

DJI Phantom 4 RTK - the new standard in mapping

Phantom 4 RTK is the optimal combination of price, accuracy and reliability. The onboard kinetic sensor captures the coordinates of each image in real time, so when airborne data is matched with ground control data, surveyors can achieve accuracy of up to 1 cm. This solution is significantly cheaper than alternatives, low-risk, and suitable for any business, particularly those who could not previously afford drone technology.

In 2013, DJI presented the Phantom, a reliable drone that was praised by professionals. Since then, the Phantom series of drones has become a workhorse in construction, manufacturing and waste management. The latest version, the Phantom 4 RTK drone, is the first research-oriented UAV, reinforcing DJI's role in the industry.

What made the Phantom 4 RTK so revolutionary?

The Phantom 4 RTK incorporates a new RTK module that provides accurate information with minimal risk of image metadata error. Beneath the RTK receiver is a satellite positioning systems module for stabilizing flight in areas with weak signals. All this contributes to improved flight safety and comprehensive data for surveying, mapping and inspection.

To achieve centimeter-level accuracy, Phantom 4 RTK uses TimeSync technology to coordinate the camera and RTK receiver. By doing so, the most accurate metadata of each shot is moved to the center of the CMOS and helps ensure accurate results during processing.

Real-time geo-referencing as well as corrections from the base station on the ground provide unprecedented drone reliability. Surveyors can now match what's collected in the sky with what's collected on the ground to form a single source of object location information.

What else do you get with the Phantom 4 RTK?

With a 1-inch CMOS sensor, you get up to 20 megapixels of image quality. The Phantom 4 RTK is equipped with a mechanical shutter, which improves the capture of moving objects and prevents image blur. Mapping, data collection and other tasks will be performed perfectly. To achieve maximum accuracy, the lens of each Phantom 4 RTK UAV is calibrated with radial and tangential distortion measurements.

Intelligent flight modes

You can control Phantom 4 RTK flight simply by tapping a point on the controller screen, drawing a route with your finger, or indicating the shortest path "home" to the base station. You can also pre-select a specific flight plan by downloading a KML file, or use ActiveTrack

mode for automatic object tracking. Hot-swap the batteries without having to turn off the device.

Maximum accuracy with every shot

Fast data collection has always meant less accuracy. Since missions were time-consuming, increasing their cost, surveys were not conducted as often as required. The Phantom 4 RTK UAV managed to achieve this delicate balance between quality and speed, consequently reducing survey time to a few hours with no loss of quality.

Today, surveyors get real-time data and can focus on site analysis and use the collected data to monitor performance and progress.

PPK data processing.

In the fall of 2018, DJI and Propeller teamed up to set up the entire workflow, from UAV flight to data processing. That's how Propeller PPK came about.

The working principle of this product is that it creates a platform and performs Post Processing Kinematic (PPK) GPS corrections: the data is refined and verified only after uploading to the cloud. The platform sends photogrammetric data on geodetic, predicted or local coordinate systems and can achieve accuracy within 1.2 inches to 1 kilometer of any ground control points (GCPs).

If PPK is used in a known (previously surveyed) area, only one control point will be required, which reduces the time required to complete the survey by 70% and also saves work resources.

With consistent control from the ground, you get more accurate data. And with that data, you have the ability to strategically move materials, assess risks, and communicate between teams.

What's next.

The surveying specialist is just one part of a very complex chain of professionals that includes: superintendents, clients, contractors, sales managers, and the list goes on. Now Propeller's core users can come together, thanks to the accessibility and ease of [creating 3D models, with drones](#).

DJI has made important changes to the daily workflow and has given construction, industrial and mining companies the tool they need to overcome data collection challenges.