+357 96 030922
info@marketpublishers.com

CBRNe Sensors Market Forecasts to 2032 – Global Analysis By Sensor Type (Chemical Sensors, Biological Sensors, Radiological Sensors, Nuclear Sensors, Explosive Sensors and Other Sensor Types), Deployment Type, Technology, Application, End User and By Geography

https://marketpublishers.com/r/CCD01B7B5B27EN.html
Date: May 2025
Pages: 150
Price: US$ 4,150.00 (Single User License)
ID: CCD01B7B5B27EN

Abstracts

According to Stratistics MRC, the Global CBRNe Sensors Market is growing at a CAGR of 7.8% during the forecast period. CBRNe sensors are specialized devices designed to detect and identify chemical, biological, radiological, nuclear, and explosive (CBRNe) threats in real-time. These sensors play a critical role in public safety, military operations, and emergency response, offering early warnings of hazardous materials or agents. By employing advanced detection technologies, such as spectroscopy, chemical analysis, and radiation detection, CBRNe sensors provide crucial information to mitigate the effects of dangerous substances. They are used across various sectors, including defense, homeland security, and industrial safety, contributing to risk management and ensuring the protection of personnel, infrastructure, and the environment.

Market Dynamics:

Driver:

Heightened global security concerns & geopolitical instability

Governments and defense organizations are prioritizing advanced detection technologies to mitigate potential chemical, biological, radiological, nuclear, and

+357 96 030922
info@marketpublishers.com

explosive threats. The evolving nature of warfare and terrorism has led to heightened investments in surveillance and monitoring systems designed to enhance real-time threat analysis. Furthermore, global security policies are driving stringent regulatory frameworks, encouraging the adoption of cutting-edge detection solutions.

Restraint:

Need for specialized training and maintenance

Maintaining these sophisticated systems presents additional challenges, as periodic calibration and software upgrades are essential for reliable performance. Furthermore, organizations must allocate significant resources to ongoing technical education and operational expertise, which may deter smaller agencies from investing in these technologies. The complexity of integrating sensors into existing security frameworks further adds to operational burdens.

Opportunity:

Continued and increased investment in R&D

Innovations in nanotechnology, artificial intelligence, and sensor miniaturization are driving next-generation systems capable of detecting threats with unprecedented precision. Increased funding for biodefense and counterterrorism initiatives is fostering partnerships between research institutions and defense agencies, enabling breakthroughs in sensor capabilities. Additionally, advancements in data analytics and predictive modeling are transforming detection methodologies, allowing for proactive threat identification.

Threat:

Continuous evolution of CBRNe threats & Complexity of the Threat Landscape

Emerging chemical and biological agents demand highly adaptable sensors capable of identifying novel compounds with speed and accuracy. Moreover, integrating diverse detection technologies into a unified defense infrastructure remains a complex undertaking, as compatibility issues can limit efficiency. The widespread use of dual-use technologies, which can be repurposed for malicious activities, further complicates security efforts.

+357 96 030922
info@marketpublishers.com

Covid-19 Impact:

The pandemic highlighted the importance of rapid biological detection, leading to increased investments in sensor technologies capable of identifying airborne and surface-based contaminants. While supply chain disruptions temporarily impacted production and deployment, the heightened awareness of biosecurity risks accelerated the adoption of advanced detection mechanisms. Governments and research bodies focused on enhancing pathogen-monitoring capabilities, integrating CBRNe sensors into healthcare and emergency response protocols.

The chemical sensors segment is expected to be the largest during the forecast period

The chemical sensors segment is expected to account for the largest market share during the forecast period due to their widespread application in hazardous substance detection and environmental monitoring. These sensors play a crucial role in identifying toxic gases, chemical warfare agents, and industrial pollutants, making them indispensable for defense, law enforcement, and industrial safety. Continuous improvements in real-time detection accuracy and sensor miniaturization are enabling integration into a broader range of security systems.

