Skydio X2 Autonomous Drone Color/Thermal User Guide

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Skydio X2 Autonomous Drone Color Thermal

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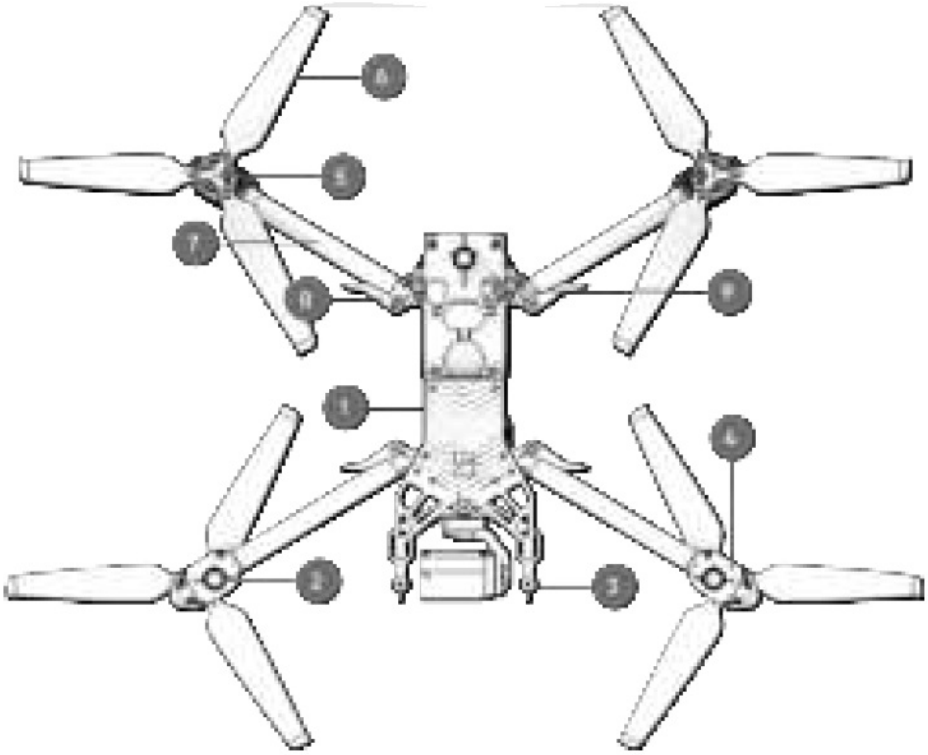
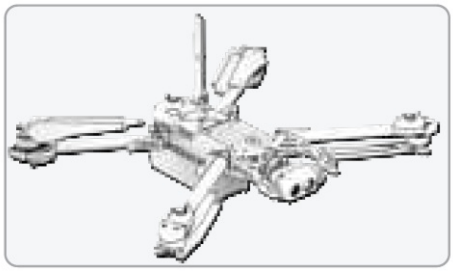
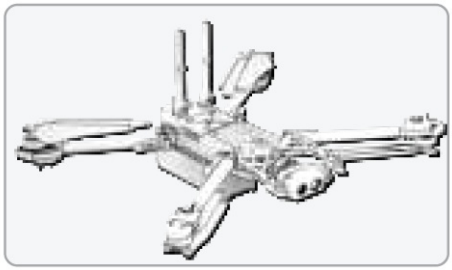


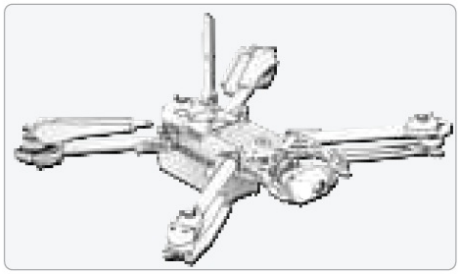
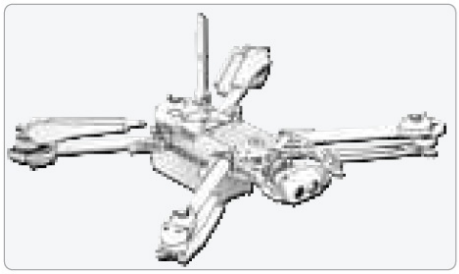
Skydio X2D is available two radio frequency variations:

- one-antenna 1.8 GHz
- two-antennas 5 GHz

Skydio X2D is available two camera variations:

- Color Electro-Optical Camera only
- Color Electro-Optical and Thermal Infrared Camera

