



Page 12-2

#### AC FUSE HOLDERS

- Version without indicator: 1P, 1P+N, 2P, 3P, 3P+N
- Version with indicator: 1P
- For fuses 10x38, 14x51 and 22x58mm IEC class gG or aM.
- IEC rated current: 32A, 50A, 100A
- IEC rated voltage: 690VAC.



Page 12-2

#### AC FUSE HOLDERS CLASS CC FOR NORTH AMERICAN MARKET

- Version without indicator: 1P, 2P, 3P
- Version with indicator: 1P
- For 10x38mm UL/CSA class CC fuses
- IEC rated current: 30A
- IEC rated voltage: 600VAC.



Page 12-3

#### DC FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS

- Version without indicator: 1P, 2P
- Version with indicator: 1P, 2P
- For 10x38mm IEC class gPV fuses
- IEC rated current: 32A
- IEC rated voltage: 1000VDC
- IEC utilisation category: DC20B.



Page 12-3

#### DC FUSES FOR PHOTOVOLTAIC APPLICATIONS

- 10x38mm, IEC class gPV
- Rated current: 20A
- Rated voltage: 1000VDC.



- Modular size for 10x38, 14x51 and 22x58mm fuses
- Finger safe - IEC IP20 degree of protection against accidental contact with live parts and with sealable cover for operators' safety
- Version with status indicator to quickly determine if the fuse is still operative or needs to be replaced
- UL and CSA certified versions.

	SEC. - PAGE
<b>Fuse holders</b>	
AC fuse holders.....	12 - 2
DC fuse holders for photovoltaic applications.....	12 - 3
<b>Fuses for photovoltaic applications</b> .....	12 - 3
<b>Accessories</b> .....	12 - 3
<b>Dimensions</b> .....	12 - 4
<b>Wiring diagrams</b> .....	12 - 4
<b>Technical characteristics</b> .....	12 - 5

### Fuse holders UL Recognized and CSA certified



FB01 F... FB01 F 1PL



FB02 A... FB02 A 1PL



FB03 A... FB03 A 1PL

Order code	Pole arrangement	Status indicator	DIN size	Qty per pkg	Wt [kg]
			n°	n°	[kg]

For 10x38mm fuses.  
IEC 32A rated current at 690VAC.

FB01 F 1P	1P	—	1	12	0.066
FB01 F 1PL	1P	YES	1	12	0.065
FB01 A 1M	1P+N	—	1	12	0.062
FB01 F 1N	1P+N	—	2	6	0.134
FB01 F 2P	2P	—	2	6	0.132
FB01 F 3P	3P	—	3	4	0.188
FB01 F 3N	3P+N	—	4	3	0.260

For 14x51mm fuses.  
IEC 50A rated current at 690VAC.

FB02 A 1P	1P	—	1	6	0.113
FB02 A 1PL	1P	YES	1	6	0.114
FB02 A 1N	1P+N	—	2	3	0.237
FB02 A 2P	2P	—	2	3	0.224
FB02 A 3P	3P	—	3	2	0.335
FB02 A 3N	3P+N	—	4	1	0.460

For 22x58mm fuses.  
IEC 100A rated current at 690VAC.

FB03 A 1P	1P	—	1	6	0.167
FB03 A 1PL	1P	YES	1	6	0.167
FB03 A 1N	1P+N	—	2	3	0.354
FB03 A 2P	2P	—	2	3	0.334
FB03 A 3P	3P	—	3	2	0.500
FB03 A 3N	3P+N	—	4	1	0.720

Ⓢ Use with gG/aM class 125A fuses, not dissipating more than 12W power.

**NOTE:**  
For FB01 F type: UL Recognized as "Fuseholders - Component". Current rating: 30A. Voltage rating: 750V max. CSA certified as "Fuseholder Assemblies". Current rating: 30A. Voltage rating: 600V max.  
For FB02 A type: UL Recognized as "Fuseholders - Component". Current rating: 50A. Voltage rating: 750V max.  
For FB03 A type: UL Recognized as "Fuseholders - Component". Current rating: 100A. Voltage rating: 750V max.

### Operational characteristics

- IEC rated voltage Un:
  - 690VAC (FB01 A 1M excluded)
  - 400VAC (FB01 A 1M only)
- IEC rated current In:
  - FB01 A 1M: 32A
  - FB01 F: 32A
  - FB02 A: 50A
  - FB03 A: 100A
- IEC utilisation category:
  - FB01 A 1M: AC22B 400V
  - FB01 F: AC22B 500V, AC21B 690V
  - FB02 A: AC22B 500V, AC21B 690V
  - FB03 A: AC21B 690V
- Suitable for IEC fuse class: gG and aM
- IEC degree of protection: IP20.

