

Global Portable PV Panel Cleaning Robot Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Portable PV Panel Cleaning Robot market size was valued at US\$ 107 million in 2025 and is forecast to a readjusted size of US\$ 238 million by 2032 with a CAGR of 12.2% during review period.

Portable PV Panel Cleaning Robot is a lightweight and movable cleaning device designed for photovoltaic module operation and maintenance, focusing on flexible deployment, easy transport, quick setup, and repeated cleaning across different PV panel arrays. Compared with a general portable solar panel cleaning robot, this product definition more specifically emphasizes photovoltaic panel compatibility, distributed PV operation scenarios, roof-mounted PV maintenance, small ground-mounted PV plants, and sites where fixed cleaning systems are difficult to justify. It uses brush or dry-cleaning modules, battery-powered drive, sensing control, and compact structural design to remove dust, sand, bird droppings, and surface deposits while reducing labor intensity and improving cleaning consistency. In 2025, production was approximately 40,000 units and the average price was USD 2,600 per unit. The industry's capacity utilization rate in 2025 was about 65% and the average gross margin was around 25%. Upstream, the key inputs include brushless motors, lithium batteries, sensors, and controllers, with representative suppliers such as Nidec, CATL, and Bosch providing drive motors, battery systems, sensing components, and control modules. The midstream segment focuses on lightweight structural design, portable drive system integration, PV panel walking mechanism development, cleaning module integration, battery endurance optimization, obstacle detection, route planning, dust and sand adaptability, waterproof and weather-resistant design, remote monitoring, safety testing, and automated assembly, which together determine cleaning efficiency, operating stability, handling convenience, PV panel compatibility, service life, and cost.

competitiveness. Downstream, Portable PV Panel Cleaning Robot is mainly used in ground-mounted photovoltaic power stations and rooftop photovoltaic systems, with representative photovoltaic power generation companies including China Three Gorges Renewables, Enel Green Power, and NextEra Energy.

Portable PV Panel Cleaning Robot demand will be shaped by distributed photovoltaic expansion and the need for low-cost, flexible cleaning tools. Rooftop PV systems, industrial and commercial roofs, and small ground-mounted plants often have scattered layouts, limited access, and irregular cleaning cycles, making portable robots more practical than fixed cleaning systems. In large PV stations, they can also serve as supplementary equipment for special rows, edge zones, or maintenance teams. Customers will compare equipment by portability, setup speed, cleaning consistency, battery endurance, panel safety, weather resistance, maintenance cost, and adaptability to different PV installation structures.

This report is a detailed and comprehensive analysis for global Portable PV Panel Cleaning Robot market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Portable PV Panel Cleaning Robot market size and forecasts, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Portable PV Panel Cleaning Robot market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Portable PV Panel Cleaning Robot market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Portable PV Panel Cleaning Robot market shares of main players, shipments in revenue (\$ Million), sales quantity (Units), and ASP (US\$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Portable PV Panel Cleaning Robot

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Portable PV Panel Cleaning Robot market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Ecoppia (Israel), Sunpure Technology (China), Airtouch Solar (Israel), SolarCleanso (Luxembourg), TG hyLIFT GmbH (Germany), SERBOT AG (Switzerland), Miraikikai (Japan), BladeRanger (Israel), Aegeus Technologies (India), SolarACM Systems Corporation (USA), etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Portable PV Panel Cleaning Robot market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Single-Brush

Dual-Brush

Others

Market segment by Cleaning Method

Dry Cleaning Solar Panel Robot

Wet Cleaning Solar Panel Robot

Market segment by Cleaning Capacity

Capacity%oO%500m?/h

500m?/h?Capacity%oO%1,000m?/h

Others

Market segment by Application

Ground-Mounted Solar Systems

Rooftop PV Systems

Others

Major players covered

Ecoppia (Israel)

Sunpure Technology (China)

Airtouch Solar (Israel)

SolarCleanso (Luxembourg)

TG hyLIFT GmbH (Germany)

SERBOT AG (Switzerland)

Miraikikai (Japan)

BladeRanger (Israel)

Aegeus Technologies (India)

SolarACM Systems Corporation (USA)

Boson Robotics (India)

Sol-Bright Technology (China)

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Portable PV Panel Cleaning Robot product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Portable PV Panel Cleaning Robot, with price, sales quantity, revenue, and global market share of Portable PV Panel Cleaning Robot from 2021 to 2026.

Chapter 3, the Portable PV Panel Cleaning Robot competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Portable PV Panel Cleaning Robot breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Portable PV Panel Cleaning Robot market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Portable PV Panel Cleaning Robot.

Chapter 14 and 15, to describe Portable PV Panel Cleaning Robot sales channel, distributors, customers, research findings and conclusion.

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