Troubleshooting & FAQs

Altimeter Cloud

This page covers the questions and problems we are asked about most. If your issue isn't listed here, please get in touch and we'll be glad to help. Attaching `device_startup_diagnostics.html` from the Nano's drive to your email helps us a lot.

Recording and launch detection

The Nano started recording before launch

A launch is confirmed when the altitude stays above the launch detect height (30 m by default) for 1 second with sustained thrust, or for 2.5 seconds on height alone. The Nano ignores sudden pressure steps on the pad, such as fitting a nose cone or closing a bay, and knocks and handling don't count as thrust, but a very low launch detect height can still be tripped by a strong gust or by carrying the rocket.

We suggest leaving launch detect at the default 30 m unless you expect to fly below about 40 to 50 m. After closing up the rocket, check the Nano is still giving green blips (ready) rather than purple ones, which would mean it is recording. There is more on the flight mode page.

I can't get a test throw to record

A throw usually doesn't give the steady thrust along the rocket's axis that the quick launch confirmation needs, so the Nano falls back to height alone. That needs the altitude to stay above the launch detect height for 2.5 seconds, which takes a throw of over around 6 m to be reliable.

For a test, set `launch_detect` low (it goes down to 1 m) and wait for the green blips. Indoors you may need to throw it up from the floor, catch it, and hold it above the launch detect height for a few seconds. Remember to set `launch_detect` back before you fly. See flight mode.

It kept recording all the way to the maximum number of samples

By default recording stops once the altitude has been steady for 8 seconds after landing. If `recording_stop` is set to 3, it only stops when the log is full or the battery runs low. Check the setting on the settings page. A log can hold up to 38,000 samples, or 22,000 as a CSV.

The LED stays amber and never turns green

The Nano turns green once it has set its pad altitude, filled its record of the last few seconds on the pad and seen the readings settle, and never before 15 seconds after switching on. On a still pad that is usually 15 to 20 seconds. If the rocket is being moved, or the pad is windy, it can take a little over 30 seconds.

If it stays amber for much longer than that, the barometer couldn't give it a pad altitude. Switch it off and on again, and if it keeps happening, please contact us.

The LED glows dim red between the green blips

A start-up lock is set. Launch detection is held off until the glow stops. Set `startup_lock` back to 0 if you didn't mean to use it.

Saving and your data

My flight log wasn't saved

This should be rare. If the power was lost or the save went wrong, the Nano rebuilds the flight from its backup copy the next time you switch it on, so switch it on and give it time to finish. See log recovery.

If there is no log at all, a launch was almost certainly never confirmed. The most likely reasons are:

- The rocket didn't climb above the launch detect height, or didn't stay there for long enough. A hand throw or a very short hop usually won't.
- A start-up lock was still holding at launch (a dim red glow between the blips).
- The Nano wasn't green yet when the rocket launched.
- It was sealed in part of the rocket with no vent holes, so it couldn't sense the change in pressure.
- The battery was flat before launch.
- A USB cable was connected, which keeps the Nano in USB mode.
- It wasn't switched on (it happens to all of us).
- Faulty or damaged hardware.

My flight log has a lower sample rate than I set

The flight was recovered from the Nano's backup copy, which keeps one in every five rows of the log. This happens if it was switched off before the save had finished after a flight (before the 20 white flashes), if the battery went flat, or if the power was lost or it restarted mid-flight. The flight info page marks it as recovered. Leave the Nano switched on after landing until the save has finished. See log recovery.

If it isn't marked as recovered, check `sample_ratio` and `hybrid_mode` in the settings. Hybrid mode, on by default, logs the slow part of the descent at a lower rate.

The flight is cut short

If the log stops partway, check whether it was recovered (see above): a recovered log only runs up to the moment the power was lost. Otherwise the log may have filled. At high logging rates with hybrid mode off, a log lasts about 90 seconds at 417 Hz or 45 seconds at 833 Hz. Turn hybrid mode on, or lower the logging rate, for long flights.

An older flight log has disappeared

The Nano keeps up to 39 flight logs. Beyond that, or when the drive runs short of space, it removes the oldest automatically. Upload your flights to the Altimeter Cloud regularly so you always have a copy.