The infrared spectroscopy segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the infrared spectroscopy segment is predicted to witness the highest growth rate due to its ability to precisely identify chemical compositions through advanced spectral analysis. Improvements in portable spectrometers and AI-driven spectral interpretation are making infrared sensors more efficient and accessible for field operations. Furthermore, their ability to detect harmful substances in complex environments gives them a competitive edge over conventional detection methods.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share driven by increasing investments in national security infrastructure, expanding military modernization programs, and rising concerns over chemical and biological threats. Countries like China, India, and Japan are actively enhancing their CBRNe detection capabilities to fortify defense mechanisms against unconventional attacks. The region's industrial expansion, particularly in chemical and manufacturing sectors, has further accelerated demand for hazard detection technologies.

+357 96 030922
info@marketpublishers.com

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR driven by heavy investments in homeland security, increasing defense budgets, and the presence of leading sensor manufacturers. The United States, in particular, is spearheading technological advancements in CBRNe detection systems, leveraging AI, IoT, and real-time data analytics to enhance security operations. Heightened concerns over domestic biosecurity threats and terrorism have reinforced demand for high-precision detection tools, leading to rapid innovation across the market.

Key players in the market

Some of the key players in CBRNe Sensors Market include 3M, Avon Protection PLC, Bruker Corporation, Bertin Technologies, Battelle, Kromek Group PLC, Smiths Detection, Teledyne FLIR LLC, Thales Group, Rheinmetall AG, Argon Electronics (UK) Ltd., Chemring Group PLC, Leidos Inc., Cristanini SPA, Thermo Fisher Scientific, Emergent BioSolutions, and Morphix Technologies.

Key Developments:

In April 2025, Thermo Fisher Scientific announced investments to enhance U.S. innovation and support customers' manufacturing, reinforcing its commitment to scientific advancement.

In December 2024, Thales led the launch of the EISNET consortium, aiming to boost European air defense through common standards and prototype development.

In October 2024, Chemring Nobel and the Norwegian Government launched a feasibility study into a new production facility, indicating strategic expansion plans.

Sensor Types Covered:

- Chemical Sensors
- Biological Sensors
- Radiological Sensors

+357 96 030922
info@marketpublishers.com

Nuclear Sensors

Explosive Sensors

Other Sensor Types

Deployment Types Covered:

Portable

Stationary

Vehicle-Mounted

Airborne Mounted

Technologies Covered:

Infrared Spectroscopy

Solid-State Detectors

Raman Spectroscopy

Scintillation Detection

Ion Mobility Spectrometry (IMS)

Biological Assays

Gas Chromatography-Mass Spectrometry (GC-MS)

Applications Covered:

Military & Defense

+357 96 030922
info@marketpublishers.com

- Public Event Security
- Homeland Security
- Industrial Safety
- Emergency Response
- Environmental Monitoring
- Other Applications

End Users Covered:

- Government Agencies
- Hazmat Teams
- First Responders
- Private Security Firms
- Military Forces
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe

+357 96 030922
info@marketpublishers.com

- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

+357 96 030922
info@marketpublishers.com

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as

+357 96 030922
info@marketpublishers.com

per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

+357 96 030922
info@marketpublishers.com

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

2.1 Abstract
2.2 Stake Holders
2.3 Research Scope
2.4 Research Methodology
  2.4.1 Data Mining
  2.4.2 Data Analysis
  2.4.3 Data Validation
  2.4.4 Research Approach
2.5 Research Sources
  2.5.1 Primary Research Sources
  2.5.2 Secondary Research Sources
  2.5.3 Assumptions

3 MARKET TREND ANALYSIS

3.1 Introduction
3.2 Drivers
3.3 Restraints
3.4 Opportunities
3.5 Threats
3.6 Technology Analysis
3.7 Application Analysis
3.8 End User Analysis
3.9 Emerging Markets
3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

4.1 Bargaining power of suppliers
4.2 Bargaining power of buyers
4.3 Threat of substitutes
4.4 Threat of new entrants
4.5 Competitive rivalry

