User Manual

H6X

STEADI DRONE®

www.steadidrone.com

VERSION.9

H6X AIRFRAME

1 x Top Dome
1 x Foam Enclosure
1 x Top Main Plate
1 x Bottom Main Plate
1 x ESC Plate
6 x Inner Mounts
6 x Outer Mounts
1 x Airframe Screw Set (Screws, nuts spacers etc)
6 x 360mm Carbon Fibre Tubes
6 x Motor Mount Set
1 x AV Gimbal Bracket Set
1 x Battery Plate
1 x Lanyard & Sticker

H6X KIT Also includes

1 x GPS Mount
3 x 14” APC Prop Pairs
1 x AV130 Gimbal Kit
1 x ArduCopter Flight Controller Kit
6 x 30A ESC
6 x 4008 T-Motors
1 x 5/6V uBEC

H6X RTF KIT Also includes

1 x Hitec Aurora 9 Radio System
1x Wireless Data Telemetry Kit
2 x 6200mah 4S LiPo Battery
1 x Battery Charger
1 x LiPo Checker Alarm

Please Note: Kits may also include various extra items and parts not listed here, screws, nuts, washers, foam pads etc

Parts List
H6X

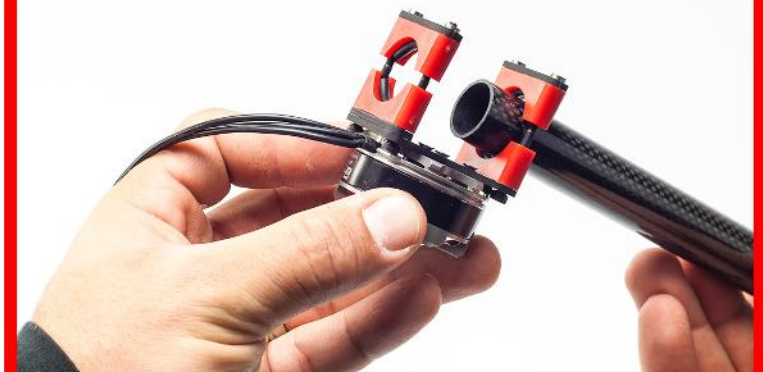
insert the 40mm cap screws through the top motor mount plate

attach the motor with the 4 screws and add the spacer as shown

add the motor mount tube clamps and the bottom plates

insert the vibration damping rubbers as shown

insert the tube as shown, note the motor wires are on the outside



note the inward angle of the motor with the spacer

insert the red tube end cap, hotglue can be used to secure it

insert the motor wires into the tube and pull them through

add the prop adapter

be sure to tighten well

the props fit as follow, please note the washer ABOVE the prop

again, make sure this is tightened very well

pull the wires through the large hole, a wire hook can be used

it's best to add the top dome spacers now
but they can also be added later on

insert the 35mm cap screws through the top of the top main plate

add the 6 x inner mounts with the wider opening outward

pick up the assembly as shown by grabbing it with your hand

now we can fit the bottom main plate

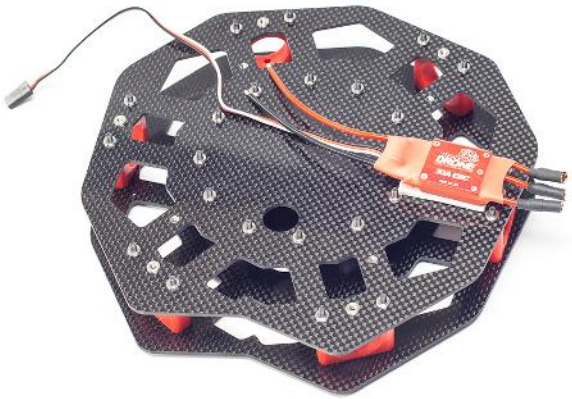
line up the two plates and screw them together

make sure you tighten them well, but do not over tighten or you may damage the embedded nuts

now lets add the outer mounts as shown

we are now ready to add the ESCs

thick double sided tape is useful for placing the ESC's



place all 6 as shown


we suggest adding some insulation to the airframe
with insulation tape cut out as shown


now lets cut all the ground wires to size for the copper ring

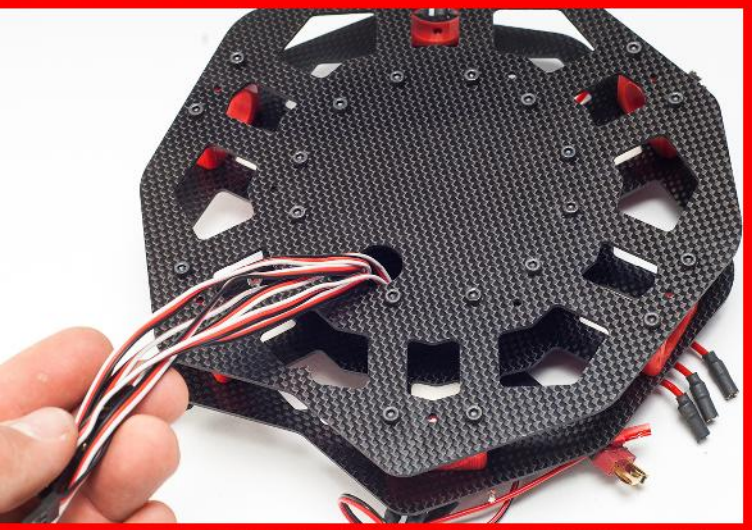

wrap each wire around the ring for a secure solder


dont forget to also solder the gimbal power lead (black)


also add the main power lead ground (black)

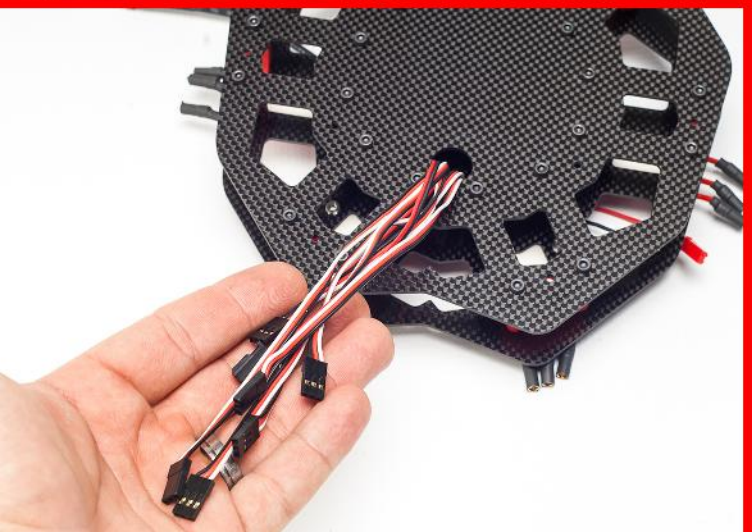

we also add the radio's voltage telemetry lead


tuck the ESC wires into the airframe hole as shown

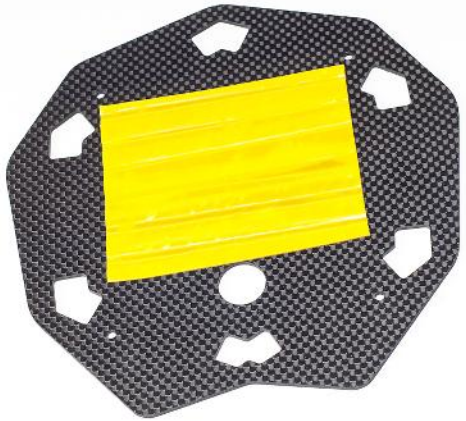



add the round rubber spacer between the ground and + power distribution solder joints


