

Night Vision Cameras - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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Report description:

The Night Vision Cameras Market size is estimated at USD 5.82 billion in 2024, and is expected to reach USD 10.17 billion by 2029, growing at a CAGR of 11.78% during the forecast period (2024-2029).

Night vision cameras protect valuable assets by capturing video evidence of vandalism, theft, and any other unauthorized activity in low-light conditions. Most standard security systems or cameras often fail to fulfill this task. Advanced night vision security cameras enable an impressive array of features to make after-hours video surveillance easy, efficient, and accurate. They are one of the fastest-growing security systems in the global market. As a result, these cameras are being preferred across various industries and in some cases, by several individuals for residential, public infrastructure, and industrial applications.

Key Highlights

- Night vision cameras have several advantages, such as providing a clear view of low-lit areas across various applications. However, such cameras only produce black-and-white images, which is an acceptable compromise in most cases. Various researchers at the University of California, Irvine, aimed to enhance night vision by making an Artificial Intelligence that fills in the blind spots and colorizes the images. The colorization, however, only works with portraits, but in the near future, it may be possible to colorize other features for a more natural feel that turns night into day.
- Invisible Night Vision cameras are specifically designed for bird boxes, bird feeders, or other nest boxes monitoring support invisible night vision, which, unlike commonly used security cameras with night vision, are equipped with 940nm infrared(IR) LEDs for illumination and serve bird-friendly night vision because only a dim red light will be emitted, which will not spook birds or wildlife, or disturb their natural sleep cycles if the night vision is turned on automatically in a sudden manner. This enables nature lovers to be able to watch crisp black-and-white images of evening activities of birds or wildlife of interest on their mobile devices, allowing them to explore and enjoy the nightly activities of birds or wildlife of interest.

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-Technical developments in thermal imaging cameras will enable companies to incorporate those techniques in their products and capture a vast market share in the future. For example, Cooled thermal imaging cameras necessitate cooling equipment capable of cooling the camera's thermal detector to temperatures as low as 200 Kelvin (-100 F). Several cooling techniques are currently used, including cryogenic liquefied gases, Peltier coolers, and Stirling coolers. A Stirling cooler is a cooling device that alternately compresses and releases gas to regulate temperature.

-These night-vision systems are subjected to challenging battlefield circumstances and extensive military use. The expense of replacing and maintaining a night vision gadget is prohibitively expensive. Refurbishment, repair, or upgrade is a low-cost alternative solution. The increased prices of near-vision device systems relate to practical and durable hardware. Because an image tube can cost millions of dollars to develop, build, and install, the equipment contains a more significant capital expenditure necessary to invest in it. Because of the sensitivity of the cooled infrared detector system, cooled thermal imaging cameras give the best image quality and the most significant variation in ambient temperature. Still, the cooling systems have a limited lifetime.

-During COVID-19, the South Diego Chula Vista Police Department announced an investment of over USD 11,000 in acquiring two drones equipped with night vision cameras to mitigate the risk for the officers in these areas. The department aimed to watch over people living on the streets with these drones amid the outbreak. Even in most of the countries, the use of night vision cameras has been increased significantly. In Post COVID scenario, India planned to deploy drones powered by artificial intelligence to zoom in on these localities with night-vision cameras.

Night Vision Camera Market Trends

Military and Defense Segment is Expected to Drive the Market

- The widespread utilization of night vision devices in military defense and law enforcement applications is motivated by the necessity for enhanced situational awareness, target identification, and operational effectiveness in low-light and nighttime circumstances. Military forces heavily depend on night vision technology, with special forces utilizing night vision goggles (NVGs) in discreet missions like those undertaken by the US Navy SEALs during critical operations. Similarly, law enforcement agencies rely on night vision devices for surveillance, search & rescue efforts, and crowd control.

- Moreover, the countries are making significant investments in Military and defense, which requires the high use of vision cameras. Such investments are also likely to boost the demand in the market. For instance, In Feb 2022, The Finance Minister of India allocated INR 525,166.15 crore (USD 63.05 billion) to the Ministry of Defense for the fiscal year 2022-23. This represents an increase of INR 46,970 crore (USD 5.64 billion), or 10%, over the previous year's allocation of INR 478,196 crore (USD 57.41 billion) and the most significant rise in the defense budget in recent years.

- Similarly, In March 2022, According to draught budget recommendations, the Chinese government proposed a defense budget of JPY 1.45 trillion (USD 230 billion) for the fiscal year 2022, a 7.1% rise year on year. China's increase in defense spending coincides with the People's Liberation Army's increasing muscle-flexing in the vital Indo-Pacific. In 2020, China's defense spending, for the first time, crossed USD 200 billion. In 2021 the defense budget grew by 6.8% to USD 209 billion.

