



FLYABILITY

ELIOS 3

October release notes

Bug fixes, new features and known limitations

November 10th, 2022

Updated E3 components versions

Drone firmware: `gaston_22-19.swu`

Cockpit software: `Flyability-Cockpit-3.2.0.22.19.-full-release.apk`

Inspector software: `InspectorSetup-4.2.0.215-x64-Release.msi`

IMPORTANT NOTES

New updated elements

1. **LiDAR**, this will be done automatically as soon as the Lidar is detected by the drone. The Lidar update takes about 5 minutes. During this time the Elios 3 power button will blink quickly in blue. New fw version : 2.3.1
2. **BATTERIES**, This update will also push a new fw on each battery connected to the drone. The battery fw update takes about 10 seconds, again while updating the power button will blink quickly in blue. A beep will be emitted from the battery when the update is done. New fw version : 1.393

Motor health check

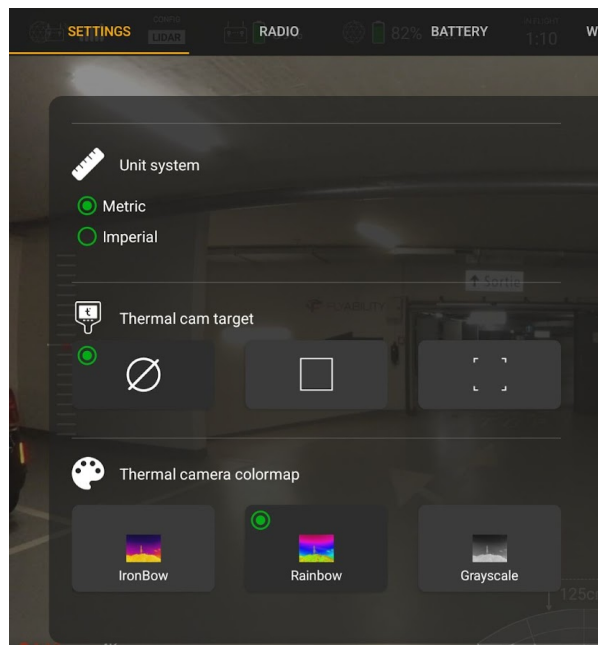
When powering on the drone, each motor will slowly move, similar to a watch second hand. This check lasts for about 10 seconds.

What's new?

Cockpit shows thermal camera

With a push on the remote control “source” button you can now choose between the normal RGB camera feed or the RGB feed with the thermal camera transparently overlaid on top of it. You can toggle between different visualization color mappings: Ironbow, Rainbow and Grayscale

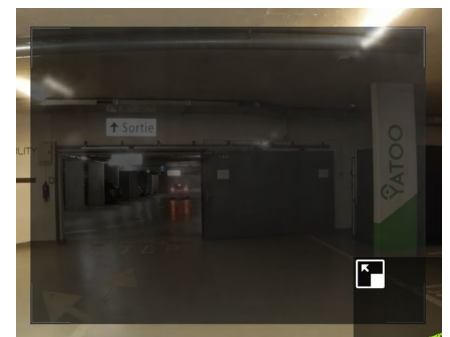
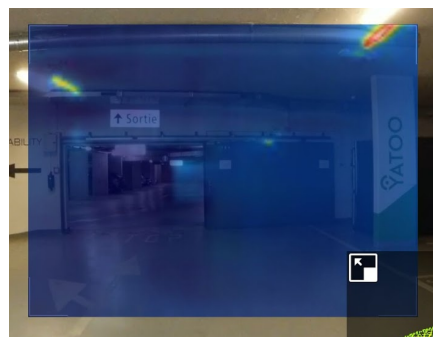
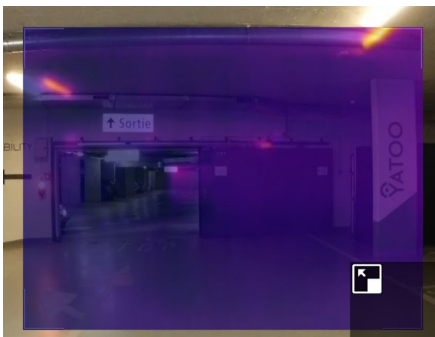
From the SETTINGS panel you can choose the display mode :