10. MicroSD memory card ports and seal
11. USB-C port and seal
12. Cooling outlet (2)
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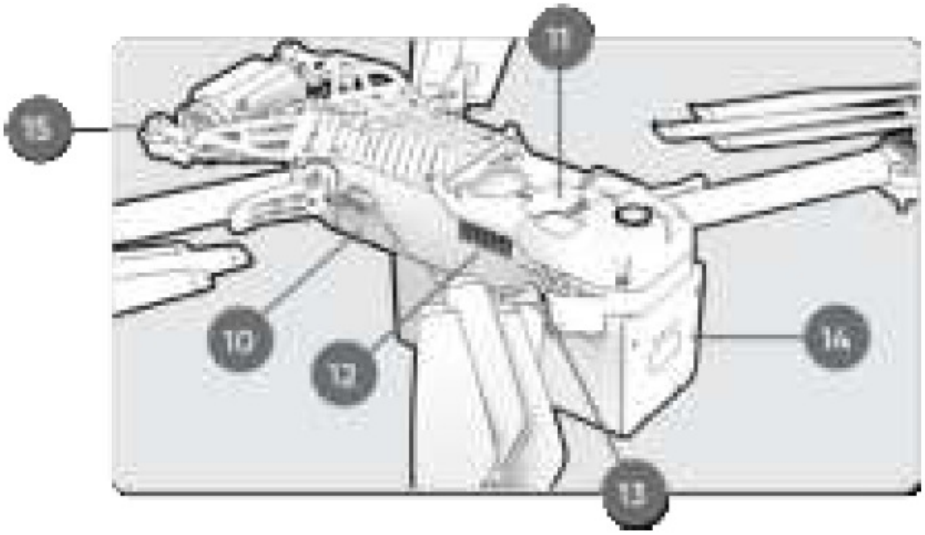

16. Thermal camera
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18. Gimbal pitch motor
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20. Cooling inlet
21. Skydio X2D label
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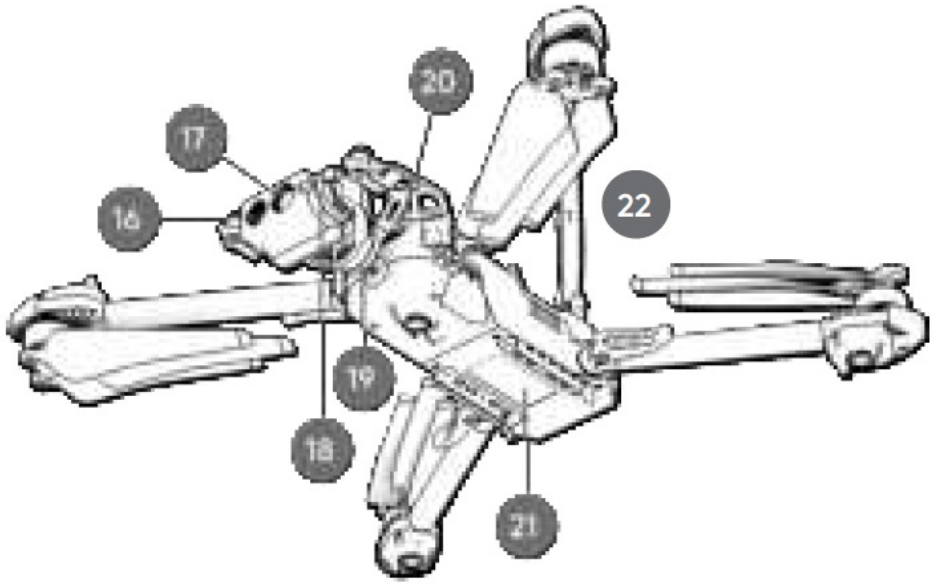
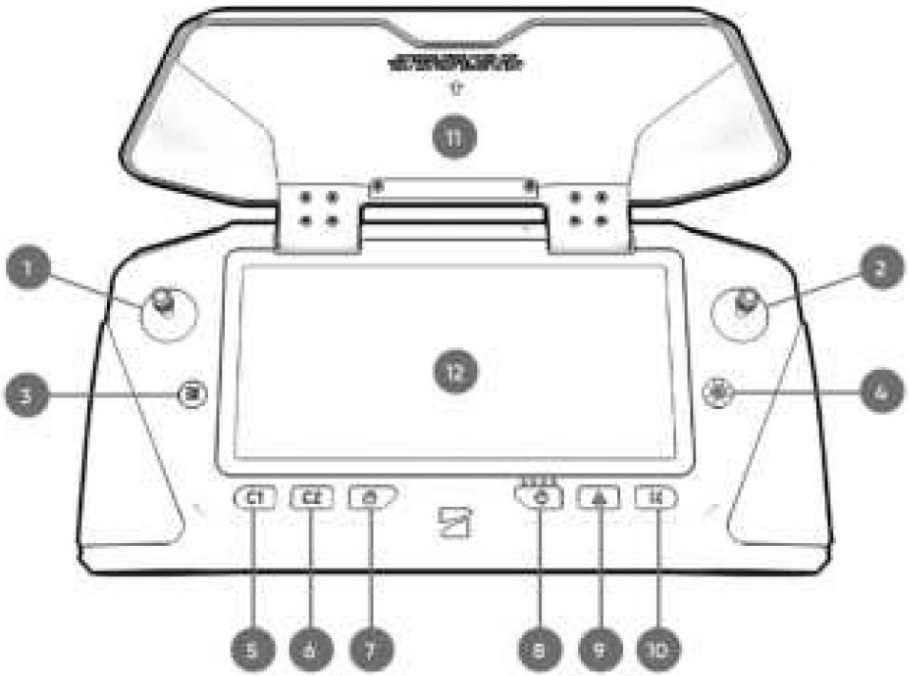


WARNING: Skydio X2D is not weatherproof. Do not operate in any precipitation, including rain, fog, snow, or similar environments.

