lemur 2

Quick Start Guide

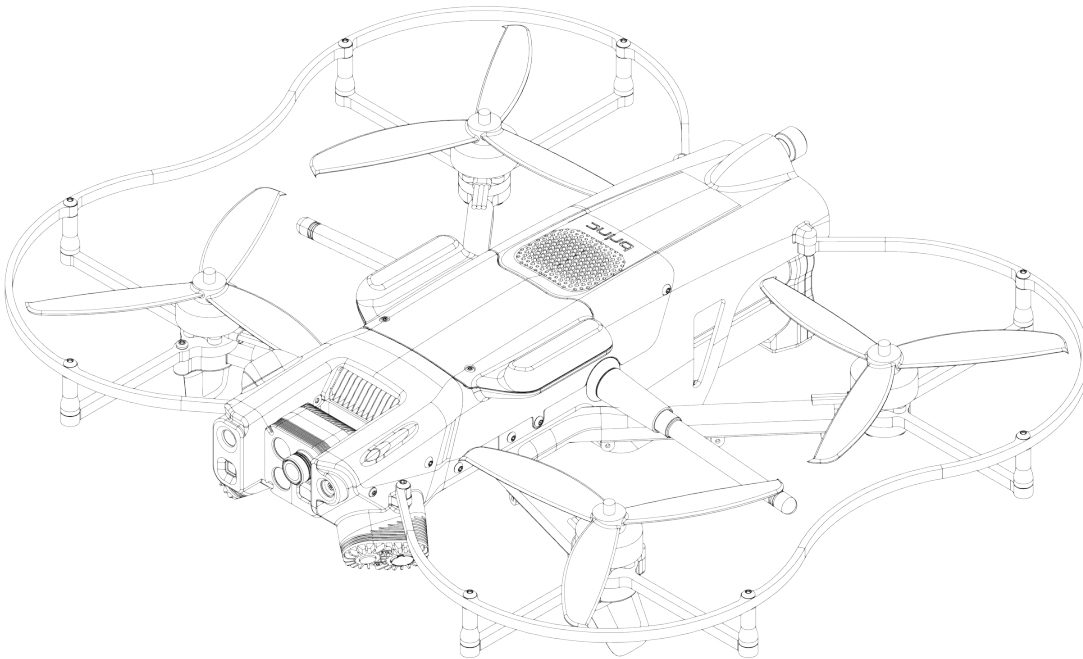

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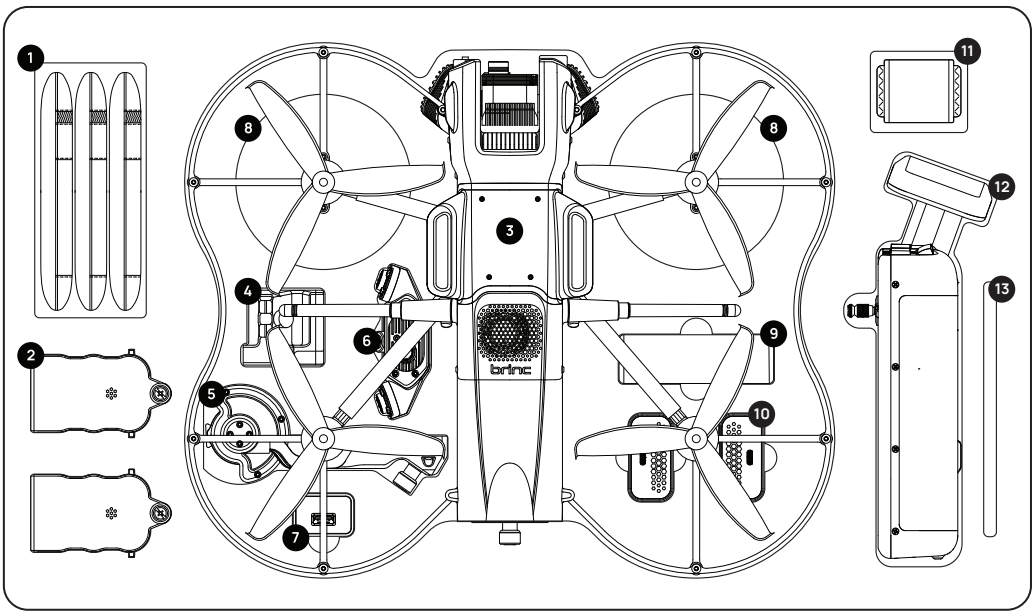
Table of Contents

LEMUR 2 Standard Kit Contents

The LEMUR 2 case securely stores all components necessary for a drone mission.



*Only included with Accessory Kit purchase

**Memory card may be pre-installed in the drone

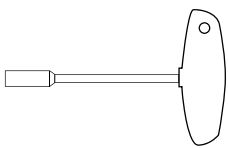
1. Field Service Tool Kit
   Spare Parts @ Fasteners Kit
   Spare Propellers Kit
   BRINC USB Stick
2. Lemur 2 Battery (Qty. 2)
3. Lemur 2 Drone
   Memory Card (MicroSD)**
4. Accessory: Dropper *
5. Accessory: Glass Breaker *
6. Accessory: Autonomy Floodlight *
7. Accessory: Programming Adapter
8. USB-C Power Supply Cable
   USB-C Charging Cables (Qty. 3)
9. USB-C Multiport Power Supply
10. LEMUR 2 Battery Charger (Qty. 2)
11. Adjustable Controller Lanyard
12. LEMUR 2 Controller
13. LEMUR 2 Quick Start Guide
    (This Document)

Spare Parts & Toolkit Overview

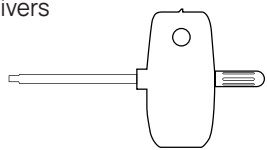
Tools and Spare Parts are provided for repairs that can be done in the field.

Section 1 - Toolkit

Prop Nut Driver

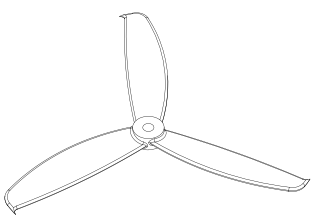


Assorted Specialty Screw Drivers

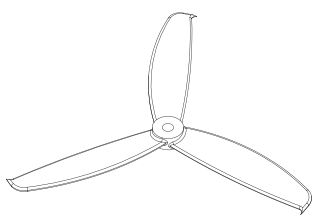


Section 2 - Spare Propeller (“Prop”) Kit

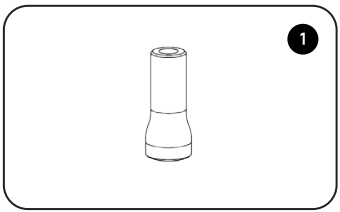
Clockwise (CW) Replacement Propeller

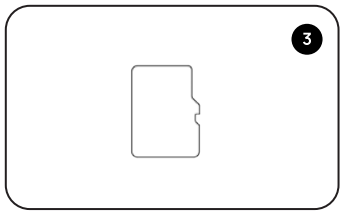


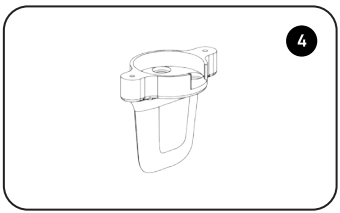
Counter-Clockwise (CCW) Replacement Propeller

