

# **Infrared Detector Market Assessment, By Type [Thermal, Quantum], By Spectral Range [LWIR, MWIR, SWIR], By Application [People & Motion Sensing, Temperature Measurement, Industrial, HVAC, Military & Defense, Medical, Others], By Region, Opportunities and Forecast, 2016-2030F**

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## **Abstracts**

Global infrared detector market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. With projected revenue of approximately USD 478.2 million in 2022, the market is forecasted to reach a value of USD 1047.6 million by 2030, displaying a robust CAGR of 10.3% from 2023 to 2030.

Infrared detectors provide advantages, including detecting undetectable heat signatures to the naked eye allowing applications in night vision, thermography, and remote sensing. It boosts security by detecting intruders and possible fires and energy efficiency in various businesses through temperature monitoring and management.

The infrared detector market is expanding due to increased demand for surveillance, automobile safety systems, and industrial automation applications. Emerging technologies like self-driving cars and augmented reality will increase the industry. Furthermore, the demand for improved night vision capabilities in defense and security applications drives constant advancements in infrared detector technology.

The market for infrared detectors is expected to grow significantly due to upcoming technologies such as self-driving automobiles and augmented reality. In the automobile industry, infrared detectors play an important part in advanced driver-assistance

systems (ADAS) by enabling night vision and improving road safety. Meanwhile, these detectors are employed in augmented reality apps for gesture identification and tracking, providing immersive user experiences. The infrared detector market is projected to prosper as these technologies become more prominent in daily lives due to continuing advancements and expanding applications.

For instance, in May 2023, Excelitas Technologies demonstrated its night vision, thermal imaging, surveillance, and target localization capabilities during SOF Week. Thermal weapon sights, night vision goggles, cooled thermal sniper sights, fused weapon sights, and thermal surveillance systems for military purposes were among the portfolio.

### IoT Integration Fuels Infrared Detector Market

The growing adoption of IoT is a significant contributor to the expansion of the infrared detector market. In IoT applications, infrared detectors are integrated into smart home and industrial automation systems, offering many benefits. These detectors enable precise intrusion detection for smart homes by sensing human presence and motion. Additionally, it plays a crucial role in temperature monitoring, ensuring energy-efficient climate control. Infrared detectors enhance energy management by continuously monitoring occupancy and environmental conditions, reducing consumption and costs. In industrial settings, IoT-driven infrared detectors are instrumental in optimizing processes, increasing efficiency, and reducing downtime. They enable real-time monitoring of equipment conditions, detecting overheating or malfunctions before escalations.

For example, in April 2023, At SPIE Defense + Commercial Sensing, Excelitas Technologies demonstrated defense and aerospace technologies, including a session on long-range thermal imaging and the debut of the MWIR RaptIR camera series.

### Infrared Detectors are Bringing Innovation in Healthcare

Infrared detectors drive healthcare innovation by providing non-invasive temperature measurement, thermal imaging, and anomaly detection in medical equipment. The detectors facilitate early diagnosis, real-time patient monitoring, and advanced imaging capabilities. Rapid detection of fever symptoms or abnormalities allows for more timely medical treatments and raises patient care standards. As the healthcare industry embraces technological advancement, the demand for dependable and high-precision infrared detectors rises, driving market expansion. As the healthcare industry actively

adopts these cutting-edge technologies, these advancements improve patient outcomes and fuel the rise of the global infrared detector market.

For example, in November 2022, Excelitas Technologies released high-precision TPI-S 1T1386 L5.5H IR Temperature Sensor, which is excellent for medical applications and features accuracy, adjustable thresholds, low power consumption, and quick over-temperature protection.

### People And Motion Sensing to Dominate the Market Share

People and motion sensing dominate the infrared detector market because of its extensive use in security systems, smart homes, and commercial automation. Infrared motion detectors use passive infrared (PIR) technology to detect heat and movement, making them ideal for intruder detection and energy-efficient lighting management. The detectors are critical components in the rising need for smart and secure surroundings. It improves security, decreases energy usage, and allows automation, positioning them as a dominant force in the market's development and progression toward smarter and more energy-efficient places.

