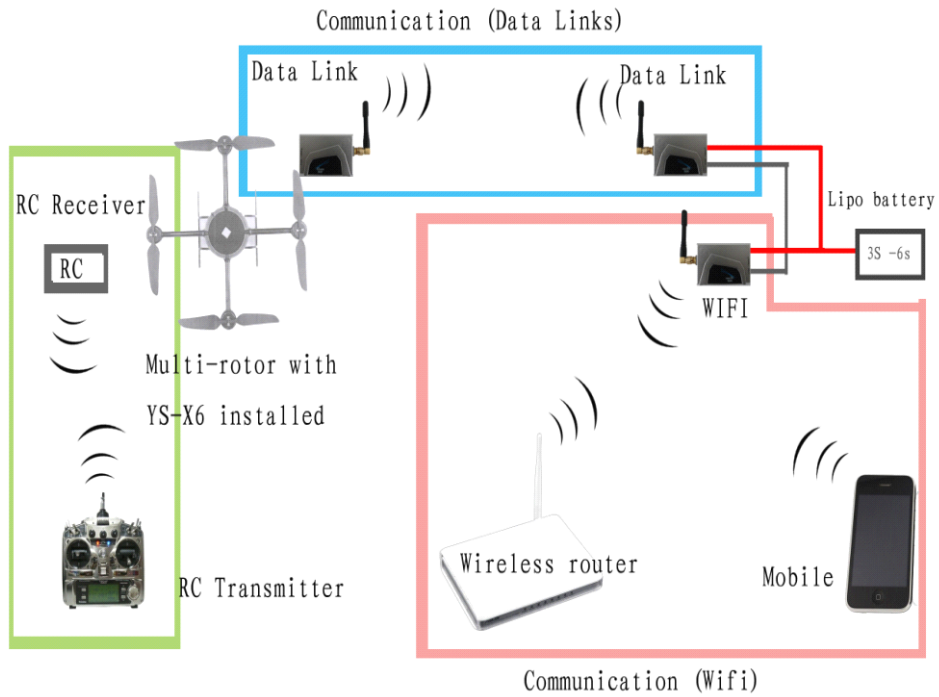
Notice:

• If WIFI module works in point-to-point, there is no need using router.

• Data link and WIFI both are powered on by 3 S ~ 6 S lithium battery (same as AP MC), the power cable is in red-black two colours, red is positive pole and black is negative pole.

13 Joystick Connection

After purchasing the joystick, users can use it to control the craft in GPS mode. When data link is not connected, joystick control distance is up to WIFI communication distance. When using datalinkXB-PRO900, the control distance of joystick is up to communication distance of datalink .

Joystick contains two parts: joystick and joystick WIFI.

Notice:

The WIFI here coming with joystick is different from the WIFI above in Part12, they can not be exchanged)

（1）Joystick Connection

The joystick connection is quite simple, just need to connect joystick WIFI to joystick according to the diagram above, and power it on in a convenient place , joystick can work automatically .

Note:

Joystick and WIFI both are powered by 3 S ~ 6 S lithium battery (the same as AP MC), the power cable is in red-black colour, red is positive pole and black is negative.pole.

The cable connecting joystick with joystick WIFI is Dupont cable in three colour.

（2）Joystick Instructions

1. In GPS auto-hovering mode, joystick can be used to control the craft . After power on the joystick, joystick operation equals to the cross operation of RC interface on phone. To avoid conflicting with phone cross operation, please disable remote control on phone GCS to cancel the round circle on the cross.

2. When RC is off , the round circles on remote control cross interfaceof phone GCS will display once automatically. At this time the joystick can't be used, otherwise there will be two cross operations at the same time. If need to use joystick at that time please select "menu" and click on " RC off" in phone GCS, to cancel the round circle on RC cross interface, then the joystick can be used.

14 Craft Shaking Adjustment

First, deviation of installation /vibration/shaking will make the test of flying status by IMU delayed. So user need to check whether the installation direction of IMU is correct and try to install it on the stable place on craft where there is no resonance.

Notice:

The IMU of YS-X6 has damper inside, so there is no need using extra damper.

The vibration and shaking coefficient showing on GCS means the shaking status of IMU. Before allocating motors and propellers, users must make balance test to reduce the vibration and shaking coefficient smaller than 10, the smaller the better(try to use the smaller propeller to reduce the shaking). Soft frame will bring extra shaking, please use frame with better rigidity.