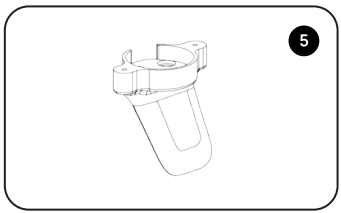


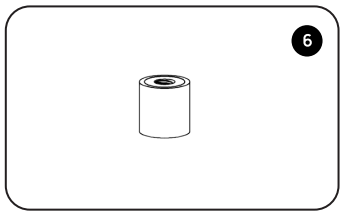
Section 3 - Spare Parts Kit

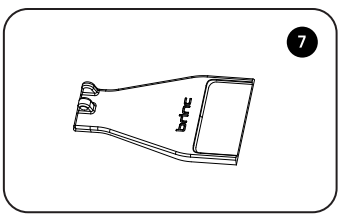


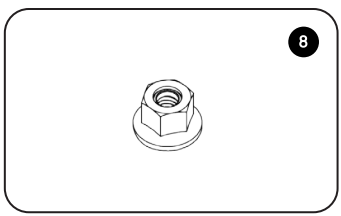


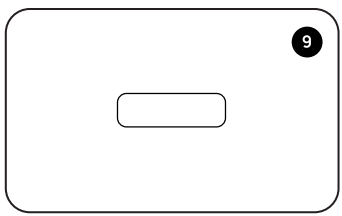












1. Standoff (Qty. 8)
2. 8MM Screw (Qty. 4)
2. 12MM Screw (Qty. 4)
2. 30MM Screw (Qty. 6)
2. 35MM Screw w/ Washer (Qty. 2)
3. MicroSD Memory Card
4. Right Landing Skid
5. Left Landing Skid
6. Rubber Bumper (Qty. 2)
7. Robot Mount *
8. Replacement Prop Nut (Qty. 4)
9. SIM Card Port Covers (Qty. 4)
10. MicroSD Card Grip Stickers

*Only included with Accessory Kit purchase

Drone Usage Guidelines

OPERATIONAL REQUIREMENTS

Before operating the LEMUR 2 drone, please understand and follow all safety guidelines relevant to the operation of small unmanned aircraft systems. Do not operate in extreme weather conditions. Do not operate over open water. Do not operate in the vicinity of manned aircraft. Be alert and avoid other aircraft at all times. Land immediately if necessary.

FLIGHT RESTRICTIONS

Before operating the LEMUR drone, consult with the relevant government agencies and governing bodies to ensure you comply with laws and regulations applicable to the airspace you are operating within. The LEMUR drone is equipped with Remote ID as per Title 14 Chapter I Subchapter F Part 89 of US Federal Regulations.

OPERATIONAL REQUIREMENTS

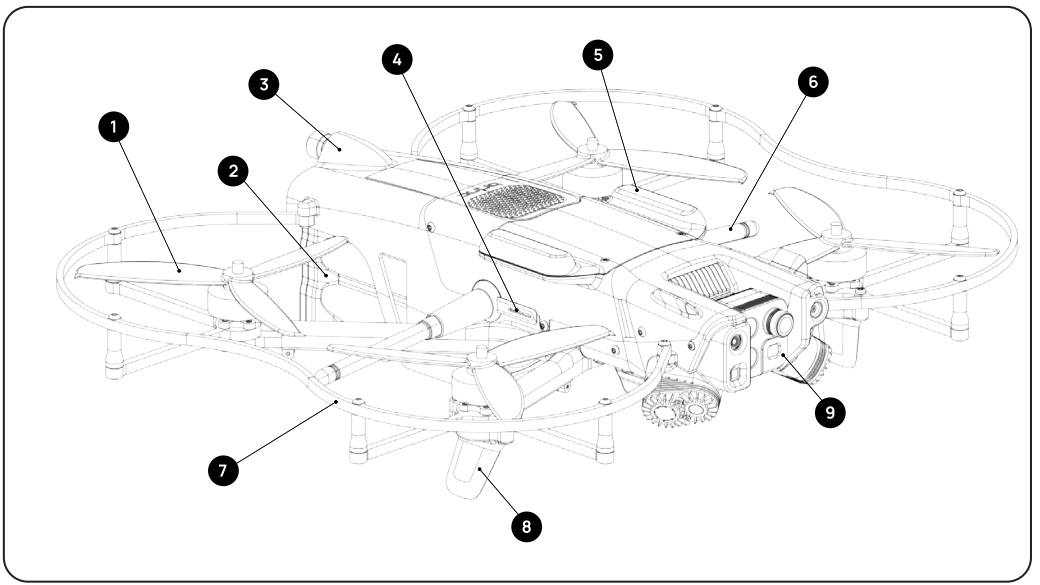
There are safety requirements for the storage and transportation of the LEMUR Batteries. Please strictly follow all battery safety guidelines.

OPERATIONAL REQUIREMENTS

Moving components (such as motors & propellers) can be dangerous if contacted. Always keep yourself and obstructions free and clear of rotating components. Disconnect power before handling. Disconnect power before servicing.

LEMUR 2 Drone Reference

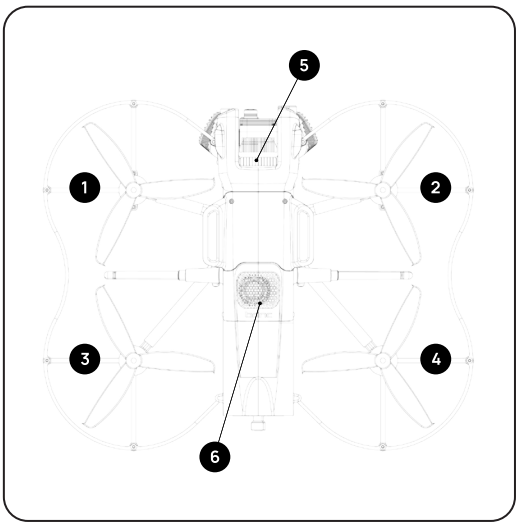
Overview of important parts of the LEMUR 2 drone assembly.



1. Propeller
2. Battery
3. Body
4. SIM Card Slot
5. Cell Antenna
6. Mesh Radio Antenna
7. Prop Guard
8. Skid
9. Gimbal

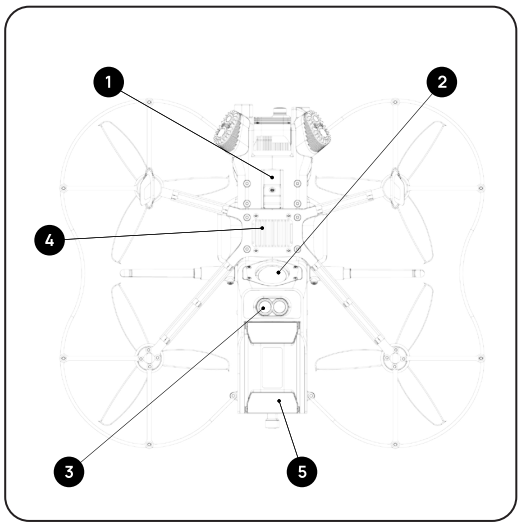
Drone Top & Bottom View

Top



1. Clockwise Front-Left Prop
2. Counter-Clockwise Front-Right Prop
3. Counter-Clockwise Rear-Left Prop
4. Clockwise Rear-Right Prop
5. Fan Exhaust
6. Fan Inlet

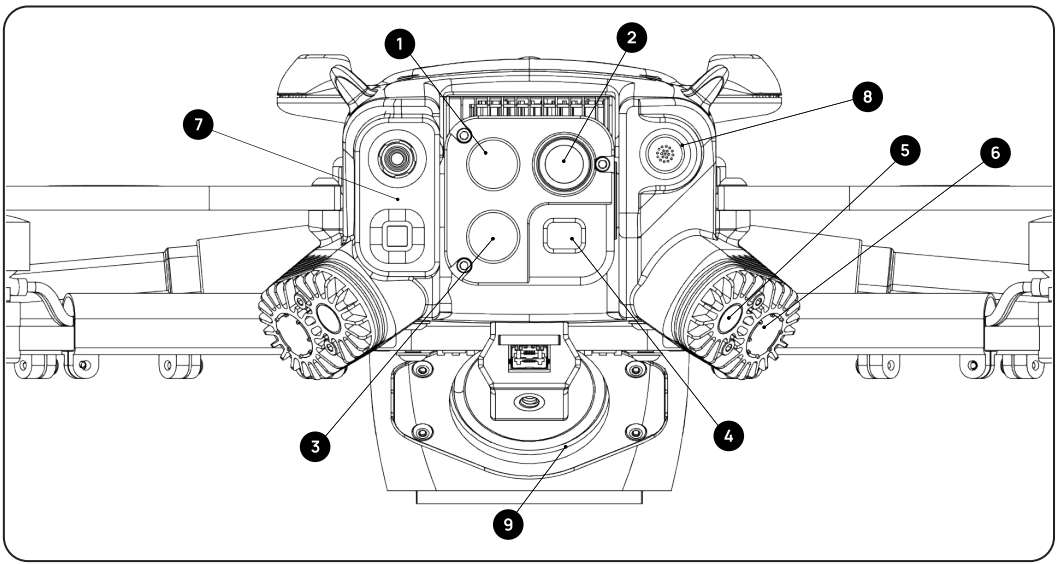
Bottom



1. Accessory Rail
2. Speaker
3. Downward LIDAR
4. External Heat Sink
5. Landing Pads

Drone Gimbal & Front View

Front



1. White Light LED (on/off, strobe)
2. 4K Camera
3. Blue Light LED (on/off, strobe)
4. Thermal Camera
5. Tracking Camera
6. Autonomy LED
7. LiDAR Mapping Sensor
8. Microphone
9. Speaker

