



# Bussmann automotive planogram available

Bold look with more to offer.



# Includes 14<sup>%</sup> more product

You can now meet the demands of the market by offering more circuit protection products on the same 4-foot inline planogram with our Automotive Aftermarket kit (4FTAUTO-KIT).

Each 4FTAUTO-KIT ships with one retail pack and one reorder backer tag card for each facing. The pegs may then be replenished with open stock.

Offer your customers more.

Order your 4FTAUTO-KIT today!



Order Catalog Number: 4FTAUTO-KIT UPC Number: 051712-42208-6

Suggested planogram product layout available on page 33.

#### **Package options**

In addition to boxed product, Bussmann™ series products are also available in packaging that is designed for various retail environments and needs. These package options do not apply to every product. Check the Bussmann series price sheet for availability. Below are explanations of the various packaging you'll see listed in the product tables of this catalog. For more information, visit Eaton.com/BussmannConsumer.

#### Traditional packs — automotive

#### Tins

Examples: ATC-20, SFE-14

Blade fuses and glass tube fuses may be ordered in tins. A tin holds FIVE fuses with the exception of MAXI™ fuses which are packed ONE fuse per tin.



#### Polybags and boxes

Examples: CB123-20HB, FMX-20, HHM

Larger fuses like female MAXI, cartridge fuses and circuit breakers are packed ONE fuse per bag. High amp circuit breakers and fuse holders are packed in boxes.



#### Retail packs - automotive

Retail packs may be placed on a pegboard and come in blister packs and clamshells. They are generally ordered by adding the prefix "BP/" and suffix "-RP" or "-RPP" to the catalog number.

#### Single amp packs

Examples: BP/ATM-30-RP, BP/ATC-20ID

These packs contain ONE to FIVE fuses of the same amp rating. Smaller parts are placed in blister packs while larger parts are placed in clamshells.



#### Multiple amp assortment packs

Examples: AGC-EK, ATC-ID-SK, BP/ATM-A5-RP, NO. 44

These packs house multiple fuses of varying amp ratings. Some packs come with a fuse puller. See pages 27 and 28 for details.



#### Additional packaging - automotive

#### Value packs

Examples: VP/ATC-30ID, VP/ATM-25-RP, VP/FMX-A5-RP

Ideal for small shops, mobile technicians, and avid car enthusiasts, these re-sealable clamshells and blister packs house 10 *easy*ID™ fuses or 25 standard blade fuses.





#### **Bulk packs**

Examples: BK/AGC-30, BK/ATM-10LP, BK/MAX-20ID

Available on select products, bulk pack fuses are available in plastic bags or boxes. Ask your Bussmann series product sales rep or distributor for product availability.



#### Reload packs

Examples: ATM-2RLD, ATC-40RLD

Available on select products, reloads are bulk fuses packed in a clear polybag with product label and barcode. They are designed for re-loading product into installer assortments and tilt-bins like the NO.225.



#### Installer assortments

Examples: NO. 290, FUSE-CADDY2, CDY10TRY-ATC

Contain a variety of circuit protection products for service technicians and repair shops.



#### Retail packs — electrical

#### Single amp assortment packs

Examples: BP/GMA-2A, BP/FRN-R-30ID, BP/FRS-R-60

These packs contain ONE to FIVE fuses of the same amp rating. Glass fuses are placed in 1.77" W x 3.71" H cards.



#### Assortment packs

Examples: BP/ABC-A, NON-EK, TL-EK

These packs contain multiple fuses of varying amp ratings. Some packs come with a fuse puller. See page 52 for details.



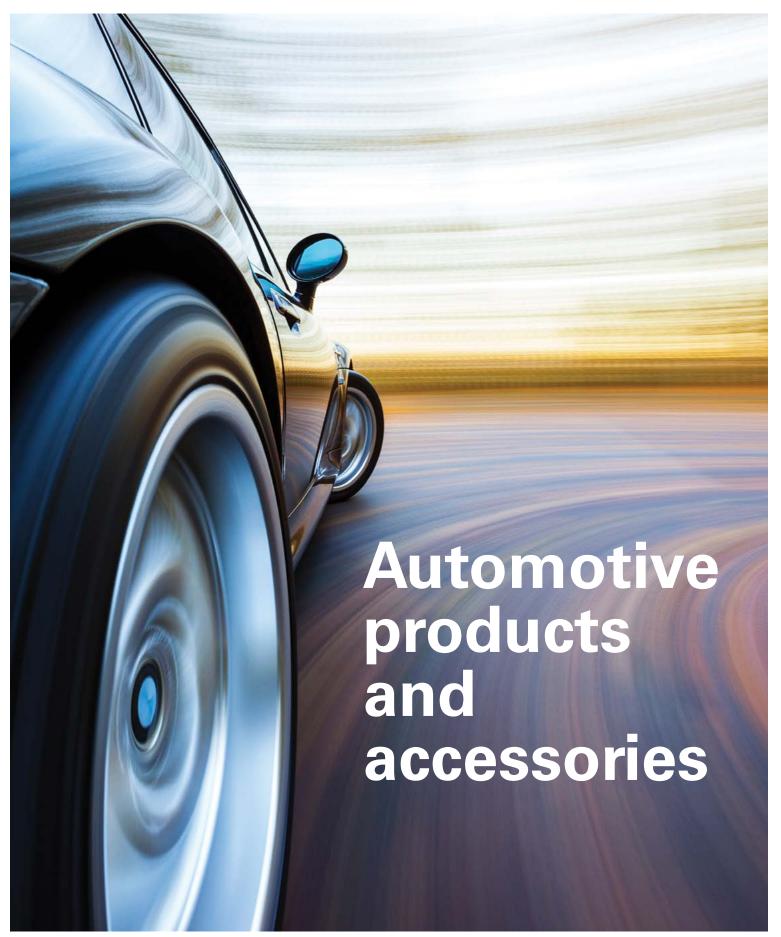
Automotive products and access	sories	(
ATR, ATL, ATM, ATM-LP, ATC™ ar		
	ATR 2-leg micro blade fuses	7
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	ATC fuses	-
	MAXI fuses	-
easyID™ <mark>ATR</mark> , ATM, ATC, MAXI a	nd FMX indicating fuses	3
High amp fuses, cartridge fuses		
Multi-pole fuses	MPF, MPF2	
<sup>-</sup> emale MAXI™	FMX, low-profile FMX	9
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Cartridge fuses	FL family: FLB, FLD, FLF, FLG, FLJ, FLM, FLN, FLS	1
Battery terminal fuses	BTF-1P, BTF-2P, BTF-3P, BTF-5P	1
Multi slow-blow fuses	MUSB	1
High-amp stud-mount fuses/blocks	AMG/HMEG, AMI/HMID	1:
Fuse holders and taps		
ATR fuse holder	HH2	1:
ATM-LP fuse holders	HHV	1:
ATM fuse holders	HHL, HHM, HHU, ATM-FHID	1
ATC fuse holders	HHC, HHD, HHF, HHG, HHR, HHS, ATC-FHID	1
MAXI fuse holders	HHX, MAX-FHID	1
ATR, ATM and ATC fuse taps	BP/ATM-TAP-RP, BP/ATC-TAP-RP, BP/HHTR-RP, BP/HHLP RP,	1
and add-a-circuit	BP/HHH-RP, BP/HHA-RP	
Glass tube fuse holders	HFA, HFB, HHB, HHK, HHN, HLR, HMJ, HMK, HRH, HRI, HRJ, HRK	1-
Glass tube panel-mount	НКР НКР-НН, НТВ	1
Fuse panels, blocks, fusible link v	wire and limiters	
easyID ATC and ATM fuse panels	FP-ATC, FP-ATM	1
ATR, ATM and ATC blocks	BP/FB(poles)-ATR, BP/FB(poles)-ATM, BP/FB(poles)-ATC	1
ATM panels	RTMF	1
ATC panels	15600	1
MX blocks	Fuse only: CBPFM, Fuse and relay: CBPRM	1
Glass tube blocks	S-8202-(poles), S8301-(poles)	1
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ATM footprint	CB211, CB212, CB222OS, CB233, CB223OS, MMB	1
ATM mini devices	CB22901-1.5, CB22902-68, CB22903-6	1
ATC footprint	ACB, CB221, CB222, CB223, CB227, CBB, CCB, FCB, UCB	1
MAXI footprint	CB1911, CB1921	2
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ngn ump	CB255, CB285P	22-2
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Not all products are listed in this catalog. If additional amperages are needed, contact your Bussmann series product representative. Some catalog numbers shown in this catalog are non-stock items and require longer lead times. Always check the latest price sheet for product status and availability.

Bussmann series solutions comply with major industrial standards and agency requirements such as: BS, IEC, DIN, UL, NEMA, SAE, CSA, CE, C-UL, etc. and are manufactured at facilities that are ISO 9000 certified. This catalog is intended to present product data and provide technical information that will help the end user with design application. Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this catalog. Once a product has been selected, it should be tested by the user in all possible applications. Further, Eaton takes no responsibility for errors or omissions contained in this catalog, or for misapplication of any Bussmann series product. Extensive product information is available in the Bussmann series product data sheets available online at Eaton.com/BussmannConsumer.

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The industry standard - used in most domestic and imported cars today. All Bussmann series blade fuses meet or exceed OEM and SAE standards

#### ATR blade fuses

#### 2-Leg micro fuses

These space-saving fuses are used on newer vehicles.

Color code	Amps	Trad'l pack*	Retail pack**	Bulk pack***
Tan	5	ATR-5	BP/ATR-5-RP	BK/ATR-5
Brown	7-1/2	ATR-7-1/2	BP/ATR-7-1/2-RP	BK/ATR-7-1/2
Red	10	ATR-10	BP/ATR-10-RP	BK/ATR-10
Blue	15	ATR-15	BP/ATR-15-RP	BK/ATR-15
Yellow	20	ATR-20	BP/ATR-20-RP	BK/ATR-20
Clear	25	ATR-25	BP/ATR-25-RP	BK/ATR-25
Green	30	ATR-30	BP/ATR-30-RP	BK/ATR-30

- 5 Fuses per pack, 20 packs per shelf carton. 5 Fuses per pack, 5 packs per shelf carton.

\*\*\* 50 Fuses per pack.

#### ATM blade fuses

#### See page 8 for easyID™ indicating versions

ATM fuses feature an enclosed element for electrical isolation, corrosion resistance and longer service life.

ATM-20RLD

ATM-25RLD

ATM-30RLD



BP/ATM-20-RP

BP/ATM-25-RP

BP/ATM-30-RP

VP/ATM-20-RP

VP/ATM-25-RP

VP/ATM-30-RP

BK/ATM-20

BK/ATM-25

BK/ATM-30

- \* 5 Fuses per pack, 20 packs per shelf carton.
- \*\* 5 Fuses per pack.

30

Yellow 20

Clear 25

Green

\*\*\* 5 Fuses per pack, 5 packs per shelf carton.

ATM-20

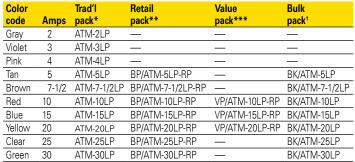
ATM-25

ATM-30

- † 25 Fuses per pack, 5 packs per shelf carton.
- ‡ 500 Fuses per pack.

#### Low-profile ATM blade fuses

Low-profile ATM fuses have the same ratings and universal color-coding as ATM and ATC fuses.



- \* 5 Fuses per pack, 20 packs per shelf carton.
- \*\* 5 Fuses per pack, 5 packs per shelf carton.
- \*\*\* 25 Fuses per pack, 5 packs per shelf carton.

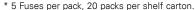
† 500 Fuses per pack.

#### ATL blade fuses

#### 3-Leg micro fuses

These space-saving fuses are used on newer vehicles. The ATL fuses combine protection for two circuits in one package.





<sup>\*\* 50</sup> Fuses per pack.

#### ATC™ blade fuses

#### See page 8 for easyID indicating versions

ATC blade fuses use the industry standard colorcoding to indicate amp rating. Bussmann series ATC fuses are UL Recognized and feature an enclosed element for electrical isolation, corrosion resistance and longer service life. BK/ATC-5 through 30 A also available with open body. Refer to data sheet No. 2009 for available options.



Color		Trad'l		Retail	Value	Bulk
code	Amps	pack*	Reload**	pack***	pack <sup>†</sup>	pack <sup>‡</sup>
Black	1	ATC-1	_	BP/ATC-1-RP	_	BK/ATC-1
Gray	2	ATC-2	_	BP/ATC-2-RP	_	BK/ATC-2
Violet	3	ATC-3	ATC-3RLD	BP/ATC-3-RP	VP/ATC-3-RP	BK/ATC-3
Pink	4	ATC-4	ATC-4RLD	BP/ATC-4-RP	VP/ATC-4-RP	BK/ATC-4
Tan	5	ATC-5	ATC-5RLD	BP/ATC-5-RP	VP/ATC-5-RP	BK/ATC-5
Brown	7-1/2	ATC-7-1/2	ATC-7-1/2RLD	BP/ATC-7-1/2-RP	VP/ATC-7-1/2-RP	BK/ATC-7-1/2
Red	10	ATC-10	ATC-10RLD	BP/ATC-10-RP	VP/ATC-10-RP	BK/ATC-10
Blue	15	ATC-15	ATC-15RLD	BP/ATC-15-RP	VP/ATC-15-RP	BK/ATC-15
Yellow	20	ATC-20	ATC-20RLD	BP/ATC-20-RP	VP/ATC-20-RP	BK/ATC-20
Clear	25	ATC-25	ATC-25RLD	BP/ATC-25-RP	VP/ATC-25-RP	BK/ATC-25
Green	30	ATC-30	ATC-30RLD	BP/ATC-30-RP	VP/ATC-30-RP	BK/ATC-30
Bl-Gn	35	ATC-35	_	_	_	BK/ATC-35
Orange	40	ATC-40	_	BP/ATC-40-RP	VP/ATC-40-RP	BK/ATC-40

- 5 Fuses per pack, 20 packs per shelf carton.
- \*\* 25 Fuses per pack
- \*\*\* 5 Fuses per pack, 5 packs per shelf carton.
- † 25 Fuses per pack, 5 packs per shelf carton.
- ‡ 500 Fuses per pack.

## MAXI™ (MAX) blade fuses

#### See page 8 for easyID indicating versions

MAXI fuses protect circuits in the wiring harness - usually found under the hood, in a fuse panel or supplementary panel near the battery. Ideal for aftermarket accessories (such as high-end stereos) that require protection up to 80 amps.



Color code	Amps	Trad'l. pack*	Retail pack**	Bulk pack***
Yellow	20	MAX-20	BP/MAX-20-RP	BK/MAX-20
Gray	25	MAX-25	_	BK/MAX-25
Green	30	MAX-30	BP/MAX-30-RP	BK/MAX-30
Brown	35	MAX-35	_	BK/MAX-35
Orange	40	MAX-40	BP/MAX-40-RP	BK/MAX-40
Red	50	MAX-50	BP/MAX-50-RP	BK/MAX-50
Blue	60	MAX-60	BP/MAX-60-RP	BK/MAX-60
Tan	70	MAX-70	BP/MAX-70-RP	BK/MAX-70
Clear	80	MAX-80	BP/MAX-80-RP	BK/MAX-80

- \* 1 Fuse per pack, 20 packs per shelf carton.
- \*\* 1 Fuse per pack, 5 packs per shelf carton.
- \*\*\* 250 Fuses per pack.



#### Finding the open fuse is easy with Bussmann series easyID blade fuses and holders

These drop-in replacements are available for applications that can benefit from open fuse indication. The easyID indicating blade fuses and holders use LED technology that makes blown fuses easy to spot in fuse panels tucked up under dark dashboards.

In-line easyID fuse holders allow adding fused circuits with blown fuse indication using regular ATM, ATC and MAXI fuses.

Trilingual packaging in English, Spanish and French.

#### easyID ATR micro fuses

Color code	Amps	Retail pack*
Red	10	BP/ATR-101D
Blue	15	BP/ATR-151D
Yellow	20	BP/ATR-201D
Green	30	BP/ATR-301D



#### BP/ATR-AID fuse assortment (see page 28)

Contains one each of 10, 15, 30 and two each 20 amp fuses.

#### easyID ATM fuses

See page 13 for easyID fuse holder and page 15 for easyID fuse panels.



Color code	Amps	Retail pack*	Value pack**	Bulk pack***
Violet	3	BP/ATM-3ID	_	BK/ATM-3ID
Tan	5	BP/ATM-5ID	_	BK/ATM-5ID
Brown	7-1/2	BP/ATM-7-1/2ID	_	BK/ATM-7-1/2ID
Red	10	BP/ATM-10ID	VP/ATM-10ID	BK/ATM-10ID
Blue	15	BP/ATM-15ID	VP/ATM-15ID	BK/ATM-15ID
Yellow	20	BP/ATM-20ID	VP/ATM-20ID	BK/ATM-20ID
Clear	25	BP/ATM-25ID	VP/ATM-25ID	BK/ATM-25ID
Green	30	BP/ATM-30ID	VP/ATM-30ID	BK/ATM-30ID

- \* 2 Fuses per pack, 5 packs per shelf carton.
- \*\* 10 Fuses per pack, 5 packs per shelf carton.
- \*\*\* 50 Fuses per pack.

#### BP/ATM-AID fuse assortment (see page 28)

Contains one each of 10, 15, 20, 25 and 30 amp fuses.

#### ATM-FP-AID fuse emergency kit (see page 28)

Contains one each of 10, 15, 20, 25 and 30 amp fuses plus a fuse puller.

#### ATM-ID-SK fuse service kit (see page 27)

Contains six each of 5, 10, 15, 20, 25 and 30 amp fuses, making this service kit ideal for fleet maintenance departments.

#### easyID FMX female MAXI fuses

Following on the popularity and wider application of FMX fuses for late-model vehicles, the easyID FMX fuse, with LED blown fuse indication, is available in popular amp ratings with trilingual packaging that's designed for easy selling.

Color	Amps	Retail pack*
Blue	20	BP/FMX-20ID
Pink	30	BP/FMX-30ID
Green	40	BP/FMX-40ID
Red	50	BP/FMX-50ID
Yellow	60	BP/FMX-60ID





#### easyID ATC™ fuses

With a large installed base, the ATC easyID indicating fuse has great selling potential in popular amp ratings with trilingual packaging that's designed for easy selling.

See page 13 for easyID fuse holder and page 15 for easyID fuse panels.



Color code	Amps	Retail pack*	Value pack**	Bulk pack***
Violet	3	BP/ATC-3ID	_	BK/ATC-3ID
Tan	5	BP/ATC-5ID	_	BK/ATC-5ID
Brown	7-1/2	BP/ATC-7-1/2ID	_	BK/ATC-7-1/2ID
Red	10	BP/ATC-10ID	VP/ATC-10ID	BK/ATC-10ID
Blue	15	BP/ATC-15ID	VP/ATC-15ID	BK/ATC-15ID
Yellow	20	BP/ATC-20ID	VP/ATC-20ID	BK/ATC-20ID
Clear	25	BP/ATC-25ID	VP/ATC-25ID	BK/ATC-25ID
Green	30	BP/ATC-30ID	VP/ATC-30ID	BK/ATC-30ID
Blue-Green	35	BP/ATC-35ID	_	_
Orange	40	BP/ATC-40ID	_	BK/ATC-40ID

- \* 2 Fuses per pack, 5 packs per shelf carton.
- \*\* 10 Fuses per pack, 5 packs per shelf carton.
- \*\*\* 50 Fuses per pack.

#### BP/ATC-AID fuse assortment (see page 28)

Contains one each of 10, 15, 20, 25 and 30 amp fuses.

ATC-FP-AID fuse emergency kit (see page 28) Contains one each of 10, 15, 20, 25 and 30 amp fuses plus a fuse puller.

#### ATC-ID-SK fuse service kit (see page 27)

Contains seven each of 5, 10, 15, 20, 25 and 30 amp fuses, making this kit ideal for fleet maintenance departments.

#### easyID MAXI fuses

With ratings up to 100 amps, the Bussmann series easyID MAXI indicating fuse line is a sure seller with trilingual retail packaging that's designed for easy selling.

See page 13 for easyID fuse holder.



Color code	Amps	Retail pack*	Bulk pack**
Yellow	20	BP/MAX-20ID	_
Green	30	BP/MAX-30ID	BK/MAX-30ID
Orange	40	BP/MAX-40ID	BK/MAX-40ID
Red	50	BP/MAX-50ID	BK/MAX-50ID
Blue	60	BP/MAX-60ID	BK/MAX-60ID
Violet	100	BP/MAX-100ID	_

- \* 1 Fuse per pack, 5 packs per shelf carton.
- \*\* 250 Fuses per pack.

#### Multi-pole fuses

Bussmann series multi-pole fuses (MPFs) provide sales-making opportunities formerly only dealerships and online parts websites enjoyed.

Multi-pole fuses are OEM fuses that combine multiple circuits in to a single design to reduce the weight, space and cost of traditional fusing solutions. These fuses have been used since 2002 in popular models of Nissan®, Infiniti®, Toyota®, and Lexus models.

These fuses are easy to replace by service technicians and DIYers alike using the same female maxi-type fuse puller.

# MPF 32 Vdc multi-pole fuses



Color						Vehicle
code	Amps	Trad'l pack*	Bulk pack**	Retail pack	OEM no.	make
Pink	40, 30, 30	MPF-433X	BK/MPF-433X	_	24370-C9902	Nissan, Infiniti
Green	40, 40, 40	MPF-444X	BK/MPF-444X	BP/MPF-444X	24370-C9900	Nissan, Infiniti
Red	50, 30, 30	MPF-533X	BK/MPF-533X	_	24370-C9906	Nissan, Infiniti
Blue	50, 30, 40	MPF-534X	BK/MPF-633X	_	24370-C9907	Nissan, Infiniti
Yellow	60, 30, 30	MPF-633X	BK/MPF-534X	_	24370-C9904	Nissan

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

## MPF2 58 Vdc multi-pole fuses



	Color code	Amps	Trad′l pack*	Bulk pack**	OEM no.	Vehicle make
	Yellow	30, 20, 40	MPF2-324X	BK/MPF2-324X	24370-C991C	Nissan
					24370-C991A	Nissan
	Pink	40, 30, 30	MPF2-433X	BK/MPF2-433X	90982-08308	Toyota, Lexus
	Green	40, 40, 40	MDE2 444V	BK/MPF2-444X	24370-C991B	Nissan, Infiniti
	Green	40, 40, 40	0 MPF2-444X BK/MPF2-444>	DIVIVIFF2-444A	90982-08299	Toyota, Lexus
	Red	50, 30, 30	MPF2-533X	BK/MPF2-533X	24370-C992A	Nissan, Infiniti
	neu				90982-08300	Toyota, Lexus
	Blue	50, 30, 40	MPF2-534X	BK/MPF2-534X	24370-C992B	Nissan, Infiniti
	Diue	50, 30, 40	J, 30, 40   WIFF2-334A   BIŞIVIFI	DIVIVIFF2-054A	90982-08301	Toyota, Lexus
	Black	50, 30, 50	MPF2-535X	BK/MPF2-535X	24370-C992C	Nissan, Infiniti
					90982-08302	Toyota, Lexus
	Maroon	50, 50, 50	MPF2-555X	BK/MPF2-555X	90982-08303	Lexus

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### **Female MAXI fuses**

Developed to meet the demand for smaller components, the FMX and low-profile FMX female MAXI fuses offer high amp protection in compact packages. Both FMX and low-profile FMX fuses are available in amp ratings from 20 to 60 A.

See page 8 for easyID FMX female MAXI fuses.

FMX Female MAXI fuses



Color code	Amps	Trad'l pack*	Retail pack**
Blue	20	FMX-20	BP/FMX-20-RP
White	25	FMX-25	BP/FMX-25-RP
Pink	30	FMX-30	BP/FMX-30-RP
Green	40	FMX-40	BP/FMX-40-RP
Red	50	FMX-50	BP/FMX-50-RP
Yellow	60	FMX-60	BP/FMX-60-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

FMX-LP Low-profile female MAXI fuses



Color code	Amps	Trad'l pack*	Retail pack**
Blue	20	FMX-20LP	BP/FMX-20LP-RP
White	25	FMX-25LP	BP/FMX-25LP-RP
Pink	30	FMX-30LP	BP/FMX-30LP-RP
Green	40	FMX-40LP	BP/FMX-40LP-RP
Red	50	FMX-50LP	BP/FMX-50LP-RP
Yellow	60	FMX-60LP	BP/FMX-60LP-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FMM Micro fuses



Color code	Amps	Trad'l pack*	Retail pack**
Grey	15	FMM-15	BP/FMM-15-RP
Blue	20	FMM-20	BP/FMM-20-RP
White	25	FMM-25	BP/FMM-25-RP
Pink	30	FMM-30	BP/FMM-30-RP
Green	40	FMM-40	BP/FMM-40-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FMS Slotted micro fuses



Color code	Amps	Trad'l pack*	Retail pack**
Grey	15	FMS-15	BP/FMS-15-RP
Blue	20	FMS-20	BP/FMS-20-RP
White	25	FMS-25	BP/FMS-25-RP
Pink	30	FMS-30	BP/FMS-30-RP
Green	40	FMS-40	BP/FMS-40-RP
Red	50	FMS-50	BP/FMS-50-RP
Yellow	60	FMS-60	BP/FMS-60-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

<sup>\*\* 50</sup> Fuses per pack.

