Bussmann series
Product range overview

BUSSMANN SERIES

Leadership in fusible circuit protection solutions

EATON
Powering Business Worldwide




Energizing a world that demands more.

We deliver:

- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

Discover today's Eaton.

Powering business worldwide

As a global power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2014 sales of $22.6 billion, Eaton has approximately 100,000 employees around the world and sells products in more than 175 countries.

Eaton.com

EATON

Powering Business Worldwide

Company

Leading source of circuit protection

Eaton is one of the leading sources of fusible circuit protection solutions in the global marketplace. Eaton's Bussmann series products are approved for use around the world and meet agency requirements and international standards: IEC, VDE, DIN, UL, CSA, BS and others.

The headquarters for Eaton's Bussmann series product line is located in Burton-on-the-Wolds, Leicestershire (UK) and is part of Eaton's Industrial Control and Protection EMEA division.

Eaton manufactures over 50,000 part numbers covering extensive circuit protection solutions for a wide range of applications: residential, industrial, motor protection, power conversion, distribution, telecommunications and automotive.

Quality

Driving continuous improvement

From design conception to the end product, quality is paramount to the performance and reliability of Eaton's Bussmann series products. Rigorous testing helps to ensure global standards are met to the highest levels of quality throughout the entire product range.

Customer service

Ease of doing business, quality and delivery

Customer service representatives and field applications engineers are on hand to help with specific customers' needs, offering custom technical solutions. Along with our technical support www.my.eaton.com is the online solution designed to provide real time product availability, net pricing, order status and tracking. It's simple, fast and accurate.

