

North America Low-Voltage Inverters Market: Focus on Machine Type, Voltage, Type, Power Rating, and Country - Analysis and Forecast, 2025-2035

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Abstracts

The North America low-voltage inverters market is projected to grow from \$1,631.2 million in 2025 to \$3,644.0 million by 2035, at a CAGR of 8.37%. The growing use of EVs and e-mobility, distributed renewable deployment, microgrids, Industry 4.0/predictive maintenance initiatives, and the integration of solar PV and energy storage are the primary factors propelling the expansion of the low-voltage inverters market in North America. Residential and commercial systems are the main drivers of demand. While three-phase systems are becoming more popular in commercial and microgrid projects, single-phase inverters still account for the majority of residential applications. Although medium-power devices (10–100 kW) are steadily growing, small-scale inverters (<10 kW) are still common. There are opportunities in enhanced inverter capabilities, especially in industrial and microgrid applications, grid modernization, and the integration of renewable energy storage. High upfront costs, disjointed standards, complicated regulations, changing grid codes, supply chain limitations, and total cost of ownership considerations are some of the main obstacles.

Market Introduction

The market for low-voltage inverters in North America is developing gradually due to rising investments in energy storage devices, solar photovoltaics, and transportation electrification. These inverters are necessary to serve household, commercial, and industrial energy applications, provide grid stability, and transform DC power from renewable sources into usable AC electricity.

Residential and commercial solar installations are a significant factor in the industry expansion in the United States and Canada. Three-phase inverters are becoming more

and more common in commercial and industrial settings, although single-phase inverters still make up the majority of home systems, especially small-scale units under 10 kW. The demand for sophisticated low-voltage inverter technology is further fueled by the growing use of microgrids, distributed energy resources (DERs), and smart energy management systems.

Adoption is accelerated in large part by government incentives, tax credits, and renewable energy regulations like the U.S. Investment Tax Credit (ITC). Furthermore, new prospects for inverter deployment are created by the rise of electric vehicles (EVs) and e-mobility infrastructure, as well as rising awareness of energy saving.

Supply chain limitations, changing grid restrictions, and expensive upfront expenditures are some of the market's obstacles despite robust demand. Opportunities do, however, exist for integrating inverters with energy storage, grid modernization initiatives, and sophisticated features including smart control, predictive maintenance, and medium- to higher-power inverter systems. The demand for dependable, effective, and sustainable energy solutions across residential, commercial, and industrial segments is fueling the North American market's ongoing evolution.

Market Segmentation:

Segmentation 1: by Voltage

48V

72V

96V to 120V

Segmentation 2: by Type

Single-Phase

Three-Phase

Segmentation 3: by Power Rating

Upto 1 kW

1-10 kW

10-100 kW

Above 100 kW

Segmentation 4: by Region

North America: U.S. and Canada

North America's market value is expected to grow at a compound annual growth rate (CAGR) of 8.37%, from \$1,631.2 million in 2025 to \$3,644.0 million by 2035. Strong industrial demand, expanding energy storage system deployment, and broad use of distributed renewable energy sources are the main drivers of this increase. The regional momentum is being further strengthened by favorable government incentives and the continuous electrification of industries like manufacturing and transportation.

North-America Low-Voltage Inverters Market Trends, Drivers and Challenges

Key Trends

Increased Solar PV Installations: Record growth in solar capacity installation, marking significant year-on-year increases.

Medium-Power Inverter Adoption: Shift toward medium-power inverters (10–100 kW) in commercial and industrial applications.

Integration with Energy Storage: Combining inverters with energy storage systems to enhance grid stability and reliability.

Smart Grid Compatibility: Inverters increasingly compatible with smart grid technologies for better energy management.

Market Drivers

Government Incentives: Policies and rebates encourage investment in renewable energy systems.

Rising Electricity Demand: Urbanization and industrial growth increase the need for efficient power conversion solutions.

Electrification of Transportation: Expansion of EV charging infrastructure boosts demand for higher-capacity inverters.

Technological Advancements: Improvements in inverter efficiency and functionality attract both consumers and businesses.

Market Challenges

High Initial Costs: Upfront investment for advanced inverter systems remains a barrier.

Regulatory Complexities: Varying regulations across states can delay project implementation.

Supply Chain Disruptions: Global supply chain issues affect availability and cost of components.

Technological Obsolescence: Rapid advancements can render existing models outdated, increasing upgrade costs.

How can this report add value to an organization?

Product/Innovation Strategy: The North America low-voltage inverters market report offers detailed insights into the evolving landscape of the North America low-voltage inverters market, helping organizations align their product development strategies with emerging trends and application demands. It examines innovations in three-phase inverter systems, 48V DC architectures, and the integration of smart control systems for use in industrial automation, renewable energy, and e-mobility infrastructure. With growing demand for predictive maintenance, high-efficiency inverters, and retrofit-friendly solutions, the report helps R&D teams identify technological opportunities and prioritize modular, scalable designs suited for residential, commercial, and industrial

environments.