IronBow

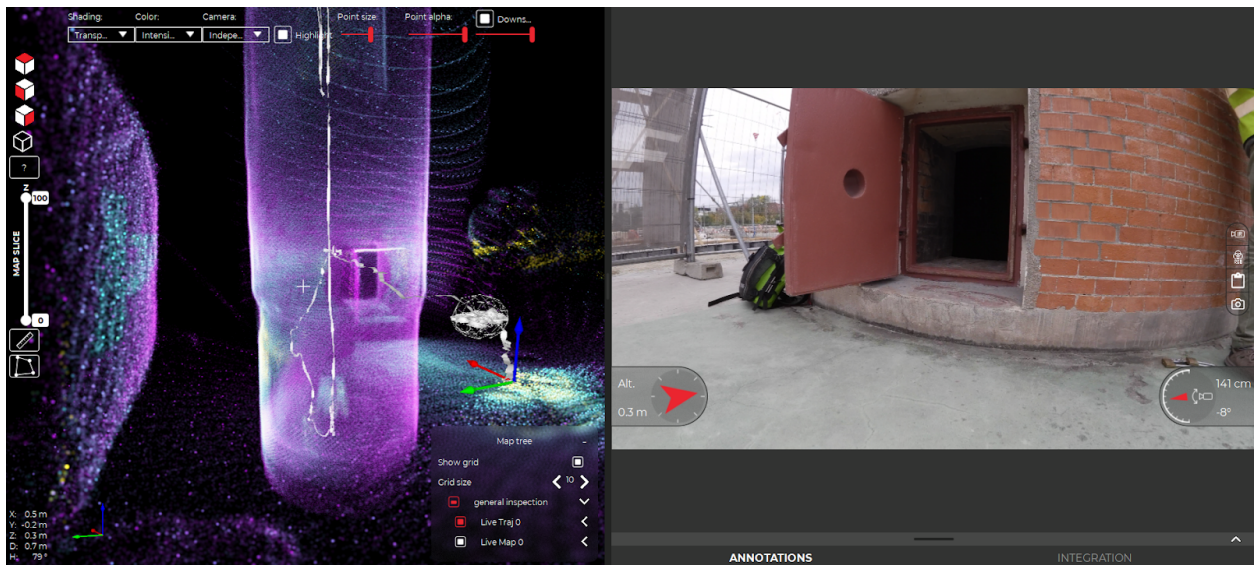
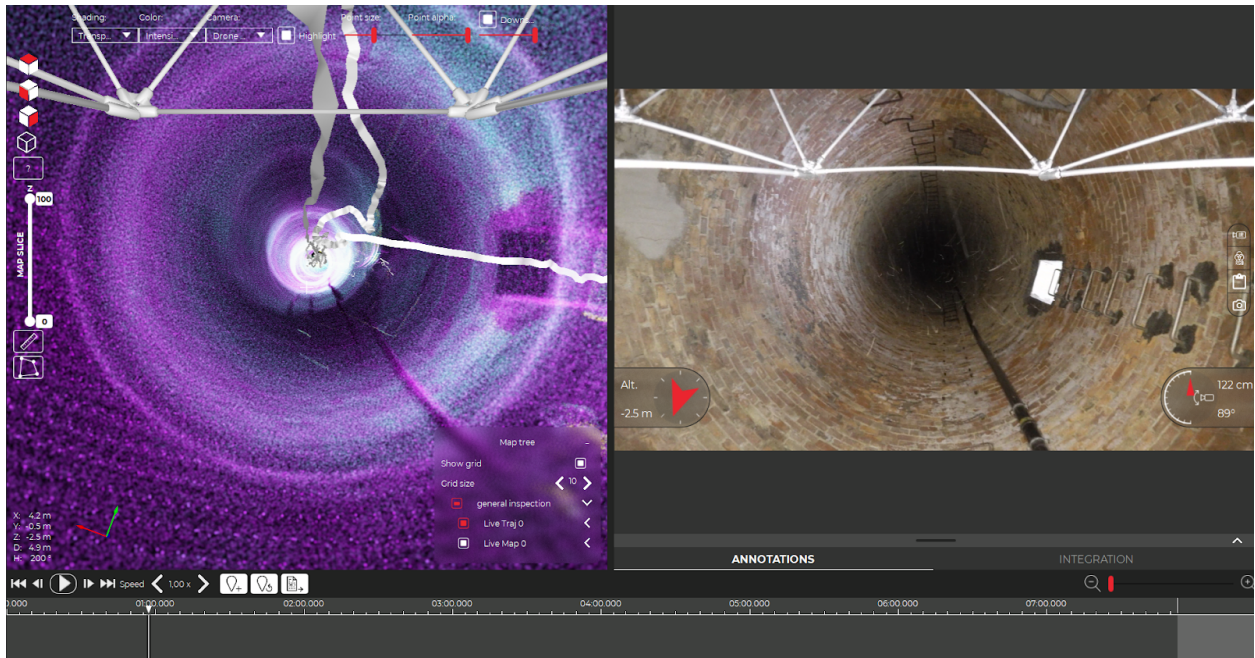
Rainbow