+357 96 030922
info@marketpublishers.com

5 GLOBAL CBRNE SENSORS MARKET, BY SENSOR TYPE

5.1 Introduction
5.2 Chemical Sensors
5.3 Biological Sensors
5.4 Radiological Sensors
5.5 Nuclear Sensors
5.6 Explosive Sensors
5.7 Other Sensor Types

6 GLOBAL CBRNE SENSORS MARKET, BY DEPLOYMENT TYPE

6.1 Introduction
6.2 Portable
6.3 Stationary
6.4 Vehicle-Mounted
6.5 Airborne Mounted

7 GLOBAL CBRNE SENSORS MARKET, BY TECHNOLOGY

7.1 Introduction
7.2 Infrared Spectroscopy
7.3 Solid-State Detectors
7.4 Raman Spectroscopy
7.5 Scintillation Detection
7.6 Ion Mobility Spectrometry (IMS)
7.7 Biological Assays
7.8 Gas Chromatography-Mass Spectrometry (GC-MS)

8 GLOBAL CBRNE SENSORS MARKET, BY APPLICATION

8.1 Introduction
8.2 Military & Defense
8.3 Public Event Security
8.4 Homeland Security
8.5 Industrial Safety
8.6 Emergency Response
8.7 Environmental Monitoring

+357 96 030922
info@marketpublishers.com

8.8 Other Applications

9 GLOBAL CBRNE SENSORS MARKET, BY END USER

9.1 Introduction
9.2 Government Agencies
9.3 Hazmat Teams
9.4 First Responders
9.5 Private Security Firms
9.6 Military Forces
9.7 Other End Users

10 GLOBAL CBRNE SENSORS MARKET, BY GEOGRAPHY

10.1 Introduction
10.2 North America
  10.2.1 US
  10.2.2 Canada
  10.2.3 Mexico
10.3 Europe
  10.3.1 Germany
  10.3.2 UK
  10.3.3 Italy
  10.3.4 France
  10.3.5 Spain
  10.3.6 Rest of Europe
10.4 Asia Pacific
  10.4.1 Japan
  10.4.2 China
  10.4.3 India
  10.4.4 Australia
  10.4.5 New Zealand
  10.4.6 South Korea
  10.4.7 Rest of Asia Pacific
10.5 South America
  10.5.1 Argentina
  10.5.2 Brazil
  10.5.3 Chile
  10.5.4 Rest of South America

+357 96 030922
info@marketpublishers.com

10.6 Middle East & Africa
10.6.1 Saudi Arabia
10.6.2 UAE
10.6.3 Qatar
10.6.4 South Africa
10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

11.1 Agreements, Partnerships, Collaborations and Joint Ventures
11.2 Acquisitions & Mergers
11.3 New Product Launch
11.4 Expansions
11.5 Other Key Strategies

12 COMPANY PROFILING

12.1 3M
12.2 Avon Protection PLC
12.3 Bruker Corporation
12.4 Bertin Technologies
12.5 Battelle
12.6 Kromek Group PLC
12.7 Smiths Detection
12.8 Teledyne FLIR LLC
12.9 Thales Group
12.10 Rheinmetall AG
12.11 Argon Electronics (UK) Ltd.
12.12 Chemring Group PLC
12.13 Leidos Inc.
12.14 Cristanini SPA
12.15 Thermo Fisher Scientific
12.16 Emergent BioSolutions
12.17 Morphix Technologies