<sup>\*\* 50</sup> Fuses per pack.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

#### FL family of cartridge fuses

Used primarily in Japanese-designed vehicles for wiring harness protection.

#### **FLB**

#### **Bolt-mount fuses**

Fits 13/16" bolt terminal fuse block.



Color code	Amps	Trad'l pack*	Retail pack**
Pink	30	FLB-30	BP/FLB-30-RP
Green	40	FLB-40	BP/FLB-40-RP
Red	50	FLB-50	BP/FLB-50-RP
Yellow	60	FLB-60	BP/FLB-60-RP
Brown	70	FLB-70	BP/FLB-70-RP
Black	80	FLB-80	BP/FLB-80-RP
Blue	100	FLB-100	BP/FLB-100-RP
Gray	120	FLB-120	BP/FLB-120-RP
Maroon	140	FLB-140	BP/FLB-140-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FLD

#### **Bolt-mount fuses**

Fits 9/16" bolt terminal fuse block.



Color code	Amps	Trad'l pack*	Retail pack**
Pink	30	FLD-30	BP/FLD-30-RP
Green	40	FLD-40	BP/FLD-40-RP
Red	50	FLD-50	BP/FLD-50-RP
Black	80	FLD-80	BP/FLD-80-RP
Blue	100	FLD-100	BP/FLD-100-RP
Gray	120	FLD-120	BP/FLD-120-RP
Maroon	140	FLD-140	BP/FLD-140-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FLF Female fuses



Color code	Amps	Trad'l pack*	Retail pack**
Lt-Blue	20	FLF-20	BP/FLF-20-RP
Pink	30	FLF-30	BP/FLF-30-RP
Green	40	FLF-40	BP/FLF-40-RP
Red	50	FLF-50	BP/FLF-50-RP
Yellow	60	FLF-60	BP/FLF-60-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FLG Female fuses



Color code	Amps	Trad'l pack*
Red	50	FLG-50
Yellow	60	FLG-60
Black	80	FLG-80

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FLJ

#### Female fuses for Nissan vehicles



Color code	Amps	Trad'l pack*	OEM part no.	Vehicle make
Red	45	FLJ-45	24370-89960	Nissan, Infiniti
Black	65	FLJ-65	24370-89910	Nissan, Infiniti

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

### FLM

#### Male fuses



Color code	Amps	Trad'l pack*	Retail pack**
Pink	30	FLM-30	BP/FLM-30-RP
Green	40	FLM-40	BP/FLM-40-RP
Yellow	60	FLM-60	BP/FLM-60-RP
Black	80	FLM-80	BP/FLM-80-RP
Blue	100	FLM-100	BP/FLM-100-RP
Gray	120	FLM-120	BP/FLM-120-RP
Violet	140	FI M-140	BP/FI M-140-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

## FLN

#### Female fuses with tab



Color code	Amps	Trad'l pack*	Retail pack**
Brown	25	FLN-25	BP/FLN-25-RP
Green	30	FLN-30	BP/FLN-30-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### FLS

#### Miniature female fuses



Color code	Amps	Trad'l pack*	Retail pack**
Pink	30	FLS-30	BP/FLS-30-RP
Green	40	FLS-40	BP/FLS-40-RP

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.



BTF
Battery terminal fuses



Bussmann series battery terminal fuses (BTFs) provide sales-making opportunities formerly only dealerships and online parts websites enjoyed.

These fuses have been used since 2001 in popular models of Chrysler®, Ford®, Lexus, Lincoln, Mercury, Mitsubishi, Nissan®, Scion, Subaru, Suzuki, and Toyota® models.

Bussmann series BTFs are OEM fuses that contain one or more circuits in a single design to reduce the weight, space and cost of traditional fusing solutions to protect the cables coming off the battery and other electrical components.

These fuses are easy to replace by service technicians and DIYers alike using common hand tools.

# See page 25 for battery switches, and pages 36 and 37 for isolators and separators

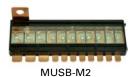
Amps	Trad'l pack	Retail pack	OEM part no.	Vehicle make
80	BTF-1P-80*	_	82211AG150	Subaru
00	B11-11-00		3673-950J00	Suzuki
			MN164187,	Mitsubishi
100	BTF-1P-100*	_	MR522172	IVIIISUDISIII
			3673-952J00	Suzuki
			MN164188	Mitsubishi
120	BTF-1P-120*	_	3673-966J00	Suzuki
			MR551902	Chrysler, Dodge
			82620-33040	Lexus, Scion,
140	BTF-1P-140*	_	02020-33040	Toyota
			24380-JA70A	Nissan
180, 120	BTF-2P-180120*	_	68164797-AA	Chrysler
			BR3Z-14526-AA	Ford
200, 100	BTF-2P-200100*	_	A F E 7 1 4 E O C D A	Ford, Lincoln,
			AE5Z-14526-BA	Mercury
250, 125	BTF-2P-250125*	BP/BTF-2P-250125	AL3Z-14526-AA	Ford
120, 60, 80	BTF-3P-1206080**	_	82620-52080A	Scion, Toyota
120, 80, 80	BTF-3P-1208080**	_	82620-52060A	Scion, Toyota
100, 100, 80,	BTF-5P-1010868**		24380-79910	Nissan
60, 80	B1F-5F-1010868""	_	24380-79910	NISSan
120, 100, 80,	BTF-5P-1210868**		24380-79912	Nissan
60, 80	B11-5F-1210008		24300-73312	INISSAII
140, 100, 100,	BTF-5P-141010108**		24380-7994A	Nissan
100, 80	B11-5F-141010108		24300-7334A	INISSAII
250, 100, 80,	BTF-5P-25010888**	_	24380-79918	Nissan
80, 80	D11-31-23010000		24000-73310	INIOSAII
225, 100, 60,	BTF-5P-225106108**	_	24380-79919	Nissan
100, 80	D11 31 223100100		24000 70010	INIOGUII
* 4 -	all the second and a second second			

<sup>\* 1</sup> Fuse per pack, 5 packs per shelf carton.

### MUSB Multi slow-blow fuses







MUSB-L3







MUSB-L1

MUSB-

Iti slow-blow fuses address the

The new line of Bussmann series multi slow-blow fuses address the automotive manufacturers' move to design custom circuit protection technology for their vehicles.

Amps	Trad'l pack	OEM part no.	Vehicle make
100, 70	MUSB-A1	38231-SDA-A01	Honda, Acura
120, 70	MUSB-A2	38231-SFY-003	Honda, Acura
100, 40	MUSB-A3	38231-SEP-A01	Honda, Acura
120, 40	MUSB-A4	38231-SFE-J01	Honda, Acura
70, 30, 40, 20, 30, 100	MUSB-L1-2	38231-T0A-A01	Honda, Acura
70, 40, 20, 40, 30, 120	MUSB-L1-4	38231-TX4-A01	Honda, Acura
20, 20, 20, 20	MUSB-L3-1	38233-TR0-A01	Acura
30, 30, 30, 30	MUSB-L3-3	38233-T6A-J01	Honda, Acura
30, 40, 30, 40	MUSB-L3-5	38233-TX4-A01	Acura
50, 60, 60, 30, 30, 30, 30, 40, 30, 20, 20	MUSB-M2-1	38232-TRO-A01	Honda, Acura
50, 60, 60, 50, 30, 30, 40, 30, 30, 40	MUSB-M4-1	38234-TX4-A01	Acura
125, 100, 325, shunt	MUSB-T1	FUST-14A068-CC	Ford
125, 80, 300, shunt	MUSB-T4	GUST-14068-BA	Ford
Shunt, 285, 200, 125	MUSB-T5	HUST-14A068-BB	Ford

<sup>\*\* 1</sup> Fuse per pack, 3 packs per shelf carton.

#### **AMG**

#### Stud-mount fuses

AMG fuses are for high current applications on select late model vehicles and available in ratings from 80 to 500 A. Use with the HMEG fuse block—see below.



-100-RP
-100-RP
-125-RP
-150-RP
-175-RP
-200-RP
-250-RP
·

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### AMI

#### Stud-mount fuses

Used in some late model vehicle systems for high power distribution. Use with HMID fuse holder — see below.



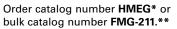
Color code	Amps	Trad'l pack*
Orange	30	AMI-30
Green	40	AMI-40
Red	50	AMI-50
Yellow	60	AMI-60
Brown	70	AMI-70
White	80	AMI-80
Blue	100	AMI-100
Pink	125	AMI-125
Grey	150	AMI-150B
Violet	200	AMI-200
* 4 5		

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### **HMEG**

#### **Fuse block**

For use with up to 500 amp AMG fuses, the HMEG bolt-in fuse holder features an impact resistant base and elastomer cover for full access and ease of wiring using 8 AWG to 1/0 wire.



- \* 1 fuse block per pack, 24 packs per master carton.
- \*\* 100 fuse blocks per pack.



#### HMID

#### **Fuse block**

Use with up to 80 amp AMI fuses. Multiple blocks can be dovetailed together to form an assembly.

Removable, splash resistant cover for full access and ease of wiring using 8 AWG to 1/0 wire.



\* 1 Fuse block per pack, 10 packs per shelf carton.





<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

We offer a complete line of Bussmann series fuse holders to install blade or glass tube fuses. Choose water resistant and/or splash-proof versions for extra protection in special applications. Five available connector types meet the needs of technicians and do-it-yourselfers:

- Wire loop: To install, simply cut the wire, strip ends and attach each end to the circuit. Requires using additional connectors. See catalog numbers HHK, HMJ, HMK, HRI, HRJ and HRK.
- Open wire: To install, simply strip lead ends and attach each end to the circuit. Requires using additional connectors. See catalog numbers ATC-FHID, ATM-FHID, MAX-FHID, HH2, HHC, HHD, HHF, HHG, HHL, HHM, HHN, HHR, HHU, HHV and HHX.
- Crimp-on: Strip the wire, insert into fuse holder and crimp tightly, and you're done. No additional hardware needed. See catalog numbers HFA, HFB and HHB.
- Self-stripping: To install, simply locate fuse holder at a convenient spot along the wire. Snap fuse holder closed around wire to automatically pierce insulation. See catalog number HHS.
- Solder: To install, simply solder the wire onto the holder's terminals. See catalog number HKP.
- Quick-connect: Attach fully insulated female terminal onto the 1/4" quick-connect terminals. See catalog numbers HKP-HH, HTB-26I, HTB-38I, HTB-68I and HTB-88I.

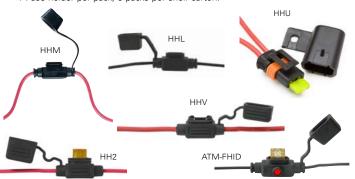
Select fuse holders by matching it to the wire size being fused. An undersized fuse holder will increase electrical resistance and reduce performance in the circuit.

NOTE: Never install a fuse with a larger amp rating than specified for the application, holder or wire size.

#### In-line ATR, ATM-LP and ATM fuse holders

Trad'l pack*	Retail pack**	Max volts/	Leadwire	Description	
ATR					
HH2	_	32 V/15 A	2×4"/#16	Holder with cover	
Low-profile	ATM				
HHV	BP/HHV-RP	32 V/20 A	2×4"/#12	Holder with cover, red leadwires	
ATM					
HHL	BP/HHL-RP	32 V/20 A	2×4"/#16	Holder with cover	
ННМ	BP/HHM-RP	32 V/30 A	2×4"/#12	Holder with cover	
HHU	BP/HHU	32 V/30 A	2×4"/#12	Water- resistant holder	
ATM-FHID	BP/ATM-FHID	32 V/20 A	2x4"/#16	easyID holder with protective cover and open fuse indicating LED	
* 1 Fine helder per peel, 10 peels per shelf serten					

<sup>\* 1</sup> Fuse holder per pack, 10 packs per shelf carton. \*\* 1 Fuse holder per pack, 5 packs per shelf carton.



#### In-line ATC fuse holders

Trad'l pack*	Retail pack**	Max volts/amps	Leadwire	Description
ННС	BP/HHC-RP	32 V/20 A	2x4"/#16	Yellow fuse holder
HHD	BP/HHD-RP	32 V/30 A	2x4"/#12	Black fuse holder
_	BP/HHD-30-RP	32 V/30 A	2x4"/#12	Holder with ATC- 30 A fuse
HHF	BP/HHF-RP	32 V/20 A	2x4"/#16	Holder with protective cover
HHG	BP/HHG-RP	32 V/30 A	2x4"/#12	Heavy-duty holder with cover / marine rated
HHR	BP/HHR	32 V/30 A	2x5"/#12	Heavy-duty water-resistant holder
ATC-FHID	BP/ATC-FHID	32 V/20 A	2×6"/#16	easyID holder with protective cover and open fuse indicating LED

- \* 1 Fuse holder per pack, 10 packs per shelf carton.
- \*\* 1 Fuse holder per pack, 5 packs per shelf carton.



Fuses sold separately.

#### In-line MAXI fuse holders

Catalog no.*	Max volts /amps	Leadwire	Description
HHX	32 V/60 A	2x5"/#6	Fuse holder with cover
MAX-FHID	32 V/60 A	2×5"/#6	easyID fuse holder with protective cap and open fuse indicating LED

<sup>\* 1</sup> Fuse holder per pack, 20 packs per shelf carton.



Fuses sold separately.

#### ATR, low-profile ATM, ATM and ATC add-a-circuits and fuse taps

Retail pack*	Description
BP/ATM-TAP-RP	Taps into existing ATM fuse for additional non-fused circuit, includes crimp-on connector - fuses not included
BP/ATC-TAP-RP	Taps into existing ATC fuse by fitting over the leg for additional non-fused circuit, includes crimp-on connector - fuses not included
BP/HHTR-RP	Adds a 10 A max ATR 2-leg micro fuse circuit by inserting into an existing ATR fuse block with 5 inch #16 leadwire and crimp connector - fuses not included
BP/HHLP-RP	Adds a 10 A max low-profile ATM fuse circuit by inserting into an existing ATM fuse block with 5 inch #16 leadwire and crimp connector - fuses not included
BP/HHH-RP	Adds a 10 A max ATM fuse circuit by inserting into an existing ATM fuse block with 5 inch #16 leadwire and crimp connector - fuses not included
BP/HHA-RP	Adds a 10 A max ATC fuse circuit by inserting into an existing ATC fuse block with 5 inch #16 leadwire and crimp connector - fuses not included

\* 1 Part per pack, 5 packs per shelf carton.





BP/ATC-TAP-RP









For ATM fuse

Fuses sold separately.

#### In-line holders for 1/4" diameter glass tube fuses

T 1/1	D-4-!I	-	N/I		
Trad'l	Retail		Max		
pack*	pack**	Fuse/size	volts/amps	Leads/terminals	Description/feature
HFA-R	_	1/4" × 1-1/4"	250 V/20 A	Crimp #12 to 16 wire	Water-resistant - black body, marine rated
HFB-R	BP/HFB-RP	1/4" × 1-1/4"	32 V/30 A	Crimp #12 to 18 wire	Water-resistant - yellow body, marine rated
HHB-R	BP/HHB-RP	1/4" x 7/8" to 1-1/4"	32 V/30 A	Crimp #12 to 16 wire	Universal - yellow body, marine rated
HHK	BP/HHK-RP	1/4" x 5/8" to 1-1/4" and SFE-20	32 V/20 A	#14 leadwire/yellow	Universal nylon, twist lock, no fuse - black body
$HHN^{\dagger}$	BP/HHN-RP	1/4" × 1-1/4"	32 V/30 A	#12 leadwire/yellow	Nylon heavy-duty with AGC-30-R fuse - white body
HLR	_	For GMF fuse, see page 42	300 V/15 A	6" of #18 leadwire/red	Holder with installed lineside terminal wire for GMF fuses
HMJ	BP/HMJ-RP	For SFE-20 (included)	32 V/20 A	8" of #14 leadwire/ black	With fuse and wire loop leads - black body
HMK	BP/HMK-RP	1/4" x 1-1/4" and SFE-20	32 V/30 A	#12 leadwire/black	No fuse, wire loop leads - black body, marine rated
HRH	_	For SFE-9 (included)	32 V/9 A	19" of #14 leadwire	With fuse and wire loop leads - black body
HRI	_	For SFE-14 (included)	32 V/14 A	19" of #14 leadwire/ black	With fuse and wire loop leads - gray body
HRJ	_	For SFE-20 (included)	32 V/20 A	19" of #14 leadwire/ black	With fuse and wire loop leads - black body
HRK-R	BP/HRK-RP	1/4" dia. x 7/8" to 1-1/4"	32 V/20 A	#14 leadwire/black	Universal with wire loop leads and springs for different fuse lengths - black body

<sup>\* 1</sup> Fuse holder per pack, 10 packs per shelf carton.

<sup>†</sup> Traditional pack not sold with AGC-30 fuse.























Panel-mount holders for 1/4" x 1-1/4" fuses

Trad'l pack*	Retail pack**	Description/mounting	Max. panel thickness	Knob type	Terminals	Max volts/amps
HKP-R	_	High-profile cover knob, rear hexnut	0.3"	Knob	Solder terminals	250 V/30 A
HKP-HH-R	BP/HKP-HH-RP	High-profile cover knob, rear hexnut, marine rated	0.3"	Knob	1/4" quick-connect terminals	250 V/15 A
HTB-26I-R	_	Low-profile cover knob, rear hexnut	0.3"	Knob	In-line 1/4" quick-connect terminals	250 V/20 A
HTB-38I-R	_	Low-profile cover knob, rear hexnut	0.3"	Screwdriver/ Slotted	Right angle 1/4" quick-connect terminals	250 V/20 A
HTB-68I-R	_	Low-profile cover knob, front hexnut	0.3"	Knob	Right angle 1/4" quick-connect terminals	250 V/20 A
HTB-88I	_	Low-profile cover knob, through-hole snap	0.125"	Knob	Right angle 1/4" quick-connect terminals	250 V/20 A

<sup>\* 1</sup> Fuse holder per pack, 10 packs per shelf carton.

<sup>\*\* 1</sup> Fuse holder per pack, 5 packs per shelf carton.

HKP HKP-HH













<sup>\*\* 1</sup> Fuse holder per pack, 5 packs per shelf carton.

#### easyID fuse panels with weatherproof cover

Finding the open fuse on a fuse panel just got a lot easier with the new Bussmann series easyID fuse panels. The LED indicators light up when a fuse opens. A clear, weather resistant hard shell cover helps protects the fuse panel from moisture, dirt and other contaminants. All fuse panels are rated 32 V, up to 25 amps (100 amps max per panel).



Fuse type	Fuse positions	Trad'l pack*	Retail pack**
	4	FP-ATC-04ID	_
ATC	6	FP-ATC-06ID	BP-FP-ATC-06ID
	10	FP-ATC-10ID	_
	4	FP-ATM-04ID	_
ATM	6	FP-ATM-06ID	BP-FP-ATM-06ID
	10	FP-ATM-10ID	_

<sup>\* 1</sup> per box

#### FAT-N°



#### Splash-proof ATR, ATM and ATC fuse blocks

The Bussmann series FB fuse blocks are available in 4-, 6-, 8- and 10-pole versions for ATR micro, ATM and ATC fuses. The clear plastic cover allows viewing for installed fuse amp ratings and blown fuses when used with *easy*ID™ ATM and ATC fuses. The cover's O-ring provides a splash-proof IPX4 rating and ensures a positive fit to reduce infiltration of dirt and other contaminants. The plastic back plate provides additional isolation from ground sources



when mounted on any chassis surface. All blocks are rated 32 V and 20 amps per pole, with maximum total amps per block not to exceed the value shown in the catalog number table.

Mounting requires two customer-supplied #10 screws. Electrical connection is easily made with readily available, customer supplied 1/4" quick-connect terminals and 12 to 16 AWG\* wire.

\* Wire size dependent on circuit current and length of run.

Fuse type	Poles	Retail pack*	Max. total amps per block
	4	BP/FB4-ATR	30
ATR micro	6	BP/FB6-ATR	45
ATTITICIO	8	BP/FB8-ATR	60
	10	BP/FB10-ATR	90
	4	BP/FB4-ATM	30
ATM	6	BP/FB6-ATM	45
ATIVI	8	BP/FB8-ATM	60
	10	BP/FB10-ATM	90
	4	BP/FB4-ATC	30
ATC	6	BP/FB6-ATC	45
AIC	8	BP/FB8-ATC	60
	10	BP/FB10-ATC	90

<sup>\* 1</sup> Per pack, 5 packs per shelf carton.

#### RTMF

#### ATM fuse panel

The RearTerminal 20 Position (RTMF) fuse panel for ATM fuses provides efficient power distribution in a rugged compact package. The RTMF offers a weather-tight enclosure (IP66/67) for ATM fuses and circuit breakers when cover, cable seals, and cavity plugs are installed.\*

\* Electrical terminals, cable seals and cavity plugs are either Delphi Packard Metri-Pack® 280 Series terminals (sealed/tangless) or AMP® terminals. They accept #12-22 AWG wire sizes. Delphi Packard 280 Series cavity plugs are installed where wires are not used. Seals and cavity plugs not sold by Eaton. Shown with deep cover. Fuses and circuit breakers sold separately.



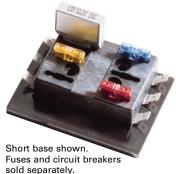
Catalog no.*	Description
RTMF-SC	20 position fuse block with shallow cover
RTMF-DC	20 position fuse block with deep cover

<sup>\* 1</sup> Per box, 10 boxes per shelf carton.

<sup>\*\* 1</sup> per pack, 4 packs per shelf carton

#### 15600 fuse panels

A single, common power input makes it simple to wire multiple fused circuits - each rated to 20 amps (95 amps max per panel), up to 32 volts. Molded of high grade thermoplastic, for superior performance, the 15600 fuse panel features 1/4" quick-connect terminals for easy installation. Recessed fuse contacts provide finger-safe protection.



Available in short base (without ground pad terminal strip) and long base (includes ground pad terminal strip that provides 1/4" quick connect terminals for separate ground lead connection).

**Note:** The 15600 ATC fuse panels are not intended for installation under the hood or in an environment that would expose them to water or extreme temperatures.

Fuse positions	Short base catalog no.*	Short base retail pack**	Long base catalog no.
4	15600-04-20	<del>_</del>	15600-04-21
6	15600-06-20	BP/15600-06-20	15600-06-21
8	15600-08-20	<u> </u>	15600-08-21
10	15600-10-20	<u> </u>	15600-10-21
12	15600-12-20	<u> </u>	15600-12-21
14	15600-14-20	_	15600-14-21
16	15600-16-20	_	15600-16-21
18	15600-18-20	_	15600-18-21
20	15600-20-20	<del>-</del>	15600-20-21

<sup>\* 1</sup> Per pack

#### **FMX**

#### Power distribution relay and fuse module

The sealed power FMX fuse module (CBPFM) and power relay module (CBPRM) are compact power distribution modules for high current applications having extreme moisture and high vibration.

Power fuse module

Power relay module

The CBPFM power fuse module has two FMX fuse positions for separate circuits.

The 24 volt CBPRM power relay module contains a 35 amp relay and two FMX fuse positions (one protects the relay and the other a single-circuit in-line fuse).

Both the CBPRM and CBPFM feature rugged M8 power input studs, and an IP66 removable, weather-tight cover to protect the fuse positions.

Electrical terminations not supplied by Eaton, FMX fuses sold separately.

Catalog no.*	Description
CBPFM	Power fuse module
CBPRM	Power relay module

<sup>\* 1</sup> Per box.

## See our stock of OEM fuses for Nissan, Infiniti, Toyota and Lexus vehicles

Bussmann  $^{\text{\tiny TM}}$  series multi-pole fuses (MPF) and more now available for the aftermarket.

See page 9.



<sup>\*\* 1</sup> Per pack, 5 boxes per shelf carton.



#### S-8202

#### Glass tube fuse blocks 300 volt, 30 amp

S-8202 blocks with 1/4" quick-connect 40° bend terminals are available in 1 up to 12 poles. Break-away design permits snapping off or combining poles to get the exact number required for the application. UL Recognized, 30 amps maximum.

Fuse block poles	Trad'I pack*	Retail pack**
1	S-8202-1-R	_
2	S-8202-2-R	BP/S-8202-2-RP
3	S-8202-3-R	<del>-</del>
4	S-8202-4-R	BP/S-8202-4-RP
5	S-8202-5-R	_
10	S-8202-10-R	<del>-</del>
12	S-8202-12-R	_





#### \*\* 1 Per pack, 5 packs per shelf carton.

#### S-8301

#### Glass tube fuse blocks 300 volt, 30 amp

S-8301 blocks with screw connect terminals are available in 1 up to 12 poles. Break-away design permits snapping off or combining poles to get the exact number required for the application. UL Recognized, 30 amps maximum.

Fuse block	Trad'l
poles	pack*
1	S-8301-1-R
2	S-8301-2-R
3	S-8301-3-R
4	S-8301-4-R
5	S-8301-5-R
6	S-8301-6-R
8	S-8301-8-R
12	S-8301-12-R



#### Fusible link wire

The BP/FL-14 and BP/FL-16 fusible link wire kits include 14 Vdc wire with printed wire gauge label. BP/FLW-14 is a six-foot coil of bulk fusible link wire.



Retail pack*	Description
BP/FL-14	9 inches of 14 gauge fusible link wire with 3/8" and 5/16" terminals and crimp connector
BP/FL-16	9 inches of 16 gauge fusible link wire with 1/4" and 5/16" terminals and crimp connector
BP/FLW-14	6 foot coil of 14 gauge fusible link wire

<sup>\* 1</sup> Fusible link per pack, 5 packs per shelf carton.

