

CATALOG

2023



nivü
cameras



Our Products

LOWEST BACKGROUND NOISE

Nüvü's proprietary technologies significantly lowers the main source of noise with sensitive sensors, for unmatched low light imaging performances.



CAMERAS

Discover our CCD & EMCCD cameras, recognized as the most sensitive on the market.

ROOTED IN INNOVATION

With 20 years of research and numerous contributions to the scientific field, Nüvü Camēras constantly pushes the boundaries of known science, with new features and custom projects.



CONTROLLERS

Discover how Nüvü's patented controller can enhance ground- or space-based imaging solutions.



SERVICES

Discover how Nüvü's unique expertise in low light imaging can accelerate projects.

Scientific Cameras



HNü: The flagship EMCCD camera, air or liquid cooled down to -90°C . Available with various sensors to answer many speed or sensitivity requirements.



nüSpace: An EMCCD & CCD camera that fits in 1U. For space-based low light imaging projects.



HNü 240: An EMCCD camera optimized for the highest Adaptive Optics performances. With a multi-output EMCCD sensor, it achieves faster frame rates with a larger field of view.



EM N2: A liquid-nitrogen cooled EMCCD camera. For hours-long exposures using standard or custom CCD & EMCCD sensors.



HNü TDI: A Time Delay Integration (TDI) CCD camera. Designed for scanning applications with high speed & sensitivity.

Camera Models



HNü

Standard EMCCD resolutions :
128 x 128 pixels
512 x 512 pixels
1024 x 1024 pixels

Models available :
Alpha
Gamma
Omega



nüSpace

Designed for nanosatellites.

Standard EMCCD resolution:
1024 x 1024 pixels

Other EMCCD & CCD resolutions available



HNü 240

Designed for adaptive optics high performances:

EMCCD resolution:
240 x 240 pixels



EM N2

Adapted for CCD & EMCCD sensors.

Standard EMCCD resolutions:
128 x 128 pixels
512 x 512 pixels
1024 x 1024 pixels



HNü TDI

Designed for sensitive scanning applications.