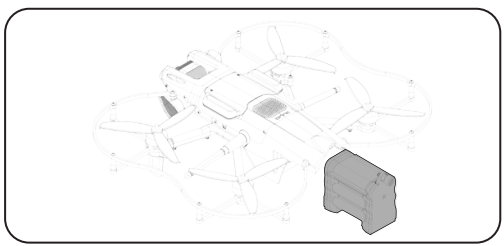
Drone Operation Reference

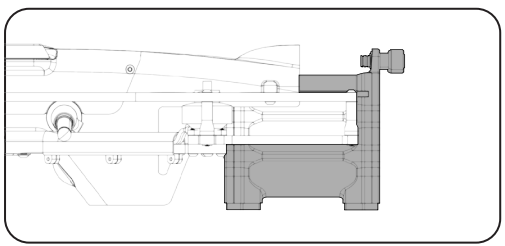
Pre-flight steps and flight modes overview.

Battery Insertion

Insert the LEMUR 2 Battery and tighten the thumb screw.

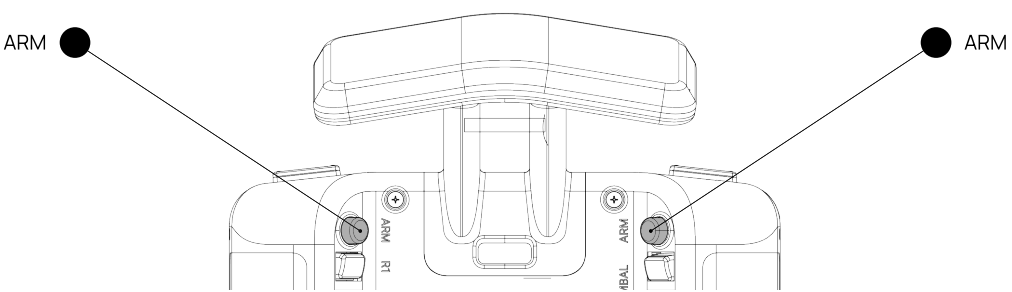
⚠ Always check battery is securely attached before flight.





Arm / Disarm

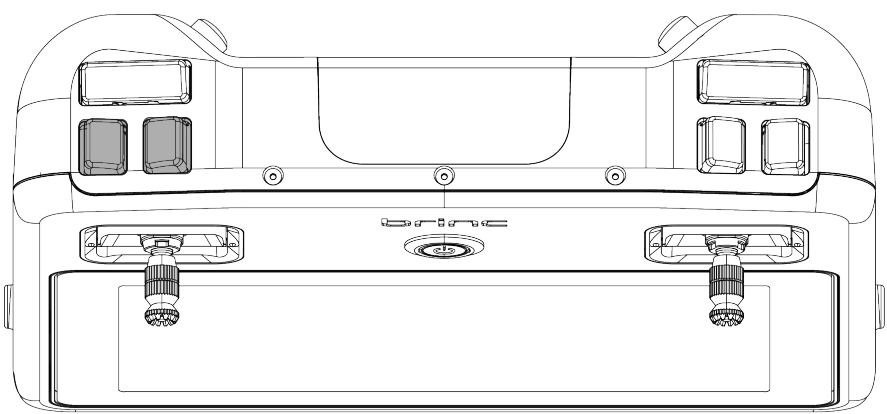
Hold throttle down and press both Arm buttons simultaneously to activate the drone and enable flight operations. To deactivate the drone press both Arm buttons again at the same time.
The drone will immediately disarm and cut power to all motors if disarmed while flying.



Flight Modes

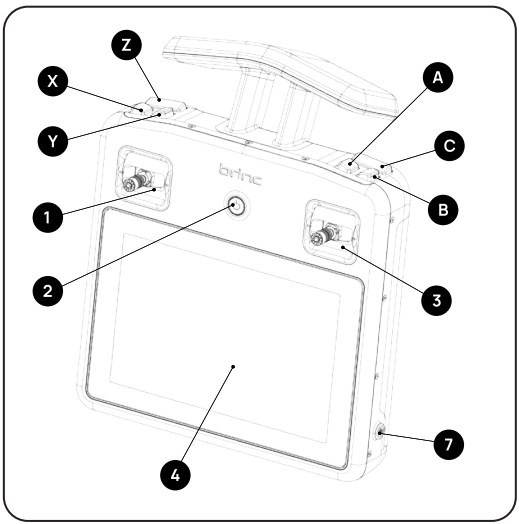
The highlighted buttons are used to toggle between flight modes.

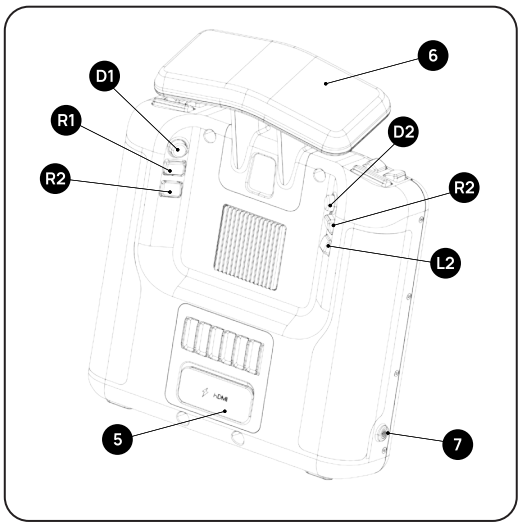
FLIGHT MODE	DESCRIPTION
Manual	Drone is fully controlled by the pilot. Basic attitude assistance only.
Altitude Hold	Drone maintains altitude without pilot input.
Position Hold	Drone maintains position without pilot input.
Position Hold + Obstacle Avoidance	Drone maintains position and slows down when flown near forward facing obstacles. See settings menu for adjusting obstacle avoidance set points.
Turtle Mode	Use this mode to flip the drone over if it lands on its back.



LEMUR 2 Controller Reference

Overview of important parts of the LEMUR 2 controller assembly.



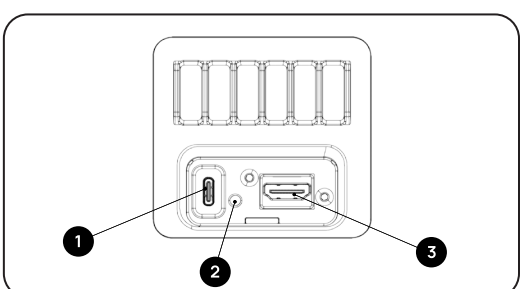


1. Left Control Joystick
2. Power Button
3. Right Control Joystick
4. Display
5. HDMI Port Cover
6. Directional Antenna (Aim at Drone)
7. Lanyard Attachment

Controller Button Functions Reference

BUTTON LOCATION	FUNCTION	LABEL
(A)	Cycle Between Blue Light Modes	"LIGHTS"
(B)	Cycle Between White Light Modes	
(C)	Toggle Accessory State	"ACC"
(X) (Y)	Cycle Left or Right Through Flight Modes	"FLT MODE"
(Z)	User Mapped Button	"AUX"
(D1) (D2)	Arm or Disarm the Drone	"ARM"
(R1) (R2)	User Mapped Buttons	"R1" "R2"
(L1) (L2)	Tilt Gimbal Up and Down	"GIMBAL"
(2)	Turn Controller On and Off	⏻

