

# **Busbar Protection Market- Global Industry Size, Share, Trends, Opportunities, and Forecast, 2018-2028 Segmented By Type (Low (Up To 125 A), Medium (126 A to 800 A), and High (above 801 A)), By Impedance (High Impedance and Low Impedance), By End User (Utilities, Industrial, Residential, and Others), By Region and Competition**

<https://marketpublishers.com/r/BED73FB3DB8BEN.html>

Date: October 2023

Pages: 174

Price: US\$ 4,900.00 (Single User License)

ID: BED73FB3DB8BEN

## **Abstracts**

Global busbar protection market is expected to grow during the forecast period, owing to the increasing investments into renewable energy, coupled with the increasing government initiatives for the replacement of aging transmissions & distribution infrastructure.

A busbar is a strip or bar of copper, brass, or aluminium that conducts electricity within a switchboard, a substation, or a battery bank. It is primarily used to conduct a substantial current of electricity in the electrical grid. It is designed for phase-segregated short-circuit protection and control. The busbar protection relay is intended for use in the high-impedance-based applications within utility substations and industrial power systems.

In addition, the advancements in busbar technologies and increasing adoption of high voltage direct current (HVDC) technologies across developed economies are another essential factor expected to boost the growth of the global busbar protection market over the forecast period. However, the delays in electric grid expansion and refurbishing projects, coupled with the high costs associated with use of busbar protection for major electrical grids might hamper the growth of the global busbar protection market.

**Busbar Protection Market: Drivers & Trends**

### Growing Adoption of Smart Grids:

The smart grid has become one of the biggest technological revolutions in the past years. Compared to the conventional grid, the smart grid is automated, highly integrated, technology-driven, and modernized due to the usage of power electronics. The smart grid is expected to play a major role in transforming the electrical networks, along with power system operations. Busbar protections are widely used as the distribution and control equipment of high current and low-medium voltage. They are also used as a feeder systems and plating cells for heavy electric uses in various industries and commercial buildings. Also, generators, motors, transformers, and reactors are some of the significant types of conductors where busbar protection are commonly used.

Smart grids facilitate the quicker restoration of electricity after power disturbances and help reduce management and operational costs of utilities; this ultimately lowers the power costs for consumers. Moreover, various initiatives taken to advance the technological landscape of the energy sector are also likely to drive the market growth during the forecast period. The U.S. electrical system announced its 'Grid 2030' vision in collaboration with the electric utility industry, equipment suppliers, IT operators, federal and state governments, advocacy organizations, colleges, and national laboratories of several countries. This vision encompasses the following aspects related to the power sector: generation, transmission, delivery, storage, and final use. It describes the fundamental problems and obstacles in grid modernization, followed by providing recommendations for policymakers and industries to assist them in development of the electric distribution infrastructure of the future, such as busbar protection.

### Increase Demand for Electric Vehicles:

To reduce electric vehicle's environmental effect, automakers are now highly motivated to turn vehicle mobility into a sustainable source of transportation. The top automobile industry firms are contemplating their efforts on funding the creation of electric vehicles. There have been significant partnerships in recent years between automakers and tech firms to create technologically cutting-edge electric vehicles. The market is turning towards EVs adoption as corporate strategies generally change with time to promote novel technology. This has caused ICE (Internal Combustion Engine Vehicle) car makers to move their attention towards EVs with a high voltage operational device. Automobile manufacturers are becoming more cautious when choosing energy distribution technologies because of the automobile industry's explosive expansion to

prevent battery-related accidents.

The development of electric car battery technology includes power capacity production, cell production, module production, and assembly of modules into the battery pack. At present, the demand for an energy-efficient electric vehicle is constantly increasing, so as to reduce transportation pollutions across the globe. Also, as stated by the International Council on Clean Transportation (ICCT), auto manufacturers have announced more than USD 150 billion investment to achieve 13 million electric vehicle production by 2025. The shifting trend of vehicles from old conventional-based automotive vehicles to electric vehicles is expected to drive the growth of the busbar protection market. Thus, the rapid growth in the automotive industry and increasing investment in the production of electric vehicles can prove to be opportunistic for the growth of busbar protection market.

**Leverage Benefits of AI and IoT in the Power Module:**

The technologies such as artificial intelligence (AI) and the internet of things are expected to bring new growth avenues in the market's ecosystem. IoT architecture is projected to manage the power components and data history of component failure firmly. Additionally, in power management converters, AI is expected to improve dependable predictions and monitoring the function of the components. The data-driven technique employs data science, machine learning methods, and identifies anomalies in devices and systems. This architecture is expected to reduce power losses by managing power requirements, which in turn decreases the costs associated with it. These technologies are expected to eliminate around 80% to 90% switching losses. Thus, these benefits of AI and IoT in the power module are expected to fuel the growth of the busbar protection market.