CCD resolution:
4096 x 128 pixels

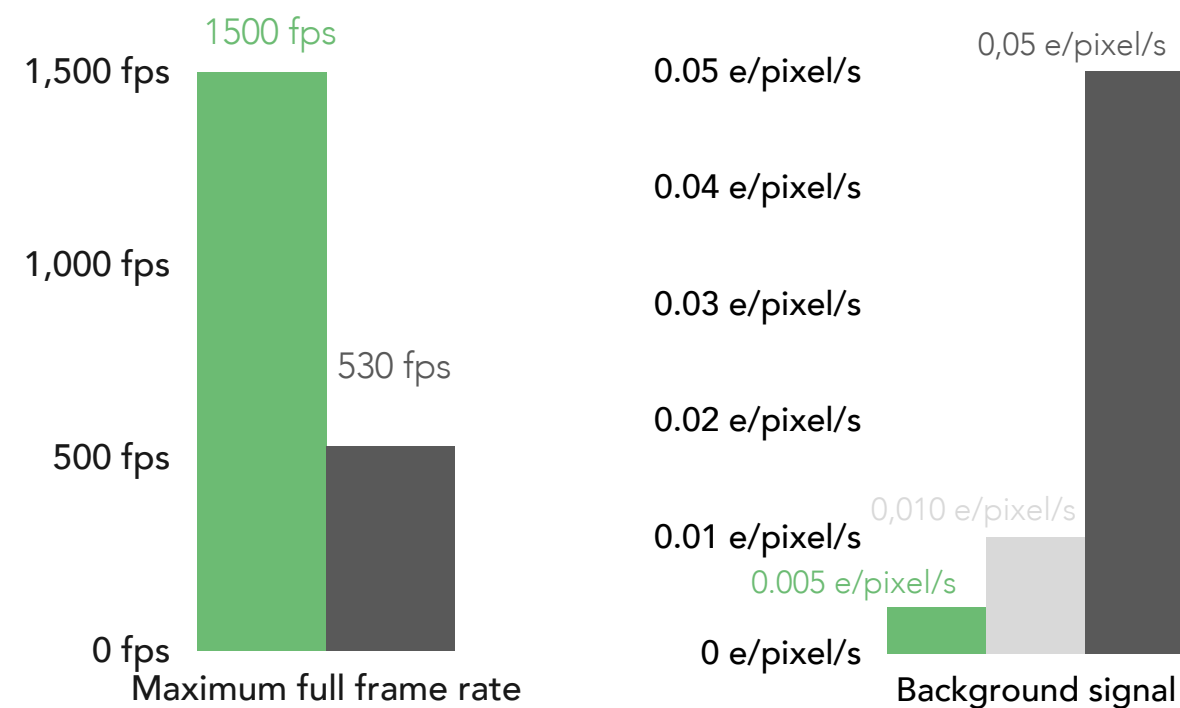
h·nū 128

EMCCD CAMERA
BUILT FOR SPEED



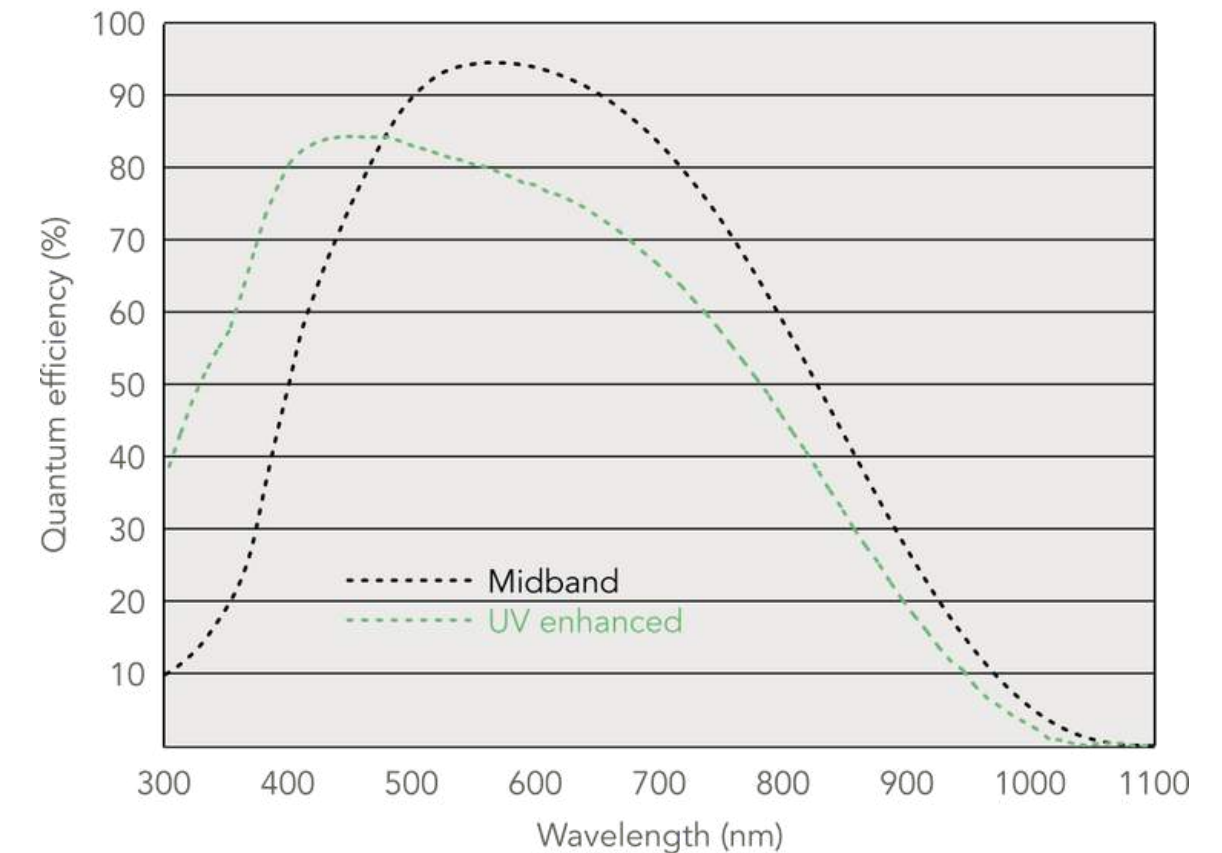
Up to 1500 FPS full frame, imaging even in near-total darkness

- Operation rate up to 1460 fps full frame
- <0.004 e-/px/frame background noise
- EM gain up to 5000
- Charge transfer efficiency > 0.999980
- No noise filtering algorithms
- Up to 10x less noise and 3x faster



■ h·nū 128 (All specifications measured in IMO)
■ ■ Best achievable performance of other EMCCD cameras

TYPICAL QUANTUM EFFICIENCY



[CLICK HERE FOR THE SPEC SHEET](#)

