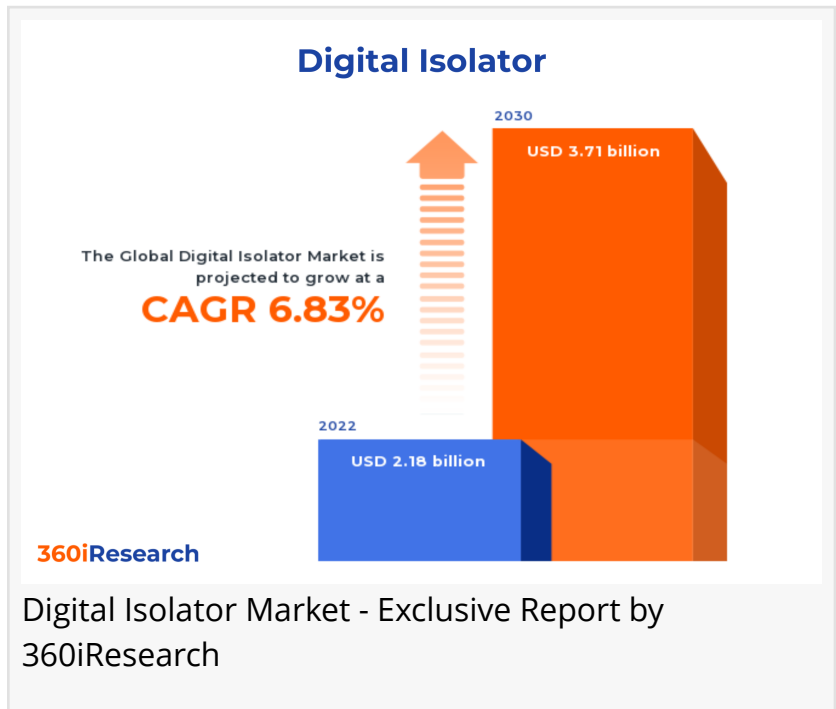


Digital Isolator Market worth \$3.71 billion by 2030, growing at a CAGR of 6.83% - Exclusive Report by 360iResearch

The Global Digital Isolator Market to grow from USD 2.18 billion in 2022 to USD 3.71 billion by 2030, at a CAGR of 6.83%.

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EINPresswire.com/ -- The "[Digital Isolator Market](#) by Type (Capacitive Coupling, Giant Magneto resistive, Magnetic Coupling), Data Range (Above 75 Mbps, Less Than 25 Mbps, Mbps to 75 Mbps), Channel, Insulating Material, Application, Vertical - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.



The Global Digital Isolator Market to grow from USD 2.18 billion in 2022 to USD 3.71 billion by 2030, at a CAGR of 6.83%.

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The digital isolator is an integrated circuit device that transmits digital signals between two isolated circuits without direct electrical contact. These devices play a crucial role in protecting sensitive electronics from high voltage surges, ground loops, and other forms of electrical noise that can damage or disrupt electronic systems. Increasing need for advanced safety systems in industrial automation processes to prevent work-related accidents; the growing adoption of electric vehicles (EVs) requiring dependable isolation solutions are expanding the use of digital isolators. However, high component costs and complex integration processes may adversely impact the usage of digital isolators by the end-use sectors. Moreover, advancements in smart grid infrastructure demanding reliable communication networks and rapid development in portable medical devices requiring compact and robust protection mechanisms are expected to proliferate the use of digital isolators.