- According to the UK parliament, defense spending in 2020/21 was GBP 42.4 billion (USD 53.69 billion) in cash terms. This is a nominal rise of GBP 2.5 billion (USD 3.17 billion) over the previous year and a natural increase of GBP 1.7 billion (USD 2.15 billion). As a result, the yearly defense budget in 2024/25 will be GBP 6.2 billion (USD 7.85 billion) more in cash terms than in 2020/21. However, the real worth of this spending rise is lower, especially in light of growing inflation. Defense spending is estimated to rise by GBP 1.5 billion (USD 1.90 billion) when adjusted for inflation.

- The United States military also utilizes AI-enabled night vision devices, which are affixed to a soldier's helmet and provide alerts regarding potential suspicious activity. To facilitate that decision-making, Secretary of Defense Esper launched a comprehensive Defense-Wide Review, which resulted in nearly USD 5.7 billion in savings for FY 2021, USD 0.2 billion in Working Capital Fund efficiencies, and another USD 2.1 billion in activities and functions realigned to the Services. This program enabled the

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Department better to resource higher-level National Defense Strategy (NDS) priorities.

- According to NATO, the United States will spend an estimated USD 821 billion on defense in 2022. As a result, their defense spending is the largest among NATO countries. The United Kingdom has the second biggest defense spending, at USD 72 billion and Germany USD 62 billion, France USD 55 billion.

Asia-Pacific to Witness the Significant Growth

- The Night Vision cameras market is expected to grow significantly in Asia-Pacific, owing to rising government spending on defense infrastructure for enhanced personnel capabilities. Further, with the development of new technologies, the cost of night vision devices is expected to reduce, enabling increased spending by the end-users.

- Researchers in different regions are experimenting with different materials to increase the efficiency of the products. According to the researchers, the ultra-thin film, constructed of a gallium arsenide semiconductor, might also be used to develop tiny and flexible infrared sensors. Though it is yet a proof of concept, the researchers believe it has the potential to be a low-cost and lightweight replacement for large night-vision goggles used in military, police, and security settings. A team of Australian and European academics created the film, and details were published in *Advanced Photonics*. It transforms infrared light, which is ordinarily invisible to humans, into visible light.

- Additionally, many governments prefer night vision capabilities for their smart camera installations. For instance, in March 2022, in India, the Delhi government intends to complete the final part of the CCTV camera installation project. Due to pandemic-related constraints, the public works department (PWD) claimed 1,33,000 CCTV cameras had been installed in the last two years, compared to a target of 1.4 lakhs. PWD intends to use 30-40 cameras to cover areas overseen by each market and resident welfare association. The four-megapixel cameras are installed on a pole or a wall and contain a night-vision feature for optimal video quality.

- The growing investment in security surveillance, especially in emerging countries, drives the demand for the studied market products. For instance, countries like China and India increasingly invest in these technologies, motivating foreign and local manufacturers to invest in the market. This is bringing advancement and innovation into the studied market. Moreover, regional companies are raising investments to develop and produce night vision devices. In April 2022, Shenzhen GD Digital Ltd., based in China, launched a Kickstarter fundraiser for GAODI night goggles, a compact, lightweight night vision solution with dual TFT 1.4-inch displays, offering a resolution of 390 x 390. Such devices are likely to boost the demand in the market.

- High-quality intelligent video surveillance would be the future of the security industry. With the introduction of new advanced technologies, the functions of today's surveillance systems are becoming more sophisticated and smarter. With the integration of several techniques: networking, multi-core processing, digital signal processing, image processing, and high-capacity storage, intelligent surveillance systems have and would gradually replace older systems. Which will provide significant growth for night vision surveillance systems in the future.

Night Vision Camera Industry Overview

The night vision cameras market is fragmented, with several companies operating in the market. Leading players are currently focusing on providing technologically advanced products to customers. Increasing demand for night vision cameras, with their cost decreasing in the long run, is expected to encourage investors to invest in this technology in the next few years, which will likely create more market competition. Key players are Intevac Inc., Photonis USA Inc., and Elbit Systems Ltd. Recent developments in the market are:

- June 2023: TP-Link's latest Tapo outdoor security camera has impressive color night vision capabilities. According to TP-Link, the

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ColorPro night vision technology in the Tapo C325WB can capture vivid images in 2K resolution with HDR, even in extremely low light conditions equivalent to a moonless midnight. Additionally, this camera is compatible with Alexa and Google Assistant and features two-way audio and an onboard siren to discourage unwanted intruders. The camera is weatherproof and offers wireless network connectivity, with the option of using an ethernet port for a reliable cable connection. However, it does require a 3-meter cord for power.

- April 2023: Douvox announced the launch of their new Kickstarter campaign for the highly anticipated Douvox Ultra night vision camera. Building on the success of their previous product, the Mate Pro Night Vision camera, Douvox is excited to introduce the Douvox Ultra, which offers enhanced image and recording capabilities, making it an invaluable tool for capturing moments even in the darkest of environments. Utilizing a cutting-edge 5MP Sony Starvis high-sensitivity CMOS image sensor, this monocular camera delivers vibrant, full-color FHD video, even in extremely low light scenarios, with a remarkable sensitivity down to 0.001 lux.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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