

Airborne system AFX10



Features

- An integrated hyperspectral imaging solution for drones
- Covers the VNIR spectral range from 400 to 1000 nm
- Supports installation with or without a gimbal
- Multispectral ROI function supports hyperspectral and multispectral configurations for specific applications
- Distortion at the front lens is fully corrected
- Significantly reduces Smile and Keystone distortion
- Can collect more light data
- A complete real-time and post-task localization and orientation solution for direct geographic registration

GNSS/IMU performance

- The Specim AFX10 system can acquire GNSS/IMU data in real time data
- Position (1 Hz)
- Attitude (50 Hz)
- PPS Synchronized Timestamp (1 Hz)
- Obtain post-processing data with higher precision using POSPAC drones

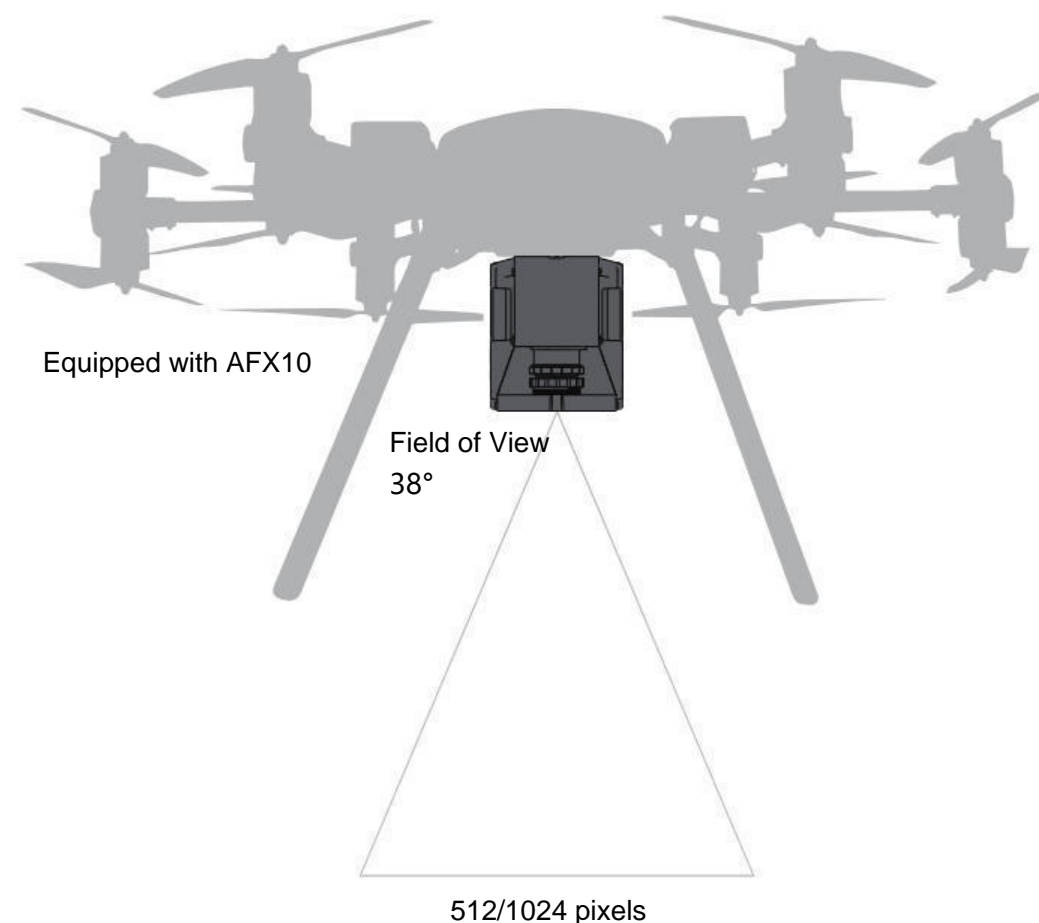
	SPS	Post-processing
Position (m)	1.5 - 3.0	0.02 - 0.05
Speed (m/s)	0.05	0.015
Pitch and roll angle (degrees)	0.04	0.025
True heading (degrees)	0.30	0.080

CaliGeo PRO can use real-time and post-processing data.

A compact integrated solution

The airborne system AFX10 is a visible light to near-infrared hyperspectral imaging solution. The entire system includes a hyperspectral camera, a powerful small computer, and a high-end GNSS/IMU component. This advanced solution weighs only 2.1kg and can be installed on various types of unmanned aerial vehicle platforms (such as multi-rotor or fixed-wing), or can be used independently without a gimbal. The AFX10 can automatically obtain data according to the waypoints in the flight plan, and the operation is very simple.