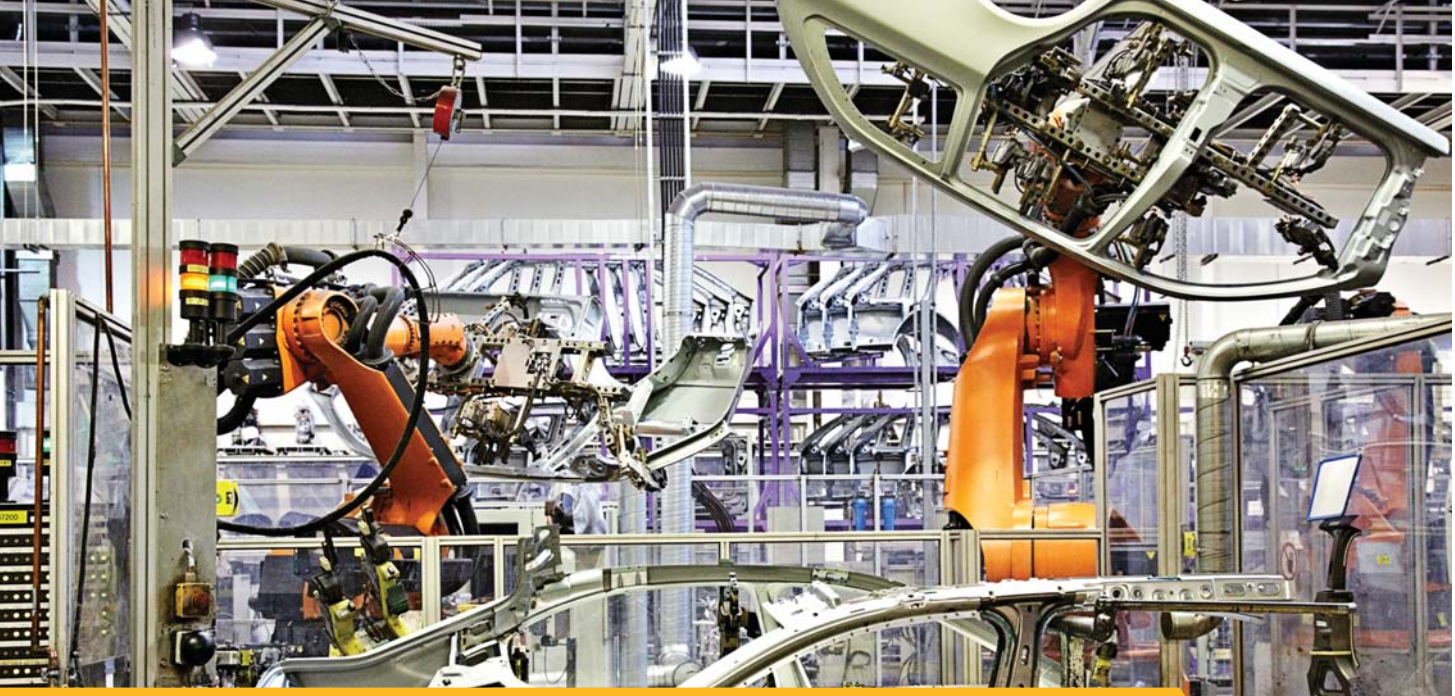
Innovation

Leveraging technology to drive customer value

Eaton recognises the need to continually innovate and develop new technology to meet the changing needs of the market.

Utilising nearly 100 years of circuit protection experience, Eaton produces technical products that deliver technical solutions to meet today's demanding circuit protection needs.

Contents

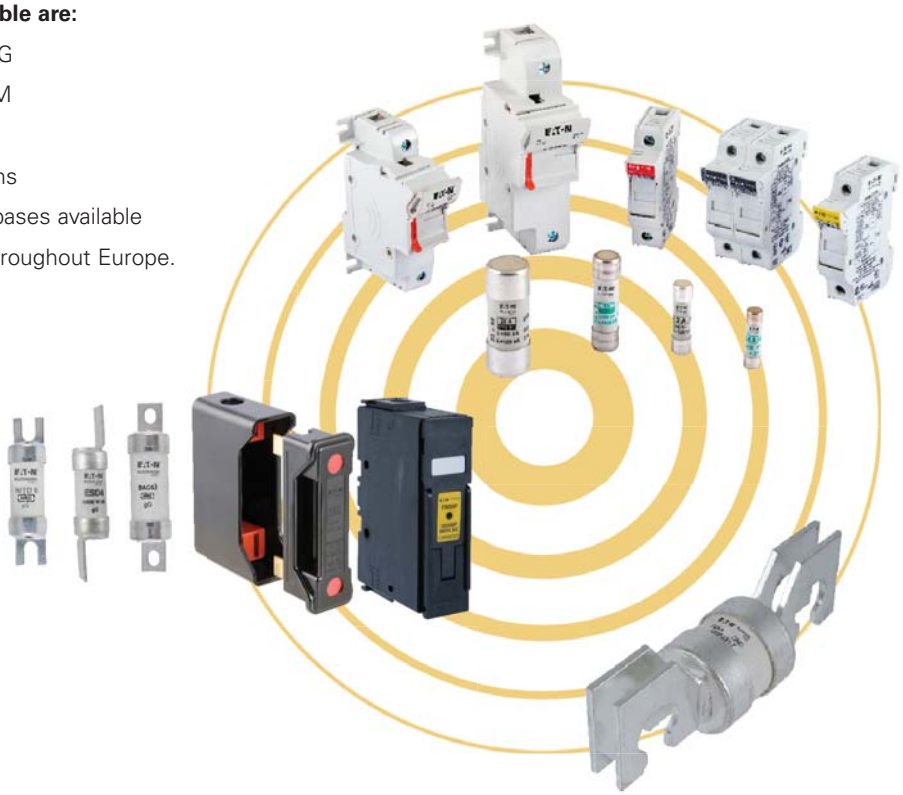


Low voltage

Low voltage fuse links are used in industrial, commercial and utility applications. Available in voltages up to 690 V a.c. (IEC) they are available to suit almost any applications. They provide easy coordination, are small and cost effective to use.

The Low voltage fuse links available are:

- Standard general purpose links gG
- Motor protection links gM and aM
- 690 V a.c. compact sizes
- Standard ranges for all applications
- Wide range of fuse holders and bases available
- Variations to suit local markets throughout Europe.