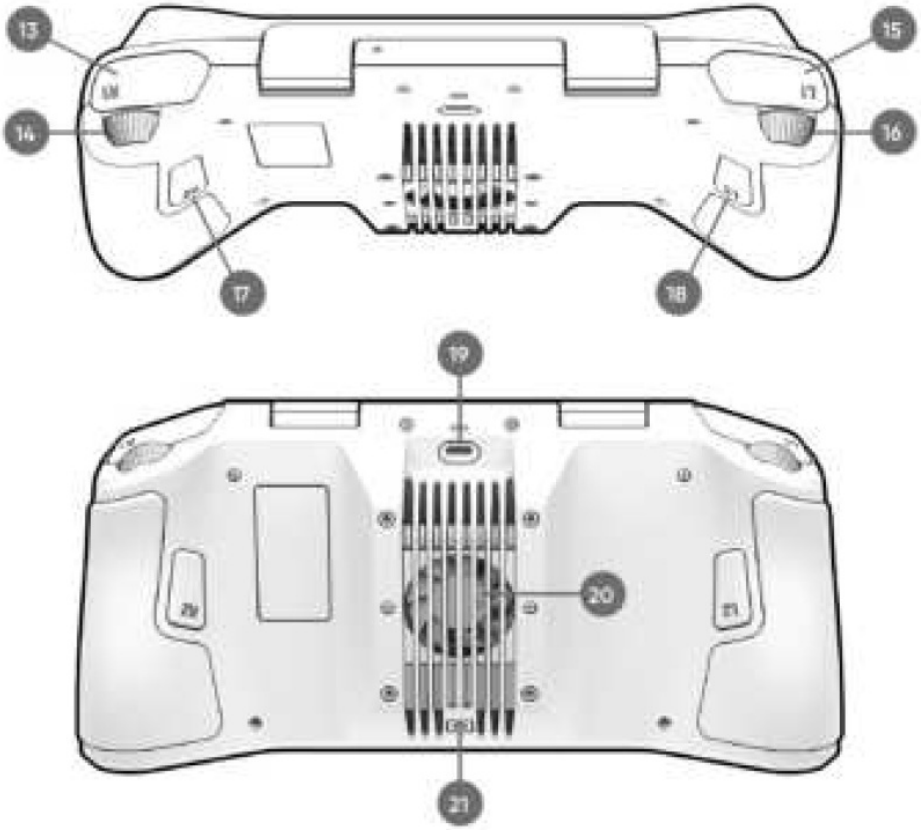
Skydio Enterprise Controller

1. Left joystick
2. Right joystick
3. Menu/back button
4. D-pad
5. C1 button (customizable)
6. C2 button (customizable)

7. RTH (Return to Home) button
8. Power button
9. Launch/Land button
10. Pause button
11. Controller clamshell
12. User interface screen



13. R1 button shutter/record
14. Right wheel zoom
15. L1 button boost
16. Left wheel gimbal tilt
17. R2 button toggle map
18. L2 button toggle thermal to color
19. USB-C port
20. Cooling fan
21. Neck-strap and tripod (¼-20) mount



WARNING:
Skydio Enterprise Controller is not weatherproof. Do not operate in any rain, fog, snow, or similar environments. Do not rest the controller in fine sand, dirt or on similar terrain where particles can get trapped in the fan.

Safety Guidelines

- Keep your fingers away from moving propellers at all times
- Use caution around reflective surfaces (still water, mirrors, etc.) and small obstacles (thin branches, utility lines, ropes, chain link fencing, etc.)
- Skydio X2D does not avoid moving objects or cars
- Skydio X2D is not weatherproof – don't fly in rain, snow, fog, high winds, etc
- Before flying over water, ensure your drone has GPS lock. Launch and land your drone over a dry surface.
- Skydio X2D obstacle avoidance is off during GPS Night Flight mode and can be impaired when in low light & poor visibility. Fly with extreme caution under these conditions
- Clean all of the cameras so Skydio X2D can see clearly
- Check your propellers for damage before flying
- Follow all civil aviation authority regulations, as well as any applicable local and federal laws

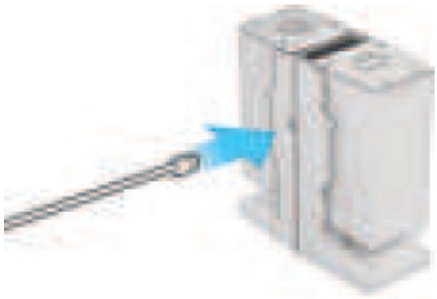
PRE-FLIGHT

Charge

Skydio X2D
Skydio Dual Charger is capable of simultaneously providing current to two batteries. However, it will prioritize fully charging the battery with the highest charge level. Allow approximately two hours to fully charge batteries.