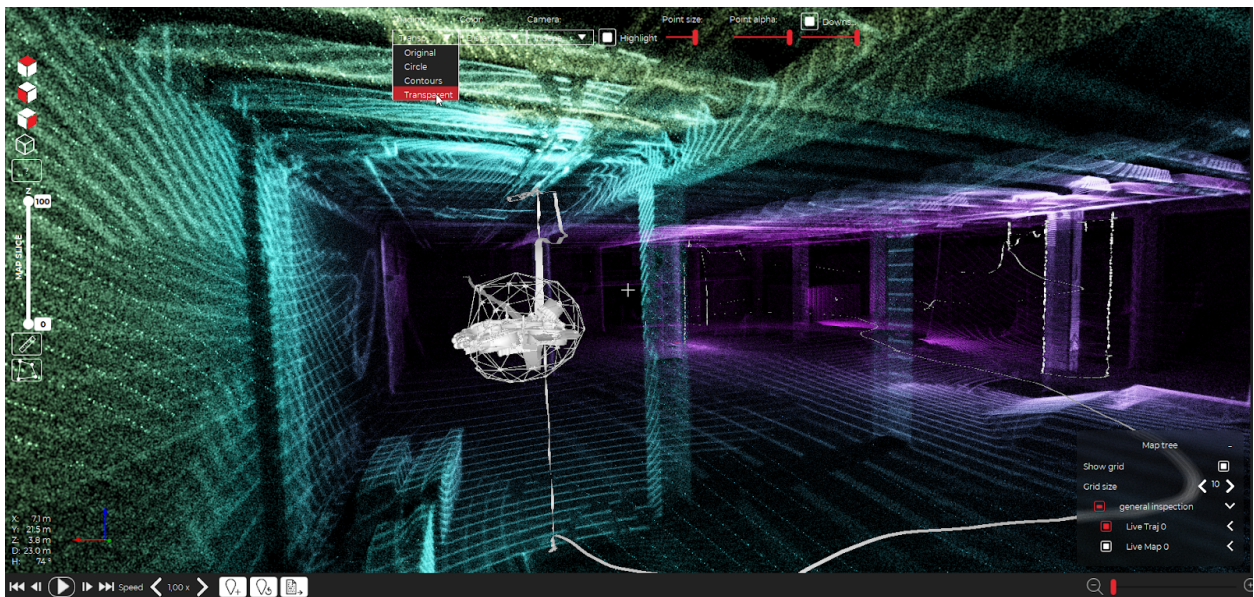
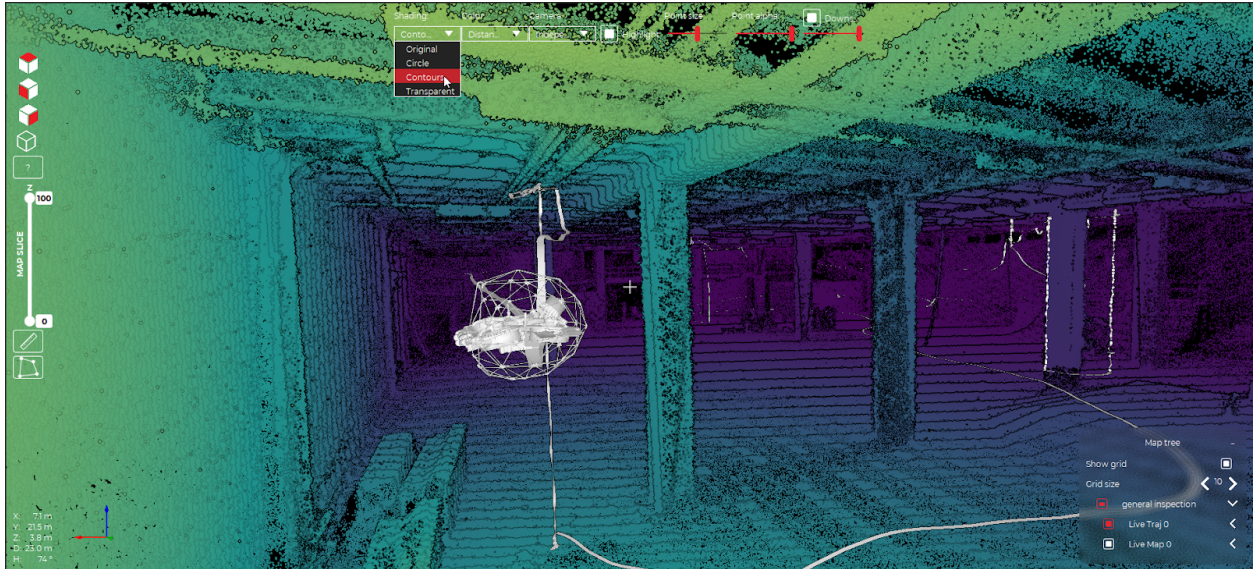
Grayscale