My flight log fails verification and won't upload

The log no longer matches its digital signature, so the Altimeter Cloud won't accept it. Almost always it has been changed since the Nano wrote it, even slightly: opening a CSV in a spreadsheet and saving it is enough. Upload the original file straight from the Nano, or use the USB upload tool. If a file you are sure is untouched still fails, it may have been damaged while copying, so copy it from the Nano again, and contact us if it keeps failing. See security and flight log verification.

Settings

My settings changes have disappeared

If `device_settings.txt` contains a typo, or any value outside its range, the Nano replaces the whole file with the defaults at the next power-on. Check your values against the settings page, keep the quotes and commas intact, or use the Nano USB Settings tool, which only accepts valid values.

The apogee readout shows a different flight

The readout is always for the most recent flight saved on the Nano. If you have flown again since, or a recovered flight was saved at start-up, that is the one shown. Earlier flights are on their flight info pages and the Altimeter Cloud.

The LED shows a pink, purple and blue sweep at start-up

This means at least one setting differs from its default, apart from the device name and competitor numbers. It is only a notice and the Nano works normally. It's handy for checking a Nano is on standard settings at a competition.

Lights at start-up

The LED stays solid red

The Nano couldn't start up properly. Switch it off and on again; a one-off glitch usually clears on a restart. If it keeps happening, please contact us.

The LED alternates red and blue continuously

The Nano has found a problem with its drive that it can't repair, and has stopped on purpose rather than risk your logs. Read the logs off with the flash dump tool, then hold the button for 9 seconds to erase the storage and start again. See log recovery.

Angles

My tilt or angle figures look wrong

The angles need the Nano held firmly in a fixed position, so they won't be right if it is loose or hung on a shock cord. Mount it square to the rocket's axis, ideally under its bay cover in an electronics bay. With `orientation` at 9, the default, it works out the mounting on the pad by itself.

Let the rocket sit still on the pad for about a minute before launch, so the Nano can fine-tune its gyro, and calibrate the IMU if you haven't. The flight info page shows whether the Nano was calibrated.

Battery and charging

How do I know when it is fully charged?

The charge LED is lit while charging and goes out when the battery is full, in under an hour from empty. If you also switch the power switch on while it is plugged in, the status LED flashes a battery colour every 3 seconds, green when it is full. Those flashes only appear with the power switch on. See the battery page.

It ran out of power during a flight

On a full charge the Nano waits on the pad for just under 5 hours. If the battery falls low in flight, it stops recording and saves the flight on its own. If it goes completely flat before the save, the flight is rebuilt from its backup copy the next time you switch it on and charge it. If the run time is much shorter than expected from a full charge, the battery may be worn; see the battery page.

My Nano got hot after a heavy landing

A hard impact can damage the battery, and a damaged lithium cell can warm up. Switch it off, unplug any cable, and stop using it. Leave it in a safe, non-flammable place, ideally outside, for 12 hours before handling it further, then dispose of it as you would any damaged lithium battery. There is guidance on the safety and disposal page, and please contact us if you are unsure.

USB and connecting

I connected a USB cable but nothing happens

The Nano goes into USB mode whenever a cable is connected, so you don't need to switch it on first. If it doesn't appear on your computer, the most common cause is a charge-only cable with no data lines, so try a different cable. A serial monitor or another USB tool left open can also block the connection, so close it and try again.

A connected cable keeps the Nano in USB mode, so it won't go into flight mode until you unplug it.

My phone opened the drive once but not again

Some phones and tablets won't open a drive they have seen before. Set `android_compat` to 1 in the settings and the Nano appears as a new drive each time it starts. See the settings page.

The firmware won't update

Check each of these:

- The Nano's power switch must be set to OFF before you start.
- You are holding down the tiny button, next to the USB connector, while you plug the USB cable into the Nano, so it starts in its update mode. It then appears as an ESP32-S2 device in the connection box.
- You are using a USB data cable, not a charge-only cable.
- You are using Google Chrome, Microsoft Edge or Opera on a PC or laptop. Phones, tablets and other browsers aren't supported.

The firmware updates page has the full steps.

Altimeter Cloud

The charts on the Altimeter Cloud aren't loading

The charts use JavaScript, so the most likely cause is that it is turned off or blocked in your browser. Enabling it should fix the display. You can also download the CSV from the flight page and chart it in the software of your choice.