- **Step 1 –** Slide one or both batteries down the rails onto the Dual Charger

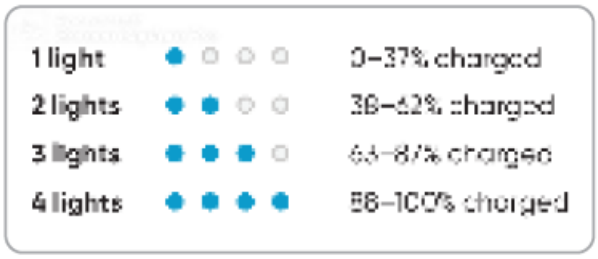
    - magnets will engage properly seating the battery
- **Step 2 –** Connect the provided USB-C cable and the 65 W power adapter
- **Step 3 –** Plug the power adapter into the Dual Charger and a 100-240 V power source
    - flashing lights indicate charging
    - no light indicates that the charge is complete



WARNING: Avoid exposure to extreme hot or cold temperatures. Follow instructions for battery storage located in the X2D Operator Manual..

X2D battery charge levels

The current charge level is accessed by pressing the power button on the battery. The battery charge level is indicated by the lights:



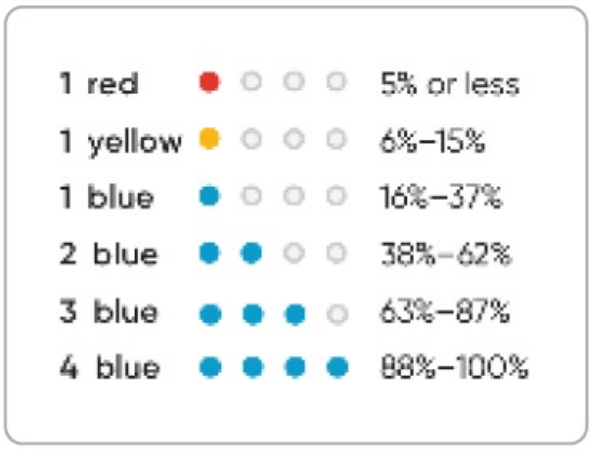
Skydio Enterprise Controller

Connect your Skydio Enterprise Controller to the USB-C charging cable and 65 W adapter. The lights on the front of the controller will begin to flash blue when the unit is charging, as well as a single light next to the USB-C charging port. A charge level will display on the controller screen.

- When charging is complete the lights will be solid blue for 1 minute and then turn off.

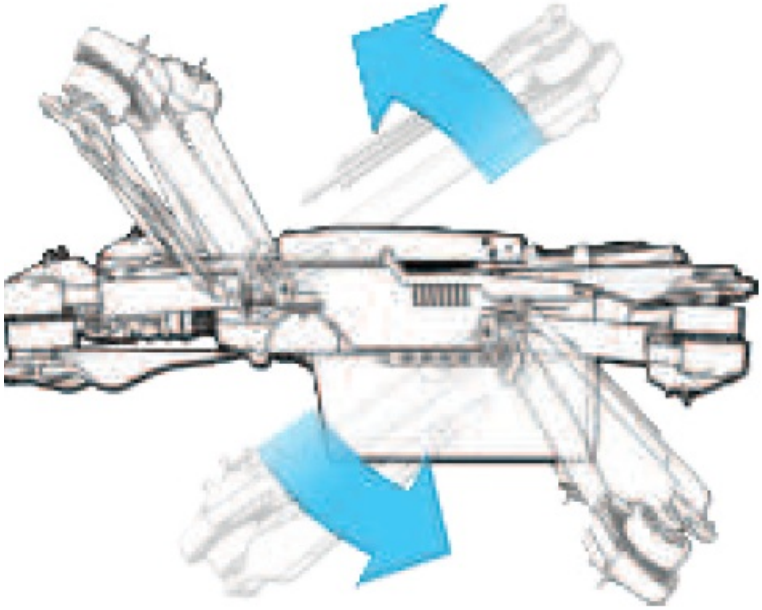
Skydio Enterprise Controller charge levels

The current charge level will display on the front of the controller or can be accessed by pressing the power button. The charge level is indicated by the lights:



Deploy

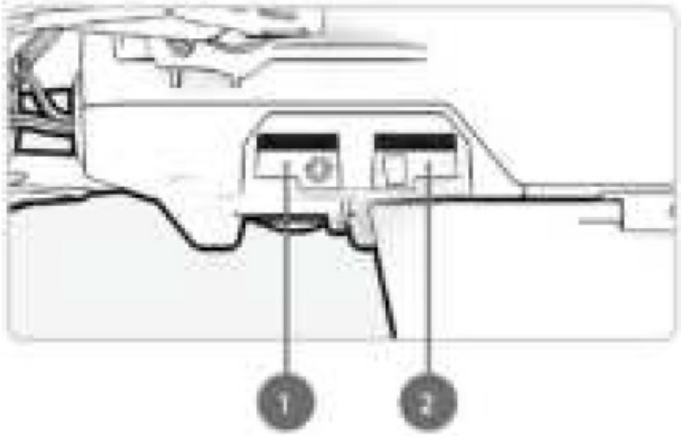
- **Step 1 — Unfold X2D**



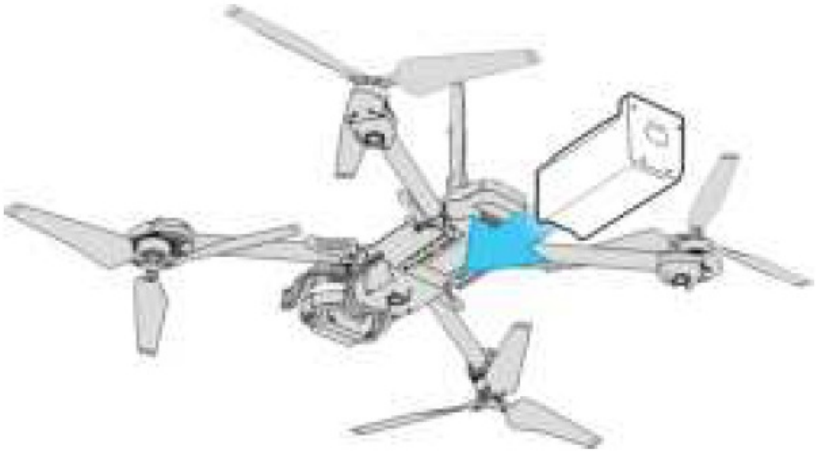
WARNING: The propeller blades are sharp. Handle with care.

- Release the 4 arm clamps
- Lift the motor arms out and away from the chassis
- Listen and feel for a click
- Return the 4 arm clamps to the locked position
- Ensure that the blue marks align

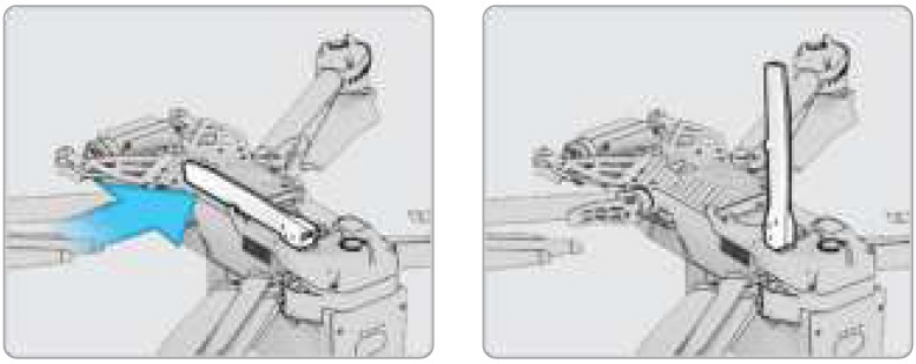
- **Step 2 — Verify microSD memory cards are installed**
  Verify that 2 UHS Speed Class 3 (or faster) microSD memory cards are inserted in the memory card slots located on the left side of the vehicle
  - **Logs card –** supports future software offerings
  - **Media card** – stores all media captured during flight



  To offload your media – connect X2D to a computer using the USB-C cable or remove the card and insert in to a microSD card reader.
- **Step 3 — Insert battery**
  Slide the battery on rails towards the camera until the magnets engage

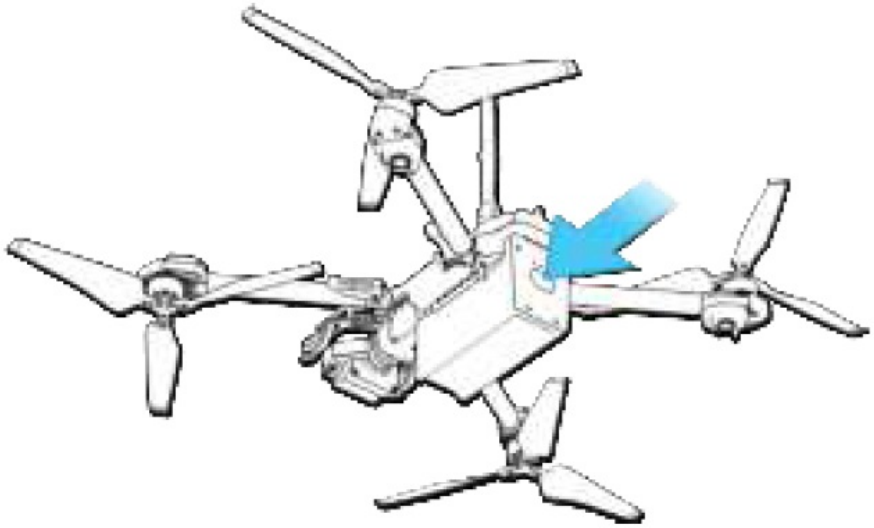


- **Step 4 — Release antenna**
  Gently push the antenna inward to release and guide it into a vertical position