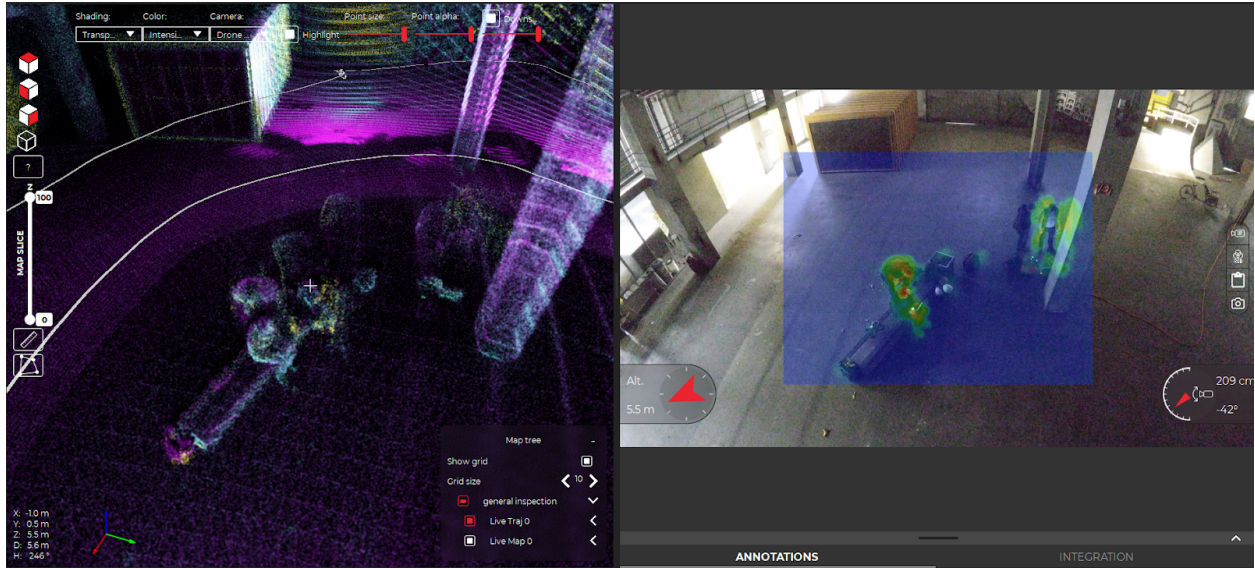


Inspector has a new point cloud visualizer

The new point cloud visualizer is a lot more versatile and feature rich. You can colorize the points in the point cloud according to height, intensity, distance or time. The drone model is visualized for a better sense of scale and shading was added as well to improve the understanding of the scene.

