ULTRACAM EAGLE 4.1

Push the limits of your aerial missions

Going the extra mile so you can, too.

An industry-leading footprint, three different focal lengths, high-resolution PAN sensors and multi-directional motion compensation: The UltraCam Eagle 4.1 again outperforms other aerial cameras in the market, delivering the efficiency, flexibility and image quality your organization needs to succeed in today's rapidly evolving market.

KAORU ORIMO
ULTRACAM EAGLE CUSTOMER

"We continue to choose the UltraCam Eagle over other systems on the market because of its large footprint, the user-exchangeable lens system and its state-of-the-art technology. With the Eagle 4.1, we can provide our customers with highest quality imagery and data."

Built on the renowned UltraCam approach and leveraging the latest 4th generation system advancements, the new UltraCam Eagle 4.1 is the pinnacle of nadir photogrammetric aerial camera systems. As a true mapping-grade aerial camera, the UltraCam Eagle 4.1 collects high-resolution panchromatic (PAN), R, G, B and NIR color information at over 500 Megapixels – an impressive footprint that can be exploited at different altitudes, thanks to three user-exchangeable lens kits.

The Eagle 4.1 features CMOS sensors for a finer pixel pitch, industry-leading panchromatic image footprint, and a rapid cycle rate of 1 frame every 0.7 seconds. The new sensors, coupled with new electronics and new lenses developed exclusively for Vexcel, provide UltraCam customers with imagery of unprecedented sharpness, detail and image dynamic. Central to this is also the proprietary Adaptive Motion Compensation (AMC), correcting image motion blur caused by multi-directional camera movement during flight.

Vexcel cuts no corners in developing best-in-class UltraCams. The result is once again an aerial camera sensor that provides more than just pretty pictures – imagery taken by the UltraCam Eagle 4.1 is visually stunning but also of photogrammetric-grade quality, higher in acuity and better for analysis and interpretation.

● FLEXIBILITY IS KEY

The unique user-exchangeable lens system, coupled with an industry-leading nadir footprint, makes the UltraCam Eagle one of the most versatile airborne systems on the market.
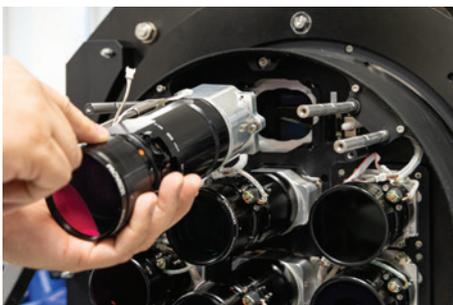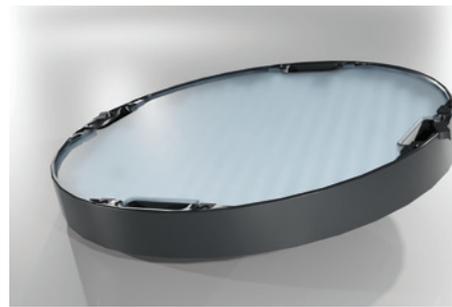
○ USER-EXCHANGEABLE

Field-exchangeable lens kits by trained personnel within 3-4 hours

○ VERIFICATION

Straightforward lens change procedure with radiometric (LED Panel) and geometric validation process

○ NO RECALIBRATION

Photogrammetric-grade accuracy maintained even after multiple lens exchanges
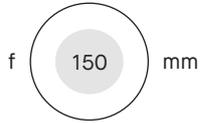