- **Step 5 — Power on Skydio X2D**

  Press and hold the power button on the battery for 3 seconds



Skydio Enterprise Controller

- **Step 1 — Open the controller**

  The antenna is embedded in the controller lid—use caution when opening

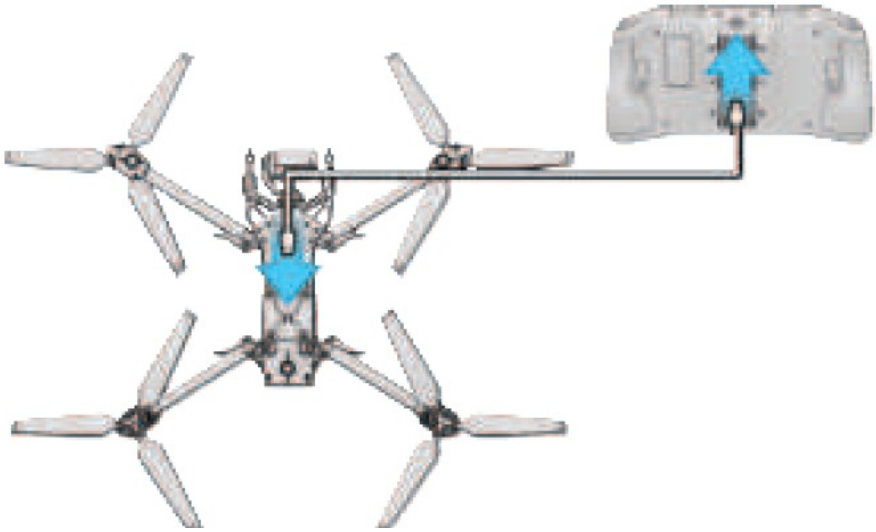
- **Step 2 — Power on**

  Press and hold the power button for 3 seconds

- **Step 3 — Activate Skydio Enterprise app**
  - Read and accept the Purchase Terms
  - Set a password to unlock your Controller every time you power on or wake it from a sleep **state.**

WARNING: The password cannot be recovered or reset. Ensure that your password is entered correctly and is written down and stored in a safe location.

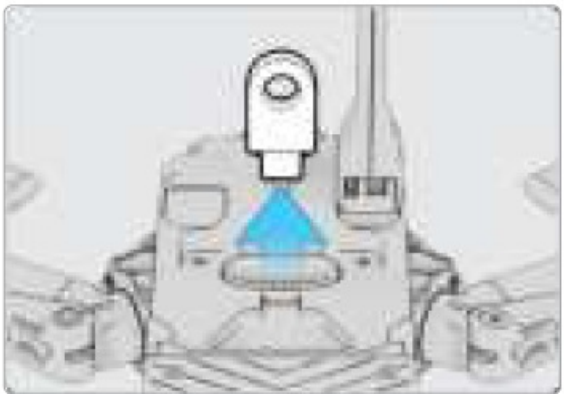
- **Step 4 — Pair the devices**
  - Power on X2D and Enterprise Controller
  - Connect the Controller to X2D using the USB-C cable
  - Wait approximately 15 seconds
  - Verify that your Skydio X2D was paired
  - Select the INFO menu and your drone name will be listed under PAIRED DRONE



Encryption

Before you can use the encryption feature on your X2D, you need to first provision the vehicle using the security key. You only need to complete this step once.
To set up your vehicle for encryption:

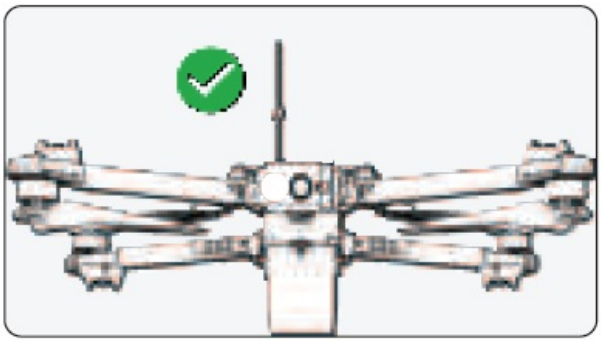
- **Step 1 – Power on Skydio X2D**
- **Step 2 – Insert the security key**
  - into the USB-C port on the vehicle
  - the lights on the key will begin blinking

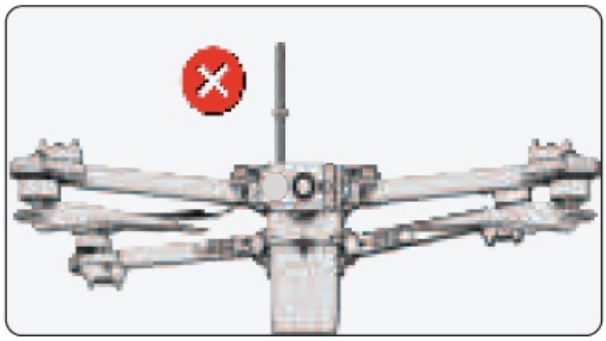


- **Step 3 – Remove the security key when the lights on the key turn off**
  - Skydio X2D is now provisioned for encryption

Pre-flight Checklist

- **Inspect chassis** – inspect the vehicle chassis to ensure it is free of damage.
- **Inspect motor arms** – verify that they are free of damage and assembled properly. When assembled and viewing the drone head-on, arms should be parallel to the chassis.