British standard (BS) fuse links

Standard	BS88 parts 1 to 6, IEC 60269 parts 1 and 2
Voltage	415, 550 and 690 V a.c.
Current	2 to 1250 A
Breaking capacity	80 kA
Operating class	gG and aM
Sizes	A1 to A4, B1 to B4, C1 to C3, D1, E1, F1, F2 and non standard sizes
Fuse holders	Full range of fuse holders available (Red Spot, CAMaster and Safeloc)
Applications	Residential, commercial, industrial and utility

British standard (BS) fuse holders

Standard	BS88 / IEC 60269
Voltage	Up to 690 V a.c.
Current	Up to 400 A
Pole configurations	Single pole, can be configured as required
Busbar mounting	Various back stud options available for busbar mounting
Accepted fuse link sizes	British standard A1, A2, A3 and A4
Accessories	Neutral links, locking safety carriers, back stud adaptors
Suitable for circuit isolation	Yes, not suitable for load switching

NH DIN Industrial fuse links

Standard	IEC 60269 and VDE 0636
Voltage	400, 500 and 690 V a.c.
Current	2 to 1250 A
Breaking capacity	120 kA
Operating class	gG, aM and gFF*
Sizes	000 to 4 (size 4 bolted only version)
Fuse holders	Available for all fuse links sizes
Applications	Industrial and commercial
Other	Available with Dual indication and Insulated metal gripping lugs. Fuse gear range available

* gFF: please contact buletechnical@eaton.com for further details

NH DIN Industrial fuse gear

Standard	IEC 60269
Voltage	Up tp 690 V a.c.
Current	160 to 1600 A
Utilisation category	Switch disconnects: AC21B, AC22B, AC23B (consult data sheets for further details)-
Pole configuration	Single pole and triple pole
Cable connections	Top and bottom cable connection and busbar fitting (rails and disconnects)
Accepted fuse sizes	DIN 43620 sizes 000, 00, 01, 1, 02, 2, 03 and 3
Accessories	Wide range of accessories available
Suitable for circuit isolation	Yes, suitable for load break switching

D & D0 Fuse links

Standard	IEC 60269 and VDE 0636
Voltage	400 and 500 V a.c.
Current	2 to 100 A
Breaking capacity	50 kA
Operating class	Time delay and ultra rapid
Sizes	DI to DIV, D01 to D03
Fuse holders	Available for all fuse link sizes
Applications	Industrial, commercial and utility
Other	DIN-Rail mounting with accessories available: screw caps, gauge rings, etc

D & D0 Fuse bases

Standard	IEC 60269
Voltage	Up to 500 V a.c.
Current	Up to 125 A
Pole configurations	Single pole and triple pole
Cable connections	Various options available
Accepted fuse links sizes	D01, D02, DI, DII, DIII, DIV and DV
Accessories	Wide range of accessories available

IEC Cylindrical fuse links

Standard	IEC 60269
Voltage	400, 500 and 690 V a.c.
Current	0.5 to 125 A
Breaking capacity	20 to 120 kA
Operating class	gG and aM
Sizes	8 x 31, 10 x 38, 14 x 51 and 22 x 58 mm
Fuse holders	Full range of fuse holders available (CH range)
Applications	Industrial and commercial

IEC Cylindrical fuse holders

Standard	IEC 60269 / UL
Voltage	Up to 690 V a.c.
Current	Up to 125 A
Pole configurations	Single pole or three pole plus multi pole ganging kits available
Accepted fuse links sizes	10 x 38, 14 x 51 and 22 x 58 mm
Module width	Configured in multiples of standard 17.5 mm width
Suitable for circuit isolation	Yes, not suitable for load switching, please email bulehighspeedtechnical@eaton.com for further information

House service cut-out fuse links

Standard	ASTA certified and tested in accordance with BS88-3
Voltage	415 V a.c.
Current	20 to 100 A
Breaking capacity	33 kA
Operating class	gG
Sizes	22.2 and 30.2 mm diameter
Fuse holders	60/80SP for KR85 series or 100SP for LR85 series
Applications	Protection of incoming cables into residential and commercial properties
Other	Full range of accessories available

House service cut-out fuse holders

Standard	BS 7657
Voltage	Up to 415 V a.c.
Current	Up to 100 A
Pole configurations	Single pole and triple pole
Cable connections	Various options
Accepted fuse sizes	BS 1361 (BS88) Type 11a and 11b
Accessories	Wide range of combined and separate earth blocks and other accessories
Features	Adaptable for left or right earth block fitting. Meets latest standards

North American fuse links

Standard	UL Listed and CSA Certified
Voltage	Up to 600 V a.c.
Current	1/10 to 6000 A
Breaking capacity	Up to 300 kA
Operating class	Time-delay, fast acting as per UL requirements
Sizes	Midget, class CC, G, H, J, K5, H, L, RK5, RK1 and T
Fuse holders	Modular fuse holder (finger protection) for midget and class CC fuse links. Finger safe protected fuse base for class J fuse links
Applications	Suitable for applications or equipment to be exported to the USA or other UL markets

