Lucid
DRONE TECHNOLOGIES

TROUBLESHOOTING GUIDE
C1 Cleaning Drone

VERSION DU1.1 3.31.22

Troubleshooting Guide:

Operators may face issues in the field. This troubleshooting guide was designed to help you solve problems in the field.

This guide will go over various issues you may encounter when flying the Lucid C1 drone.

With any drone technology, it is important to remember the most powerful problem solving strategy:

POWER CYCLING THE DRONE.

Power cycling the drone will reset and restart all aspects of the drone. If you're facing GPS issues, we recommend you power cycle the drone first. If the problem persists, consider moving your takeoff location.

These include:
1. GPS Errors & Interference Issues
2. Level Horizon Calibration
3. Unstable Aircraft
4. Maintaining Altitude
5. Controller Connection Issues
6. Vis0dom Errors

Troubleshooting order of operations.

It is recommended that C1 pilots/owners reference this troubleshooting guide or trouble shooting videos through the Props program, prior to calling customer service. Often times many problems can be solved very quickly and easily using this guide and the provided videos.

If you are unsure of the vernacular or vocabulary of a particular issue with your C1 drone, reference the **Visual Guide Here.**

This visual guide will help you isolate and solve problems through a visual representation of the aircraft itself. By clicking a particular part or area of the drone, you will be able to see videos and information that could aid in solving the problem.

If you still face issues after reference this guide, or the visual aid, please contact Lucid Support.

Support@luciddronetech.com   980-498-1894

GPS Errors

Many different variables can cause GPS issues. From taking off too close to a building, to KP index inhibiting the aircraft from acquiring a signal. Pilots could even be taking off near magnetically charged materials or objects, causing a magnetism error. Whatever the cause of the problem, good news… there are various means of solving the problem.

STEP 1:
Power cycle your drone, give the aircraft 5 minutes to acquire GPS Fix. If it still does not acquire a fix… Move to step 2.

STEP 2:
Pilots should ensure the GPS antennas are properly installed on the drone. The antennas should be hand tightened. Pilots should also ensure that the GPS antenna mounts have not been damaged in transit.

Additionally, use the UAV FORECAST application to check KP Index. If the KP index is above 5, it could be causing GPS errors. Lucid does not recommend flying the drone when KP index is above 5.

After checking antenna position and KP index, move to step 3.

STEP 3:
Move the aircraft to another location for takeoff. Restart the drone to acquire a GPS fix. Even moving the drone 10-15 feet could solve the problem. You could be taking off in an area filled with magnetic material. The drone could also be taking off over a water pipe or another pipe made from steel, which will cause errors. Multiple tall buildings can also affect ability to takeoff and acquire a GPS Fix.

Most times, moving the aircraft will fix the problem. You may have to move the aircraft multiple times. Ensure the aircraft has a clear view of the sky and nothing is obstructing the antenna's ability to reach satellites.

If you have already moved the aircraft, restarted the aircraft and you are still facing problems….

STEP 4: ACCELEROMETER CALIBRATION

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To conduct an Accelerometer Calibration (which should be done anytime the drone moves more than 150 miles from its previous flight location)