repeat these steps with the + wires as well




now we can tuck the bulk of the ESC wire into the airframe

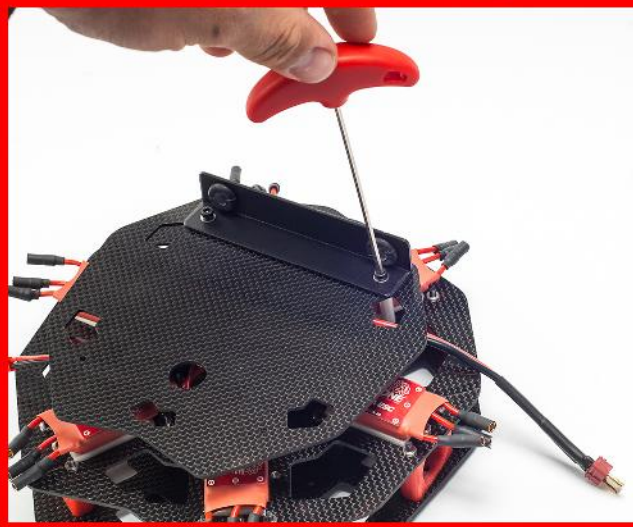


also add insulation to the inside of the ESC plate

attach the AV gimbal bracket parts as shown

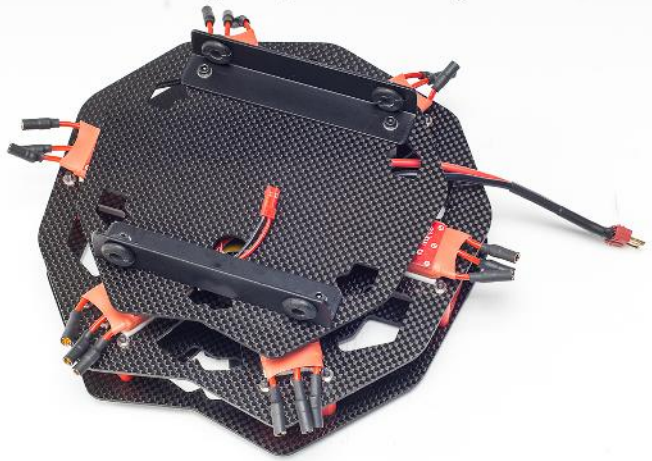
add the 20mm nylon spacers here

screw the ESC plate into the 4 inverted holes in the bottom airframe plate as shown

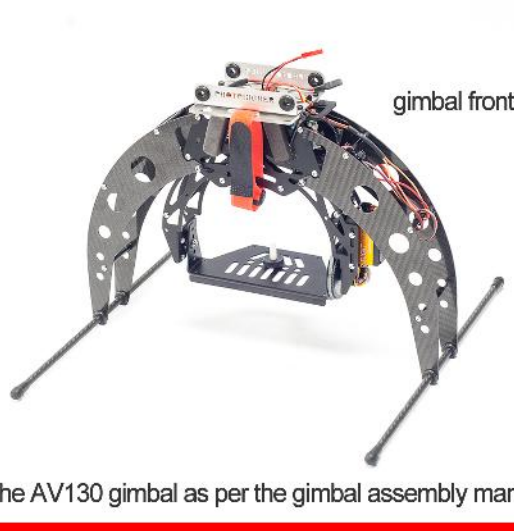


tighten well

remember to feed the gimbal power lead through the bottom hole

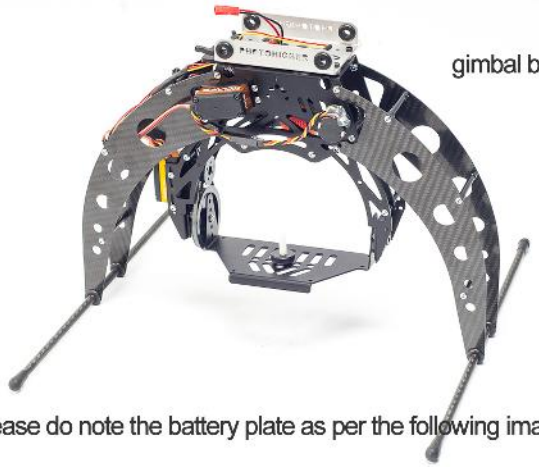


add the 2 rubber pads under the ESC plate



gimbal front

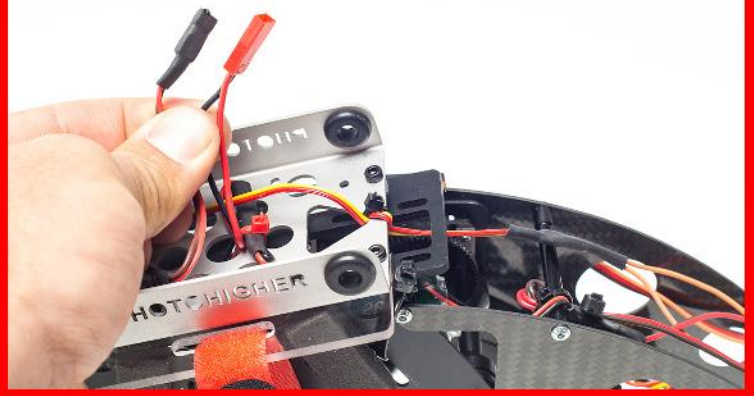
assemble the AV130 gimbal as per the gimbal assembly manual

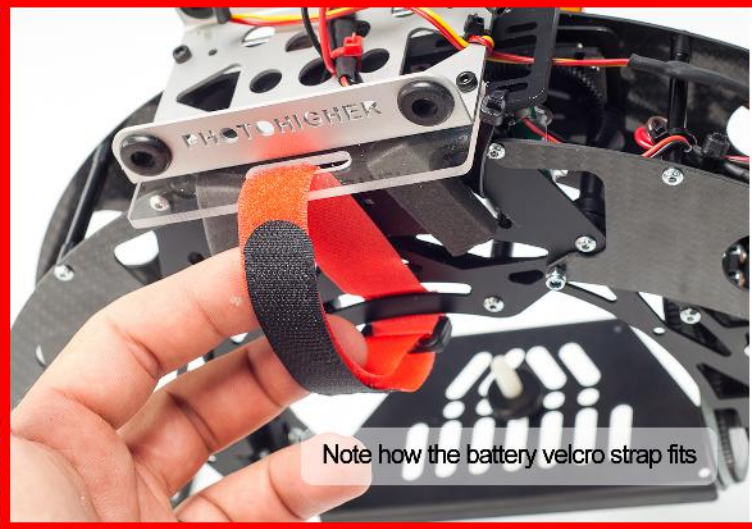


gimbal back

please do note the battery plate as per the following images.