#### **ANN and ANL current limiters**

Used to protect charging systems in battery-operated vehicles like forklifts and golf carts, the ANN and ANL limiters offer high amp ratings in a compact 7/8" x 3-3/16" size.

Durable glass-laminated melamine body and riveted construction provides a rugged package and clear window provides visual indication.

Both the ANN and ANL limiters use the SFR fuse block.

## ANN Very fast-acting limiters



Trad'l/pack catalog no.			
ANN-10	ANN-125	ANN-325	
ANN-35	ANN-150	ANN-350	
ANN-40	ANN-175	ANN-400	
ANN-50	ANN-200	ANN-500	
ANN-60	ANN-225	ANN-600	
ANN-80	ANN-250	ANN-700	
ANN-90	ANN-275	ANN-800	
ANN-100	ANN-300	_	

<sup>\* 1</sup> Limiter per pack, 5 packs per shelf carton.

#### ANL

#### **Fast-acting limiters**



Trad'l/pack catalog no.			
ANL-35	ANL-150	ANL-350	
ANL-40	ANL-175	ANL-400	
ANL-50	ANL-200	ANL-500	
ANL-60	ANL-225	ANL-600	
ANL-80	ANL-250	ANL-675	
ANL-100	ANL-275	ANL-750	
ANL-125	ANL-300	_	
ANL-130	ANL-325	_	

<sup>\* 1</sup> Limiter per pack, 5 packs per shelf carton.

#### **SFR**

#### **Block for ANL and ANN limiters**

Open stud fuse block handles up to 800 amps. Available only without cover.

Order catalog number SFR.\*

\* 1 Block per pack, 100 packs per master carton.



We offer a large selection of Bussmann series automotive circuit breakers including both OEM-style and fuse-replacement devices.

#### High amp circuit breakers

High amp circuit breakers are available for automotive and marine applications in Type I and Type III reset modes. Typically used in auxiliary and accessory circuits for trucks, busses, RVs and boats, they are available in weatherproof/waterproof panel and flush mount versions. They can also be used in battery charging systems that use battery isolators to manage and protect batteries in multi-battery installations.

#### Type I - automatic reset

Type I circuit breakers automatically reset after opening. If the fault or overcurrent condition still exists, the breaker will continue to cycle between ON and OFF positions until the overcurrent problem is corrected. These devices are sometimes called "cycling breakers." Type I/Automatic Reset circuit breakers do not address, or correct, overcurrent or fault conditions. They only react by cycling OFF and ON. Any overcurrent or fault condition that causes a Type I circuit breaker to operate should be corrected as soon as possible. Continued vehicle operation with an overcurrent or fault condition (causing the Type I circuit breaker to cycle) is NOT recommended.

#### Type II - modified reset

Type II circuit breakers will remain "tripped" by an internal resistor (in the OFF position) as long as the circuit is powered. Type II breakers can be reset by turning the circuit OFF, or by turning the ignition switch to the OFF position. These devices are sometimes called "non-cycling breakers."

#### Type III - manual reset

Type III circuit breakers will remain tripped (in the OFF position) until an indicator button or lever is manually reset. Some Type III breakers are available with a switch feature that allows the use of an external button to de-energize the circuit.

#### Low-profile ATM circuit breaker

#### **CB234**

Type III



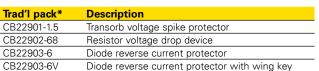
Color code	Amps	Trad'l pack*
Tan	5	CB234-05
Brown	7-1/2	CB234-7-1/2
Red	10	CB234-10
Blue	15	CB234-15
Yellow	20	CB234-20
White	25	CB234-25
Green	30	CB234-30

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

# ATM footprint Transorb, Resistor and Diodes CB229

Transorb, resistor and diode electrical protection devices easily install in common ATM fuse holders and blocks. These circuit protection devices provide voltage and current limiting functionality and are designed for the on- and off-highway requirements of trucks, RVs, construction, agriculture, ATV and material handling equipment.

- Transorb Protects against voltage spikes.
  - Clamp rating: 27 Vdc
  - Power rating: 1500 W
- Resistor Drops circuit voltage.
  - Power rating: 5 W
  - Resistance: 68 Ω
- Diode Prevents reverse current flow.
  - Amp rating: 6 A



<sup>1</sup> Circuit breaker per pack, 10 packs per shelf carton.

#### **ATM footprint circuit breakers**

Type I, Type II and Type III circuit breakers match the ATM fuse footprint. Ultra-thin, to fit in tight spaces, they're the smallest automotive circuit breakers on the market and comply with SAE standard J553.

CB211 Type I



CB212 Type II



CB233
Type III ATM circuit breaker



CB222OS

Type II with offset terminals



CB223OS Type III with offset terminals



MMB
Type I, GM vehicles



Amps	Trad'l pack*	Retail pack**
7-1/2	CB211-7-1/2	_
10	CB211-10	BP/CB211-10-RP
15	CB211-15	BP/CB211-15-RP
20	CB211-20	BP/CB211-20-RP
25	CB211-25	BP/CB211-25-RP
30	CB211-30	BP/CB211-30-BP

- \* 1 Breaker per pack, 10 packs per shelf carton.
- \*\* 1 Breaker per pack, 5 packs per shelf carton.

Amps	Trad'l pack*	
10	CB212-10	
15	CB212-15	
20	CB212-20	
25	CB212-25	
30	CB212-30	

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Color code	Amps	Trad'l pack*
Tan	5	CB233-05
Brown	7-1/2	CB233-71/2
Red	10	CB233-10
Blue	15	CB233-15
Yellow	20	CB233-20
White	25	CB233-25
Green	30	CB233-30

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Amps	Trad'l pack*
05	CB222OS-05
10	CB222OS-10
15	CB222OS-15
20	CB222OS-20
25	CB222OS-25
30	CB222OS-30

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Amps	Trad'l pack*
05	CB223OS-05
7-1/2	CB223OS-7-1/2
10	CB223OS-10
15	CB223OS-15
20	CB223OS-20
25	CB223OS-25
30	CB223OS-30

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Amps	Trad'l pack*	OEM part no.
15	MMB-15	12135171
20	MMB-20	12135072

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

#### **ATC footprint circuit breakers**

Type I, Type II and Type III circuit breakers match the ATC fuse footprint. They are the thinnest available in the aftermarket and comply with SAE standard J553.

CB227 complies with SAE J553 and SAE J1171 for ignition protection. We also offer the Bussmann series ACB-20, CCB-25, and FCB-20 breakers as replacements for specific OEM applications.

ACB-20
Type I for GM vehicles



Amps	Trad'l pack*	OEM no.
20	ACB-20	12040816

\* 1 Breaker per pack 10 packs per shelf carton.

CB221 Type I



Amps	Trad'l pack*
7-1/2	CB221-7-1/2
10	CB221-10
15	CB221-15
20	CB221-20
25	CB221-25
30	CB221-30

\* 1 Breaker per pack, 10 packs per shelf carton.

### CB222 Type II



Amps	Trad'l pack*
10	CB222-10
15	CB222-15
20	CB222-20
25	CB222-25
30	CB222-30

\* 1 Breaker per pack 10 packs per shelf carton.

CB223 Type III



Amps	Trad'I pack*
7-1/2	CB223-7-1/2
10	CB223-10
15	CB223-15
20	CB223-20
25	CB223-25
30	CB223-30

\* 1 Breaker per pack 10 packs per shelf carton.

CB227
Type III



Color code	Amps	Trad'l pack*
Tan	5	CB227-05
Moss Green	6	CB227-06
Brown	7-1/2	CB227-7-1/2
Red	10	CB227-10
Blue	15	CB227-15
Yellow	20	CB227-20
White	25	CB227-25
Green	30	CB227-30

\* 1 Breaker per pack 10 packs per shelf carton.

#### CBB-30

Type I



Amps	Trad'l pack*	Retail pack**	
30	CBB-30	BP/CBB-30-RP	

\* 1 Breaker per pack, 10 packs per shelf carton.

# CCB-25 Type I for Chrysler



Amp	s Trad'l pack*	OEM no.
25	CCB-25	4527053

\* 1 Breaker per pack, 10 packs per shelf carton.

#### FCB-20 Type II for Ford vehicles

	T 1/1			
Trad'l				
Amps	pack*	Retail pack	OEM no.	
20	FCB-20	BP/FCB-20-RP	D9AB-14526-BA	

\* 1 Fuse per pack, 10 packs per shelf carton.

\*\* 1 Fuse per pack, 5 packs per shelf carton.



#### **UCB**

#### Type I ATC circuit breakers

UCB breakers feature "snap-off" universal blades to fit tight fuse block spacing or recessed fuse terminals.



Color code	Amps	Trad'l pack*	Retail pack**	Bulk pack***
Plain	6	UCB-6	_	_
Brown	8	UCB-8	_	_
Red	10	UCB-10	BP/UCB-10-RP	BK/UCB-10
Blue	15	UCB-15	BP/UCB-15-RP	BK/UCB-15
Yellow	20	UCB-20	BP/UCB-20-RP	BK/UCB-20
Plain	25	UCB-25	BP/UCB-25-RP	_
Green	30	LICB-30	RP/LICR_30_RP	BK/LICB-30

- \* 1 Circuit breaker per pack, 10 packs per shelf carton.
- \*\* 1 Circuit breaker per pack, 5 packs per shelf carton.

\*\*\* 100 Circuit breakers per pack.

#### MAXI footprint circuit breakers

Bussmann series MAXI circuit breakers are the first breakers on the market to match the MAXI fuse footprint and body dimensions.

#### **CB1911** Type I MAXI circuit breakers



**CB1921** Type II MAXI circuit breakers



Amps	Trad'l pack*
10	CB1911-10
15	CB1911-15
20	CB1911-20
25	CB1911-25
30	CB1911-30
35	CB1911-35
40	CB1911-40
50	CB1911-50

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Amps	Trad'l pack*
15	CB1921-15
20	CB1921-20
25	CB1921-25
30	CB1921-30

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

#### Heavy-duty circuit breakers

Ideal for many heavy-duty and truck applications, Bussmann series stud-terminal and quick-connect circuit breakers are available with and without a mounting bracket and comply with SAE standard

#### **CB123-B**

Type III 10-32 stud-terminal circuit breakers with crosswise bracket. NEMA IP66 rated for protection from dust, oil, and other non-corrosive materials.

Amps	Trad'l pack*
10	CB123-10B
15	CB123-15B
20	CB123-20B
30	CB123-30B
40	CB123-40B
50	CB123-50B

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.



#### **CB123-HB**

Type III 10-32 stud-terminal circuit breakers with lengthwise bracket. NEMA IP66 rated for protection from dust, oil, and other corrosive materials.

Amps	Trad'l pack*
10	CB123-10HB
15	CB123-15HB
20	CB123-20HB
30	CB123-30HB
40	CB123-40HB
50	CB123-50HB

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

#### Glass tube footprint breakers

#### **CBF**

#### Type II circuit breakers for glass tube fuse blocks

CBF circuit breakers can be used to replace glass fuses in blocks for 1/4" x 1-1/4"



Splash proof covers

Catalog no.

BK/CB-CVR

BP/CB20HB-CVR\*

BP/CB40HB-CVR\*

CB-CVR

Amps	Trad'l pack*	Retail pack**
10	CBF-10	_
15	CBF-15	_
20	CBF-20	BP/CBF-20-RP
25	CBF-25	_
30	CBF-30	BP/CBF-30-RP
35	CBF-35	_
40	CBF-40	_

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton. \*\* 1 Breaker per pack, 5 packs per shelf carton.

Pack Shelf

qty.

10

100

5

5

qty.

1

1



**CBC** Type I 10-32 stud-terminal



Master

300

2000

120

120

qty.

Type I 10-32 stud-terminal circuit breakers with crosswise bracket



Amps	Trad'l pack*
8	CBC-8
10	CBC-10
15	CBC-15
20	CBC-20
25	CBC-25
30	CBC-30
35	CBC-35
40	CBC-40
50	CBC-50

<sup>\* 1</sup> Breaker per pack, 10 packs per shelf carton.

Trad'l pack\* Retail pack\*\*

15	CBC
20	CBO
25	CBC
30	CBC
35	CBC
40	CBC
50	CBC
* 1 ** 1	Breaker per

8	CBC-8B	<del>_</del>
10	CBC-10B	_
15	CBC-15B	_
20	CBC-20B	BP/CBC-20B-RP
25	CBC-25B	_
30	CBC-30B	BP/CBC-30B-RP
35	CBC-35B	_
40	CBC-40B	BP/CBC-40B-RP
50	CBC-50B	BP/CBC-50B-RP

pack 10 packs per shelf carton. per pack, 5 packs per shelf carton.

Description

circuit breaker Cover for stud terminal

retail pack

retail pack

Cover for stud terminal

circuit breaker-BULK CB123-20HB with cover-

CB123-40HB with cover-





<sup>\*</sup> Packed with CB123-20HB and CB123-40HB.

#### **CBC-BWP**

Type I 10-32 stud-terminal weatherproof circuit breakers with crosswise bracket



Amps	Trad' pack*
20	CBC-20BWP
30	CBC-30BWP

\* 1 Breaker per pack, 10 packs per shelf carton.

#### **Quick-connect circuit breakers**

For use in trucks, RVs, boats, buses, etc. featuring 1/4" quick-connect terminals for easy installation.

#### **CB174**

Type III panel-mount circuit breakers with 1/4" quickconnect terminals



Amps	Trad'l pack*
10	CB174-10
15	CB174-15
20	CB174-20
30	CB174-30

\* 1 Breaker per pack, 10 packs per shelf carton.

#### **CBC-HB**

Type I 10-32 stud-terminal circuit breakers with lengthwise bracket



Amps	Trad'l pack*	Retail pack**
10	CBC-10HB	_
15	CBC-15HB	_
20	CBC-20HB	BP/CBC-20HB-RP
25	CBC-25HB	_
30	CBC-30HB	BP/CBC-30HB-RP
40	CBC-40HB	BP/CBC-40HB-RP
50	CBC-50HB	BP/CBC-50HB-RP

- \* 1 Breaker per pack, 10 packs per shelf carton.
- \*\* 1 Breaker per pack, 5 packs per shelf carton.

#### **CBT-M**

Type II circuit breakers for Mack® trucks with 1/4" blades on 1" centers



_	Amps	nau i pack
1	0	CBT-10M
1	5	CBT-15M
2	20	CBT-20M
2	25	CBT-25M
3	80	CBT-30M

\* 1 Breaker per pack, 10 packs per shelf carton.

#### CBP-B

Type I 10-32 stud-terminal circuit breakers with lengthwise bracket. NEMA IP66 rated for protection from dust, oil, and other non-corrosive materials.



Amps	Trad'l pack*	Retail pack**
15	CBP-15B	_
25	CBP-25B	_
30	CBP-30B	_

- \* 1 Breaker per pack, 10 packs per shelf carton.
- \*\* 1 Breaker per pack, 5 packs per shelf carton.

#### CBT-N

Type II circuit breakers for Navistar® trucks with 1/4" blades on 1.08" centers



Amps	Trad'l pack*
10	CBT-10N
15	CBT-15N
20	CBT-20N
25	CBT-25N
30	CBT-30N

\* 1 Breaker per pack, 10 packs per shelf carton.

#### CBP-BA

Type I 10-32 stud-terminal circuit breakers with crosswise bracket. NEMA IP66 rated for protection from dust, oil, and other non-corrosive materials.



Amps	Trad'l pack*	Retail pack**
20	CBP-20BA	_
25	CBP-25BA	_
30	CBP-30BA	BP/CBP-30BA-RP
40	CBP-40BA	_
50	CBP-50BA	BP/CBP-50BA-RP

- 1 Breaker per pack, 10 packs per shelf carton.
- \*\* 1 Breaker per pack, 5 packs per shelf carton.

#### CBU-B

Type I circuit breaker with 1/4" quick-connect terminals \* 1 Breaker per pack, 10 packs per shelf carton. on 0.99" centers with crosswise bracket

Amps	Trad'l pack*
30	CBU-30B



Retail

pack\*\*

BP/CB185-50

BP/CB185-70

BP/CB185-80

CB185-100 BP/CB185-100

CB185-120 BP/CB185-120

CB185-135 BP/CB185-135

CB185-150 BP/CB185-150

Catalog no.\*

CB185P-30

CB185P-40

CB185P-50

CB185P-60

CB185P-70

CB185P-80

CB185P-90

CB185P-100

CB185P-110

CB185P-120

CB185P-135

CB185P-150

Catalog

CB185-25

CB185-30

CB185-35

CB185-40

CB185-50

CB185-60

CB185-70

CB185-80

CB185-90

CB185-110 —

\* 1 Breaker per box, 20 boxes per

\*\* 1 Circuit breaker per pack, 4 packs

master carton.

per shelf carton.

no.\*

Amps 25

30

35

40

50

70

80

90

100

110

120

135

150

Amps

30

40

50

60

70

80

90

100

110

120

135

150

#### High amp circuit breakers

High amp circuit breakers are typically used in auxiliary and accessory circuits for trucks, buses, RVs and marine applications.

All high amp circuit breakers comply with the SAE J1171 standard for ignition protection and have applications in battery charging systems that use battery isolators to manage and protect batteries in multi-battery installations. Offered in flush-mount or panel-mount.

Type I — automatic reset

#### **CB181F**

Flush mount, 30 Vdc Waterproof, sealed housing 1/4-28 threaded studs SEMS nuts installed



#### **CB181P**

Panel mount, 30 Vdc Waterproof, sealed housing 1/4-28 threaded studs **SEMS** nuts installed



#### **CB251**

Type I Panel mount, 32 Vdc Weatherproof, marine rated #10-32 threaded studs Stainless steel hardware installed



Type III — manual reset CR184F

Flush Mount, 42 Vdc Waterproof, sealed housing 1/4-28 threaded studs **SEMS** nuts installed



Amps	Catalog no.*
60	CB181F-60
70	CB181F-70
80	CB181F-80
90	CB181F-90
100	CB181F-100
120	CB181F-120
150	CB181F-150

<sup>\* 1</sup> Breaker per box, 20 boxes per master carton

#### Catalog no.\* Amps CB181P-60 60 70 CB181P-70 80 CB181P-80 CB181P-100 100 135 CB181P-135 CB181P-150 150

Amps	Catalog no.
10	CB251-10
15	CB251-15
20	CB251-20
25	CB251-25
30	CB251-30
35	CB251-35
40	CB251-40
50	CB251-50

<sup>\* 1</sup> Breaker per box, 10 boxes per shelf carton.

Amps	Catalog no.*
35	CB184F-35
50	CB184F-50
60	CB184F-60
70	CB184F-70
80	CB184F-80
100	CB184F-100
120	CB184F-120
150	CB184F-150

<sup>\* 1</sup> Breaker per box, 20 boxes per master carton.

# Type III — manual reset (cont.)

Flush mount with push-to-trip button, 42 Vdc Waterproof, sealed housing 1/4-28 threaded studs SEMS nuts installed



#### **CB185P**

Panel mount with push-to-trip button, 42 Vdc Waterproof, sealed housing 1/4-28 threaded studs SEMS nuts installed





\* 1 Breaker per box, 20 boxes per master carton.

#### **CB187F**

Flush mount with pull-to-trip lever, 48 Vdc Weatherproof, marine rated 5/16-18 threaded studs Stainless steel hardware installed



Amps	Catalog no.
25	CB187F-25
30	CB187F-30
35	CB187F-35
40	CB187F-40
50	CB187F-50
60	CB187F-60
70	CB187F-70
80	CB187F-80
90	CB187F-90
100	CB187F-100
110	CB187F-110
120	CB187F-120
135	CB187F-135

<sup>200</sup> \* 1 Breaker per box, 5 boxes per shelf carton.

CB187F-150

CB187F-200

150

See page 35 for marine-rated circuit breakers.

Amps 25

#### **CB187P**

Panel mount pull-to-trip lever, 48 Vdc Weatherproof, marine rated 5/16-18 threaded studs Stainless steel hardware installed



30	CB187P-30	
35	CB187P-35	
40	CB187P-40	
50	CB187P-50	
60	CB187P-60	
70	CB187P-70	
80	CB187P-80	
90	CB187P-90	
100	CB187P-100	)
135	CB187P-135	5
150	CB187P-150	)

\* 1 Breaker per box, 120 boxes per master carton.

Catalog no.\*

CB285F-25

CB285F-30

CB285F-40

CB285F-50

CB285F-60

CB285F-70 CB285F-80

CB187P-25	Panel mount push-to-trip button,
CB187P-30	32 Vdc
CB187P-35	Weatherproof, marine rated
CB187P-//0	#10-32 threaded studs

Catalog no.

**CB255** 

32 Vdc
Weatherproof, marine rated
#10-32 threaded studs
Stainless steel hardware installed



Amps	Catalog no.
10	CB255-10
15	CB255-15
20	CB255-20
25	CB255-25
30	CB255-30
35	CB255-35
40	CB255-40
50	CB255-50

\* 1 Breaker per box, 10 boxes per shelf carton.

#### **CB285F**

Flush mount with push-to-trip button, 42 Vdc Weatherproof, marine rated M6 threaded studs Stainless steel hardware installed



100	CB285F-100
120	CB285F-120
150	CB285F-150

\* 1 Breaker per box, 20 boxes per master carton.

**Amps** 25

30

40

50

60

70

#### CB285P

Panel mount with push-to-trip button, 42 Vdc Weatherproof, marine rated M6 threaded studs Stainless steel hardware installed

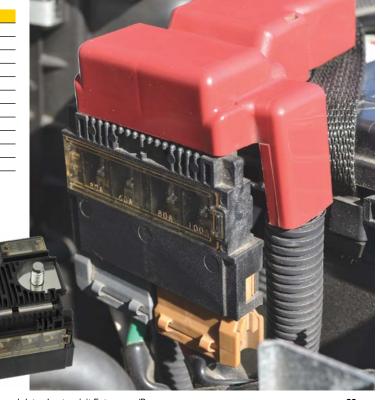


Amps	Catalog no.*
25	CB285P-25
30	CB285P-30
40	CB285P-40
50	CB285P-50
60	CB285P-60
70	CB285P-70
80	CB285P-80
90	CB285P-90
100	CB285P-100
120	CB285P-120
150	CB285P-150

\* 1 Breaker per box, 20 boxes per master carton.

**New Bussmann series** 5-pole battery terminal fuse now available to the aftermarket.

See page 11.





#### **Junction blocks**

NOTE: Voltage rating dependent upon installation.

**JB3816-2** Non-feed through stud-type junction block 3/8-16 thread/stud size, 250 amps max.



	Trad'l			Stud
Poles	pack*	Retail pack**	Description/color	thread
1	JB3816-2	BP/JB3816-2	Stud junction block - black	3/8-16
1	JB3816-3	_	Stud junction block - red	3/8-16

- \* 1 Junction block per pack, 50 per master pack.
- \*\* 1 Junction block per pack, 5 packs per shelf carton.

C1925-1 Feed through stud-type juntion block 3/8-16 thread/stud size, 250 amps



Poles	Trad'l pack*	Description/color	Stud thread
1	C1925-1	Stud junction block - red	3/8-16
1	C1925-1B	Stud junction block - black	3/8-16

<sup>\* 1</sup> Junction block per pack, 50 per master pack

**C4044-1** Non-feed through stud-type junction block 3/8-16 thread/stud size, 250 amps max.



Trad'l			Stud
Poles	pack*	Description/color	thread
1	C4044-1	Stud junction block - black	3/8-16

<sup>\* 1</sup> Junction block per pack, 50 per master pack.

**C1938** Feed through stud-type junction block 3/8-16 thread/stud size, 250 amps max.



Trad'l			Stud	
Poles	pack*	Description/color	thread	
1	C1938	Stud junction block - black	3/8-16	

<sup>\* 1</sup> Junction block per pack, 50 per master pack.

#### Bussmann series double row barrier terminal blocks



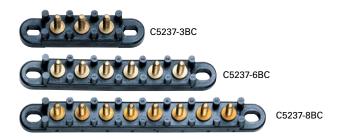


TB200 and TB300 double row barrier terminal blocks are nickel-plated brass with black thermoplastic construction.

Poles	Trad'l pack*	Retail pack**	Terminal screw	Volts/amps
4	TB200-04B	BP/TB200-04-RP	6-32	300 V/20 A
6	TB200-06B	_	6-32	300 V/20 A
8	TB200-08B	_	6-32	300 V/20 A
10	TB200-10B	_	6-32	300 V/20 A
15	TB200-15B	_	6-32	300 V/20 A
4	TB300-04B	_	8-32	600 V/30 A
6	TB300-06B	_	8-32	600 V/30 A
8	TB300-08B	_	8-32	600 V/30 A
10	TB300-10B	_	8-32	600 V/30 A
12	TB300-12B	_	8-32	600 V/30 A
20	TB300-20B	_	8-32	600 V/30 A

<sup>\* 1</sup> Junction block per pack, 50 per master pack.

#### Stud junction terminal strips



**C5237** Stud junction blocks are designed for trucks, RVs and wiring accessories. Available in 3, 6 and 8 terminal configurations, they are rated for applications to 30 A, 300 V (UL)/ 600 V (CSA).

Poles	Retail pack*	Stud	Volts/amps
3	BP/C5237-3BC	10-32	300 V/30 A
6	BP/C5237-6BC	10-32	300 V/30 A
8	BP/C5237-8BC	10-32	300 V/30 A

<sup>\* 1</sup> Terminal strip per pack, 5 packs per shelf carton.