Second, the attitude of Multi-rotor is up to motor speed adjustment, so servo sensitivity will directly affect the accuracy of Multi-rotor attitude adjustment. User need to adjust weight and pitch of propeller to be proper, so that motors can rotate in enough speed and generate enough servo effect. For the craft seeking for high efficient configuration, it is inevitable that the flight stability will reduce, user only can select one between flight efficiency and stability;

Third, the symmetry of Multi-rotor has significant effect on flying stability. In quarter 3 "real servo position" of Part 9, user can estimate the symmetry of motor and propeller in level flight. If fail to adjust the symmetry, user must spend more energy in frame and dynamic configuration;

Fourth, if the three steps above are finished, user can adjust "toll sensitivity", "pitch sensitivity" in " parameters setting" , that is to set the correction strength of craft; And adjust "motion compensation", that is to set the correction of stabilization of craft to realize a certain kind of adjustment.

Note:

"Toll sensitivity", "Pitch sensitivity" have been set the correction value with same angular velocity error, 60 is default, the bigger the sensitivity the

quicker the correction, that is the manual control is more flexible. But too big sensitivity will lead to high-frequency vibrating, so need to decrease the sensitivity value for high-speed craft(smaller propellers).

"Motion compensation" is set for the shaking correction of low-speed craft, 80 is default. Without the compensation, since the servo effect of low-speed craft (bigger propellers)is too small, when sticks on transmitter back to neutral position, the craft will jerk to be stable. User can gradually increase the"motion compensation" parameters to get the best effect without jerking when the sticks back to neutral position. But for the high-speed craft(smaller propellers), the value should be decreased, otherwise the craft will highly-frequency vibrate. The minimum value of the parameter is 0 and the max value is 255.

15 Firmware Upgrade

The upgrade of YS-X6 firmware is simple. Before firmware upgrade, please download the special firmware upgrade tool on Zero UAV official website: http://www.zerouav.net/kefu.aspx

USB Cable Connection: plug one end of USB cable in box to PC USB port , and the other end to FC COM1.

Warning:

COM3 is used for connecting to Data link or WIFI, and COM1 for upgrade. Wrong connection will lead upgrade failure.

Upgrade Steps:

Step1

Please do not power on FC and if FC is powered please disable it.

Enable the special programme "YS-X6 PC Firmware Upgrade" for upgrade ,click on "AP Firmware Upgrade",the software will be enabled and shown as below:
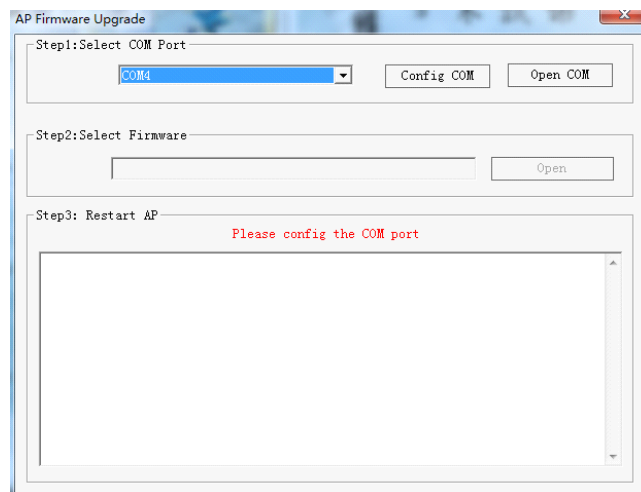
Step2

Select COM port for upgrade (if do not know which COM on PC, please click with right mouse "my computer"->"attribute"->device manager"->"port"(COM/LPT)to have a check). Click on "Config COM", then setup its property to be(as the diagram below):

Baud rate: 115200

Data bite: 8

Parity: None

Stop bit: 1

Data flow control: None

When setting finished, click on "Open COM"
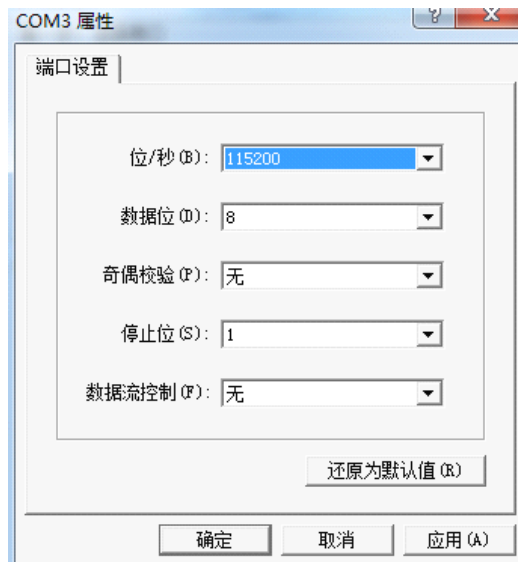
Step3