○ 3 FOCAL LENGTHS

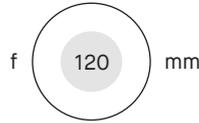From low altitude engineering applications to high altitude orthophotography projects
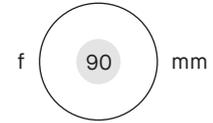
Specifications & details

f (150) mm

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

f (120) mm

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

f (90) mm

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

UCE 4.1 f150
1,995 m
5 cm GSD

UCE 4.1 f120
1,596 m
5 cm GSD

UCE 4.1 f90
1,197 m
5 cm GSD

2,000 m

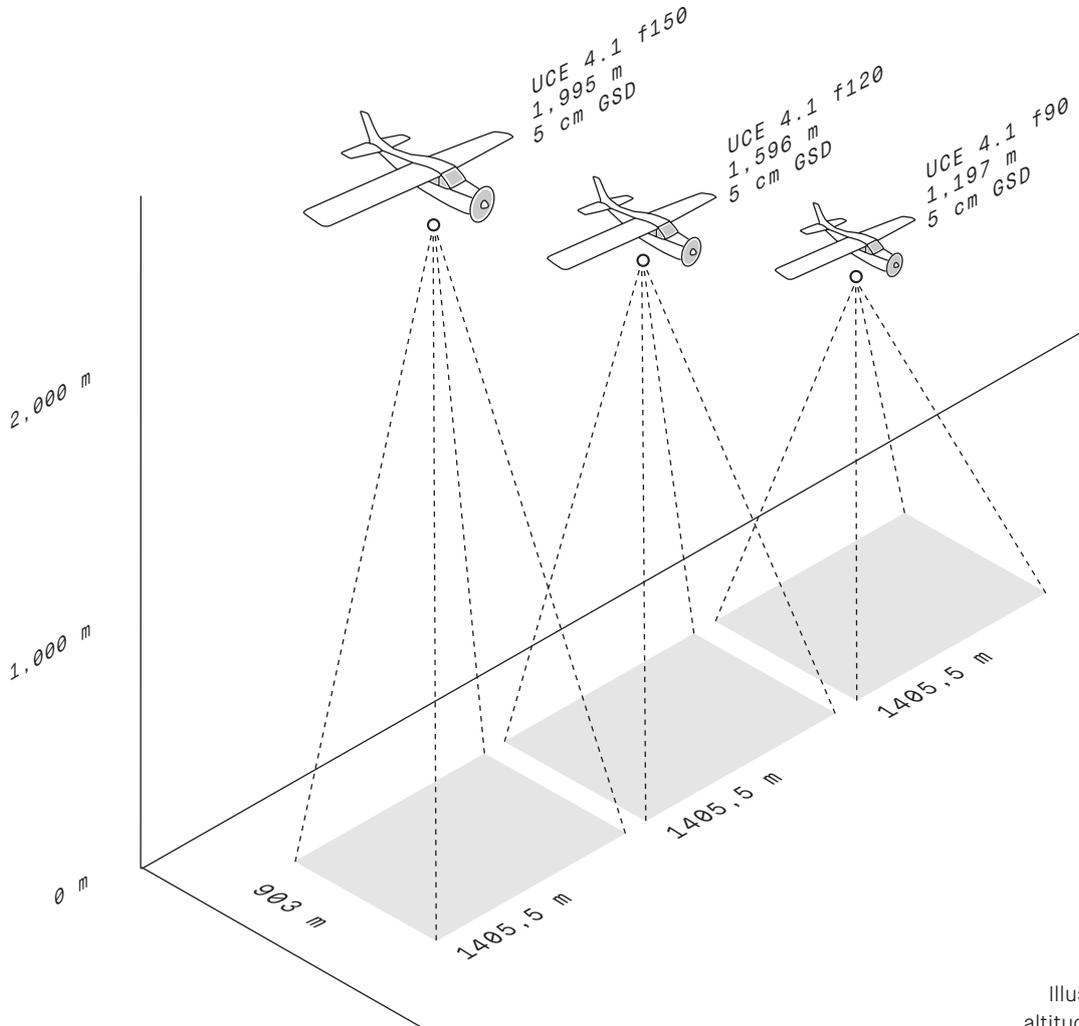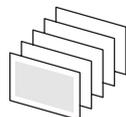1,000 m

0 m

903 m
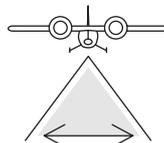
1405,5 m

1405,5 m

1405,5 m

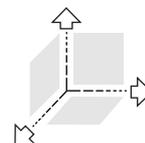Illustration of respective flight altitudes above ground level at a ground sampling distance of 5 cm.