Growth/Marketing Strategy: Organizations can use the North America low-voltage inverters market report to build targeted growth strategies across sectors such as distributed renewable energy, industrial motor drives, and EV charging infrastructure. The North America Low-Voltage Inverters Market report explores key regional drivers, such as policy incentives in North America, and evaluates high-growth areas including retrofit markets and off-grid energy solutions. Strategies such as geographic expansion, service contract models, and vertical integration are examined to help companies strengthen market share and revenue resilience.

Competitive Strategy: The North America low-voltage inverters market report provides a comprehensive overview of the competitive landscape, benchmarking key players, and identifying whitespace opportunities in under-served market segments. It analyzes market dynamics by voltage category (single-phase vs. three-phase), application area, and regional demand patterns, allowing organizations to refine their positioning. With an increasing shift toward service-based revenue models and digital monitoring capabilities, companies can leverage the North America low-voltage inverters market report to enhance value propositions and differentiate in a market shaped by both technological performance and regulatory alignment.

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Contents

Executive Summary
Scope and Definition

1 MARKET: INDUSTRY OUTLOOK

- 1.1 Trends: Current and Future Impact Assessment
 - 1.1.1 Wide-Bandgap (WBG) Semiconductor Adoption (SiC, GaN)
 - 1.1.2 Digitalization and IoT Connectivity
 - 1.1.3 Embedded Storage and Hybrid Architectures
 - 1.1.4 Advanced Thermal Management and Packaging
- 1.2 Supply Chain Overview
 - 1.2.1 Key Players within the Supply Chain
 - 1.2.2 Value Chain Analysis
- 1.3 Patent Analysis
 - 1.3.1 Patent Filing Trend by Country
 - 1.3.2 Patent Filing Trend (by Company)
- 1.4 Regulatory Landscape
 - 1.4.1 North America (UL 1741, IEEE 1547, NERC CIP)
 - 1.4.2 Emerging Standards (ISO 15118, Open ADR)
 - 1.4.3 Impact of Upcoming Legislation (U.S. Inflation Reduction Act)
 - 1.4.4 Cybersecurity and Functional Safety Standards
- 1.5 Technological Analysis
 - 1.5.1 Power-Semiconductor Evolution
 - 1.5.2 Control and Communication (Embedded IoT, Edge Analytics)
 - 1.5.3 Packaging and Thermal Management Solutions
 - 1.5.4 Safety and Reliability Features (Active Fault Protection, Self Diagnostics)
 - 1.5.5 Battery-Chemistry Trends and Emerging Storage
 - 1.5.6 Hydraulic vs. Electric Pump
- 1.6 Market Dynamics Overview
 - 1.6.1 Market Drivers
 - 1.6.1.1 Surge in EV and E-mobility Adoption
 - 1.6.1.2 Growth of Distributed Renewables and Micro-Grids
 - 1.6.1.3 Industrial 4.0 Predictive Maintenance
 - 1.6.2 Market Restraints
 - 1.6.2.1 High Upfront Costs of Wide-Bandgap Devices
 - 1.6.2.2 Fragmented Standards and Certification Delays
 - 1.6.2.3 Raw Material Price Inflation