Click on Open button, Select a ".arm" file offered by Zero UAV to upgrade(shown as below diagram).
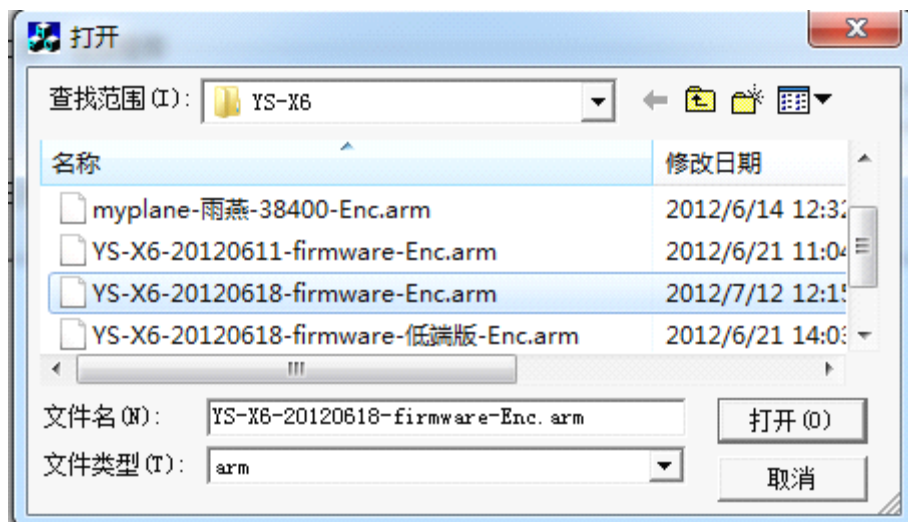
Step4

Repower on the FC and it will start to auto-upgrade. When it says in red words

"Please Restart AP!", then autopilot can be powered off.
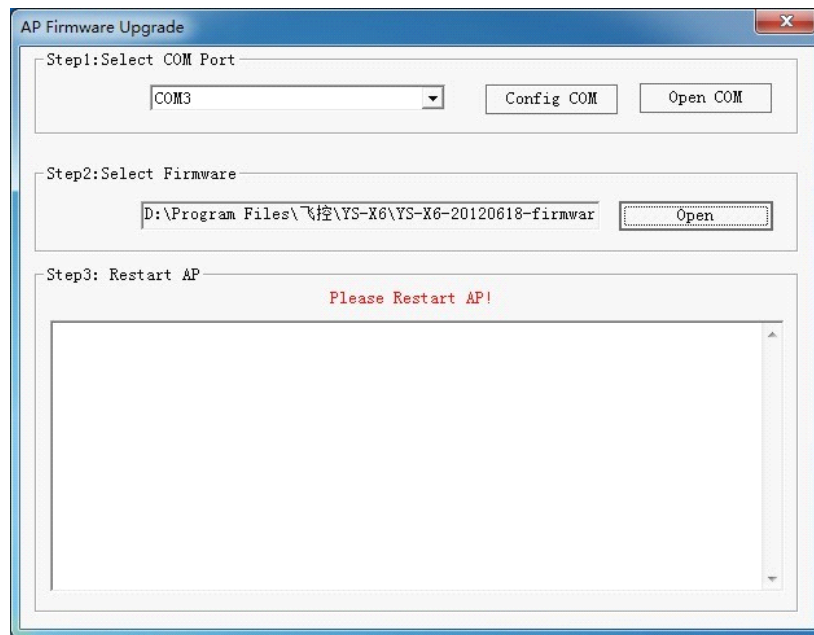
Warning:

1,When all settings are finished, if repower on AP the software doesn't auto-upgrade, please disable the software and replug the USB cable.

2,If the below warning is showing when you choose firmware versions,

Please redownload the upgrade firmware or update the date later than the present date(within 30days) , then upgrade once more.

Appendix 1: LED Description

Flight States

GPS unlocated, red light blinks for 3 times one loop. ●●● ●●● ●●●

GPS satellites=5, red light blinks for 2 times one loop. ●● ●● ●● ●●

GPS satellites=6, red light blinks for 1 time one loop. ● ● ● ● ● ●

GPS satellites>7, the Led doesn't blink. ●

Abnormal craft status=White light blinks

When GPS from attitude is too large, Led blinks in white(craft status is abnormal). ▢▢▢▢▢▢▢▢▢▢▢▢▢▢

When craft gets stable after big action:

If white light is off, craft can continue to fly; ○

If white light keeps going on, need to land craft urgently. ▢▢▢▢▢▢▢▢▢▢▢▢▢▢

Altitude hold in the Stabilization mode=Blue light periodically blinks

Blue light blinks for one time one loop means users is operating; ● ● ● ●

Blue light blinks for two times one loop means Altitude hold. ●● ●● ●●

GPS mode=Green light periodically blinks

Green light blinks one time one loop means the user is operating; ● ● ● ●

Green light blinks for two time one loop means Auto-hover and Altitude Holding.