North American fuse holders

Standard	UL Listed
Voltage	Up to 600 V a.c.
Current	Up to 600 A
Pole configurations	Multiple pole configurations available
Cable connections	Designed for AWG cable sizes
Accepted fuse link sizes	UL 248 listed fuse links
Accessories	Wide range of accessories available

Type J Feeder pillar fuse links

Standard	BS88-2
Voltage	415 V a.c.
Current	20 to 800 A
Breaking capacity	80 kA
Operating class	gU
Sizes	76, 82 and 92 mm centres
Fuse holders	Designed to be used with wedge type fuse carriers
Applications	Utilities
Other	Available in cylindrical slotted and non slotted tag versions

Fuse holders for type J Feeder pillar fuse links

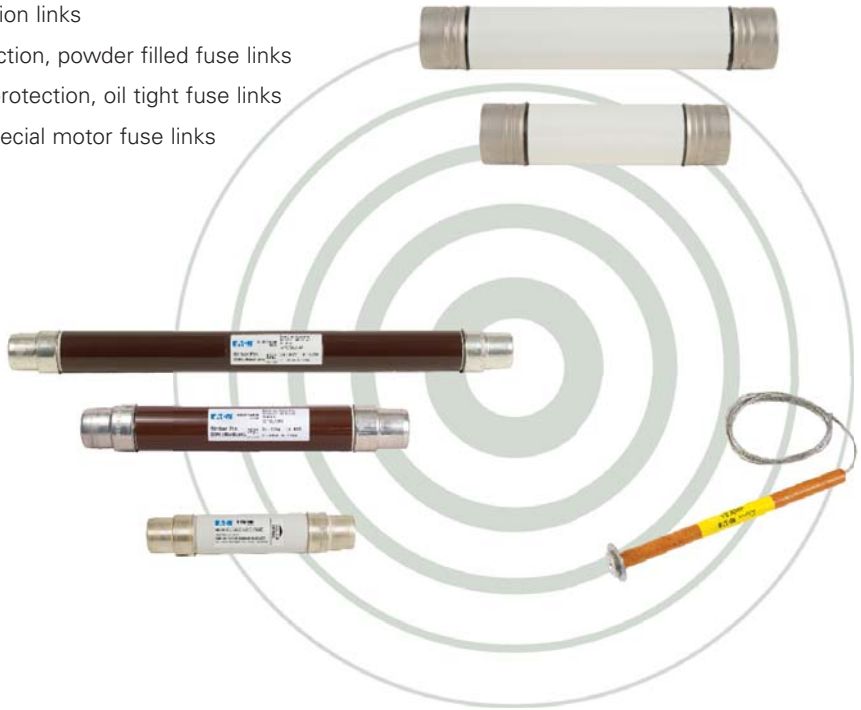
Standard	BS88-5 and IEC 60269-2-1
Voltage	Up to 415 V a.c.
Current	Up to 800 A
Pole configurations	Single pole only suitable for feeder pillars
Cable connections	Designed for utility feeder pillars
Accepted fuse links sizes	82 and 92 mm fuse links
Material	DMC for high impact strength

Medium voltage

Medium voltage fuse links are designed to protect systems and equipment at voltages above 1 KV and up to 72.5 K V a.c. They provide coordination and system protection for distribution grids and play a vital role in protecting against high power faults. Medium voltage fuse links offer superior current limitation, cost, size and coordination.

The Medium voltage fuse links available are

- Overhead line protection – expulsion links
- Substation and transformer protection, powder filled fuse links
- Substation, oil filled switch gear protection, oil tight fuse links
- High voltage motor protection, special motor fuse links



Voltage and auxiliary transformer fuse links

Standard	BS 2692-1 and IEC 60282-1
Voltage	1.1 to 36 kV
Current	1.1 to 6.3 A
Breaking capacity	50 kA
Operating class	Back-up
Applications	Used in the primary side of voltage transformers
Other	Clips available

DIN Fuse links

Standard	DIN 43625, IEC 60282-1 and VDE 0670-4
Voltage	3.6 to 36 kV
Current	6.3 to 400 A
Breaking capacity	20 to 63 kA
Operating class	Back-up, Full range and General purpose
Applications	Suitable for primary side transformer protection, fuse switch combination, unit fuse bases and fuse switches