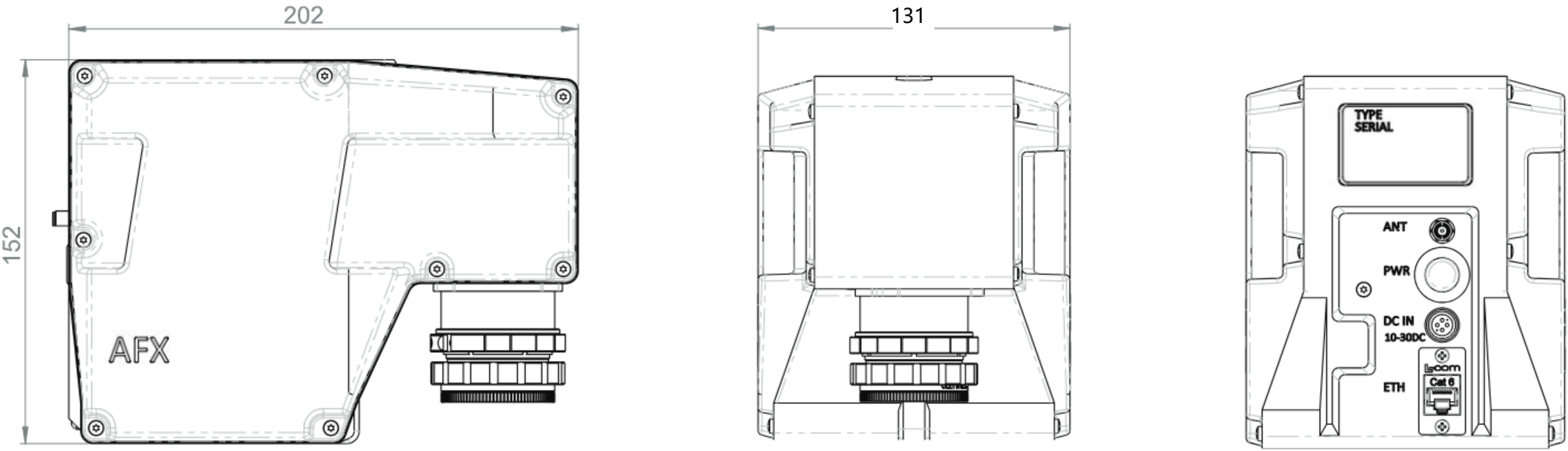
Image coverage and resolution



The variation of ground coverage area and sampling distance (resolution) with height

Height	Coverage range	GSD (When pixels are merged into 1)	GSD (When pixels are merged into 2)
50 m	36 m	3.5 cm	7 cm
100 m	72 m	7.0 cm	14 cm
150 m	108 m	10.5 cm	21 cm

Size



Technical specifications

Spectral range	400 – 1000 nm	
Spectral Sampling	2.68 nm	
Spectral resolution	5.5 nm	
Focal length of front lens	15 mm	
Field of view angle	38°	
Aperture value	1.7	
Number of spectral bands	224	Binning is 2
Spatial pixel count	1024	
Spectrum merge option	2, 4, 8	
Pixel merge option	1, 2	
Multiple ROIs	User-selectable	
Maximum frame rate	330 fps	Full-band acquisition
Dynamic range	1420	
Signal-to-noise ratio	400:1	Spectra combined into 2, pixels combined into 1
Power Input	10-30 VDC	Use separate battery or drone/gimbal power
Power Consumption	17 W	Typical value
Interface	ANT、 DC IN、 ETH	GPS antenna, power input, Web user interface/data download
Storage Temperature	-20 ... +50°C	
Operating Temperature	+5 ... +40°C	
Relative humidity	5 – 90 %	No condensation
UAV options	Multi-rotor with gimbal Multi-rotor without gimbal Fixed-wing drone	Any drone with sufficient payload capacity can be used
Gimbal	Optimized for MoVI pro	Other suitable pan-tilt units can also be used
Gimbal weight	2.2 – 2.7 kg	A typical pan-tilt solution
Working height	15 – 150 m	May require compliance with typical local restrictions
GNSS/IMU	Trimble APX-15	
GPS antenna	Trimble AV 14	
Memory	512GB SSD	
Dimensions (Width x Height x Length)	131 x 152 x 202 mm	
Weight (without gimbal)	2.1 kg	
Weight (with gimbal)	4.8 kg	Typical gimbal solution