

VEXCEL
IMAGING

ULTRACAM DRAGON 4.1

시야를 확장하세요



궁극의 하이브리드 항공 매핑 시스템

UltraCam Dragon 4.1
은 Vexcel에서 처음으로
제공하는 초고속 하이브리드
항공 매핑 시스템입니다.
고해상도 수직 영상, 4방향
경사 영상과 더불어 2.4
MHz *RIEGL* Waveform
라이다스캐너를 이용하여
초당 2백만점 (실효 데이터)
의 데이터를 5가지 방향으로
취득하여 복잡한 도심지형을
완벽하게 효율적으로
디지털트윈화합니다.

선명하고 정확한 영상과
더불어 5방향의 라이다스캐
라인(수직 스캔 포함)을 동시에
얻음으로써 복잡한 도심지의
건물 벽면과 지면을 모두
세밀하게 측량할 수 있는 최신
제품을 경험해보세요.
최고의 센서의 결합으로
이제까지 불가능했던 다영역,
다차원 공간데이터의 취득,
분석을 통하여 새로운 도약을
이루세요.

HYBRID AERIAL MAPPING SYSTEM

DRAGON 4.1 UNIT

Components

Camera, LiDAR scanner, UltraNav v7 610

Height | Width | Cylinder Diameter

80 cm | 43 cm | 39.5 cm

Weight

<75 kg

Power Consumption

475 W (average)

665 W (peak)

PERIPHERALS

Displays

Vexcel Interface Panel Touch (IPT) for camera, LiDAR scanner and UltraNav (plus pilot display)
2 kg per IPT

Mounting

UltraMount (GSM 4000 and GSM 3000)
29 kg | 35 kg

Unit Lifter (optional)

20 kg

DATA STORAGE

Type

4x NVMe SSD

Features

In-flight exchangeable
Optional redundancy
4th generation compatible

Storage Capacity

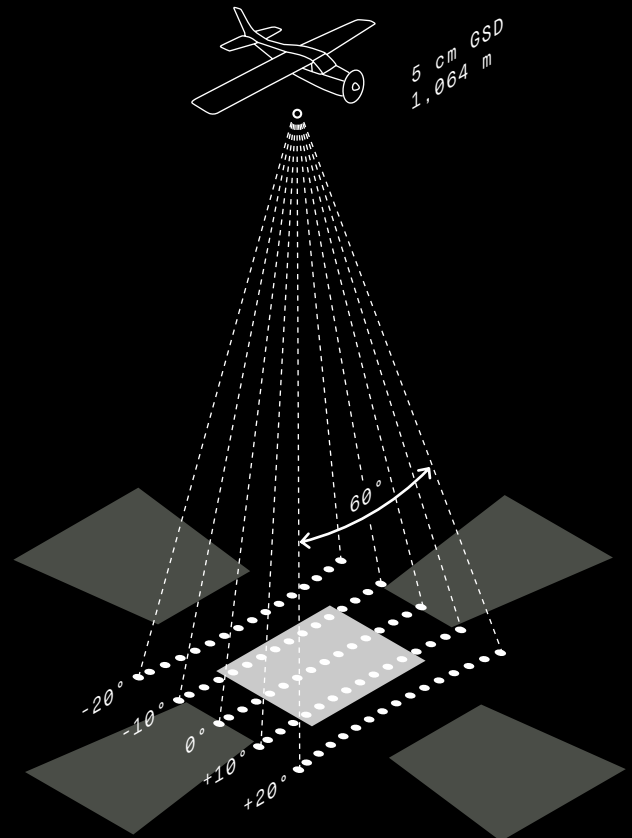
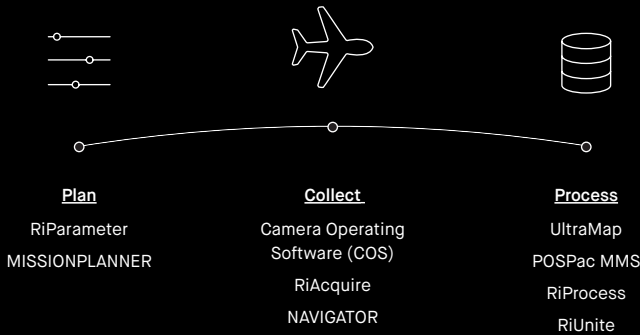
16 TB | 32 TB

Weight





1 kg

DATA COLLECTION: Several operating modes


SOFTWARE WORKFLOW



OPERATIONAL SPECIFICATIONS

| | |
|---|--|
|  <p>Flight Altitude ≤5,600 m above sea level (non-pressurized)</p> |  <p>Humidity Max. rel. humidity of 80% at ≤31 °C; linearly decreasing to 50% at +40 °C; non-condensing</p> |
|  <p>Installation Dragon 4.1 unit with UltraMount: <104 kg 525 W (average) 845 W (peak)</p> |  <p>Temperature 0 °C to 40 °C -5 °C to +40 °C (operation) -10 °C to +50 °C (storage)</p> |

Nadir Footprints

| | |
|---|-------------------|
|  | 1,228.6 x 774.5 m |
|  | 710.9 x 530.7 m |

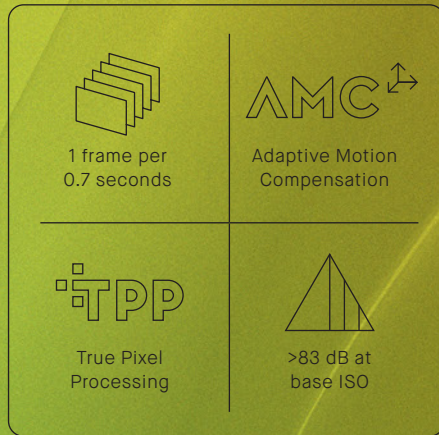
¹ Camera cylinder exposed to outside airflow only.