Oil fuse links

Standard	IEC 60282-1, BS 2692-1 and ESI Standard 12-8
Voltage	3.6 to 24 kV
Current	6.3 to 250 A
Breaking capacity	Up to 50 kA
Operating class	Back-up
Applications	Primary side transformer protection and oil filled switch combination unit
Other	Fitted with pyrotechnic striker for open fuse indication

Motor start fuse links

Standard	IEC 60282-1, DIN 43625 and BS 2692
Voltage	2.75 to 7.2 kV
Current	6.3 to 400 A
Breaking capacity	Up to 63 kA
Operating class	Back-up
Applications	Provide short-circuit protection in motor circuits to both the motor starter and cables
Other	Fitted with pyrotechnic striker for open fuse indication

Air fuse links

Standard	BS 2692-1
Voltage	3.6 to 72.5 kV
Current	3.15 to 160 A
Breaking capacity	Up to 40 kA
Operating class	Back-up
Applications	Suitable for primary side transformer protection, fuse switch combination, unit fuse bases and fuse switches

Expulsion fuse links

Standard	ANSI
Voltage	15 to 72 kV
Current	1 to 100 A
Breaking capacity	20 to 63 kA
Operating class	Slow acting (T), fast acting (K) and extra rapid (XA) characteristics.
Applications	Suitable for primary side transformer protection, feeder protection and capacitor bank protection.

Automatic Sectionalising Links (ASL)

Standard	IEEE C37-63
Voltage	Up to 33 kV lines
Current	16 to 320 A
Operating class	Resettable
Applications	Suitable for spur line isolation in place of existing expulsion fuse links

Boric acid fuse links (BBU)

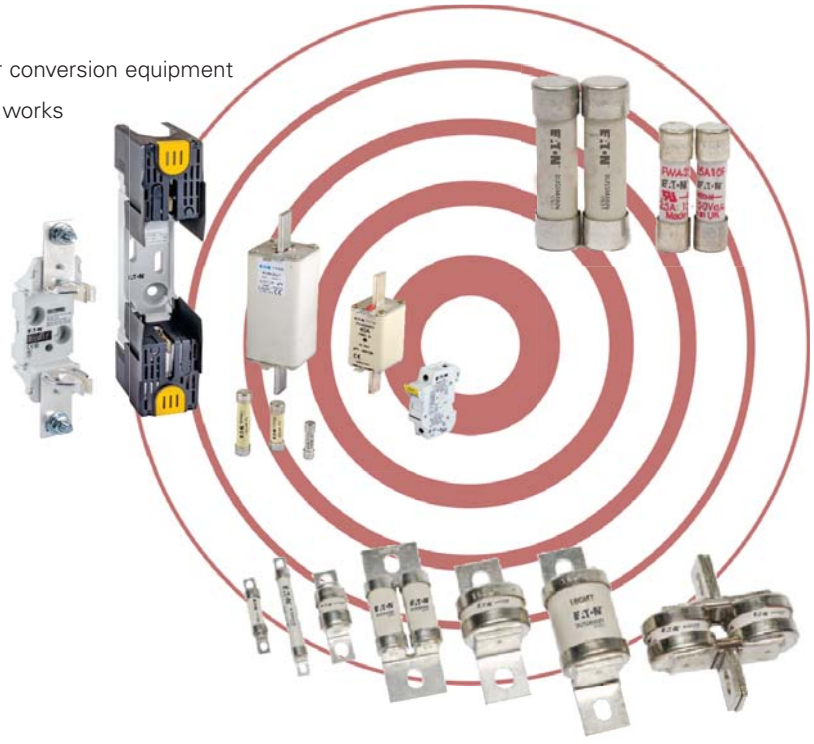
Standard	ANSI C.37 and Australian standard AS1033
Voltage	17 to 38 kV
Current	3 to 200 A
Breaking capacity	10 to 14 kA
Operating class	Standard, low and fast
Applications	Suitable for distribution transformer protection (indoors and outdoors)

High speed

High speed fuse links are essential for many applications requiring critical protection. They are widely used for backup power supplies, battery chargers, power conversion and electric vehicle equipment. High speed fuse links are used to protect equipment where a standard fuse link is not considered fast enough. The design is unique to cope with the special conditions required for ultra-rapid fault clearing.