<sup>\*\* 1</sup> Junction block per pack, 5 packs per shelf carton.

#### Toggle and rocker switches

We offer a line of Bussmann series single pole toggle switches, rocker switches and duck-bill toggle switches, in a variety of styles, colors and finishes for replacement applications or custom installations.

#### Toggle switches with quick connect terminals



Color	Retail pack*	Function	Rating	Feature
Black	BP/STF	ON/OFF/ON	12 V/20 A	_
Chrome	BP/STT	ON/OFF	12 V/20 A	Red LED

<sup>\*1</sup> Switch per pack, 5 packs per shelf carton.

#### Mounting panels for toggle and rocker switches



Catalog no.	Description
BP/MPR-1	Rectangular hole for mounting (1) switch
BP/MPT-1	1/2" round hole for mounting (1) switch
BP/MPT-2	1/2" round hole for mounting (2) switches

<sup>\*1</sup> Panel per pack, 5 packs per shelf carton.

#### Metal housing toggle switches with screw terminals



Color	Retail pack*	Function	Rating
Chrome	BP/STE	ON/OFF	12 V/15 A
Chrome	BP/STJ	ON/OFF	12 V/25 A
Chrome	BP/STK	ON/OFF/ON	12 V/15 A

<sup>\*1</sup> Switch per pack, 5 packs per shelf carton.

#### **Battery disconnect switches**

#### BMS-1

Top post anti-theft battery switch. Complete with HHM fuse holder, ATM-20 fuse, ring terminals and stainless steel bolt and wing nut.



#### BMS-2

Side post anti-theft battery switch for GM vehicles. Complete with HHM fuse holder, ATM-20 fuse and ring terminals.

#### 15968-1

Heavy-duty switch is designed to open the circuit between the battery and load of a battery powered system - typically in large truck applications. Rated at 50 Vdc maximum, 400 A continuous, it can withstand cranking or surge currents up to 2000 A for 5 seconds maximum.



Catalog	
no.	Description
BP/BMS-1*	Top post anti-theft master switch with HHM fuse holder, ATM-20 fuse, ring terminals and stainless steel bolt and wing nut
BP/BMS-2*	Side post anti-theft master switch with HHM fuse holder, ATM-20 fuse and ring terminals
15968-1**	Heavy-duty disconnect; 50 Vdc, 400 A maximum

<sup>\* 1</sup> Battery switch per pack, 5 packs per shelf carton.

<sup>\*\*</sup> Non-stock part

## **Automotive flashers and lighting control modules**

We offer a complete line of Bussmann series flashers that meet SAE standards for a variety of vehicles. To select the proper replacement flasher, match these three specifications:

- Specific versus variable load. Specific load flashers flash only a certain number of lamps. Variable load flashers handle a range of amps, such as when pulling a trailer.
- Lamp capacity. Designates the total number of lamps in the circuit for the left or right directional signal.
- Number of terminals. Select the number of blades to match the socket in the panel.

#### Thermal flashers





NO.550





NO.552



NO.575



NO.577 extra loud

#### Heavy-duty electronic flashers















NO.243 NO

NO.244

NO.246

NO.726

NO.727

NO. 757, 758, 759, 760











NO.761 NO.762

NO.763 and 764

63 NO.850

NO.852

#### Super heavy-duty electronic flashers







NO-759-LED

NO.233

NO.234

NO.232 **LED flashers** 







NO-758-LED



NO-760-LED NO-762-LED

Thermal and electronic 12 and 24 Vdc flashers

Trad'l	Retail	Flasher	No. of			Number
pack*	pack**	type	terminals	Volts	Amps	of bulbs
NO.535	_	Thermal	3	6	5.2	2-6
NO.550	BP/550-RP	Thermal	3	12	12.8	2-6
NO.552	BP/552-RP	Thermal	2	12	12.8	2-6
NO.575	BP/575-RP	Thermal	2	12	12.8	1-8
NO.577	BP/577-RP	Therm./ex. loud	2	12	14	2-6
NO.243	_	H-D electronic	2	12	25	12
NO.244	_	H-D electronic	3	12	25	12
NO.246	_	H-D electronic	3	12	25	Alternating
NO.726	BP/726-RP	H-D electronic	4	12	12.6	2-4
NO.727	BP/727-RP	H-D electronic	5	12	12.6	2-4
NO.757	BP/757-RP	H-D electronic	3	12	12.6	2-6
NO.758	BP/758-RP	H-D electronic	3	12	12.6	2-6
NO.759	BP/759-RP	H-D electronic	3	12	12.6	3-6
NO.760	BP/760-RP	H-D electronic	3	12	12.6	2-6
NO.761	BP/761-RP	H-D electronic	3	12	12.6	2-6
NO.762	BP/762-RP	H-D electronic	4	12	12.6	3-6
NO.763	_	H-D electronic	2	12	12	16
NO.764	_	H-D electronic	2	12	12	20
NO.850	_	H-D electronic	3	12	25	10HZ/5TS
NO.852	_	H-D electronic	2	12	35	16HZ/8TS
NO.232	BP/232-RP	S-D electronic	2	12	20	1-10
NO.233	BP/233-RP	S-D electronic	3	12	20	1-10
NO.234	BP/234-RP	S-D electronic	3	24	20	1-10

- \* 1 Flasher per pack, 10 packs per shelf carton.
- \*\* 1 Flasher per pack, 5 packs per shelf carton.

#### **LED flashers**

Trad'l pack*	No. of terminals	Volts	Amps	Number of LED lamps
NO.727-LED	5	12.8	12.6	2-6
NO.758-LED	3	12.8	12.6	2-6
NO.759-LED	3	12.8	12.6	3-6
NO.760-LED	3	12.8	12.6	2-4
NO.762-LED	3	12.8	12.6	2-6

<sup>\* 1</sup> Flasher per pack, 10 packs per shelf carton.

#### Lighting control modules (LCM)

Trad'l pack*	No. of terminals	Volts	Amps	Rated load range	Rated voltage
NO.455	10	12.8	2.1	1 to 6 SAE #1156 lamps	11 to 15 Vdc
NO.468	9	12.8	2.1	1 to 6 SAE #1156 lamps	11 to 15 Vdc
NO.470	5	12.8	2.1	Fixed 2 for lamps 4 for hazards	11 to 15 Vdc
NO.487	8	12.8	2.1	1 to 6 SAE #1156 lamps	11 to 15 Vdc

<sup>\* 1</sup> LCM per pack, 10 packs per shelf carton.

#### Lighting control modules (LCM)





F.T.N ROSPAN 100 FEB CONTROL 100 FEB



NO-487



#### Bonus, preparedness, and emergency retail packs

Whether shoppers have an immediate need or want to be prepared for the unexpected, the Bussmann Series line of Bonus packs, Preparedness packs, and Emergency packs give you the opportunity to meet their need. Each of these solutions give you the opportunity to increase your basket ring by trading up shoppers from single amp packs to these assortment packs.

**Bonus packs** — offer adept shoppers who are frequently tinkering on their cars, trucks, bikes, RVs or ATVs the ability to keep a large assortment of fuses on hand.

**Preparedness packs** — satisfy on-the-go shoppers who want to store fuses in a convenient resealable case so they are prepared if a fuse opens.

**Emergency packs** — give shoppers the ability to satisfy an immediate need to replace multiple fuses.









AGC-EK

NO. 43

ATM-ID-SK

#### **Bonus packs**

Product family	Catalog no.	Number of fuses	Contents
	ATM-FMX-EK	29	5 ea ATM-10, 15, 20, 25, 30; 1 ea FMX-20, 30, 40, 50 and FT-3 fuse tester/puller
Multi-fuse packs	NO. 24	23	1 ea ATM-10, 15, 20, 25, 30, ATM-10LP, 15LP, 20LP, 25LP, 30LP, ATC-3, 5, 7-1/2, 10, 15, 20, 25, 30, 40, MAX-30, 40, FMX-30, 40 and FT-3 fuse tester/puller
With-ruse packs	NO. 53	44	10 ea ATC-10, 15, 20, 30; 2 ea MAX-30; 1 ea MAX-40, 50, FT-3 fuse tester/puller;
	NO. 64	64	1 ea MAX-40, 50, FT-3 fuse tester/puller; 2 ea ATM-2, 3, 4, MAX-30; 3 ea ATM-7-1/2; 5 each ATM-5, 25; 10 ea ATM-10, 15, 20, 30
ATC modes	NO. 44	42	7 ea ATC-5, 10, 15, 20, 25 & 30A; 1 ea FT-3 fuse tester/puller
ATC packs	NO. 80	80	10 ea ATC-3, 5, 7-1/2, 10, 15, 20, 25, 30
easyID ATC packs	ATC-ID-SK	42	7 ea ATC-ID-5, 10, 15, 20, 25, 30
ATM packs	NO. 43	42	7 ea ATM-5, 10, 15, 20, 25 & 30A and 1 ea FT-3 fuse tester/puller
easyID ATM packs	ATM-ID-SK	36	6 ea ATM-ID-5, 10, 15, 20, 25, 30
ATM low profile packs	ATM-LP-EK	42	7 ea ATM-LP-5, 10, 15, 20, 25 30; 1 ea FT-3 fuse diagnostic tester/puller
Glass tube packs	AGC-EK	60	10 ea AGC-5, 10, 15, 20, 25 & 30A and 1 ea FT-3 fuse tester/puller









Each Preparedness pack comes with a re-sealable traveling case.

#### Preparedness packs

Product family	Catalog no.	Number of fuses	Contents
	BP/EFC-FORD	29	1 ea ATC-10, 15, 25, ATM-5, 7-1/2; 2 ea ATC-20, 30, ATM-10, 15, 20, 25, 30, ATM-LP-5, 7-1/2, 10, 15, 20
Model form and a	BP/EFC-GM	24	1 ea ATM-2, 5, 7-1/2, 10, 15, 25, 30, ATM-LP-2, 5, 7-1/2, 10, 30, ATR-10, 15, 20, 30; 2 ea ATM-20, ATM-LP-15, 20, 30
Multi-fuse packs	BP/EFC-TOYOTA	23	1 ea ATM-7-1/2, ATM-LP-5, 7-1/2, 25, 30; 2 ea ATM-5, 10, 15, 20, 25, 30, ATM-LP-10, 15, 20
	BP/EFC-CHYSLR	23	2 ea ATM-5, 10, 15, 20, 25, 30; 1 ea ATC-15, ATM-7-1-2, ATM-5LP, 10LP, 15LP, 20LP, 25LP, ATR-5, 10, 15, 20, 30
ATC packs	BP/EFC-ATC	24	4 ea ATC-5, 10, 15, 20 , 25, 30
ATM packs	BP/EFC-ATM	24	4 ea ATM-5, 10, 15, 20 , 25, 30



DIA 1



BP/ATR-A7-RP



BP/ATC-A5-RP



ATC-FP-AID

#### **Emergency packs**

Product family	Catalog no.	Number of fuses	Contents
ATR (Micro II) packs	BP/ATR-A7-RPP	7	1 ea ATR-5, 7-1/2, 10, 15, 20, 25, 30 and fuse puller
easyID ATR (Micro II) packs	BP/ATR-AID	5	1 ea 10,15,30; 2 ea 20
ATL (Micro III) packs	BP/ATL-A4-RPP	4	1 ea ATL-5, 7-1/2, 10, 15 and fuse puller
	BP/ATC-A5-RP	5	1 ea ATC-10, 15, 20, 25, 30
ATO I	BP/ATC-AH8-RPP	8	2 ea ATC-15, 20; 1 ea ATC-10, 25, 30, 40 and FP-A3 fuse puller
ATC packs	BP/ATC-AL8-RP	8	1 ea ATC-2, 3, 4; 2 ea ATC-5, 7-1/2
	DIA-1	6	1 ea ATC-5, 10, 15, 20, 25, 30, and FT-3 fuse diagnostic tester/puller
ID ATO	ATC-FP-AID	5	1 ea ATC-ID-10, 15,20, 25, 30 and FP-A3 fuse puller
easy ID ATC packs	BP/ATC-AID	5	1 ea ATC-10, 15, 20, 25, 30
	BP/ATM-A5-RP	5	1 ea ATM-10, 15, 20, 25, 30
	BP/ATM-A8-RP	8	1 ea ATM-2, 5, 7-1/2, 10, 15, 20, 25, 30
ATM packs	BP/ATM-AH8-RPP	8	2 ea ATM-10, 15, 20; 1 ea ATM-25, 30 and FP-A3 fuse puller
	BP/ATM-AL8-RP	8	2 ea ATM-3, 5, 7-1/2; 1 ea ATM-2, 4
	DIA-2	8	1 ea ATM-2, 5, 7-1/2, 10, 15, 20, 25, 30 and FT-3 fuse diagnostic tester/puller
annulD ATM manks	ATM-FP-AID	5	1 ea ATM-ID-10, 15, 20, 25, 30 and FP-A3 fuse puller
easy ID ATM packs	BP/ATM-AID	5	1 ea ATM-ID-10, 15, 20, 25, 30
ATM	BP/ATM-A6LP-RP	8	1 ea ATM-LP-5, 10, 15, 20, 25, 30
ATM low profile packs	DIA-3	8	1 ea ATM-LP-2, 5, 7-1/2, 10, 15, 20, 25, 30 and FT-3 fuse diagnostic tester/puller
MAX pack	BP/MAX-A3-RP	3	1 ea MAX-30, 40, 50
FMX pack	BP/FMX-A3-RP	3	1 ea FMX-20, 30, 40
	BP/AGA-AH8-RP	8	2 ea AGA-10, 15, 20, 30
	BP/AGA-AL8-RP	8	1 ea AGA- 1, 2; 2 ea 3, 5, 7-1/2
	BP/AGC-A5-RP	5	1 ea AGC-10, 15, 20, 25 and 30 A
	BP/AGC-AH10-RP	10	1 ea AGC-7-1/2, 25; 2 ea 10, 15, 20, 30
	BP/AGC-AL10-RP	10	1 ea AGC-4, 6; 2 ea 1, 2, 3, 5
Glass tube fuse packs	MA-5	5	1 ea AGC-1/2, 1, 1-1/2, 2, 3
AGA, AGC, AGW AGX, SFE, GBC	BP/AGW-A8-RP	8	1 ea AGW-5, 7-1/2; 2 ea 15, 20, 30
	BP/AGX-A8-RP	8	1 ea AGX-5, 8; 2 ea 20, 25, 30
	BP/SFE-AH6-RP	6	2 ea SFE-14, 20, 30
	BP/SFE-AL6-RP	6	1 ea SFE-4, 6; 2 ea 7-1/2, 9
	BP/AGC-SFE-A5-RP	5	1 ea AGC- 10, 15, 30 and SFE-14, 20
	BP/GBC-A8-RP	8	1 ea GBC-5, 15; 2 ea 8, 16, 25



#### NO.136

#### ATR, ATL and FMM micro fuse assortment

Selection of 135 ATR 2-leg and ATL 3-leg micro blade fuses, and FMM micro cartridge fuses plus a fuse puller. Fuses are loosely packed in 12-cavity, shatter-resistant plastic box. Contains ten each of ATR-5, 7-1/2, 10, 15, 20, 25 and 30, ten each of ATL-5, 7-1/2, 10, and 15, and five each of FMM-15, 20, 25, 30 and 40.



#### NO.60LP

#### Low-profile ATM fuses

Assortment contains 60 fuses: ten each of ATM-7-1/2LP, 10LP, 15LP, 20LP, 25LP and 30LP.



#### NO.95BK

#### ATC and ATM bulk assortment

Selection of 95 ATC and ATM blade fuses. Fuses are loosely packed in 12-cavity, shatter-resistant plastic box. Contains five each of ATC-5, 15, 25, ATM-5, 10, 15, 25, 30, ten of ATM-20, fifteen of ATC-10, 20, 30.



#### NO.45

#### Cartridge fuse bulk assortment

The top 16 assorted cartridge fuses for wiring harness protection. Comes with selection guide on inside lid. Contains one each of FLD-80, FLF-20, 30, 40, 50, FLM-80, 100, 120, FLS-30, 40, FMX-20, 30, 40, 50, 60 and FMX-30LP



#### NO.105

#### Late model automotive fuse assortment

Selection of low-profile and regular fuses loosely packed in 18-cavity, shatter-resistant plastic box. Contains: 10 each ATM-7-1/2LP, 10LP, 25LP and 30LP; 15 each ATM-15LP and 20LP; 3 each FMX-20, 30 and 40; 2 each FMX-50 and 60; 3 each FMX-20LP, 30LP and 40LP; 2 each FMX-50LP and 60LP; 2 each MAX-30 and 40; 1 each MAX-20, 50, 60 and 80.



#### NO.290

#### PRO PAK professional technician's assortment

Contains the circuit protection products every service technician needs. The compact case organizes 290 of the most common circuit protection products to restore power fast.

Comes with a free, high-power white LED spotlight made of highgrade polished aluminum with metal clip and magnetic base. Features a locking ON/OFF switch with an LED mounted on an insulated flexible shaft. Batteries included: 3 AG13 button cell.

#### **PRO PACK contents**

- Fuse assortments: AGA-AL (1, 2, 3, 5 and 7-1/2 A), AGA-AH (10, 15, 20 and 30 A), AGW-A (5, 7-1/2, 15, 20 and 30 A) and AGX-A (5, 8, 20, 25 and 30 A).
- AGC glass fuses. One tin each containing five fuses: AGC-1-R, 2-R, 3-R, 4-R, 5-R, 7-1/2-R, 10-R, 15-R, 20-R, 25-R and 30-R A.
- SFE size-rejecting 1/4" glass fuses. One tin each containing five fuses: SFE-4, 7-1/2, 9, 14, 20 and 30 A.
- GBC German vehicle fuses. One tin each containing five fuses: GBC-8, 16 and 25 A.
- ATM blade fuses. One tin of each rating containing five fuses: ATM-5, 7-1/2, 10, 15, 20, 25 and 30 A.
- Low-profile ATM blade fuses. One tin each containing five fuses: ATM-7-1/2LP, 10LP, 15LP, 20LP, 25LP and 30LP.
- ATC blade fuses. One tin each containing five fuses: ATC-3, 4, 5, 7-1/2, 10, 15, 20, 25, 30, 35 and 40 A.
- MAXI blade fuses. MAX-20, (2)30, (2)40, 50, 60, 70 and 80 A.
- FLB bolt-mount cartridge fuses. One each: FLB-40, 50, 60, 70 and 80 A.
- FLD bolt-mount cartridge fuses. One FLD-80 A.
- FLF female termination cartridge fuses. One each: FLF-20, 30, 40, 50 and 60 A.
- FLM male termination cartridge fuses. One each: FLM-60, 80 and 100 A.
- FLS female miniature termination cartridge fuses. One each: FLS-30 and 40 A.
- FMX female MAXI fuses. One each: FMX-20, 30, 40, 50 and 60 A.
- FMX\_LP low-profile female MAXI fuses. One each: FMX-20LP, 25LP, 30LP, 40LP, 50LP and 60LP.
- HHD 30 A in-line ATC fuse holder
- HHM 30 A in-line ATM fuse holder
- · HHN in-line glass tube fuse holder with AGC-30-R A fuse
- · HMK heavy-duty in-line glass tube fuse holder
- CBB-30 Type II 30 A ATC blade-type circuit breaker
- CBC-30HB Type I stud-mount 30 A circuit breaker with lengthwise bracket
- UCB-20 universal 20 A ATC blade-type circuit breaker
- UCB-30 universal 30 A ATC blade-type circuit breaker
- FT-3 fuse puller/tester, FP-A3 3-way fuse puller

#### **Fuse caddies**



Bussmann series fuse caddies offer a full array of fuses for automotive repair facilities to meet your fuse replacement needs. Each caddy is specially stocked to cover the majority of cars, vans, light trucks, SUVs and RVs on the road today. Select from the five-tray caddy or the more comprehensive ten-tray caddy to offer your customers a convenient and secure means to store and transport their replacement fuse inventory.

#### **FUSE-CADDY1**

With convenient folding handle and security latch, this five-tray capacity caddy contains 275 fuses in popular ratings. Four, ten-cavity trays contain ATM, low-profile ATM, ATC and MAX fuses. One, five-cavity tray contains FMX fuses.

# Contains fuse tray catalog numbers:

CDY10TRY-ATM CDY10TRY-MAX
CDY10TRY-ATM-LP CDY5TRY-FMX
CDY10TRY-ATC



Caddy measures 7.4"W x 4.5"D x 7.8"H (handle not extended)

See fuse tray contents on page 31 for type, quantities and ratings for each tray catalog number.

#### **FUSE-CADDY2**



Caddy measures 14.8"W x 4.5"D x 7.8"H (handle not extended)

With convenient folding handle and security latches, this tentray capacity caddy contains 372 fuses in popular ratings. Seven, ten-cavity trays contain ATM, Low-profile ATM, ATC, MAX, FMM/low-profile FMX, FLF/FLS, ATR/ATL micro fuses. Three, five-cavity trays contain FMX, FLB/FLD/FLM and AMG/AMI fuses. Together, all ten trays meet virtually any automotive blade and high amp fuse replacement need.

#### Contains fuse tray catalog numbers:

CDY10TRY-ATM CDY10TRY-FLNK1 CDY5TRY-BMOUNT
CDY10TRY-ATM-LP CDY10TRY-FLNK2 CDY5TRY-SMOUNT
CDY10TRY-ATC CDY10TRY-MICRO
CDY10TRY-MAX CDY5TRY-FMX

See fuse tray contents on page 31 for type, quantities and ratings for each tray catalog number.

#### Fuse tray assortments

Bussmann series fuse trays make it convenient to sell popular fuse assortments that repair facilities need to keep on hand for today's cars, vans, light trucks and SUVs.

Clear, compact trays that measure 3.5"D x 7"W x 1"H are easy to store and allow quick, visual identification of fuses without the hassle of opening the tray.

Three, five-cavity tray assortments and eight, ten-cavity tray assortments cover the most popular fuse applications including the new, ATR and ATL 2- and 3-blade micro fuses and FMM micro cartridge fuses. Offer your customers the convenience of these fivetray and ten-tray fuse caddies.

Trays are easily restocked from traditional or value fuse packs.

Order individually or offer customers the convenience of the FUSECADDY-1 (five-tray) or FUSECADDY-2 (ten-tray) fuse caddies.

#### Fuse tray contents and quantities



#### CDY10TRY-ATM 10 Cavity tray, 80 ATM blade fuses

Fuse (Qty)	
ATM-2 (5)	ATM-10 (15)
ATM-3 (5)	ATM-15 (15)
ATM-4 (5)	ATM-20 (15)
ATM-5 (5)	ATM-25 (5)
ATM-7-1/2 (5)	ATM-30 (5)



CDY10TRY-ATM-LP 10 Cavity tray, 65 Low-profile ATM blade fuses

Fuse (Qty)	
ATM-2LP (5)	ATM-10LP (10)
ATM-3LP (5)	ATM-15LP (10)
ATM-4LP (5)	ATM-20LP (10)
ATM-5LP (5)	ATM-25LP (5)
ATM-7-1/21 P (5)	ATM-30LP (5)



CDY10TRY-ATC\* 10 Cavity tray, 100 ATC blade fuses

Fuse (Qty)	
ATC-3 (5)	ATC-20 (15)
ATC-4 (5)	ATC-25 (10)
ATC-5 (5)	ATC-30 (15)
ATC-7-1/2 (5)	ATC-35 (10)
ATC-10 (10)	ATC-40 (10)
ATC-15 (10)	

\* Replaces NO.100BK



Ten- and five-tray fuse caddies conveniently store multiple fuse trays to efficiently organize an entire replacement fuse inventory.

CDY10TRY-EZID 10 Cavity tray, 59 ATC/ATM/MAX blade fuses

-	•	
Fuse (Qty)		
ATC-3ID (4)	ATM-3ID (4)	MAX-30ID (2)
ATC-5ID (2)	ATM-5ID (2)	MAX-40ID (2)
ATC-10ID (4)	ATM-10ID (4)	MAX-50ID (1)
ATC-15ID (4)	ATM-15ID (4)	MAX-60ID (1)
ATC-20ID (4)	ATM-20ID (4)	MAX-80ID (1)
ATC-25ID (4)	ATM-25ID (4)	
ATC-30ID (4)	ATM-30ID (4)	



#### CDY10TRY-MAX 10 Cavity tray, 16 MAXI blade fuses

Fuse (Qty)	
MAX-20 (1)	MAX-60 (3)
MAX-30 (1)	MAX-70 (2)
MAX-40 (3)	MAX-80 (2)
MAX-50 (3)	MAX-100ID (1)**

\*\* easyID indicating fuse.



