

Global Military Man-Portable Radar System Market Assessment, By Range Type [Short-Range (<5km), Medium-Range (5-50km), Long-Range (>50km)], By Application [Counter-UAV, Surveillance/Reconnaissance, Artillery/Weapon Fire Support], By Platform [Handheld, Vehicle-Mounted, Backpack-Mounted], By Region, Opportunities and Forecast, 2018-2032F

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Report description:

Global military man-portable radar system market is projected to witness a CAGR of 6.12% during the forecast period 2025-2032, growing from USD 4.85 billion in 2024 to USD 7.80 billion in 2032. The military man-portable radar system market is registering significant growth. Changes in modern warfare have led to high demand for lightweight, advanced surveillance systems. Key players led market activities as they concentrate on building rugged, battery efficient, high-performing equipment without decreasing their performance capability or increasing weight. Military man-portable systems are being adapted to be more mobile with longer battery life. North America and Europe account for the largest share of the market because of continued defense spending, while demand in the Asia-Pacific region is rapidly increasing with the heightening of geopolitical tensions. The increase in utilization of unmanned systems and developments related to network-centric warfare contributes additional demand. High costs of systems, coupled with technical limitations for systems will inhibit growth in the militaries of various nations. Overall, the military market for man-portable radar systems is expected to experience stable growth as military organizations throughout the globe continue to prioritize modernization.

For instance, in February 2025, Defense Research and Development Organization (DRDO) developed VSHORADS, an indigenously designed and developed man-portable air defense system. It is intended to meet the air defense requirements of all three branches of the Indian armed forces: the army, navy, and air force.

Technological Advancements in Global Military Man-Portable Radar System

Innovations in the global market for military man-portable radar systems are revolutionizing battlefield reconnaissance and threat

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detection capabilities for military organizations worldwide. These radars are now utilizing AI (Artificial Intelligence) and machine learning for better target identification, reduced false alarms, and greater accuracy and speed of identification. GaN Transmitters (Gallium Nitride) focus on more power at increased distance detection and tracking. SDR (Software defined radars) allows for adaptable signal processing enabling multiple mission profiles. New building materials are super lightweight and high performance which is enhanced by the new process of miniaturization. Quartz-based low power and high-power designs are extending the longevity on the battlefield every day. Additionally, new technologies that enable multi-sensor fusion now to provide integrated radar and electro-optics capabilities along with UAV tracking. Through the performance of an operation employing millimetric band cognitive radars that adapt to the environment and tasks provided to it, independent reinforcement will confirm system adaptation and engagement in autonomous operations. New technologies offer secure, jam resistant waveform capabilities to add reliable robustness to any technology in future electronic warfare environments. While advancing in technology processes, one can assure that man-portable systems will be a key enabler in the planning and execution of asymmetric and conventional warfare across the operational spectrum.

For instance, in December 2024, Almaz-Antey Air and Space Defense Corporation manufactured and tested a prototype of a small-sized radar, the perimeter radar, which can help the invaders build FPV interceptor units.

Strategic Industry Collaborations Fuel Market Expansion

The military man-portable radar market for the military is rapidly evolving as a result of expanding collaborations between defense organizations, research organizations, and technology developers to further enhance the speed at which advanced capabilities like AI-enabled target recognition, cognitive electronic warfare, next generation signal processing and other defense capabilities in addition, through collaborative mechanisms involving government agencies and private sector organizations to enhance R&D, developing lighter, faster, battery efficient, and more accurately detecting equipment to help enable interoperability in any domain. Collaborative relationships, especially between allied nations, allow for the sharing of technologies and standardization, enabling nations to deploy advanced systems.

For instance, in March 2025, Canadian government announced a USD 4.4 billion deal with Australia to develop an Arctic radar system. The radar system's long-range surveillance and threat tracking capabilities will detect and deter threats across the North Canada.

Surveillance/Reconnaissance Radars Emerge as Key Growth Driver for Military Man-Portable Radar System Market

The growth of advanced battlefield awareness is driving surveillance radars into a leading role in the man-portable radar market system for military purposes. These systems provide real-time detection of ground movements and intrusions by low-flying threats. These systems are increasingly viewed as essential for modern infantry and special operations soldiers. The advancement of radar technologies including AI-tracking, multi-sensor fusion, and low-probability-of-intercept (LPI) radars continue to improve detection accuracy at greater distances and ranges, while reducing power consumption. As counter-drone, unmanned aircraft systems (UAS) or border security become increasingly emphasized by armed forces and further demonstrated through the focus on commercially available UAS defense solutions, the appetite for these lightweight, immediately deployable, surveillance radar solutions will only grow. As the landscape of asymmetric warfare evolves, man-portable radar will be increasingly viewed as a value-added asset, when deploying them for surveillance purpose, which might drive expansion and growth of the market in the innovation of defense electronic systems.

For instance, In July 2025, French government announced USD 7.6 billion in extra military spending over the next two years. These spending will also cover surveillance capabilities.

North America Dominates the Military Man-Portable Radar System Market

North America leads the military man-portable radar market worldwide, continuing to expand due to increased defense budgets, cutting-edge R&D, modernization of battlefield surveillance systems, and the presence of procurement powerhouses. The U.S. continues to lead the region and in important national capabilities, with military forces seeking lightweight, multi-mission portable radars for infantry and special operations and border security. The ability to deliver technologically advanced equipment, specifically AI-powered detection and counter-detection capabilities, as well as networked warfare equipment, has ensured that North America remains the leading region. In addition, the level of collaboration between DOD and private sector innovators and research and development laboratories within the federal government continues to accelerate the fielding of the next generation of portable radar equipment. Given the threats from asymmetric warfare and drone swarms, continued emphasis and funding will

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only solidify North America's position in this market, particularly as resources are devoted to soldier modernization and electronic warfare.

For instance, in December 2023, SRC Inc. was named the principal contractor in an USD 85 million foreign military sale approved by the United States department. The UAE will receive 18 AN/TPQ-50 man-portable radar systems, along with control systems and power sources.

Impact of U.S. Tariffs on Global Military Man-Portable Radar System Market

- Tariffs on imported semiconductors, RF modules and electronic components have increased the costs of producing radar systems.
- Insourcing restrictions on parts of Chinese origin have created sourcing issues, longer lead times and reduced system availability.
- Manufacturers are now compelled to change systems design to use alternative non-tariffed systems, resulting in longer lead times and R&D costs to support manufacturing.
- U.S.-based companies are economically disadvantaged when competing for international tenders due to the higher input costs associated to tariffs.

Key Players Landscape and Outlook

Innovation drives growth in man-portable radar systems, the component of military radar market primarily emphasizing lightweight and artificial intelligence-based feature development for modern warfare. Competitive differentiation is built around multi-role radar systems capable of tracking and mitigating drone threats, while establishing battlefield network communications, using cutting-edge technology. Autonomous tracking systems, low-power modes, and rugged system mobility make up these new systems, but partnerships with militaries are also key to the acceleration of operational employment. Increasing demand for situational awareness in asymmetric conflicts is an important benefit for man-portable systems and driving manufacturers to develop higher networked and integrated radar systems for operational use. The future of man-portable radar system success will be created based on developing related technologies, like cognitive electronic warfare (EW) and multi-sensor fusion, that ensures these portable systems will continue to be a valued tool in the legs' toolkit in the infantry, special operations, and border patrol missions through evolving theatres.

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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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