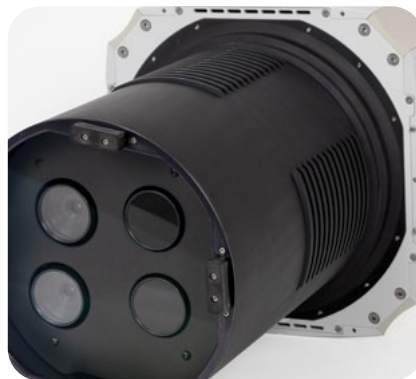


VEXCEL
IMAGING

ULTRACAM MERLIN 5.0

The new force in the sky



HIGH-PERFORMANCE PHOTOGRAMMETRIC
NADIR AERIAL MAPPING AT SCALE

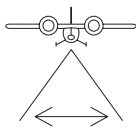
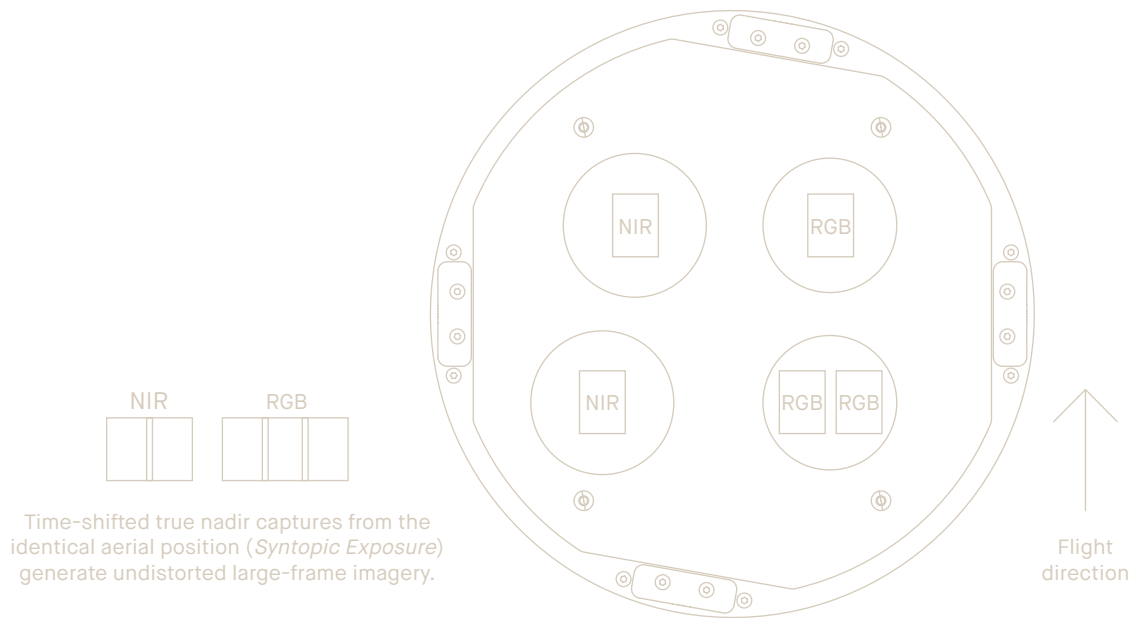


Engineered to outperform: Experience high-resolution precision mapping built for scale and impact.

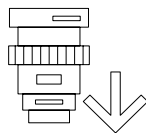
The UltraCam Merlin excels in high-performance photogrammetric nadir mapping. Its industry-leading camera design combines state-of-the-art RGB Bayer pattern CMOS sensors with a true nadir cone assembly for distortion-free imagery without re-sampling. Three user-exchangeable lens kits ensure the

impressive footprint of 37,500 pixels across the flight strip can be fully leveraged at different altitudes for maximum airspace flexibility. With UltraMap's True Pixel Processing (TPP) pipeline, including multi-directional, scene-aware motion blur correction via Adaptive Motion Compensation (AMC), the Merlin

delivers consistent, sharp, high-fidelity aerial imagery. It captures ground truth at unprecedented scale, forming a superior foundation for orthophotos, elevation modeling, and feature extraction, including AI-driven analysis and automation.



