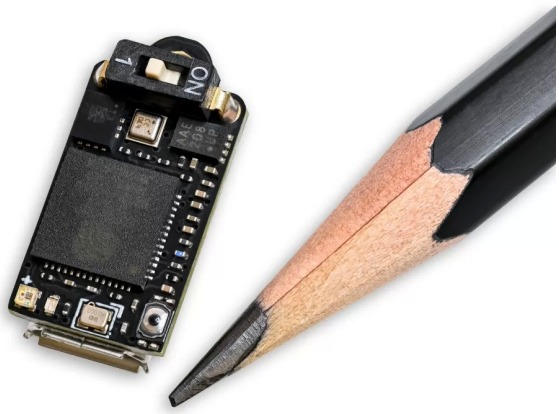
The Nano V1 altimeter

Altimeter Cloud

The Nano V1 altimeter manual · v1.1

https://www.altimetercloud.com/support/nano-v1/



The Nano V1 altimeter

Our Nano altimeter is an extremely small but incredibly capable model rocketry altimeter.
It offers advanced pressure-based altitude logging plus acceleration, gyroscope, angle and temperature data.

The Nano logs at up to 100Hz (100 samples per second) and offers around 4 hours of battery life in flight mode. The Nano has its own onboard rechargeable battery and charging IC.

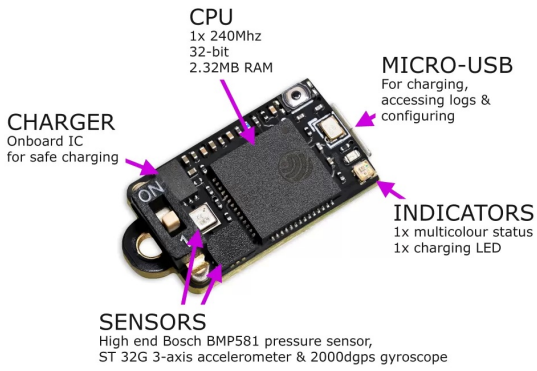
What's more, every flight log is sealed with a cryptographic digital signature (Ed25519), so it can't be altered without the log checker catching it and refusing the verified genuine tick.

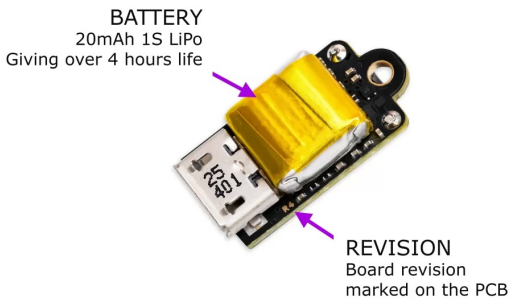
The Nano weighs in at just 1.65 grams and is only 10mm wide! So you should be able to fit this into just about any model rocket going.
It's especially handy being so small for competition flights or record attempts.

Despite its size, it has a 240MHz, 32-bit microprocessor, battery charger, multi-colour status LED, accelerometer, gyroscope and even a micro-USB port all on board.

The onboard USB port means there's no hunting for that missing custom cable or reader, just plug it into your PC, laptop or smartphone with a standard USB cable and access your flight logs, settings file and summaries.

What's onboard?



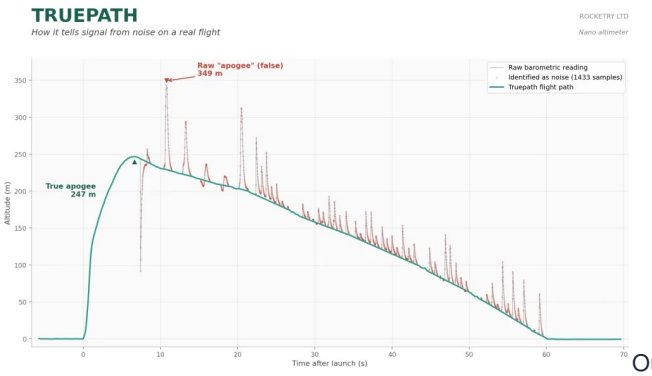


Data & Charts

The Nano logs sensor data at 100Hz maximum for altitude, velocity and all the acceleration, gyroscope and angle data.
The flight logs can be uploaded to the Altimeter Cloud website to view charts with ease. Just connect your Nano with a micro-USB cable to your PC, laptop or most smartphones to access the files and upload them.

Once on the Altimeter Cloud, the logs will be verified as genuine and you can keep track of unlimited flight logs in this way, as well as view the data in all its fine detail.
Here is an example chart uploaded from a Revision 4 Nano altimeter.