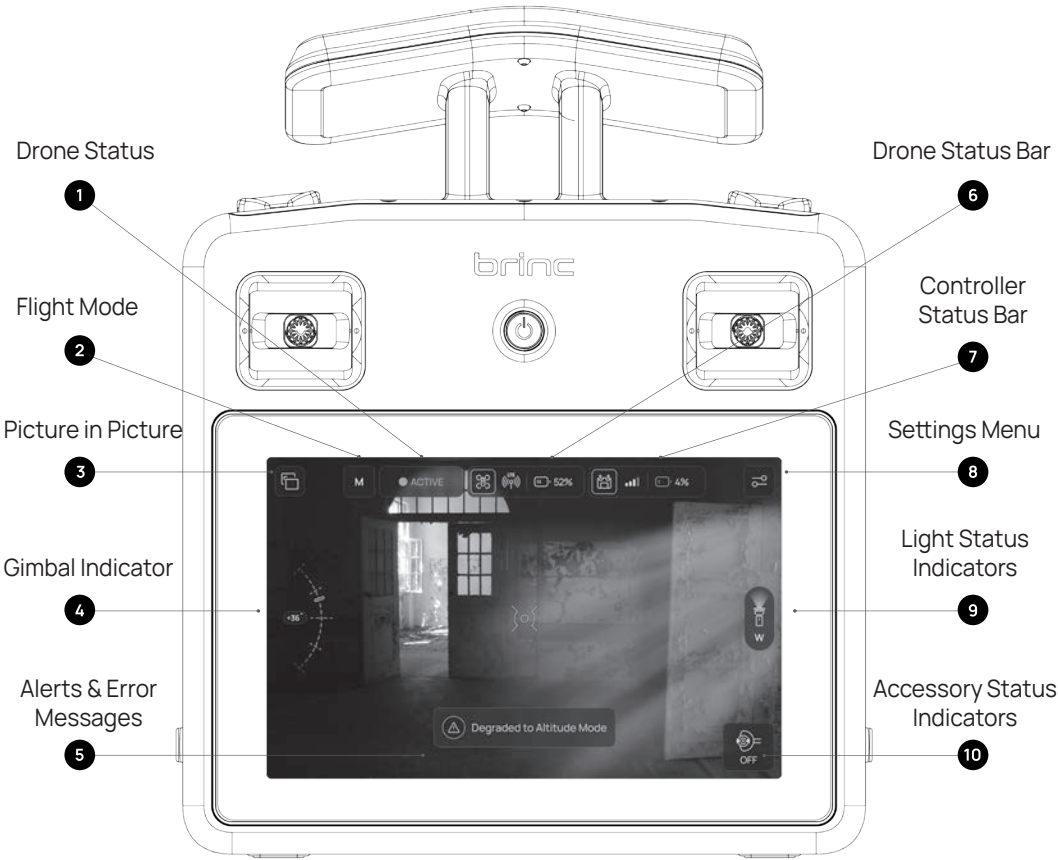
Controller Rear Port Reference



1. USB-C Data and Charging Port
2. Charging Status Light
3. HDMI Port (For use with external displays and goggles)

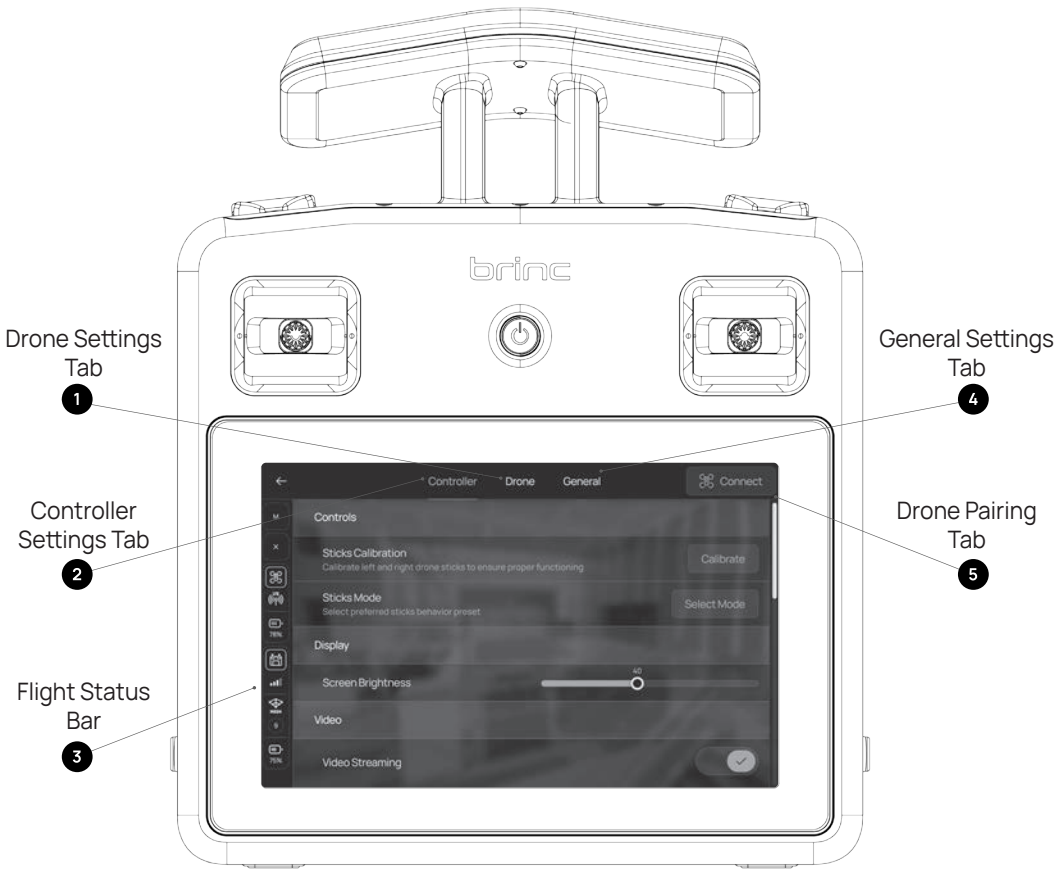
LEMUR 2 Touchscreen Reference

Drone In-Flight User Interface



LEMUR 2 Touchscreen Reference

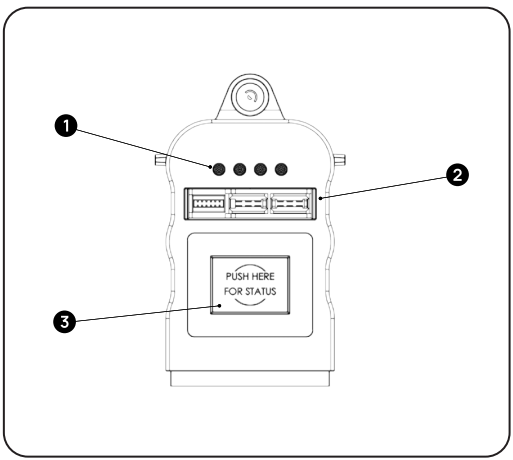
Controller Settings Interface

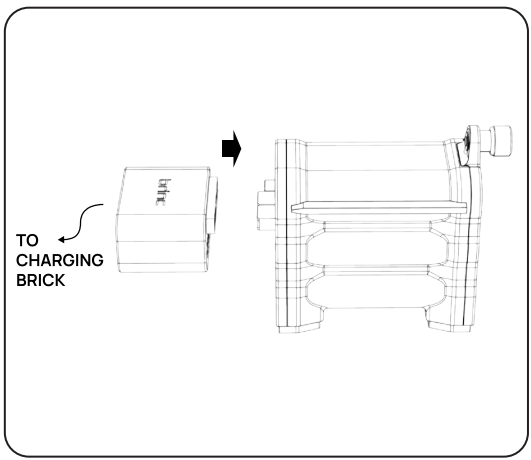


LEMUR 2 Battery Reference

Battery Interface and Charging

Press the battery status button on the front of the battery to check charge status. If battery lights flash rapidly, do not use battery and contact your BRINC customer support representative.