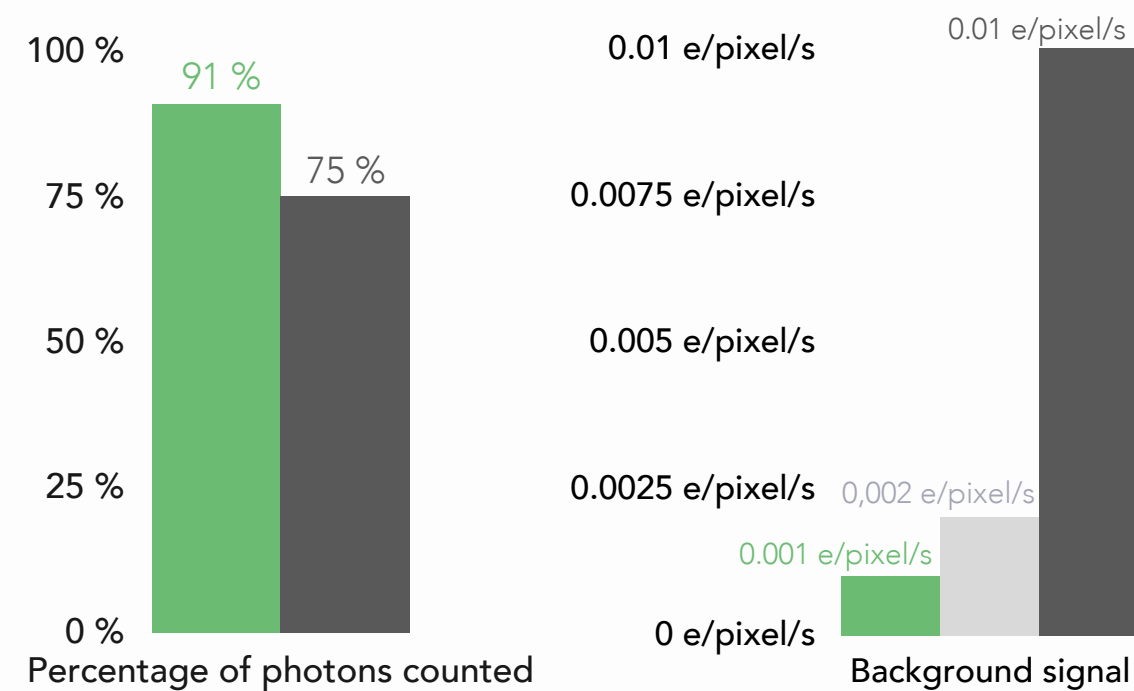
h·nū 512

EMCCD CAMERA
BUILT FOR SENSITIVITY



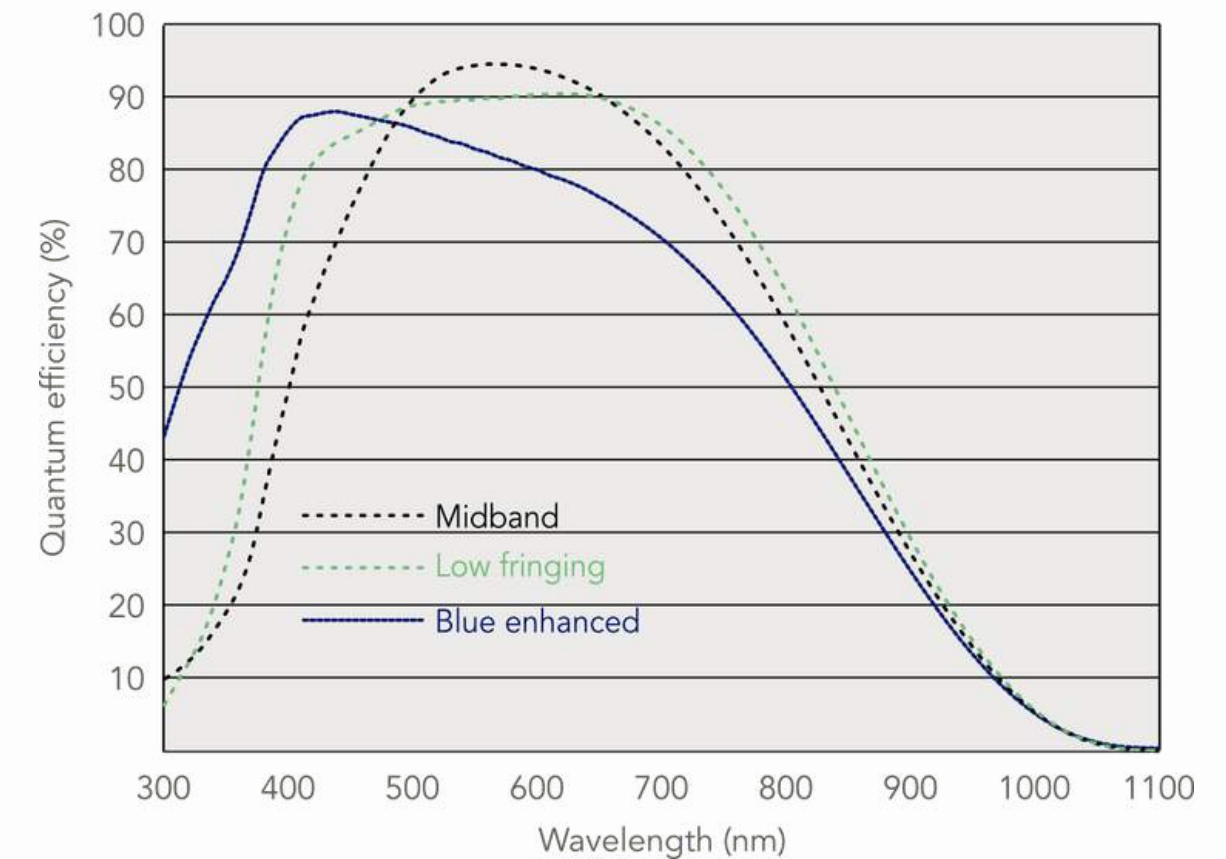
Industry-leading low-light SNR, balancing speed and field of view

- Operation rate up to 90 fps full frame
- <0.0009 e-/px/frame background noise
- EM gain up to 5000
- Charge transfer efficiency > 0.999993
- No noise filtering algorithms
- Over 15% more genuine photons counted



■ h·nū 512 (All specifications measured in IMO)
■ ■ Best achievable performance of other EMCCD cameras

TYPICAL QUANTUM EFFICIENCY



[CLICK HERE FOR THE SPEC SHEET](#)