Typical applications include

- Protection of Power electronics in power conversion equipment
- Induction furnace for aluminium or steel works
- Motor control equipment protection
- Electric vehicle fuse links
- Traction applications

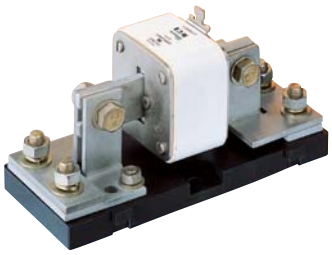


Square body fuse links

Standard	IEC 60269-4, DIN 43653 and 43620, UL Recognition and CSA Component Acceptance
Voltage	690 to 1250 V a.c. higher voltage ratings available
Current	10 to 7500 A
Breaking capacity	Up to 300 kA
Operating class	aR and gR
Sizes	000, 00, 1 to 5
Fuse holders	Email bulehighspeedtechnical@eaton.com
Applications	Used for the protection of DC Common bus, DC Drives, power converters/ rectifiers and reduced voltage starters. Custom solutions also available

Fuse holders for Square body fuse links

Standard	UL Recognition
Voltage	Up to 1400 V a.c.
Current	Up to 1250 A
Pole configurations	Single pole only
Cable connections	Various terminations options
Accepted fuse links sizes	DIN 43653 and other bolted fuse links



Fuse bases for DIN 43653 fuse links

Standard	IEC 60269
Voltage	Up tp 690 V a.c.
Current	160 to 1600 A
Pole configuration	Single pole
Cable connections	Top and bottom cable connection
Accepted fuse sizes	DIN 43620 sizes 000, 00, 01, 1, 02, 2, 03, 3 and 4
Suitable for circuit isolation	Yes, suitable for load break switching

British standard (BS) fuse links

Standard	BS88 part 4 and IEC 60269-4
Voltage	240 to 690 V a.c.
Current	6 to 710 A
Breaking capacity	200 kA
Operating class	aR
Sizes	All sizes as per IEC 60269-4
Fuse holders	Email bulehighspeedtechnical@eaton.com
Applications	Used for the protection of DC Common bus, DC Drives, power converters/ rectifiers, soft starters and inverters

North American fuse links

Standard	UL/CSA
Voltage	Up to 600 V a.c.
Current	1 to 6000 A
Breaking capacity	200 kA
Operating class	Fast acting
Sizes	Full range available
Fuse holders	Email bulehighspeedtechnical@eaton.com
Applications	Suitable for medium power applications for UL markets

Ferrule style fuse links

Standard	UL/CSA
Voltage	700 V a.c.. DC Ratings available
Current	1 to 100 A
Breaking capacity	20 kA
Operating class	aR
Sizes	6 x 32, 10 x 38, 14 x 51, 14 x 67, 22 x 58, 20 x 127 mm
Fuse holders	Email bulehighspeedtechnical@eaton.com
Applications	Used for the protection of DC Common bus, DC Drives, power converters/ rectifiers and soft starters and inverters

Modular fuse holders suitable for Ferrule high speed fuse links

Standard	IEC 60269/UL
Voltage	Up to 690 V a.c.
Current	Up to 125 A
Pole configurations	1 pole or 3 pole and multi pole ganging kits available
Accepted fuse links sizes	10 x 38, 14 x 51 and 22 x 58 mm
Module width	Configured in multiples of standard 17.5 mm width
Suitable for circuit isolation	Yes, not suitable for load switching, please email bulehighspeedtechnical@eaton.com for further information

Photovoltaic fuse links

Standard	IEC 60947-1, 61643-11, 60269-2 and 60269-7, UL Listed and CCC Accredited
Voltage	1000 to 1500 V d.c.
Current	1 to 630 A
Breaking capacity	Up to 50 kA
Operating class	gPV
Sizes	10 x 38, 14 x 51, 14 x 65 mm (optional 10 mm fixings available), NH Style and XL Style
Fuse holders	CHPV series for 10 x 38 fuse links, SD-D-PV for NH Style, SD-XL-S for XL Style
Applications	PV panel, string, array protection

