Eaton's switch-disconnectors and Bussmann series fuses for electric vehicles charging stations

Powering Business Worldwide

Overview of Eaton's Bussmann series fuses

Description

Eaton's Bussmann® series High speed fuse links are suitable for the protection of AC and DC, low power, fast and ultra-fast EV Charging stations with outputs as defined by IEC 61851 & SAE J1772

Standards/Approvals

- IEC 60269
- UL 248

Technical data

- Rated voltage of up to 1000 V d.c. /690 V a.c./ 1000 V d.c.
- Rated current up to 600 A
- Optional Fuse holders & microswitch indicators on various designs
- Operating class: Ultra rapid characteristics available as partial and full range operating class
- Higher voltage and current ratings available please contact our technical teams for more info bulehighspeedtechnical@eaton.com

Features and benefits

- Eaton's Bussmann® series High-speed fuse links have leading DC performance which makes them the ideal choice for the protection of high-power DC Charging station applications.
- Wide range of solutions available for the protection of AC Input lines, Auxiliary circuits, DC Conditioning circuits and High Voltage DC/DC Converters for up to 400kW+ rated chargers.
- Supports the full range of charger output ratings as covered by CCS & CHAdeMO Protocols
- Demonstrated performance in extreme temperature cycling conditions ensure your installation will be protected by the best possible and most suitable circuit protection solutions.
- Low watts loss and cool running extend the longevity of the components.
- Team of Electrical Engineering experts on hand to help find the correct circuit protection solutions for your applications bulehighspeedtechnical@eaton.com

Fast EV charging

Overview of Eaton's Switch-disconnectors

Description

Eaton's high performance, high quality, robust Switch-disconnectors and Cam switches are a perfect solution for the protection of Electric vehicle charging stations

Standards/Approvals

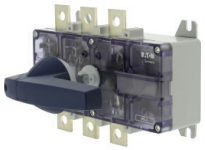
- IEC 60947

Technical data

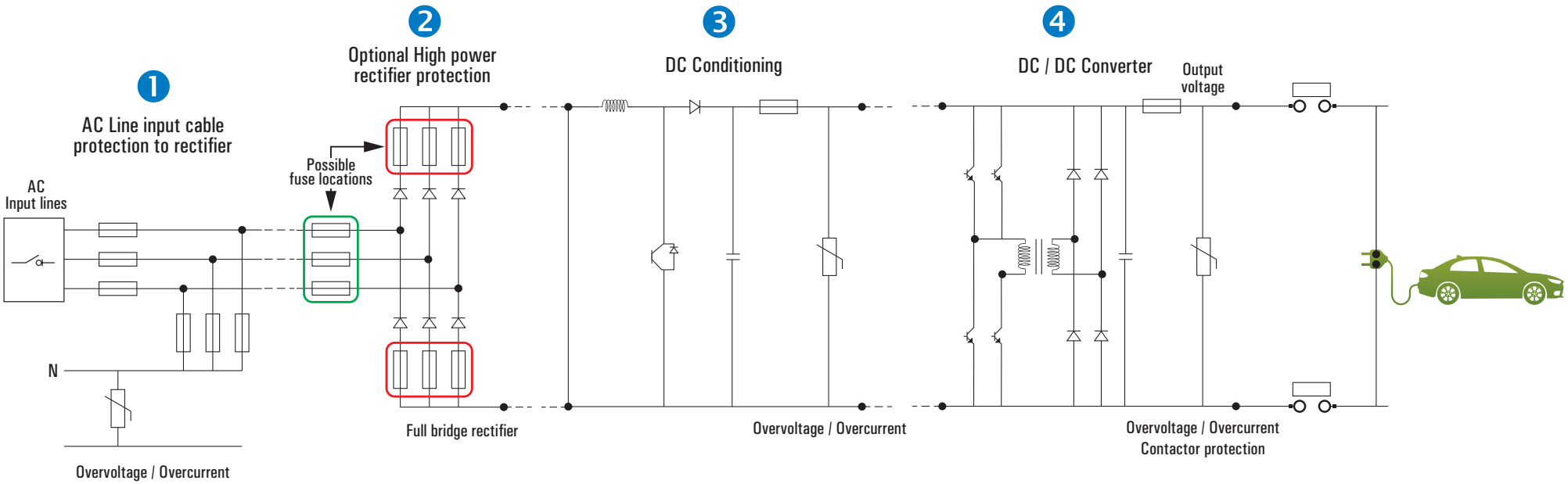
- Rated voltage of up to 690 V a.c.
- Rated current up from 10 A to 3150 A
- Complete range of accessories available
- Various mounting options available

