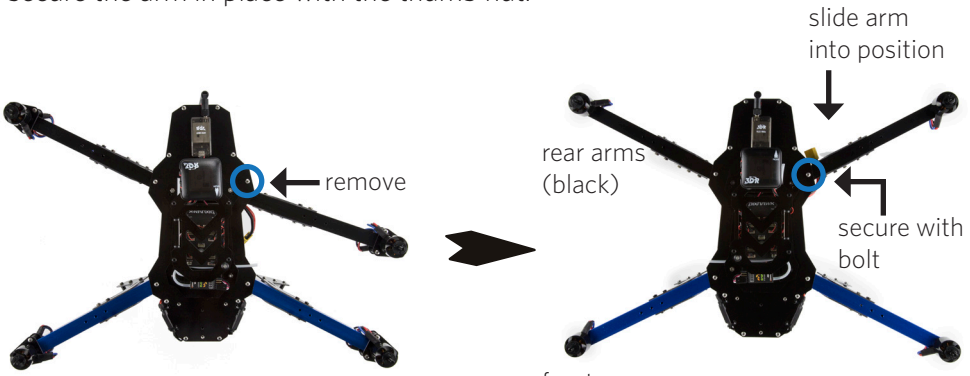
3D Robotics

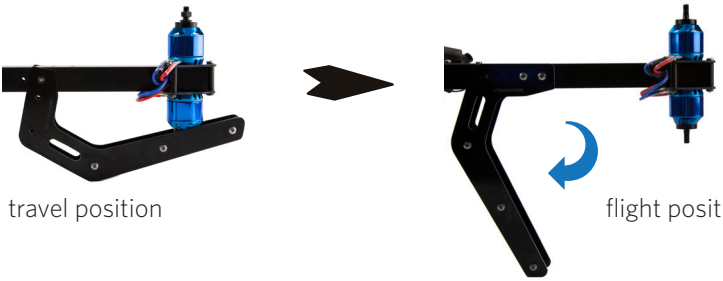
X8

Unfold arms and legs

Remove the bolt and thumb nut outside the folded arm. Rotate the arm into position, insert the bolt through the plate and the arm, and secure the arm in place with the thumb nut.

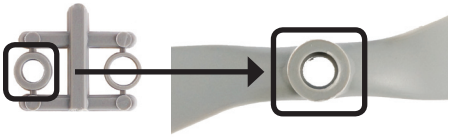


Rotate the legs into place and secure through the inner hole with the provided bolt and nut.

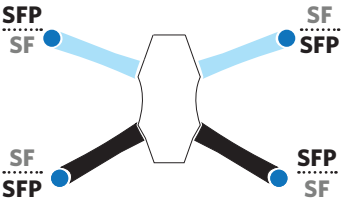


Attach propellers

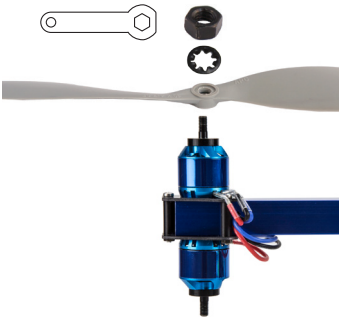
Remove the rings from the propeller packages. Select the ring with the smaller internal diameter, and insert it into the back of the propeller hub.



Remove the nuts and washers from the motors. Add SFP propellers to the the front-left and back-right motors and SF propellers to the front-right and back-left motors with the **writing on the propellers facing towards the sky**.



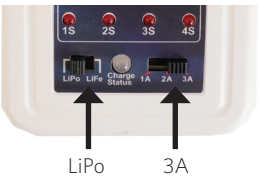
Place the washer over the propeller, and secure the nut tightly on top. Always ensure that the propellers are fastened tightly to the motors before flying.



Charge battery

Connect the charger to the power adapter cable and a wall outlet. Connect the red cable to the + port and the black cable to the - port.

Set the charger to LiPo and 3A.



Connect the white connector to the 4S port. Join the two yellow connectors together.

4S

Secure battery inside the guard bag while charging. Charge until the status indicator displays green.

guard bag

red

Charging

green

Complete

Battery safety

Protect battery from extreme heat, extreme cold, puncturing, and flammable surfaces. Always transport, charge, and store battery in the guard bag.

Charge battery using a designated LiPo balance charger only. Always monitor battery while charging.

Flying with a low battery is a safety risk and can render battery unusable. Always discontinue use when you receive a low battery notification, and always fly with a fully charged battery.

Inspect battery for damage before takeoff and after landing. If you observe any swelling of the package or battery ceases to function, locate your local battery recycling center to dispose of battery. In the US and Canada, visit call2recycle.org to find a location. Do not dispose of battery in the trash.

Flight modes

On 3DR transmitters, use the two-position switch and the three-position switch shown below to select a flight mode.

Spektrum mode switches

two-position switch
marked GEAR/MIX

three-position switch
marked FLAP/GYRO

FlySky mode switches

three-position switch
marked F MODE

two-position switch
marked AIL D/R

Both switches must be set to the correct position to select a mode. The three-position switch can be set forward (away from you), center, and back (towards you). The two-position switch can be set forward and back.

If you did not order an RC transmitter with your copter, visit 3dr.com/learn for instructions.

three-position mode switch

forward (away from you) | center | back (towards you)

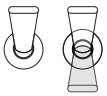
two-position mode switch

forward (away from you) | back (towards you)

In this manual, the position of the three-position switch is specified first and the position of the two-position switch is specified second. For example, “center/back” requires the three-position switch set to center and the two-position switch set to back.