Also note the gimbal power lead JST (Red)
and the gimbal signal lead (Black)

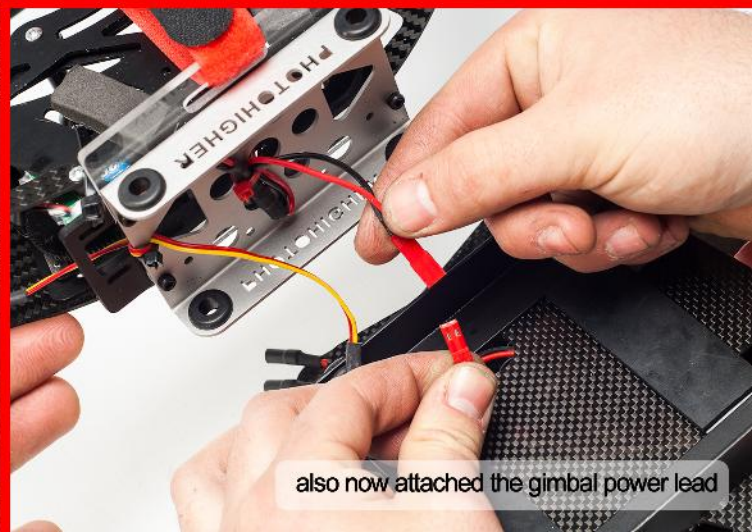




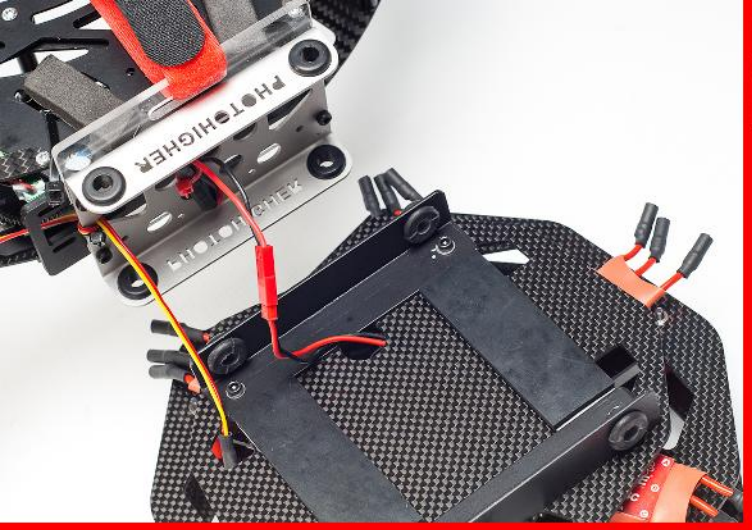
Note how the battery velcro strap fits

we are now ready to attach the gimbal to the man airframe unit

tuck in the gimbal signal wire as shown



also now attached the gimbal power lead

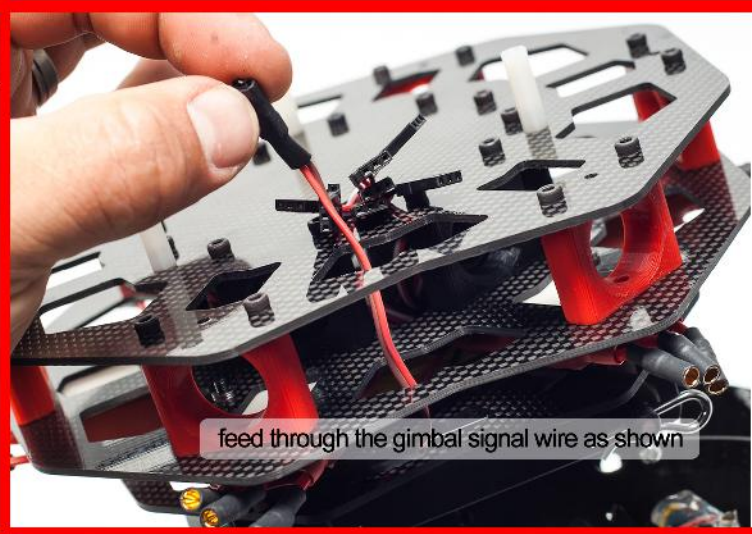


place the unit upside down and fit the gimbal as shown

slide the quick release rods through the assembly

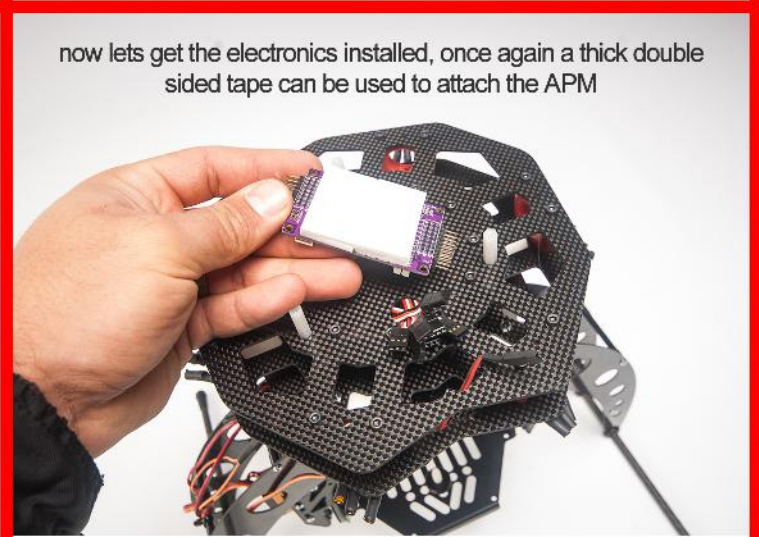
secure with the included R clips on both ends

note the front side of the gimbal is the side with the battery tray/velcro strap, check to make sure you fit it correctly to the airframe unit also pointing to the front as shown

