

AMBUS® EasySwitch DIN-rail Mounted Fuse Holders

The design standard for fuse block overcurrent protection



Wöhner's AMBUS® EasySwitch Fuse Blocks feature the latest enclosed design for the ultimate in safety and convenience. Built for control and power circuits, the AMBUS line is DIN-rail mountable, compact and reliable. Both AC and DC models are available, with and without blown fuse indication.

Sized for many applications

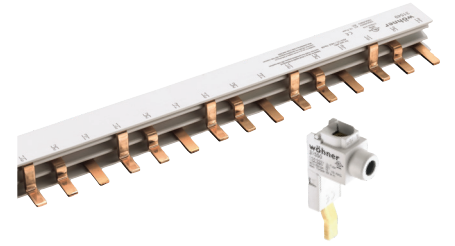
AMBUS Fuse Blocks are available in one, two and three pole configurations for the following fuse types:

- Class CC
- Midget; 1-1/2 x 13/32
- DC rated fuses up to 30A
- Class J 30A fuses
- Class J 60A fuses

All AC fuse blocks are rated to 600V, with 12-72V AC/DC models available for midget and Class CC fuses. All devices carry a withstand rating to 200kA. Midget fuse blocks are rated to 50kA.

Enclosed design offers many advantages

Unlike "open" fuse blocks that were extremely dangerous, the enclosed design of the AMBUS series features IP2 dead-front construction under IEC and DIN standards. In operation, there is no access to live fuses or fuse clips. With the flip of a finger, fuse access is gained via



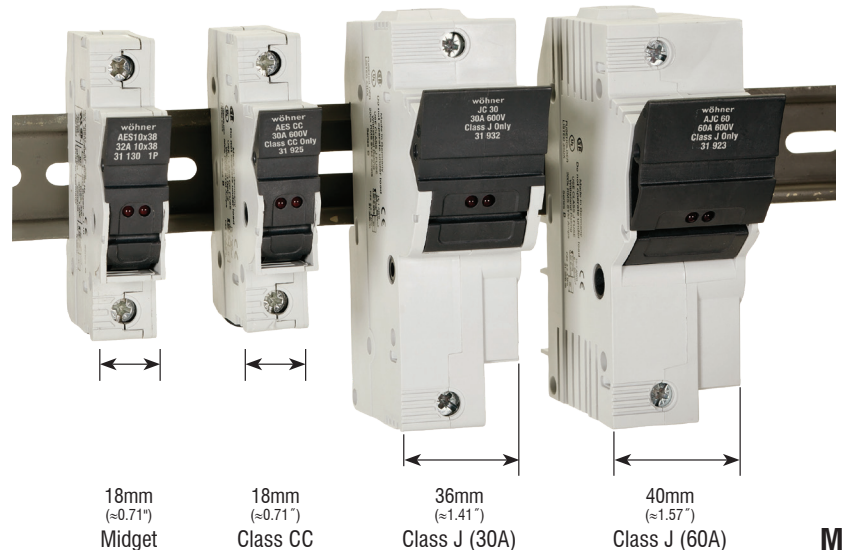
a levered compartment on the front of the holder that isolates the fuse from the line power. This makes fuse changeout quick, easy, convenient... *and safe.*

Other great features

The AMBUS line is compact, saving up to 15% in panel space over conventional fuse blocks. The entire line is also DIN-rail mountable, resulting in extra savings in panel building time. All models are available with blown fuse indication, saving time on maintenance and troubleshooting. The bodies are made up of tough and durable polyamide, known for its exceptional insulating properties. Wire terminals accept multiple conductors, and UL 508 approved bus bars can be used to quickly distribute power to many AMBUS Fuse Holders simultaneously.

International approvals

Class CC and J fuse holders are UL listed for branch circuit protection in electrical distribution systems. They are excellent for small motor loads and group protection of small motors. Midget holders are UL listed for control circuit protection. The entire line is CSA Approved and carries the CE Mark for use in international markets.