For instance, in September 2022, Excelitas Technologies launched the PCO.pixelfly™ 1.3 SWIR Camera at VISION Stuttgart 2022, with exceptional sensitivity in the shortwave infrared region and adaptability for various applications.

### Asia-Pacific Dominates the Infrared Detector Market

Asia-Pacific dominates the infrared detector market, as rapid industrialization and urbanization in countries, such as China and India, have increased demand for advanced surveillance and security systems, boosting the acceptance of infrared detectors for intrusion detection as well as monitoring applications. The region's thriving consumer electronics sector has resulted in greater usage of infrared detectors in products such as smartphones and smart TVs for gesture recognition and proximity sensing. Furthermore, the increased awareness of energy saving, and the installation of smart building technologies has prompted the deployment of infrared detectors for efficient lighting and HVAC control systems. These factors combine to establish Asia-Pacific as a worldwide infrared detector market leader.

For instance, in January 2023, Hamamatsu Photonics created a small, low-cost InAsSb photovoltaic detector (P16702-011MN) with an integrated preamp for mid-infrared light sensing up to 11μm wavelength, which is suited for portable gas analyzers.

## Government Initiatives Acting as Catalyst for the Market Growth

Government initiatives are critical in driving the growth of the global infrared detector market. Many governments worldwide have implemented regulations and programs to encourage the use of infrared technology. It includes stimulating R&D in the industry, providing subsidies to producers, and enacting legislation that stimulates the integration of IR detectors in diverse industries such as defense, healthcare, and automotive. Furthermore, programs connected to environmental monitoring, public safety, and energy saving have increased demand for infrared detectors. These collaborative activities foster the growth of the infrared detector market while solving essential social and industrial demands.

For example, in October 2023, for industrial LiDAR applications, Hamamatsu Photonics developed a Gain Stabilized Si APD S16430-01CR with a self-bias generator to minimize costs and simplify temperature-related changes.

## Impact of COVID-19

The COVID-19 pandemic had a tremendous impact on the Infrared Detector Market. Before the pandemic, the industry saw steady expansion, fueled by increased sector applications. However, there was a short slowdown during the pandemic owing to supply chain interruptions, reduced manufacturing operations, and economic uncertainty. Many projects halted, which slowed the demand. There was a rebound in demand in the post-pandemic phase, owing mostly to increased awareness of contactless technology for temperature screening, healthcare applications, and security concerns. The pandemic increased the deployment of infrared detectors, underscoring their important role in guaranteeing safety and efficiency in a variety of industries.

## Impact of Russia-Ukraine War

The Russia-Ukraine war has had a significant influence on the infrared detector market. Geopolitical tensions have affected the supply chain, compromising the availability of critical raw materials and components needed to manufacture IR detectors. Price variations and uncertainty in energy resources have exacerbated market insecurity. Furthermore, defense spending by participating nations has surged, pushing up the demand for thermal imaging and night vision systems using IR detectors. The shift in demand has altered market dynamics, emphasizing improving military surveillance and reconnaissance capabilities. Consequently, the war has created both obstacles and

possibilities in the global IR detector market.

### Key Players Landscape and Outlook

Key competitors in the global infrared detector market are Excelitas Technologies Corp., Honeywell International Inc., Murata Manufacturing Co., Ltd., Nippon Ceramic Co., Ltd., and Lynred SAS. These companies prioritize R&D to offer breakthrough IR detector technology, guaranteeing their supremacy. The market is expanding rapidly due to increased applications in aerospace, military, automotive, and healthcare industries. Partnerships, mergers, and acquisitions play an important role in market expansion. As demand for infrared detectors grows, the competition among these key companies is projected to increase, promoting the technical breakthroughs and market expansion.

In October 2023, At the AutoSens event, LYNRED and Saint Gobain Sekurit revealed a windscreen with a visible light and thermal camera. The thermal camera assists in nocturnal pedestrian identification and is expected to be in the market by 2026-2028, depending on the laws.

In June 2022, Excelitas Technologies will showcase its thermal imaging and camera solutions for military applications, including the DRAGON-S12, DRAGON-C12, DRAGON-H12, PHOENIX-S, and PHOENIX-H, at the Close Combat Symposium.

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