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P4 MULTISPECTRAL

Plant Intelligence for Targeted Action

Gather precise plant-level data using the P4 Multispectral – a high-precision drone with a seamlessly integrated multispectral imaging system built for agriculture missions, environmental monitoring, and more.

Multispectral Imaging System

Live NDVI View

RTK Module

TimeSync

Farm to Figures

Gain Immediate Insights into Plant Health

The P4 Multispectral consolidates the process of capturing data that gives insight into crop health and vegetation management. DJI has created this platform with the same powerful performance standards that DJI is known for, including 27 minutes max flight time and up to 7 km1 transmission range with the OcuSync system.

*Unobstructed, free of interference, when FCC compliant. Maximum flight range specification is a proxy for radio link strength and resilience. Always fly your drone within visual line of sight unless otherwise permitted.

See Beneath the Surface

Agriculture imagery collection is now simpler and more efficient than ever before with a built-in stabilized imaging system that collects comprehensive data sets right out of the box. Access information collected by 1 RGB camera and a multispectral camera array with 5 cameras covering Blue, Green, Red, Red Edge, and Near Infrared bands – all at 2MP with global shutter, on a 3-axis stabilized gimbal.

Red Edge (RE)
730 nm ± 16 nm

Near-Infrared (NIR)
840 nm ± 26 nm

Green (G)
560 nm ± 16 nm

Visible Light (RGB)

Red (R)
650 nm ± 16 nm

Blue (B)
450 nm ± 16 nm

## Integrated Spectral Sunlight Sensor for Accurate Results

An integrated spectral sunlight sensor on top of the drone captures solar irradiance, which maximizes accuracy and consistency of data collection through different times of day. When combined with post-processed data, this information helps produce the most accurate NDVI results.
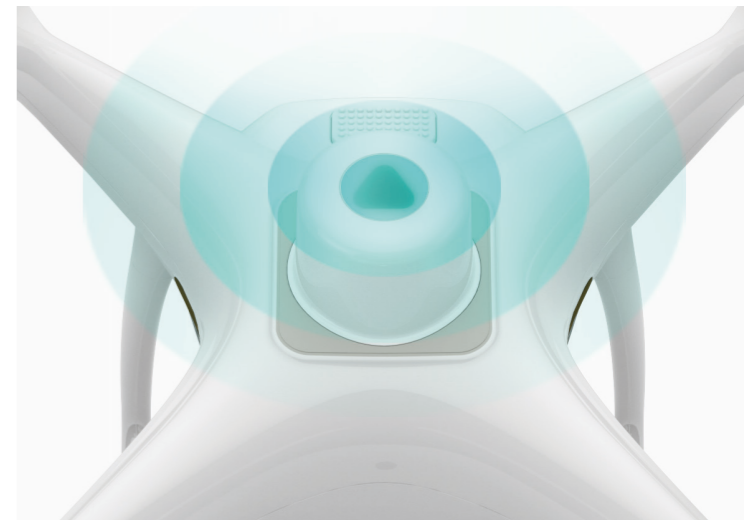
Meaningful Data at Your Disposal