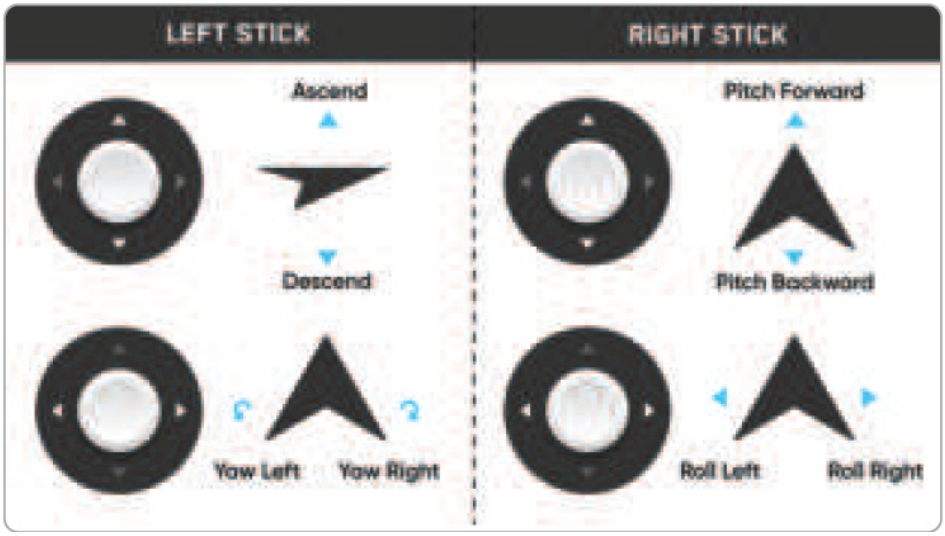
- **Inspect battery** – Skydio X2D uses magnets to seat the battery that may attract metallic debris. Visually inspect the battery and connector pins to ensure they are free of debris and damage. Verify the battery is fully seated in the vehicle prior to takeoff.
- **Inspect propelle**rs – Ensure that propellers are firmly attached and free of nicks, cracks, and damage. Do not fly with damaged propellers. Fan propellers out so that the blades are separated.
- **Clean cameras lenses** – use a clean microfiber cloth to ensure that all cameras are dust and smudge-free before every flight.
- **Inspect motor hubs** – ensure that they are free of damage and debris.
- **Inspect gimbal** – ensure that it moves freely.

FLIGHT

Joystick controls

Skydio Enterprise Controller joystick controls are set to Mode 2:

- left stick controls height and rotation
- right stick controls forward, backward, and side to side motion



Flight controls

Launch

1. Find a clear area to launch
2. Place X2D on a flat, stable surface
3. Select the launch button on the Fly screen or
4. Press and hold the Launch/Land button on the Controller
5. X2D will arm and ascend to 10 ft (3 m) and hover in place

Return

1. Select the Home button on the Fly screen or
2. Press and hold the Return button on the Controller
    - X2D will return to the Launch Point, Controller location, or Home Point if one was set

Land

1. Pilot X2D over a safe landing location free of obstacles
2. Select and hold the Land button on the screen or

3. Press and hold the Launch/Land button on the Controller
    - X2D will descend with full obstacle avoidance to 10 ft (3 m) above ground level
    - below 10 ft (3 m) all obstacle avoidance is disabled
    - nudge forward, backward, left, or right using the Controller
    - Cancel landing by pushing the left joystick forward

Obstacle avoidance

Skydio X2D uses six 4K navigation cameras and a main subject camera for visual navigation resulting in unparalleled 360° obstacle avoidance.
Skydio X2D will maintain a distance of 34 in (86 cm) away from objects (measured from the propeller to the obstacle).
With the purchase of the Autonomy Enterprise Foundation software add-on for your Skydio X2D, you can reduce your obstacle margin in flight, enabling up close object inspection.
WARNING: If this is your first flight with Skydio X2D, Skydio recommends flying with a full obstacle margin during the day.

GPS night flight

Skydio strongly recommends inexperienced pilots fly during daytime hours or in brightly lit conditions to get comfortable with the system before attempting to fly at night.
WARNING:
GPS Night Flight mode requires flying without obstacle avoidance and may drift slightly. Take extra caution when flying in this mode and do not stand near the vehicle.

Emergency behavior

Low battery
X2D will assess the altitude and distance from the Launch/Home Point and alert you when it is time to return home. X2D will begin a series of notifications and actions to ensure time for a safe landing:

1. Two-minute warning – fly to a safe location and land
2. After the two-minute countdown – the X2D will automatically land
    - you will be able to nudge X2D during landing to avoid any obstacles

Lost connection
Establishing lost signal connection return behaviors is a critical component in pre-flight planning to ensure that your Skydio X2D returns safely and lands in an accessible location.