CDY10TRY-MICRO 10 Cavity tray, 55 ATR/ATL micro blade fuses

Fuse (Qty)	
ATR-5 (5)	ATR-30 (5)
ATR-7-1/2 (5)	ATL-5 (5)
ATR-10 (5)	ATL-7-1/2 (5
ATR-15 (5)	ATL-10 (5)
ATR-20 (5)	ATL-15 (5)
ATR-25 (5)	- (-,



CDY10TRY-FLNK1 10 Cavity tray, 13 FMM/ low-profile FMX fuses

Fuse (Qty)	
FMM-15 (1)	FMX-25LP (1)
FMM-20 (1)	FMX-30LP (1)
FMM-25 (1)	FMX-40LP (1)
FMM-30 (1)	FMX-50LP (2)
FMM-40 (1)	FMX-60LP (2)
FMX-20LP (1)	



#### CDY10TRY-FLNK2 10 Cavity tray, 7 FLF/FLS cartridge fuses

Fuse (Qty)	
FLF-20 (1)	FLF-60 (1)
FLF-30 (1)	FLS-30 (1)
FLF-40 (1)	FLS-40 (1)
FLF-50 (1)	



5 Cavity tray, 14 FMX high amp fuses

- ' '	FMX-50 (3) FMX-60 (3)
-------	--------------------------



**CDY5TRY-BMOUNT** 5 Cavity tray, 10 FLB/FLD/FLM cartridge fuses

Fuse (Qty)	
FLB-80 (1)	FLM-30 (1)
FLB-140 (1)	FLM-60 (1)
FLD-40 (1)	FLM-80 (1)
FLD-80 (1)	FLM-100 (1)
FLD-120 (1)	FLM-120 (1)



CDY5TRY-SMOUNT 5 Cavity tray, 12 AMG/AMI high

amp tuses	
Fuse (Qty)	
AMG-80 (1)	AMG-225 (1)
AMG-100 (1)	AMG-250 (1)
AMG-125 (1)	AMG-300 (1)
AMG-150 (1)	AMI-40 (1)
AMG-175 (1)	AMI-50 (1)
AMG-200 (1)	AMI-80 (1)

#### Retail automotive planogram

Color-coded packaging for fast, easy product selection. Fits standard four-foot wide gondola. Product layout on page 33.

#### Visual categorization

- · Color-coded Bussmann series retail packaging.
- · Fast and easy product identification.
- · Provides increased shopability and faster merchandising.

#### Merchandising ease

- · Retail set is simple and straightforward.
- · Color-coding encourages return of product to correct peg.
- · Reduces need for assistance by store personnel.

#### Consumer friendly

- Fuse center is easily located.
- Point-of-sale identifies fuse
- · Package color codes identify product category.



4FTAUTO-KIT

Peg hooks and gondola not included.



4FTAUTO-TAGS UPC Reorder tags.

#### Catalog no. Description 175 SKU auto prepack. Includes one of each 4FTAUTO-KIT retail pack, a complete set of reorder tags and a header card as pictured. Replacement set of UPC reorder tags for the 4FTAUTO-TAGS 4FTAUTO-KIT. Order tags through your Bussmann series product rep.

For details on automotive Planogram SKUs, visit Eaton.com/BussmannConsumerPOG

#### Tilt-bin assortments

Turn any pegboard or shelf into a profit-building professional fuse center with interlocking tilt-bin sets. Bin rows are stocked with assortments of the fastest-selling fuses, holders and accessories. Transparent, tilt-out bins make selection a snap, and let you check inventory at a glance. Bins can be stacked in any combination so you can modify your display to fit your customer's needs.

Reload part numbers are available for AFC-225, NO.225 and NO.227. The reloads are packed in a polybag labeled with the catalog number and UPC code.



#### AFC-90

Two tilt-bin sets containing five each of MAX-20, 30, 40, 50 and 60 A and FMX-20, 30 and 40 A fuses, FLB-70, FLF-20, 30, 40 and 60 A and FLM-60, 80 and 100 A and FLS-30 and 40 A cartridge fuses.



#### AFC-225

Contains: 25 each of glass tube fuses. AGC-5-R, 10-R, 15-R, 20-R, 25-R and 30-R A and SFE-14, 20 and 30 A.



#### NO.225

Contains: 25 each of ATC blade fuses. ATC-3, 4, 5, 7-1/2, 10, 15, 20, 25 and 30 A.



#### NO.227

Contains: Ten each of ATM blade fuses. ATM-2, 3, 5, 7-1/2, 10, 15, 20, 25 and 30 A.

#### Available reload packs

Reloads contain 10 and 25 fuses of the specified ampacity in a poly bag. See table below for available fuses and amp ratings.

Catalog no.	Description						
ATC-(amp)RLD	25 fuses in a poly bag, available amps: 10, 15, 20, 25, 30 A						
ATM-(amp)RLD	10 fuses in a poly bag, available amps: 10, 15, 20, 25, 30 A						



All five units stacked together provide a complete fuse selection for the automotive repair technician or store display. Bins interlock and can be wall-mounted.

### Package color coding

	easylD MIN		IINI BLADE F	USES	BLADE FUSES		MI	LOW PROFILE MINI BLADE FUSES		MICRO FUSES		MAXI BLADE FUSES AND FUSIBLE LINKS		ES KS	GLASS TUBE FUSE		FUSES CIRCUIT BREAKERS A STUD-MOUNT FUSE			ACCESSORIE	ES					
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22				
ROW 1	BP/EFC-FORD	051712694049	BP/EFC-GM	051712694063	BP/EFC-TOYOTA	051712694070		NO.43 051712594356				NO.44 051712597203	NO.53			NO.53 051712501385		NO.64 051712501392	NO.64 051712501392		ATM-FMX-EK 051712510400					
ROW 2	BP/ATM-AID 051712238212	BP/ATM-10ID 051712237949	VP/ATM-10ID 051712238151	BP/ATM-15ID 051712237956	VP/ATM-15ID 051712238168	BP/ATM-20ID 051712237963	VP/ATM-20ID 051712238175	BP/ATM-25ID 051712237970	BP/ATM-30ID 051712237987	BP/ATC-AID 051712238205	BP/ATC-3ID 051712237796	BP/ATC-5ID 051712237819	BP/ATC-10ID 051712237833	BP/ATC-15ID 051712237840	BP/ATC-20ID 051712237857	VP/ATC-20ID 051712238120	BP/ATC-25ID 051712237864	BP/ATC-30ID 051712237871	VP/ATC-30ID 051712238144	BP/ATC-40ID 051712237895	BP/MAX-30ID 051712238007	BP/MAX-40ID 051712238014				
ROW 3	ATM-ID-SK	051712238236	ATC-ID-SK	051712238229	DIA-2	051712593366	BP/ATM-AH8-BPP	051712173087	BP/ATM-A8-RP 051712398992	BP/ATM-AL8-RP 051712173070	BP/ATM-2-RP 051712388399	BP/ATM-5-RP 051712174213	BP/ATM-7-1/2-RP 051712174220	BP/ATM-10-RP 051712174251	VP/ATM-10-RP 051712184410	BP/ATM-15-RP 051712174527	VP/ATM-15-RP 051712184434	BP/ATM-20-RP 051712174565	VP/ATM-20-RP 051712184441	BP/ATM-25-RP 051712174589	BP/ATM-30-RP 051712174664	VP/ATM-30-RP 051712184465				
ROW 4	, czos		051712593359	BP/ATC-AH8-RPP	051712173063	BP/ATC-AL8-RP	BP/ATC.AL8-RP 051712173056 BP/ATC.AE-RP 051712242073		BP/ATC-3-RP 051712173216	BP/ATC-5-RP 051712173223	BP/ATC-7-1/2-RP 051712173230	BP/ATC-10-RP 051712173247	VP/ATC-10-RP 051712184038	BP/ATC-15-RP 051712173254	VP/ATC-15-RP 051712184052	BP/ATC-20-RP 051712173643	VP/ATC-20-RP 051712184113	BP/ATC-25-RP 051712174183	BP/ATC-30-RP 051712174190	VP/ATC-30-RP 051712184182	BP/ATC-40-RP 051712174206					
ROW 5	BP/ATM-A6LP-RP	051712173117	BP/ATM-10LP-RP 051712201957	BP/ATM-15LP-RP 051712201964	BP/ATM-20LP-RP 051712201971	BP/ATM-25LP-RP 051712201988	BP/ATM-30LP-RP 051712201995	BP/ATL-A4-RPP	051712510981	BP/ATR-A7-RPP 051712400985	BP/ATR-5-RP 051712510387	BP/ATR-7-1/2-RP 051712510417	BP/ATR-10-RP 051712499408	BP/ATR-15-RP 051712499415	BP/ATR-20-RP 051712499422	BP/ATR-25-RP 051712510479	BP/ATR-30-RP 051712499439	BP/MAX-20-RP 051712174688	BP/MAX-30-RP 051712174701	BP/MAX-40-RP 051712174855	BP/MAX-50-RP 051712174947	BP/MAX-60-RP 051712175142				
ROW 6	BP/AGC-AL10-RP 061712173124 061712173124 061712173131 061712173131 061712175166 061712175166		BP/AGC-2-RP 051712175654	BP/AGC-3-RP 051712175708	BP/AGC-5-RP 051712175760	BP/AGC-7-1/2-RP 051712176439	BP/AGC-10-RP 051712176682	BP/AGC-15-RP 051712176828	BP/AGC-20-RP 051712177221	BP/AGC-25-RP 051712178389	BP/AGC-30-RP 051712178402	BP/AGA-AI8-RP	051712173179	BP/AGA-AH8-RP	051712173186	BP/AGW-A8-RP 051712173193	BP/AGX-A8-RP 051712173209	BP/GBC-A8-RP 051712173148	BP/MAX-80-RP 051712175159							
ROW 7	BP/SFE-AL6-RP	051712173155	BP/SFE-AH6-RP 051712173162	BP/SFE-14-RP 051712178440	BP/SFE-20-RP 051712178457	BP/SFE-30-RP 051712178464	BP/FMX-20LP-RP 051712182089	BP/FMX-25LP-RP 051712182348	BP/FMX-30LP-RP 051712182188	BP/FMX-40LP-RP 051712182201	BP/FMX-50LP-RP 051712182225	BP/FMX-60LP-RP 051712182232	BP/FMX-20-RP 051712181365	BP/FMX-30-RP 051712181693	BP/FMX-40-RP 051712182058	BP/FMX-50-RP 051712182065	BP/FMX-60-RP 051712182072	BP/FMM-15-RP 051712510950	BP/FMM-20-RP 051712499446	BP/FMM-25-RP 051712510974	BP/FMM-30-RP 051712499453	BP/FMM-40-RP 051712499460				
ROW 8	BP/FLS-30-RP 051712181297	BP/FLS-40-RP 051712181358	BP/FLB-40-RP	051712178532	BP/FLB-50-RP	051712178549	BP/FLB-60-RP 051712178556	BP/FLB-70-RP 051712178563	BP/FI B-80-BP	051712178570	BP/FLD-80-RP 051712178587	BP/FLD-120-RP 051712388511	BP/FLD-140-RP 051712388528	BP/FLF-20-RP 051712178594	BP/FLF-30-RP 051712178600	BP/FLF-40-RP 051712178617	BP/FLF-50-RP 051712178631	BP/FLF-60-RP 051712178938	BP/FLM-60-RP 051712179195	BP/FLM-80-RP 051712179522	BP/FLM-100-RP 051712179706	BP/FLM-120-RP 051712179744				
ROW 9	BP/AGU-50GP-RP 051712178501	BP/AGU-60GP-RP 051712178518	BP/AMG-100-RP	051712697248	BP/AMG-125-RP	051712697255	BP/AMG-150-RP	051712697262	BP/AMG-175-RP	051712182249	BP/AMG-200-RP	051712697279	BP/AMG-250-RP	051712697545	BP/CBC-20HB-RP 51712182287	BP/CBC-30HB-RP 051712182317	BP/CBC-40HB-RP 051712182324	BP/CBC-50HB-RP 051712388856	BP/FCB-20-RP 051712182416	BP/CBB-30-RP 051712182270	BP/UCB-20-RP 051712182430	BP/UCB-30-RP 051712182454				
ROW 10	BP/TB200-04-RP 051712682923		BP/FP-ATM-06ID 051712697750		BP/FB6-ATM 051712531788		BP/15600-06-20 051712273442		ВР/ННG-RР 051712182478		ВР/ННG-RP 051712182478		ВР/ННG-RР 051712182478		BP/HHM-RP	051712182485	BP/HHA-RP 051712182515	ВР/ННН-RР 051712182522	BP/HHLP-RP 051712496698	BP/HHTR-RP 051712496681	BP/HHN-RP 051712182508	BP/HMK-RP 051712182492	BP/FP-A3-RP 051712183789	BP/FT-3-RP 051712183796	BP/CB185-150	051712271325
							Eor nr	odust i	nformo	tion on	d data s	hooto	vioit En	ton oon	o/Puggr	mann						33				



#### Marine-rated circuit breakers

Specifically designed to meet the needs of marine applications, the CB187F and CB187P offer 5 kA @ 12 Vdc interrupting ratings and ignition protection per ABYC E-11. Usable as an ON/OFF switch, they have corrosion resistant plating on 15/16-18 copper terminals.

CB251 and CB255 offer an interrupting rating of 2.5 kA per ABYC E-11 and feature a "Push-to-Trip option and reset mechanism that provides visual indication of a tripped condition.

Amps

10

15

20

25

30 35

40

50

Amps	Catalog no.
10	CB251-10
15	CB251-15
20	CB251-20
25	CB251-25
40	CB251-40
50	CB251-50

<sup>\* 1</sup> Breaker per box, 10 boxes per shelf carton.

Flush mount with push-to-trip

button, 42 Vdc, weatherproof,

marine rated, M6 threaded studs,

stainless steel hardware installed

Catalog no.

CB187F-25

CB187F-30

CB187F-35

CB187F-40

CB187F-50

CB187F-60

CB187F-70

CB187F-80

CB187F-90

CB187F-100

CB187F-110

CB187F-120

CB187F-135

CB187F-150

CB187F-200

Type III-manual reset

CB285F

Amps

25

30

35

40

50

60

70

80

90

100

110

120

135 150

200

# Type I-automatic reset



Amps	Catalog no.*
25	CB285F-25
30	CB285F-30
40	CB285F-40
50	CB285F-50
60	CB285F-60
70	CB285F-70
80	CB285F-80
100	CB285F-100
120	CB285F-120
150	CB285F-150

<sup>\* 1</sup> Breaker per box, 20 boxes per master carton.

# **CB251**

Panel mount, 32 Vdc, weath-
erproof, marine rated, #10-32
threaded studs, stainless steel
hardware installed



Amps	Catalog no.*
25	CB285F-25
30	CB285F-30
40	CB285F-40
50	CB285F-50
60	CB285F-60
70	CB285F-70
80	CB285F-80
100	CB285F-100
120	CB285F-120
150	CB285E-150

#### **CB187F**

Flush mount with pull-to-trip lever, 48 Vdc, weatherproof, marine rated, 5/16-18 threaded studs, stainless steel hardware installed



+	1	Breaker	per	box,	5	boxes per	
	S	helf carto	n.				

#### **CB187P**

Panel mount pull-to-trip lever, 48 marine rated, 5/16-18 threaded studs, stainless steel hardware installed



Amps	Catalog no.
30	CB187P-30
35	CB187P-35
40	CB187P-40
50	CB187P-50
60	CB187P-60
80	CB187P-80
110	CB187P-110
120	CB187P-120
135	CB187P-135
150	CB187P-150

<sup>\* 1</sup> Breaker per box, 120 boxes per master carton.

#### **CB255**

Panel mount push-to-trip button, 32 Vdc, weatherproof, marine rated, #10-32 stainless steel hardware installed



#### **CB285P**

shelf carton.

Panel mount push-to-trip button, 42 Vdc weatherproof, marine rated, M6 threaded studs, stainless steel hardware installed

1 Breaker per box, 10 boxes per

Catalog no.

CB255-10

CB255-15

CB255-20

CB255-25

CB255-30

CB255-35

CB255-40

CB255-50



Amps	Catalog no.*
25	CB285P-25
30	CB285P-30
40	CB285P-40
50	CB285P-50
60	CB285P-60
70	CB285P-70
80	CB285P-80
90	CB285P-90
100	CB285P-100
120	CB285P-120
150	CB285P-150

<sup>\* 1</sup> Breaker per box, 20 boxes per master carton.

#### Marine assortments

#### **NO 108BK**

Marine circuit protection emergency kit in a sturdy, compact reclosable box for replacement of fuses and circuit breakers. A must for commercial or

recreation marine applications.

**Fuses:** Five each of ABC-10, AGC-1-1/2, GMA-2 A, MDA-8, ten of AGC-3, 7-1/2, 15, 25, fifteen of AGC-20, 30.

Circuit breakers: Three CBF-30.

#### BP/AGC-AL10-RP

Contains: (1) each AGC-4, 6 and (2) each 1, 2, 3, 5

AGC fuse assortments for marine accessories and bilge pumps. Includes: (1) each AGC-7-1/2, 25 and (2) each 10, 15, 20, 30

Marine motor protection fuses. Retail pack with two fuses per card. See page 52 for retail pack availability in ratings from 1/2 to 15 amps

#### BP/AGC-SFE-A5-RP

AGC and SFE fuse assortment for marine applications. Contains: (1) each

AGC-10, 15 and 30 A and SFE-14 and 20 A

# JJN - Class T very fast-acting, current-limiting 300 Vac, 160 Vdc fuses



Amps	Catalog no.*
Allips	Catalog 110."
110	JJN-110
125	JJN-125
150	JJN-150
175	JJN-175
200	JJN-200
225	JJN-225
250	JJN-250
300	JJN-300
350	JJN-350
400	JJN-400

<sup>\* 1</sup> Fuse per pack, 5 packs per master carton.

# **CBBF**Marine rated battery fuses



These marine rated fuses are suitable for main and auxiliary Circuit protection (alternator outputs, starter motor inputs and accessories) in demanding environments or tight space constraints. Marine-rated under SAE J1171 for ignition protection. Use with CBBF-MBC mounting bar.

Trad'l
pack*
CBBF-30
CBBF-40
CBBF-50
CBBF-60
CBBF-75
CBBF-80
CBBF-90
CBBF-100
CBBF-125
CBBF-150
CBBF-175
CBBF-200
CBBF-250
CBBF-300

<sup>\* 1</sup> Fuse per pack, 10 packs per shelf carton.

#### **CBBF-MBC**

#### Mounting bar

Mounting bar with 1/4-20 stud, nut and cover for the CBBF battery fuse.

Order catalog number CBBF-MBC\*.

\* 1 Bar per pack, 10 packs per shelf carton.



#### Splash proof covers



Catalog no.	Description	Pack qty.	Shelf qty.	Master qty.
CB-CVR	Cover for stud terminal circuit breaker	1	10	300
BK/CB-CVR	Cover for stud terminal circuit breaker-BULK	_	100	2000
BP/CB20HB-CVR*	CB123-20HB with cover- retail pack	1	5	120
BP/CB40HB-CVR*	CB123-40HB with cover- retail pack	1	5	120

<sup>\*</sup> Packed with CB123-20HB and CB123-40HB.

#### Battery separators manage batteries for reliable starts



Uni-directional and bi-directional versions available.





Attractive retail packaging easily displays on peg boards or stacks on shelves.

- For vehicles and boats with main and auxiliary battery systems and alternator outputs up to 100 amps — or on systems incompatible with battery isolators.
- Battery separators from Sure Power actively manage multi-battery electrical systems to ensure greater reliability for main battery engine starting.
- Battery separators provide a solenoid priority system for multibattery systems.
- When main battery is low, the separator will utilize auxiliary battery power to assist in vehicle starting.
- Separators disconnect main and auxiliary batteries from one another to protect them from excessive drain.
- Time-delay function prevents battery separator from reacting to temporary voltage fluctuations.

Catalog no.	Description
RB-BS-1314	Uni-directional 100 A battery separator — model no. 1314A*
RB-BS-1315	Bi-directional 100 A battery separator — model no. 1315A*

<sup>\*</sup> Use the catalog numbers to order these products.



# Battery isolators ensure reliable engine starts

- Battery isolators prevent auxiliary batteries from draining main battery power in vehicle electrical systems.
- Suited for light truck, RV, select commercial and marine applications.
- Solid-state technology isolates each battery circuit to extend battery life by allowing each to charge and discharge according to need.
- Easily connects alternator to one main and one auxiliary battery.
- Designed by Sure Power, the leader in battery isolators, for superior performance that exceeds original equipment manufacturer specifications.
- Includes wiring and hardware for basic installation; an optional installation kit available for advanced installation.

Catalog no.	Description
RB-BI-70A	70 amp battery isolator w/wiring kit — model no. 702*
RB-BI-95A	95 amp battery isolator w/wiring kit — model no. 9523A*
RB-BI-120A	120 amp battery isolator w/wiring kit — model no. 12023A*
RB-BI-130A	130 amp battery isolator w/wiring kit — model no. 13023A*
RB-BI-240A	240 amp battery isolator w/wiring kit — model no. 24023A*

<sup>\*</sup> Use the catalog numbers to order these products.

# Multi-battery systems

Many vehicles and boats have accessories and other electrical loads, such as lights, entertainment systems and communications equipment that draw power when the engine is off. When applied to a single battery electrical system, main batteries can become drained and present an engine "no-start" condition. Adding an auxiliary battery to operate these additional loads helps avoid this, but it needs more than simply being wired into the electrical system — the auxiliary battery needs to be isolated.

# Why batteries need isolating

Multiple batteries connected in an electrical system can become problematic when a partially discharged, or dead, battery is connected to a fully charged battery. The current in the fully charged battery will flow to the less charged battery until both are equally discharged, or even worse, completely discharged and may prevent the engine from starting.

# Battery isolators manage battery power

A battery isolator can eliminate the problem of battery drain by acting as a check valve between the batteries to prevent current flowing from a fully charged battery to a partially charged battery. A battery isolator enables each battery to act as an independent power source so that the main battery can conserve power even if the auxiliary battery is fully discharged. When charging, the isolator gives priority to the main battery so that there is always a full charge to start the engine.



Battery isolator models are available in 70 A, 95 A, 120 A, 130 A and 240 A versions for alternators with outputs from 70 to 240 amps.



Attractive 70 to 130 amp retail packaging easily mounts on peg boards or stacks on shelves. 240 amp isolator package for shelf display only.

# Battery isolator installation kit and Delco® alternator connector kit

Enhance your battery isolator sales by offering the installation kit RB-BIK-1882 that contains the wire, connectors and hardware needed for an easier installation.

When customers are installing their isolator on a Delco/Delphi CS Series alternator system, also sell them the connector kit that's required for OEM connector modification.

Catalog no.	Description
RB-BIK-1882	Battery isolator installation kit — model no. 1882*
RB-GM-KIT	GM Delco CS Series connector kit — model no. 144-CD*

<sup>\*</sup> Use the catalog numbers to order these products.





Installation kit and GM connector kit increases sales opportunities while easing installation for customers.





#### **Automotive**

Used in older-model cars, glass tube fuses today are found primarily in automotive accessory applications. The expansive Bussmann series line of glass fuses includes many types and sizes in addition to those listed in this catalog. Call Eaton for more product details if you have requirements which are not covered here.

# Appliances and consumer electronics

Glass and ceramic tube fuses are often used to protect appliances and consumer electronics. As electronic equipment becomes smaller, the circuits and components become more delicate and easily damaged. Fuses are the preferred method of protection due to their accuracy, small size and reliability. Fuses are available in a wide variety of amp ratings to provide precise protection. Generally, two sizes of user-replaceable fuses are found: the 1/4" x 1-1/4" and 5x20 mm. Each is available in a variety of volt and amp ratings.

#### **Fuse types**

There are two basic types of fuses available for appliances and consumer electronics: fast-acting or time-delay. Any replacement fuse must match the one it's replacing. In general, fast-acting fuses are a single strand of wire or strip of metal. Time-delay fuses usually have a coiled wire, a thick element wrapped in wire, or a spring. Most electronic fuses will have the voltage and amp rating stamped on the end cap. The type of fuse can generally be visually identified. Also, owner's manuals will have the correct replacement fuse generically identified. For example: "Use a 2 amp, time-delay, 250 volt fuse."

#### Glass and ceramic tube fuse sizes

Both glass and ceramic tube fuses vary by diameter and length. The chart below provides a visual reference for the various sizes of the Bussmann series fuse families. Images are shown to scale.

# Fuse selection criteria

- For electronic/electrical applications, fuses must be rated at 125 V or better.
- Voltage must match or exceed the fuse being replaced (125 V for household current; 12 V for auto; 24 V for heavy duty).
- Fuses must match required fuse characteristic either fast-acting or time-delay.
- · Amp rating must match that of the original fuse.

#### A note on voltage rating

All fuses have a voltage rating. To maintain safety, this voltage rating should not be exceeded in application, although it is acceptable to use a higher voltage rated fuse in a lower voltage application. For example: A fuse rated for 125 volts is appropriate in household (110 V) or automotive (12 V), while a fuse rated for 32 volts is appropriate for automotive (12 V), but not for household (125 V). Always replace a fuse with one of the same or higher voltage rating.

#### See page 54 for specifications.

# Glass and ceramic tube fuse sizes



<sup>\*</sup> Mounts in HLR in-line holder, see page 14.

**Amps** 

1

2

3

5

6 7-1/2

10

15

20

30

1/4

1-1/2

2-1/2

AGA-1/4

AGA-1-1/2

AGA-2-1/2

AGA-1

AGA-2

AGA-3

AGA-5

AGA-6

AGA-7-1/2

AGA-10

AGA-15

AGA-20

AGA-30

# Fast-acting 1/4" diameter automotive fuses

# **AGA**

# 1/4" x 5/8" fast-acting glass tube fuses

See page 28 for available assortments.



# \* 5 Fuses per pack, 10 packs per shelf carton.

Catalog no.\* Retail pack\*\*

BP/AGA-20-RP

# **AGW**

# 1/4" x 7/8" fast-acting automotive glass tube fuses

See page 28 for available assortment.