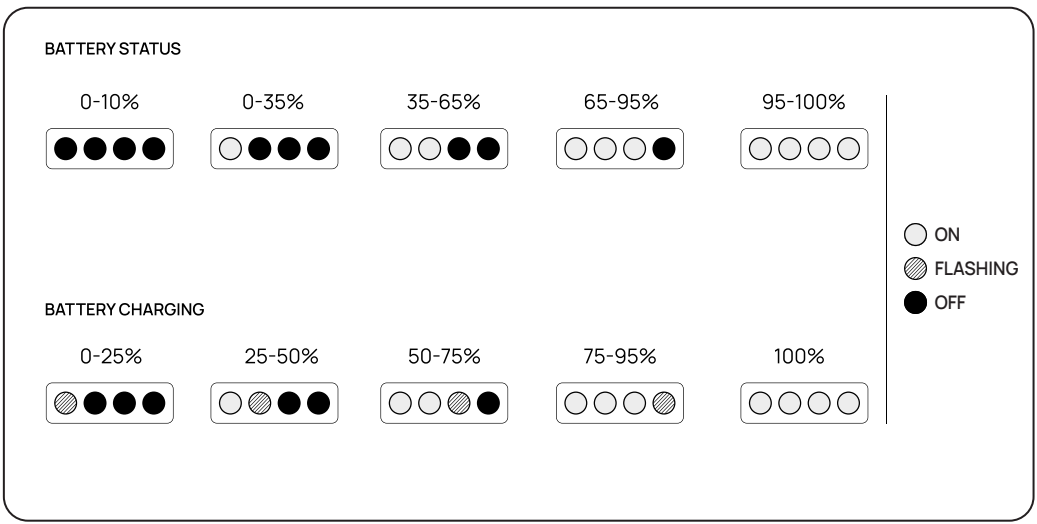
1. Battery Status LEDs
2. Battery Power & Data Connector
3. Battery Status Button

To charge the LEMUR 2 battery connect the BRINC battery to the BRINC charging adapter as shown above.

To supply power to the charging adapter connect one of the included USB-C power delivery cables between the charging adapter and the USB-C multi-port power supply.

Battery Status Lights

The LED status lights on the front of the LEMUR 2 battery display battery state of charge when the status button is pressed or when the battery is actively charging. A few minutes after the battery has completed charging the battery will enter power save mode (lights off).



Battery Shipping and Storage

The LEMUR 2 smart battery uses lithium-ion battery cells and must be shipped in compliance with all applicable domestic and international laws and standards. Check battery labels for power information.

Note: Batteries must be stored between -10°C and 40°C.

Accessory: Glass Breaker

Glass Breaker Installation and Usage

1. Always ensure the drone is **powered off** before attaching or removing accessories

> ⚠ Warning: The Glass Breaker continuously spins when activated, before installing and activating, inspect the accessory to ensure no foreign matter is lodged in the Glass Breaker

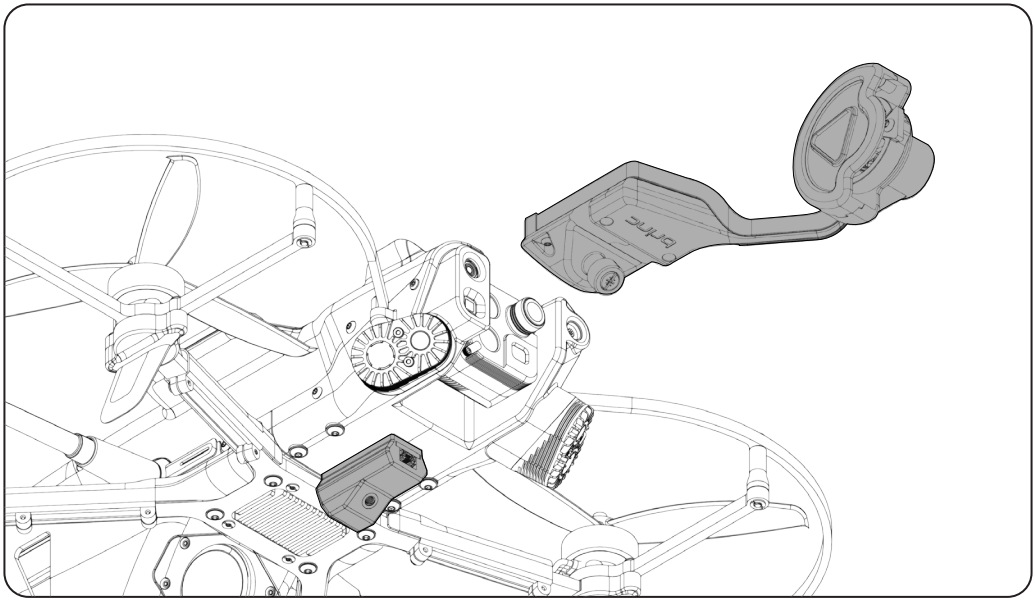
2. To attach the Glass Breaker, slide it onto the Accessory Rail and secure by tightening the thumbscrew fully.

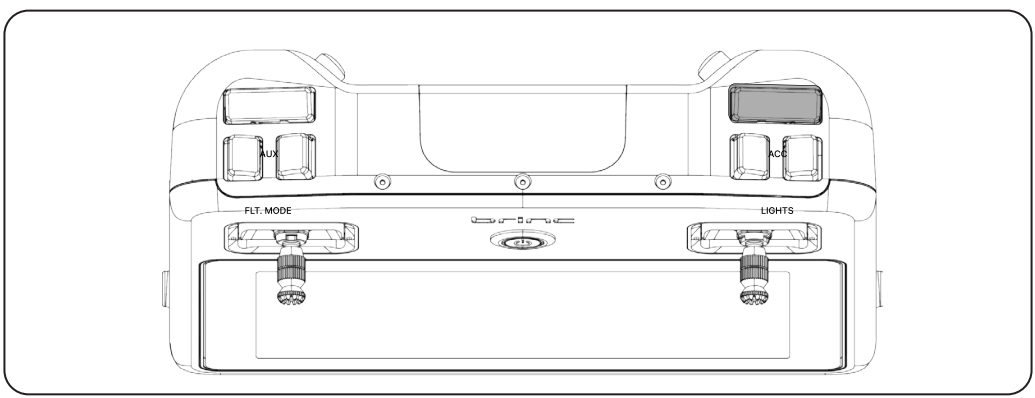
> ⚠ Warning: Do not fly the drone with the Glass Breaker mounted without fully securing the accessory thumb screw.

3. After attaching the accessory, power on the drone and controller and look for the Glass Breaker icon in the lower right corner of the controller interface. This icon will reflect the current state of the connected accessory.

> ⚠ Warning: The Glass Breaker is a severe cutting hazard. Always ensure the glass-breaker is clear of people and objects before powering on the drone and activating the attachment.

4. To turn on the Glass Breaker press the Accessory Button on the controller. To turn off the Glass Breaker momentarily press the Accessory Button again.




AUX
ACC
FLT. MODE
LIGHTS

Accessory: Dropper

Dropper Installation and Usage

1. Always ensure the drone is **powered off** before attaching or removing accesso-
2. To attach the Dropper, slide it onto the Accessory Rail and secure by tightening the thumbscrew fully.

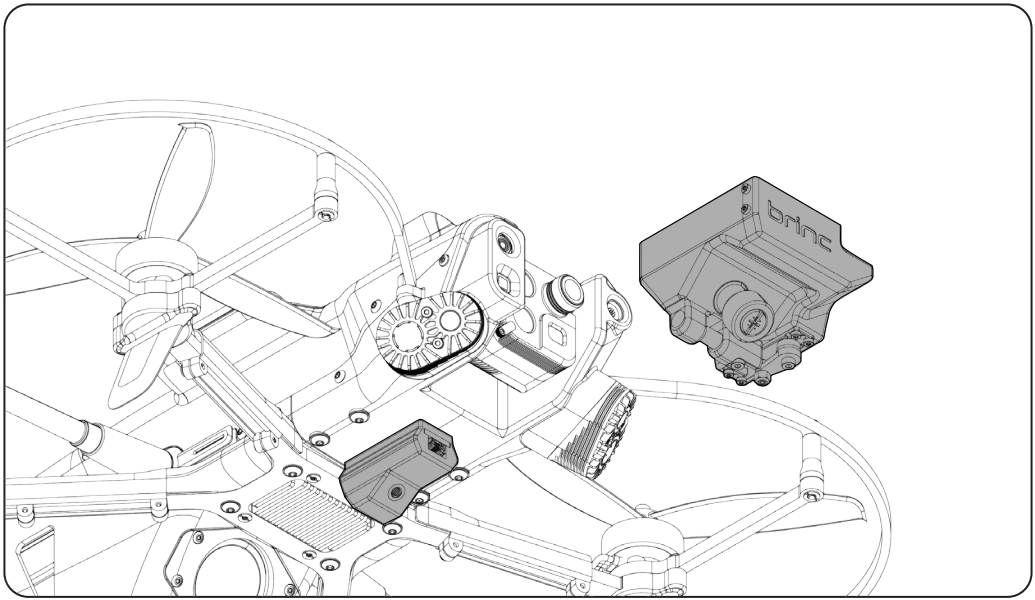
> ⚠ Warning: Do not fly the drone with the Dropper mounted without fully securing the accessory thumb screw.