AmBUS Fuse Holders

DIN-rail Mounted Fuse Holders – Midget Fuses (1-1/2 x 13/32) ①②

Ordering and Technical Information	One Pole		Two Pole		Three Pole		
	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty	
Fuse Holder - Without Blown Fuse LED With Blown Fuse LED 12-72V AC/DC (with LED indicator)	31 110	12	31 112	6	31 113	4	
	31 130	12	31 132	6	31 133	4	
	31 930	12					
Accessories							
DIN-rail	Top Hat, low profile (priced per rail)	3F	12	3F	12	3F	12
	Top Hat, high profile (priced per rail)	3AF	12	3AF	12	3AF	12
End Anchors	DIN Rail — Normal Duty	V7-EA35	50	V7-EA35	50	V7-EA35	50
	DIN Rail — Heavy Duty	V7-EAH35	10	V7-EAH35	10	V7-EAH35	10
Fuse Block Specifications							
Approvals							
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	
Maximum Current	30 A	30 A	30 A	30 A	30 A	30 A	
Wire Range: 1 Wire per Terminal	#18...4 AWG (0.75...25 mm ²)		#18...4 AWG (0.75...25 mm ²)		#18...4 AWG (0.75...25 mm ²)		
Wire Range: 2 Wires per Terminal ③	#18...8 AWG (0.75...10 mm ²)		#18...8 AWG (0.75...10 mm ²)		#18...8 AWG (0.75...10 mm ²)		
Wire Strip Length	0.43" (11 mm)		0.43" (11 mm)		0.43" (11 mm)		
Recommended Tightening Torque	#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m		#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m		#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m		
Working Voltage (indicating circuit) 31 930	110...600V AC/DC 12...72V AC/DC		110...600V AC/DC ~		110...600V AC/DC ~		
Leakage Current (indicating circuit)	2mA		2mA		2mA		
Withstand Rating	50kA		50kA		50kA		
Fuse Type	Midget fuses only ①		Midget fuses only ①		Midget fuses only ①		
Operating Temperature	-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)		
Contact Material	Silver, Ag		Silver, Ag		Silver, Ag		

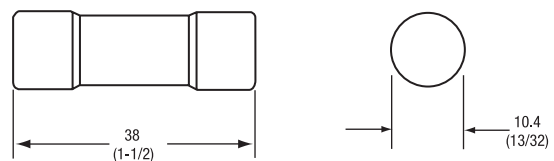
Common Midget Fuse Applications

- Transformer secondary protection
- Supplemental protection of:
 - Control circuits
 - Lighting
 - Solenoids

Approvals



Typical Midget Fuse Dimensions ①



① Fuses not offered by Sprecher + Schuh.
 ② Wöhner UL File E230163, CSA 110285
 ③ Both wires must be the same size.

DIN-rail Mounted Fuse Holders – Class CC Fuses ①②③

Ordering and Technical Information	One Pole		Two Pole		Three Pole	
	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty
Fuse Holder - Without Blown Fuse LED With Blown Fuse LED 12-72V AC/DC (with LED indicator)	31 295 31 298 31 929	12 12 12	31 296 31 299	6 6	31 297 31 300	4 4
Accessories						
DIN-rail Top Hat, low profile (priced per rail) Top Hat, high profile (priced per rail)	3F 3AF	12 12	3F 3AF	12 12	3F 3AF	12 12
End Anchors DIN Rail — Normal Duty DIN Rail — Heavy Duty	V7-EA35 V7-EAH35	50 10	V7-EA35 V7-EAH35	50 10	V7-EA35 V7-EAH35	50 10
Fuse Block Specifications						
Approvals						
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	30 A	30 A	30 A	30 A	30 A	30 A
Wire Range: 1 Wire per Terminal	#18...4 AWG (0.75...25 mm ²)		#18...4 AWG (0.75...25 mm ²)		#18...4 AWG (0.75...25 mm ²)	
Wire Range: 2 Wires per Terminal ④	#18...8 AWG (0.75...10 mm ²)		#18...8 AWG (0.75...10 mm ²)		#18...8 AWG (0.75...10 mm ²)	
Wire Strip Length	0.43" (11 mm)		0.43" (11 mm)		0.43" (11 mm)	
Recommended Tightening Torque	#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m		#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m		#18...8 AWG: 22 lb•in #6...4 AWG: 26 lb•in 0.75...25mm ² : 2.5 N•m	
Working Voltage (indicating circuit) 31 929	110...600V AC/DC 12...72V AC/DC		110...600V AC/DC ~		110...600V AC/DC ~	
Leakage Current (indicating circuit)	2mA		2mA		2mA	
Withstand Rating	200kA		200kA		200kA	
Fuse Type	Class CC fuses only ①		Class CC fuses only ①		Class CC fuses only ①	
Operating Temperature	-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)	
Contact Material	Silver, Ag		Silver, Ag		Silver, Ag	

