

# nüvü cameras

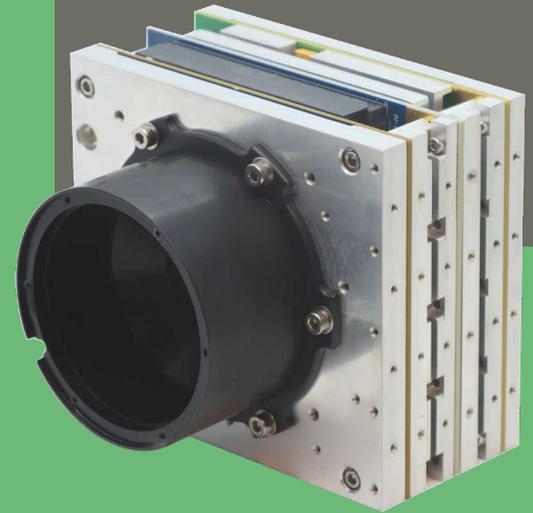
every photon counts

nüSpace  
CMOS BUILT FOR  
SPACE

BREAKING BARRIERS IN  
LOW LIGHT  
SPACE-BASED IMAGING

HIGH RESOLUTION WITH  
PHOTON COUNTING  
SENSITIVITY

CUSTOMIZABLE CAMERA  
PLATFORM FOR CUBESATS



## nüSpace CMOS

### CHARACTERISTICS

Size (H W D)<sup>1</sup>

Mass<sup>1</sup>

Power<sup>2</sup>

Thermal Vacuum Cycling (TVAC)  
tests

Random vibration testing

Radiation tolerance

Control & image interface

Imaging features

Environmental operation  
temperature

### SPECIFICATIONS

96.0 x 96.0 x 48.9 mm  
Tailored to fit in 1U

<1 kg

<10 W

-45°C to 70°C and <10<sup>-4</sup>Torr  
NASA-STD-7000B

6.8 g RMS, 1 min/axis, 20-2000 Hz  
NASA NASA-STD-7001B

>25 kRad for >5 years in LEO  
Contact us for GEO specifications

Camera Link, Camera Link HS,  
Gigabit Ethernet

Binning  
ROI  
Photon Counting  
More available on request

-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, based on our design developed for NASA's flagship Roman Space Telescope.

With unmatched imaging sensitivity and flexibility with customizable detectors, integrated optics & interfaces, nüSpace camera platform supports 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 enables high dynamic range, high resolution & high sensitivity imaging in space, combined with high dynamic range and low pixel size.



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

### CHARACTERISTICS

Shutter type

### SPECIFICATIONS

Rolling shutter  
Global reset

Imaging area

4096 x 2300 pixels  
4.6 x 4.6  $\mu\text{m}$  pixel area

Operating temperatures<sup>3</sup>

-35°C to 60°C

Frame rate

120 fps

RMS Readout Noise<sup>4</sup>

Down to 0.3  $\bar{e}$

Linearity<sup>4</sup>

>99%

Dynamic Range

>85 dB

Spectral range

300 - 1000 nm

Data format

12 bits

## With optics (customizable)

### CHARACTERISTICS

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

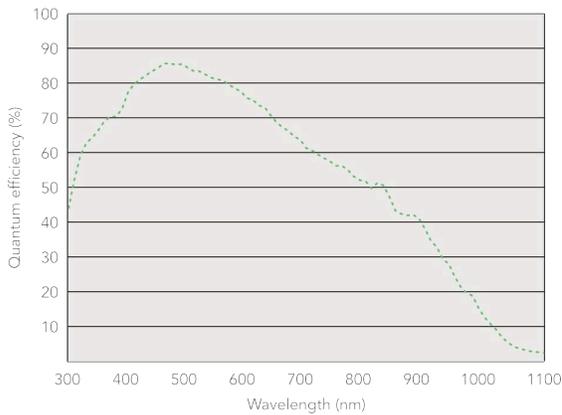
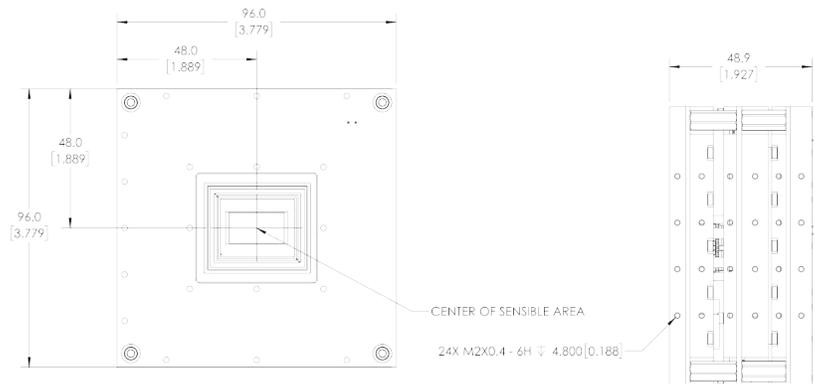


Figure 1  
Typical spectral response as a function of wavelength, as specified by the detector manufacturer<sup>5</sup>

### TECHNICAL DRAWINGS<sup>1</sup>



- 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 Typical values measured at lower clock speeds. These numbers may vary depending on the CMOS detector.
- 5 Nüvü gives only the specifications of the CMOS detector's manufacturer (e.g. Quantum efficiency, aesthetic specifications, blemishes).

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 CANADA

nüvü  
cameras

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nüSpace Specification Sheet 3.1.1

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