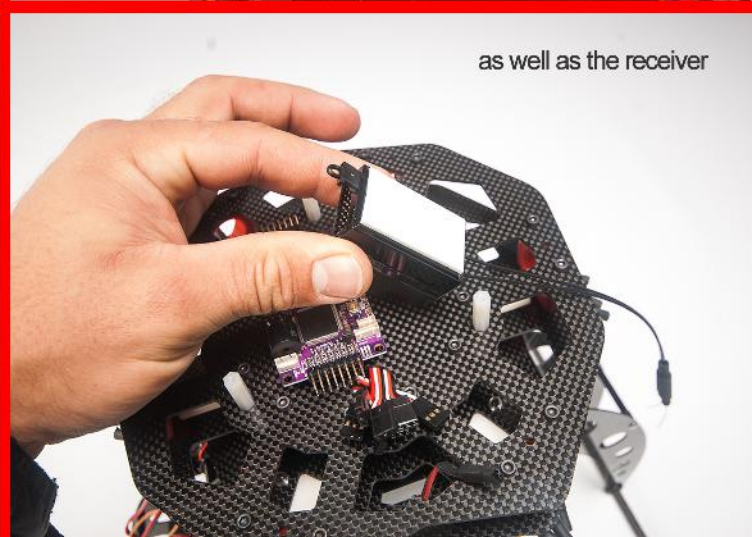


feed through the gimbal signal wire as shown

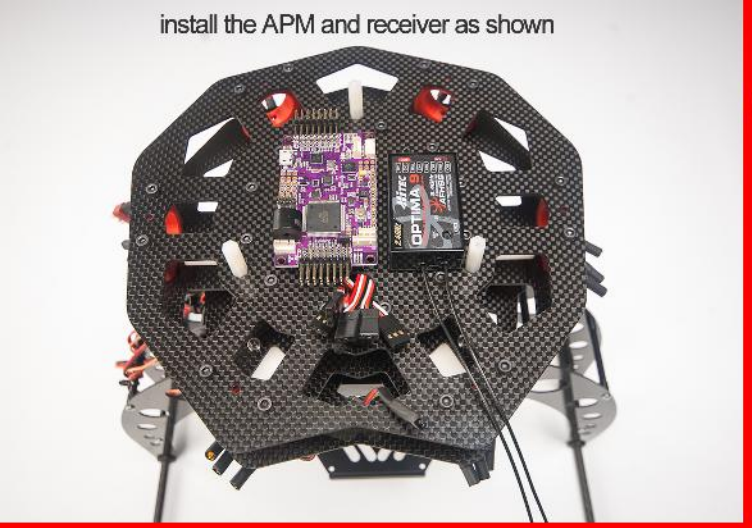
now lets get the electronics installed, once again a thick double sided tape can be used to attach the APM



as well as the receiver

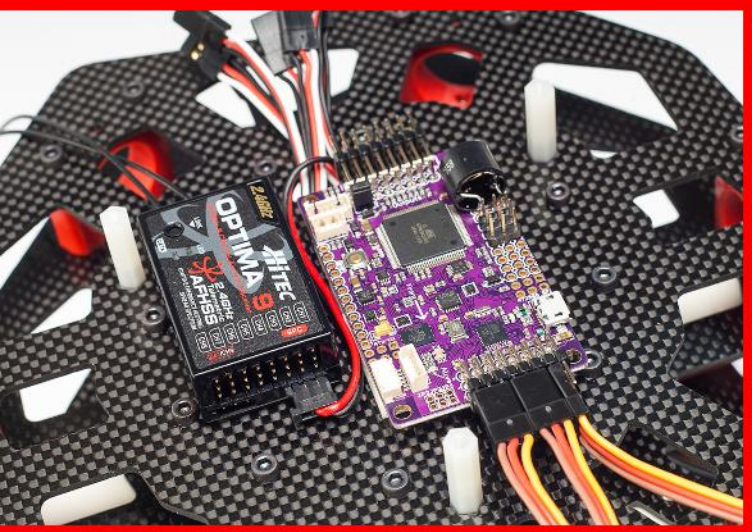


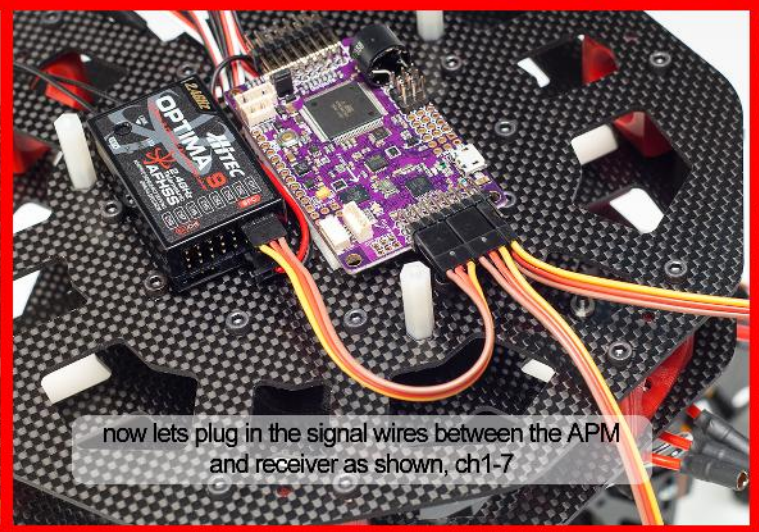
install the APM and receiver as shown



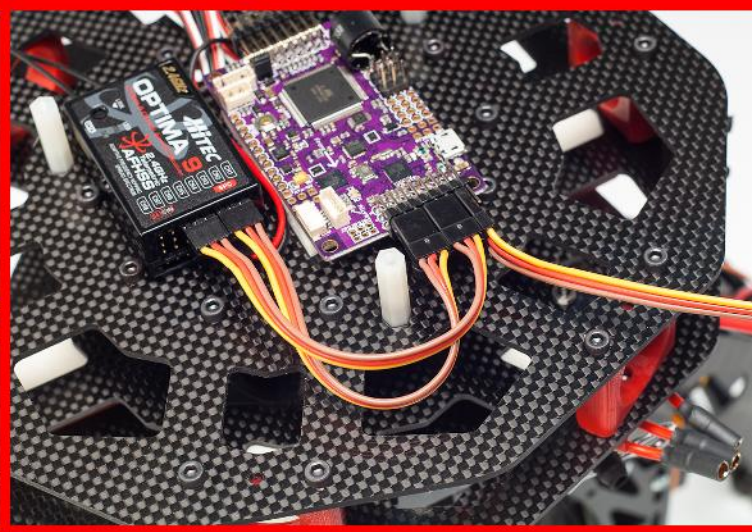
plug in the 3 x JR100 wires into the input rail ch1-7