Features and benefits

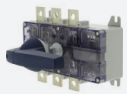
- High short circuit withstand thanks to robust contact design
- Multiple options for control or power switching applications
- Fully configurable control switches to perform any switching requirements
- Switching Utilization categories include AC21, AC22 and AC23 for highly inductive load switching
- Multiple frame sizes available to suite all space saving requirements
- Globally approved product line

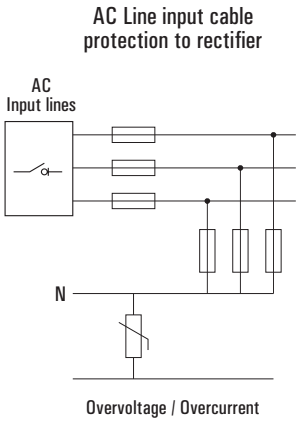


Example of a DC Fast charging station schematic



Suitable switch-disconnectors and fuse links

1	1	1	1	1	2	3 4	3 4	3 4	3 4	2 3 4
										
P	QSA	Dumeco	BS88	NH	BS88	FWH	FWP	FWJ	FWE	170M/180D



Switch-disconnectors and fuse links used to protect the AC Line input cable protection to rectifier

- Switching protection

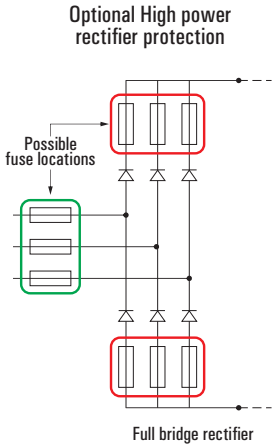
Compatible Eaton's switch-disconnectors

Product type	P Switch-disconnectors	QSA Switch-disconnectors fuses	Dumeco Switch-disconnectors
Switch rating	25 A to 315 A	40 A to 800 A	160 A to 3150 A
Number of poles	3	3	3
Fuse type	N/A	BS88 or NH DIN	N/A
Mounting type	Enclosed (surface) or, Flush or Rear mounting	Rear mounting	Rear mounting
Other requirements	None:- Complete switch assembly	Requires shaft and Handle	Requires shaft and handle

- Cable protection for three-phase line inputs
- Cable protection for overvoltage surge protection

Compatible Bussmann series AC General purpose fuse links

Product type	BS88 Fuse links	NH Fuse links
Fuse body size	A1, A2, A3, A4, B1, B2, B3, B4, C1, C2, C3, D1	000, 00, 01, 1, 02, 2, 03, 4
Rated voltage	415 V a.c. / 690 V a.c.	500 V a.c. / 690 V a.c.
Rated current	2 A to 1250 A	2 A to 1250 A
Breaking capacity	80 kA	120 kA
Operating class	gG	gG
Standards	BS88 / IEC 60269	IEC 60269