Application: Deployment of digital isolators in DC/DC converters

Digital isolators are essential in analog-to-digital converters (ADCs) for accurate data transmission across isolation barriers, especially in harsh environments or high-noise applications. Controller Area Network (CAN) bus is widely used for communication between microcontrollers and devices in automotive and industrial control systems. CAN isolation enhances signal integrity by reducing ground loop errors, eliminating noise interference, and improving system reliability. Digital isolators play a critical role in isolated DC/DC converters that convert power from one voltage level to another while maintaining electrical isolation between input and output terminals. The need for compact solutions in power electronics has led to an increased preference for isolated DC/DC converters using digital isolators. Isolated gate drivers ensure safe and reliable switching of power devices in high-voltage applications such as motor drives, inverters, and renewable energy systems. Digital isolators provide essential signal isolation between low-voltage control signals and high-voltage power electronics. USB isolation protects sensitive equipment from ground loops, surges, and noise interference in data transmission lines. Digital isolators are used in various communication interfaces to improve signal quality and system reliability.

Type: Significant penetration magnetic coupling in end-use applications

Capacitive coupling digital isolators use a capacitive approach to transfer signals between two isolated circuits. They have high-speed data rates, low power consumption, and noise immunity, making them suitable for applications including industrial automation, medical devices, and communication systems. Capacitive coupling isolators are preferred when the primary need is data integrity and fast response times. Giant magneto-resistive digital isolators use GMR technology for providing galvanic isolation between input and output circuits. They exhibit excellent magnetic field sensitivity and linear response characteristics. GMR isolators are preferred in applications where high-temperature stability and robustness against external magnetic fields are crucial, such as automotive electronics and renewable energy systems. Magnetic coupling digital isolators employ magnetic fields to transmit data across isolation barriers, offering high reliability and excellent common-mode transient immunity. They are ideal for applications requiring long-term stability and resistance to harsh environments, such as power supplies, motor drives, and aerospace systems. Magnetic coupling isolators are preferred when high-voltage isolation and robustness against voltage transients are essential. Capacitive coupling isolators excel in data integrity and fast response times but may exhibit reduced performance under strong external electromagnetic fields. GMR isolators offer enhanced temperature stability and Magnetic coupling isolators provide robust voltage transient protection and long-term stability and have lower data rates than capacitive coupling devices.

Insulating Material: Expanding applications of Silicon Dioxide (SiO₂)-based insulating material

Polyimide-based digital isolators are widely used due to their excellent electrical insulation properties, high-temperature resistance, and outstanding mechanical and chemical stability. These characteristics make polyimide-based materials suitable for applications in harsh environments where robust insulating properties are crucial. Silicon dioxide-based digital

isolators have gained traction due to their excellent electrical insulation properties and compatibility with standard CMOS manufacturing processes. The integration of SiO₂ as an insulating material enables higher levels of miniaturization, increased reliability, and lower power consumption compared to traditional isolation technologies. Silicon dioxide is also known for its superior moisture resistance, which makes it ideal for humid environments. Polyimide-based materials are known for their enhanced thermal stability and mechanical strength, which makes them suitable for harsh environments. SiO₂-based materials offer the advantage of seamless integration with standard CMOS manufacturing processes, leading to increased miniaturization potential and lower power consumption.

Vertical: Proliferating demand for digital isolators from automotive industries

Digital isolators are critical components for aerospace & defense industries due to their ability to ensure reliable data transmission and protection from harsh operating conditions. They are used in avionics, satellite communications, missile guidance systems, and radar systems. The automotive industry relies on digital isolators to enhance safety features such as advanced driver assistance systems (ADAS), electric vehicle powertrain management, battery management systems (BMS), and infotainment systems. Digital isolators play an essential role in the energy sector by providing galvanic isolation between high-voltage components and low-voltage control circuits of power converters in solar inverters, wind turbines, electric grids, and industrial motor drives. In the healthcare sector, digital isolators contribute to patient safety by offering accurate data transfer between medical devices, including patient monitoring equipment or implantable devices, while ensuring electrical isolation to prevent potential harm. Digital isolators are widely used in the industrial sector for factory automation, robotics, and process control applications. They help maintain data integrity while protecting sensitive electronic equipment from harsh environmental conditions and electrical noise. The telecommunication industry utilizes digital isolators for reliable signal transmission and isolation between communication systems' different parts, such as routers, switches, or base stations.