### Certifications and compliance

Certifications obtained:

Type	CSA certified (File 252040 class 3211)	UL Recognized for USA and Canada (cURus - File E343395)
FB01 F...	●	●
FB02 A...	—	●
FB03 A...	—	●

● Certification obtained.

"UL Recognized": Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

Compliant with standards: IEC/EN 60269-1, IEC 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL 4248-4, CSA C22.2 n°4248.1, CSA C22.2 n°4248.4.

12

### Fuse holders



FB01 B... FB01 B 1PL

Order code	Pole arrangement	Status indicator	DIN size	Qty per pkg	Wt [kg]
			n°	n°	[kg]

For 10x38mm fuses.  
IEC 32A rated current at 690VAC.

FB01 B 1P	1P	—	1	12	0.062
FB01 B 1PL	1P	YES	1	12	0.064
FB01 B 1N	1P+N	—	2	6	0.127
FB01 B 2P	2P	—	2	6	0.128
FB01 B 3P	3P	—	3	4	0.185
FB01 B 3N	3P+N	—	4	3	0.247

### Operational characteristics

- IEC rated voltage Un: 690VAC
- IEC rated current In: 32A
- IEC utilisation category: AC22B 500V, AC21B 690V
- Suitable for IEC fuse class: gG and aM
- IEC degree of protection IP20.

### Reference standards

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-3, IEC/EN 60269-1, IEC 60269-2.

### Fuse holders UL Listed and CSA certified for class CC fuses for North American market



FB01 G... FB01 G 1PL

Order code	Pole arrangement	Status indicator	DIN size	Qty per pkg	Wt [kg]
			n°	n°	[kg]

For 10x38mm fuses.  
IEC 30A rated current at 600VAC.

FB01 G 1P	1P	—	1	12	0.070
FB01 G 1PL	1P	YES	1	12	0.072
FB01 G 2P	2P	—	2	6	0.140
FB01 G 3P	3P	—	3	4	0.210

**NOTE:** UL Listed and CSA certified as "Fuseholders, Cartridge Fuse" for use with Class CC fuses. Interrupting rating 200,000 Amps rms symmetrical. Voltage rating 600V. Current rating 30A.

### Operational characteristics

- IEC rated voltage Un: 600VAC
- IEC rated current In: 30A
- IEC utilisation category: AC22B 500V, AC21B 690V
- Suitable for UL/CSA fuse class: CC
- IEC degree of protection IP20.

### Certifications and compliance

Certifications obtained: UL Listed for USA (UL - File E343395) and CSA certified for Canada only (File 252040 class G225).

Compliant with standards: IEC/EN 60269-1, IEC 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL 4248-4, CSA C22.2 n°4248.1, CSA C22.2 n°4248.4.

### Fuse holders for photovoltaic applications

#### UL Listed / CSA certified



FB01 D...      FB01 D 1PL

Order code	Pole arrangement	Status indicator	DIN size	Qty per pkg	Wt
			n°	n°	[kg]

For 10x38mm fuses.  
IEC 32A rated current at 1000VDC.

<b>FB01 D 1P</b>	1P	—	1	12	0.064
<b>FB01 D 1PL</b>	1P	YES	1	12	0.065
<b>FB01 D 2P</b>	2P	—	2	6	0.127
<b>FB01 D 2PL</b>	2P	YES	2	6	0.130

NOTE: UL Listed and CSA certified as "Photovoltaic fuseholders" for use with Photovoltaic Fuses. Interrupting rating 30,000 DC Amps. Voltage rating 1000V. Current rating 30A.

#### Operational characteristics

- IEC rated voltage Un: 1000VDC
- IEC rated current In: 32A
- IEC utilisation category: DC20B 1000VDC
- Suitable for IEC fuse class: gPV
- IEC degree of protection: IP20.

#### Certifications and compliance

Certifications obtained: UL Listed for USA (UL - File E366062) and CSA certified for Canada (File 252040 class 3211).

Compliant with standards: IEC/EN 60269-1, IEC 60269-2, IEC/EN 60947-1, IEC/EN 60947-3, UL 4248-1, UL4248-18, CSA C22.2 n° 4248-1, CSA C22.2 n° 4248-18.

### Fuses for photovoltaic applications



FE01 D...

Order code	Rated current In	Qty per pkg	Wt
	[A]	n°	[kg]

10x38mm fuses.  
IEC 30kA breaking capacity at 1000VDC.