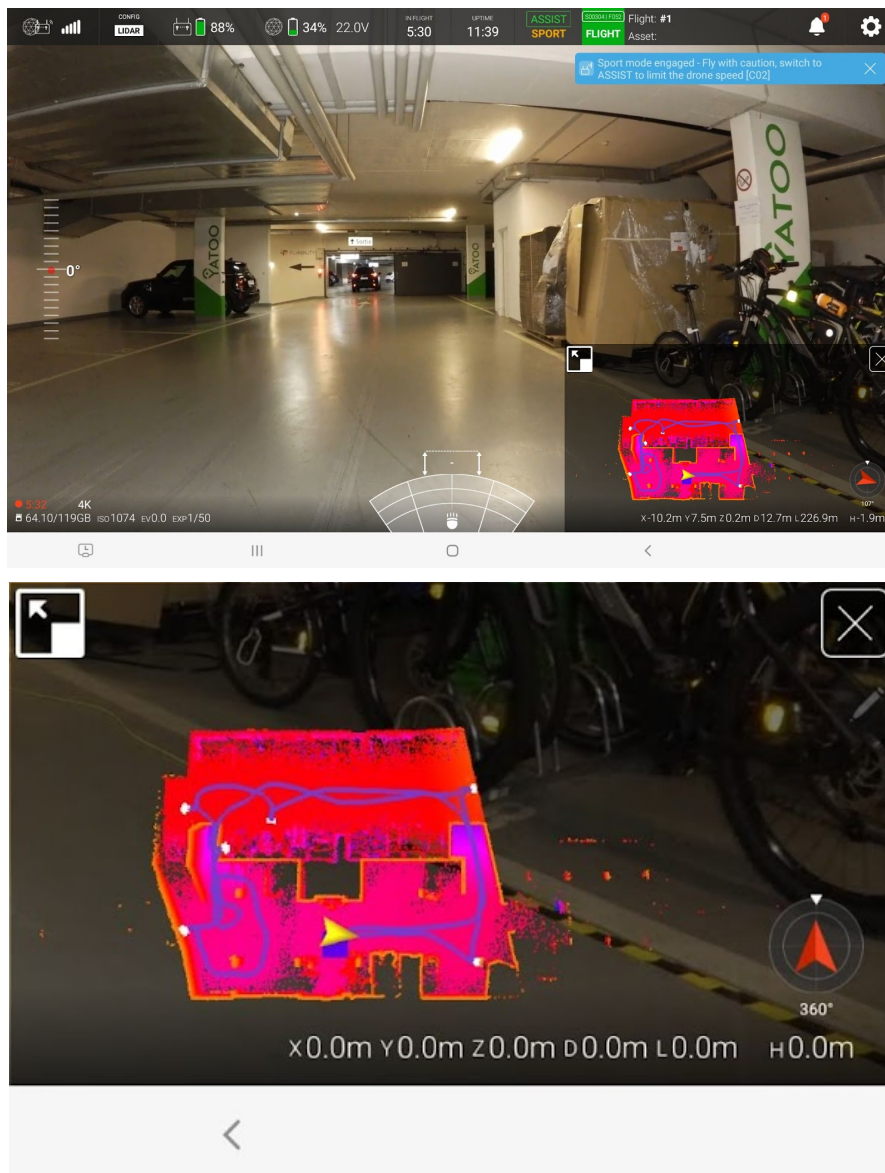






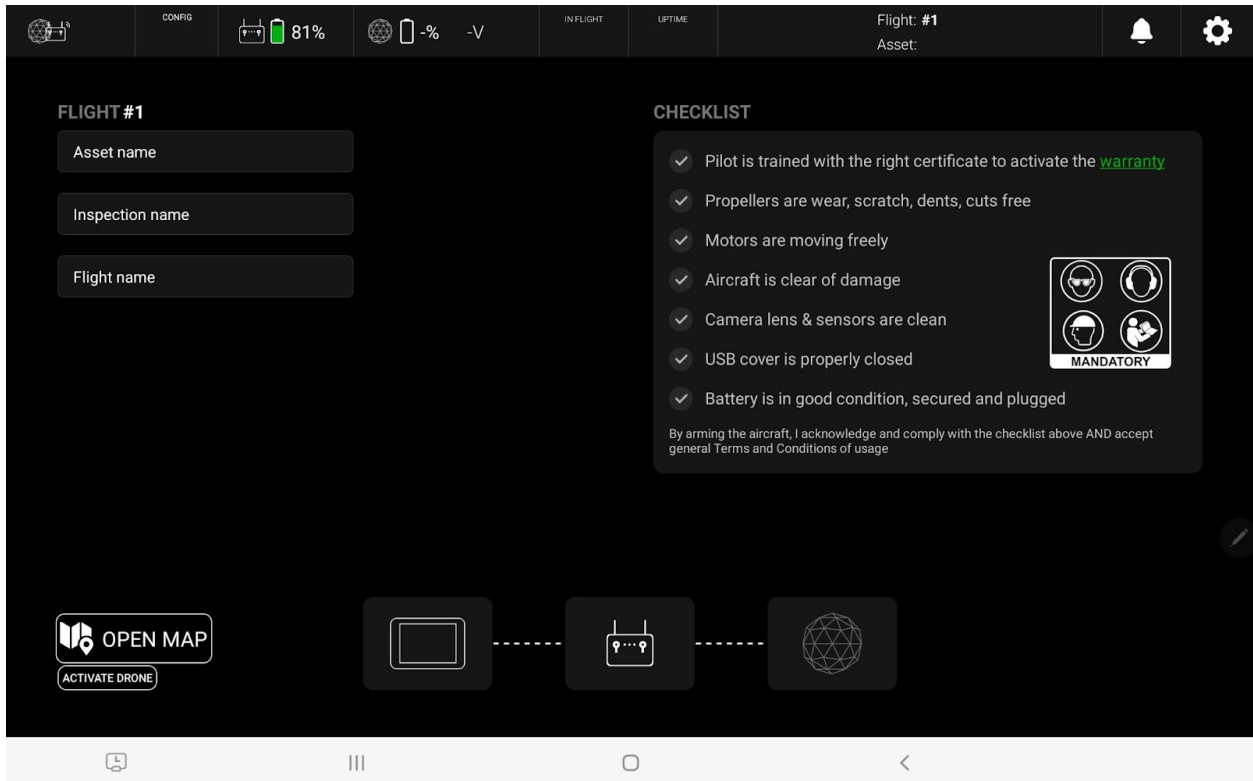
User adjustable coordinates available in 3D map