Photovoltaic fuse holders

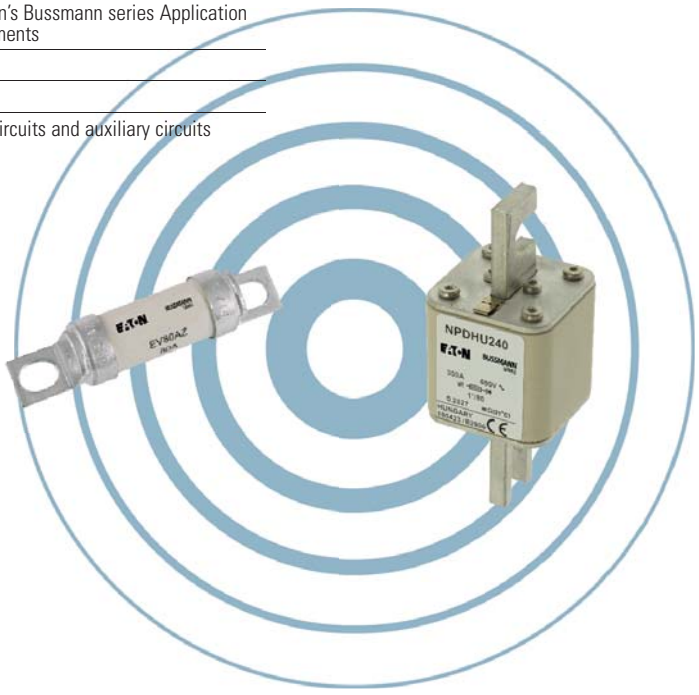
Standard	Made in accordance with IEC and UL standards
Voltage	Up to 1500 V d.c.
Current	Up to 600 A
Pole configurations	Single or double pole,please email bulehighspeedtechnical@eaton.com for available options
Cable connections	Various terminations options
Accepted fuse links sizes	10 x 38, DIN size 1, 1XL, 2, 2XL and 3L

Hybrid Electric Vehicles

As the automotive world is becoming ever more electrified the power requirements are changing, so have the protection needs. Eaton is continually developing designs to meet these ever changing requirements. The experience of Eaton in protecting semiconductor devices has proved invaluable as vehicle powertrain systems have moved to power based converters for the variable speed motor drives and also for auxiliary power conversion.

Utilising a global network of engineering, manufacture and distribution Eaton is able to draw upon a wealth of knowledge to fully meet your application needs.

Hybrid Electric Vehicles (HEV)	
Standards	Most commonly ISO 8820-8, Jaso D622 amongst others
Voltage	Options up to 1000 V d.c., please contact Eaton's Bussmann series Application engineers to discuss your specific requirements
Current	Options up to 1250 A, please contact Eaton's Bussmann series Application engineers to discuss your specific requirements
Operating class	aR & gR
Breaking capacity	Up to 150 kA
Applications	Batteries, converters, inverters, charging circuits and auxiliary circuits



Combiner box

Designed for harsh environments, Eaton's Bussmann series combiner box has superior thermal characteristics eliminating the need for forced ventilation in extreme ambient temperature. Completely customisable from 3 to 24 strings, offering genuine PV circuit protection with Eaton' Bussmann series industry leading gPV fuse links in ratings from 1 to 32 A, up to 1000 V d.c., PV overvoltage surge protection and true PV d.c. rated disconnect switches.

With a global manufacturing base and an integrated common system approach, Eaton can locally develop and manufacture customised combiner boxes within competitive timeframes while maintaining exceptional levels of quality.

