Airborne system **AFX17**

Features

- An integrated hyperspectral imaging solution for unmanned aerial vehicles
- Covers the NIR spectral range from 900 to 1700 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-mission localization and orientation solution for direct geographic registration

GNSS/IMU performance

- The AFX17 system can acquire GNSS/IMU data in real-time
- Position (1 Hz)
- Attitude (50 Hz)
- PPS Synchronized Timestamp (1 Hz)
- Use POSPAC drone to obtain higher precision post-processing data

	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

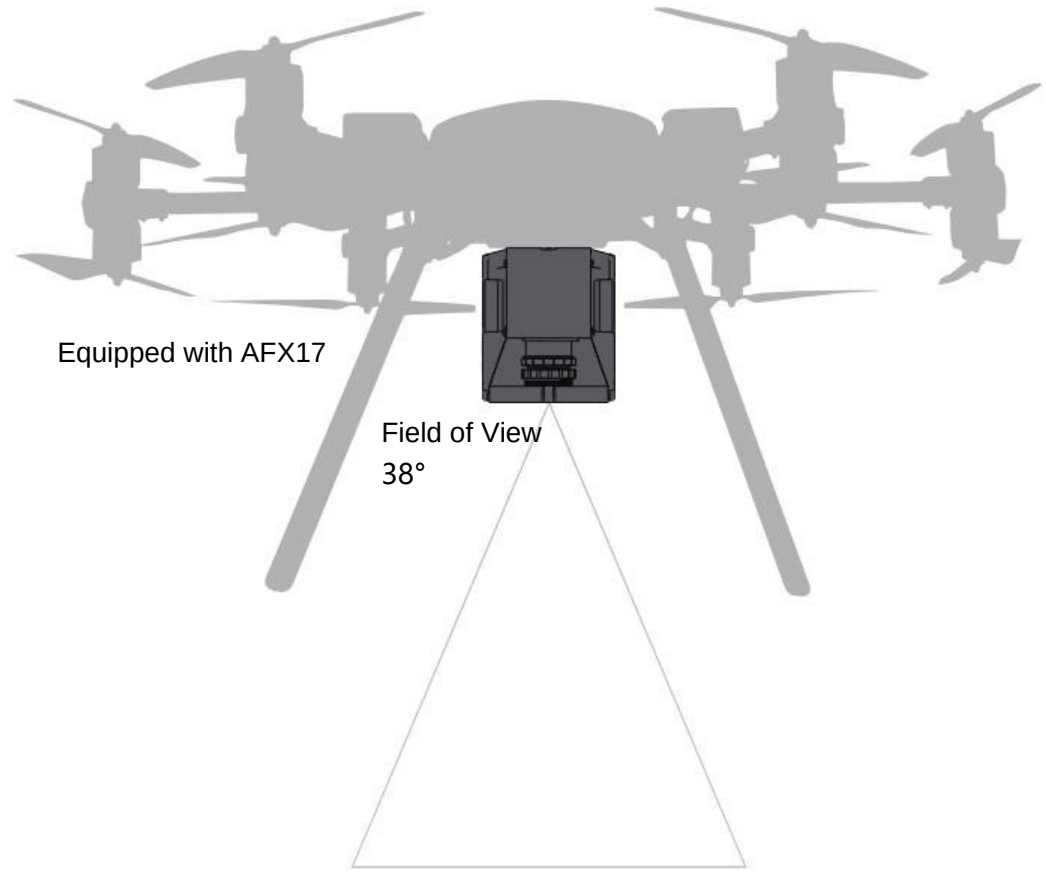
CaliGeo PRO can use both real-time and post-processing data.

Compact integrated solution

AFX17 is a near-infrared hyperspectral imaging solution.The entire system consists of 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 AFX17 can automatically obtain data according to the waypoints in the flight plan, and the operation is very simple.

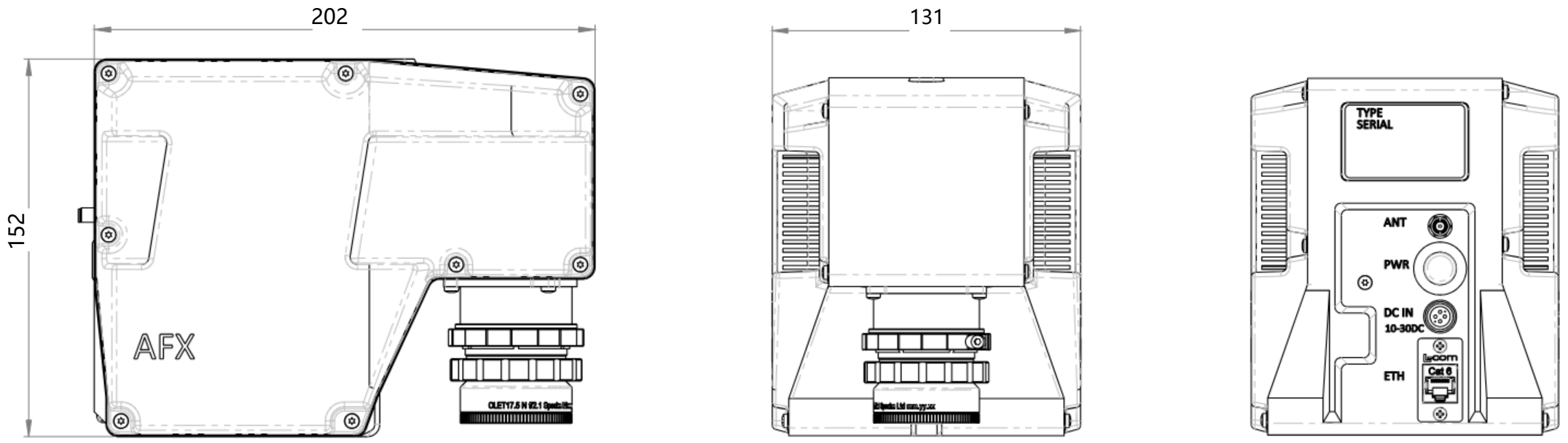
Image coverage and resolution



Variation of ground coverage range and sampling distance (resolution) with altitude

Height	Coverage range	GSD (when pixels are merged into 1)	GSD (when pixels are merged into 2)
50 m	35 m	5.5 cm	11 cm
100 m	70 m	11 cm	22 cm
150 m	105 m	16.5 cm	33 cm

Size



Technical specifications

Spectral range	900 – 1700 nm	
Spectral Sampling	3.5 nm	
Spectral resolution	8.0 nm	
Front Lens Focal Length	18 mm	
Field of View	38°	
Aperture Value	1.7	
Number of spectral bands	224	Binning is 2
Spatial pixel count	640	
Spectral Merge Option	1、2、4、8	
Pixel merge options	1, 2	
Multiple ROIs	User-selectable	
Maximum frame rate	670 fps	Full-band acquisition
Dynamic range	3400	
Signal-to-noise ratio	1200:1	Spectrum merge to 1, pixel merge to 1
Power Input	10-30 VDC	Use the included battery or drone/gimbal power supply
Power Consumption	24 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	Also, other suitable gimbals can be used
Gimbal weight	2.2 – 2.7 kg	Typical gimbal solutions
Working height	50 – 150 m	Need to comply with typical local restrictions
GNSS/IMU	Trimble AP X-15	
GPS antenna	Trimble A V 14	
Memory	512GB SSD	
Dimensions (Width x Height x Length)	131 x 152 x 202 mm	
Weight (without gimbal)	2.4 kg	
Weight (with gimbal)	5.1 kg	Typical gimbal solutions