In both Cockpit and Inspector the position of the drone in x,y,z coordinates relative to the take-off location are now shown. This is in addition to the direct line of sight distance between the drone and take-off location and the total flight path length of the drone which were already shown in the previous release.. All these values can be reset by simply clicking on them at any point throughout the flight to set a new reference point. This feature is only available if the lidar payload is mounted. The values shown are only correct as long as the pointcloud remains coherent and does not drift or diverge.



Lidar point cloud review in Cockpit

After the flight when the drone has been shut down and disconnected the pilot can review the pointcloud of his flight in Cockpit with a simple click on a button "OPEN MAP"



Improvements

Motor communication reliability

The motor firmware has been updated and is now more reliable than before. The communication protocol between drone and motors has been made more reliable.

ASSIST Stability performance and reliability

During motor ramp up for take-off the drone does not switch any more to forced-ATTI and instead it nicely remains in ASSIST. Chances for the stability system diverging while in ASSIST after collisions or aggressive maneuvers are vastly reduced. Instead, the stability system reliably switches to forced-ATTI. Time spent in forced ATTI after collisions is shortened as well. Issue where the drone could follow large moving objects such as overhead cranes is mitigated. No more erratic movements when the drone stops after a long line of full-stick flying.

The motors have a health check upon startup

If the drone is powered on, the motors slowly move the props with small steps during 10s while assessing its health. (For now the collected data is not used yet to trigger actionable warnings.)

The lighting panels health is checked

Throughout the flight the health of the lighting panels is checked and the overall status is shown on the Cockpit maintenance tab. If a lighting panel stops communicating or fails to communicate correctly a warning message is displayed in Cockpit. The maintenance page then shares more details to point out which lighting panel is defective.

Live mapping robustness and performance slightly improved

The default lidar-to-drone-transform that is used in the live-map algorithm for the whole drone fleet has been optimized a bit to better match reality of the average fleet. This slightly improves the live map robustness and performance in Cockpit and Inspector.

Battery FW can now be updated automatically through the drone

Very handy to profit from future battery FW bug fixes and improvements. During a battery update, which takes less than a minute, the drone flashes light blue and the battery beeps once after which the drone RGB LED remains red for a couple of seconds.

Lidar shuts down when USB cable is connected

To save energy and prevent the drone from overheating, the lidar is automatically shut down after 1 min when the drone is connected to a computer over USB. The drone will need to be restarted to use the LiDAR in flight after a connection to a computer.

Bug fixes

Battery auto-storage timer is not reset by recharging battery

If you recharge your battery after it has been in storage mode or traveling mode, then the auto-storage timer is not reset and even while the battery is on the charger, it might start discharging automatically. The solution is to plug the battery in a drone and start up the drone for a minute to shortly discharge the battery and reset the timer.

Roll, pitch and altitude control lost while in assist flight mode

In an extremely rare case it can happen that the roll, pitch and throttle axis don't work anymore while in ASSIST. Only the yaw axis still works. A warning is thrown in that case that the "stability system is disabled", however the drone remains in the ASSIST flight mode. The pilot needs to manually switch to ATTI in that case and safely fly back.

RF power levels and bandwidth

A correction has been made to solely respect CE and FCC regulations