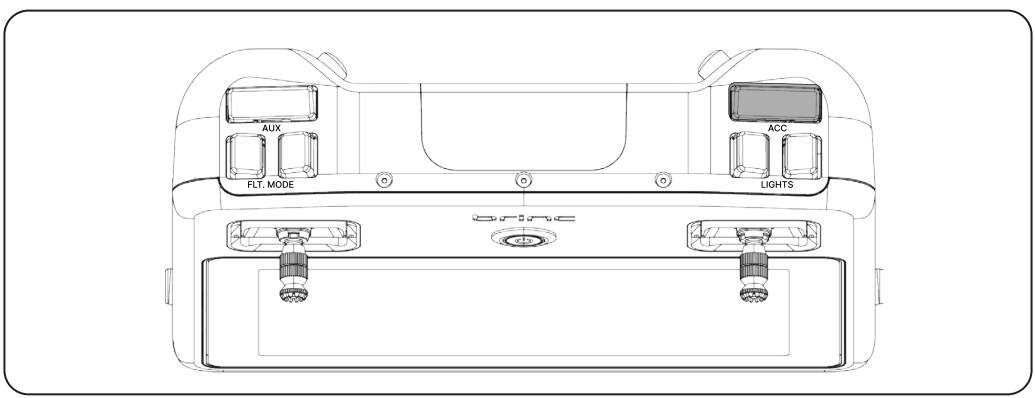
3. After attaching the accessory, power on the drone and controller and look for the Dropper icon in the lower right corner of the BRINC Pilot UI. This icon will reflect the current state of the connected accessory.

> ⚠ Warning: The dropper pin is a pinching hazard. Keep hands and objects clear of the dropper when powering on the drone.

4. To open the Dropper press the Accessory Button on the controller. To close the Dropper momentarily press the Accessory Button again..

Note: The included Robot Mount can be used in conjunction with the Dropper to attach the drone to another deployment device. Make sure the mount is securely and permanently attached to the object via its peel and stick adhesive before activating the dropper and securing the drone.




AUX
FLT. MODE
ACC
LIGHTS

Accessory: Autonomy Floodlight

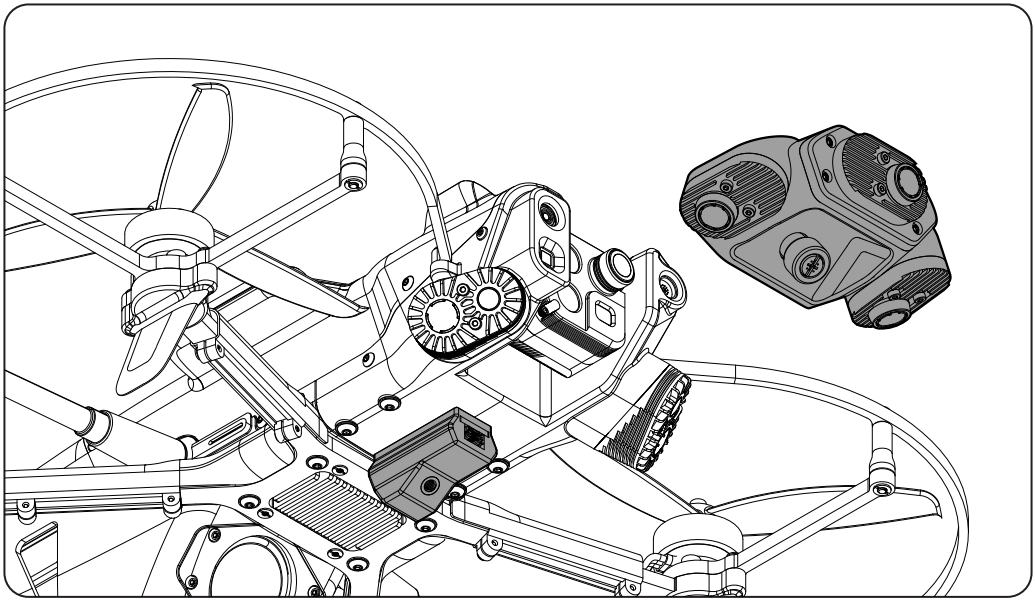
The autonomy floodlight provides additional illumination to increase 360° position-hold performance during low-light missions. This accessory is particularly useful when flying outdoors at night or in large dark open spaces. To maximize performance, always keep the drone at low altitudes (below 10 feet) when flying outdoors.

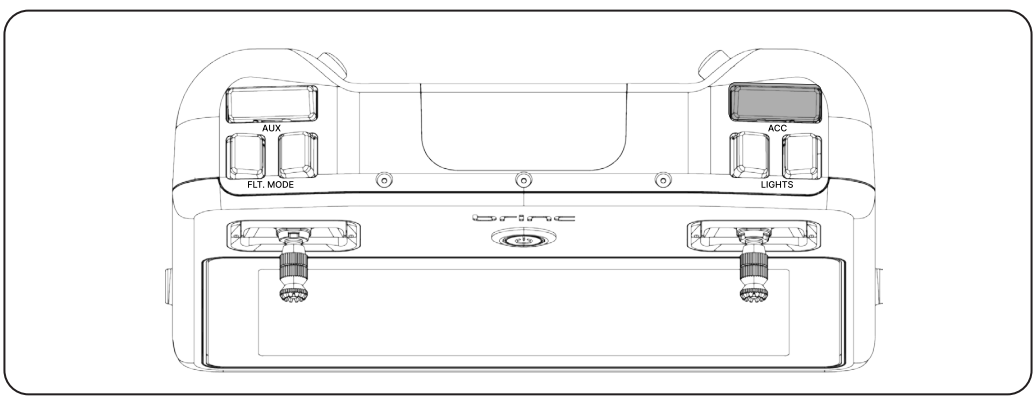
Floodlight Installation and Usage

1. Always ensure the drone is **powered off** before attaching or removing accessories.
2. To attach the Floodlight, slide it onto the Accessory Rail and secure by tightening the thumbscrew fully.

> ⚠ Warning: Do not fly the drone with the Floodlight mounted without fully securing the accessory thumb screw.

3. After attaching the accessory, power on the drone and controller and look for the Floodlight icon in the lower right corner of the BRINC Pilot UI. This icon will reflect the current state of the connected accessory.
4. Use the Accessory Button on the controller to toggle the state of the floodlight between OFF and AUTO illumination modes.




AUX
ACC
FLT. MODE
LIGHTS

Accessory: Programming Adapter

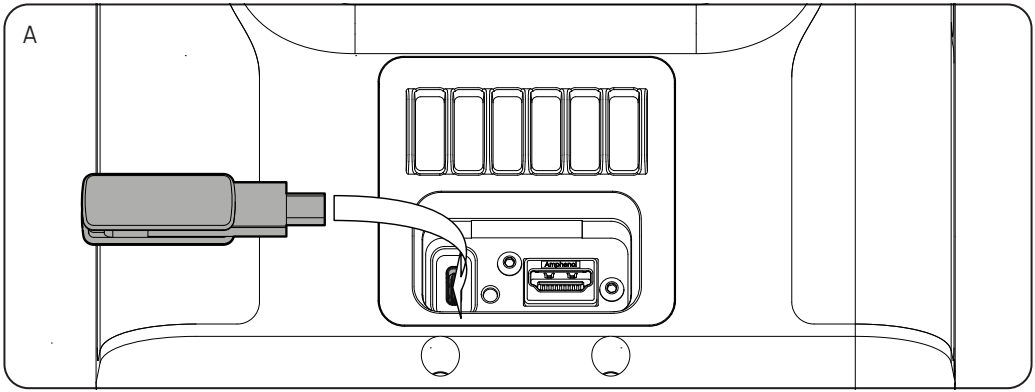
The drone programming adapter enables the user to update the drone software with a standard USB thumb drive (or the included BRINC branded USB stick). Drone and controller software update files can be downloaded from LiveOps or by contacting your BRINC Customer Service Representative or authorized BRINC Trainer.

