



## COMPACT ALL-IN-ONE SOLUTION

Specim AFX10 is a VNIR hyperspectral imaging solution with an HSI camera, a small and powerful computer and a high-end GNSS/IMU unit in one compact enclosure. It is a state-of-the-art solution weighing only 2.1 kg that can be used on multiple drone types – multirotor or fixed-wing, with or without a gimbal. Data is acquired automatically following the waypoints on a flight plan, making the Specim AFX10 easy to operate.

## FEATURES

- All in one HSI solution for UAVs
- Spectral range VNIR from 400 to 1000 nm
- Supports gimballed or gimballess mounting
- Multiple spectral ROI enables both hyperspectral and application-specific multispectral configurations
- Fore lens aberrations are fully characterized
- Significantly less smile and keystone
- Ability to collect more light
- Full real-time and post-mission position and orientation solution for direct georeferencing

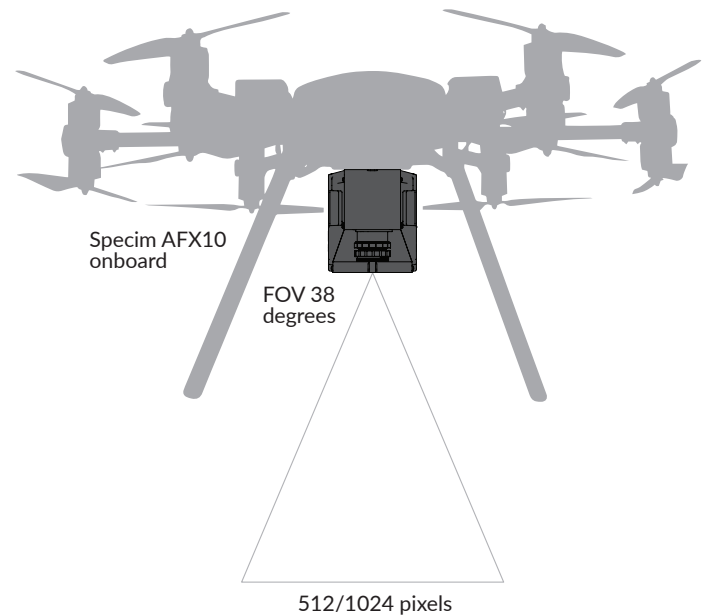
## GNSS/IMU PERFORMANCE

- Specim AFX10 system acquires GNSS/IMU data in real-time
- Position @ 1 Hz
- Attitude @ 50 Hz
- PPS synced time stamps @ 1 Hz
- Higher accuracy post-processed data with POSPAC UAV

|                    | SPS       | Post-Processed |
|--------------------|-----------|----------------|
| Position (m)       | 1.5 - 3.0 | 0.02 - 0.05    |
| Velocity (m/s)     | 0.05      | 0.015          |
| Roll & Pitch (deg) | 0.04      | 0.025          |
| True Heading (deg) | 0.30      | 0.080          |

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

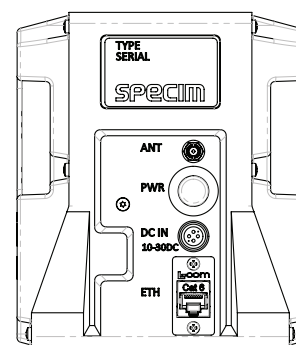
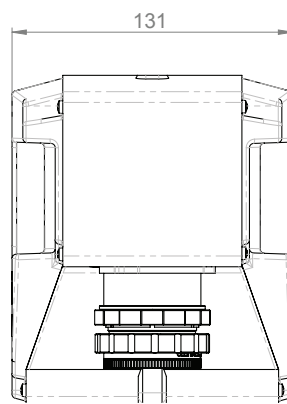
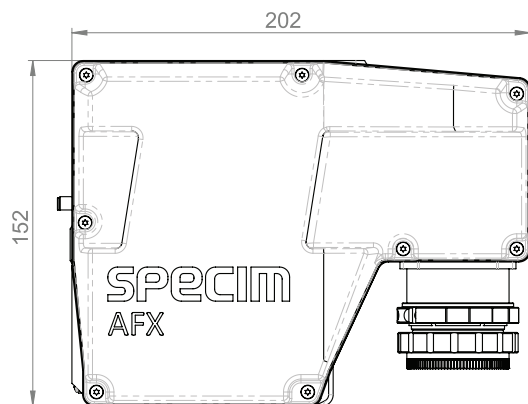
## IMAGE COVERAGE AND RESOLUTION



### Ground coverage and sampling distance (resolution) scale with altitude

| Height | Swath | GSD (when spatial binning is 1) | GSD (when spatial binning is 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

|                                 |   |  |
|---------------------------------|---|--|
| <b>Spectral Range</b>           | 400 – 1000 nm   |  |
| <b>Spectral sampling</b>        | 2.68 nm   |  |
| <b>Spectral resolution</b>      | 5.5 nm  |  |
| <b>Fore lens focal length</b>   | 15 mm   |  |
| <b>Field of view</b>            | 38 deg  |  |
| <b>F/#</b>                      | 1.7   |  |
| <b>Spectral bands</b>           | 224   | Binned by 2  |
| <b>Spatial pixels</b>           | 1024  |  |
| <b>Spectral binning options</b> | 2, 4, 8   |  |
| <b>Spatial binning options</b>  | 1, 2  |  |
| <b>Multiple ROI</b>             | User-selectable   |  |
| <b>Maximum frame rate</b>       | 330 fps   | Full frame   |
| <b>Dynamic range</b>            | 1420  |  |
| <b>SNR</b>                      | 400:1   | 2 spectral binning, 1 spatial binning                |
| <b>Power input</b>              | 10-30 VDC   | Use separate battery or UAV/gimbal power             |
| <b>Power consumption</b>        | 17 W  | Typical  |
| <b>Connectors</b>               | ANT, DC IN, ETH   | GPS Antenna, Power In, Web UI / Data download        |
| <b>Storage temperature</b>      | -20 ... +50C  |  |
| <b>Operating temperature</b>    | +5 ... +40C   |  |
| <b>Relative humidity</b>        | 5 – 90 %  | Non-condensing                                       |
| <b>Drone options</b>            | Multirotor with gimbal<br>Multirotor, no gimbal<br>Fixed Wing UAV | Any drone with adequate payload capacity can be used |
| <b>Gimbal</b>                   | Optimized for MoVI pro  | Other suitable gimbals may also be used              |
| <b>Gimbal weight</b>            | 2.2 – 2.7 kg  | Typical gimbal solution                              |
| <b>Operating height</b>         | 15 – 150 m  | Typical, local limitations may apply                 |
| <b>GNSS/IMU</b>                 | Trimble APX-15  |  |
| <b>GPS Antenna</b>              | Trimble AV 14   |  |
| <b>Dimensions (W x H x L)</b>   | 131 x 152 x 202 mm  |  |
| <b>Weight (without gimbal)</b>  | 2.1 kg  |  |
| <b>Weight (with gimbal)</b>     | 4.8 kg  | Typical gimbal solution                              |