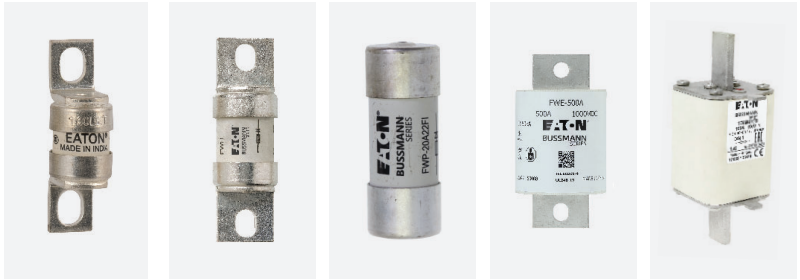


Fuse links for high power rectifier protection

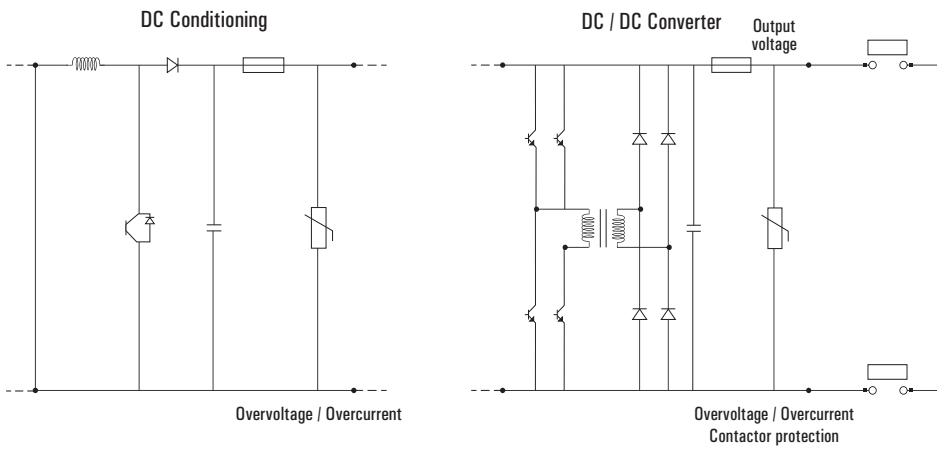
- Overcurrent protection

Compatible Eaton's Bussmann series AC fuse links

Type aR and gR High Speed fuse links rated up to 690 V a.c. and 200 kA breaking capacity



Product type	BS88	FWH	FWP	FWE	170M
Fuse body size	BS88-4 standard	Various bolted tag	Various bolted tag	North American round body	European Square body size
Rated voltage	690 V a.c.	500 V a.c.	700 V a.c.	1000 V d.c.	690 V a.c.
Rated current	6 A to 710 A	35 A to 1600 A	5 A to 1200 A	15 A to 600 a	up to 1000 A
Breaking capacity	200 kA	200 kA	200 kA	50 kA (d.c.)	200 kA
Operating class	aR	aR	aR	aR & gR	aR & gR
Standards	BS88-4	UL248-13	UL248-13	IEC 60269-4 UL248-13	IEC 60269-4 UL248-13



Fuse links for DC Conditioning and DC/DC converter protection

- Overcurrent protection

Compatible Eaton's Bussmann series DC fuse links

Type aR and gR High Speed fuses rated up to 1000 V d.c. and 200 kA breaking capacity

Product type	FWH	FWJ	FWP	FWE	170M/180D
Fuse body size	Various bolted tag	Various bolted tag	Various bolted tag	North American round body	European Square body size
Rated voltage	500 V d.c.	800 V d.c.	700 V d.c.	1000 V d.c.	1000 & 1500 V d.c.
Rated current	35 A to 1600A	35 A to 2000 A	5 A to 1200 A	15 A to 600 a	up to 3000 A
Breaking capacity	200 kA	200 kA	200 kA	50 kA (d.c.)	100 kA
Operating class*	aR & gR	aR & gR	aR & gR	aR & gR	aR & gR
Standards*	UL 248-13	UL 248-13	UL 248-13	IEC 60269-4 UL248-13	IEC 60269-4 UL248-13

* The operating class and standard varie based on their ratings, please contact bulehighspeedtechnical@eaton.com for further information.

FWE Fuses for the protection of DC Conditioning and DC/DC Converter

NEW

Features

- 1000 V DC voltage rating
- Up to 600 A rated current
- 100 kA Breaking capacity
- Compliant to CE, IEC 60269-4 and UL 248-13
- 10 mS time constant tested (suitable for most DC applications)
- Operating class: Ultra rapid characteristics available as partial and full range operating class
- Supports the full range of charger output ratings as covered by CCS & CHAdeMO Protocols

Applications

- DC charging stations:
  - Private and Public charging stations
  - Slow (low power) and fast (high power)
  - Specialist vehicles (E-Scooters)
- General DC Applications

Customised fuse design service

As the trend towards clean energy continues to drive new technologies in renewable energy generation, energy storage, electrical transportation and the adoption of DC technology throughout wider industries, the demand for customised fusing products has only increased.