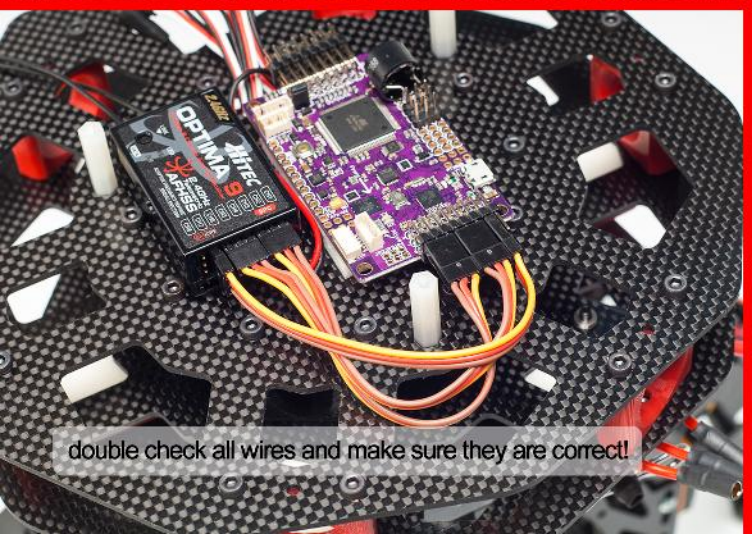
please note the power lead for the optima receiver, this needs to plug into the receiver's SPC port ONLY as shown





now lets plug in the signal wires between the APM and receiver as shown, ch1-7





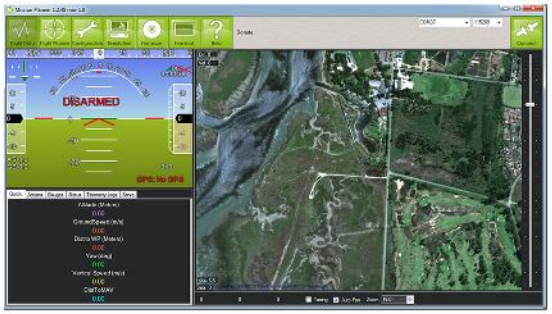
double check all wires and make sure they are correct!

Note the motor ESC wires connect to the output rail at the bottom of the APM conbtroller, make sure these are correct
Also the gimbal's tilt/roll channels connect to channel 7/8

GIMBAL CH 7/8

MOTORS 1-6

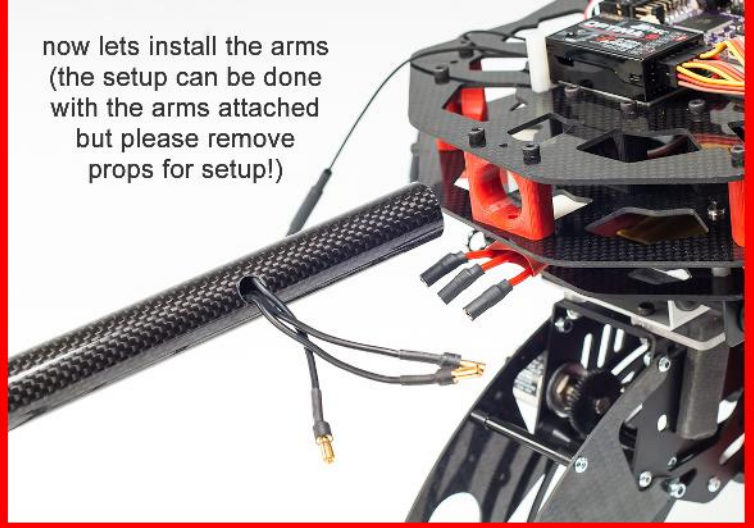
we are now ready to install firmware and do the initial setup



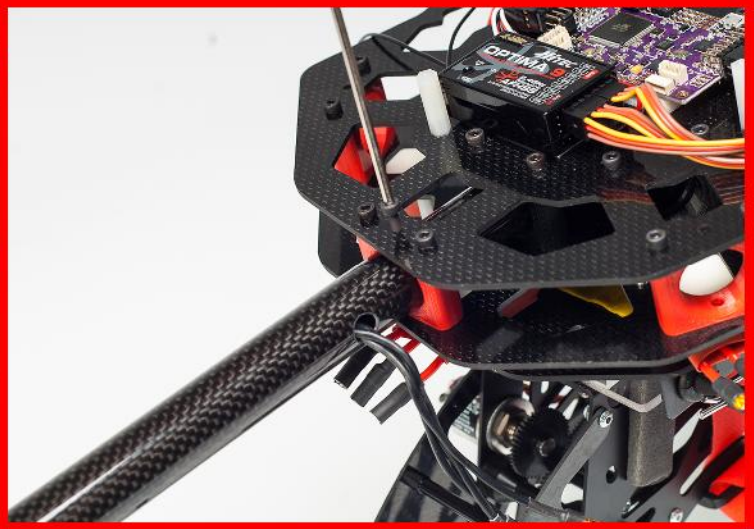
To install firmware and setup your drone please see the video guide online at

www.vimeo.com/64847415

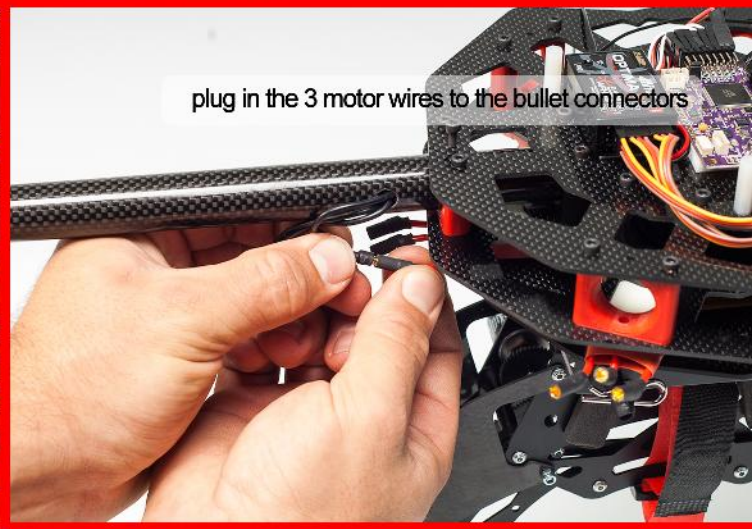
now lets install the arms (the setup can be done with the arms attached but please remove props for setup!)