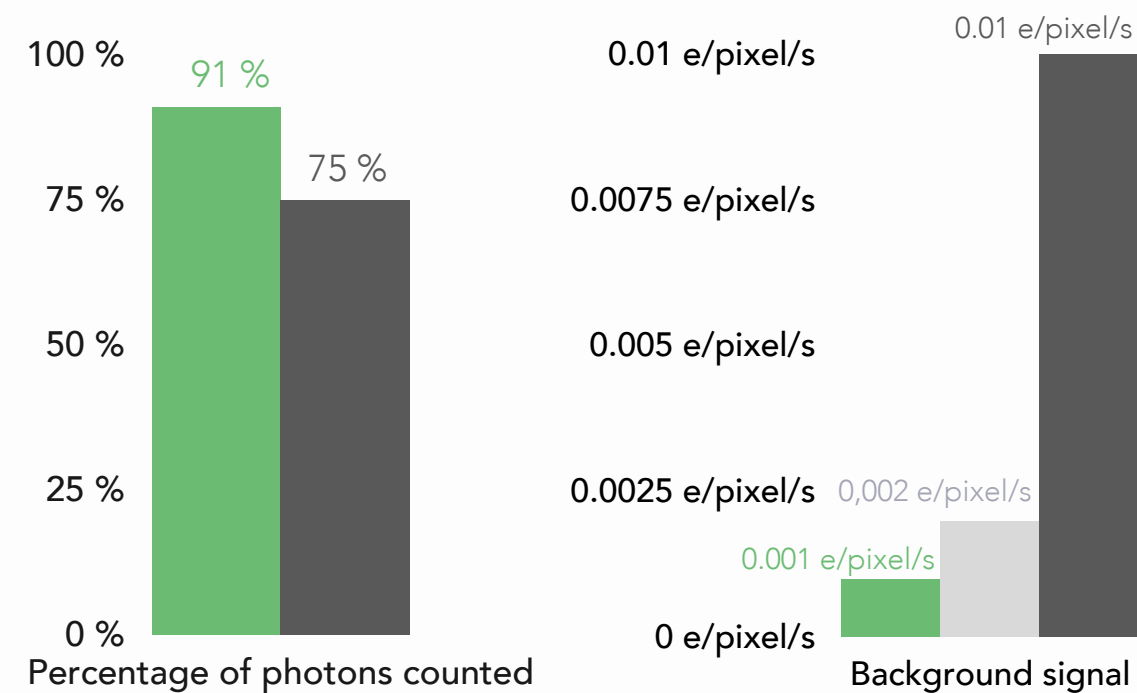
h·nū 1024

EMCCD CAMERA
BUILT FOR RESOLUTION

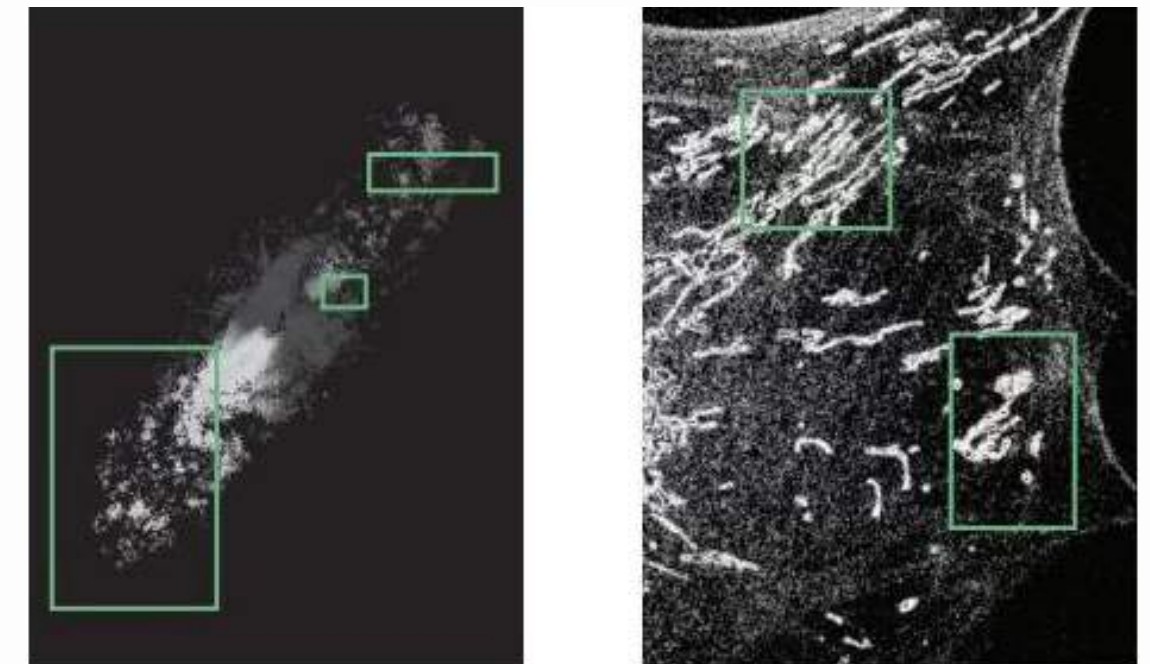


Wide field of view combined with photon-counting capabilities

- Operation rate up to 25 fps full frame
- < 0.0015 e-/px/frame background noise
- EM gain up to 5000
- Charge transfer efficiency > 0.999989
- No noise filtering algorithms
- Multiple regions of interest functionality



■ h·nū 1024 (All specifications measured in IMO)
■ Best achievable performance of other EMCCD cameras



Example of mROI selections during the imaging of a galaxy and a mitochondria

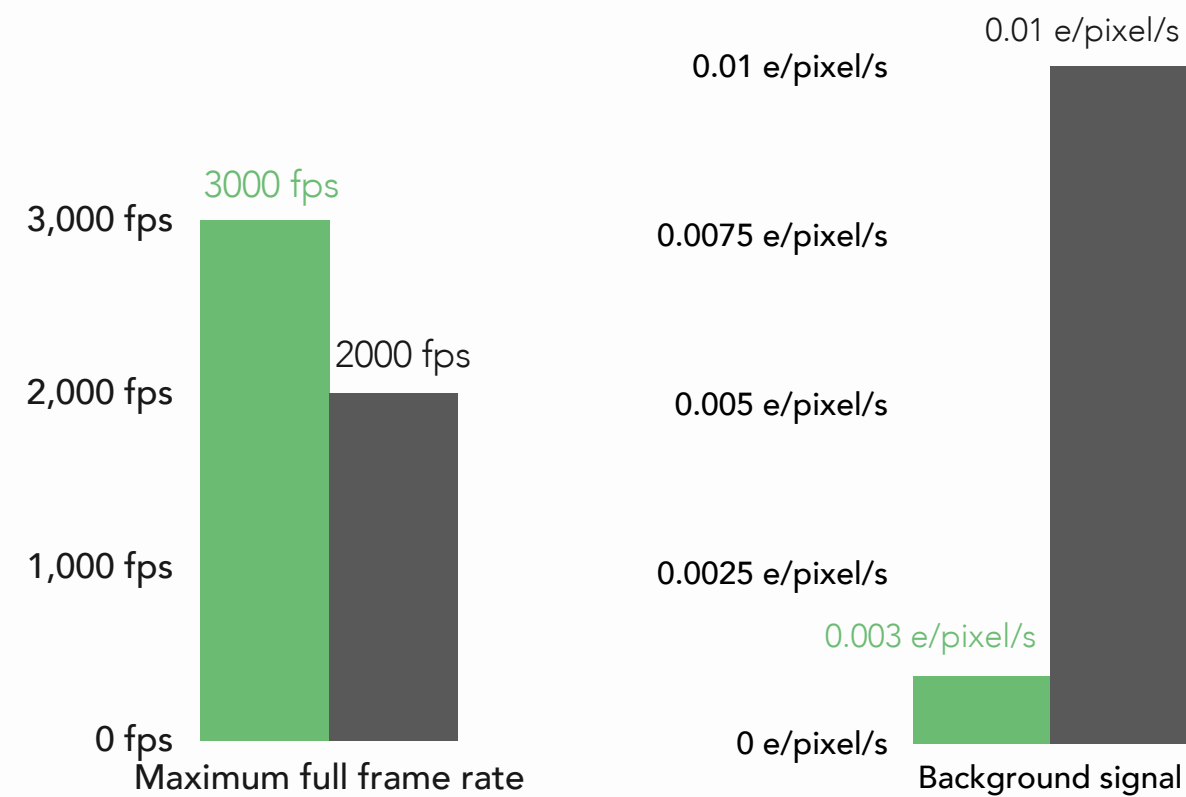
[CLICK HERE FOR THE SPEC SHEET](#)