1. **Power on the drone and remote**
2. **Open QGround Control app**
3. **Click the "Q" icon on the top left corner of the screen**
4. **Click vehicle setup**
5. **Click sensors**
6. **Click Accelerometer**
7. **Top Right hand corner next calibration click "ok"**
8. **Position the vehicle as guided by the images on the screen. Once prompted (the orientation-image turns yellow) hold the vehicle still. Once the calibration is complete for the current orientation the associated image on the screen will turn green.**
9. **Repeat the calibration process for all vehicle orientations.**
10. **Once you've calibrated the vehicle in all the positions QGroundControl will display Calibration complete**
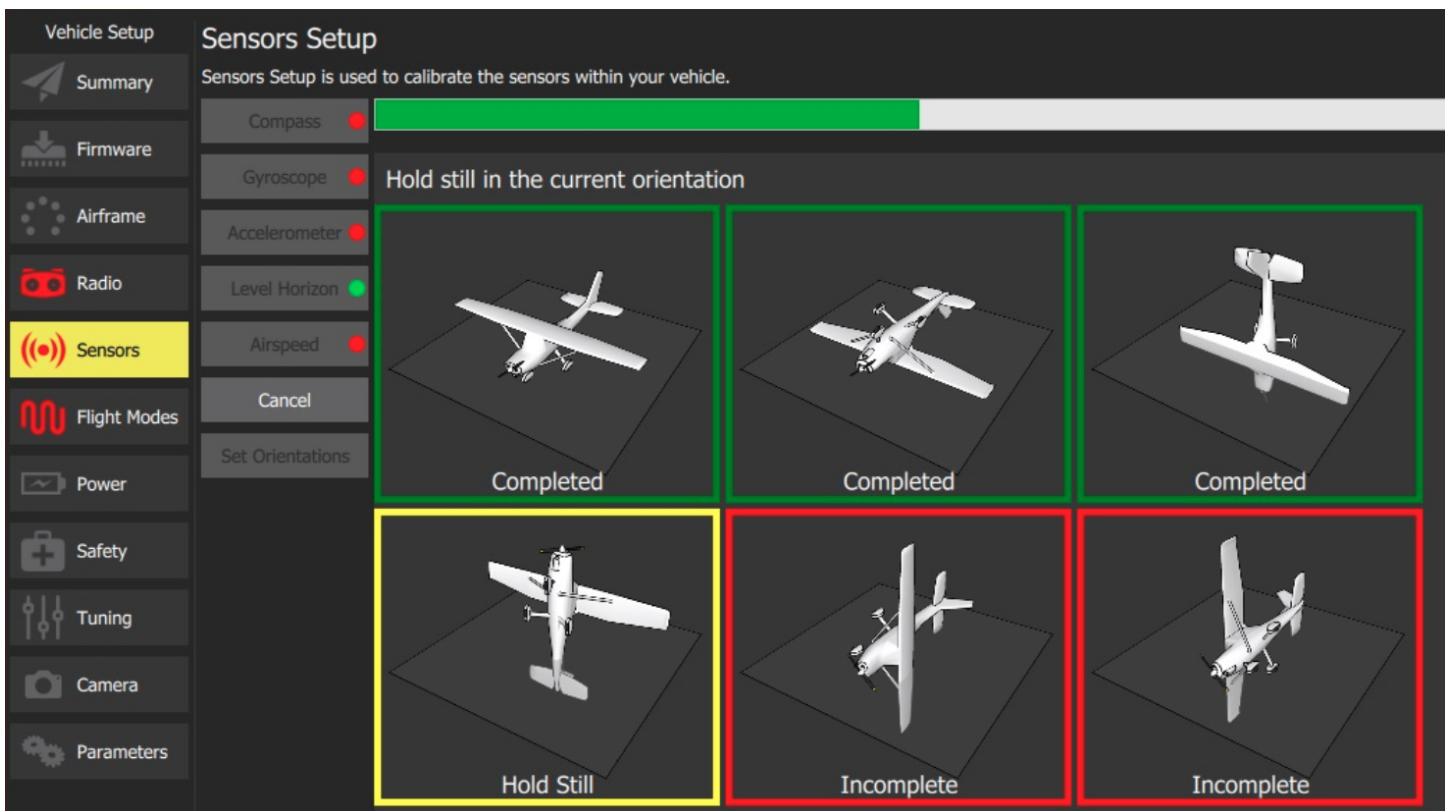
Horizon Level Errors:

If the Lucid C1 drone is positioned on a flat and level surface, but the horizon indicator is not flat, the pilot must perform a level horizon calibration.
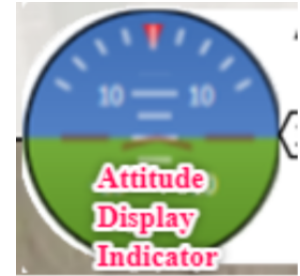
Typically this problem is showcasing the IMU may not have a proper calibration and be able to discern flat and level position.