Stabilize mode

Stabilize allows full manual control of altitude, position, and orientation without autopilot assistance. Use stabilize for acrobatic flying and to recover your copter.



position of switch: forward/forward forward/back

no GPS lock required

Loiter mode

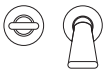
With automatic autopilot control of altitude, position, and orientation, loiter is the easiest way to fly. Just release the sticks and the copter will hover in place.

position of switch: center/forward

GPS lock required before takeoff

Altitude hold mode

Set the left stick to center, and the copter will automatically hover at the current altitude. Adjust altitude and orientation with the left stick, and navigate with the right stick.

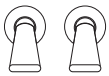


position of switch: center/back

no GPS lock required

Return to launch (RTL)

Command the copter to achieve a minimum altitude of 15 meters, return to the launch point, hover for five seconds, and land. Use RTL to end your flight automatically.

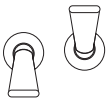


position of switch: back/back

GPS lock required before takeoff

Autonomous mode

Fly a fully autonomous mission using a computer or Android device as a ground station. For instructions on planning and flying missions, visit 3dr.com/learn.



position of switch: forward/back

GPS lock required before takeoff

Flight safety

Your copter has powerful motors and high-speed propellers. Never place your hands near propellers while the motors are armed or the safety button displays solid red. Always press and hold the safety button until it displays blinking red before handling.

Always fly in an open area away from people and buildings; do not attempt to fly indoors or in a confined space. Do not fly over people, near airports, or in any situation that could pose a hazard to those around you. Always fly within your line of sight and in compliance with local regulations. Your copter will not avoid obstacles on its own. As the operator, it is your job to recognize and avoid obstructions while flying. Always follow the preflight and postflight steps in the order described in this manual and the flight checklist, and remain attentive at all times while flying.

Environmental factors, such as wind and GPS irregularities, can cause instability in flight. Your copter will attempt to compensate for these factors by automatically landing if it detects an unsafe flying condition due to loss of RC signal, loss of GPS signal, or low battery. To avoid potential hazards due to environmental factors, identify the boundaries of your flying area before takeoff, and recover the copter manually by switching into stabilize mode if it moves outside your designated flying area. If you observe any inconsistent behavior, land, and consult the troubleshooting guide at 3dr.com/learn.

Always use an RC transmitter as a primary or backup control system when flying. Ensure that the transmitter is turned on any time the copter is powered. If contact with the transmitter is lost during flight, the copter will land and display a blinking yellow light. If the copter is more than 2 meters (6.5 feet) from the launch point, it will return to launch (RTL) before landing.

Autopilot-positioned flight modes (loiter, autonomous, and return-to-launch) require an active GPS signal. If GPS signal is lost during flight, the copter will land and display a blinking blue and yellow light with a high-high-high-low tone. Always choose an unobstructed flying area to improve signal strength.

When the battery reaches 25% of its remaining charge, the copter will land and display a blinking yellow light with a quick repeating tone. If the copter reaches the low battery limit during a mission, it will return to the launch point before landing.

Flying

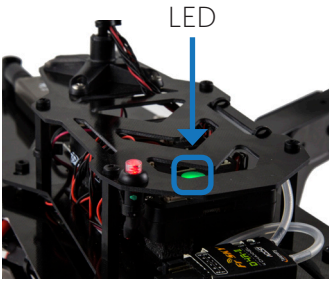
Select an open area for flying, away from people and buildings, and remember to bring the flight checklist and a fully charged battery. Follow these steps every time you fly.

1 Turn on the transmitter. Set the left stick fully down, and select a flight mode. Check that the propellers are tight, the antennas are vertical, the GPS mast is vertical, and all the components are secure.

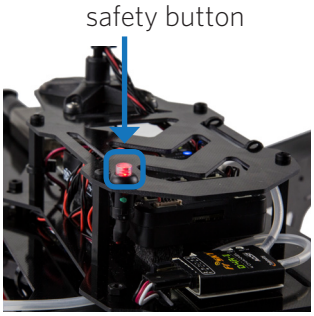
2 Attach the battery to the underside of the copter using the velcro straps, and join the yellow connectors.

3 Determine the boundaries of your flying area before takeoff, and select a level, unobstructed space as a launch point. Place the copter at the launch point with the blue arms facing away from you, and stand back.

4 Check Pixhawk's LED. If you plan to fly only in stabilize or altitude-hold modes, wait to see the blinking blue light.
If you plan to use loiter, autonomous, return-to-launch, or other GPS-required modes during your flight, wait to see the blinking green light, indicating GPS lock, before arming.



5 The safety button indicates when the copter is safe to handle. When you're ready to fly, press and hold the safety button until it displays solid red. This indicates that the copter is now active.



6 To arm the motors, hold the left stick down/right until the motors spin.

7 Control your copter in flight using the transmitter's left and right sticks. Use the left stick to control throttle (power) and yaw (rotation); use the right stick to control roll (left and right movement) and pitch (forward and backward movement). Navigate by orienting the copter with the blue arms facing forward.

8 After landing, disarm the motors by holding the left stick down/left until the motors stop.

9 Press the safety button until it displays blinking red to make the copter safe to handle.

10 Once the motors are disarmed, disconnect the battery. Once the copter is powered off, turn off the transmitter.

Learning more

Visit 3dr.com/learn for more instructions on flying, configuring, and using a ground station with your copter.

Resources

To learn more about the APM:Copter platform, including adding new flight modes and flying autonomous missions, visit copter.ardupilot.com.

Support

For customer support, contact us at **help@3dr.com** or call our support line at **+1 (858) 225-1414** Monday through Friday, from 8 am to 5 pm, PST.

Happy flying!