CAMERA

SENSOR SYSTEM

| | |
|--|--|
| Imaging sensor | IMX-411 (CMOS) 1x RGB nadir 1x NIR nadir 4x RGB oblique |
| Physical pixel size | 3.76 μ m |
| Shutter (longlife central leaf) | Prontor magnetic-0 HS2 field exchangeable |
| Color capability (multi-spectral) | 4 channels - RGB Bayer pattern & NIR |
| Nadir (RGB Bayer pattern & NIR) image size | 14,144 x 10,560 pixels |
| Oblique (RGB Bayer pattern) image size | 14,144 x 10,560 pixels |
| Ratio RGB to NIR nadir | 1 : 1.0 |
| Motion compensation (multi-directional) | Adaptive Motion Compensation (AMC) |
| Analog-to-digital-conversion | 14 bits |
| Spectral bands (FWHM ¹) | R (580 - 690 nm) G (480 - 600 nm) B (420 - 510 nm) NIR (690 - 880 nm) |



LENS SYSTEM

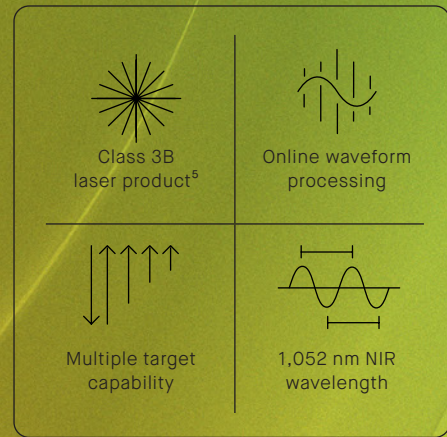
| | f80 | f50 |
|---|---|---|
| NADIR | | |
| Color (RGB Bayer pattern & NIR) lens system focal length | 80 mm | 50 mm |
| Color (RGB Bayer pattern & NIR) lens aperture | f=1/4.3 | f=1/4.2 |
| Total field of view, across track along track | 36,8° 27,9° | 56,0° 43,3° |
| OBLIQUE | | |
| Color (RGB Bayer pattern) lens system focal length | 123 mm | 80 mm |
| Color (RGB Bayer pattern) lens aperture | f=1/4.2 | f=1/4.3 |
| Total field of view, across track along track | 45° (+9,2° -15,1°) 45° (+9,2° -9,2°) | 45° (+14,0° -22,6°) 45° (+14,0° -14,0°) |
| COLLECTION SCENARIOS | | |
| Footprint for lean restrictions of 1 m lean @ 5 m height (across x along) | 8,510 x 8,510 pixels | 5,319 x 5,319 pixels |
| Sample flying heights (AGL @ GSD) | 426 m @ 2 cm 1,064 m @ 5 cm 1,596 m @ 7.5 cm 2,028 m @ 10 cm | 266 m @ 2 cm 665 m @ 5 cm 997 m @ 7.5 cm 1,330 m @ 10 cm |

¹ Full Width at Half Maximum.

LiDAR SCANNER

RANGE MEASUREMENT PERFORMANCE

| | |
|--|--|
| Type | RIEGL VQ-680 OEM |
| Laser pulse repetition rate (PRR) | Up to 2.4 MHz, user selectable |
| Max. effective measurement rate | Up to 2,000,000 measurements/second @ 2.4 MHz PRR & 60° scan angle |
| Echo signal intensity | provided for each echo signal |
| Laser beam divergence ¹ | typ. 0.28 mrad @ 1/e ² typ. 0.22 mrad @ 1/e |
| Accuracy ² | 20 mm |
| Precision ³ | 20 mm |
| Max. measuring range, for target reflectance $\geq 20\%$ ($\geq 60\%$) | 3,000 m (4,450 m) |
| Max. operating flight altitude, for target reflectance $\geq 20\%$ ($\geq 60\%$) | Up to 2,300 m AGL (Up to 3,400 m AGL) |
| Max. number of targets per pulse ⁴ | Up to 32 |



SCANNER PERFORMANCE

| | |
|---|---|
| Scanning mechanism | Rotating polygon mirror |
| Scan pattern | Regular scan grid with 5 parallel scan lines (2 forward, 1 nadir, 2 backward) |
| Field of view, across track along track | 60° 40° |
| Angular directions along track | -20°, -10°, 0°, +10°, +20° |
| Total scan rate | 50-500 lines per second (configurable) |



¹ Measured at 1/e² (1/e) points, 0.28 (0.22) mrad corresponds to an increase of 28 (22) mm of beam diameter per 100 m distance.

² Accuracy is the degree of conformity of a measured quantity to its actual (true) value.

³ One sigma @ 150 m range under RIEGL test conditions.

⁴ Depending on Laser Pulse Repetition Rate (PRR).

⁵ According to IEC 60825-1:2014.
The following clause applies for instruments delivered into the United States: Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed.3., as described in Laser Notice No. 56, dated May 8, 2019.
The instrument must be used only in combination with the appropriate laser safety box.