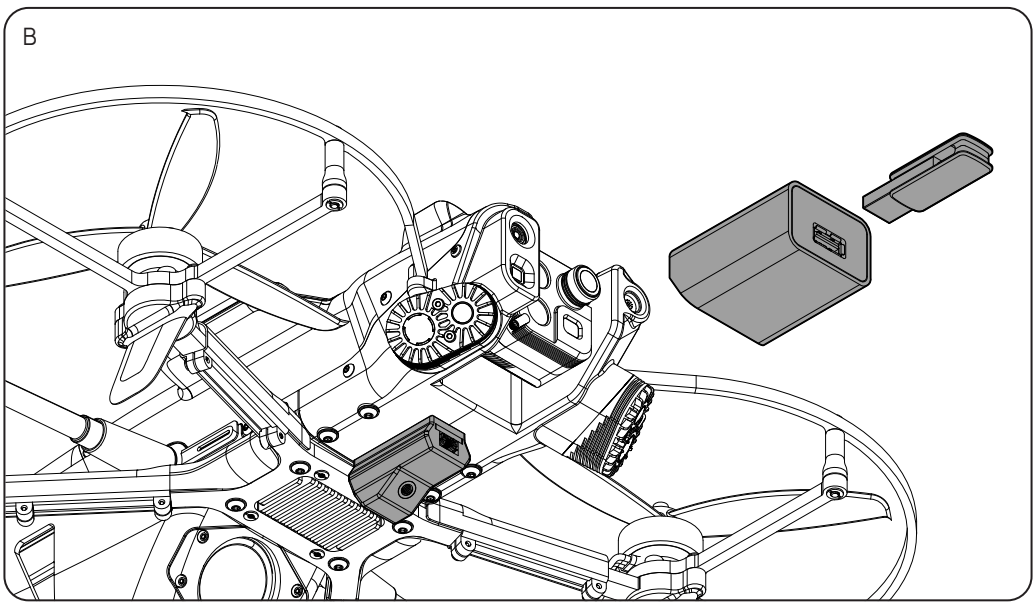
(A) Controller Software Updates

1. Clear any previously installed controller update files from the USB drive and copy the new updates to the USB drive.
2. Power on the controller. Note: There is no need to connect to a drone when updating only the controller software.
3. After the controller is fully powered on, insert the USB drive that contains the update files into the USB-C port on the back of the controller.
4. Follow the prompts on the controller screen to complete the controller update.

(B) Drone Software Updates

1. Clear any previously installed drone update files from the USB drive and copy the new updates to the USB drive.
2. Connect the programming adapter to the accessory rail on the drone.
3. Power on the drone and the controller.
4. Connect to the drone with the controller.
5. Insert the USB drive that contains the update files into the programming adapter.
6. Follow the prompts on the controller screen to complete the drone update.


A
Armlehne


B

Field Service: Propellers

Propeller Usage Guidelines

- Only use official BRINC propellers. Do not mix propeller types.
- Propellers are consumable components. Check for bent, chipped, or broken props and replace before flight.
- Make sure that the propellers and motors are installed securely before each flight.
- Check Clockwise (CW) or Counter-Clockwise (CCW) orientation of propellers for each motor location before flight and after servicing.
- To avoid injury, keep clear of rotating propellers or motors.

Propeller Usage Guidelines

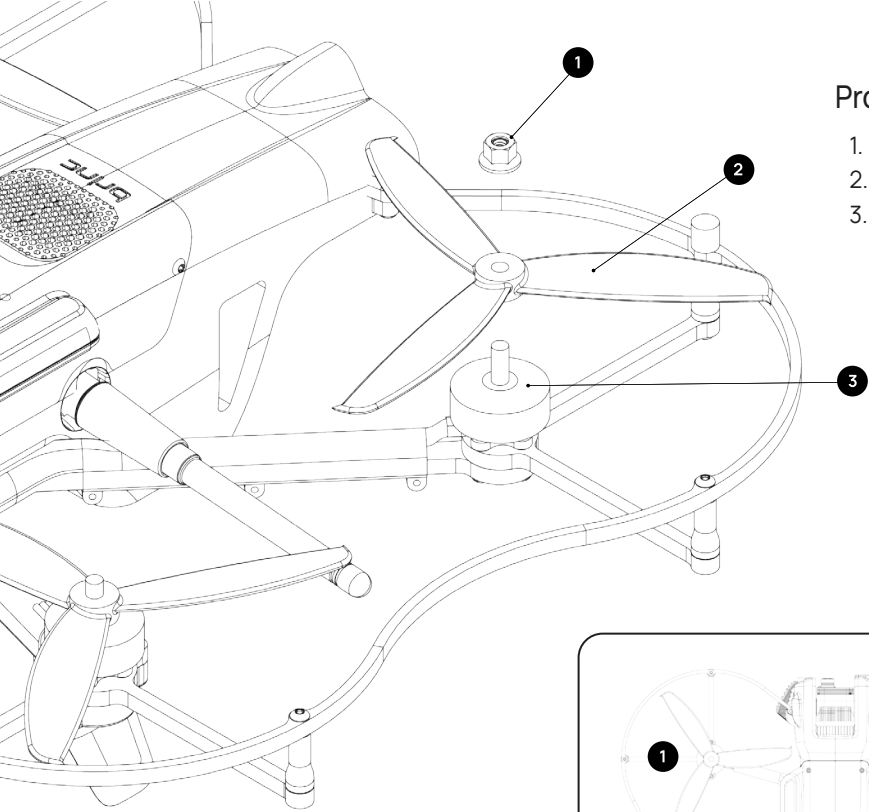
1. If present, remove battery from the drone.

> ⚠ Warning: To prevent accidental activation never service the drone with a battery installed.

2. Remove lock nut with nut driver from field service toolkit.
3. Remove propeller and replace it with a new propeller with the same spin direction orientation (CW or CCW).
4. If locknut looks worn or was not tight when removed from its motor, replace with a new locknut.

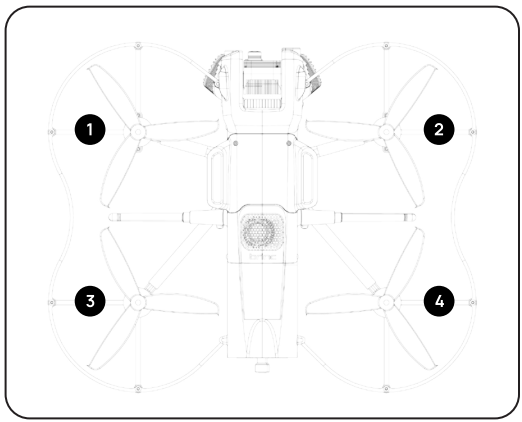
> ⚠ Warning: Never use non-locking nuts to secure the propeller to the motor.
> Use provided lock-nuts from the spare parts kit.

5. Use the nut driver to tighten the locknut, and clamp the new propeller to the motor.



Prop Assembly

1. Locknut
2. Propeller
3. Motor



Prop Spin Orientation

1. CW
2. CCW
3. CCW
4. CW

Field Service: Prop Guards

Rear Bumper Repair Procedure

1. If present, remove battery from drone body..

> ⚠ Warning: To prevent accidental activation never service the drone with a battery installed.

2. Hold prop guard and hand-twist rubber bumper to remove body.
3. Inspect airframe, standoff, and prop guard to ensure proper assembly.
4. Hand tighten replacement rubber bumper in place.