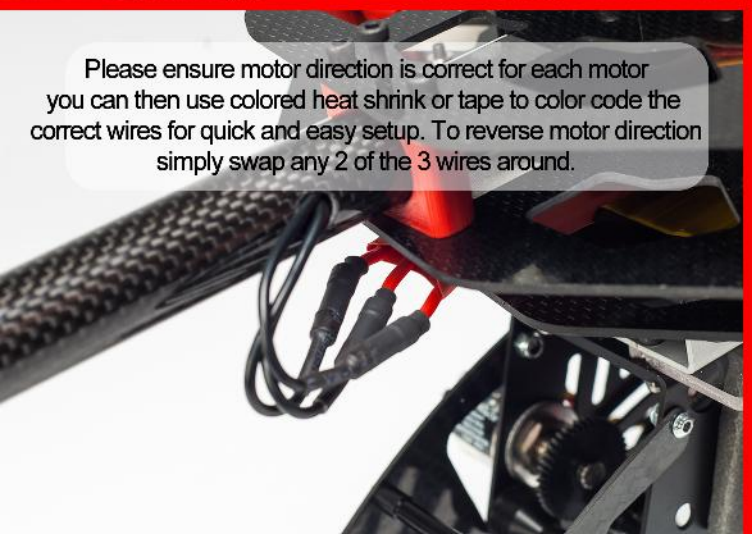
gently stick the arms in and attach the single 30mm cap screw

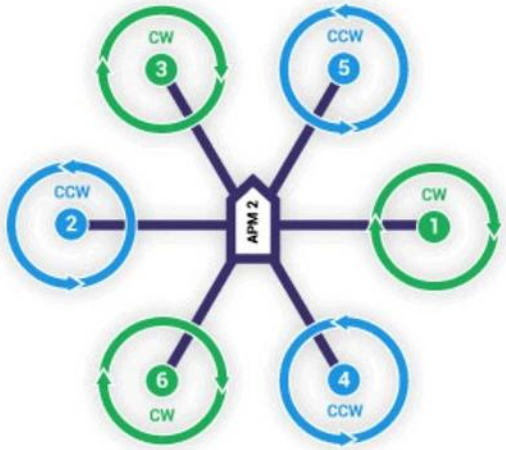


plug in the 3 motor wires to the bullet connectors



Please ensure motor direction is correct for each motor you can then use colored heat shrink or tape to color code the correct wires for quick and easy setup. To reverse motor direction simply swap any 2 of the 3 wires around.





Be sure to check out the ArduCopter Wiki page for all the ArduCopter settings, advanced features, videos and more!

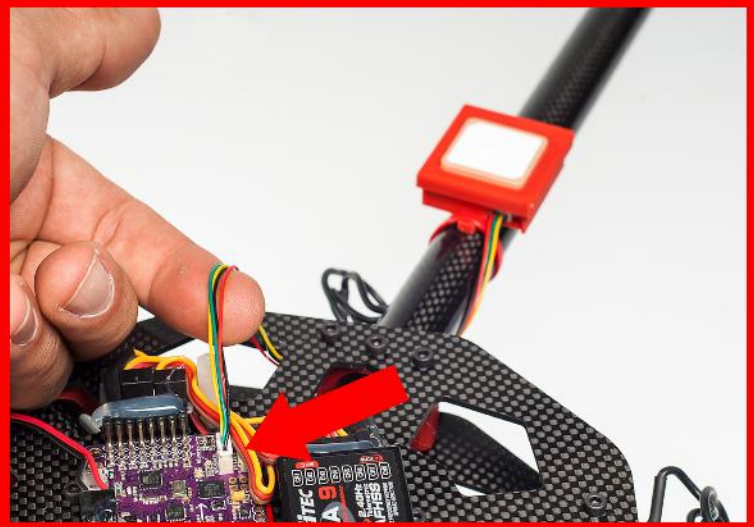
SteadiDrone is built around the ArduCopter flight controller and it's essential that you understand the system and how it all works.

http://code.google.com/p/arducopter/

For any other help or advice please feel free to contact SteadiDrone any time.

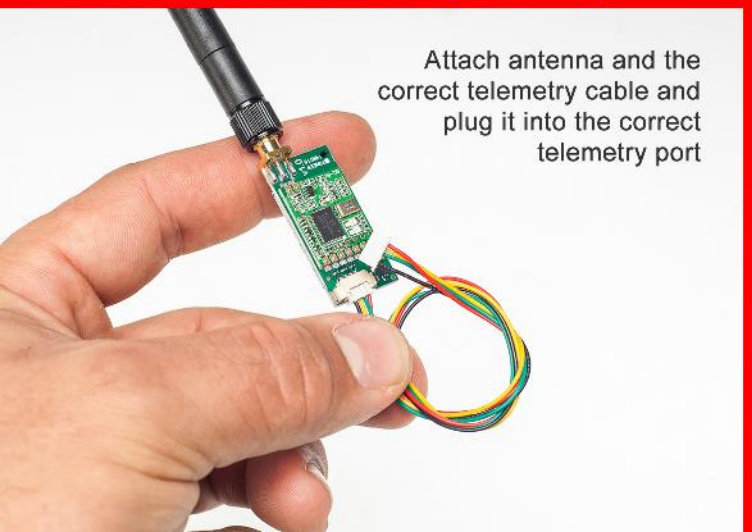
Install the GPS unit into the GPS mount as shown

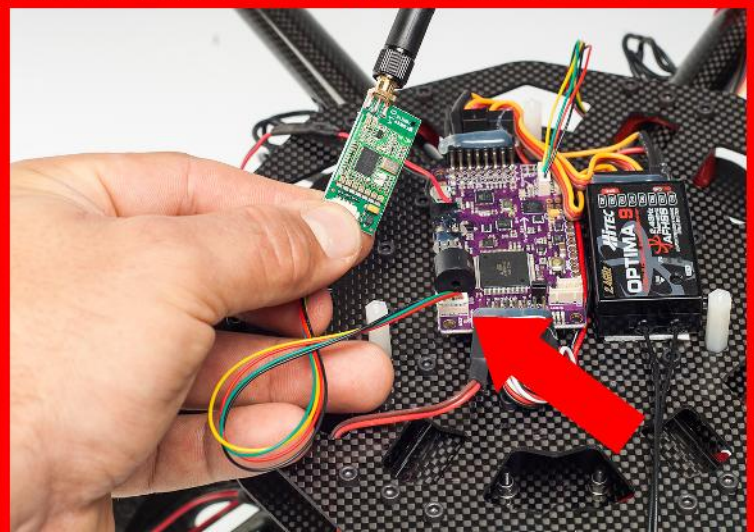
use the correct GPS cable and attach to the APM in the GPS connector as shown in the next image