●● ●● ●● ●● ●● ●●

Low voltage alert
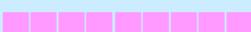
Low voltage alert=Red light fast blinks; ●●●●●●●●●●●●●●

Low voltage alert urgently=Red light keeps going on. ■■■■■■■■■■■■

Compass Calibration

Attitude error< 3°, light keeps going on, it means can go around to calibrate.

Attitude error> 3°, light will be off, it means the craft is not placed in horizontal and need to be adjusted to be level. ○

After Magnetic data calibration, the Purple light keeps going on during data reading. LED will get normal when data reading is finished. ▮▮▮▮▮▮▮▮▮▮▮

Appendix2: Port Description

MC

Port	Description
A/CH1	Aileron-For roll control (left/right)
E/CH2	Elevator-For pitch control (front/back)
T/CH3	Throttle-For throttle control
R/CH4	Rudder-For rudder control
CH5	Manual/Auto Mode Switch
CH6	Auto-Hover/Auto-waypoints/Returning&Landing Switch
CH7	For gimbal pitch servo/ Or for S-BUS
CH8	For gimbal roll servo/ Or for PPM
COM1	Connect RS232 port and to PC for firmware upgrades.
COM2	Extended port
COM3	Connect WIFI /Or Data link
AI0	
AI1	Connect Power Calculate Module
LED	Connect LED Indicator
P	To AP power supply

Port	Description
IMU1	To power
IMU2	To data
M1	Motor 1
M2	Motor 2
M3	Motor 3
M4	Motor 4
M5	Motor 5
M6	Motor 6
M7	Motor 7
M8	Motor 8
EXT1	Gimbal roll servo
EXT2	Gimbal pitch servo
EXT3	Extended/ Or for Camera
GPS1	To GPS power
GPS2	To GPS data

Appendix 3: GCS Interface Introduction

The software interface：
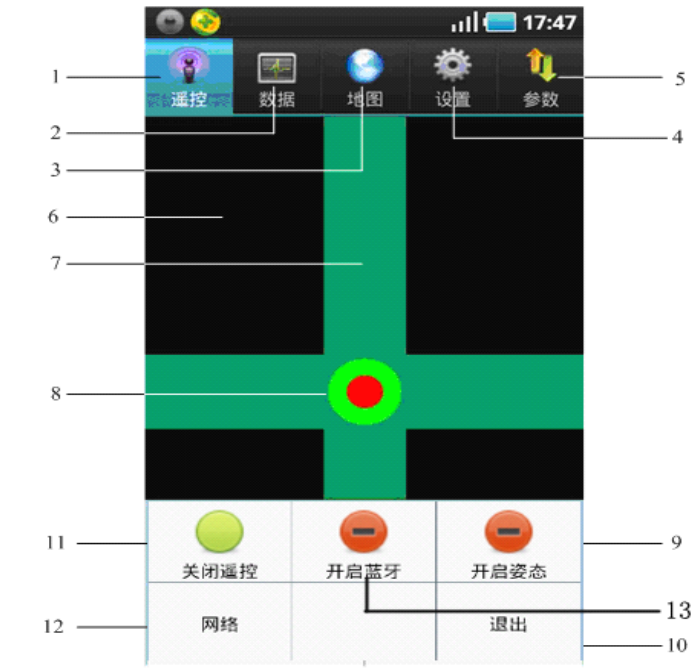
Buttons and Functions

No.	Buttons	Functions
1	Remote Control	Default interface (Cross interface) to control the aircraft
2	Data	Real time flight data
3	Map	Real time map or saved map
4	Settings	Setup various states of craft
5	Parameters	Adjust craft parameters
6	Cross Interface	General control the flight
7	The Cross	A track to control the craft to Climb up/ Go down/Rotate
8	Round Circle in Cross	A button to control the flight by phone
9	Enable/Disable Attitude Control	Used to Enter/Exit phone attitude control mode
10	Quit	Quit from the GCS
11	Enable/Disable Remote Control	Used to Enter/Exit phone control mode
12	Network	Used to set service information
13	Enable Bluetooth	Used to enable bluetooth

Data

Get into the data interface by touching the button "Data", shown as below:

It will display "Data disconnect" on the interface if data is not connected.
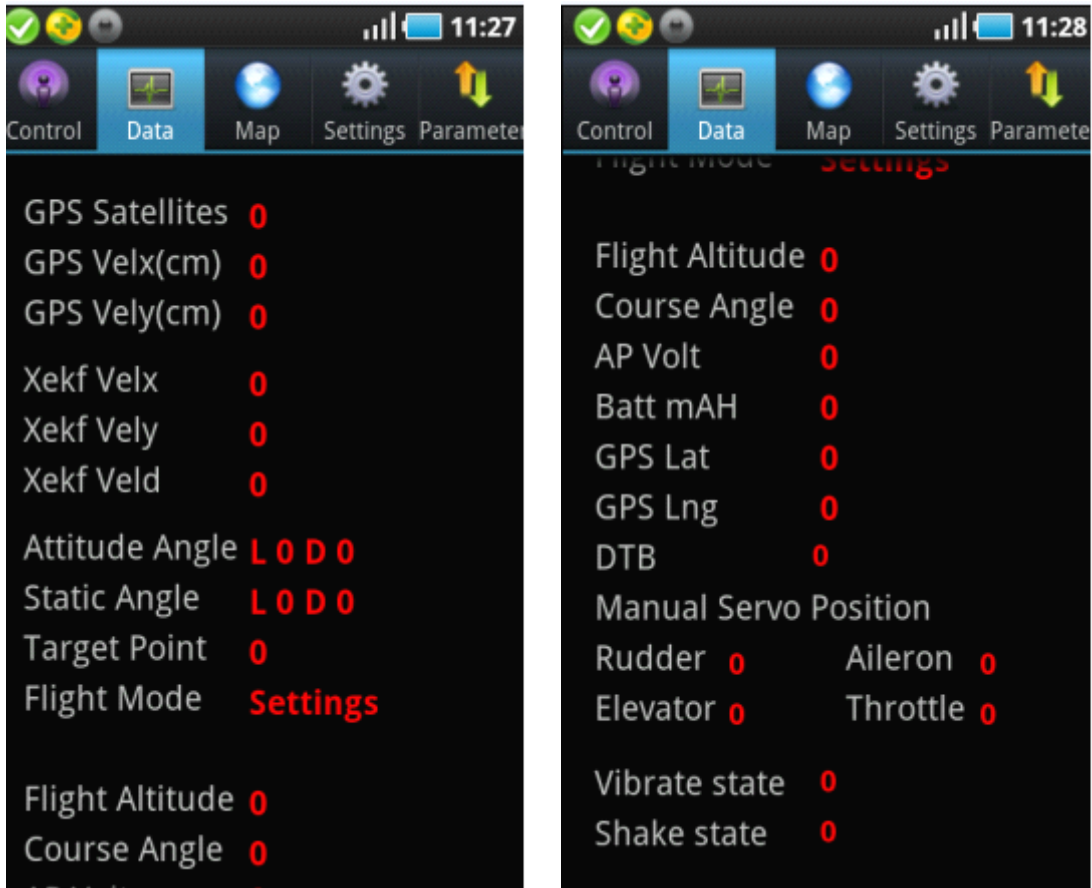
GPS Satellites

It shows how many satellites were researched and reached.

GPS velx(cm) 0
GPS vely(cm) 0

GPS Velx(cm)

GPS Vely(cm):

GPS velocity. It displays a value below 10 when the aircraft is static.

Xekf Velx

Xekf Vely

Xekf Veld:

The velocity after Kalman filtering. It displays a value between 0-20 and increase constantly. When the velocity exceeds normal range, LED will be in solid white, suggest you land the aircraft urgently.

Display real time attitude duiring flight.

Display real attitude of the static aircraft. Static Angle can work only with no any vibration, used to check whether the aircraft is in all good conditions before takeoff.

You can fill the waypoints number which you want the aircraft fly to.

It displays the craft states: Manual, Manual Altitude Hold, Auto Hover, Auto Navigation, Auto Go Home and Land, setup status.

Barometer altitude of the craft, unit is meter.

Course Angle means the directions which the crafthead points to. Due North=0 degree, clockwise direction is positive, counterclockwise direction is negative. For example: Due East=+90 degree, Due West=-90 degree, Due South=+180 degree or -180 degree.

Notice: It works only when in GPS mode and flying in Auto Modes, it will not work when in Manual mode or Attitude mode.

Autopilot voltage

GPS Lng

GPS longitude and latitude.

Target point longitude

Target point latitude

Longitude and latitude of target point.

Manual Servo Position

Rudder **Aileron**

Elevator **Throttle**

Display of rudder, aileron, elevator, throttle and manual servo position. Please check more details in "RC Transmitter Settings".

Vibrate state

Vibrations from IMU.