h·nū 240

EMCCD CAMERA BUILT FOR ADAPTIVE OPTICS

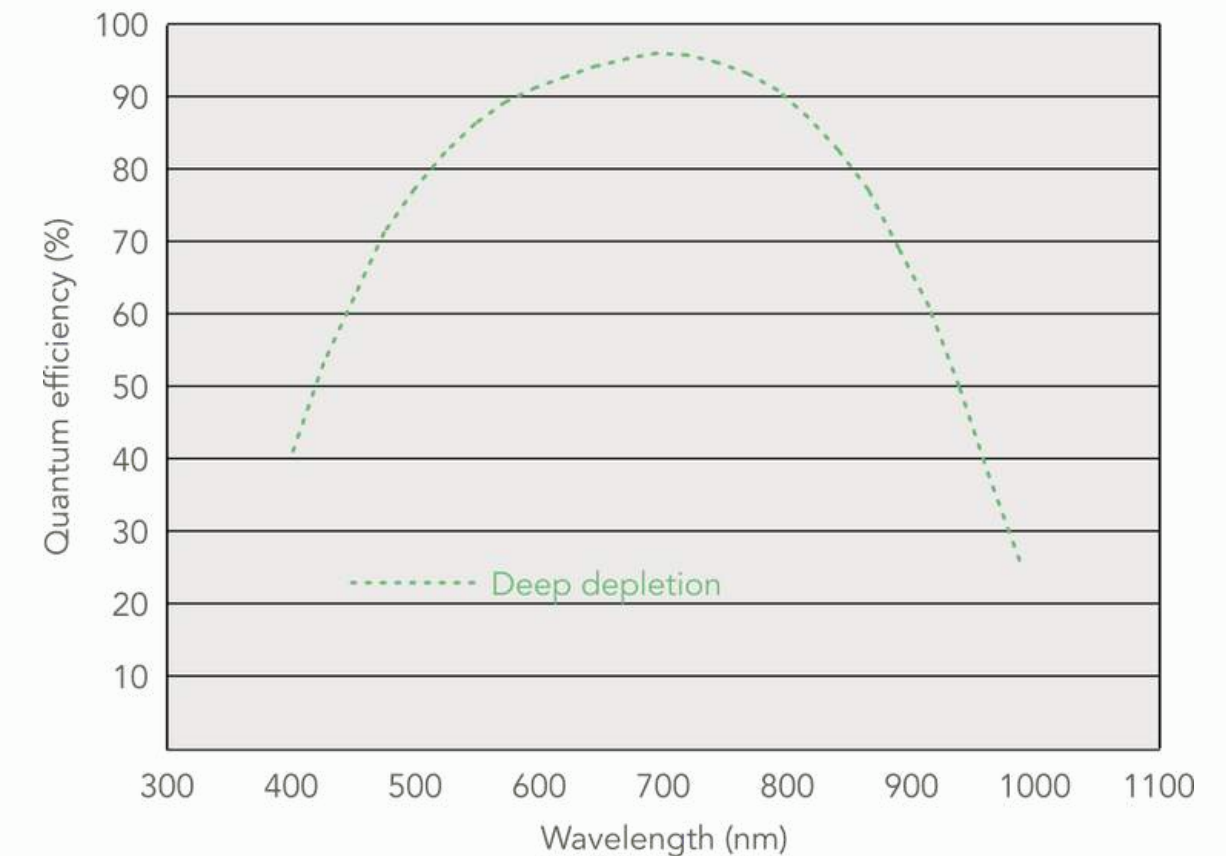
Over 3000 FPS full frame imaging, even in near-total darkness

- Operation rate over 3000 fps full frame
- < 0.003 e-/px/frame background noise
- Readout rate of 30 MHz
- First pixel latency of $35.5 \mu\text{s}$
- Charge transfer efficiency > 0.99997
- No noise filtering algorithms



■ h·nū 240 (All specifications measured in IMO)
■ Best achievable performance of other EMCCD cameras

TYPICAL QUANTUM EFFICIENCY



[CLICK HERE FOR THE SPEC SHEET](#)