Regional Insights:

The digital isolator market is evolving in the Americas owing to the presence of well-established semiconductor companies and significant investments in research and development. Emerging technologies such as IoT, 5G networks, and automation drive demand for digital isolators in industries such as automotive, healthcare, and industrial sensors in the Americas. In the EMEA region, the digital isolator market is flourishing due to technology advancements in industries such as automotive electronics, renewable energy systems, and aerospace & defense equipment manufacturing. Oil & gas exploration activities requiring sophisticated sensor systems to monitor environmental conditions accurately are accelerating the use of digital isolators in the Middle East. The expanding electronics manufacturing industry and increasing adoption of industrial IoT in APAC countries encourage the use of digital isolators in the region. Besides, the ongoing advancements to enhance the efficiency of digital isolators are anticipated to increase their deployment across end-use sectors worldwide.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Digital Isolator Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Digital Isolator Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the Digital Isolator Market, highlighting leading vendors and their innovative profiles. These include Advantech Co. Ltd., Analog Devices, Inc., Broadcom Inc., HALO Electronics, Inc., Infineon Technologies AG, IXYS Corporation, Murata Manufacturing Co., Ltd., National Instruments, NOVOSENSE Microelectronics, NVE Corporation, NXP Semiconductors N.V., One River Electronics Limited, Renesas Electronics Corporation, Rhopoint Components Ltd., ROHM Semiconductor, Semiconductor Components Industries, LLC, Silicon Laboratories, Inc., Skyworks Solutions, Inc., STMicroelectronics International N.V., Texas Instruments Incorporated, Toshiba Corporation, and Vicor Corporation.

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Market Segmentation & Coverage:

This research report categorizes the Digital Isolator Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Type, market is studied across Capacitive Coupling, Giant Magneto resistive, and Magnetic Coupling. The Giant Magneto resistive is projected to witness significant market share during forecast period.

Based on Data Range, market is studied across Above 75 Mbps, Less Than 25 Mbps, and Mbps to 75 Mbps. The Mbps to 75 Mbps is projected to witness significant market share during forecast period.

Based on Channel, market is studied across 4 Channel, 6 Channel, 8 Channel, and Channel. The Channel is projected to witness significant market share during forecast period.

Based on Insulating Material, market is studied across Polyimide-based and Silicon Dioxide (SiO₂)-based. The Polyimide-based is projected to witness significant market share during forecast period.

Based on Application, market is studied across Analogue to Digital Converter, CAN Isolation, DC/DC Converters, Gate Drivers, and USB & Other Communication Ports. The CAN Isolation is projected to witness significant market share during forecast period.

Based on Vertical, market is studied across Aerospace & Defense, Automotive, Energy & Power, Healthcare, Industrial, and Telecommunication. The Industrial is projected to witness significant market share during forecast period.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Americas commanded largest market share of 36.69% in 2022, followed by Europe, Middle East & Africa.

Key Topics Covered:

1. Preface
2. Research Methodology
3. Executive Summary
4. Market Overview
5. Market Insights
6. Digital Isolator Market, by Type
7. Digital Isolator Market, by Data Range
8. Digital Isolator Market, by Channel
9. Digital Isolator Market, by Insulating Material
10. Digital Isolator Market, by Application
11. Digital Isolator Market, by Vertical
12. Americas Digital Isolator Market
13. Asia-Pacific Digital Isolator Market
14. Europe, Middle East & Africa Digital Isolator Market
15. Competitive Landscape

16. Competitive Portfolio

17. Appendix

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:

1. What is the market size and forecast of the Digital Isolator Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the Digital Isolator Market?
3. What is the competitive strategic window for opportunities in the Digital Isolator Market?
4. What are the technology trends and regulatory frameworks in the Digital Isolator Market?
5. What is the market share of the leading vendors in the Digital Isolator Market?
6. What modes and strategic moves are considered suitable for entering the Digital Isolator Market?

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