<b>FE01 D 00200</b>	2	10	0.008
<b>FE01 D 00400</b>	4	10	0.008
<b>FE01 D 00600</b>	6	10	0.008
<b>FE01 D 00800</b>	8	10	0.008
<b>FE01 D 01000</b>	10	10	0.008
<b>FE01 D 01200</b>	12	10	0.008
<b>FE01 D 01600</b>	16	10	0.008
<b>FE01 D 02000</b>	20	10	0.008

#### Operational characteristics

- IEC rated voltage Un: 1000VDC
- IEC rated current In: 2...20A
- IEC fuse class: gPV.

#### Reference standards

Compliant with standards: IEC/EN 60269-6.

### Accessories



FBX 00

FBX 01  
FBX 03

FBX 02



P1X 90 33



P1X 92 01

P1X 92 02



P1X 91 33

Order code	Description	Qty per pkg	Wt
		n°	[kg]
<b>FBX 00</b>	Coupling clip for 10x38, 14x51 and 22x58mm sizes	100	0.003
<b>FBX 01</b>	Coupling pin for 10x38mm size type FB01 A1M, FB01 B1P and FB01 B1PL only	100	0.005
<b>FBX 02</b>	Coupling pin for 14x51 and 22x58mm sizes	100	0.008
<b>FBX 03</b>	Coupling pin for 10x38mm size types FB01 F, FB01 G, FB01 D only	1	0.005

For FB01 F, FB01 A1M, FB01 B and FB01 G types, AC duty.

<b>P1X 90 31</b>	1-phase connection busbar for 57 modules in total, 996mm/39.2" long	10	0.240
<b>P1X 90 32</b>	2-phase connection busbar for 57 modules in total, 996mm/39.2" long	10	0.320
<b>P1X 90 33</b>	3-phase connection busbar for 60 modules in total, 1060mm/41.7" long	10	0.474
<b>P1X 91 30</b>	Kit of 5 isolating covers for unused busbar terminals	10	0.030
<b>P1X 91 32</b>	End cap for 2-phase P1X 90 32 busbar	50	0.001
<b>P1X 91 31</b>	End cap for 1-phase P1X 90 31 busbar	50	0.001
<b>P1X 91 33</b>	End cap for 3-phase P1X 90 33 busbar	50	0.001
<b>P1X 92 01</b>	1-pole terminal for busbar supply, 25mm <sup>2</sup> max conductor	25	0.011
<b>P1X 92 02</b>	1-pole terminal for busbar supply, 50mm <sup>2</sup> max conductor	25	0.022

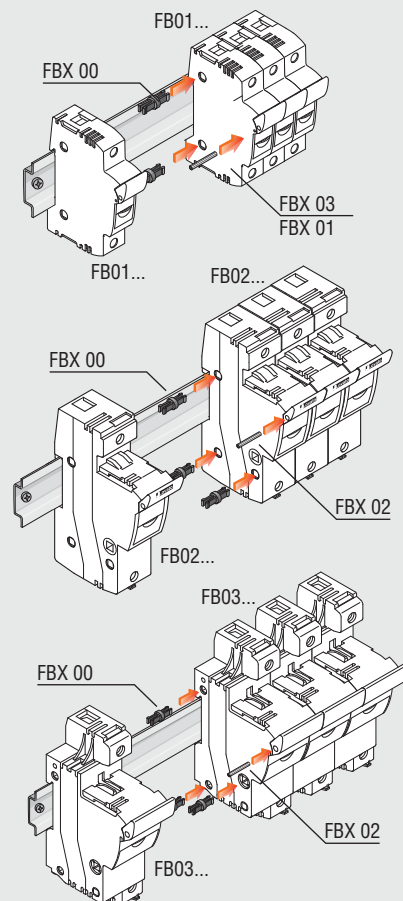
#### General and operational characteristics

##### SUPPLY CONNECTION BUSBARS

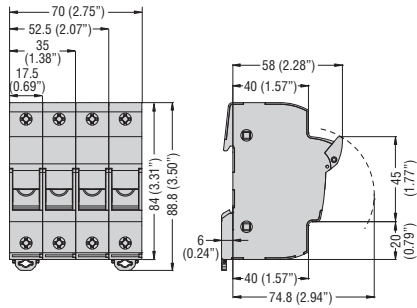
- Central point of power supply: 100A max<sup>①</sup>
- Side point of power supply: 63A max<sup>①</sup>
- Pitch: 18mm/0.7"
- Busbar section: 10mm<sup>2</sup>
- For paralleling connection
- Length can be cut in shorter sections.

<sup>①</sup> See technical characteristics under derating factor of FB01... type for derating factor.

