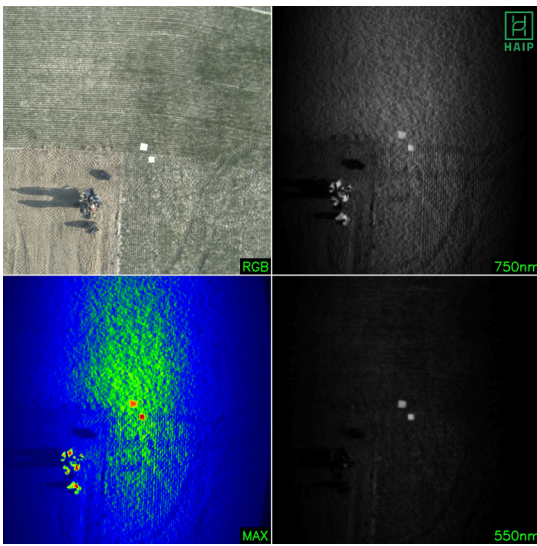# BLACKBIRD V2
VNIR Sensor

HAIP Solutions BlackBird V2 VNIR Sensor is the easiest way to take hyperspectral images on drones. It is specifically designed for the use with DJI drones from the Matrice 300 & 350 RTK series. The worldwide first hyperspectral Plug and Play solution for drones. Ready to fly and measure.

BlackBird V2 has two seperate sensors. One HSI sensor and a seperate RGB camera for high quality livestream on the remote controller. The hyperspectral sensor provides a native image resolution of 540x540 pixels with 100 spectral channels, continously covering the wavelength range from 500 nm to 1000 nm.

Features

- Smart Hyperspectral Line-Scanner
- Two modes: Hover & Line-Scan
- VNIR (500-1000 nm)
- Two sensors: HSI & RGB
- 100 spectral bands
- High Signal-to-noise ratio in NIR range
- DJI Skyport 2.0 connector
- Internal GPU for pre-processing

Overview image for checking the exposure settings directly on the remote controller
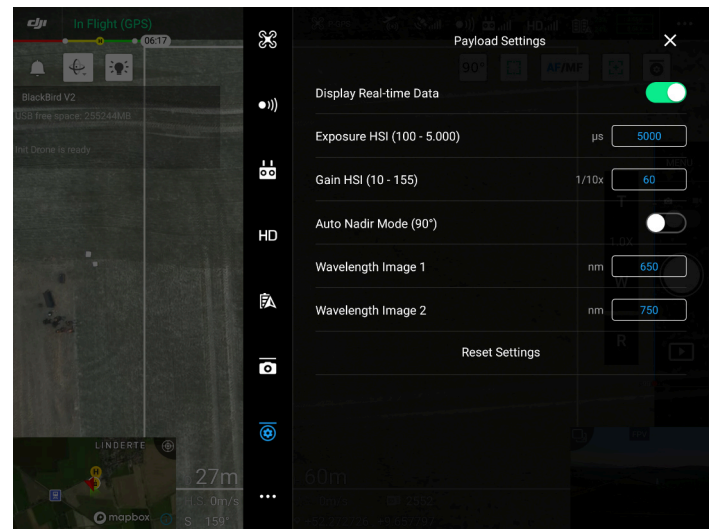
DJI Pilot Software Sreenshot - Payload Settings Menu for BlackBird V2

Spectral Properties	
Wavelength range	500-1000 nm
Number of bands	100
Spectral resolution	5 nm
Spectral sampling	5 nm
Spatial Properties	
Resolution RGB	3840 * 2160 px
Resolution Spectral	540 * 540 px
Optical Properties	
Field of View - HSI/RGB	33°/37°
Sensor Properties	
Detector	CMOS
Sensor size	2 Megapixel
Radiometric resolution	10 bit
Integration time (cube)	< 3 seconds
Data size (raw)	100 MB/ Data cube
Camera Properties	
Connection	DJI Skyport 2.0 connector
Operation temperature	-10 - +50°C
Protection class	IP 40
Power consumption	13,6 V DC / 2 A
Size	80 * 60 * 90 mm
Data storage	1 USB-A stick (supports 256 GB)
Weight (incl. Gimbal)	790 g

Ready to fly and measure

BlackBird is based on a hyperspectral line-scanner, but there is no need to move the sensor during image acquisition to get a full hyperspectral data cube. The internal movement unit creates a 2D image in under 3 seconds. If needed there is also a line-scan mode, where the movement to create an image comes from the drone. These two modes can be switched directly on the remote controller.

Camera control and power support works via DJIs Skyport 2.0 connector and the remote controller. Through the DJI Pilot App you get features such as remote camera trigger, RGB-livestream and flight-planning support. To simplify the work even more, the first results from the camera can be viewed directly on the remote controller and, for example, the exposure can be checked.

Data is stored on an external, removable USB-A data storage to minimise downtime during data transfer on the ground. Additional pre-processing on camera is possible, as the camera has a build in dedicated GPU.