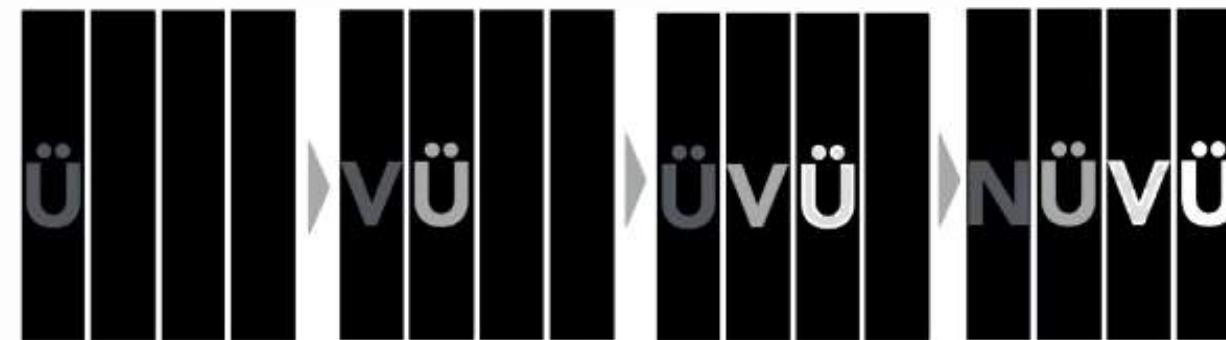
h·nū TDI

CCD CAMERA BUILT FOR DEMANDING SCANNING APPLICATIONS



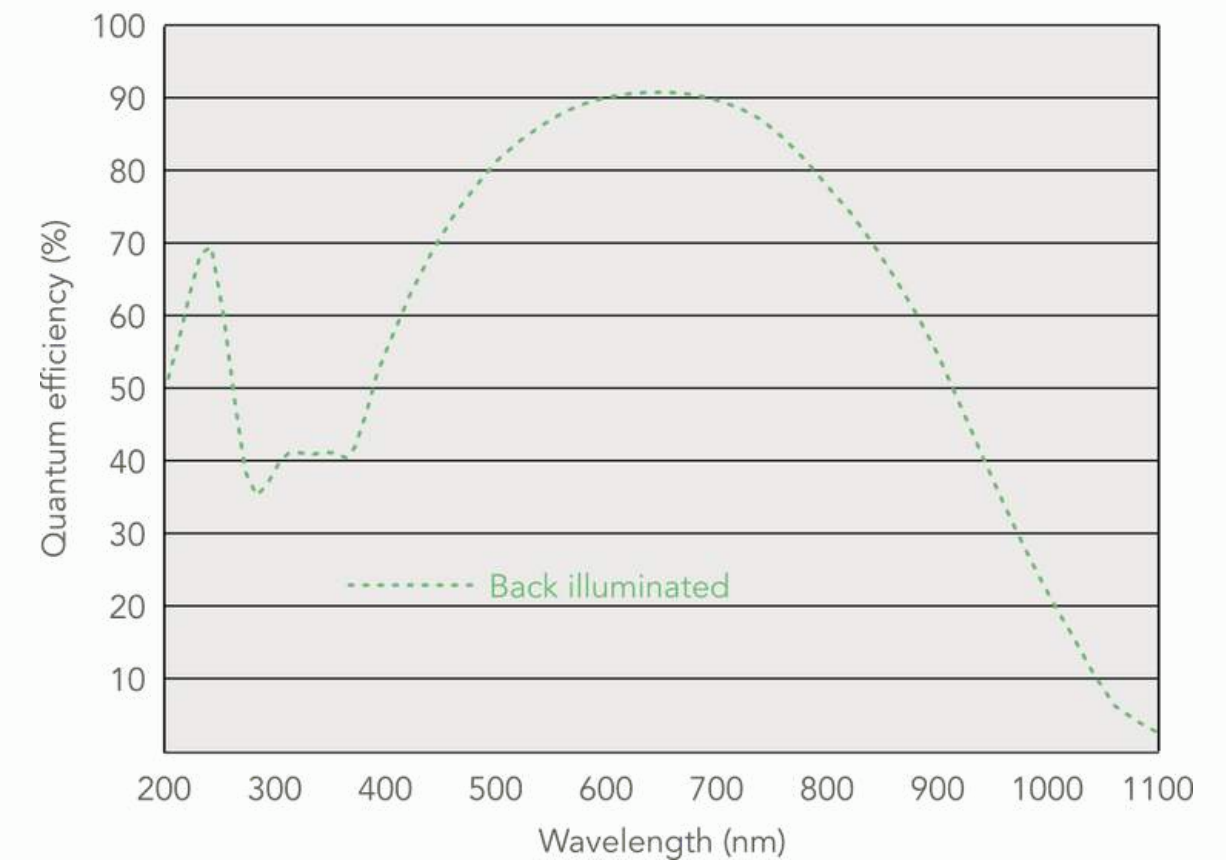
High sensitivity time-delay integration mode

- Line rate up to 103 kHz
- Resolution of 4096 (H) x 128 (V) px
- Readout noise lower than 65 electrons
- Built for TDI
- 4096 x 128 pixels resolution
- Highest quantum efficiency



Example of imaging the word "NÜVÜ" using TDI readout mode. The intensity of the signal is increased as the word moves across the detector.

TYPICAL QUANTUM EFFICIENCY



[CLICK HERE FOR THE SPEC SHEET](#)

Electronic Controllers

The CCCP, the CCD Controller for Counting Photons, is Nüvü's proprietary camera proximity electronics available as a standalone product. The CCCP unlocks the full potential of high-end, single or multiple output CCD & EMCCD sensors in low light conditions. Designed for quick and easy integration in your custom camera for maximum imaging sensitivity and performances in demanding applications.

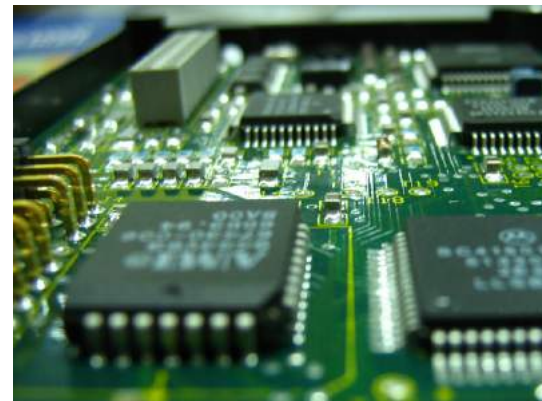
- Up to 30 MHz pixel readout
- Lower CIC with higher EM Gain
- Higher charge transfer efficiency
- Fully programmable FPGA (VHDL)