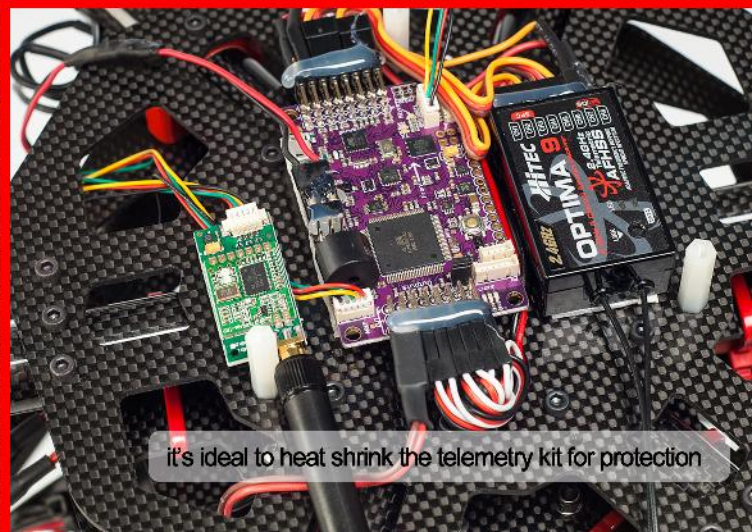


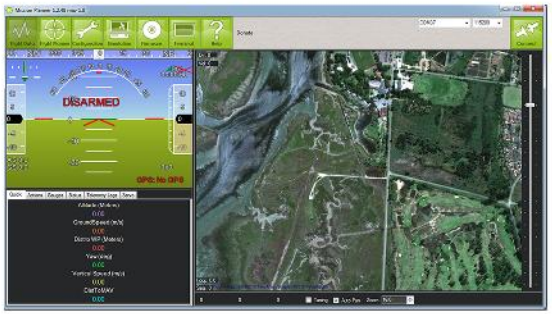
The Wireless Data Telemetry kit includes a wire with a black end, please note this is not used, you will find the correct cable in your radio box

Attach antenna and the correct telemetry cable and plug it into the correct telemetry port



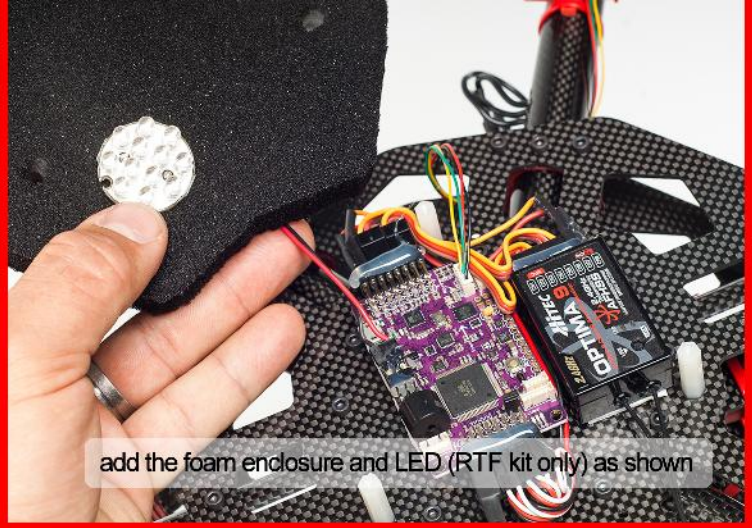




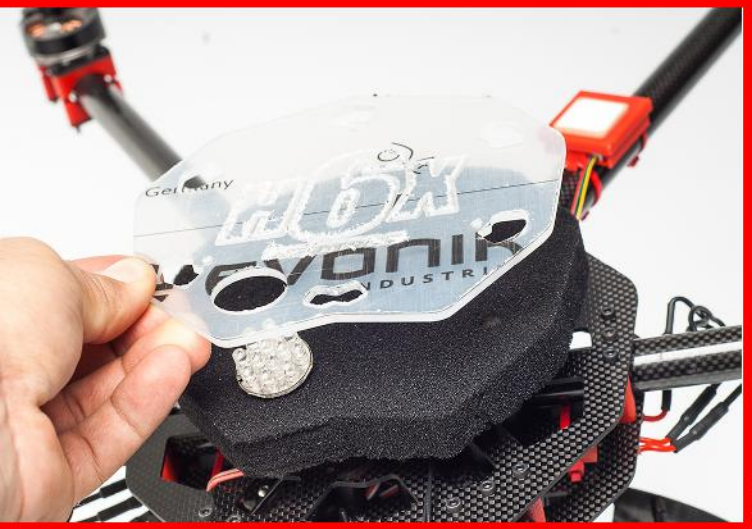


To connect via the wireless data telemetry, please see the setup guide online at

www.vimeo.com/64847415



add the foam enclosure and LED (RTF kit only) as shown



secure the top dome with the 3 included dome screws

you can now peel the plastic film off the top dome plate

attach the antenna holders

You will notice the 3 modes on switch C on your radio included with the H6X RTF Kit

Firstly we have ***STABILIZE*** which is your default mode and the mode you should use when taking off and landing, this is also the only mode where you are able to arm and disarm your motors

STABILIZE mode is manual control but the drone will stabilize and level out with no stick input, no GPS or ALT hold in this mode.