Common Class CC Applications

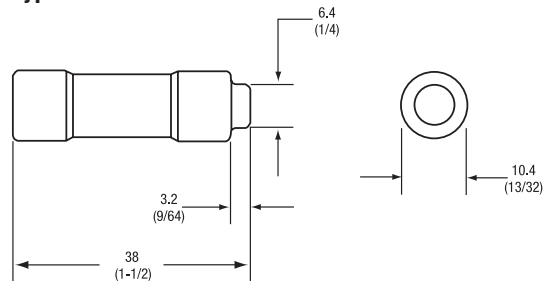
- Control transformer protection
- Motor circuits
- Branch circuit protection
- Lighting loads
- General purpose loads
- Heating loads

- ① Fuses not offered by Sprecher + Schuh.
② All major fuse brands and current ranges have been evaluated for this fuse holder. Due to the heat they generate, the following fuses must be derated:
Ferraz Shamut ATQR 1.25 I = 0.42 A max.
Ferraz Shamut ATQR 1.40 I = 0.47 A max.

Approvals



Typical Class CC Fuse Dimensions ①



- ① Wöhner UL File E230163, CSA 110285
④ Both wires must be the same size.

M
Ambus Fuse Holders

DIN-rail Mounted Fuse Holders – Class J Fuses, 30A ①②

Ordering and Technical Information	One Pole		Two Pole		Three Pole	
	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty
Fuse Holder -						
Without Blown Fuse LED	31 284	12	31 285	6	31 287	4
With Blown Fuse LED	31 932	12	31 933	6	31 934	4
Accessories						
DIN-rail						
Top Hat, low profile (priced per rail)	3F	12	3F	12	3F	12
Top Hat, high profile (priced per rail)	3AF	12	3AF	12	3AF	12
End Anchors						
DIN Rail — Normal Duty	V7-EA35	50	V7-EA35	50	V7-EA35	50
DIN Rail — Heavy Duty	V7-EAH35	10	V7-EAH35	10	V7-EAH35	10
Fuse Block Specifications						
Approvals						
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	30 A	30 A	30 A	30 A	30 A	30 A
Wire Range: 1 Wire per Terminal	#18...1 AWG (0.75...50 mm ²)		#18...1 AWG (0.75...50 mm ²)		#18...1 AWG (0.75...50 mm ²)	
Wire Range: 2 Wires per Terminal ③	#18...6 AWG (0.75...16 mm ²)		#18...6 AWG (0.75...16 mm ²)		#18...6 AWG (0.75...16 mm ²)	
Wire Strip Length	0.79" (20 mm)		0.79" (20 mm)		0.79" (20 mm)	
Recommended Tightening Torque	35 lb•in (4 N•m)		35 lb•in (4 N•m)		35 lb•in (4 N•m)	
Working Voltage (indicating circuit)	110...600V AC/DC		110...600V AC/DC		110...600V AC/DC	
Leakage Current (indicating circuit)	2.0 mA		2.0 mA		2.0 mA	
Withstand Rating	200kA		200kA		200kA	
Fuse Type	Class J fuses only ①		Class J fuses only ①		Class J fuses only ①	
Operating Temperature	-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)	
Contact Material	Silver, Ag		Silver, Ag		Silver, Ag	

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Ambus Fuse Holders

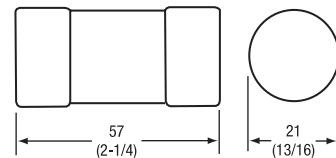
Common Class J Applications

- Motor circuits
- Feeders and mains
- Branch circuit protection
- Lighting, heating and general loads
- Power transformers
- Control transformers
- Control circuits

Approvals



Typical Class J (1-30A) Fuse Dimensions ①



① Fuses not offered by Sprecher + Schuh.
② Wöhner UL File E230163, CSA 110285
③ Both wires must be the same size.