CCCP for ground-based applications



CCCP for space-based applications



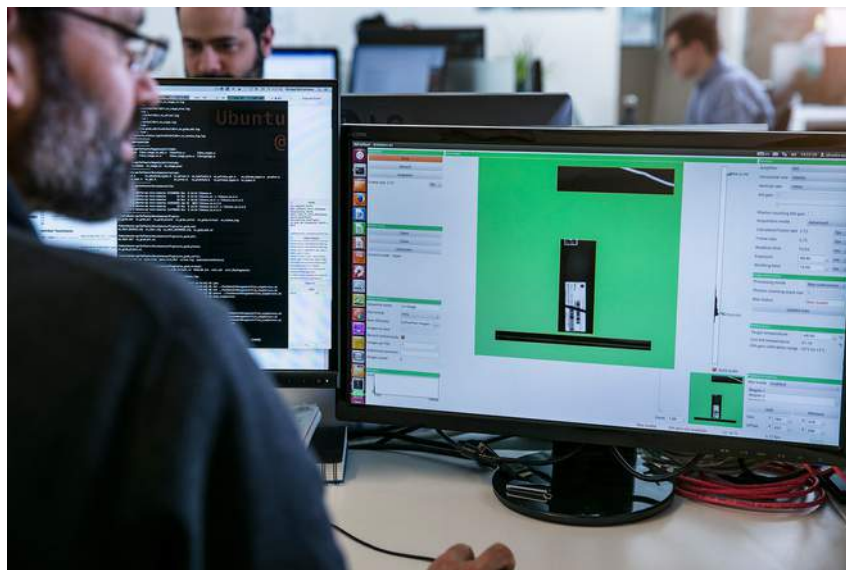
CMOS Controller for space-based applications available in 2024-2025

Services

BENEFIT FROM KNOW-HOW IN DEMANDING LOW-LIGHT IMAGING

Take advantage of our unique & extensive low light imaging expertise for your ground- or space-based projects. With a proven track record, Nüvü will help you achieve optimal performances with lower noise and higher imaging speeds, along with flexible readout sequences adapted to your specific requirements.

- Consulting services for the integration of the product in a specific system
- Development of new features and improvement services for the adaptation of a product to an application
- Customization and specialization to bring complete imaging solutions
- Space-based imaging solutions



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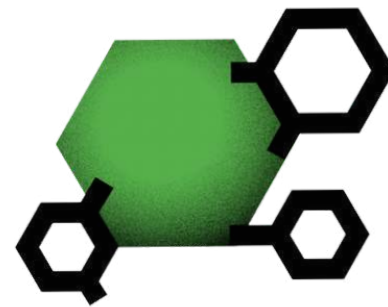
Fields of Application

With a drastic reduction of noise, by a factor reaching orders of magnitudes in some applications, the performance of Nüvü's imaging solutions cannot be matched in situations requiring fast exposure times in environments bearing little light.

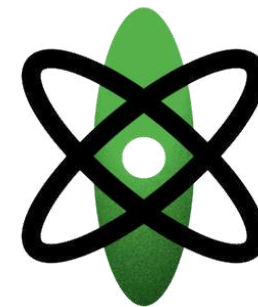
Our customers are using Nüvü's imaging solutions for numerous applications, including in the following fields.



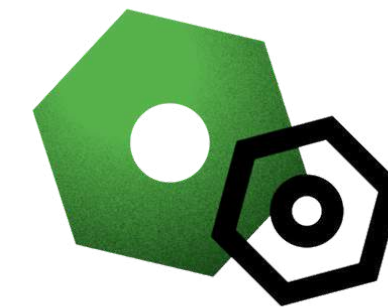
**Space &
Defense**



Life Science



Physics



**Industrial
Sector**

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Space & Defense

Observe faint and distant space objects, fast-moving targets or quickly correct for atmospheric distortions; Nüvü Camēras' unparalleled photon detection capabilities and imaging speed will yield quality images suitable for in-depth analyses.

SPACE SURVEILLANCE

Peerless ability of detection of small objects.

ADAPTIVE OPTICS

Benefit from an atmospheric distortion correction at an unparalleled speed.