Collection of 37,500 pixels across the flight strip



True nadir cone assembly ensures distortion-free pixels



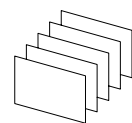
3 user-exchangeable lens kits for highest airspace flexibility



Consistent, high-quality imagery through True Pixel Processing



Multi-directional & scene-aware motion blur removal



Rapid data collection at 1 frame per 0.7 seconds

Maximum airspace flexibility

User-exchangeable lens kits allow customers to tailor the system to mission requirements and collect highest detail across the ultra-wide footprint at different altitudes.



3 FOCAL LENGTHS AVAILABLE

Choose between 90 mm, 120 mm, and 150 mm custom designed lenses.



FIELD-EXCHANGEABLE

Swap lenses in the field within 2-3 hours after training by Vexcel experts.



FLEXIBLE SCOPE OF PROJECTS

Switch from low-altitude engineering surveys to high-altitude orthophotography projects.



NO RECALIBRATION REQUIRED

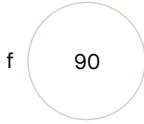
Maintain photogrammetric-grade accuracy through every lens exchange.



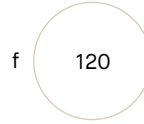
Preliminary Specifications & Details

UltraCam Merlin 5.0

LENS CONFIGURATIONS



For photogrammetric applications, balancing flight altitude and footprint at the image edges under lean restrictions.



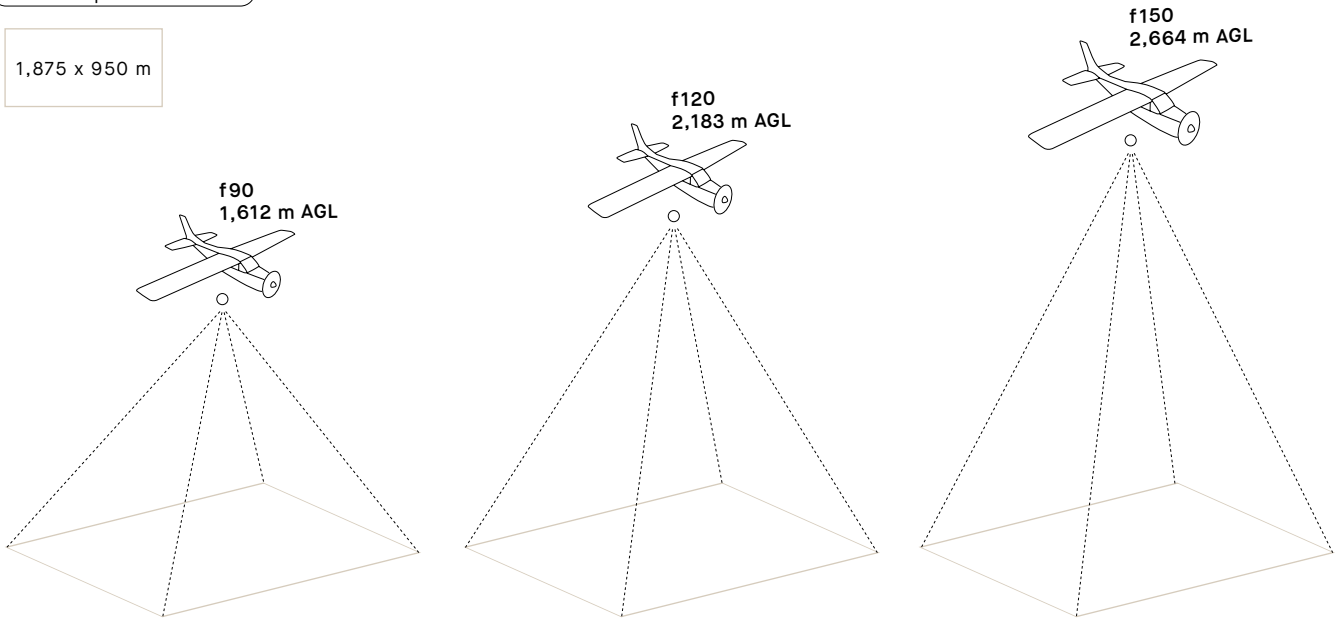
For photogrammetric applications, optimizing usable footprint at the image edges under lean restrictions.



For photogrammetric applications at higher flight altitudes while maintaining high ground resolution.