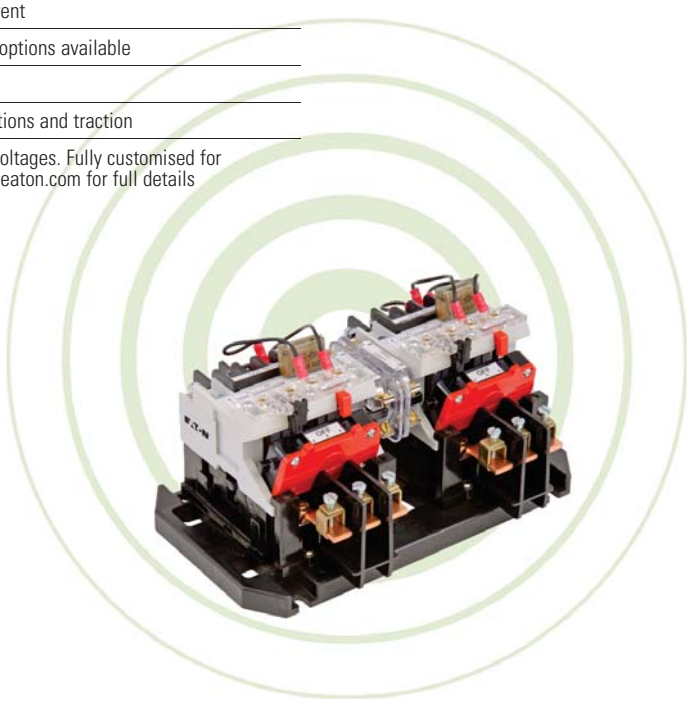
Combiner box	
Standard	IEC 61439-1 and -2 and IEC 60363-7-712
Voltage	Up to 1000 V d.c.
Current	1 to 32 A
Number of strings	3 - 24 strings (20 A fuse max), 3 - 16 strings (32 A fuse max)
Operating class	gPV
IP Rating	IP65
Enclosure types	Glass reinforced polyester (GRP), painted steel, stainless steel
Overcurrent protection configurations	Positive and negative, positive only, negative only
DC Load isolation	DC switch disconnect 25 Adc to 500 Adc or fixed output
Input connection types	Bottom or side entry MC4 connectors or glands
Overvoltage protection options (SPD)	Class I PV, Class II PV, Class II 240 VAC IEC, Type 1 Modbus data line
Monitoring options	8 or 16 Strings shunt based monitoring
Communications options	2-Wire modbus RTU, Zigbee wireless or industrial wireless
Power supply options	External 24 V d.c., Internal 240 V a.c. to 24 V d.c., Internal 1000 V d.c. to 24 V d.c.
Applications	Solar PV applications including: Large scale residential, small to large scale commercial, large scale utility

Enbray

Enbray switching contactors are the preferred choice for applications where reliability and long service life is essential. The devices are designed to switch heavy inductive and resistive loads in the most arduous environments where little or no maintenance is required.

The product is fully customisable to meet the switching requirements up to 1000 V a.c. or 500 V d.c. Typical applications include hospitals, heavy industries, railways or commercial sites.

Enbray contactors	
Standard	IEC 60947-4-1
Voltage	230 to 600 V a.c. / 500 V d.c.. Can be configured for higher voltage
Current	10 to 1250 A. Can be configured for higher current
Operating class	Up to AC23. Normally open or normally closed options available
Poles	1 to 18 Poles
Applications	High power switching for onerous circuit conditions and traction
Other	Wide range of accessories and control circuit voltages. Fully customised for individual applications, contact buletechnical@eaton.com for full details



Customer satisfaction team

Eaton's Customer Satisfaction Team is available to answer questions regarding Bussmann series products.

Europe calls can be made between:

Monday — Thursday	7.30 a.m. - 5.30 p.m. GMT
Friday	7.30 a.m. - 5.00 p.m. GMT

The customer service satisfaction team can be reached via:

Phone: 00 44 (0) 1509 882 600

Fax: 00 44 (0) 1509 882 786

Email: bulesales@eaton.com

C3 customer center

The C3 portal supports the following Divisions: B-Line, Bussmann, Crouse-Hinds, Lighting, Cooper Power Systems, Safety, and Wiring Devices.

Get started today at www.my.eaton.com by clicking 'Request User ID and Password'.

- Easy to Navigate
- Simple to Use
- Real-Time Data

Online resources

Visit www.eaton.com/bussmannseries for the following resources:

- Product cross reference
- Product profiles
- Online catalogues for the latest United States and European catalogues.

Application engineering

Application Engineering assistance is available to all customers. The Application Engineering team is staffed by university-qualified electrical engineers who are available with technical and application support.

Europe calls can be made between:

Monday — Thursday	8.30 a.m. - 4.30 p.m. GMT
Friday	8.30 a.m. - 4.00 p.m. GMT

Application Engineering can be reached via:

Phone: 00 44 (0) 1509 882 699

Fax: 00 44 (0) 1509 882 794

Email: buletechnical@eaton.com

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

We power businesses with reliable, efficient and safe electrical power management solutions. Combined with our personal service, support and bold thinking, we are answering tomorrow's needs today. Follow the charge with Eaton.
Visit eaton.com/electrical.

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