Our Application and Design Engineers located at R&D centres in North America, Europe and Asia can leverage over 100 years of fuse design and application experience along with our in-house test labs to meet any customised solution requests for **Eaton's Bussmann series fuses.**

Our services include:

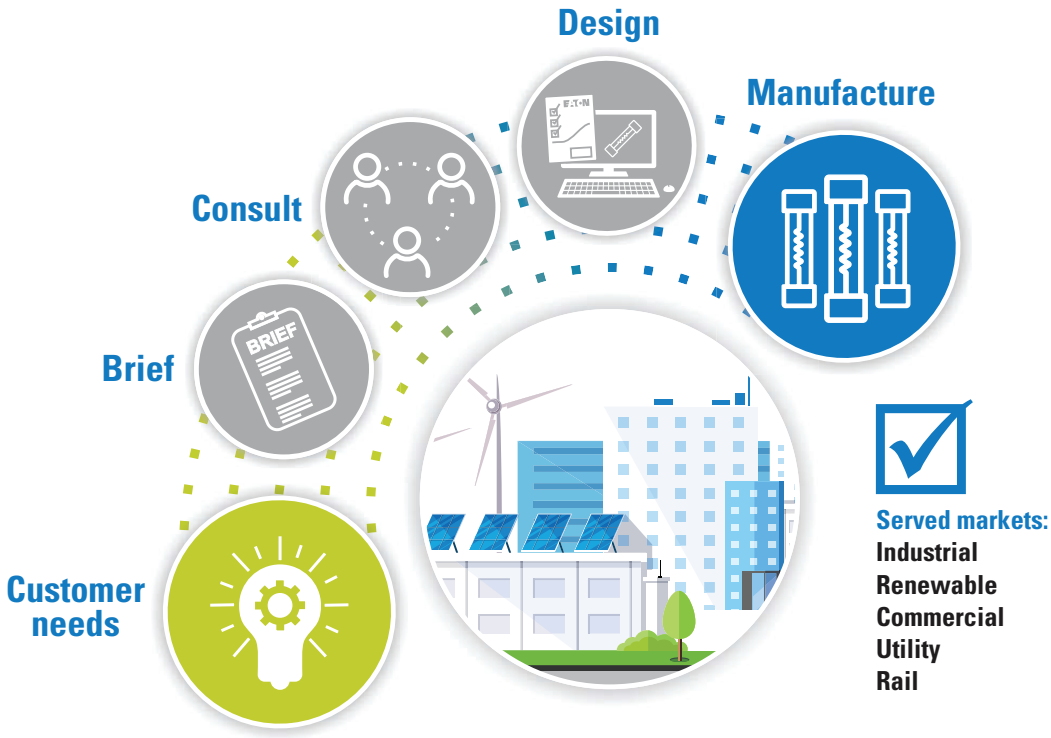
- New current/voltage ratings
- Design to meet I2t requirements
- Customised mounting connection and plating materials
- Modify indicator locations/ add or remove indicators
- Special end connections
- Acquire UL/IEC/CCC/CSA certificates
- Customised testing such as shock vibration
- Higher breaking capacity testing

Contact us today:

For general fuse enquiries: buletechnical@eaton.com

For high speed fuses enquiries : bulehighspeedtechnical@eaton.com

Eaton's Field Applications Engineers are able to draw upon more than 100 years of fuse design knowledge to fully meet your application needs and ensure you can rely on the best in class electrical circuit protection solutions.



Served markets:
Industrial
Renewable
Commercial
Utility
Rail

EATON
Powering Business Worldwide

Eaton's mission is to improve the quality of life and the environment through the use of power management technologies and services. We provide sustainable solutions that help our customers effectively manage electrical, hydraulic, and mechanical power – more safely, more efficiently, and more reliably. Eaton's 2020 revenues were $17.9 billion, and we sell products to customers in more than 175 countries. We have approximately 92,000 employees.

For more information, visit Eaton.com.

Eaton
EMEA Headquarters
Route de la Longeraie 7
1110 Morges, Switzerland

Electrical Sector
Eaton Electrical Products Limited
Unit 1, Hawker Business Park
Melton Road
Burton-on-the-Wolds
LE12 5TH
UK

PDF only
Publication No. BR135002EN
September 2021

Follow us on social media to get the latest product and support information.

Powering Business Worldwide