**Growth of Sustainable Energy System:**

A sustainable energy system is necessary to tackle the negative environmental impacts caused by burning fossil fuels in the form of CO<sub>2</sub> petrol emissions. Whether used in fuel cells, wind turbines, or solar panels, direct current (DC) energy enters an insulated-gate bipolar transistor (IGBT) and capacitor circuit directly through low-inductance busbar safeguards, supplying reliable amount of power. The busbar protection's design demonstrates exceptional packing effectiveness. To increase overall system dependability and guarantee optimal electrical performance, all the electrical connection points for the IGBTs, capacitors, I/O (Input/Output), and monitoring devices are designed in one clean busbar. Low emissions from busbar protection batteries used in

various residential applications, might also fuel market expansion in the future. According to the 'International Energy Agency,' solar PV system, along with wind, hydropower, and biofuels, account for approximately 70% of the world's electricity generation in the renewable energy system. The main renewable energy source is hydropower (21%), which is followed by wind at 16%, solar photovoltaic at 6%, and biofuel at 3%. During the anticipated period of 2018–2028, the increased usage of batteries and electricity from various industries, such as telecommunications, aerospace, and transportation, is propelling the market's expansion.

## Busbar Protection Market: Restraints

### Complexity Concerns:

Busbar protection plays a vital role, mainly in the power, industrial, and automotive sectors. However, as it leads to loss of heat and transmission, the challenges such as, efficiently integrating busbars, maintaining quality of electrical wire and plates installed at the capacitor have become increasingly relevant as power systems have become smaller, faster, and more complex to deal with. As such, conventional methods for busbar attachment, such as bolting, welding, or clamping connections to busbars, are not always feasible in larger power applications. Additionally, the lack of R&D activities and the volatile pricing of raw materials might also hamper the market growth. Furthermore, there is a need to design complex drive circuits and control strategies for the busbar protection so that the low stray inductance busbar protection can effectively restrain the over-shoot voltage and electromagnetic interference. There is a sophisticated electromagnetic coupling between phase busbars and the bus duct system enclosure.

In a parallel conductor system, skin effect and proximity effect, which have an impact on their own and one another's impedances, are to blame for the unequal distribution of current density. The busbar protection resistance and inductance may both rise and decrease because of the effect on the skin and the closeness. It is without a doubt more expensive and also complicated to go from a single conductive to a multilayer busbar. However, one of the key design considerations to be created around coupling multilayer designs with aluminium is the hi-pot test, which is a high-potential test to confirm the electrical insulation between the busbar conductors. The conductor used in busbar protection can benefit in terms of mass reduction but at the expense of higher losses. Therefore, over the projection period, the busbar protection's complexity may restrain market expansion.

## Market Segmentation

The global busbar protection market is segmented into type, impedance, end user, company, and region. Based on type, the market is segmented into low (up to 125 A), medium (126 A to 800 A), and high (above 801 A). Based on impedance, the market is segmented into high impedance and low impedance. Based on end user, the market is segmented into utilities, industrial, residential, others. Based on region, the market is segmented into North America, Asia-Pacific, Europe, South America, and Middle East & Africa.

## Market Players

Some of the major market players in the global busbar protection market are Hitachi Energy Ltd., ABB Ltd., Schneider Electric Global, GE Grid Solution, Siemens AG, Mitsubishi Electric Corporation, NR Electric Co., Ltd., Toshiba Energy Systems & Solutions Corporation, Eaton Corporation, and ZIV Automation.

## Report Scope:

In this report, the global busbar protection market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

### Busbar Protection Market, By Type:

Low (up to 125 A)

Medium (126 A to 800 A)

High (above 801 A)

### Busbar Protection Market, By Impedance:

High Impedance

Low Impedance

### Busbar Protection Market, By End User:

Utilities

Industrial

Residential

Other

Busbar Protection Market, By Region:

North America

United States

Canada

Mexico

Europe

France

Germany

United Kingdom

Italy

Spain

Asia pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

South Africa

Saudi Arabia

UAE

South America

Brazil

Argentina

Colombia

## Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in global busbar protection market.

## Available Customizations:

Global busbar protection market with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

## Company Information

Detailed analysis and profiling of additional market players (up to five).