Nadir Footprint @ 5 cm GSD

1,875 x 950 m



LENS SYSTEM

TRUE NADIR

Color (RGB Bayer pattern) lens system focal length
Color (RGB Bayer pattern) lens aperture
Color (NIR) lens system focal length
Color (NIR) lens aperture
Field of view: across track along track
Footprint for lean restriction of 1 m lean @ 5 m height (across x along)

COLLECTION SCENARIOS

Sample GSD @ AGL

	f90	f120	f150
Color (RGB Bayer pattern) lens system focal length	90 mm	120 mm	150 mm
Color (RGB Bayer pattern) lens aperture	f=1/5.6	f=1/5.6	f=1/7.0
Color (NIR) lens system focal length	50 mm	80 mm	80 mm
Color (NIR) lens aperture	f=1/4.2	f=1/4.3	f=1/4.3
Field of view: across track along track	60.4° 32.8°	46.5° 24.5°	38.8° 20.2°
Footprint for lean restriction of 1 m lean @ 5 m height (across x along)	12,811 x 12,811	17,081 x 17,081	21,352 x 19,080
Sample GSD @ AGL	2 cm @ 645 m 5 cm @ 1,612 m 7.5 cm @ 2,418 m 10 cm @ 3,224 m	2 cm @ 873 m 5 cm @ 2,183 m 7.5 cm @ 3,275 m 10 cm @ 4,367 m	2 cm @ 1,065 m 5 cm @ 2,664 m 7.5 cm @ 3,996 m 10 cm @ 5,327 m

SENSOR SYSTEM

Color (RGB Bayer pattern) image size	37,500 x 19,000 pixels
Color (RGB Bayer pattern) physical pixel size	2.81 µm
Color capability (multi-spectral)	4 channels RGB Bayer pattern & NIR
Color (NIR) image size	20,695 x 10,486 pixels (f90) 24,328 x 12,326 pixels (f120) 19,940 x 10,103 pixels (f150)
Color (NIR) physical pixel size	2.81 µm
Ratio RGB to NIR	1:1.81 (f90) 1:1.54 (f120) 1:1.88 (f150)

Imaging sensor	Sony IMX811 (CMOS) 3x RGB, 2x NIR
Shutter (longlife central leaf)	Prontor magnetic-0 HS2 field exchangeable
Motion compensation (multi-directional)	Adaptive Motion Compensation (AMC)
Frame rate (min. inter-image interval)	1 frame per 0.7 seconds
Dynamic range	>83 dB at base ISO
Analog-to-digital-conversion at	14 bits
Spectral bands (Full Width at Half Maximum)	R (580–690 nm) G (480–600 nm) B (420–510 nm) IR (690–880 nm)

CAMERA

PERIPHERALS

DATA STORAGE

Height | Width
76 cm | 43 cm

Cylinder Diameter
32.5 cm

Weight
47 kg

Power Consumption
230 W (average)
250 W (peak)

Vexcel Interface Panel Touch (IPT) for camera and UltraNav

UltraNav Pilot Display

UltraMount

Vexcel Unit Lifter Pro
(optional)

Vexcel Transfer Unit

Type
4x NVMe solid state
disk pack (SSD)

Features
In-flight exchangeable
Optional redundancy

Storage Capacity
16 | 32 TB







Weight
1 kg

Number of raw images¹
16 TB: up to 4,818 | 6,743²
32 TB: up to 10,051 | 14,070²

Size of one raw image¹
3,032 MB | 2,166 MB²

INSTALLATION
(Camera, UltraNav & UltraMount)
85 kg | 480 W (average), 560 W (peak)

OPERATIONAL SPECIFICATIONS

 FLIGHT ALTITUDE ≤ 7,000 m above sea level	 HUMIDITY 5% to 95%, non-condensing	 TEMPERATURE -20 °C to +45 °C (operation) ³
 MOUNTING UltraMount and most current third party mounts ⁴	 GNSS/INS/FMS UltraNav and most current third party systems ⁴	 DATA PROCESSING UltraMap suite supporting standard file exports

¹ Due to configuration and change in SSD technology, usable storage size may vary and can not be guaranteed.

² Without optional redundancy.

³ Min. operating temperature for onboard computer unit: 0 °C. Storage temperature: -20 °C to +65 °C.

⁴ Please contact our sales team for detailed information.



BENEFIT FROM OUR TECHNOLOGY

When you partner with Vexcel Imaging,
you get more than a camera.

You get cutting-edge technology
combined with a progressive service
concept for constant product upgrades,
world-class support and one-stop solutions.

Today and tomorrow.



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