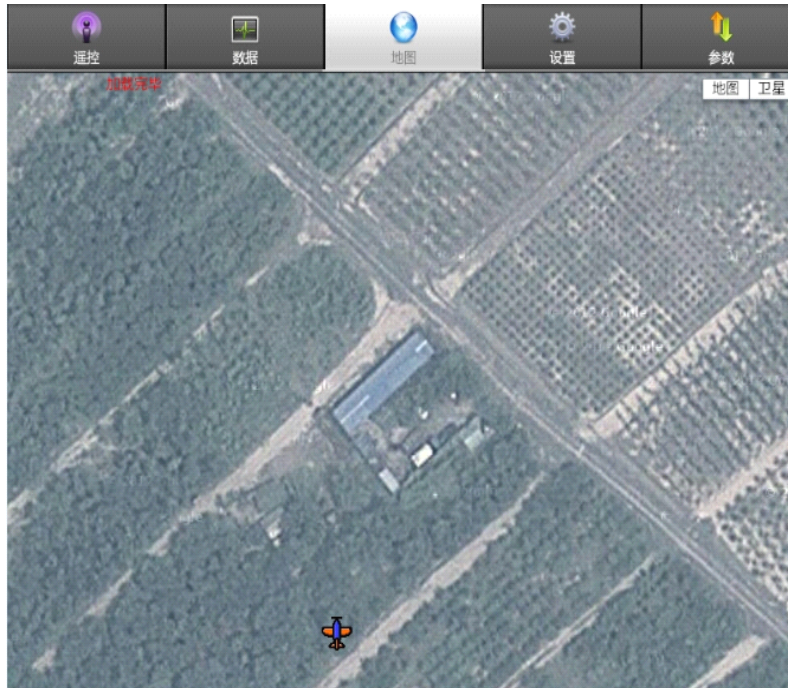1-10 means your aircraft is in good condition.

10 above , it means vibration exceeds limits.

Up&down is the vertical vibrate and front/back/left/right is the horizon vibrate of IMU,

Shake state

Display of shaking state

1-10 means your aircraft is in good condition.

Map

+: Zoom in

-:Zoom out

Map: map mode.

Satellite: satellite mode

Tips:

1 The map which you used last time was saved in default, when you open it next time, it shows up the saved map.

2 There is no network. Enable WIFI, cached data can be displayed.

Cached map: when network is on, enable the software to download the map. If finishing downloading cached map, enable WIFI, the cached map will be displayed.

Locate

Locate Plane :

After the GPS was located, click this button can find where your aircraft locates.

My Location:

Phone/Tablet position. The GPS of Phone/Tablet need to be enabled.

Search Location: (Search the position where you want to check)

Save Location : (Save the current position on map)

Load Location: (Load the saved position on map)
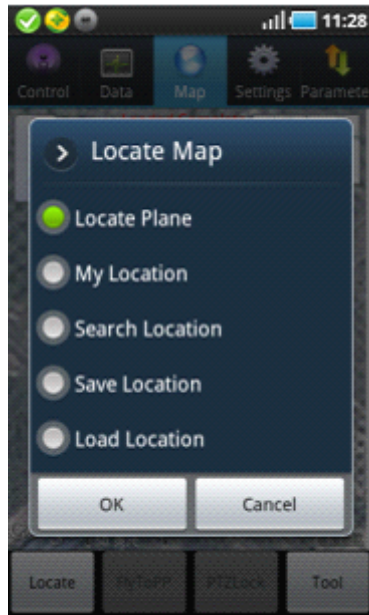
Fly ToPP

Fly to Point Fly. Please check "Fly To Point Fly" page.

PTZ Lock:

Target Lock Fly. Please check "Target Lock Fly" page.

Tool

Click it to enter editing waypoints, please check " Waypoints Fly" Page.
Locate FlytoPP/PTZLock: Move Map center to operation area.
Exit FlytoPP/PTZLock: Remove the FlytoPP/PTZLock mode.

Waypoint edition

Click on waypoint, there will be a text box display as below:

Single waypoint edit

Used to edit waypoint attribute, such as longitude and latitude, altitude and
 speed.

Single waypoint upload

To upload the waypoint.

Single waypoint delete

To delete the waypoint

Number

Waypoint number.

Altitude

The height of waypoint, unit: meter

Longitude

Longitude of this waypoint.

Latitude

Latitude of this waypoint.

Hovering time

Time of hovering, unit is second, zero means no hover(the default hovering time is 65533 seconds of first waypoint).

Camera setting

Optional of camera attribute.

Target speed

It means the flying speed of craft from present position to next waypoint.