DIN-rail Mounted Fuse Holders – Class J Fuses, 60A ①②

Ordering and Technical Information	One Pole		Two Pole		Three Pole	
	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty	Catalog Number	Pkg Qty
Fuse Holder - Without Blown Fuse LED With Blown Fuse LED	31 920 31 923	12 12	31 921 31 924	6 6	31 922 31 925	4 4
Accessories						
DIN-rail Top Hat, low profile (priced per rail) Top Hat, high profile (priced per rail)	3F 3AF	12 12	3F 3AF	12 12	3F 3AF	12 12
End Anchors DIN Rail — Normal Duty DIN Rail — Heavy Duty	V7-EA35 V7-EAH35	50 10	V7-EA35 V7-EAH35	50 10	V7-EA35 V7-EAH35	50 10
Fuse Block Specifications						
Approvals						
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	60 A	60 A	60 A	60 A	60 A	60 A
Wire Range: 1 Wire per Terminal	#14...1 AWG (2.5...50 mm ²)		#14...1 AWG (2.5...50 mm ²)		#14...1 AWG (2.5...50 mm ²)	
Wire Range: 2 Wires per Terminal ③	#14...6 AWG (2.5...16 mm ²)		#14...6 AWG (2.5...16 mm ²)		#14...6 AWG (2.5...16 mm ²)	
Wire Strip Length	0.79" (20 mm)		0.79" (20 mm)		0.79" (20 mm)	
Recommended Tightening Torque	35 lb•in (4 N•m)		35 lb•in (4 N•m)		35 lb•in (4 N•m)	
Working Voltage (indicating circuit)	110...600V AC/DC		110...600V AC/DC		110...600V AC/DC	
Leakage Current (indicating circuit)	2.0 mA		2.0 mA		2.0 mA	
Withstand Rating	200kA		200kA		200kA	
Fuse Type	Class J fuses only ①		Class J fuses only ①		Class J fuses only ①	
Operating Temperature	-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)		-4°...+130°F (-20°...+55°C)	
Contact Material	Silver, Ag		Silver, Ag		Silver, Ag	

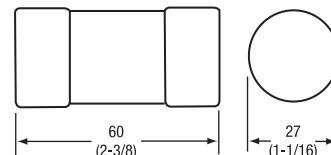
Common Class J Applications

- Motor circuits
- Feeders and mains
- Branch circuit protection
- Lighting, heating and general loads
- Power transformers
- Control transformers
- Control circuits

Approvals

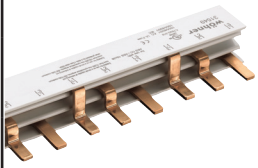
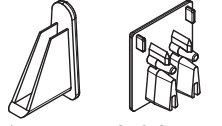
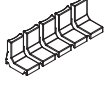

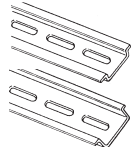


Typical Class J (31-60A) Fuse Dimensions ①



① Fuses not offered by Sprecher + Schuh.
② Wöhner UL File E230163, CSA 110285
③ Both wires must be the same size.

Accessories

Accessory	Description	Devices per Meter	Bus Protection Max. Fuse Types	Ampacity	For use with...	Catalog Number
	Bus Bar, Pin Style 1-Phase ② Qty 1 bar at 1 meter	57	200A	100A max	Class CC or Midget, 1-pole	31 548
	Bus Bar, Pin Style 2-Phase ② Qty 1 bar at 1 meter	29	200A	100A max	Class CC or Midget, 2-pole	31 561
	Bus Bar, Pin Style 3-Phase ② Qty 1 bar at 1 meter	19	200A	100A max	Class CC or Midget, 3-pole	31 549
 1-Phase 2- & 3-Phase	End Caps , sold only in pkgs of 10 ①				1-Phase Bus Bar 2-/3-Phase Bus Bar	31 042 31 552
	Protective Shroud , sold only in pkgs of 10 ①				All Wöhner bus bars	31 035
	Terminal Lug , sold only in pkgs of 10 ①				80A to 100A	31 550
	DIN-rail - 2 meter lengths (6' 6") Top Hat, low profile (price per rail) Top Hat, high profile (price per rail)					3F 3AF

① Sold in packages of 10. Minimum order quantity 10. Priced per piece. 10 pcs of 31566 is price x 10.

② Cuttable, copper bus bar provided in 1 m length. UL 508 Listed, E123577, Category NMTR, cULus. CE to IEC 664 10 kA SCCR for use with AMBUS® Type CC and Midget Fuse Holders. Contact factory for dimensions.

