

nüvü cameras

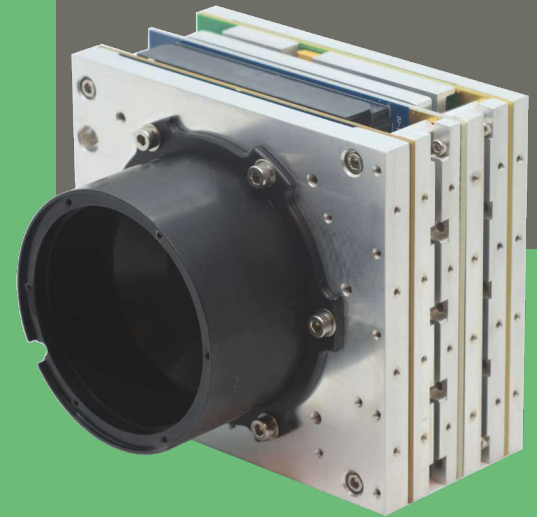
every photon counts

nüSpace
CMOS BUILT FOR
SPACE

BREAKING BARRIERS IN
LOW LIGHT
SPACE-BASED IMAGING

HIGH RESOLUTION AND
HIGH DYNAMIC RANGE FOR
VARIOUS LOW LIGHT
APPLICATIONS

CUSTOMIZABLE CAMERA
PLATFORM FOR CUBESATS



nüSpace CMOS

SYSTEM PARAMETERS

Size (H W D) ¹	96.0 x 96.0 x 48.9 mm Tailored to fit in 1U
Mass ¹	< 1 kg
Power consumption ²	< 10 W
Power supply	18-28V DC standard, 7-20V DC available
Thermal interface	Side plates, contact us for more details
Control & image interface	Camera Link, Camera Link HS, Gigabit Ethernet
Software	Software development kit (SDK) compatible with Linux & Windows
Imaging features	Region of Interest (ROI) Photon Counting More available on request
Metadata	Timestamping available

ENVIRONMENTAL CONDITIONS

Thermal Vacuum Cycling (TVAC)	-45°C to 70°C and <10 ⁻⁴ Torr NASA-STD-7000B
Random vibration	6.8 g RMS, 1 min/axis, 20-2000 Hz NASA-STD-7001B
Radiation tolerance	>25 kRad for >5 years in LEO Contact us for MEO, GEO or other
Operating temperatures	-35 °C to 60 °C

OUTSTANDING PERFORMANCES THANKS TO NÜVÜ'S PROPRIETARY TECHNOLOGIES

The nüSpace platform is a state-of-the-art imaging solution built to bring Nüvü's signature electronics to nanosatellites, with proven applicability to LEO, GEO and beyond.

With unmatched imaging sensitivity and flexibility with customizable detectors, optics & interfaces, the nüSpace camera platform will enable your novel space mission goals.

Potential space applications :

- Low GSD Earth observation
- Large-swath imaging
- Space surveillance (SSA)
- Sensitive UV imaging
- Extrasolar planet imaging
- High resolution spectroscopy

nüSpace CMOS

With CMOS sensors, the nüSpace camera enables high resolution, small pixel size & high sensitivity imaging in space, combined with high dynamic range and fast frame rates.



Benefit from Nüvü's extensive expertise focused on sensor control electronics for sensitive imaging applications both space and ground-based.

The nüSpace is available with multiple CMOS sensors, contact us for more specifications.

nüSpace using Fairchild Imaging's HWK4123 sensor

OPTICAL CHARACTERISTICS

Shutter type	Rolling shutter Global reset
Imaging area	4096 x 2300 pixels 4.6 x 4.6 μm pixel area 18.9 x 10.6 mm active area
Operating temperatures ³	-35°C to 60°C
Frame rate ⁴	120 fps
RMS Readout noise ⁵	Down to 0.3 $\bar{e}$
Dark current ⁵	0.01 $\bar{e}/\text{s}$ @ -20°C
Linearity ⁵	>99%
Dynamic range	>85 dB
Spectral range	300 - 1000 nm
Data format	12 bits

WITH OPTICS (CUSTOMIZABLE)

Swath @ 500 km	29.5 x 16.5 km	14.7 x 8.3 km
GSD @ 500 km	7.2 m	3.6 m
Focal length	320 mm	630 mm
Aperture	80.5 mm	180 mm

TYPICAL QUANTUM EFFICIENCY

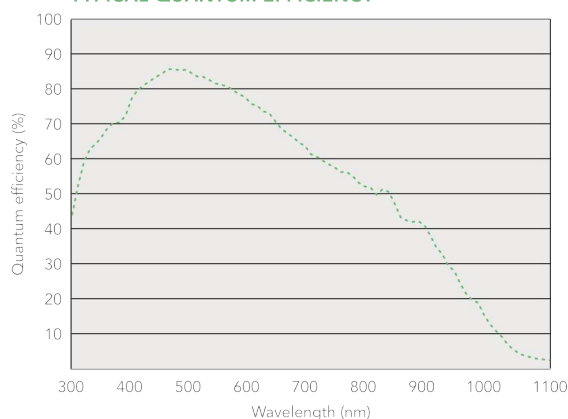
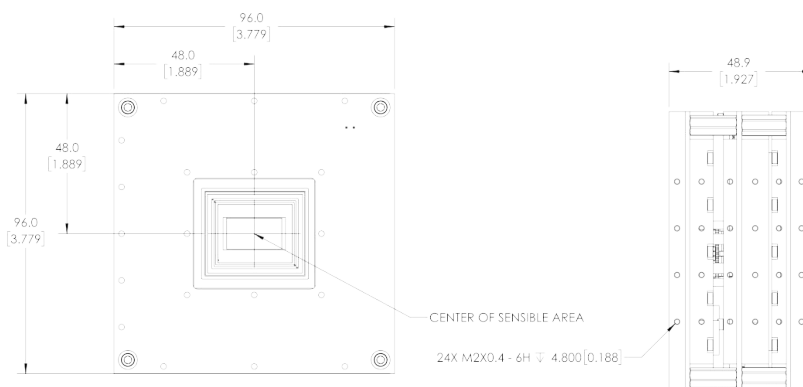


Figure 1
Typical spectral response as a function of wavelength, as specified by the detector manufacturer⁶

TECHNICAL DRAWINGS¹



- 1 With standard front & back plates. Mechanical interface plates can be removed and/or modified.
- 2 Mean power. Measured at 1 FPS.
- 3 As per the CMOS detector manufacturer's data sheet. Other configurations may exist.
- 4 With buffering, or depending on communication mode.
- 5 Typical values measured at lower clock speeds. These numbers may vary depending on the CMOS detector.
- 6 Nüvü gives only the specifications of the CMOS detector's manufacturer (e.g. Quantum efficiency, aesthetic specifications, blemishes).

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 nüSpace Specification Sheet 3.1.3
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