NIGHT VISION

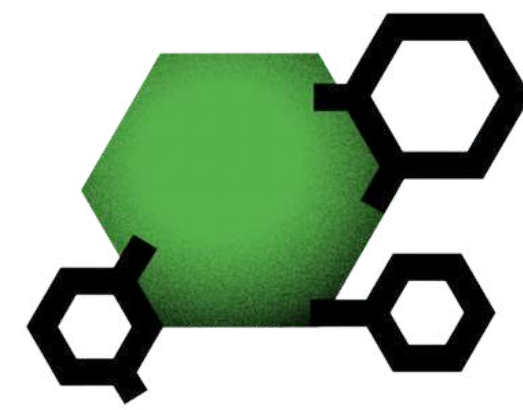
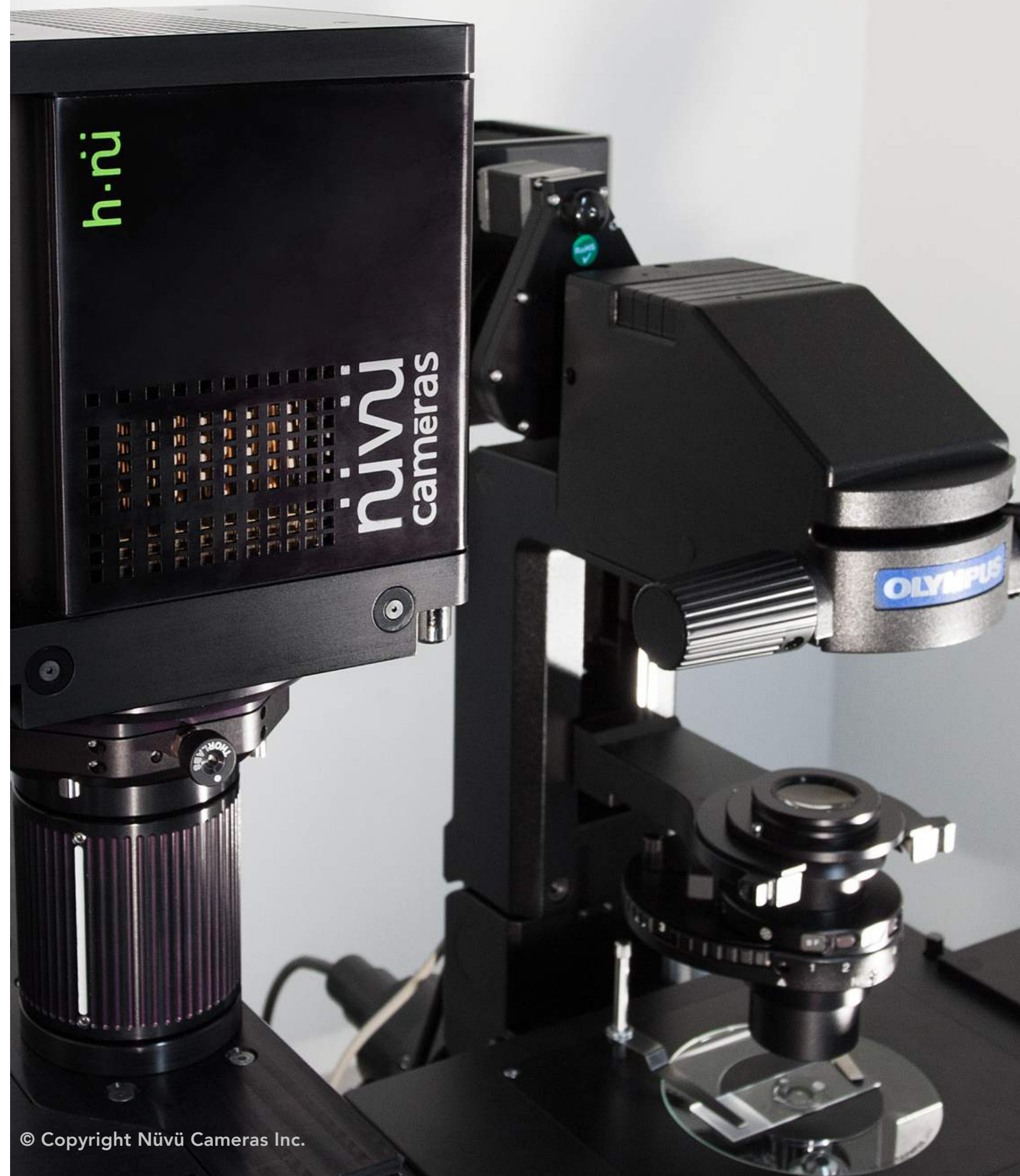
Optimal SNR for night observations, ranging from UV to NIR wavelengths.

EXTRASOLAR PLANET IMAGING

Unmatched sensitivity for Earth-like planet detection.

[CLICK HERE FOR SPACE & DEFENSE PUBLICATIONS](#)

nüvü
camēras



Life Science

Obtain higher quality images in shorter time and with minimal excitation power thanks to Nüvü Camēras' industry-leading sensitivity; making a crucial difference when working with sensitive biological samples or in the time-limited clinical context.

Cancer cell detection

Reduce the risk of relapse by distinguishing and protecting healthy tissue.

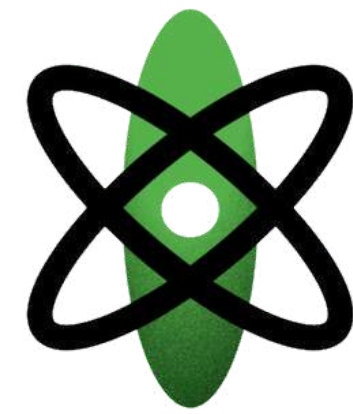
Drug development

Increase the lifetime of observed cells, decrease study costs.

Low light emission detection

Capture the weak glow of biomarkers with an unrivalled signal-to-noise ratio whilst minimizing photobleaching.

**CLICK HERE FOR LIFE SCIENCE
PUBLICATIONS**



Physics

Image dynamic events and interactions at the smallest scales with remarkably short exposures and over large spectral ranges thanks to Nüvü Cameras' unrivalled noise specifications, enabling you to push the frontiers of knowledge with less concern over technical limitations.

Ultracold Atoms

Unique sensitivity to identify and track single atoms.

Trapped Ions

High speed imaging ideal for quantum simulations.

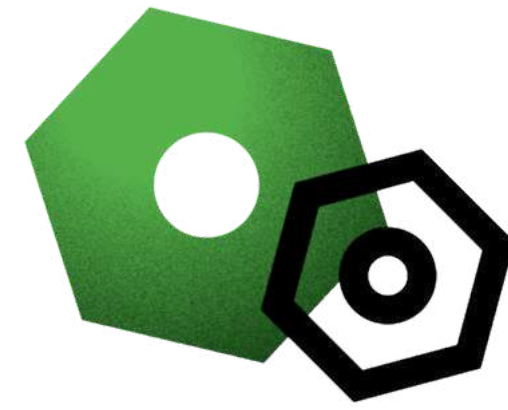
Nitrogen Vacancies

EMCCDs develop the cutting-edge of integrated quantum photonics

Entangled Photons

Unmatched photon counting performances.

[CLICK HERE FOR PHYSICS PUBLICATIONS](#)



Industrial Sector

Inspect detailed objects with unique sensitivity and at the highest frame rates available for EMCCDs. For demanding scanning applications, get what is expected from high-end CCD & EMCCD TDI cameras: virtually no noise and high imaging speeds.

Quality control

Obtain high quality images at the highest frame rates available for EMCCDs and benefit from the innovative Time-Delay Integration (TDI) technology to drastically increase effective exposure times on fast moving targets.

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Contact us

PLEASE CONTACT US FOR MORE INFORMATION ABOUT OUR PRODUCTS OR SERVICES

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