## Contents

### **1. PRODUCT OVERVIEW**

- 1.1. Market Definition
- 1.2. Scope of the Study

### **2. RESEARCH METHODOLOGY**

- 2.1. Baseline Methodology
- 2.2. Methodology Followed for Calculation of Market Size
- 2.3. Methodology Followed for Calculation of Market Shares
- 2.4. Methodology Followed for Forecasting

### **3. EXECUTIVE SUMMARY**

### **4. VOICE OF CUSTOMER**

### **5. GLOBAL BUSBAR PROTECTION MARKET OUTLOOK**

- 5.1. Market Size & Forecast
  - 5.1.1. By Value
- 5.2. Market Share & Forecast
  - 5.2.1. By Type (Low (up to 125 A), Medium (126 A to 800 A), High (above 801 A))
  - 5.2.2. By Impedance (High Impedance, Low Impedance)
  - 5.2.3. By End User (Utilities, Industrial, Residential, Other)
  - 5.2.4. By Region (North America, Asia-Pacific, Europe, Middle East & Africa, and South America)
- 5.3. By Company (2022)
- 5.4. Market Map

### **6. NORTH AMERICA BUSBAR PROTECTION MARKET OUTLOOK**

- 6.1. Market Size & Forecast
  - 6.1.1. By Value
- 6.2. Market Share & Forecast
  - 6.2.1. By Type



- 6.2.2. By Impedance
- 6.2.3. By End User
- 6.2.4. By Country
- 6.3. North America: Country Analysis
  - 6.3.1. United States Busbar Protection Market Outlook
    - 6.3.1.1. Market Size & Forecast
      - 6.3.1.1.1. By Value
    - 6.3.1.2. Market Share & Forecast
      - 6.3.1.2.1. By Type
      - 6.3.1.2.2. By Impedance
      - 6.3.1.2.3. By End User
  - 6.3.2. Canada Busbar Protection Market Outlook
    - 6.3.2.1. Market Size & Forecast
      - 6.3.2.1.1. By Value
    - 6.3.2.2. Market Share & Forecast
      - 6.3.2.2.1. By Type
      - 6.3.2.2.2. By Impedance
      - 6.3.2.2.3. By End User
  - 6.3.3. Mexico Busbar Protection Market Outlook
    - 6.3.3.1. Market Size & Forecast
      - 6.3.3.1.1. By Value
    - 6.3.3.2. Market Share & Forecast
      - 6.3.3.2.1. By Type
      - 6.3.3.2.2. By Impedance
      - 6.3.3.2.3. By End User

## **7. EUROPE BUSBAR PROTECTION MARKET OUTLOOK**

- 7.1. Market Size & Forecast
  - 7.1.1. By Value
- 7.2. Market Share & Forecast
  - 7.2.1. By Type
  - 7.2.2. By Impedance
  - 7.2.3. By End User
  - 7.2.4. By Country
- 7.3. Europe: Country Analysis
  - 7.3.1. France Busbar Protection Market Outlook
    - 7.3.1.1. Market Size & Forecast
      - 7.3.1.1.1. By Value

- 7.3.1.2. Market Share & Forecast
  - 7.3.1.2.1. By Type
  - 7.3.1.2.2. By Impedance
  - 7.3.1.2.3. By End User
- 7.3.2. Germany Busbar Protection Market Outlook
  - 7.3.2.1. Market Size & Forecast
    - 7.3.2.1.1. By Value
  - 7.3.2.2. Market Share & Forecast
    - 7.3.2.2.1. By Type
    - 7.3.2.2.2. By Impedance
    - 7.3.2.2.3. By End User
- 7.3.3. United Kingdom Busbar Protection Market Outlook
  - 7.3.3.1. Market Size & Forecast
    - 7.3.3.1.1. By Value
  - 7.3.3.2. Market Share & Forecast
    - 7.3.3.2.1. By Type
    - 7.3.3.2.2. By Impedance
    - 7.3.3.2.3. By End User
- 7.3.4. Italy Busbar Protection Market Outlook
  - 7.3.4.1. Market Size & Forecast
    - 7.3.4.1.1. By Value
  - 7.3.4.2. Market Share & Forecast
    - 7.3.4.2.1. By Type
    - 7.3.4.2.2. By Impedance
    - 7.3.4.2.3. By End User
- 7.3.5. Spain Busbar Protection Market Outlook
  - 7.3.5.1. Market Size & Forecast
    - 7.3.5.1.1. By Value
  - 7.3.5.2. Market Share & Forecast
    - 7.3.5.2.1. By Type
    - 7.3.5.2.2. By Impedance
    - 7.3.5.2.3. By End User