View Both RGB and NDVI Feeds

Simply having aerial imagery is not enough for ag professionals who want to know more. Switch between a preliminary Normalized Difference Vegetation Index (NDVI) analysis and the live RGB feed to immediately visualize where attention is needed, so targeted treatment decisions can be made quickly.
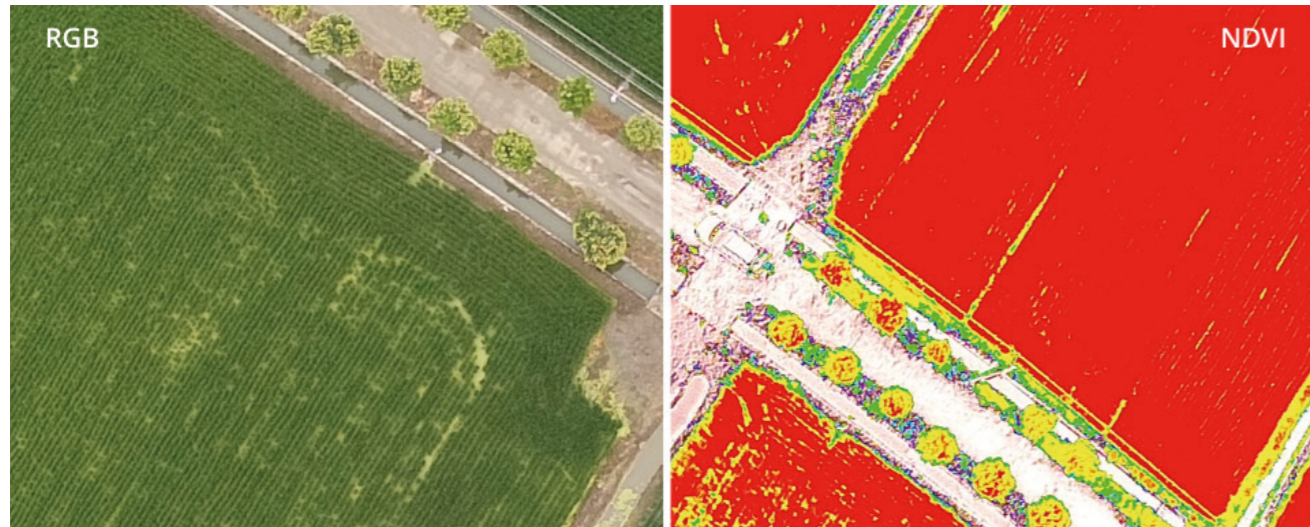
Centimeter-level Precision

Get real-time, accurate positioning data on images captured by all six cameras with DJI's TimeSync system, providing centimeter-level accurate measurements. The TimeSync system continually aligns the flight controller, RGB and NB cameras, and RTK module, fixing the positioning data to the center of the CMOS and ensuring each photo uses the most accurate metadata. All cameras go through a rigorous calibration process where radial and tangential lens distortions are measured. The distortion parameters gathered are saved into each image's metadata, letting post-processing software adjust uniquely for every user.
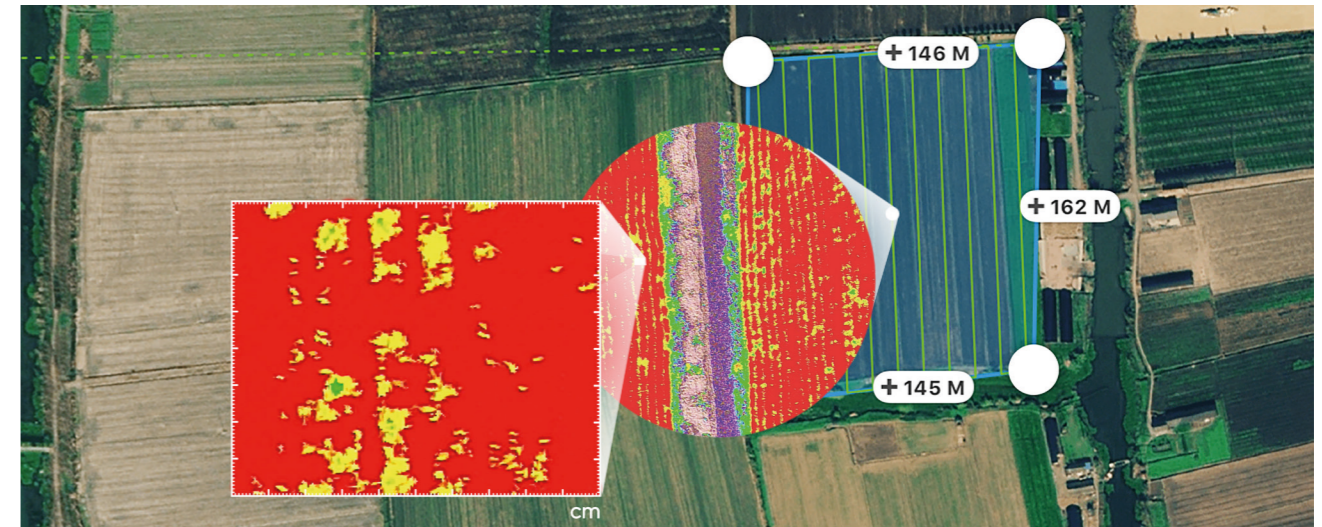
D-RTK 2 Mobile Station and NTRIP Compatibility