Advanced filtering and fusion



Our new True Path V1.0 filter ensures the altimeter's pressure-based data is accurate.
It identifies and removes erroneous data caused by spurious pressure events.

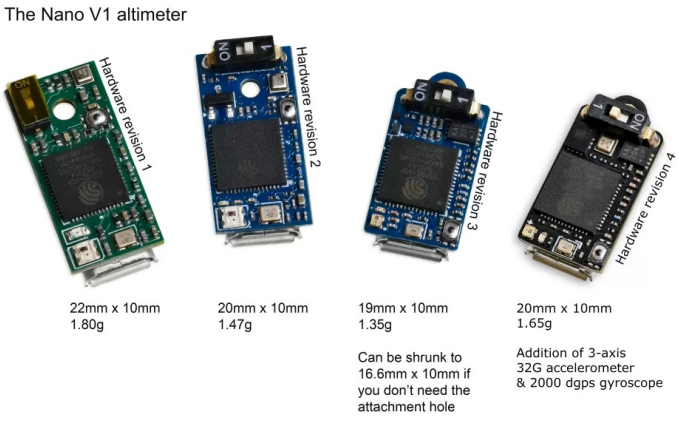
This example on the left shows a very noisy log — lots of wind noise and an ejection charge — with only a light Kalman filter applied.

Our True Path filter handles this with ease and shows you the correct green path.

We also use an IMU fusion filter to calculate the angle of the Nano in flight. Roll, pitch and yaw are logged, as well as a tilt-from-vertical angle.

You will need to mount your Nano in a fixed orientation to use the angle data effectively, of course.

The IMU — and the acceleration, gyroscope, roll, pitch, yaw and tilt data it provides — is fitted to Revision 4 and later boards.

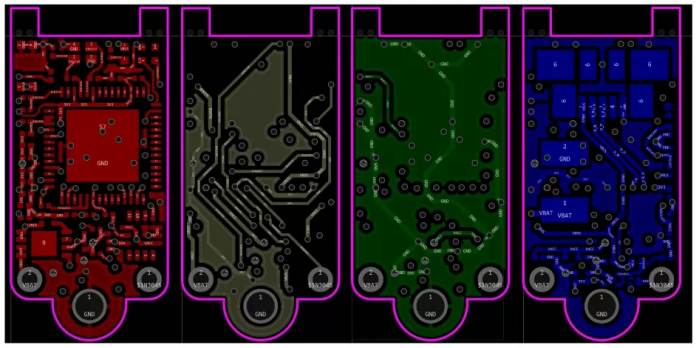


We've been learning a lot as we develop the Nano.
This image shows how the Nano has evolved over the revisions.

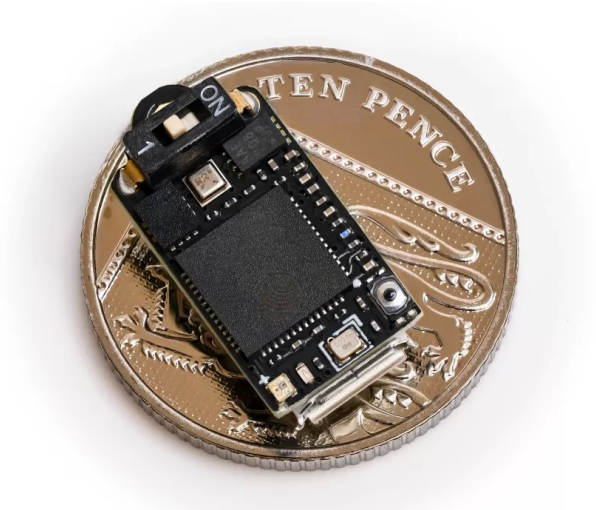
We somehow manage to keep squeezing more and more parts onto it without it needing to get any larger.

The Nano has plenty of flash memory for its size, storing multiple 24,000-sample flight logs, or even more shorter ones.

The 4MB internal flash is split into the application memory, the flash recovery buffer and the flight log storage.
The Nano works as a USB mass-storage device for accessing the flight logs when you connect it to a PC, laptop or smartphone.



The Nano is manufactured from a high-quality four-layer PCB.
With some of the components no bigger than a grain of sand, it's manufactured by state-of-the-art, computer-controlled machines.



Don't let its tiny size fool you!
This altimeter really is a high-quality piece of equipment.

Why not join our project and try one out for yourself?