1. Make sure the C1 drone is positioned on a flat and level surface.
2. Grab 4 of your propeller guards, and place each one below each leg of the landing gear. Propping the drone up.
3. Place one level (lucid provides levels in tool kit) on the top of the drone vertically, and the second level on the drone horizontally.
4. On your remote, with the drone powered on, hit the "Q" icon on the top left corner of the screen.
5. Select "vehicle setup"
6. Select "sensors"
7. Select "Level Horizon."
8. While the drone is propped up on the propeller guards, push down on the drone such that both horizontal and vertical levels are now level.
9. Have your Pilot Assistant or VO click "ok."
10. Power cycle or reboot the drone to complete the level horizon calibration.

If you have already moved the aircraft, restarted the aircraft and you are still facing problems….

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Unstable aircraft or "wobbly" upon arming the drone.

If your Lucid C1 drone is wobbly upon arming the drone, in preparation for takeoff… there may be a potential problem with the aircraft.

A common parallel problem may also showcase that not all motors are spinning upon arming the drone. Obviously all 6 motors must turn on and rotate in order to take off.

This problem could be caused by pilot error or uneven motor placement. Ensure you read through both solutions before contacting customer service.

Problem #1 and Solution

Sometimes when arming the aircraft, pilots will fail to let go of the left elevation stick after toggling the arm switch forward.

To properly arm the drone, (drone and remote are powered on)
1. Using the provided remote, Push down on the left elevation stick.
2. Toggle the arming switch forward
3. Let go of the elevation stick.
4. All motors should spin up and prepare for takeoff.

Problem #2 and Solution
This issue could also be caused by improper motor placement or improper propeller positioning.

1. Ensure that all propellers have the correct orientation. Ie. a clockwise propeller is installed on a clockwise motor and a counterclockwise (CCW) propeller is installed on a counterclockwise motor.
    a. Motor direction is labeled on the motors
    b. Prop direction is labeled on the propellers.
2. If you're still facing issues, make sure the motors are level and secured to the arms.
3. Place a level on any motor, place the level perpendicular to the motors arm.
4. Place another level on the platform of the drone, close to the appropriate arm, placing this level parallel to the level you placed on the motor.
    a. While the two levels may not display a level position, it is imperative that the two levels are equal to one another and the motor is level.
5. Should a motor become un-level. Contact Customer Support.

If you are still facing problems….

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Failure to Maintain Altitude.

All drones are prone to altitude errors but also a similar problem with drone toilet bowling. If you find your Lucid C1 drone is moving during a hover, shortly after takeoff, you should land immediately.

Fixing Toilet Bowling:

Oftentimes when the drone is toilet bowling, this is a symptom of a GPS error. In our experience, the following set of steps should fix this error.

1. Land the drone immediately if it is toilet bowling.
2. Power the drone down or off.
3. Move the takeoff location
4. Turn the drone back on and follow normal pre-flight procedures.
5. The drone should acquire a fixed RTK position.
6. Take off, and before performing your control sweep protocol. Monitor the drone for toilet bowling again. If the problem persists, see troubleshooting guide for GPS error.

Fixing Failure to maintain altitude.

If your drone is not maintaining altitude at all, IE descending quickly upon takeoff. Make sure to check your batteries for full charge. If the issue persists. Call Lucid Support immediately.

Nominal Altitude errors:

If you're finding the C1 drone is having issues maintaining altitude, this could be a symptom of not operating the drone for a long period of time.

If the drone is moving up and down during a hover, we recommend the following procedures to fix the problem.