Enhance the accuracy of RTK positioning without internet connection by connecting the P4 Multispectral to the D-RTK 2 High Precision GNSS Mobile Station and NTRIP (Network Transport of RTCM via Internet Protocol) , or store the satellite observation data to be used for Post Processed Kinematics (PPK).
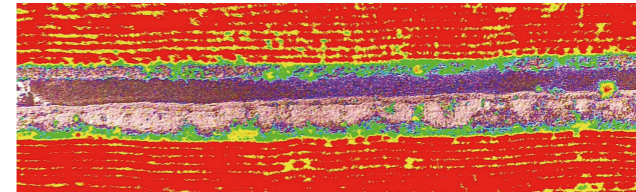

The Beginning of Intelligent Agriculture Missions

Plan Flights

Plan flights, execute automated missions, and manage flight data using GS PRO – DJI's leading flight planning iOS app.

Capture Data

Collect multispectral images efficiently across a large area using the P4 Multispectral and gain an overview of problem areas.

Analyze Data

Easily access and process aerial data by applying plant-specific metrics and parameters to acquire the desired results on plant health.

Act on Data

Implement targeted treatments on areas that need attention based on accurate drone data.

Applications

Precision Agriculture

Throughout all growing seasons, multispectral imagery can be helpful to ag professionals by providing information invisible to the human eye across the electromagnetic spectrum. Having access to this data and the subsequently obtained Vegetation Index data such as NDRE and NDVI, farmers can make timely, informed decisions on crop treatment, lowering costs, saving resources, and maximizing yields.

Environmental Monitoring and Inspection

Routine inspections and maintenance involving plants can be made smarter and more efficient when using the P4 Multispectral – leverage its actionable multispectral insights to monitor forest health, measure biomass, map shorelines, or manage riparian vegetation while protecting habitats or ecosystems, and much more.

SPECIFICATIONS

Aircraft		
	Takeoff Weight	1487 g
	Diagonal Distance (Propellers Excluded)	350 mm
	Max Service Ceiling Above Sea Level	19685 ft (6000 m)
	Max Ascent Speed	6 m/s (automatic flight); 5 m/s (manual control)
	Max Descent Speed	3 m/s
	Max Speed	31 mph (50 kph) (P-mode); 36 mph (58 kph) (A-mode)
	Max Flight Time	Approx. 27 minutes
	Operating Temperature	0° to 40° C (32° to 104° F)
	Operating Frequency	2.4000 GHz to 2.4835 GHz (Europe, Japan, Korea)
		5.725 GHz to 5.850 GHz (Other countries/regions) [1]
	Transmission Power (EIRP)	2.4 GHz: < 20 dBm (CE / MIC / KCC)
		5.8 GHz: < 26 dBm (FCC / SRRC / NCC)
	Hover Accuracy Range	RTK enabled and functioning properly: Vertical: ±0.1 m; Horizontal: ±0.1 m
		RTK disabled: Vertical: ±0.1 m (with vision positioning); ±0.5 m (with GNSS positioning)
		Horizontal: ±0.3 m (with vision positioning); ±1.5 m (with GNSS positioning)
	Image Position Compensation	The relative positions of the centers of the six cameras' CMOS and the phase center of the onboard D-RTK antenna have been calibrated and are recorded in the EXIF data of each image.