## **8. ASIA-PACIFIC BUSBAR PROTECTION MARKET OUTLOOK**

- 8.1. Market Size & Forecast
  - 8.1.1. By Value
- 8.2. Market Share & Forecast
  - 8.2.1. By Type

- 8.2.2. By Impedance
- 8.2.3. By End User
- 8.2.4. By Country
- 8.3. Asia-Pacific: Country Analysis
  - 8.3.1. China Busbar Protection Market Outlook
    - 8.3.1.1. Market Size & Forecast
      - 8.3.1.1.1. By Value
    - 8.3.1.2. Market Share & Forecast
      - 8.3.1.2.1. By Type
      - 8.3.1.2.2. By Impedance
      - 8.3.1.2.3. By End User
  - 8.3.2. India Busbar Protection Market Outlook
    - 8.3.2.1. Market Size & Forecast
      - 8.3.2.1.1. By Value
    - 8.3.2.2. Market Share & Forecast
      - 8.3.2.2.1. By Type
      - 8.3.2.2.2. By Impedance
      - 8.3.2.2.3. By End User
  - 8.3.3. Japan Busbar Protection Market Outlook
    - 8.3.3.1. Market Size & Forecast
      - 8.3.3.1.1. By Value
    - 8.3.3.2. Market Share & Forecast
      - 8.3.3.2.1. By Type
      - 8.3.3.2.2. By Impedance
      - 8.3.3.2.3. By End User
  - 8.3.4. South Korea Busbar Protection Market Outlook
    - 8.3.4.1. Market Size & Forecast
      - 8.3.4.1.1. By Value
    - 8.3.4.2. Market Share & Forecast
      - 8.3.4.2.1. By Type
      - 8.3.4.2.2. By Impedance
      - 8.3.4.2.3. By End User
  - 8.3.5. Australia Busbar Protection Market Outlook
    - 8.3.5.1. Market Size & Forecast
      - 8.3.5.1.1. By Value
    - 8.3.5.2. Market Share & Forecast
      - 8.3.5.2.1. By Type
      - 8.3.5.2.2. By Impedance
      - 8.3.5.2.3. By End User

## **9. SOUTH AMERICA BUSBAR PROTECTION MARKET OUTLOOK**

### 9.1. Market Size & Forecast

#### 9.1.1. By Value

### 9.2. Market Share & Forecast

#### 9.2.1. By Type

#### 9.2.2. By Impedance

#### 9.2.3. By End User

#### 9.2.4. By Country

### 9.3. South America: Country Analysis

#### 9.3.1. Brazil Busbar Protection Market Outlook

##### 9.3.1.1. Market Size & Forecast

###### 9.3.1.1.1. By Value

##### 9.3.1.2. Market Share & Forecast

###### 9.3.1.2.1. By Type

###### 9.3.1.2.2. By Impedance

###### 9.3.1.2.3. By End User

#### 9.3.2. Argentina Busbar Protection Market Outlook

##### 9.3.2.1. Market Size & Forecast

###### 9.3.2.1.1. By Value

##### 9.3.2.2. Market Share & Forecast

###### 9.3.2.2.1. By Type

###### 9.3.2.2.2. By Impedance

###### 9.3.2.2.3. By End User

#### 9.3.3. Colombia Busbar Protection Market Outlook

##### 9.3.3.1. Market Size & Forecast

###### 9.3.3.1.1. By Value

##### 9.3.3.2. Market Share & Forecast

###### 9.3.3.2.1. By Type

###### 9.3.3.2.2. By Impedance

###### 9.3.3.2.3. By End User

## **10. MIDDLE EAST & AFRICA BUSBAR PROTECTION MARKET OUTLOOK**

### 10.1. Market Size & Forecast

#### 10.1.1. By Value

### 10.2. Market Share & Forecast

#### 10.2.1. By Type

- 10.2.2. By Impedance
- 10.2.3. By End User
- 10.2.4. By Country
- 10.3. Middle East & Africa: Country Analysis
  - 10.3.1. South Africa Busbar Protection Market Outlook
    - 10.3.1.1. Market Size & Forecast
      - 10.3.1.1.1. By Value
    - 10.3.1.2. Market Share & Forecast
      - 10.3.1.2.1. By Type
      - 10.3.1.2.2. By Impedance
      - 10.3.1.2.3. By End User
  - 10.3.2. Saudi Arabia Busbar Protection Market Outlook
    - 10.3.2.1. Market Size & Forecast
      - 10.3.2.1.1. By Value
    - 10.3.2.2. Market Share & Forecast
      - 10.3.2.2.1. By Type
      - 10.3.2.2.2. By Impedance
      - 10.3.2.2.3. By End User
  - 10.3.3. UAE Busbar Protection Market Outlook
    - 10.3.3.1. Market Size & Forecast
      - 10.3.3.1.1. By Value
    - 10.3.3.2. Market Share & Forecast
      - 10.3.3.2.1. By Type
      - 10.3.3.2.2. By Impedance
      - 10.3.3.2.3. By End User