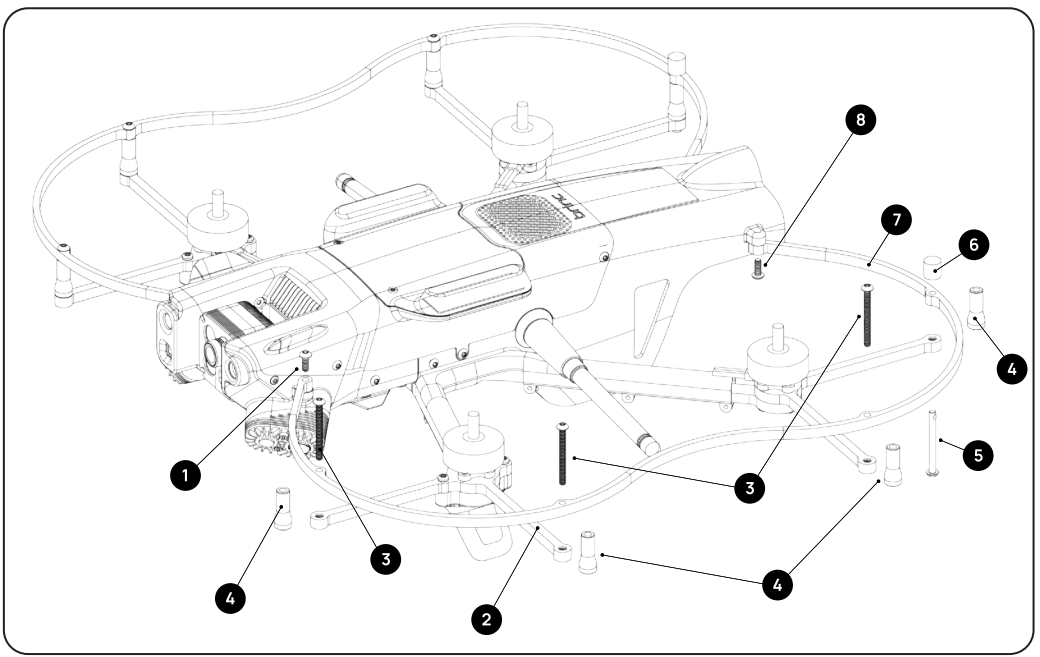
Prop Guard Repair Procedure

1. If present, remove battery from drone body.

> ⚠ Warning: To prevent accidental activation never service the drone with a battery installed.

2. With drone in flight orientation, hold prop guard and hand-twist rubber bumper to remove.
3. Flip drone over.
4. Remove rear fuselage screw.
5. Remove bumper screw and washer. Hold standoff and remove when screw is clear.
6. Flip drone back to flight orientation.
7. Remove front fuselage screw.
8. Remove remaining airframe screws (Qty. 3). Hold standoffs and remove when screws are clear.

9. Remove prop guard.
10. Inspect all parts and replace all damaged parts, bent screws, and worn items.
11. Reassemble in reverse order, and ensure all non-fuselage screws have spacers properly assembled between the airframe and prop guard.



1. Front Fuselage Screw (8mm)
2. Airframe
3. Airframe Screw (30mm)
4. Standoff
5. Bumber Screw (35mm) & Washer
6. Rubber Bumper
7. Prop Guard
8. Rear Fuselage Screw (8mm)

Field Service: Landing Skid

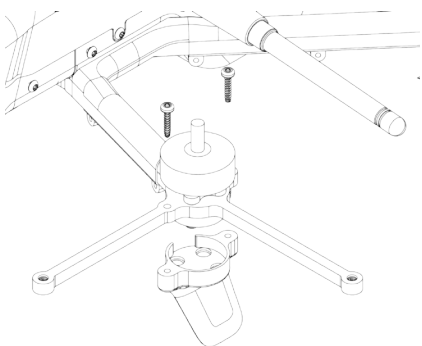
Landing Skid Repair Procedure

⚠ Warning: Do not field service LEMUR 2 motors or remove them while replacing the landing skid. Return drone to BRINC for motor servicing.

1. If present, remove battery from drone body.

⚠ Warning: To prevent accidental activation never service the drone with a battery installed.

2. Use screw driver from the the field service toolkit to remove old screws (Qty. 2) and remove broken or damaged landing skid.
3. Locate new landing skid under the front motor, making sure it sits flush against the underside of the airframe.
4. Use new 12mm screws (Qty. 2) to secure the new landing skid to the airframe.

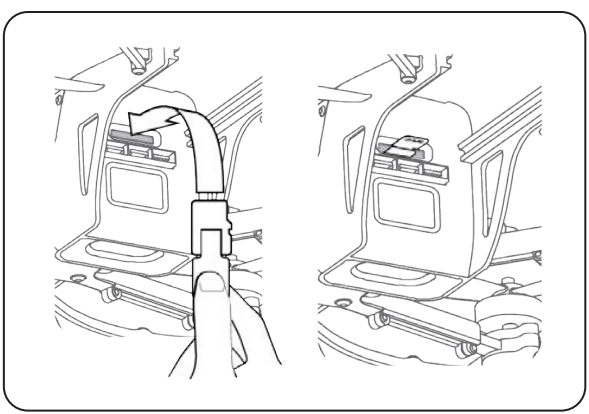


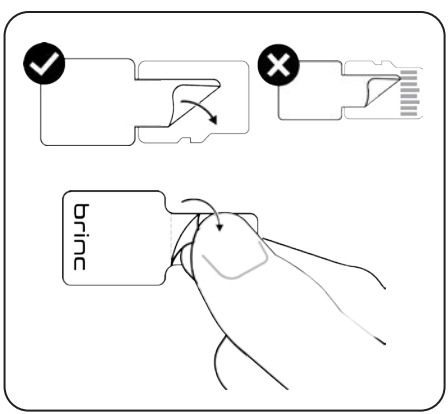
Field Service: Memory Card

Memory Card Replacement Procedure

1. Prepare new Micro SD memory card (class 10 or better only) with one of the included SD card grip stickers. First peel off excess material on the logo side of the sticker. Place the sticker on the backside of the Micro SD card. DO NOT place the sticker on the exposed chip.
2. If present, remove battery from drone body to expose SD card slot.
3. Hold grip sticker of previously installed Micro SD card and gently press installed Micro SD card into drone to trigger eject mechanism, Using grip sticker, gently pull SD card out of card slot.
4. Insert new Micro SD card with attached Micro SD card grip sticker through SD card slot until mechanism latches new card in place.

Note: Contact BRINC for extra Micro SD card grip stickers if needed.





Field Service: Cellular SIM Card

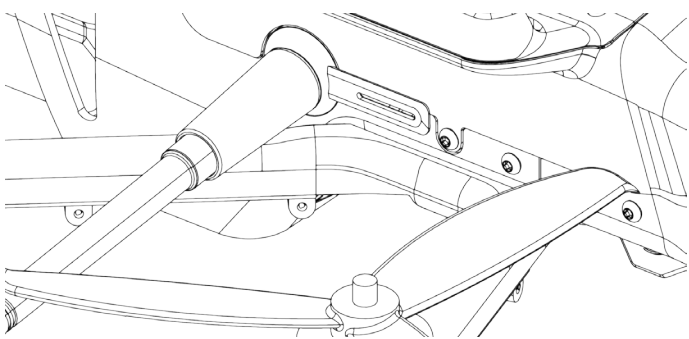
SIM Card Installation & Removal Procedure

1. If present, remove battery from drone body

> ⚠ Warning: To prevent accidental activation never service the drone with a battery installed.

2. Remove and discard old SIM card port sticker cover.
3. Gently press previously installed SIM card to trigger eject mechanism, then remove old SIM card.
4. Insert the new SIM card into the slot until the latching mechanism is engaged.
5. Place a new SIM card port cover stick over slot to seal port.

Note: Contact BRINC for extra SIM card port cover stickers if needed.



Two-Way Communication Overview

The LEMUR 2 drone can be called from any cell phone and controlled via text messages.

ACTION	TEXT MESSAGE
Call Pick-Up Response	Lemur answered your call Text “M” for a menu of commands
Response to (M)	Command list: P: PERCH audio L: PERCH LOUD audio F: FLIGHT audio with loudest speaker & microphone off S: SYSTEM info M: MENU of commands X: TERMINATE active call
Response to (P)	Entering PERCH audio mode
Response to (L)	Entering LOUD audio mode
Response to (F)	Entering FLIGHT audio mode
Response to (X)	Call terminated
Response to (S)	LEMUR SW REV: xxxx Signal Strength (bars): 4 Signal Strength (RSSI): xxxx dBm SIM: ########## IMEI: ###############

Serial Number | Phone Number

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form

For more information go to
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