Settings
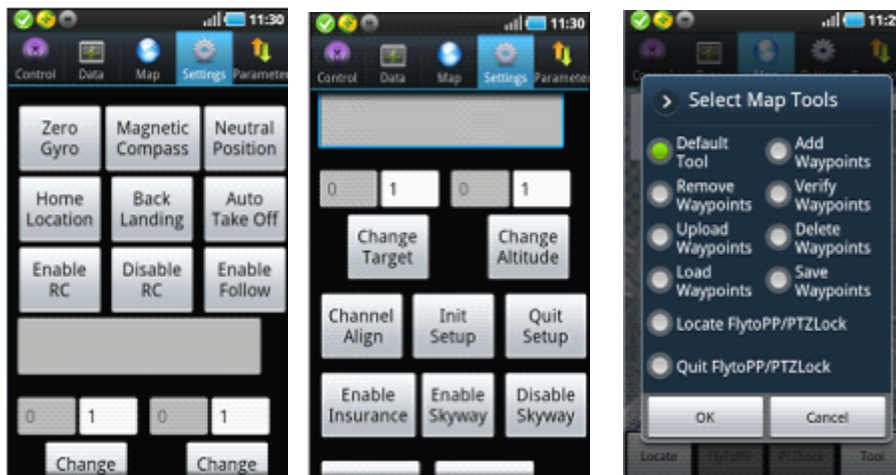
Notice:

All operations in settings are vitally important, please operate seriously.

Click it enter into "Magnetic Compass" Calibration.
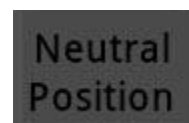
It's used to capture Neutral Position after flight and Transmitter adjustments, please operate it by manually in no wind.

Home Location

It's used to change home position or record new home position.

Back Landing

Auto Go Home and Landing. After the aircraft reaches home location, the craft can be controlled manually.

Auto Take Off

Take off fully automatically, please check Part 9 (3) "Auto Take Off".

Enable RC

Disable RC

Enable receiver/ Disable receiver

It is strongly suggested for new operator that do not disable receiver when flying.

Enable Follow

This function can be used only when your phone has GPS hardware and got more than 5 satellites locked, and in Auto-hover mode. After enabled Follow Me, the aircraft will fly automatically following mobile GPS location.

Note: Generally, phone position has error about 5~10 meters.

Change Target

In Auto Navigation mode, fill in the new waypoint number which you will fly to.

Attention:

Fill in a number which is in the range of uploaded waypoints number.

Change Altitude

In Auto-Hover mode, it's used to set flight altitude, put in altitude needed here. Example: filling in 10 means setting flight altitude as 10 meters.

Channel Align

Please confirm to align the channel without any electric power connected. Example: When moving Throttle stick as Minimum-Maximum-Minimum, if GCS data displays as below: Manual Throttle is 7 when Throttle stick is at the Minimum position and 90 when at the Maximum position, that means Channel Align is completed successfully.

Special Attention

Please don't configure propeller when power first time, only power the autopilot and need to calibrate Channel Align first.

Operation as blow:

Select "Channel Align" in Settings, push/pull Elevator sticks of RC Transmitter to the Maximum/Minimum, move Aileron sticks of RC Transmitter to the leftmost/rightmost within 5 seconds. After 5 seconds, autopilot will complete collecting data automatically. User can observe whether the data shown in GCS can match with real manual operation when was moving the sticks.

Example: When pulling Throttle stick to the Minimum, the " Throttle" showing in GCS displays 7; Pushing to the Maximum, it displays 90.

Init Setup

It's used to align channels or complete parameters of craft. After clicking this button, flight state will display "Settings". After getting into settings, the control channels for each motor on craft is directly connecting to throttle channel of RC Transmitter and no any mix control output, it is equal to like a Y-line of "one to many" , it's convenient for users to set strikes for all rotors at the same time.

Quit Setup

After completing Throttle channel calibration and all parameters filled, click this button to exit from settings.

Enable Skyway/Disable Skyway

The craft can be switched to Auto-navigation mode only after set CH6 to Auto-navigation and then click this button "Enable Skyway" to open the waypoints first.

Enable Skyway/Disable Skyway is used when receiver is off.

Click on "Function Limit", the dialog box will show as below:

click "Get"

Users can observe the functions opened in yourself FC.

User can define the parameters by yourself.

Mix-control

The up/down,turning, pitch ,toll of multi-rotor is caused by mix-add of different output of motors, and the control process is called mix-control. The ratio of mix-output is up to the mechanical structure of craft. User can configurate the output coefficient of motors to make the fix-control realized. Please refer to the Part 6 Craft Type for details.

Install Guide

Click on "install guide". User can install the software following the guide step by step.

