

# Short Wave Infrared (SWIR) Industry Research Report 2024

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## Abstracts

Sensing in the shortwave infrared (SWIR) range (wavelengths from 0.9 to 1.7 microns) has only recently been made practical by the development of Indium Gallium Arsenide (InGaAs) sensors.

Short-wave infrared (SWIR) light is typically defined as light in the 0.9 – 1.7 $\mu$ m wavelength range, but can also be classified from 0.7 – 2.5 $\mu$ m. Since silicon sensors have an upper limit of approximately 1.0 $\mu$ m, SWIR imaging requires unique optical and electronic components capable of performing in the specific SWIR range. Sensing in the shortwave infrared (SWIR) range (wavelengths from 0.9 to 1.7 microns) has only recently been made practical by the development of Indium Gallium Arsenide (InGaAs) sensors.

Unlike Mid-Wave Infrared (MWIR) and Long-Wave Infrared (LWIR) light, which is emitted from the object itself, SWIR is similar to visible light in that photons are reflected or absorbed by an object, providing the strong contrast needed for high resolution imaging. Ambient star light and background radiance (nightglow) are natural emitters of SWIR and provide excellent illumination for outdoor, nighttime imaging.

It is essential to use a lens that is designed, optimized, and coated for the SWIR wavelength range. Using a lens designed for the visible spectrum will result in lower resolution images and higher optical aberrations. Since SWIR wavelengths transmit through glass, lenses, and other optical components (optical filters, windows, etc.) designed for SWIR can be manufactured using the same techniques used for visible components, decreasing manufacturing cost and enabling the use of protective windows and filters within a system.

A large number of applications that are difficult or impossible to perform using visible light are possible using SWIR. When imaging in SWIR, water vapor, fog, and certain materials such as silicon are transparent. Additionally, colors that appear almost identical in the visible may be easily differentiated using SWIR.

SWIR imaging is used in a variety of applications including electronic board inspection, solar cell inspection, produce inspection, identifying and sorting, surveillance, anti-counterfeiting, process quality control, and much more. To understand the benefits of SWIR imaging, consider some visual examples of common, everyday products imaged with visible light and with SWIR.

According to APO Research, The global Short Wave Infrared (SWIR) market was valued at US\$ million in 2023 and is anticipated to reach US\$ million by 2030, witnessing a CAGR of xx% during the forecast period 2024-2030.

In the global Short Wave Infrared (SWIR) market, the key players are like Teledyne Technologies, Hamamatsu Photonics, Xenics, First Light, Fluxdata, etc. Top five players hold a share about 54%. In terms of consumption of Short Wave Infrared (SWIR), North America is the largest consumption market, with a share about 35%. In terms of product, SWIR Area Scan Camera is the largest segment, with a share about 75%. And in terms of application, the largest application is Industrial Application and Military and Defense, both with a share about 25%.

## Report Scope

This report aims to provide a comprehensive presentation of the global market for Short Wave Infrared (SWIR), with both quantitative and qualitative analysis, to help readers develop business/growth strategies, assess the market competitive situation, analyze their position in the current marketplace, and make informed business decisions regarding Short Wave Infrared (SWIR).

The report will help the Short Wave Infrared (SWIR) manufacturers, new entrants, and industry chain related companies in this market with information on the revenues, sales volume, and average price for the overall market and the sub-segments across the different segments, by company, by Type, by Application, and by regions.

The Short Wave Infrared (SWIR) market size, estimations, and forecasts are provided in terms of sales volume (Units) and revenue (\$ millions), considering 2023 as the base year, with history and forecast data for the period from 2019 to 2030. This report

segments the global Short Wave Infrared (SWIR) market comprehensively. Regional market sizes, concerning products by Type, by Application, and by players, are also provided. For a more in-depth understanding of the market, the report provides profiles of the competitive landscape, key competitors, and their respective market ranks. The report also discusses technological trends and new product developments.