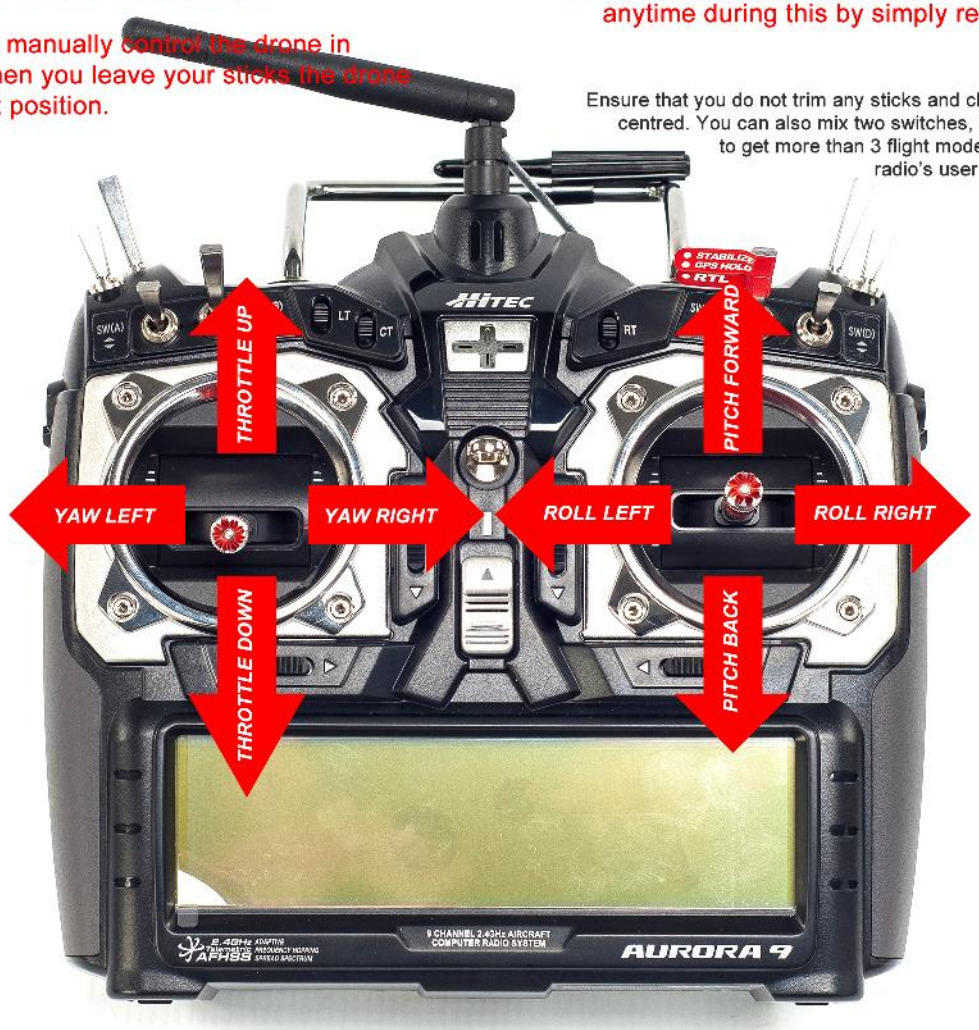
GPS HOLD, also known as ***LOITER*** will keep the drone in position both vertically and horizontally with the GPS sensor and the onboard altimeter.

You are still able to manually control the drone in ***LOITER MODE***, when you leave your sticks the drone will simply hold that position.

Altitude is held by putting your throttle stick at 50% (exactly half throttle) the drone will then keep the altitude, if you need to ascend, simply push the throttle stick above 50%, if you need to descend lower the throttle stick below 50% and to hold altitude again just keep the stick at 50%, this works in all autonomous modes like ***LOITER***, ***AUTO***, etc

The third mode is for ***RTL***, also known as return to launch or return home, by toggling this switch as shown in the bottom most left photo, the drone will attempt to come back to ***HOME*** position, which is where you armed the drone, it will by default first ascend 15m, then make it's way back above home and then descend and land, you can regain control anytime during this by simply releasing the RTL toggle switch.

Ensure that you do not trim any sticks and check that all trims are centred. You can also mix two switches, C and D for example, to get more than 3 flight modes, please refer to the radio's user manual about mixes.



The right slider will control the tilt of the gimbal using channel 6 in the gimbal setup in Mission Planner.

Switch C is you flight mode switch
Up/top position is Stabilize, middle is GPS hold and bottom is RTL (return to launhc)

Power up the charger
via the AC power chord

Insert the connector as shown

Connect the balance adapter

plug in the battery connector

connect the balance plug to the 4S connector

The H6X batteries are 6200mah 4S Lipo (Lithium Polymer) the charger needs to correspond with these specifications.

1) In the charger menu select LIPO charging mode

2) Press the ENTER button to select the correct AMPS and VOLTAGE, ensure you select 5A and 4S VOLTAGE of 14.8v, you will see the 4S symbol

3) Press and hold ENTER again, simply confirm by pressing ENTER once more, you will see the charger charging the battery

PLEASE NOTE: Never charge a battery un-attended, always make sure you charge at the correct settings and read the safety label on the battery.

For more info on LIPO batteries see this great source online - http://www.rchelicopterfun.com/rc-lipo-batteries.html

First Flight - Check List

Always power up your radio first and ensure mode switches are in the default positions

Throttle stick at 0% - all the way down

Insert and fasten the battery, ensure it is tight and will not come loose during flight

Connect the battery and put the drone down and ensure you give it 5-10 second to initialize, the gyros need to be still for a few seconds to do this so do not hold the drone

Before arming the drone, double check your mode switches, also make sure there are no people, kids or animals nearby and that your flying area is open and free of obstacles.

With your throttle stick at 0% arm your drone by keeping your YAW all the way right for about 5 seconds, a quick double beep from the drone will confirm it has armed

Gently move your throttle stick up until the drone lifts off the ground, get it out of ground effect and try maintain a steady hover about 1-2m, do not fly any higher on your first flight

Take this time to get to know your new drone and how it feels and reacts to control input

Give the drone a few minutes in the air to auto calibrate the compass and GPS before trying GPS HOLD or other advanced GPS features, the more the drone flies, the better accuracy you can expect from the GPS

After your first flight gently drop the throttle stick down until the drone touches down, ALWAYS disarm before approaching or picking up the drone!!

Safety / Terms & Conditions

The safety instructions are intended not only for the protection of the aircraft, but also to protect the safety of yourself and others. Improper operation can cause serious injury and property damage. In case of improper use, a SteadiDrone can be dangerous. SteadiDrone does not guarantee error-free behaviour of the hardware, electronics or software.

* Use at own risk. The Purchaser agrees to use of the electronics at his/her own risk (this also applies to associated computer software).

* Safe flying areas. The Purchaser agrees to refrain from flying over people and stay away from children and animals.

* Comply with local rules. The Purchaser agrees to comply with all local government rules, especially when flying near airports.

* Safe Flying. The Purchaser agrees to use his/her best judgement and always practice safe flying techniques.
* Maintenance/checklist. The Purchaser agrees to conduct a thorough systems check before each flight and to conduct periodic maintenance of the SteadiDrone.

*SteadiDrone is not responsible for inexperienced operators and is not accountable for the training or any equipment used in on, or with the aircraft. SteadiDrone systems involve complicated machinery that presupposes a basic knowledge of computer programming. If unfamiliar with programming or the SteadiDrone technology, the Purchaser agrees to seek further information and assistance.

USE OF THIS PRODUCT IS ENTIRELY AT YOUR OWN RISK!

* Do not touch the propellers while they are spinning!
* Do not attempt to hand launch or retrieve the QU4D by hand from the air as this could cause serious injury from the spinning propellers!
* Do not fly the QU4D into yourself or anyone else!
* Do not fly over or near people or animals!
* Do not fly indoors!
* Do not fly in strong winds!
* Do not fly in the rain or any form of irrigation!
* Do not fly in highly combustive environments!
* Keep out of reach of children!
* Do not land the QU4D in water!
* Do not over charge or over discharge the battery!
* Do not fly while under the influence of alcohol or any drugs!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