Amps	Catalog no.*	Retail pack**
1	AGW-1	_
1-1/2	AGW-1-1/2	_
2-1/2	AGW-2-1/2	_
3	AGW-3	_
4	AGW-4	_
5	AGW-5	_
6	AGW-6	_
7-1/2	AGW-7-1/2	_
10	AGW-10	_
15	AGW-15	BP/AGW-15-RP
20	AGW-20	_
30	AGW-30	_
*	1 40	1 16 1

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton. \*\* 5 Fuses per pack, 5 packs per shelf carton.

#### ABC

# 1/4" x 1-1/4" fast-acting ceramic tube fuses

See page 52 for available assortment.



Amps	Catalog no.*	Retail pack**
1/4	ABC-1/4-R	_
1/2	ABC-1/2-R	_
1	ABC-1-R	_
2	ABC-2-R	_
2-1/2	ABC-2-1/2-R	_
3	ABC-3-R	_
4	ABC-4-R	_
5	ABC-5-R	_
6	ABC-6-R	_
7	ABC-7-R	_
8	ABC-8-R	_
10	ABC-10-R	BP/ABC-10
12	ABC-12-R	_
15	ABC-15-R	BP/ABC-15
20	ABC-20-R	BP/ABC-20
25	ABC-25-R	_
30	ABC-30-R	
* F F	10	lia war abalf aartaw

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton. \*\* 2 Fuses per pack, 5 packs per shelf carton.

# AGX

# 1/4" x 1" fast-acting automotive glass tube fuses

See page 28 and 52 for available assortments.



Catalog no.*
AGX-1
AGX-2
AGX-2-1/2
AGX-3
AGX-5
AGX-7
AGX-8
AGX-10
AGX-15
AGX-20
AGX-25
AGX-30

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# GBB

1/4" x 1-1/4" very fastacting ceramic tube fuses



Amps	Catalog no.*
1-1/4	GBB-1-1/4-R
10	GBB-10-R
15	GBB-15-R
30	GBB-30-R

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **AGC**

# 1/4" x 1-1/4" fast-acting automotive glass tube fuses

See pages 27, 28, 32, 35 and 52 for available assortments.



Amps	Catalog no.*	Retail pack**
1/8	AGC-1/8-R	_
1/4 AGC-1/4-R		_
3/10	AGC-3/10-R	
3/8	AGC-3/8-R	_
1/2	AGC-1/2-R	BP/AGC-1/2-RP
3/4	AGC-3/4-R	_
1	AGC-1-R	BP/AGC-1-RP
1-1/4	AGC-1-1/4-R	_
1-1/2	AGC-1-1/2-R	BP/AGC-1-1/2-RP
2	AGC-2-R	BP/AGC-2-RP
2-1/2	AGC-2-1/2-R	BP/AGC-2-1/2-RP
3	AGC-3-R	BP/AGC-3-RP
3-2/10	AGC-3-2/10-R	<del>_</del>
3-1/2	AGC-3-1/2-R	<del>-</del>
4	AGC-4-R	BP/AGC-4-RP
5	AGC-5-R	BP/AGC-5-RP
6	AGC-6-R	BP/AGC-6-RP
6-1/4	AGC-6-1/4-R	<del>-</del>
7	AGC-7-R	_
7-1/2	AGC-7-1/2-R	BP/AGC-7-1/2-RP
8	AGC-8-R	_
10	AGC-10-R	BP/AGC-10-RP
12	AGC-12-R	_
15	AGC-15-R	BP/AGC-15-RP
20	AGC-20-R	BP/AGC-20-RP
25	AGC-25-R	BP/AGC-25-RP
30	AGC-30-R	BP/AGC-30-RP
35	AGC-35-R	BP/AGC-35-RP
40	AGC-40-R	
50	AGC-50	_

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

<sup>\*\* 5</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 5</sup> Fuses per pack, 5 packs per shelf carton.

# **Fast-acting fuses**

# **GBC**

# 1/4" x 31/32" fast-acting German automotive fuses

See page 28 for available assortment.



Color code	Amps	Catalog no.*	Retail pack**
Yellow	5	GBC-5	_
White	8	GBC-8	BP/GBC-8-RP
Red	16	GBC-16	BP/GBC-16-RP
Blue	25	GBC-25	BP/GBC-25-RP

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **SFE**

# 1/4" size-rejecting fast-acting automotive glass tube fuses

See pages 28, 32 and 35 for available assortments.



	Fuse	Catalog	
Amps	length	no.*	Retail pack**
4	5/8"	SFE-4	_
6	3/4"	SFE-6	<del>_</del>
7-1/2	7/8"	SFE-7-1/2	<del>_</del>
9	7/8"	SFE-9	<del>_</del>
14	1-1/16"	SFE-14	BP/SFE-14-RP
20	1-1/4"	SFE-20	BP/SFE-20-RP
30	1-7/16"	SFE-30	BP/SFE-30-RP

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# AGU

# 13/32" x 1-1/2" fast-acting automotive glass tube fuses

Available with gold-plated end caps for high-end stereo and AV markets.





Amps	Catalog no.*	Retail pack**
Nickel-	olated	
10	AGU-10	<del>_</del>
15	AGU-15	_
20	AGU-20	_
25	AGU-25	_
30	AGU-30	_
35	AGU-35	_
40	AGU-40	BP/AGU-40-RP
50	AGU-50	BP/AGU-50-RP
60	AGU-60	BP/AGU-60-RP
Gold-plated		
10	AGU-10GP	_
15	AGU-15GP	_
20	AGU-20GP	_
25	AGU-25GP	<del>_</del>
35	AGU-35GP	<del>_</del>
40	AGU-40GP	BP/AGU-40GP-RP
50	AGU-50GP	BP/AGU-50GP-RP
60	AGU-60GP	BP/AGU-60GP-RP

<sup>\* 10</sup> Fuses per pack, 10 packs per shelf carton.

# Time-delay 1/4" diameter fuses

#### **MDA**

# 1/4" x 1-1/4" time-delay ceramic tube fuses



Amps	Catalog no.*
1	MDA-1-R
1-1/2	MDA-1-1/2-R
2	MDA-2-R
2-1/2	MDA-2-1/2-R
3	MDA-3-R
4	MDA-4-R
5	MDA-5-R
6	MDA-6-R
7	MDA-7-R
8	MDA-8-R
10	MDA-10-R
12	MDA-12-R
15	MDA-15-R
20	MDA-20-R
25	MDA-25-R
30	MDA-30-R
v = =	1 40 1

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

Retail

# MDL

# 1/4" x 1-1/4" time-delay glass tube fuses

See page 52 for available assortment.



Amps	Catalog no.*	pack**
1/16	MDL-1/16-R	
1/8	MDL-1/8-R	_
1/4	MDL-1/4-R	BP/MDL-1/4
3/8	MDL-3/8-R	_
1/2	MDL-1/2-R	BP/MDL-1/2
3/4	MDL-3/4-R	_
1	MDL-1-R	BP/MDL-1
1-1/4	MDL-1-1/4-R	_
1-1/2	MDL-1-1/2-R	BP/MDL-1-1/2
2	MDL-2-R	BP/MDL-2
2-1/2	MDL-2-1/2-R	_
3	MDL-3-R	BP/MDL-3
3-2/10	MDL-3-2/10-R	_
3-1/2	MDL-3-1/2-R	_
4	MDL-4-R	BP/MDL-4
5	MDL-5-R	BP/MDL-5
6	MDL-6-R	BP/MDL-6
6-1/4	MDL-6-1/4-R	_
7	MDL-7-R	BP/MDL-7
7-1/2	MDL-7-1/2-R	_
8	MDL-8-R	BP/MDL-8
10	MDL-10-R	BP/MDL-10
12	MDL-12-R	_
15	MDL-15-R	BP/MDL-15
20	MDL-20-R	_
25	MDL-25	_
30	MDL-30	BP/MDL-30
35	MDL-35	
40	MDL-40	_
*		

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# MDQ

# 1/4" x 1-1/4" dual-element, time-delay glass tube fuses



Amps	Catalog no.*
2	MDQ-2
4	MDQ-4
5	MDQ-5
6	MDO-6

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

<sup>\*\* 5</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 5</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

# Fast-acting 5x20 mm fuses

# **GDA**

IEC 5x20 mm high-breaking capacity fast-acting ceramic tube fuses



Amps	Catalog no.*
500 mA	GDA-500MA
630 mA	GDA-630MA
1	GDA-1A
1.25	GDA-1.25A
1.6	GDA-1.6A
2	GDA-2A
2.5	GDA-2.5A
3.15	GDA-3.15A
4	GDA-4A
5	GDA-5A
6.3	GDA-6.3A

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# Time-delay 5x20 mm fuses

# **GDC**

IEC 5x20 mm time-delay glass tube fuses



Amps	Catalog no.*	Retail pack**
500 mA	GDC-500MA	_
1	GDC-1A	_
1.6	GDC-1.6A	_
2	GDC-2A	_
2.5	GDC-2.5A	_
3.15	GDC-3.15A	_
4	GDC-4A	_
5	GDC-5A	BP/GDC-5A
6.3	GDC-6.3A	_
*		

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **GDB**

IEC 5x20 mm fast-acting glass tube fuses



Amps	Catalog no.*
160 mA	GDB-160MA
2	GDB-2A
4	GDB-4A
6.3	GDB-6.3A
8	GDB-8A
10	GDB-10A

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **GMC**

UL 5x20 mm medium time-delay glass tube fuses



Amps	Catalog no.*	Retail pack**
500 mA	GMC-500-R	BP/GMC-500MA
630 mA	GMC-630-R	<del>-</del>
1	GMC-1-R	_
1.5	GMC-1.5-R	_
1.6	GMC-1.6-R	_
2	GMC-2-R	_
3	GMC-3-R	_
3.5	GMC-3.5-R	_
4	GMC-4-R	_
5	GMC-5-R	BP/GMC-5
6	GMC-6-R	_
7	GMC-7-R	BP/GMC-7

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **GMA**

# UL 5x20 mm fast-acting glass tube fuses

See page 52 for available assortments.



Amps	Catalog no.*	Retail pack**
63 mA	GMA-63-R	_
100 mA	GMA-100-R	_
125 mA	GMA-125-R	_
200 mA	GMA-200-R	BP/GMA-200MA
250 mA	GMA-250-R	BP/GMA-250MA
300 mA	GMA-300-R	_
315 mA	GMA-315-R	_
500 mA	GMA-500-R	BP/GMA-500MA
600 mA	GMA-600-R	_
750 mA	GMA-750-R	BP/GMA-750MA
800 mA	GMA-800-R	_
1	GMA-1-R	BP/GMA-1A
1.25	GMA-1.25-R	_
1.5	GMA-1.5-R	_
1.6	GMA-1.6-R	_
2	GMA-2-R	BP/GMA-2A
2.5	GMA-2.5-R	_
3	GMA-3-R	BP/GMA-3A
3.15	GMA-3.15-R	_
3.5	GMA-3.5-R	_
4	GMA-4-R	_
5	GMA-5-R	BP/GMA-5A
6	GMA-6-R	BP/GMA-6A
7	GMA-7-R	BP/GMA-7A
8	GMA-8-R	
10	GMA-10-R	BP/GMA-10A
v = =	1 10 1	1 16

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **GMD**

# UL 5x20 mm medium time-delay glass tube fuses



Amps	Catalog no.*
500 mA	GMD-500-R
1	GMD-1-R
2	GMD-2-R
3	GMD-3-R

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

# **GMF**

# Non-rejection time-delay in-line fuse with cap



Use with HLR in-line fuse holder page 14.

Amps	Catalog no.*
2-1/2	GMF-2-1/2
2-8/10	GMF-2-8/10
3	GMF-3
3-2/10	GMF-3-2/10
4	GMF-4

<sup>\* 5</sup> Fuses per pack, 10 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

Cartridge fuses are used to protect motors and branch circuits where higher amps or volt ratings are required. They are available in a wide variety of sizes, amp and volt ratings up to 600 Vac and 600 amps. Cartridge fuses are used extensively in commercial, industrial and agricultural applications as well as residential fuse panels, air conditioning, pumps, appliances and other equipment.

Cartridge fuses are available in two types. General purpose fuses have no time-delay and protect fuse panels, appliances and branch circuits. Heavy-duty fuses have a time-delay feature, allowing momentary motor startups.

Both are available in 250 Vac and 600 Vac versions with catalog symbol and amp rating stamped on the knife blade or end cap.

# General purpose one-time NON and NOS

Used in lighting circuits, main panel protection and other circuits that don't contain large electric motors or inductive loads. Up to 60 amp fuses UL Listed Class K5 (IR: 50 kA). 70 to 600 A fuses UL Class H (IR: 10 kA).

# Cartridge fuse dimensions - in (mm)

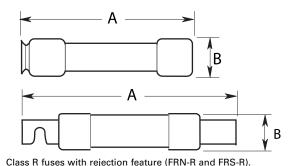
# Ferrule styles\*

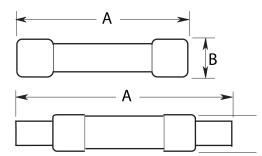
Amp	250 Vac		600 Vac	
range	Α	В	Α	В
1/10-30	2 (50.8)	0.56 (14.3)	5.0 (127.0)	0.81 (20.6)
35-60	3 (76.2)	0.81 (20.6)	5.5 (139.7)	1.06 (27.0)

# Blade styles\*

250 Vac		600 Vac	
Α	В	Α	В
5.88 (149.2)	1.06 (26.9)	7.88 (200.0)	1.34 (34.0)
7.13 (181.0)	1.56 (39.6)	9.63 (244.5)	1.84 (46.7)
8.63 (219.1)	2.06 (52.3)	11.63 (295.3)	2.59 (65.8)
10.38 (263.5)	2.59 (65.8)	13.38 (339.7)	3.13 (79.5)
	5.88 (149.2) 7.13 (181.0) 8.63 (219.1)	A         B           5.88 (149.2)         1.06 (26.9)           7.13 (181.0)         1.56 (39.6)           8.63 (219.1)         2.06 (52.3)	A         B         A           5.88 (149.2)         1.06 (26.9)         7.88 (200.0)           7.13 (181.0)         1.56 (39.6)         9.63 (244.5)           8.63 (219.1)         2.06 (52.3)         11.63 (295.3)

<sup>\*</sup> NON and NOS one-time fuses do not have a rejection feature.





Class H fuses without rejection feature (NON/NOS and CDN/PON).

#### NON

# 250 Vac general purpose non current-limiting Class K5 and H fuses

See page 52 for available assortment.



Amps	Catalog no.*	Retail pack**
2	NON-2	_
3	NON-3	_
5	NON-5	_
6	NON-6	_
10	NON-10	_
15	NON-15	BP/NON-15
20	NON-20	BP/NON-20
25	NON-25	BP/NON-25
30	NON-30	BP/NON-30
35	NON-35	BP/NON-35
40	NON-40	BP/NON-40
45	NON-45	BP/NON-45
50	NON-50	BP/NON-50
60	NON-60	BP/NON-60
70	NON-70	_
80	NON-80	_
90	NON-90	_
100	NON-100	BP/NON-100
125	NON-125	_
150	NON-150	_
200	NON-200	_
250	NON-250	_
300	NON-300	_
400	NON-400	_

<sup>4</sup> 2 - 60 A Fuses, 10 per shelf carton 70 - 100 A Fuses, 5 per shelf carton 125 - 200 A Fuses, 56 per master case 250 - 400 A Fuses, 30 per master carton

\*\* 70 and 100 A Fuses 1 per pack, 15 - 60 A Fuses, 2 per pack, 5 packs per shelf carton.

#### NOS

# 600 Vac general purpose non currentlimiting Class K5 and H fuse



Amps	Catalog no.
6	NOS-6
10	NOS-10
15	NOS-15
20	NOS-20
25	NOS-25
30	NOS-30
35	NOS-35
40	NOS-40
50	NOS-50
60	NOS-60
100	NOS-100
200	NOS-200

\* 2 - 60 A Fuses, 10 per shelf pack 100 A Fuses, 80 per master pack 200 A Fuses, 35 per master pack

#### Fusetron™ energy efficient FRN-R fuses

Bussmann series Fusetron cartridge fuses are 23% more energy efficient\* and offer the best time-delay performance. Their dual-element feature allows closer sizing to load for superior protection of motors and transformers. These Class RK5 fuses with a 200 kA interrupting rating can be used in a broad range of applications.

When sized correctly, they help protect motors from burnout caused by overloads or single-phasing. The time-delay feature allows the initial startup current surge for typical motors to pass, but opens prior to motor burnout when longer, dangerous overloads are present. In addition, the dual-element design opens in as little as 0.004 second if the fuse experiences short-circuit conditions. All fuses are UL Listed Class R (IR: 200 kA). Groove in end cap or notch in knife blade permit the fuse to be used in only Class H, Class K or Class R fuse blocks.

\*Test results are based on weighted sales volume of Fusetron and Ferraz Shawmut (Mersen) fuses by selected amp and volt rating combination. Next leading brand refers to Ferraz Shawmut based on third-party fuse market share data for a twenty-seven month period (July 2008 through September 2010).

# FRN-R fuses with easyID blown fuse indication

Featuring the same energy efficiency and electrical performance characteristics as their green label non-indicating versions, *easyID* FRN-R fuses offer consumers the additional advantage of blown fuse status that makes finding the open fuse easier and faster.

FRN-R- ID

250 Vac indicating dual-element, time-delay Class RK5 fuses

Amps	Catalog no.*	easyID retail pack**
15	FRN-R-15ID	BP/FRN-R-15ID
20	FRN-R-20ID	BP/FRN-R-20ID
30	FRN-R-30ID	BP/FRN-R-30ID
40	FRN-R-40ID	BP/FRN-R-40ID
50	FRN-R-50ID	BP/FRN-R-50ID
60	FRN-R-60ID	BP/FRN-R-60ID

<sup>\* 10</sup> Fuses per shelf carton.

#### FRN-R

# 250 Vac non-indicating dual-element, time-delay Class RK5 fuses

See page 52 for available assortments.

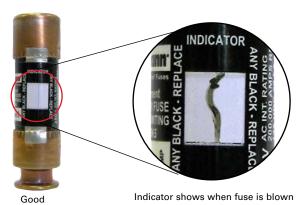


Up to 60 A

FRINK 1

Catalog no.\* Retail pack\*\* FRN-R-1 2 FRN-R-2 FRN-R-3 3 4 FRN-R-4 5 FRN-R-5 6 FRN-R-6 FRN-R-6-1/4 6-1/4 FRN-R-7 FRN-R-8 8 10 FRN-R-10 BP/FRN-R-10 FRN-R-12 12 FRN-R-15 15 BP/FRN-R-15 FRN-R-17-1/2 17-1/2 20 FRN-R-20 BP/FRN-R-20 FRN-R-25 25 BP/FRN-R-25 30 FRN-R-30 BP/FRN-R-30 35 FRN-R-35 BP/FRN-R-35 40 FRN-R-40 BP/FRN-R-40 FRN-R-45 45 BP/FRN-R-45 50 FRN-R-50 BP/FRN-R-50 60 FRN-R-60 BP/FRN-R-60 70 FRN-R-70 75 FRN-R-75 80 FRN-R-80 90 FRN-R-90 100 FRN-R-100 BP/FRN-R-100 150 FRN-R-150 FRN-R-200 200

# easyID blown fuse indication



<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\* 1 - 60</sup> A Fuses, 10 per shelf carton 70 - 100 A Fuses, 5 per shelf carton 150 - 200 A Fuses, 40 per master case

<sup>\*\* 10 - 60</sup> A Fuses, 2 per pack 100 A Fuse, 1 per pack, 5 packs per shelf carton.

#### Fusetron energy efficient FRS-R fuses

These cartridge fuses are 23% more energy efficient\* and offer the best time-delay performance. Their dual-element feature allows closer sizing to load for superior protection of motors and transformers. These Class RK5 fuses with a 200 kA interrupting rating can be used in a broad range of applications.

When sized correctly, they help protect motors from burnout caused by overloads or single-phasing. The time-delay feature allows the initial startup current surge for typical motors to pass, but opens prior to motor burnout when longer, dangerous overloads are present. In addition, the dual-element design opens in as little as 0.004 second if the fuse experiences short-circuit conditions. All fuses are UL Listed Class R (IR: 200 kA).

\* Test results are based on weighted sales volume of Fusetron and Ferraz Shawmut (Mersen) fuses by selected amp and volt rating combination. Next leading brand refers to Ferraz Shawmut based on third-party fuse market share data for a twenty seven month period (July 2008 through September 2010).

# FRS-R

# 600 Vac indicating and non-indicating dual-element, time-delay Class RK5 fuses

Catalog no.\*

With easyID

Retail pack\*\*

indication



Up to 60 A



	ДПІРЗ	Outulog 110.	maioation	netun puek
	2	FRS-R-2	_	_
	3	FRS-R-3	_	_
	3-1/2	FRS-R-3-1/2		
	4	FRS-R-4		_
	5	FRS-R-5	_	_
	6	FRS-R-6	FRS-R-6ID	_
	6-1/4	FRS-R-6-1/4	FRS-R-6-1/4ID	_
	7	FRS-R-7	FRS-R-7ID	_
	8	FRS-R-8	FRS-R-8ID	_
	10	FRS-R-10	FRS-R-10ID	_
	12	FRS-R-12	FRS-R-12ID	_
	15	FRS-R-15	FRS-R-15ID	BP/FRS-R-15
	17-1/2	FRS-R-17-1/2	FRS-R-17-1/2ID	_
	20	FRS-R-20	FRS-R-20ID	BP/FRS-R-20
	25	FRS-R-25	FRS-R-25ID	_
	30	FRS-R-30	FRS-R-30ID	BP/FRS-R-30
	35	FRS-R-35	FRS-R-35ID	_
	40	FRS-R-40	FRS-R-40ID	_
	45	FRS-R-45	FRS-R-45ID	_
	50	FRS-R-50	FRS-R-50ID	_
	60	FRS-R-60	FRS-R-60ID	BP/FRS-R-60
	70	FRS-R-70	_	_
	80	FRS-R-80	_	_
	90	FRS-R-90		
	100	FRS-R-100		
	125	FRS-R-125	_	_
	150	FRS-R-150	_	_
	175	FRS-R-175		
	200	FRS-R-200		
•	* 2 60	A F., and 10 mar al	alf aartan	·

<sup>\* 2 - 60</sup> A Fuses, 10 per shelf carton
70 -100 A Fuses, 5 per shelf carton
125 - 200 A Fuses, 20 per master case

# CDN Type D and PON Type P CSA Certified standard code fuses

Economical fuses for a variety of applications where available short-circuit current is relatively low.



Retail

# CDN

**PON** 

250 Vac CSA Type P one-time fuses

PON60

# 250 Vac CSA Type D time-delay fuses



Amps	no.*	pack**	
10	CDN10	_	
12	CDN12	_	
15	CDN15	BP/CDN10	
20	CDN20	BP/CDN20	
25	CDN25	BP/CDN25	
30	CDN30	BP/CDN30	
35	CDN35	BP/CDN35	
40	CDN40	BP/CDN40	
45	CDN45	BP/CDN45	
50	CDN50	BP/CDN50	
60	CDN60	BP/CDN60	
100	CDN100	_	
110	CDN110	_	
175	CDN175	_	
200	CDN200	_	
* 10 - 60 A Fuses, 10 per shelf carton.			

Catalog

- 10 60 A Fuses, 10 per shelf carton. 100 - 200 A Fuses, 1 per shelf carton 40 per master case
- \*\* 1 Fuse per pack, 5 packs per shelf carton.

	_
2	0
2	5
3	0
3	5
4	0
4	5
5	0
6	0
*	10
* *	1
	С

	Catalog	Retail
Amps	no.*	pack**
15	PON15	BP/PON15
20	PON20	BP/PON20
25	PON25	BP/PON25
30	PON30	BP/PON30
35	PON35	BP/PON35
40	PON40	BP/PON40
45	PON45	BP/PON45
50	PON50	BP/PON50
60	PON60	BP/PON60

<sup>\* 10</sup> Fuses per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

# Midget fuses

Midget fuses are 13/32" x 1-1/2" cartridge fuses in a wide variety of volt and amp ratings to provide supplemental protection to industrial, commercial, agricultural, heating, ventilating and air conditioning equipment. Small size midget fuses often protect control circuit wiring, motor control transformers or small motors. The National Electrical Code® (NEC®) now requires more protection of these components creating an increased replacement demand for these fuses.

# **BAF**

250 Vac fast-acting 13/32" x 1-1/2" midget fuses



Amps	Catalog no.*
1	BAF-1
3	BAF-3
5	BAF-5
6	BAF-6
10	BAF-10
15	BAF-15
20	BAF-20
25	BAF-25
30	BAF-30

<sup>\* 10</sup> Fuses per shelf carton.

# **KTK**

600 Vac fast-acting 13/32" x 1-1/2" midget fuses



Amps	Catalog no.*	Retail pack**
1	KTK-1	BP/KTK-1
2	KTK-2	BP/KTK-2
3	KTK-3	BP/KTK-3
4	KTK-4	_
5	KTK-5	BP/KTK-5
6	KTK-6	_
10	KTK-10	BP/KTK-10
15	KTK-15	BP/KTK-15
20	KTK-20	BP/KTK-20
25	KTK-25	_
30	KTK-30	BP/KTK-30

<sup>\* 10</sup> Fuses per shelf carton.