Max. 132 kts flight speed for 5 cm GSD at 80% forwardlap

1 frame per 0.7 seconds

28,110 pixels across flight strip

Adaptive Motion Compensation

PAN

Photogrammetric camera with panchromatic sensors

SENSOR SYSTEM

PAN image size	28,110 x 18,060 pixels	Imaging sensor	CMOS
PAN physical pixel size	3,76 µm	Shutter (longlife central leaf)	Prontor magnetic-0 HS2; field exchangeable
Color capability (multi-spectral)	4 channels - R, G, B & NIR	Motion compensation (multi-directional)	Adaptive Motion Compensation (AMC)
Color image size	9,370 x 6,020 pixels	Frame rate (min. inter-image interval)	1 frame per 0.7 seconds
Color physical pixel size	3.76 µm	Dynamic range	>83 dB at base ISO
Pansharpen ratio	1 : 3	Analog-to-digital-conversion at	14 bits
		Spectral bands (FWHM[1])	R (580-680 nm) G (490-580 nm) B (420-510 nm) NIR (690-800 nm) PAN (430-650 nm)

DATA STORAGE SYSTEM & CAMERA SPECIFICATIONS

Type:
Solid state disk pack
(in-flight exchangeable)

Redundancy:
Yes, optional

Storage capacity:
16 TB (4x 4 TB NVMe SSD)
32 TB (4x 8 TB NVMe SSD)

Size of one raw image:
1856 MB
(1340 MB without
optional redundancy)

Number of raw images[2]
(without optional redundancy):
16 TB: up to 7330 (9162)
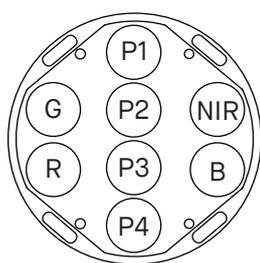32 TB: up to 14660 (18325)

Weight of data unit:
1 kg

Power consumption:
330 W (average)
350 W (peak)

Weight:
60 kg

Cylinder Diameter:
394 mm

Operator display:
Vexcel IPT v3 with 1024 x
768 resolution and 2.1 kg

— 43,3 cm —

74,5 cm

LENS SYSTEM

	f90	f120	f150
PAN lens system focal length	90 mm	120 mm	150 mm
PAN lens aperture	f=1/5.6	f=1/5.6	f=1/7.0
Color (R, G, B & NIR) lens system focal length	30 mm	40 mm	50 mm
Color (R, G, B & NIR) lens aperture	f=1/4.8	f=1/4.8	f=1/4.8
PAN total field of view, across track (along track)	60,8° (41,3°)	47,5° (31,6°)	38,8° (25,5°)
Flying height for PAN pixel size @ 10 cm GSD	2,394 m	3,192 m	3,989 m
Footprint for lean restriction of 1 m lean @ 5 m height (across x along)	9,574 x 9,574	12,766 x 12,766	15,957 x 15,957

P1
G P2 NIR
R P3 B
P4

OPERATIONAL SPECIFICATION

FLIGHT ALTITUDE	HUMIDITY	TEMPERATURE	MOUNTING	GNSS/INS/FMS	DATA PROCESSING
≤ 7000 m above sea level	5 % to 95 % no condensation	0 °C to +45 °C (operation, computer stack) -20 °C to +45 °C (operation, sensor stack) -20 °C to +65 °C (storage)	UltraMount and most current third party mounts[3]	UltraNav and most current third party systems[3]	UltraMap processing suite including data export in standard formats

[1] Full Width at Half Maximum.
[2] Due to configuration and change in SSD technology, usable storage size may vary and can not be guaranteed.
[3] 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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