Cross Reference Series FH8 to AMBUS® EasySwitch

Description	FH8 Catalog Number	AMBUS Catalog Number
FUSE BLK MIDGET 1-Pole	FH8-1PM30	31 110
FUSE BLK MIDGET 1-Pole w/LED	FH8-1PM30-L	31 130
FUSE BLK MIDGET 1-Pole w/LED 12-72V AC/DC	FH8-1PM30-D1	31 930
FUSE BLK MIDGET 2-Pole	FH8-2PM30	31 112
FUSE BLK MIDGET 2-Pole w/LED	FH8-2PM30-L	31 132
FUSE BLK MIDGET 3-Pole	FH8-3PM30	31 113
FUSE BLK MIDGET 3-Pole w/LED	FH8-3PM30-L	31 133
FUSE BLK CLASS CC 1-Pole	FH8-1PC30	31 295
FUSE BLK CLASS CC 1-Pole w/LED	FH8-1PC30-L	31 298
FUSE BLK CLASS CC 1-Pole w/LED 12-72V AC/DC	FH8-1PC30-D1	31 929
FUSE BLK CLASS CC 2-Pole	FH8-2PC30	31 296
FUSE BLK CLASS CC 2-Pole w/LED	FH8-2PC30-L	31 299
FUSE BLK CLASS CC 3-Pole	FH8-3PC30	31 297
FUSE BLK CLASS CC 3-Pole w/LED	FH8-3PC30-L	31 300
FUSE BLK CLASS J 30A 1-Pole	FH8-1PJ30	31 284
FUSE BLK CLASS J 30A 1-Pole w/LED	FH8-1PJ30-L	31 932
FUSE BLK CLASS J 30A 2-Pole	FH8-2PJ30	31 285
FUSE BLK CLASS J 30A 2-Pole w/LED	FH8-2PJ30-L	31 933
FUSE BLK CLASS J 30A 3-Pole	FH8-3PJ30	31 287
FUSE BLK CLASS J 30A 3-Pole w/LED	FH8-3PJ30-L	31 934
FUSE BLK CLASS J 60A 1-Pole	FH8-1PJ60	31 920
FUSE BLK CLASS J 60A 1-Pole w/LED	FH8-1PJ60-L	31 923
FUSE BLK CLASS J 60A 2-Pole	FH8-2PJ60	31 921
FUSE BLK CLASS J 60A 2-Pole w/LED	FH8-2PJ60-L	31 924
FUSE BLK CLASS J 60A 3-Pole	FH8-3PJ60	31 922
FUSE BLK CLASS J 60A 3-Pole w/LED	FH8-3PJ60-L	31 925
BUSBAR 1PH 80A	FHL8-A1B8	31 548
BUSBAR 1PH 100A	FHL8-A1B1	31 548
BUSBAR 2PH 80A	FHL8-A2B8	31 561
BUSBAR 2PH 100A	FHL8-A2B1	31 561
BUSBAR 3PH 80A	FHL8-A3B8	31 549
BUSBAR 3PH 100A	FHL8-A3B1	31 549
BUSBAR END CAP 1PH	FHL8-A1E	31 042
BUSBAR END CAP 2/3PH	FHL8-AME	31 552
BUSBAR SHROUD	FHL8-AAP	31 035
TERMINAL LUG 2/3P	FHL8-AAT1	31 550

Control Transformers - Primary ①

Transformer	Max. Value	Fuse Block	Max. Value	Fuse Block	Max. Value	Fuse Block	Max. Value	Fuse Block
VA	208V		240V		480		575V	
50	1.125	30A	1.0	30A	0.5	30A	0.4	30A
100	2.25	30A	2.0	30A	1.0	30A	0.6	30A
150	3.5	30A	3.0	30A	1.5	30A	1.25	30A
200	4.5	30A	4.0	30A	2.0	30A	1.6	30A
250	6.0	30A	5.0	30A	2.5	30A	2.0	30A
300	7.0	30A	6.25	30A	3.0	30A	2.5	30A
500	6.0	30A	5.0	30A	5.0	30A	4.0	30A
1000	12.0	30A	10.0	30A	5.0	30A	8.0	30A
1500	17.5	30A	15.0	30A	7.5	30A	6.25	30A
2000	20.0	30A	20.0	30A	10.0	30A	8.0	30A
3000	35.0	60A	30.0	60A	15.0	30A	12.0	30A
5000	60.0	60A	50.0	60A	25.0	30A	20.0	30A
7500	~	~	~	~	35.0	60A	30.0	60A
10000	~	~	~	~	50.0	60A	40.0	60A