# **Class CC fuses**

The rejection midget fuses are Class CC and are suitable for both branch circuit and supplemental protection.

# KTK-R

600 Vac fast-acting 13/32" x 1-1/2" Class CC branch circuit fuses



Amps	Catalog no.*
1/2	KTK-R-1/2
1	KTK-R-1
2	KTK-R-2
3	KTK-R-3
4	KTK-R-4
5	KTK-R-5
6	KTK-R-6
8	KTK-R-8
10	KTK-R-10
12	KTK-R-12
15	KTK-R-15
20	KTK-R-20
25	KTK-R-25
30	KTK-R-30

<sup>\* 10</sup> Fuses per shelf carton.

# There's more to offer! Talk to your Bussmann ser

Talk to your Bussmann series product sales representative about other available amp ratings.



<sup>\*\* 1</sup> Fuse per pack, 5 packs per shelf carton.

# **FNM**

# 250 Vac time-delay 13/32" x 1-1/2" midget fuses

See page 52 for available assortments.



		Retail
Amps	Catalog no.*	pack**
1/2	FNM-1/2	_
6/10	FNM-6/10	_
1	FNM-1	_
2	FNM-2	BP/FNM-2
2-1/2	FNM-2-1/2	_
3	FNM-3	_
3-2/10	FNM-32/10	_
3-1/2	FNM-3-1/2	_
4	FNM-4	_
5	FNM-5	BP/FNM-5
6	FNM-6	<u> </u>
6-1/4	FNM-6-1/4	_
7	FNM-7	_
8	FNM-8	_
9	FNM-9	_
10	FNM-10	BP/FNM-10
12	FNM-12	BP/FNM-12
15	FNM-15	BP/FNM-15
20	FNM-20	BP/FNM-20
25	FNM-25	_
30	FNM-30	BP/FNM-30
* 10 [	or abalf sames	

<sup>\* 10</sup> Fuses per shelf carton.

# FNQ 500 Vac time-delay 13/32" x 1-1/2" midget fuses



Amps	Catalog 110."
1/2	FNQ-1/2
1	FNQ-1
1-1/2	FNQ-11/2
2	FNQ-2
2-1/2	FNQ-2-1/2
3	FNQ-3
4	FNQ-4
5	FNQ-5
6	FNQ-6
7	FNQ-7
8	FNQ-8
10	FNQ-10
12	FNQ-12
15	FNQ-15
20	FNQ-20
25	FNQ-25
30	FNQ-30

<sup>\* 10</sup> Fuses per shelf carton.

# FNQ-R

# 600 Vac time-delay 13/32" x 1-1/2" Class CC branch circuit fuses



Amps	Catalog no.*
1/2	FNQ-R-1/2
1	FNQ-R-1
2	FNQ-R-2
3	FNQ-R-3
4	FNQ-R-4
5	FNQ-R-5
6	FNQ-R-6
6-1/4	FNQ-R-6-1/4
7-1/2	FNQ-R-7-1/2
8	FNQ-R-8
10	FNQ-R-10
12	FNQ-R-12
15	FNQ-R-15
20	FNQ-R-20
30	FNQ-R-30
* 10 Fuese	

<sup>\* 10</sup> Fuses per shelf carton.

# SC

# Specialty Class G rejection fuses

- 600 Vac fast-acting (1/2-6 A)
- 600 Vac time-delay (7-20 A)
- 480 Vac time-delay (25-60 A)



Amps	Fuse length	Catalog no.*	Retail pack**
2	1.31"	SC-2	_
3	1.31"	SC-3	_
5	1.31"	SC-5	_
6	1.31"	SC-6	_
8	1.31"	SC-8	_
10	1.31"	SC-10	_
15	1.31"	SC-15	BP/SC-15
20	1.41"	SC-20	BP/SC-20
25	1.62"	SC-25	BP/SC-25
30	1.62"	SC-30	BP/SC-30
40	2.25"	SC-40	_
60	2.25"	SC-60	_
× 40 F	1 16		

- \* 10 Fuses per shelf carton.
- \*\* 2 Fuses per pack, 5 packs per shelf carton.

These highly compact branch circuit fuses are used in residential, mobile home and industrial applications. They have a minimum 300 volt rating and are available up to 60 A. All SC fuses are 13/32" in diameter with varying lengths to provide a rejection feature that helps prevent over fusing (installing a 30 amp fuse in a 20 A circuit). One half to 6 A SC fuses are fast-acting, while 7 to 60 A SC fuses are time-delay to permit temporary overloads to pass without nuisance openings.

See page 52 for available assortment.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

# Plug fuses

Plug fuses thread into receptacles. Two types of threaded fuses are available: Edison base (brass) and rejection base (porcelain). The two are not interchangeable. TL and SL medium-duty fuses are regular duty fuses. T and S are heavy duty fuses for more demanding applications with high inrush currents. They feature a dual-element design that provides superior short-circuit and overload protection.

Plug fuses are often used in residential applications to protect furnace blower motors, pumps, power tools, garage door openers, etc. Edison base plug fuses for motor protection are often used in conjunction with branch circuit protection and located in a box cover unit (see page 50).

Plug fuses provide a compact and economical method to prevent electric motor damage, reduce downtime and lower maintenance costs by opening when an overload is present.

When used for residential branch circuit protection, fuses are typically located in the main fuse panel.

# Edison base plug fuses and circuit breakers

The Edison base plug fuse uses the same thread as a light bulb base. All amp ratings will fit the same fuse receptacle. To help prevent overfusing a circuit — installing a fuse with a greater amp rating than the circuit can handle — it is recommended to install the correctly sized SA rejection base fuse adapter and use a correctly rated S or SL fuse.

# BP/MB





#### 125 Vac Edison base UL circuit breakers

For replacing Edison base plug fuses in residential fuse panels. Not for use in box cover units.

Amps	Retail pack*
15	BP/MB-15
20	BP/MB-20

<sup>\* 1</sup> Circuit breaker per pack, 5 packs per shelf carton.

# Type T



# 125 Vac dual-element, time-delay, Edison base plug fuses

Heavy duty T fuses are used for air conditioners, furnace blower motors, swimming pool pumps, deep freezers or any circuit where motors frequently turn ON and OFF. The T plug fuse is an industrial strength and provides superior protection that will resist nuisance openings under repeated motor startups. Available in a wide amp range to permit exact sizing to motor load.

Catalog	Retail
no. °	pack**
T-1-1/4	_
T-1-6/10	_
T-3-2/10	BP/T-3-2/10
T-4	_
T-5	_
T-6-1/4	BP/T-6-1/4
T-8	BP/T-8
T-10	BP/T-10
T-12	BP/T-12
T-15	BP/T-15
T-20	BP/T-20
T-25	BP/T-25
T-30	BP/T-30
	no.* T-1-1/4 T-1-6/10 T-3-2/10 T-4 T-5 T-6-1/4 T-8 T-10 T-12 T-15 T-20 T-25

<sup>\* 4</sup> fuses per box, 25 packs per shelf carton.

# Type TL

# 125 Vac time-delay Edison base plug fuses



Medium dutyTL fuses are used for residential motor circuits in kitchens, workshops, garages and utility rooms.

See page 52 for available emergency kit.

Amps	Catalog no.*	Retail box*	Retail pack**
15	TL-15	TL-15PK4	BP/TL-15
20	TL-20	TL-20PK4	BP/TL-20
25	TL-25	TL-25PK4	BP/TL-25
30	TL-30	TL-30PK4	BP/TL-30

<sup>\* 4</sup> Fuses per box.

<sup>\*\*</sup> Less than 15 A, 1 fuse per pack, 15 - 30 A, 2 fuses per pack, 5 packs per shelf carton.

<sup>\*\* 3</sup> Fuses per pack, 5 packs per shelf carton.

#### Rejection base plug fuses

The rejection base threads prevent installing a larger amp fuse, e.g., a 30 amp fuse cannot be installed in a 20 amp socket.

Type S



# 125 Vac dual-element, time-delay, rejection base plug fuses

UL and CSA heavy-duty S fuses are for use in air conditioners, furnace blower motors, swimming pool pumps, deep freezers or where motors frequently turn ON and OFF. The S rejection base plug fuse is an industrial strength product and provides superior protection

Amps	Catalog no.*	Retail pack**
1-1/4	S-1-1/4	BP/S-1-1/4
1-6/10	S-1-6/10	BP/S-1-6/10
3-2/10	S-3-2/10	BP/S-3-2/10
3-1/2	S-3-1/2	_
4	S-4	_
5	S-5	_
6-1/4	S-6-1/4	BP/S-6-1/4
7	S-7	_
8	S-8	BP/S-8
10	S-10	BP/S-10
12	S-12	BP/S-12
15	S-15	BP/S-15
20	S-20	BP/S-20
25	S-25	BP/S-25
30	S-30	BP/S-30

<sup>4</sup> Fuses per box.

that will resist nuisance openings under repeated motor startups. Available in a wide amp range to permit exact sizing to motor load.

Type SL



Amps	Catalog no.*	Retail box*	Retail pack**
15	SL-15	SL-15PK4	BP/SL-15
20	SL-20	SL-20PK4	BP/SL-20
25	SL-25	SL-25PK4	BP/SL-25
30	SL-30	SL-30PK4	BP/SL-30

<sup>\* 4</sup> Fuses per box.

Catalog

SA-1-1/4 SA-1-6/10

SA-20BS

SA-15

SA-30

no.\*

SA-1

Retail

pack\*\*

BP/SA-15

BP/SA-20

BP/SA-30

# 125 Vac time-delay, rejection base plug fuses

SL fuses for residential motor circuits in kitchens, workshops, garages and utility rooms.

See page 52 for available emergency kit.

Type SA



Fustat adapters for using	•
S and SL rejection plug	
fuses in Edison base sockets	

\* 4 SA Adapters per box. \*\* 3 SA Adapters per pack, 5 packs per shelf carton.

20

Amp range

1.25 or less

1.6 or less 7 to 15

20 to 30

1 or less

SA adapters convert Edison base receptacles to accept a rejection base fuse. SA adapters limit the fuse amp rating that can be installed to protect circuits from being overfused and are available in a variety of sizes to deliver the desired fuse rejection.

See page 52 for available assortment.

# CSA Edison base plug fuses

The base is the same as a light bulb base. All amp ratings fit the same fuse receptacle.



Type TC Type T equivalent



	Retail	Retail
Amps	box*	pack**
15	TC-15PK4	BP/TC-15
20	TC-20PK4	BP/TC-20
25	TC-25PK4	BP/TC-25
30	TC-30PK4	BP/TC-30

<sup>\* 4</sup> Fuses per box.

# 125 Vac CSA Type D dual-element time-delay Edison base plug fuses

Heavy duty TC fuses are used for residential motor circuits in kitchens, workshops, garages and utility rooms.

See page 52 for available emergency kit.

Type P Type TL equivalent



	Retail	Retail
Amps	box*	pack**
15	P-15PK4	BP/P-15
20	P-20PK4	BP/P-20
25	P-25PK4	BP/P-25
30	P-30PK4	BP/P-30

<sup>\* 4</sup> Fuses per box.

# 125 Vac CSA Type P dual-element one-time Edison base plug fuses

Medium-duty P fuses are used for non-inductive loads such as lighting and heating circuits.

See page 52 for available emergency kit.

# CP/MB



Amps	Retail pack*
15	CP/MB-15
20	CP/MB-20

<sup>1</sup> Circuit breaker per pack. 5 packs per shelf carton.

# 125 Vac CSA Edison base circuit breakers

For replacing Edison base plug fuses in residential fuse panels. Not for use in box cover units.

Less than 15 A, 1 per pack; 15 to 30 A, 2 per pack, 5 packs per shelf carton.

<sup>\*\* 3</sup> Fuses per pack, 5 packs per shelf carton.

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton

<sup>\*\* 2</sup> Fuses per pack, 5 packs per shelf carton.

#### Box cover units

# For supplemental circuit and small motor protection

Box cover units are available in a variety of styles that fit standard electrical boxes, to provide an efficient and economical method to protect motors from overloads. Often, branch circuit protection cannot protect small motors, e.g., a 6-1/4 amp rated motor will likely burn up before a 30 amp breaker trips. A box cover unit permits using a fuse sized close to the motor's load so that it opens when the motor draws too much current.



SSY

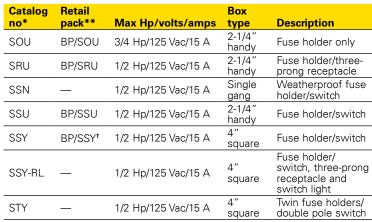












- \* 1 Box cover unit per pack, 10 packs per shelf carton.
- 1 Box cover unit per pack, 3 packs per shelf carton.
- † 1 Box cover unit per pack, 2 packs per shelf carton.





<sup>\*</sup> Double pole switch opens both sides of the circuit. Can be used for two separate motors with common switch or a single motor (3/4 Hp, 250 Vac max.)

# SurgePOD™ PRO Type 1 power surge protective device, the value SPD for sensitive residential applications

- Type 1 UL and cULus Listed 1449 4th Edition SPD is easily installed on the loadside or lineside of the service entrance overcurrent protective device.
- For 240 Vac, split-phase electrical systems.
- 200 kA SCCR.
- Compact UV resistant NEMA 4X enclosure for indoor or outdoor applications.
- · easyID LED status indicators provide surge protection status at a glance.
- · Voltage specific model protects electrical systems, equipment, appliances and consumer electronics better than "One-Size-Fits-All" economy SPDs.
- Two-year warranty (see warranty statement 3A1502 for details).
- · Thermal disconnect MOV technology eliminates the need for additional fusing.

See data sheet No. 10033 for technical specifications.

Retail pack*	System voltage	Description
RB-SPP-240PN	240 Vac	Split-phase, 3 wire, 3 connection points

<sup>\* 1</sup> SurgePOD PRO per pack, 4 packs per master carton.



# Automotive blade and glass tube fuse pullers and testers



Remove automotive fuses quickly and easily with the FP-A3 fuse puller. The innovative tool design lets you remove or install both blade-type and glass fuses.

The FT-3 combination fuse tester/puller is designed for easy one-handed testing of glass and blade fuses. Light glows when fuse is good.

# Cartridge fuse pullers



Bussmann series cartridge fuse pullers are heavy-duty tools for safely removing fuses from their blocks. Can be used with all cartridge fuses matching fuse diameter range.

Catalog no.*	Retail pack**	Description	
Automot	ive fuse pullers	-	
FP-A3	BP/FP-A3-RP	Fuse puller only	
_	BP/FT-2	Fuse tester only †	
FT-3	BP/FT-3-RP	Fuse puller and tester †	
Cartridge fuse pullers			
FP-2	BP/FP-2	Puller - 1 to 60 A (13/32" to 1-3/16" Dia.)	
FP-3	BP/FP-3	Puller - 70 to 200 A (1" to 1-1/4" Dia.)	
FP-4	_	Puller - 225 to 600 A (1-3/4" to 2-1/2" Dia.)	
FP-6	_	Puller - 0 to 60 A Class T fuses	

- \* FP-A3 and FT-3, 1 fuse puller per pack, 10 packs per shelf carton.
- \*\* 1 Fuse puller per pack, 5 packs per shelf carton.
- † Replacement batteries: 364 (Energizer/Rayovac), D364 (Duracell), SR621SW (Maxell/Sony)

# NON and FRN-R 250 volt fuse reducers









NO.263 60/30 A NON fuse reducers

NO.263-R 60/30 A FRN-R fuse reducers









NO.216-R 100/60 A FRN-R fuse reducers

NO.2621-R 200/100 A FRN-R fuse reducers

Fuse reducers allow a smaller size fuse to be installed in a fuse block intended for a larger fuse. For example: a 30 amp fuse is two inches long and will not fit into a 60 amp fuse block (which is three inches between clips). A NO.263 reducer installed on the fuse permits it to be installed in a 60 amp fuse block. Reducers are particularly useful when equipment is being converted. Proper protection can be maintained without the expense of replacing the fuse block. Catalog numbers with the "-R" suffix (NO.263-R) fit rejection Class R fuse blocks. Consult your Bussmann series sales rep or distributor for 600 volt and Class J reducers.

Catalog no.*	Fuse block size (amps)	Fuse size (amps)
NON 250 Vac Cla	ss H reducers	
NO.263	60	30
FRN-R 250 Vac Class R reducers		
NO.263-R	60	30
NO.216-R	100	60
NO.2621-R	200	100

<sup>\*10</sup> Fuse reducers per shelf carton.

# Hardware packaging and assortments

Popular fuse assortments and kits to meet the needs of appliance and residential circuit protection.

#### Retail hardware fuse assortments

BP/ABC-A	Microwave oven fuse assortment, ABC-10, (2)15
DF/ADC-A	and (2)20 A

High amp FNM cartridge fuse assortment: **BP/FNM-AH** 

FNM-15 and 20 A

Low amp FNM cartridge fuse assortment: **BP/FNM-AL** 

FNM-5 and 10 A

High amp FRN-R Class RK5 fuse assortment: **BP/FRN-AH** 

FRN-R-35 and 50 A

Low amp FRN-R Class RK5 fuse assortment: **BP/FRN-AL** 

FRN-R-15 and 25 A

High amp GMA electronic glass tube fuse BP/GMA-AH

assortment: two each GMA-3-R, 5-R and 6-R A

Low amp GMA electronic glass tube fuse **BP/GMA-AL** 

assortment: two each GMA-500MA-R, 1-R and

2-R A

Low amp MDL electronic glass tube fuse **BP/MDL-AL** 

assortment: one each MDL-1/2-R, 1-R, 2-R, 3-R, 5-R

Low amp NON cartridge fuse assortment: **BP/NON-AL** 

NON-15 and 25 A

Fustat rejection base plug fuse adapter assortment: BP/SA-A

SA-15 and 20 A

BP/SC-A SC Class G fuse assortment: SC-15 and 20 A

Mobile phone, electronic equipment and stereos HEF-1

assortment: (2)AGC-1, (1)2 and (2)3 A

Computers and peripherals assortment: HEF-2

MDL-1/2, 1 and 2 A; GDC-1 and 2 A

# Retail hardware fuse emergency kits

SL rejection base plug Fuse kit: (3)15, (2)20 and30 A SL-EK

and FT-3 fuse tester/puller

TL Edison base plug fuse kit: 15, (2)20 and (3)30 A TL-EK

and FT-3 fuse tester/puller

CSAType D Edison base plug fuse kit: (3)15, (1)20, TC-EK

(2)30 A and FT-3 fuse tester/puller

CSAType P Edison base plug fuse kit: (3)15, (1)20, P-EK

(2)30 A and FT-3 fuse tester/puller

# Holiday light fuses

Useful year-round, these fuses come in handy for keeping the lights on and the festivities going strong.

# Year-round holiday and party light fuses

MAS 3x10 mm fast-acting 3 amp fuses. Five BP/MAS-3A\*

fuses per pack.

GMA 5x20 mm fast-acting 5 amp fuses. Two BP/GMA-5A\*

fuses per pack.

One carton of 10 BP/MAS-3A with clip strip BP/MAS-3A-CS

included.

# Christmas light counter displays with two clip strips\*

GMA 5x20 mm fast-acting 5 amp fuses. Five BP/GMA-5XM

fuses per pack.

MAS 3x10 mm fast-acting 3 amp fuses. Five BP/MAS-3X5

fuses per pack.

AGX 1/4" x 1-1/4" fast-acting 7 amp fuses. Five BP/AGX-7X5

fuses per pack.

BP/XMAS-6F AGC-7-R, AGX-7, (2)GMA-5-R and (2)MAS-3 A

Assortment fuses. Total six fuses per pack.

<sup>\*20</sup> Packs per display.



BP/AGX-7X5



BP/MAS-3A



BP/GMA-5A



BP/XMAS-6F

<sup>\*</sup>Five packs per shelf pack.



# Retail hardware planogram

Color-coded packaging for fast, easy product selection.

# Visual categorization

- · Color-coded Bussmann series retail packaging.
- Fast and easy product identification.
- · Provides increased shoppability and faster merchandising.

# Merchandising ease

- Retail set is simple and straightforward.
- · Color-coding encourages return of product to correct gondola peg.
- · Reduces need for assistance by store personnel.

# **Consumer friendly**

- · Fuse center is easily located.
- · Point-of-sale identifies fuse types.
- · Package color codes identify product category.

Catalog no.	Description
2FTHDWR-KIT	95 SKU hardware prepak. Includes one of each retail pack, a complete set of reorder tags and a header card as pictured.
2FTHDWR-TAGS	Replacement set of UPC reorder tags for the 2FTHDWR-KIT. Allows for creating a custom planogram. Order tags through your Bussmann series product rep.

For details on hardware planogram product SKUs, visit Eaton.com/BussmannConsumerPOG



2FTHDWR-TAGS UPC reorder tags.



**2FTHDWR-KIT**Peg hooks and gondola not included.

# 2FTHDWR-KIT planogram layout

	Column 1	Column 2	Column 3	Column 4	Column 5	Colu	mn 6	Column 7	Column 8		Column 9	Colu	mn 10	Column 11
ROW 1	BP/AGC-1-2-RP 051712388559	BP/AGC-1-RP 051712175166	BP/AGC-1-1/2-RP 051712388542	BP/AGC-2-RP 051712175654	BP/AGC-3-RP 051712175708	BP/AGC- 0517121		BP/AGC-5-RP 051712175760	BP/AGC-10-RP 051712176682		/AGC-15-RP 1712176828	BP/AGC 0517121		BP/AGC-30-RP 051712178402
ROW 2	BP/MDL-1-2 051712813358	BP/MDL-1 051712813365	BP/MDL-2 051712813389	BP/MDL-3 051712813396	BP/MDL-4 051712813204	BP/MDL- 0517128		BP/MDL-6 051712813211	BP/MDL-7 051712813228		/MDL-8 1712813235	BP/MDL 0517128		BP/MDL-15 051712814942
ROW 3	BP/GMA-250MA 051712614498	BP/GMA-500MA 051712614504	BP/GMA-750MA 051712539012	BP/GMA-1A 051712617635	BP/GMA-2A 051712617642	BP/GMA 0517126		BP/GMA-5A 051712617666	BP/GMA-6A 051712617673		/GMA-7A 1712623117	BP/GM0 0517127		BP/GDC-5A 051712618199
ROW 4	BP/ATC-3-RP 051712173216	BP/ATC-5-RP 051712173223	BP/ATC-3ID 051712237796	BP/ATC-5ID 051712237819	BP/ABC-10 051712813419	BP/ABC- 0517121		BP/ABC-20 051712249508	BP/MAS-3A 051712637084	HE 05	F-1 1712161015		HEF-2 0517121	61022
ROW 5	BP/FNM-5 051712751674	BP/FNM-10 051712751681		P/FNM-15 51712751704	BP/FNM-20 051712617598		BP/FNM- 0517126		BP/SC-15 051712617611		BP/SC-20 051712593120	)	BP/SC-3 0517125	
ROW 6	BP/FRN-R-10 051712617628	BP/FRN-R-15 051712112017		P/FRN-R-15ID 51712237178	BP/FRN-R-20ID 051712237116		BP/FRN- 0517122		BP/FRN-R-40ID 051712237130		BP/FRN-R-50I 051712237147		BP/FRN- 0517122	
ROW 7	BP/FRN-R-20 051712112024	BP/FRN-R-25 051712112031		P/FRN-R-30 51712112048	BP/FRN-R-35 051712112055		BP/FRN- 0517121		BP/FRN-R-45 051712112079		BP/FRN-R-50 051712112086	5	BP/FRN- 0517121	
ROW 8	BP/NON-15 051712111010	BP/NON-20 051712111027		P/NON-25 51712111034	BP/NON-30 051712111041		BP/NON 0517121		BP/NON-40 051712111065		BP/NON-50 051712111089		BP/NON 0517121	
ROW 9	BP/TL-A 051712697552	BP/T-10 051712103084		P/T-15 51712102216	BP/T-20 051712102223		BP/T-25 0517121	02230	BP/T-30 051712102247		BP/MB-15 051712274753	3	BP/MB-2 0517122	
ROW 10	BP/SL-A 051712697569	BP/S-6-1/4 051712103206		P/S-10 51712103220	BP/S-15 051712102414		BP/S-20 0517121	02421	BP/S-30 051712102445		BP/SSU 051712171021			
SITS ON SHELF	TLEK 051712501378			SL-EK 051712502078				BP/NON-10 005171276263	2		RN-R-100 12100137		BP/FP-2 05171234	0014