[1] To comply with local laws and regulations, this frequency is not available in some countries or regions.

SPECIFICATIONS

Mapping Functions		
	Ground Sample Distance (GSD)	(H/18.9) cm/pixel, H indicates the aircraft altitude relative to the area mapped (unit: m)
	Rate of Data Collection	Max operating area of approx. 0.47 km2 for a single flight at an altitude of 180 m, i.e., GSD is approx. 9.52 cm/pixel.
GNSS	Single-Frequency High-Sensitivity GNSS	GPS + BeiDou + Galileo[2] (Asia); GPS + GLONASS + Galileo[2] (other regions)
	Multi-Frequency Multi-System High-Precision RTK GNSS	Frequency Used GPS: L1/L2; GLONASS: L1/L2; BeiDou: B1/B2; Galileo[2]: E1/E5
		First-Fixed Time: < 50 s
		Positioning Accuracy: Vertical 1.5 cm + 1 ppm (RMS); Horizontal 1 cm + 1 ppm (RMS). 1 ppm indicates error with a 1 mm increase over 1 km of movement.
		Velocity Accuracy: 0.03 m/s
Gimbal	Controllable Rang	Tilt: -90° to +30°
Vision System	Velocity Range	≤ 31 mph (50 kph) at 6.6 ft (2 m) above ground with adequate lighting
	Altitude Range	0 - 33 ft (0 - 10 m)
	Operating Temperature	0 - 33 ft (0 - 10 m)
	Obstacle Sensory Range	2 - 98 ft (0.7 - 30 m)
	Operating Environment	Surfaces with clear patterns and adequate lighting (> 15 lux)

[2] Support for Galileo is coming soon.

SPECIFICATIONS

Cameras	Sensors	Six 1/2.9" CMOS, including one RGB sensor for visible light imaging and five monochrome sensors for multispectral imaging.
	Filters	Blue (B): 450 nm ± 16 nm; Green (G): 560 nm ± 16 nm; Red (R): 650 nm ± 16 nm; Red edge (RE): 730 nm ± 16 nm; Near-infrared (NIR): 840 nm ± 26 nm Each Sensor: Effective pixels 2.08 MP (2.12 MP in total)
	Lenses	FOV (Field of View): 62.7° Focal Length: 5.74 mm (35 mm format equivalent: 40 mm), autofocus set at ∞ Aperture: f/2.2
	RGB Sensor ISO Range	200 - 3200
	Monochrome Sensor Gain	1 - 8x
	Electronic Global Shutter	1/100 - 1/10000 s
	Max Image Size	1600×1300 (4:3.25)
	Photo Format	JPEG (visible light imaging) + TIFF (multispectral imaging)
	Operating Temperature	0° to 40° C (32° to 104° F)

Professional Flight Control & App Compatibility

DJI GS PRO

Enhance your drone operations with the DJI Ground Station Pro (DJI GS Pro), an iPad app. Conduct automated flight missions, manage flight data on the cloud, and collaborate across projects to efficiently run your drone program.

Learn more at https://www.dji.com/ground-station-pro

DJI TERRA

Transform real-world scenarios into digital assets with DJI Terra. Import multispectral images to generate 2D reconstructed maps and view vegetation indices including NDVI, GNDVI, NDRE, LCI, OSAVI.

Learn more at https://www.dji.com/dji-terra

Order a Phantom 4 M-Spectral Today

The Phantom 4 M-Spectral is available for order through official DJI Dealers. For more information, please visit our website at https://www.dji.com/p4-multispectral

About DJI Enterprise

DJI Enterprise is a global team dedicated to developing world class drone solutions for a new generation of work. These solutions help businesses across the agricultural, infrastructure, public safety sectors and more to empower workers, enhance jobs and digitize operations.