- **Wait before Return** – specify the amount of time that you want X2D to wait before it initiates a return flight, allowing time to reconnect.
- **Land Once Returned**
    - Enabled (default): X2D will return, hover for a specified amount of time, and then land

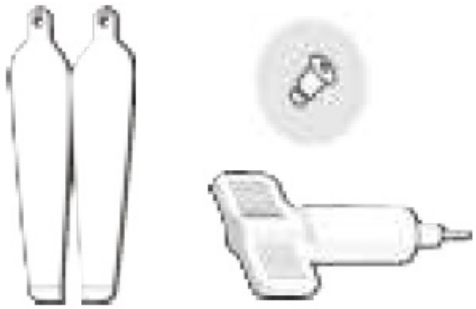
    - Disabled: X2D will hover in place until it runs out of battery
- **Wait Before Land** – specify the amount of time between 0 to 300 seconds (default – 240 seconds) that you want X2D to wait before landing. Only available when Land Once Return is toggled on.

REPLACING PROPELLERS

Replace propeller blades

A routine preflight inspection should include the propellers to ensure that they are in good working condition. Skydio recommends replacing your propellers after 100 hours of flight time or whenever you notice any damage for optimal performance. Replace all propellers in the hub, even if only one is damaged, to reduce any potential variations and to make it easier to track propeller flight time. Propellers are matched to maximize performance and robustness. You will need:

- Clockwise (CW) propellers
- Counter-clockwise (CCW) propellers
- Propeller screws
- Torque driver



WARNING:
Propeller blades with cracks, dents, or bends should be replaced immediately. Do not fly with damaged propellers as serious bodily harm or injury may occur. Propeller blades are sharp. Do not replace your while the vehicle is powered on.

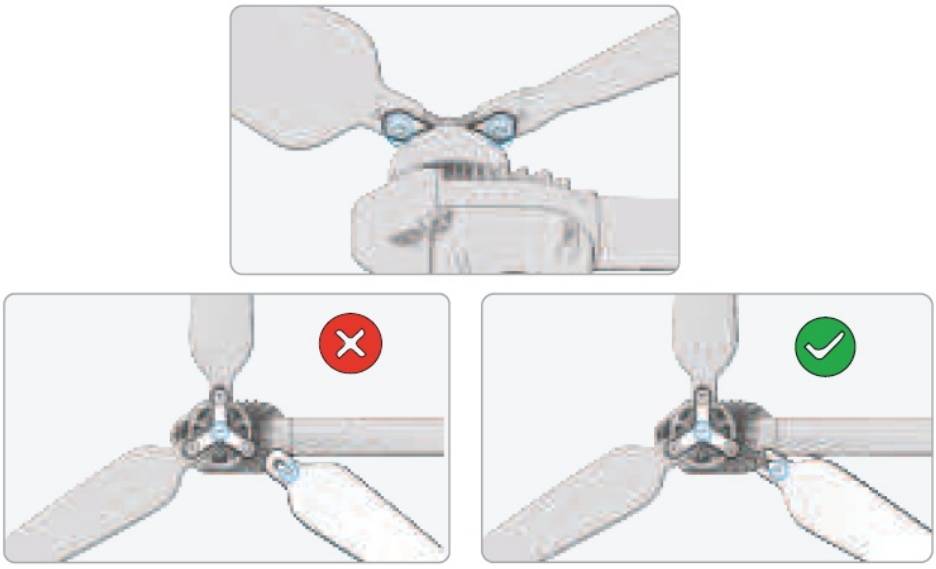
- **Step 1 – Remove propellers from the motor hub**
    - Hold the motor hub to stabilize
    - Unscrew the propeller screw
    - Slide the propellers out of the hub
    - Replace all three propellers in that hub from the same replacement kit
    - Dispose the removed propellers

- **Step 2 – Attach new propellers blades**
    - Find the markings that match the propeller hub and install with those markings facing up to ensure that

the propellers are in the correct direction (clockwise or counter-clockwise) and orientation for the motor.

- Hold the motor hub to stabilize
- Slide the new propeller into the hub
- Insert a new screw – do not reuse screws even if they look to be in good condition
- Use the torque driver to fasten the screw clockwise until you hear a click

- **Step 3 – Inspect your propeller blade installation**
  - Screw threads extend slightly beyond the bottom of the propeller hub
  - Dot patterns match between propeller blades and hub
  - Propellers rotate smoothly and do not bind on the hub spokes

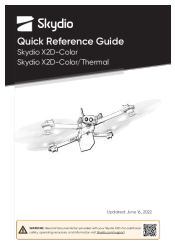


WARNING: Failure to match the markings on the propeller to those on the propeller hub is a safety hazard and may result in potential serious damage to the vehicle and serious bodily harm or injury to you and bystanders.

ADDITIONAL RESOURCES

For all the latest information about Skydio and our products,
visit www.skydio.com
Skydio Safety and Operating Guide
www.skydio.com/safety
Skydio X2D Operator Manual
www.skydio.com/getstartedX2
For legal, warranty and intellectual property information, visit www.skydio.com/legal
WARNING: Failure to follow any instructions in this Quick Reference Guide or in the X2D Operator Manual can void the limited warranty

Documents / Resources

	**Skydio X2 Autonomous Drone Color/Thermal** [pdf] User Guide X2 Autonomous Drone Color Thermal, X2, Autonomous Drone Color Thermal, Drone Color Thermal

References

- **Skydio 2+™ and X2™ – Skydio Inc. \| Skydio**
- **Skydio Legal \| Skydio**