## **11. MARKET DYNAMICS**

- 11.1. Drivers
- 11.2. Challenges

## **12. MARKET TRENDS AND DEVELOPMENTS**

## **13. COMPETITIVE LANDSCAPE**

- 13.1. Company Profiles
  - 13.1.1. Hitachi Energy Ltd.
    - 13.1.1.1. Business Overview

- 13.1.1.2. Key Personnel
- 13.1.1.3. Recent Developments
- 13.1.1.4. Financials (If Available)
- 13.1.1.5. Key Services/Products Offered
- 13.1.2. ABB Ltd.
  - 13.1.2.1. Business Overview
  - 13.1.2.2. Key Personnel
  - 13.1.2.3. Recent Developments
  - 13.1.2.4. Financials (If Available)
  - 13.1.2.5. Key Services/Products Offered
- 13.1.3. Schneider Electric Global
  - 13.1.3.1. Business Overview
  - 13.1.3.2. Key Personnel
  - 13.1.3.3. Recent Developments
  - 13.1.3.4. Financials (If Available)
  - 13.1.3.5. Key Services/Products Offered
- 13.1.4. GE Grid Solution
  - 13.1.4.1. Business Overview
  - 13.1.4.2. Key Personnel
  - 13.1.4.3. Recent Developments
  - 13.1.4.4. Financials (If Available)
  - 13.1.4.5. Key Services/Products Offered
- 13.1.5. Siemens AG
  - 13.1.5.1. Business Overview
  - 13.1.5.2. Key Personnel
  - 13.1.5.3. Recent Developments
  - 13.1.5.4. Financials (If Available)
  - 13.1.5.5. Key Services/Products Offered
- 13.1.6. Mitsubishi Electric Corporation
  - 13.1.6.1. Business Overview
  - 13.1.6.2. Key Personnel
  - 13.1.6.3. Recent Developments
  - 13.1.6.4. Financials (If Available)
  - 13.1.6.5. Key Services/Products Offered
- 13.1.7. NR Electric Co., Ltd.
  - 13.1.7.1. Business Overview
  - 13.1.7.2. Key Personnel
  - 13.1.7.3. Recent Developments
  - 13.1.7.4. Financials (If Available)

- 13.1.7.5. Key Services/Products Offered
- 13.1.8. Toshiba Energy Systems & Solutions Corporation
  - 13.1.8.1. Business Overview
  - 13.1.8.2. Key Personnel
  - 13.1.8.3. Recent Developments
  - 13.1.8.4. Financials (If Available)
  - 13.1.8.5. Key Services/Products Offered
- 13.1.9. Eaton Corporation
  - 13.1.9.1. Business Overview
  - 13.1.9.2. Key Personnel
  - 13.1.9.3. Recent Developments
  - 13.1.9.4. Financials (If Available)
  - 13.1.9.5. Key Services/Products Offered
- 13.1.10. ZIV Automation
  - 13.1.10.1. Business Overview
  - 13.1.10.2. Key Personnel
  - 13.1.10.3. Recent Developments
  - 13.1.10.4. Financials (If Available)
  - 13.1.10.5. Key Services/Products Offered

## **14. STRATEGIC RECOMMENDATIONS**

## **15. ABOUT US & DISCLAIMER**

(Note: The companies list can be customized based on the client requirements)

## I would like to order

Product name: Busbar Protection Market- Global Industry Size, Share, Trends, Opportunities, and Forecast, 2018-2028 Segmented By Type (Low (Up To 125 A), Medium (126 A to 800 A), and High (above 801 A)), By Impedance (High Impedance and Low Impedance), By End User (Utilities, Industrial, Residential, and Others), By Region and Competition

Product link: <https://marketpublishers.com/r/BED73FB3DB8BEN.html>

Price: US\$ 4,900.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/BED73FB3DB8BEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:  
Last name:  
Email:  
Company:  
Address:  
City:  
Zip code:  
Country:  
Tel:  
Fax:  
Your message:

**\*\*All fields are required**

Customer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>



To place an order via fax simply print this form, fill in the information below  
and fax the completed form to +44 20 7900 3970