Control Transformers - Secondary

Transformer	Max. Value	Fuse Block	Max. Value	Fuse Block
VA	24V		120V	
50	3.2	30A	0.6	30A
100	6.25	30A	1.25	30A
150	10.0	30A	2.0	30A
200	12.0	30A	2.5	30A
250	15.0	30A	3.2	30A
300	20.0	30A	4.0	30A
500	30.0	30A	6.25	30A
1000	60.0	60A	12.0	30A
1500	~	~	17.5	30A
2000	~	~	25.0	30A
3000	~	~	35.0	60A
5000	~	~	60.0	60A
7500	~	~	~	~
10000	~	~	~	~

The Maximum Values listed in the tables are calculated from the following procedures, which can be found in the NEC . Always compute the Max. Value for your specific application prior to selecting a fuse block.

Calculating NEC Maximum Values

Selecting the proper fuse block current ratings for the primary and secondary protection of control transformers (per UL/NEC) is as follows:

Primary Overcurrent Protection for Control Transformers

Control Circuits: If the rated primary current is less than 2 amps, the maximum rating of the overcurrent device is 500%. If the rated primary current is more than 2 amps, the maximum rating of the overcurrent device is 250%.

Secondary Overcurrent Protection for Control Transformers

Control Circuits: If the rated secondary current is less than 9 amps, the maximum rating of the overcurrent device is 167%. If 9 amps or more, the maximum rating of the overcurrent device is 125%. The next larger size of an overcurrent device may be used if 125% does not correspond to a standard size.

Reference: UL 508 19.3, NEC 430-72(c) exception No. 2, 450-3(b) 1 & 2

Primary Fuse Block Selection Example:

1000VA Transformer
480V Primary
1000/480 = 2.08 Amps [May increase by 250% if above 2A]
2.08 x 250% = 5.21 Amps
Select 30A AMBUS® Class CC fuse block for 5A Class CC Fuse

Secondary Fuse Block Selection Example:

5000VA Transformer
120V Secondary
5000/120 = 41.7 Amps [May increase by 125% if above 9A]
41.7 x 125% = 52.1 Amps
Select 60A AMBUS® Class J fuse block for 50A Class J Fuse

① Class CC and Class J fuses may be used for Primary Protection, contact fuse manufacturer for specific use.

Three Phase Motor Loads ①②③

Horsepower	FLA	Fuse Block	FLA	Fuse Block	FLA	Fuse Block	FLA	Fuse Block
	208V		240V		480V		575V	
1/2	2.4	30A	2.2	30A	1.1	30A	0.9	30A
3/4	3.5	30A	3.2	30A	1.6	30A	1.3	30A
1	4.6	30A	4.2	30A	2.1	30A	1.7	30A
1-1/2	6.6	30A	6.0	30A	3.0	30A	2.4	30A
2	7.5	30A	6.8	30A	3.4	30A	2.7	30A
3	10.6	30A	9.6	30A	4.8	30A	3.9	30A
5	16.8	30A	15.2	30A	7.6	30A	6.1	30A
7-1/2	24.2	60A	22.0	60A	11.0	30A	9.0	30A
10	30.8	60A	28.0	60A	14.0	30A	11.0	30A
15	~	~	42.0	60A	21.0	30A	17.0	30A
20	~	~	~	~	27	60A	22.0	60A
25	~	~	~	~	34	60A	27.0	60A
30	~	~	~	~	40	60A	32.0	60A
40	~	~	~	~	~	~	41.0	60A

Single Phase Motor Loads ①②③

Horsepower	FLA	Fuse Block	FLA	Fuse Block
	115V		230V	
1/6	4.4	30A	2.2	30A
1/4	5.8	30A	2.9	30A
1/3	7.2	30A	3.6	30A
1/2	9.8	30A	4.9	30A
3/4	13.8	30A	6.9	30A
1	16	30A	8	30A
1-1/2	20	30A	10	30A
2	24	60A	12	30A
3	34	60A	17	30A
5	~	~	28	60A
7-1/2	~	~	40	60A
10	~	~	50	60A

- ① Fuse block size is based on Class J Type time-delay fuses for typical motor acceleration up to 5 seconds. Limited use of Class CC fuse blocks may be used for motor loads, contact fuse manufacturer for acceptance.
- ② FLA Data is in accordance with UL-508 Table 42.2 & NEC Tables 430-148 & 150.
- ③ Selection of fuse block should be based on selected fuse manufacturer data.