1.6.3 Market Opportunities

1.6.3.1 48V DC Buses in Data Centers and Telecom

1.6.3.2 Retrofit and Upgrade of Legacy Inverter Systems

1.6.3.3 Service and Maintenance Contracts as Recurring Revenue

2 REGION

2.1 North America

2.1.1 Regional Overview

2.1.2 Driving Factors for Market Growth

2.1.3 Factors Challenging the Market

2.1.3.1 Application

2.1.3.2 Product

2.1.4 U.S.

2.1.4.1 Application

2.1.4.2 Product

2.1.5 Canada

2.1.5.1 Application

2.1.5.2 Product

3 MARKETS - COMPETITIVE BENCHMARKING & COMPANY PROFILES

3.1 Next Frontiers

3.2 Key Product Portfolio Analysis

3.2.1 Key Feature Analysis

3.3 Geographic Assessment

3.3.1 Market Share Analysis

3.3.2 Strategic Initiatives (Partnerships, Acquisitions, Product Launches)

3.4 Competitor Benchmarking

3.4.1 Competitive Advantages and Market Differentiators

3.4.1.1 North America

3.4.2 Startup and New Entrants

3.5 Key Player Analysis

3.5.1 North America

3.5.1.1 Curtis Instruments, Inc.

3.5.1.1.1 Overview

3.5.1.1.2 Top Products/Product Portfolio

3.5.1.1.3 Top Competitors

3.5.1.1.4 Target Customers

- 3.5.1.1.5 Key Personal
- 3.5.1.1.6 Analyst View
- 3.5.1.1.7 Market Share, 2024
- 3.5.1.2 Parker Hannifin Corp
 - 3.5.1.2.1 Overview
 - 3.5.1.2.2 Top Products/Product Portfolio
 - 3.5.1.2.3 Top Competitors
 - 3.5.1.2.4 Target Customers
 - 3.5.1.2.5 Key Personal
 - 3.5.1.2.6 Analyst View
 - 3.5.1.2.7 Market Share, 2024
- 3.5.1.3 DANA TM4 INC.
 - 3.5.1.3.1 Overview
 - 3.5.1.3.2 Top Products/Product Portfolio
 - 3.5.1.3.3 Top Competitors
 - 3.5.1.3.4 Target Customers
 - 3.5.1.3.5 Key Personal
 - 3.5.1.3.6 Analyst View
 - 3.5.1.3.7 Market Share, 2024
- 3.5.1.4 EXELTECH
 - 3.5.1.4.1 Overview
 - 3.5.1.4.2 Top Products/Product Portfolio
 - 3.5.1.4.3 Top Competitors
 - 3.5.1.4.4 Target Customers
 - 3.5.1.4.5 Key Personal
 - 3.5.1.4.6 Analyst View
 - 3.5.1.4.7 Market Share, 2024
- 3.5.1.5 Enphase Energy
 - 3.5.1.5.1 Overview
 - 3.5.1.5.2 Top Products/Product Portfolio
 - 3.5.1.5.3 Top Competitors
 - 3.5.1.5.4 Target Customers
 - 3.5.1.5.5 Key Personal
 - 3.5.1.5.6 Analyst View
 - 3.5.1.5.7 Market Share, 2024
- 3.5.1.6 Northern Electric Power Technology Inc.
 - 3.5.1.6.1 Overview
 - 3.5.1.6.2 Top Products/Product Portfolio
 - 3.5.1.6.3 Top Competitors

- 3.5.1.6.4 Target Customers
- 3.5.1.6.5 Key Personal
- 3.5.1.6.6 Analyst View
- 3.5.1.6.7 Market Share, 2024
- 3.5.1.7 Turntide
 - 3.5.1.7.1 Overview
 - 3.5.1.7.2 Top Products/Product Portfolio
 - 3.5.1.7.3 Top Competitors
 - 3.5.1.7.4 Target Customers
 - 3.5.1.7.5 Key Personal
 - 3.5.1.7.6 Analyst View
 - 3.5.1.7.7 Market Share, 2024

4 RESEARCH METHODOLOGY

- 4.1 Data Sources
 - 4.1.1 Primary Data Sources
 - 4.1.2 Secondary Data Sources
 - 4.1.3 Data Triangulation
- 4.2 Market Estimation and Forecast

List Of Figures

LIST OF FIGURES

Figure 1: North America Low-Voltage Inverters Market (by Scenario), \$Million, 2025, 2030, and 2035

Figure 2: North America Low-Voltage Inverters Market, 2024-2035

Figure 3: Market with North America Low-Voltage Inverters Market Snapshot, 2024

Figure 4: North America Low-Voltage Inverters Market (by Machine Type), \$Million, 2024, 2030, and 2035

Figure 5: North America Low-Voltage Inverters Market (by Voltage Type), \$Million, 2024, 2030, and 2035

Figure 6: North America Low-Voltage Inverters Market (by Type), \$Million, 2024, 2030, and 2035

Figure 7: North America Low-Voltage Inverters Market (by Power Rating), \$Million, 2024, 2030, and 2035

Figure 8: Trends, Drivers, Challenges, and Opportunities: Current and Future Impact Assessment

Figure 9: Key Players in the Supply Chain

Figure 10: Patent Filing Trend by Country (January 2022-June 2025)

Figure 11: Patent Filing Trend by Company (January 2022-June 2025)

Figure 12: Electric Vehicles Stock, Millions, 2019-2023

Figure 13: U.S. Low-Voltage Inverters Market, \$Million, 2024-2035

Figure 14: Canada Low-Voltage Inverters Market, \$Million, 2024-2035

Figure 15: Strategic Initiatives, January 2022-April 2025

Figure 16: Competitive Benchmarking for North America

Figure 17: Data Triangulation

Figure 18: Top-Down and Bottom-Up Approach

Figure 19: Assumptions and Limitations

List Of Tables

LIST OF TABLES

Table 1: Market Snapshot

Table 2: Illustrative Examples of Digital Integration:

Table 3: Recent Developments (2023-2025)