Intelligent course lock

To enable the intellignet course lock. It can be used in GPS auto-hover mode.

Exit intelligent course lock

To quit intelligent course lock.
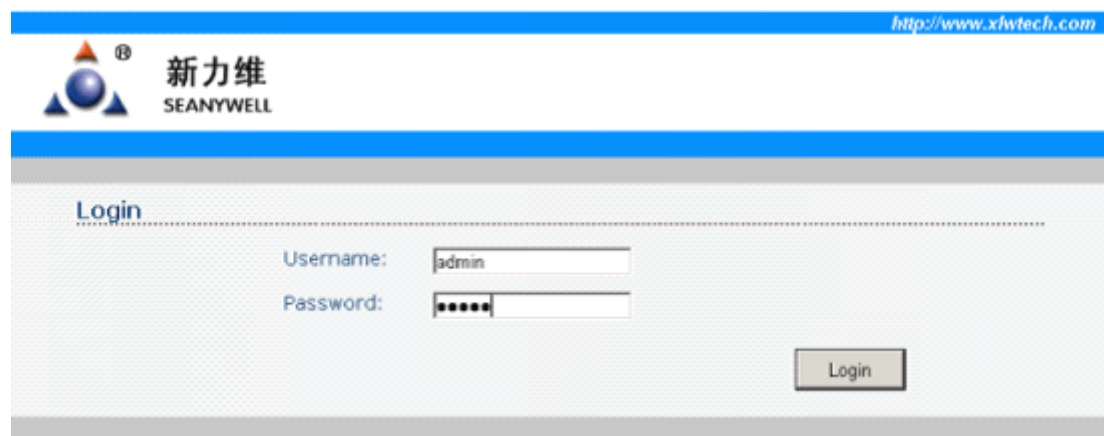
Appendix4 Configurate WIFI with N to WIFI without N

Warning

 Please read the instructions below carefully and severely modify the configuration step by step.
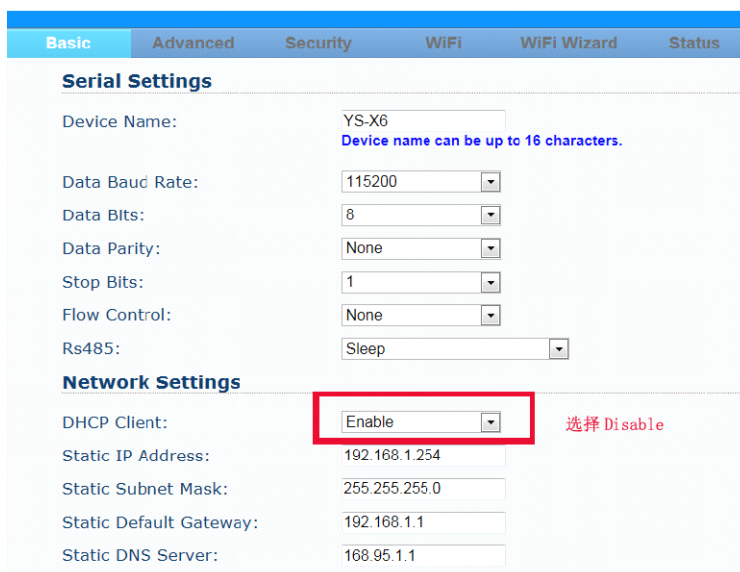
1 Login the webpage

When WIFI module, whose serial No. comes with "N",is powered on and works, a AP with name of YS-X6-Serial No.N (Example:YS-X6-12345.N) will be builded. Users can connect net AP with PC, and type in password:12345. Then open the browser and type in the IP Add.192.168.1.254, the webpage will shown as below, then type in the user name and password (Username:admin password:admin),click Login to enter the module allocation page.

2、Change DHCP Client to Disable

Click on "Basic"page to find DHCP Client, and change it to Disable, shown as below:

After modification, please click on Apply, and wait for 20seconds, so the IP address of WIFI will be locked as192.168.1.254. Then refresh the browser and relogin the module allocation page.

3、Click on WIFI interface

Please change Network Mode to Infrastructure mode,Channel to AUTO, Service Area Name/SSID is the same as router SSID, the Security Mode to AES mode.

Click on Apply after changing, and reboot 20 seconds later.

4. Router connection

Connect PC to the integrated router, example: if YS-X6-12345 router is connected, type in password 12345678.

Type in 192.168.1.254 in the browser,it indicates the modification is successful if you can login the back interface of WIFI. After power on the AP, user can enable the phone GCS, after 5 seconds the GCS can receive the data of flight controller.
Note: Do not change the data which is not referred to above.