PHOTONIC SCIENCE

Nightfall-HR

High resolution, low noise sCMOS Camera

From daylight to starlight... 24-hour operation ruggedised camera

The new **Nightfall-HR** camera from Photonic Science provides an ideal solution for 24-hour imaging in all conditions, from starlight to full daylight.

The camera uses a state-of-the-art back illuminated sCMOS sensor with 0.5 electron readout noise. Unprecedented low light imaging, rivaling that of intensified solutions, is achieved through the coupling of thermoelectric cooling and Photonic Science's powerful image processing.

The 9.4 megapixel format provides the high resolution required for long distance surveillance, with capabilities to digitally zoom into features of interest.

The standard Gigabit Ethernet Vision compliant interface enables easy integration into existing systems. Camera Link high speed interface enables higher speeds and is available an an option.

OEM versions are available with special form factors, cooling options, and choice of intefaces, ideal for ease of integration into user specific payload and surveillance systems.

Key Features

- >80 dB intra-scene dynamic range
  to see more detail in high-contrast scenes
- Ultra-low 0.5 electron RMS read out noise
  for superior low light performance
- Enhanced NIR QE out to 1100 nm
  to get the most out of existing night-glow
- Large 9.4 megapixel format
  with region of interest for high resolution imaging
- Pixel binning for enhanced sensitivity
- Extremely low dark current
  to enable longer exposure times
- Windows SDK and Photonic Science Viewer
  with advanced post-processing functions

Applications

Ground based surveillance

Marine perimeter surveillance

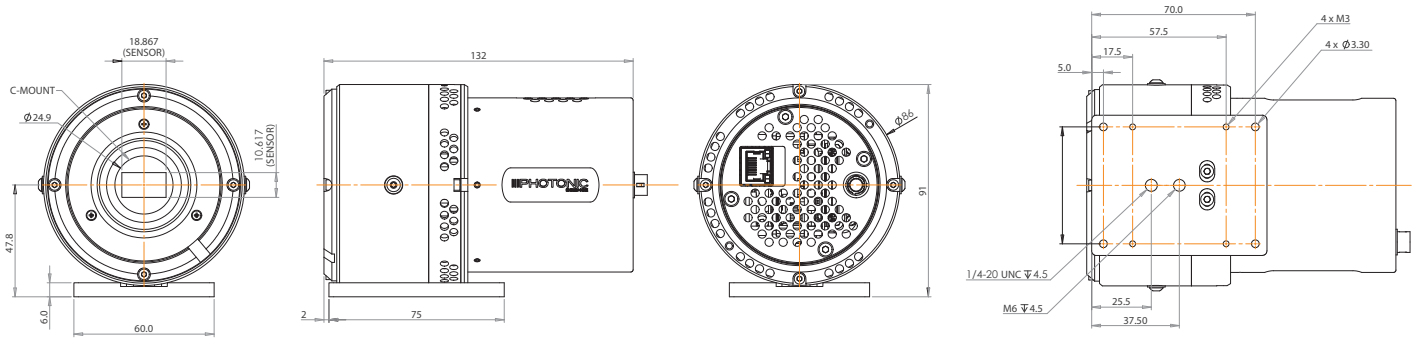
Airborne surveillance

Situational awareness

Nightfall-HR sCMOS Camera

Characteristics	Nightfall-HR
Spectral Range	380 - 1100 nm
Resolution (pixels)	4096 x 2300
Pixel Size	4.6 x 4.6 µm
Sensor Size	18.9 mm x 10.6 mm (21.6 mm diagonal)
Sensor Frame Rate	Camera Link - 12 fps Full Frame and 30 fps 1080 HD GigE - 8 fps Full Frame and 20 fps 1080 HD
Exposure Time	25 microseconds up to 60 seconds
Full Well Capacity	7,000 electrons
Sensor Read Out Noise	0.5 electron
Reading Mode	Integrate While Read / Rolling Shutter
Dark Current	2 electron/pixel/second at +20°C
Image Quality	Image processing and calibrations provide optimal image output over varying temperature and light conditions
ADC	12-bit, 16-bit HDR mode with in-computer digital processing
Non Linearity	<1%
Interface	Gigabit Ethernet Vision compliant or optional Camera Link

	RESOLUTION	PIXEL SIZE	GigE MAX FRAME RATE	CAMERA LINK MAX FRAME RATE
Video Output Format 1	4100 x 2300	4.6 microns	8 fps	12 fps
Video Output Format 2	1920 x 1080 HD	4.6 microns	20 fps	30 fps
Video Output Format 3	1920 x 1080 HD	9.2 microns (bin2x2)	10 fps	18 fps



T +44 (0)1424 444883
E info@photonicscience.com
www.photonicscience.com

22 Theaklen Drive, Saint Leonards-on-sea,
TN38 9AZ, United Kingdom

PS-DS002-Nightfall-HR-Rev01-Apr2023