



PRODUCT DATA SHEET

BLACKBULLET V2 VNIR Sensor



HAIP Solutions BlackBullet V2 VNIR Sensor is the base model for a whole range of applications. With its super compact housing it is designed for easy implementation onboard various platforms such as UAVs, field and lab measurements on tripods or mounted on scanning rail systems.

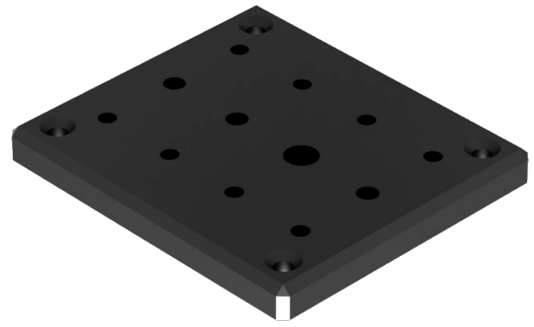
BlackBullet V2 can take images of RGB and HSI simultaneously. The hyperspectral sensor provides a native image resolution of 540x540 pixels with 250 spectral channels, continuously covering the wavelength range from 500 nm to 1000 nm.

Features

- Smart Hyperspectral Line-Scanner
- No external movement needed
- VNIR (500-1000 nm)
- High Signal-to-noise ratio in NIR range
- 250 spectral bands
- Super compact design
- RGB + HSI simultaneously
- Internal CPU for pre-processing



BlackBullet V2 - Back view with Ethernet port and power supply port



BlackBullet V2 - Mounting plate with different type of threads

Spectral Properties	
Wavelength range	500-1000 nm
Number of bands	250
Spectral resolution	5 nm
Spectral sampling	2 nm
Spatial Properties	
Resolution RGB	2688 * 1512 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	GigE
Operation temperature	-10 - +50°C
Protection class	IP 40
Power consumption	100 - 240 V DC / < 15 W
Size	80 * 60 * 90 mm
Weight	630 g

World's lightest HSI camera

BlackBullet V2 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. With this feature your use case can benefit from a compact and lightweight measuring setup.

The BlackBullet V2 camera was especially designed for UAV implementation with its lightweight design, but of course there is a multitude of other applications. A mounting plate with different type of threads is delivered with the camera to mount it where ever needed. Camera control works via Gigabit Ethernet, which opens up to a wide range of mounting options.

The desired spectral ranges can be individually selected. Additional pre-processing on camera is possible, as the camera has a build in NVIDIA Jetson GPU. BlackBullet is optimised for combined use with seperate available broadband LED lighting unit BlackBright.