Table 4: Latest Techniques for Thermal Management

Table 5: Amendments in UL 1741 standards

Table 6: Latest Rules and Regulations Under IEEE 1547

Table 7: Recent Amendments

Table 8: OpenADR Mandates in the U.S. Now in Force

Table 9: The Clauses in IRA that Single-Out Inverters

Table 10: Mandatory Rules that Low-Voltage-Inverter Manufacturers must Follow

Table 11: Cybersecurity Requirements

Table 12: Recent Product Launches of Semiconductors in North America

Table 13: Technical Advantages

Table 14: Latest Technologies Introduced in North America for Packaging and Thermal Management Solutions of Low-Voltage Inverters of Range 48V-96V

Table 15: Latest Technological Innovations Occurred in North America (Aimed at 48V Nets):

Table 16: Battery-Chemistry Trends Followed for Low-Voltage Inverters Below 90V

Table 17: Storage System Design Shifts Enabled by New Chemistries:

Table 18: Why is it preferred?

Table 19: Latest Developments

Table 20: Recent Illustrative Examples of Deployment of PdM Services in European Industrial Sector:

Table 21: Examples of the Deployment of 48V Battery Backup Units in the Telecom Sectors and Data Centers:

Table 22: North America Low-Voltage Inverters Market (by Machine Type), Value, \$Million, 2024-2035

Table 23: North America Low-Voltage Inverters Market (by Machine Type), Volume, Thousand Units, 2024-2035

Table 24: North America Low-Voltage Inverters Market, by Machine Type (by Voltage), Value, \$Million, 2024-2035

Table 25: North America Low-Voltage Inverters Market, by Machine Type (by Voltage), Volume, Thousand Units, 2024-2035

Table 26: North America Low-Voltage Inverters Market, by Voltage, Value, \$Million, 2024-2035

Table 27: North America Low-Voltage Inverters Market, by Voltage, Volume, Thousand Units, 2024-2035

Table 28: North America Low-Voltage Inverters Market, by Type, Value, \$Million, 2024-2035

Table 29: North America Low-Voltage Inverters Market, by Type, Volume, Thousand Units, 2024-2035

Table 30: North America Low-Voltage Inverters Market, by Power Rating, Value, \$Million, 2024-2035

Table 31: North America Low-Voltage Inverters Market, by Power Rating, Volume, Thousand Units, 2024-2035

Table 32: U.S. Low-Voltage Inverters Market (by Machine Type), Value, \$Million, 2024-2035

Table 33: U.S. Low-Voltage Inverters Market (by Machine Type), Volume, Thousand Units, 2024-2035

Table 34: U.S. Low-Voltage Inverters Market, by Machine Type (by Voltage), Value, \$Million, 2024-2035

Table 35: U.S. Low-Voltage Inverters Market, by Machine Type (by Voltage), Volume, Thousand Units, 2024-2035

Table 36: U.S. Low-Voltage Inverters Market, by Voltage, Value, \$Million, 2024-2035

Table 37: U.S. Low-Voltage Inverters Market, by Voltage, Volume, Thousand Units, 2024-2035

Table 38: U.S. Low-Voltage Inverters Market, by Type, Value, \$Million, 2024-2035

Table 39: U.S. Low-Voltage Inverters Market, by Type, Volume, Thousand Units, 2024-2035

Table 40: U.S. Low-Voltage Inverters Market, by Power Rating, Value, \$Million, 2024-2035

Table 41: U.S. Low-Voltage Inverters Market, by Power Rating, Volume, Thousand Units, 2024-2035

Table 42: Canada Low-Voltage Inverters Market (by Machine Type), Value, \$Million, 2024-2035

Table 43: Canada Low-Voltage Inverters Market (by Machine Type), Volume, Thousand Units, 2024-2035

Table 44: Canada Low-Voltage Inverters Market, by Machine Type (by Voltage), Value, \$Million, 2024-2035

Table 45: Canada Low-Voltage Inverters Market, by Machine Type (by Voltage), Volume, Thousand Units, 2024-2035

Table 46: Canada Low-Voltage Inverters Market, by Voltage, Value, \$Million, 2024-2035

Table 47: Canada Low-Voltage Inverters Market, by Voltage, Volume, Thousand Units, 2024-2035

Table 48: Canada Low-Voltage Inverters Market, by Type, Value, \$Million, 2024-2035

Table 49: Canada Low-Voltage Inverters Market, by Type, Volume, Thousand Units, 2024-2035

Table 50: Canada Low-Voltage Inverters Market, by Power Rating, Value, \$Million, 2024-2035

Table 51: Canada Low-Voltage Inverters Market, by Power Rating, Volume, Thousand Units, 2024-2035

Table 52: Feature Analysis of Low-Voltage Inverters

Table 53: Market Share, 2024

Table 54: Startup Landscape in the Market

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