HAIP

PRODUCT DATA SHEET

BLACKBIRD V2

500 - 1000 nm



Pushbroom Linescan

Single Shot

HSI

500 - 1000 nm

VNIR

4K

RGB

GPU

Integrated

Included Software Tools

Smile & Keystone Correction

HAIP Solutions BlackBird V2 is a ready-to-fly drone-based hyperspectral camera designed for seamless integration with DJI Matrice 300, 350 and 400 RTK platforms. Combining a VNIR hyperspectral sensor (500–1000 nm) with a 4K RGB camera, enable fast deployment of airborne hyperspectral imaging with live visual context. With 100 spectral bands and flexible hover or line-scan acquisition, the BlackBird V2 is ideal for environmental monitoring, agriculture and research.

REVISION 260410

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BLACKBIRD V2

The BlackBird V2 is engineered for intuitive airborne hyperspectral imaging and seamless integration into the DJI drone ecosystem. The system combines a VNIR hyperspectral line-scanner with an internal scanning unit and a 4K RGB camera, enabling both stationary image cube acquisition and flight-based line-scan imaging within a single payload. In hover mode, the internal scanning mechanism generates complete hyperspectral data cubes in under four seconds without requiring drone motion. The line-scan acquisition enables to capture spatial information while flighing over large areas. Camera control, triggering and RGB live view are fully integrated into the DJI Pilot App, allowing users to monitor exposure and data quality directly on the remote control. Captured data is stored on removable USB flash drive for fast turnaround between flights. An integrated GPU enables on-camera preprocessing and immediate inspection of results in the field, supporting efficient airborne hyperspectral post-processing workflows from acquisition to first analysis.

FEATURES

Smart line scan camera
Acquisition modes: Hover & line-scan
VNIR: 500–1000 nm
100 spectral bands
High signal-to-noise ratio in NIR range
Simultaneous RGB and HSI acquisition
DJI Skyport 2.0 payload
DJI Pilot App integration
Integrated GPU
Removable USB data storage

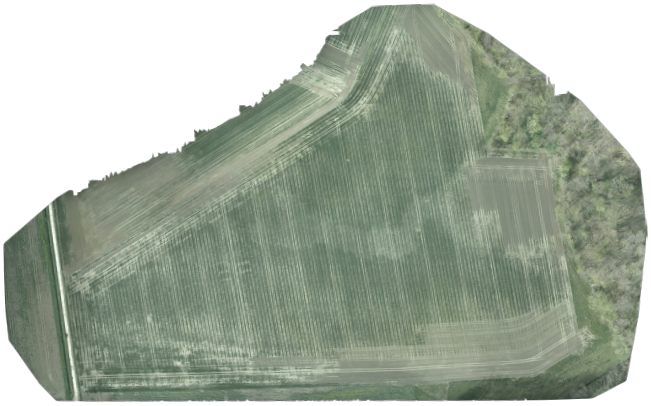
APPLICATIONS

DRONE-BASED HYPERSPECTRAL IMAGING

Crop monitoring
Environmental monitoring
Vegetation & environmental analysis
Research & phenotyping

4K RGB CAMERA

The additionally integrated RGB sensor in the BlackBird V2 camera acquires 4K RGB images simultaneously with the HSI images. This function is ideal for creating orthomosaics, digital elevation models and much more without the need for additional resources.



Agricultural field 14 ha, acquired 70 m above ground level

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OPTICS	
SPECTRAL RANGE	500 - 1000 nm
NUMBER OF BANDS	100
SPECTRAL RESOLUTION	5 nm
SPECTRAL SAMPLING	5 nm
SPATIAL RESOLUTION (RGB)	3840 x 2160 px
SPATIAL RESOLUTION (SPECTRAL)	540 x 540 px
SLIT WIDTH	25 µm
FIELD OF VIEW - HSI/RGB	33° / 37°

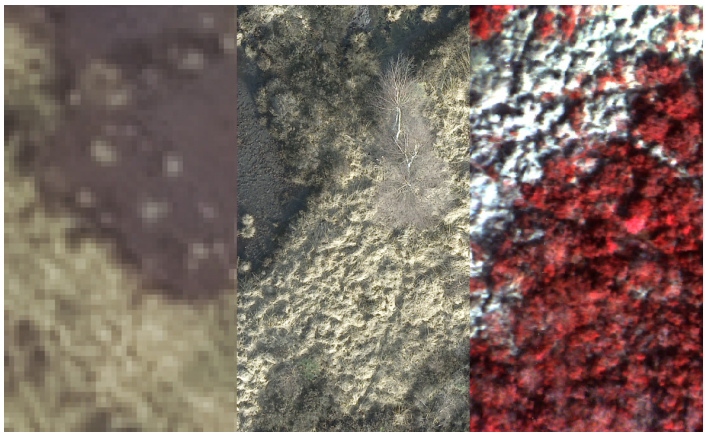
MECHANICS	
CONNECTION	DJI Skyport 2.0 connector
OPERATION TEMPERATURE	-10 - +50°C
PROTECTION CLASS	IP 40
SIZE	80 x 60 x 90 mm
DATA STORAGE	1 USB-A stick
WEIGHT (INCL. GIMBAL)	790 g

ELECTRONICS	
SENSOR TYPE	CMOS
SENSOR SIZE	2 Megapixel
RADIOMETRIC RESOLUTION	10 bit
INTEGRATION TIME (CUBE)	< 3 seconds
INTERNAL DATA PROCESSING	NVIDIA Jetson Nano
DATA SIZE (RAW)	100 MB/ Data cube
RAM	4 GB 64-bit LPDDR4
MEMORY	16 GB eMMC 5.1 flash memory
POWER SUPPLY	13.6 V (Via Skyport V2)
TYPICAL POWER CONSUMPTION	20 W



HSI POST-PROCESSING

The collaboration between ReSe Applications LLC and HAIP Solutions has led to advances in hyperspectral remote sensing. The BlackBird V2 camera, combined with the PARGE® and DROACOR® software applications, enables high-precision positioning of hyperspectral images and accurate atmospheric correction. The HAIP BlackBird V2 camera also acquires high-resolution RGB images for orthomosaic and digital elevation model generation. Multiple critical datasets can be efficiently produced in a single flight campaign.



Airborne image (l) 4K RGB (m) and HSI (r) Image from BlackBird V2

ORDER INFORMATION

Use product number 3015 to order a BlackBird V2 by HAIP Solutions.

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