

Global Drone Solid-state Battery Market Growth (Status and Outlook) 2026-2032

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Abstracts

The global Drone Solid-state Battery market size is predicted to grow from US\$ 46.96 million in 2025 to US\$ 1919 million in 2032; it is expected to grow at a CAGR of 67.4% from 2026 to 2032.

Solid-state batteries for drones refer to specialized power systems that use solid-state electrolytes instead of liquid electrolytes in traditional lithium-ion batteries. They achieve energy storage and release through a 'solid-state ion conduction-electrochemical reaction' mechanism, specifically designed for drone platforms to meet demands for lightweight design, long endurance, high safety, and adaptability to extreme environments. The industry's gross profit margin is approximately -10%.

The gross profit margin of the drone solid-state battery industry is significantly affected by technological maturity and the degree of scale. In the early stages of research and development, the preparation process of solid-state electrolyte materials (such as oxides and sulfides) is complex. Solid-state batteries are still a high-end, niche application in the drone field, mainly concentrated in high-end industrial, scientific research, or military fields with extreme requirements for safety and endurance. Upstream: This includes solid-state electrolyte materials (oxides/sulfides/polymers), positive and negative electrode materials (high-nickel ternary/silicon-carbon anodes), conductive additives, and encapsulation materials, etc. Solid-state electrolytes account for over 40% of the cost, and technological breakthroughs are key to cost reduction. Downstream: Targeting consumer-grade drones (aerial photography, entertainment), industrial-grade drones (logistics, surveying, inspection), and military drones (reconnaissance, strike), demand coexists with B-end clients (such as industry application service providers) and C-end consumers.

The main market drivers include the following:

Expanding drone applications drive demand for high-performance batteries: With the large-scale application of drones in logistics, agricultural plant protection, emergency rescue, and geographic mapping, the requirements for flight time, operational stability, and environmental adaptability have significantly increased. Solid-state batteries, with their high energy density and low-temperature resistance, have become a core solution to overcome existing technological bottlenecks. For example, long-endurance mapping drones can cover a larger area in a single flight, reducing the cost of frequent battery swaps.

Stricter safety regulations drive battery technology upgrades: Many countries worldwide have introduced strict standards for drone battery safety (such as UN38.3 transport testing and nail penetration/overcharge test requirements). Traditional liquid batteries face usage restrictions due to leakage and fire risks. Solid-state batteries, through physical isolation of the positive and negative electrodes using a solid electrolyte, fundamentally reduce the risk of thermal runaway, becoming an inevitable choice for compliant development, especially in high-safety-requirement scenarios such as urban air mobility (UAM).

Upgraded consumer drone experience stimulates market potential: Consumers' pursuit of drone aerial image quality, flight stability, and portability drives product iteration. Solid-state batteries offer lightweight design, reducing fuselage weight and improving flight maneuverability; fast charging reduces user wait time, increasing user engagement. Furthermore, the high-end drone market's dual demands for 'flight time + safety' provide a differentiated competitive space for solid-state batteries.

This report presents a comprehensive overview, market shares, and growth opportunities of Drone Solid-state Battery market by product type, application, key players and key regions and countries.

Segmentation by Type:

Semi-solid

Fully Solid

Segmentation by Product Forms:

Pack Batteries

Square Batteries

Cylindrical Batteries

Segmentation by Technology:

Oxide Solid-State Batteries

Sulfide Solid-State Batteries

Polymer Solid-State Batteries

Segmentation by Application:

Industrial

Commercial

Military

This report also splits the market by region:

United States

China

Europe

Other regions

Japan

South Korea

Southeast Asia

Rest of world

The report also presents the market competition landscape and a corresponding detailed analysis of the major players in the market. The key players covered in this report:

Enpower

inxtech

Lishen

Montavista

Hylic

Qingtao Energy

Gotion

Beijing Weilan New Energy Technology

Farasis Energy

Hangzhou Jinyu New Energy

CATL

Greater Bay Technology (GBT)

Shenzhen Grepow Battery

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