Fuse			Constuction/					Agency info	ormation			
type	Catalog symbol	Class	size	Volts	Amps	IR	Туре	• .	UL Rec	SAE	RoHS	CSA
	ATL	_	3-leg micro	32 Vdc	5-15	1 kA	Fast-acting		_		Χ	_
Blade	ATM/ATMID*	_	Mini fuse	32 Vdc	1-30	1 kA	Fast-acting	AU 169 2-30 A non- indicating ATM	_	_	Χ	_
	ATM_LP		Low profile	58 Vdc	2-30	1 kA	Fast-acting	_	_	_	Χ	_
	ATC/ATCID*			32 Vdc	1-40	1 kA	Fast-acting		E56412	J1284		
	ATR/ATRID*		2-leg micro	32 Vdc	5-30	1 kA	Fast-acting	_	_		X	
	MAX/MAXID*			32 Vdc	20-100 1/4-1	1 kA 35 A	Fast-acting	_	_		Χ	
	ABC	_	1/4" x 1-1/4" ceramic	250 Vac	1-1/2 to 3 4-10 12-15 20 25-30	100 A 200 A 750 A 400 A 200 A	Fast-acting	E19180, 1/4-15 A	E19180, 18-30 A	_	X	53787, 1/4-30 A
	AGA	_	1/4" × 5/8"	125 Vac 125 Vac 32 Vac	1 to 1-1/2 2-5 6-30	10 kA 200 kA 1 kA	Fast-acting	E19180, 0-3 1/2 A	JDYX2, 12-30 A	_	_	_
	AGC	_	1/4" x 1-1/4"	250 Vac 250 Vac 250 Vac 32 Vac 32 Vac 32 Vac	1/20-1 1-1/4 to 3 4-10 12-30 35 40-50	35 A 100 A 200 A 1 kA 70 A 80 A	Fast-acting	E19180, 0-10 A	E19180, 12-30 A	_	X	53787, 1/20-30 A
	AGU-(amp)GP	Midget	Glass tube ferrule 13/32" x 1-1/2"	250 Vac 32 Vac	1-3 4-60	_	Fast-acting	_	_	_	_	_
	AGW	_	1/4" × 7/8"	32 Vac	1-30	1 kA	Fast-acting		_	_	_	_
	AGX	_	1/4" × 1-1/4"	250 Vac 250 Vac 125 Vac 125 Vac 32 Vac	1/500-1/2 3/4-2 2-1/2 to 5 6-7 8-30	35 A 100A 100 A 1 kA 1 kA	Fast-acting	E19180, 0-10 A	E19180, 15-30 A	_	Х	53787, 15-30 A
	GBB	_	1/4" x 1-1/4" ceramic	250 Vac 125 Vac	1-30 1-15	200 kA 10 kA	Fast-acting	_	E56412, 1-30 A, 125 Vdc/ 250 Vac	_	Х	53787, 1-30 A, 125 Vdc/ 250 Vac
	GBC		1/4" x 31/32"	32 V	5-25	_	Fast-acting	_	_	_	_	_
Glass tube	GDA	_	5 x 20 mm ceramic	250 Vac	50mA-6.3	1.5 kA	Fast-acting	_	E19180	_	Χ	53787
tube	GDB	_	5x20 mm	250 Vac	32mA-16	35 A	Fast-acting		E19180		_	
	GDC		5x20 mm	250 Vac	32mA-6.3	35 A	Fast-acting	_	E19180	_	_	
	GMA		5x20 mm	250 Vac 250 Vac 125 Vac 125 Vac 125 Vac	32mA-1 1.2-3 3.15-6 7-10 15	35 A 100 A 1 kA 200 A 150 A	Fast-acting	E19180, 0-6 A	E19180, 7-15 A	_	X	53787, 0-6 A
	GMC		5x20 mm	250 Vac 250 Vac 125 Vac 125 Vac	63mA-1 1.25-3.15 3.5-6.3 7-10	35 A 100 A 10 kA 200 kA	Time-delay	E19180, 0-6.3 A	E19180, 7-8 A	_	X	53787, 0-6.3 A
	GMD	_	5x20 mm	250 Vac 250 Vac	125mA-3 4	100 A 200 A	Time-delay	E19180, 125mA-3 A	E19180, 4 A	_	Χ	53787, 0-4 A
	MDA	_	1/4" x 1-1/4" ceramic	250 Vac 250 Vac 250 Vac 250 Vac 125 Vac	1/4-1 1-1/2 to 2 2 1/2-10 12-15 20-30	35 A 100 A 200 A 750 A 1.5 kA	Time-delay	E19180, 0-20 A	E19180, 25-30 A	_	X	1422-30, 25-30 A
	MDL	_	1/4" × 1-1/4"	250 Vac 32 Vac	1/16-1 1-1/4 to 3 4-8 9-40	35 A 100 A 200 A 1 kA	- - Time-delay -	E19180, 1/16-8 A	E19180, 9-30 A		X	E19180, 1/16 to 8 A
	MDQ	_	1/4" × 1-1/4"	250 Vac 32 Vac	1/16-1 1-1/4 to 3 4-7 8-30 A	35 A 100 A 200 A 1 kA	- -Time-delay -	E19180, 1/16-7 A	E19180, 7.1-30 A	_	_	47233, 1/16-7 A
	SFE		1/4" x various length	32 V	4-30 A	_	Fast-acting	AU169		_	Χ	_

<sup>\*</sup>easyID indicating version

							Agency in				
Fuse type	Catalog symbol	Constuction/size	Volts	Amps	IR	Туре	UL List	UL Rec	SAE	RoHS	CSA
	AMG	_	32 Vdc	80-500 A	1 kA	_	_	_	_	Χ	_
	AMI	Bolt-on	32 Vdc	30-200 A	2 kA	_	_	_	_	Χ	_
	CBBF		58 Vdc	30-300 A	2 kA	_	<u> </u>	_	_	_	_
	FMM	Micro FMX fuse	32 Vdc	15-40 A	1 kA	Time-delay	_	_	_	Χ	_
High amp	FMX, FMX_ID* Female Maxi	6 mm blade on 5.5 mm centers	32 Vdc	20-60 A	1 kA	Time-delay	_	_	_	Χ	_
	FMX_LP Low-profile FMX fuse	Low-profile 6 mm blade on 5.5 mm centers	58 Vdc	20-60 A	1 kA @32 Vdc	Time-delay	_	_	_	_	_
	MPF	Multi anan	32 Vdc	30-60 A	−1 kA					Χ	
	MPF2	- Multi-amp	58 Vdc	20-50 A	- I KA	_	_	_	_	^	_
Current	ANN	Bolt-on fuse 2.44	125 Vac 80 Vdc	_10 to 800 A	2.5 kA Vac 2.7 kA Vdc		_	E56412	_	Х	53787
limiters	ANL	mm blade centers	32 Vac/ 80 Vdc	35 to 750 A	6 kA Vac 2.7 kA Vdc	Non-time delay	_	E56412	_	X	53787
	FLB	- Bolt-on		30-140 A		_	_	_	_	Χ	_
	FLD	- POII-OU		30-140 A							
	FLF	-	_	20-60 A	_						
Auto cartridge	FLG	-Female	_32 Vdc	50-80 A	– _10 kA						
fuses	FLM	Male	_ 52 vuc _	30-120 A	_ 10 KA						
	FLN	Female w/ lock tab		25-30							
	FLS	Female mini	<del>_</del>	30-40 A	_						
Battery terminal fuses	BTF	Multi-amp	32 Vdc	80-250 A	1 kA	_	_	_	_	Χ	_

Circuit		SAE	Constuction/					Agency	informat	ion		
breakers	Catalog symbol		size	Volts	Amps	IR	Type	<b>UL List</b>	UL Rec	SAE	RoHS	CSA
	CB211	1	Standard	14 Vdc	7-1/2 to 30 15 20 25-30	225 A 300 A 450 A	— — Automatic —	_	_	J553	_	_
	CB212	II	Standard	14 Vdc	7-1/2 to 30 15 20 25-30	150 A 225 A 300 A 450 A	— Modified —	_	_	J553	_	_
	CB222OS	II	Offset	14 Vdc	5-10 15 20 25-30	150 A 225 A 300 A 450 A	Modified	_	_	J553, J1171	_	_
	CB223OS	III	Offset	28 Vdc	5-10 15 20 25-30	150 A 225 A 300 A 450 A	Manual	_	_	J553, J1171	_	_
ATM footprint	CB233	III	Standard	28 Vdc	5-10 15 20 25-30	100 A 150 A 200 A 300 A	— Manual —	_	_	J553	_	_
	MMB	I	Standard	12 Vdc	15-20 A	300 A	Automatic	_	_	J553	_	
	ACB			_	_	_	A					
	CB221	-1	Ct	14 Vdc	7-1/2-30		—Automatic					
	CB222	II	—Standard	12 Vdc	10-30	– 150 A	Modified	_		J553, JH71		
	CB223		_	00.1/1	7-1/2-30	_		_				
	CB227	-III	Std./color code	-28 Vdc	5-30	2 kA	—Manual	_			_	_
	CBB-30	П		24 Vdc	30		Modified					
	CCB-25	I	Standard 12 Vd	12 Vdc	25	_	Automatic	_		J553		
	FCB-20	II		14.5 Vdc	20		Modified	_				
	UCB	I	Std./color code	12 Vdc	6-30	_	Automatic					

<sup>\*</sup>easyID indicating version

Circuit		SAE						Agency	informa	tion		
breakers	Catalog symbol	type	Constuction/size	Volts	Amps	IR	Туре	UL List	UL Rec	SAE	RoHS	CSA
MAXI	CB1911	1	_Standard	14 Vdc	10-50	150 A*	Automatic			J553		_
footprint	CB1921	II		12 Vdc	10-30	150 A	Modified	_		0000		
Glass tube	CBF	II	1/4" × 1-1/4"	12 Vdc	6-40	_	Modified	_	_	_		_
	CB123-(amp)B	-III		28 Vdc	10-50	1.5	Manual					
	CB123-(amp)HB		_			kA@12Vdc	Iviariuai	_				
	CBC-	_			8-50					.==0		
Stud terminal	CBC-(amp)B	_	10-32, 0.69" ctrs					_	_	J553, J1171	_	_
	CBC-(amp)BWP	_1		14 Vdc	20-30	1.5 kA	Automatic					
	CBC-(amp)HB	_			10-50	_						
	CBP-(amp)BA				20-50							
Panel mount	CB174	Ш	1/4" QC terminals	250 Vac 50 Vdc	<b>-</b> 10-30	200 A	Manual	_	1077		X	_
	CBT-(amp)M				10.00		N. 4. 11.61 1					
Quick	CBT-(amp)N	-II	−1/4" QC terminals	_	10-30		Modified					
Quick	CBU-6		- 1/4 QC terminals		6	_	Automatic			_	_	_
	CBU-30B	-1			30		Automatic					
	CB181F	I		30 Vdc	60-150	,	Automatic				X	
	CB184F	_	Flush-mt. 14-28		25-150	3 kA		_			^	_
	CB185			42 Vdc	25-150		_				_	
	CB185P	_111	Panel-mt. 14-28		25-200	—5 kA@12 Vdc	Manual				X	_
Waterproof high amp	CB187F	_	Flush-mt. 14-28	-48 Vdc	25-150	5 KA@12 VUC	_			J553,		
stud	CB187P		Panal mt 1/1 20	40 vuc	25-200			_	_	J1171	Χ	
	CB251	I	——Panel-mt. 14-28 ——	-22 \/do	25 150		Automatic					
	CB255	_	Panel-mt. 10-32	—32 Vdc	25-150	2.5 kA						
	CB285F		Flush-mt. M6	42 Vdc	30-150		Manual				_	
	CB285P		Panel-mt. M6	42 Vdc	25-150							

<sup>\*</sup> Interrupting rating varies with circuit breaker amp rating.

	Catalog		Constuction/					Agency in	formati	on		
Fuse type	symbol	Class	size	Volts	Amps	IR	Туре	<b>UL List</b>	<b>UL Rec</b>	SAE	RoHS	CSA
	TL	_			15-30		Time-delay	E12112	_	_	_	_
	Т	_	Edison base		3/10-30	10 kA	Dual element time-delay	E56412, 0-6-1/4 A E12112 7-30 A	_	_	_	53787
Plug	TC	CSA Type D	-	10E \/aa	·		Dual element time-delay	_	_	_	_	53787
	Р	CSA Type P		125 Vac	15-30	_	General purpose	_	_	_	_	53787
	SL	_	_	_			Time-delay	E12112	_	_	_	_
_	S	_	Rejection base		1/4-30	10 kA	Dual element time-delay	E56412, 0-6-1/4 A E12112 7-30 A	_	_	_	53787

	Catalog		Constuction/					Agency i	nformat	ion		
Fuse type	•	Class	size	Volts	Amps	IR	Туре	<b>UL List</b>	UL Re	c SAE	RoHS	CSA
					1/4-1	35 A	_					
					1-1/2 to 3	100 A	_					
				250 Vac	4-10	200 A						
	BAF	Midget	Ferrule		12-15	750 A	Fast-acting	E19180			X	53787
					20-30	200 A	_					
				125 Vac	1/4-30	10 kA						
	CDN	CSA	Ferrule		1-60	– 10 kA	Gen. purpose					C22.2,
		Type D	Blade	230 vac	70-600	- 10 KA	Time-delay					No.59.1
					1/10-1	35 A	_					
				250 Vac	1-1/8 to 3-1/2	100 A	_					
	FNM	Midget	Ferrule		4-10 12-30	200 A 10 kA	—Time-delay	E19180	_	_	Χ	53787
							_					
				125 Vac	1/10-30	10 kA						
	FNQ	Midget	Ferrule	500 Vac	1/10-30	10 kA	Time-delay	E19180	_	_	X	53787
	FNQ-R	CC	Ferrule	600 Vac	1/4-30 A	200 kA	Time-delay	E4273	_	_	Χ	53787
	FRN-R FRN-R_ ID**	51/5	Ferrule		1/10-60						X 5	
Cartridge		RK5	Blade	—250 Vac	70-600	200 kA	Time-delay	E4273	_	_	_	53/8/
	FRS-R	DVE	Ferrule	0001/	1/16-60	000   4	T	E 4070			53787 53787	F0707
	FRS-R_ID**	RK5	Blade	—600 Vac	70-600	−200 kA	Time-delay	E4273	_		_	53/8/
	JJN	Т	Blade style	300 Vac	110-400	200 kA	Very fast- acting	E4273	_	_	Χ	53787
	KTK	Midget	Ferrule	600 Vac	1/10-30	100 kA	Fast-acting	E19180	_	_	X	53787
	KTK-R	CC	Ferrule	600 Vac	1/10-30	200 kA	Fast-acting	E4273		_	Χ	53787
	NON	H(K)	Ferrule	-250 Vac	1/8-60	50 kA	_ General	E4273				53787
			Blade Ferrule		65-600 1-60	10 kA 50 kA	purpose General					
	NOS	H(K)	Blade	-600 Vac	70-600	10 kA	_ derierar purpose	E4273	_	_	_	53787
	PON	CSA	Ferrule		1-60	 10 kA	General					C22.2,
	PON	Type P	Blade	250 vac	70-600	IU KA	purpose		_			No.59.1
			13/32" x 15/16"		1-6	_	Fast-acting	_				
			ferrule 13/32" x 1-13/32	-600 Vac	7-15	_						
	SC	G	ferrule		20	100 kA		E4273			Χ	53787
	30	J	13/32" x 1-5/8" ferrule		25-30	—— 100 kA	Time-delay	L42/3	_	_	^	55767
				35-60								

<sup>\*</sup>easyID indicating version

Circuit		Constuction/					Agency information					
breakers	Catalog symbol	size	Volts	Amps	IR	Reset type	<b>UL List</b>	UL Rec	RoHS	CSA		
Plug fuse	BP/MB	Edison plug thread	125 \/20	15 and 20		Manual	E14942	_	_			
	CP/MB		120 VaC	15 and 20	_	Ivialiuai	_	_	_	013089		

Catalog no.	Page	Catalog no.	Page	Catalog no.	Page	Catalog no.	Page	Catalog no.	Page
12023A	37	BP/ATC-TAP-RP	14	BP/MAX-A3-RP	28	FNQ-	47	NO.60LP	26
12040816	19	BP/ATL-A4-RPP	28	BP/MB-	48	FNQ-R-	47	NO.64	27
12135072	18	BP/ATMID	8	BP/MDL	35, 41	FP-2	51	NO.726	26
12135171 13023A	18 37	BP/ATMLP-RP BP/ATMRP	7 7	BP/MDL-AL BP/MPR-1	52 25	FP-3 FP-4	51 51	NO.727 NO-727-LED	26 26
1314A	36	BP/ATM-A5-RP	28	BP/MPT-	25	FP-6	51	NO-750-LED	26
1315A	36	BP/ATM-A6LP-RP	28	BP/NON	43	FP-A3	51	NO.757	26
1560020 1560021	16 16	BP/ATM-A8-RP BP/ATM-AH8-RPP	28 28	BP/NON-AL BP/P-	52 49	FP-ATCID FP-ATMID	15 15	NO.758 NO-758-LED	26 22
15968-1	25	BP/ATM-AID	8, 28	BP/PON_	45	FRN-R	44	NO.759	26
24023A	37	BP/ATM-AL8-RP BP/ATM-FHID	28 13	BP/S BP/SRP	49 17	FRN-RID FRS-R	44 45	NO.760 NO-760-LED	26 26
2FTHDWR-KIT 2FTHDWR-TAGS	53 53	BP/ATM-TAP-RP	14	BP/SA	49	FRS-R- ID	45	NO.761	26
4527053	19	BP/ATRRP	7	BP/SA-A	52	FT-2	51	NO.762	26
4FTAUTO-KIT 4FTAUTO-TAGS	32 32	BP/ATR-A7-RPP BP/ATR- ID	28 8, 28	BP/SC BP/SC-A	47 52	FT-3 FUSE-CADDY1	51 30, 31	NO-762-LED NO.763	26 26
702	37	BP/BMS	25	BP/SFERP	41	FUSE-CADDY2	30, 31	NO.764	26
9523A ABC	37 40	BP/C5237BC BP/CB_HB-CVR	24 20, 36	BP/SFE-AH6-RP BP/SFE-AL6-RP	28 28	GBBR GBC	40 41	NO.80 NO.850	27 26
ACB-20	19	BP/CB185	22	BP/SL	49	GDAA	42	NO.852	26
AFC-225 AFC-90	32 32	BP/CB1938 BP/CB211RP	24 18	BP/SOU BP/SRU	50 50	GDBA GDC- A	42 42	NO.95BK NON-	29 43
AGA	40	BP/CB285F	35	BP/SSU	50	GMAA	42	NON-EK	52
AGC	40	BP/CBB-30-RP	19	BP/SSY	50	GMCA	42	NOS	43
AGC-EK AGU-	27 41	BP/CBCB-RP BP/CBCHB-RP	20 21	BP/STE BP/STF	25 25	GMDA HEF-1	42 52	PPK4 P-EK	49 52
AGU- GP	41	BP/CBFRP	20	BP/STJ	25	HEF-2	52	PON_	45
AGW AGX	40 40	BP/CBPBA-RP BP/CDN_	21 45	BP/STK BP/STT	25 25	HFA HFB-R	14 14	RB-BI-120A RB-BI-130A	37 37
AMG	12	BP/EFC	28	BP/T-	48	HH2	13	RB-BI-240A	37
AMI	12	BP/FB_ BP/FCB-20	15 19	BP/TBRP	24 49	HHB HHC	14 13	RB-BI-70A	37
ANL ANN-	17 17	BP/FL-14	17	BP/TC BP/TL-	48	HHD	13	RB-BI-95A RB-BIK-1882	37 37
ATC	7	BP/FL-16	17	BP/UCBRP	19	HHF	13	RB-BS-1314	36
ATCRLD ATC-FHID	7, 32 13	BP/FLBRP BP/FLDRP	10 10	BP/XMAS-6F BTF- P-	52 11	HHG HHK	13 14	RB-BS-1315 RB-GM-KIT	36 37
ATC-FP-AID	8, 28	BP/FLFRP	10	CB-CVR	20, 36	HHL	13	RB-SPP-240PN	50
ATC-ID-SK	8, 27	BP/FLGRP	10	CB123B	20	HHM HHN	13 14	RTMF	15
ATL ATM-	7 7	BP/FLMRP BP/FLNRP	10 10	CB123HB CB174	20 21	HHR	13	RTMF S-	15 49
ATMLP	7	BP/FLSRP	10	CB181F	22	HHU	13	S-8202	17
ATMRLD ATM-FHID	7, 32 13	BP/FLW-14 BP/FMMRP	17 9	CB184F CB185-	22 22	HHX HKP	13 14	S-8301 SA	17 49
ATM-FMX-EK	27	BP/FMSRP	9	CB185P	22	HKP-HH	14	SC	47
ATM-FP-AID	8, 28	BP/FMXID	8	CB187F CB187P-	35 35	HLR HMEG	14 11	SFE	41
ATM-ID-SK ATM-LP-EK	8, 27 27	BP/FMXLP-RP BP/FMXRP	9 9	CB1911	20	HMID	11	SFR SL	17 49
ATR	7	BP/FMX-A3-RP	28	CB1921	20	HMJ	14	SLPK4	49
BAF BK/ATC	46 7	BP/FNM BP/FNM-AH	47 52	CB1938 CB211	24 18	HMK HRH	14 14	SL-EK SOU	52 50
BK/ATCID	8	BP/FNM-AL	52	CB212	18	HRI	14	SRU	50
BK/ATL BK/ATM	7 7	BP/FP-2 BP/FP-3	51 51	CB221 CB222-	19 19	HRJ HRK	14 14	SSN SSU	50 50
BK/ATMID	8	BP/FP-A3-RP	51	CB222 CB222OS	18	HTB-26I	14	SSY	50
BK/ATMLP	7	BP/FP-ATC-06ID	15	CB223	19	HTB-38I	14	SSY-RL	50
BK/CB-CVR BK/FMM-	20, 36 9	BP/FP-ATM-06ID BP/FRN-AH	15 52	CB223OS CB227-	18 19	HTB-68I HTB-88I	14 14	STY T-	50 48
BK/MAX	7	BP/FRN-AL	52	CB22901-1.5	18	JB3816	24	TB200B	24
BK/MAXID BK/MPF2- X	8 9	BP/FRN-R BP/FRN-RID	44 44	CB22902-68 CB22903-6	18 18	JJN KTK	36 46	TB300B TC- PK4	24 49
BK/MPFX	9	BP/FRS-R	45	CB22903-6V	18	KTK-R	46	TC-EK	52
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BP/233-RP BP/234-RP	26 26	BP/GDC-5A BP/GMAA	42 42	CB285F CBB-30	23 19	MDL MDQ	41 41	VP/ATCID VP/ATCRP	8 7
BP/550-RP	26	BP/GMA-5A	52	CBBF	36	MMB	18	VP/ATMID	8
BP/552-RP	26	BP/GMA-5XM BP/GMA-AH	52 52	CBBF-MCB CBC-	36 20	MPF2X	9 9	VP/ATMLP-RP	7 7
BP/575-RP BP/577-RP	26 26	BP/GMA-AL	52 52	CBCB	20	MPFX MUSB-	11	VP/ATMRP	,
BP/726-RP	26	BP/GMC	42	CBCBWP	21	MUSB	11		
BP/727-RP BP/757-RP	26 26	BP/HFB-RP BP/HHA-RP	13 14	CBCHB CBF	21 20	NO.105 NO.108BK	29 35		
BP/758-RP	26	BP/HHB-RP	14	CBPBA	21	NO.136	29		
BP/759-RP BP/760-RP	26 26	BP/HHC-RP BP/HHD-30-RP	13 13	CBPFM CBPRM	16 16	NO.160BK NO.216-R	29 51		
BP/761-RP	26	BP/HHD-RP	13	CBTM	21	NO.225	32		
BP/762-RP	26	BP/HHF-RP	13	CBTN CBU-30B	21	NO.227	32		
BP/ABC BP/ABC-A	40 52	BP/HHG-RP BP/HHH-RP	13 14	CCB-25	21 19	NO.232 NO.233	26 26		
BP/AGARP	40	BP/HHK-RP	14	CDN_	45	NO.234	26		
BP/AGA-AH8-RP BP/AGA-AL8-RP	28 28	BP/HHLP-RP BP/HHL-RP	14 13	CDY10TRY CDY5TRY-	30, 31 30, 31	NO.24 NO.243	27 26		
BP/AGCRP	40	BP/HHM-RP	13	CP/MB	49	NO.243 NO.244	26		
BP/AGC-ALIA DD	28	BP/HHN-RP BP/HHR	14 13	D9AB-14526-BA DIA-1	19 28	NO.246	26		
BP/AGC-AH10-RP BP/AGC-AL10-RP	28, 35 28, 35	BP/HHS-RP	13	DIA-1 DIA-2	28	NO.2621-R NO.263	51 51		
BP/AGC-SFE-A5-RP	28, 35	BP/HHTR-RP	14	DIA-3	28	NO.263-R	51		
BP/AGURP BP/AGUGP-RP	41 41	BP/HHU BP/HHV-RP	13 13	FCB-20 FLB	19 10	NO.290 NO.43	30 27		
BP/AGWRP	40	BP/HKP-HH-RP	14	FLD	10	NO.44	27		
BP/AGW-A8-RP BP/AGX-7X5	28 52	BP/HMJ-RP BP/HMK-RP	14 14	FLF FLG-	10 10	NO.45 NO-455	29 26		
BP/AGX-A8-RP	28	BP/HRK-RP	14	FLJ	10	NO-468	26		
BP/AMGRP	12 8	BP/HHS-RP BP/JB3816-2	14 24	FLM FLN-	10 10	NO-470 NO-487	26		
BP/ATCID BP/ATCRP	8 7	BP/KTK	46	FLS	10	NO-487 NO.53	26 27		
BP/ATC-A5-RP	28	BP/MAS-3A	52	FMM	9	NO.535	26		
BP/ATC-AH8-RPP BP/ATC-AID	28 8, 28	BP/MAS-3A-CS BP/MAS-3X5	52 52	FMS FMX	9 9	NO.550 NO.552	26 26		
BP/ATC-AL8-RP	28	BP/MAXID	8	FMXLP	9	NO.575	26		
BP/ATC-FHID	13	BP/MAXRP	7	FNM	47	NO.577	26		

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