Fixing nominal altitude errors:
1. Take off and let the drone hover
2. Move away from the takeoff area by 20-30 feet.
3. Ascend up 10 feet, hover, then descend 10 feet and hover.
4. The drone should essentially improve its positioning by further calculating its position in space.
5. Repeat this process 4-5 times
6. Land the drone and power cycle.

If the problem persists for any reason, contact customer support.

<p style="text-align:center; color:red;">**Contact Lucid Support Team   980-498-1894**</p>

Remote Controller Connection Errors

Lucid C1 pilots may run into errors where the remote controller is not connecting to the drone. This could be caused by numerous factors, most of which are environmental. There are a few very simple solutions to double check before moving on.

1. Ensure you're using the correct remote control
2. Ensure the remote controller is sufficiently charged.
3. Power cycle the drone and see if it connects to the aircraft.

Is it interference?

Is the drone having issues connecting to the remote? Are you in a heavily saturated wifi environment? Follow the procedures listed below to isolate the problem and discern if it is indeed an interference issue.

1. Take the drone inside or next to your vehicle.
2. Keep the remote within a few feet of the drone.
3. Power on the drone, and power on the remote.
4. The remote and drone should automatically connect.
5. If they do not, go into the menus, click the "Q" icon
6. Click Application Settings
7. Click comm links
8. Select the communication channel, click disconnect
9. Wait 10 seconds
10. Click the communication channel again
11. Click connect.
12. Ensure the remote is showing the drone's video feed.

If this process worked successfully, then note you are flying in an interference heavy environment. You may have to request that wifi be turned off by the client or their surrounding neighbors. Another option is to replace the di-pole antenna with a patch antenna. These antennas can be purchased online. The patch antenna would replace one of your existing antennas. Orient the antenna to be facing the drone while operating. If these solutions do not work, you may have to fly the job on the weekend, and request that all wifi routers be turned off.

If you are still facing issues with your controller connecting to the drone.

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Vis0dom Errors

After flying the drone for many missions, users might find that the drone refuses to take off due to "Vis0dom," error. Without these onboard sensors working properly, the aircraft will not takeoff.

Typically a vis0dom error is due to the Graphics computer losing power. Typically this would require calling customer service or shipping the drone back to Lucid to be fixed. As this graphics computer is found inside of the drone frame. If you do not have experience fixing or building drones, we recommend you do not attempt to fix the graphics computer power source.

If you are in the middle of a drone operation, and the following conditions can be met, there is another temporary solution.

⚠️ The following temporary fix is PURELY TEMPORARY. This will only allow users to finish their existing missions.

Conditions:
1. You are flying in a sparsely populated environment
2. You are flying in an area with good GPS reception.
3. You are NOT FLYING IN A HEAVILY POPULATED DENSE ENVIRONMENT
4. YOU ARE NOT FLYING NEAR MANY TALL BUILDINGS
5. YOU ARE NOT FLYING NEAR NEW CONSTRUCTION WITH MAGNETIC OBJECTS.

⚠️ DISCLAIMER: BY FOLLOWING THROUGH WITH THE TEMPORARY FIX, YOU UNDERSTAND THAT YOU COULD CRASH DUE TO A GPS ERROR. DO NOT COMPLETE THIS TEMPORARY FIX IF YOU ARE NOT COMFORTABLE TAKING ON THE LIABILITY. LUCID IS NOT RESPONSIBLE FOR CRASHES OR DAMAGE IF YOU CANNOT MEET THE CONDITIONS SET FORTH AS STATED ABOVE.

TEMPORARY FIX:
1. Power on the drone and remote
2. Open QGround Control app
3. Click "Q" icon in the top right corner
4. Click Vehicle Setup
5. Scroll down to "Arming Checks"
6. Deselect 'all'
7. Select every parameter EXCEPT INS
8. Exit the menu

Even with the temporary fix, you should still call Lucid Customer Support for a permanent fix to this problem.

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