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

Table 1 Global CBRNe Sensors Market Outlook, By Region (2024-2032) ($MN)
Table 2 Global CBRNe Sensors Market Outlook, By Sensor Type (2024-2032) ($MN)
Table 3 Global CBRNe Sensors Market Outlook, By Chemical Sensors (2024-2032) ($MN)
Table 4 Global CBRNe Sensors Market Outlook, By Biological Sensors (2024-2032) ($MN)
Table 5 Global CBRNe Sensors Market Outlook, By Radiological Sensors (2024-2032) ($MN)
Table 6 Global CBRNe Sensors Market Outlook, By Nuclear Sensors (2024-2032) ($MN)
Table 7 Global CBRNe Sensors Market Outlook, By Explosive Sensors (2024-2032) ($MN)
Table 8 Global CBRNe Sensors Market Outlook, By Other Sensor Types (2024-2032) ($MN)
Table 9 Global CBRNe Sensors Market Outlook, By Deployment Type (2024-2032) ($MN)
Table 10 Global CBRNe Sensors Market Outlook, By Portable (2024-2032) ($MN)
Table 11 Global CBRNe Sensors Market Outlook, By Stationary (2024-2032) ($MN)
Table 12 Global CBRNe Sensors Market Outlook, By Vehicle-Mounted (2024-2032) ($MN)
Table 13 Global CBRNe Sensors Market Outlook, By Airborne Mounted (2024-2032) ($MN)
Table 14 Global CBRNe Sensors Market Outlook, By Technology (2024-2032) ($MN)
Table 15 Global CBRNe Sensors Market Outlook, By Infrared Spectroscopy (2024-2032) ($MN)
Table 16 Global CBRNe Sensors Market Outlook, By Solid-State Detectors (2024-2032) ($MN)
Table 17 Global CBRNe Sensors Market Outlook, By Raman Spectroscopy (2024-2032) ($MN)
Table 18 Global CBRNe Sensors Market Outlook, By Scintillation Detection (2024-2032) ($MN)
Table 19 Global CBRNe Sensors Market Outlook, By Ion Mobility Spectrometry (IMS) (2024-2032) ($MN)
Table 20 Global CBRNe Sensors Market Outlook, By Biological Assays (2024-2032) ($MN)

+357 96 030922
info@marketpublishers.com

Table 21 Global CBRNe Sensors Market Outlook, By Gas Chromatography-Mass Spectrometry (GC-MS) (2024-2032) ($MN)
Table 22 Global CBRNe Sensors Market Outlook, By Application (2024-2032) ($MN)
Table 23 Global CBRNe Sensors Market Outlook, By Military & Defense (2024-2032) ($MN)
Table 24 Global CBRNe Sensors Market Outlook, By Public Event Security (2024-2032) ($MN)
Table 25 Global CBRNe Sensors Market Outlook, By Homeland Security (2024-2032) ($MN)
Table 26 Global CBRNe Sensors Market Outlook, By Industrial Safety (2024-2032) ($MN)
Table 27 Global CBRNe Sensors Market Outlook, By Emergency Response (2024-2032) ($MN)
Table 28 Global CBRNe Sensors Market Outlook, By Environmental Monitoring (2024-2032) ($MN)
Table 29 Global CBRNe Sensors Market Outlook, By Other Applications (2024-2032) ($MN)
Table 30 Global CBRNe Sensors Market Outlook, By End User (2024-2032) ($MN)
Table 31 Global CBRNe Sensors Market Outlook, By Government Agencies (2024-2032) ($MN)
Table 32 Global CBRNe Sensors Market Outlook, By Hazmat Teams (2024-2032) ($MN)
Table 33 Global CBRNe Sensors Market Outlook, By First Responders (2024-2032) ($MN)
Table 34 Global CBRNe Sensors Market Outlook, By Private Security Firms (2024-2032) ($MN)
Table 35 Global CBRNe Sensors Market Outlook, By Military Forces (2024-2032) ($MN)
Table 36 Global CBRNe Sensors Market Outlook, By Other End Users (2024-2032) ($MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: CBRNe Sensors Market Forecasts to 2032 – Global Analysis By Sensor Type (Chemical Sensors, Biological Sensors, Radiological Sensors, Nuclear Sensors, Explosive Sensors and Other Sensor Types), Deployment Type, Technology, Application, End User and By Geography

Product link: https://marketpublishers.com/r/CCD01B7B5B27EN.html

Price: US$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/CCD01B7B5B27EN.html