### Key Companies & Market Share Insights

In this section, the readers will gain an understanding of the key players competing. This report has studied the key growth strategies, such as innovative trends and developments, intensification of product portfolio, mergers and acquisitions, collaborations, new product innovation, and geographical expansion, undertaken by these participants to maintain their presence. Apart from business strategies, the study includes current developments and key financials. The readers will also get access to the data related to global revenue, price, and sales by manufacturers for the period 2019-2024. This all-inclusive report will certainly serve the clients to stay updated and make effective decisions in their businesses. Some of the prominent players reviewed in the research report include:

FLIR Systems

Hamamatsu Photonics

Sensors Unlimited

Teledyne Technologies

Xenics

Allied Vision Technologies

Raptor Photonics

IRCameras

New Imaging Technologies

First Light

GuoHui OPTO-electronic

Infiniti Electro-Optics

SWIR Vision Systems

Photonic Science

### Short Wave Infrared (SWIR) segment by Type

SWIR Area Scan Camera

SWIR Line Scan Camera

### Short Wave Infrared (SWIR) segment by Application

Industrial Application

Military and Defense

Scientific Research

Others

### Short Wave Infrared (SWIR) Segment by Region

North America

United States

Canada

Europe

Germany

France

U.K.

Italy

Russia

Asia-Pacific

China

Japan

South Korea

India

Australia

China Taiwan

Indonesia

Thailand

Malaysia

Latin America

Mexico

Brazil

Argentina

Colombia

Middle East & Africa

Turkey

Saudi Arabia

UAE

## Key Drivers & Barriers

High-impact rendering factors and drivers have been studied in this report to aid the readers to understand the general development. Moreover, the report includes restraints and challenges that may act as stumbling blocks on the way of the players. This will assist the users to be attentive and make informed decisions related to business. Specialists have also laid their focus on the upcoming business prospects.

## Reasons to Buy This Report

1. This report will help the readers to understand the competition within the industries and strategies for the competitive environment to enhance the potential profit. The report also focuses on the competitive landscape of the global Short Wave Infrared (SWIR) market, and introduces in detail the market share, industry ranking, competitor ecosystem, market performance, new product development, operation situation, expansion, and acquisition. etc. of the main players, which helps the readers to identify the main competitors and deeply understand the competition pattern of the market.
2. This report will help stakeholders to understand the global industry status and trends of Short Wave Infrared (SWIR) and provides them with information on key market drivers, restraints, challenges, and opportunities.
3. This report will help stakeholders to understand competitors better and gain more insights to strengthen their position in their businesses. The competitive landscape section includes the market share and rank (in volume and value), competitor ecosystem, new product development, expansion, and acquisition.
4. This report stays updated with novel technology integration, features, and the latest developments in the market
5. This report helps stakeholders to gain insights into which regions to target globally

6. This report helps stakeholders to gain insights into the end-user perception concerning the adoption of Short Wave Infrared (SWIR).

7. This report helps stakeholders to identify some of the key players in the market and understand their valuable contribution.

## Chapter Outline

Chapter 1: Research objectives, research methods, data sources, data cross-validation;

Chapter 2: Introduces the report scope of the report, executive summary of different market segments (by region, product type, application, etc), including the market size of each market segment, future development potential, and so on. It offers a high-level view of the current state of the market and its likely evolution in the short to mid-term, and long term.

Chapter 3: Detailed analysis of Short Wave Infrared (SWIR) manufacturers competitive landscape, price, production and value market share, latest development plan, merger, and acquisition information, etc.

Chapter 4: Provides profiles of key players, introducing the basic situation of the main companies in the market in detail, including product production/output, value, price, gross margin, product introduction, recent development, etc.

Chapter 5: Production/output, value of Short Wave Infrared (SWIR) by region/country. It provides a quantitative analysis of the market size and development potential of each region in the next six years.

Chapter 6: Consumption of Short Wave Infrared (SWIR) in regional level and country level. It provides a quantitative analysis of the market size and development potential of each region and its main countries and introduces the market development, future development prospects, market space, and production of each country in the world.

Chapter 7: Provides the analysis of various market segments by type, covering the market size and development potential of each market segment, to help readers find the blue ocean market in different market segments.

Chapter 8: Provides the analysis of various market segments by application, covering

the market size and development potential of each market segment, to help readers find the blue ocean market in different downstream markets.

Chapter 9: Analysis of industrial chain, including the upstream and downstream of the industry.

Chapter 10: Introduces the market dynamics, latest developments of the market, the driving factors and restrictive factors of the market, the challenges and risks faced by manufacturers in the industry, and the analysis of relevant policies in the industry.

Chapter 11: The main points and conclusions of the report.

Chapter 11: The main points and conclusions of the report.



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