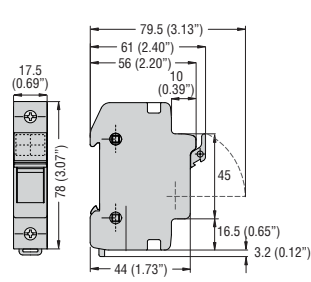
#### Fuse holder combinations



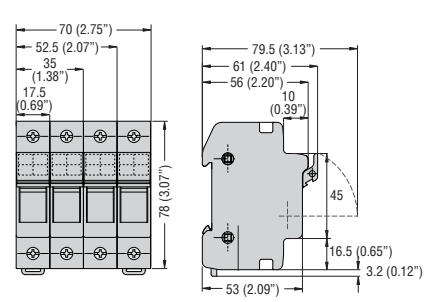
### FB01 F... FB01 G... FB01 D...



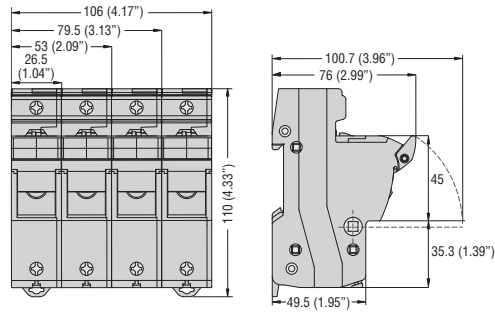
### FB01 A1M



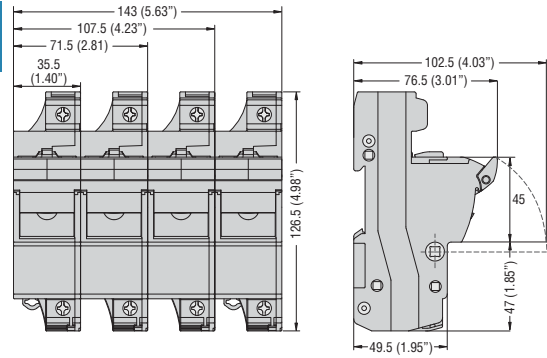
### FB01 B...



### FB02 A...

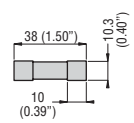


### FB03 A...

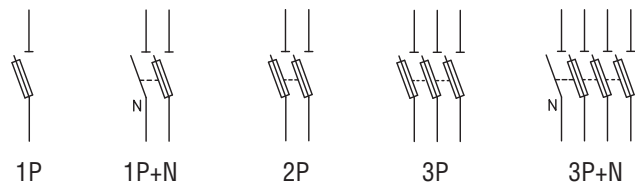


## FUSES

### FE01 D 0...



## Wiring diagrams



TYPE	FB01 F... - FB01 A1M	FB01 B...	FB02 A...	FB03 A...	FB01 G...	FB01 D...
Range	AC				Class CC (AC)	DC
IEC maximum rated current $I_n$	32A		50A	100A <sup>Ⓜ</sup>	30A	32A
IEC maximum rated voltage $U_n$	690VAC; 400VAC <sup>Ⓛ</sup>	690VAC			600VAC	1000VDC
IEC utilisation category	AC22B 500V; AC21B 690V; AC22B 400V <sup>Ⓛ</sup>			AC21B 690V	AC22B 500V; AC21B 690V	DC20B 1000VDC
Maximum power dissipation	3W		5W	9.5W	3W	4W
Derating factor of current $I_n$ for different ambient temperatures	20°C	1				
	30°C	0.95				
	40°C	0.9				
	50°C	0.8				
	60°C	0.7				
	70°C	0.5				
Derating factor of current $I_n$ for side-by-side fuse holders - number of poles	1-4	1				
	5-6	0.8				
	7-9	0.7				
	≥10	0.6				
Voltage for status indicator	120...690VAC		230...690VAC		120...600VAC	350...1000VDC

### CONNECTIONS

Maximum tightening torque		2.5Nm; 2Nm <sup>Ⓛ</sup> / 22lbin	3Nm / 26lbin	4Nm / 35lbin	2.5Nm / 22lbin	
Maximum conductor cross section	flexible/stranded	1x16mm <sup>2</sup> ; 1x6mm <sup>2</sup> <sup>Ⓛ</sup> / 8AWG	1x25mm <sup>2</sup> / 6AWG	1x35mm <sup>2</sup> / 2AWG	1x16mm <sup>2</sup> / 8AWG	1x16mm <sup>2</sup> / 8AWG
	rigid/solid	1x16mm <sup>2</sup> ; 1x10mm <sup>2</sup> <sup>Ⓛ</sup> / 8AWG	1x35mm <sup>2</sup> / 8AWG	1x50mm <sup>2</sup> / 1AWG	1x16mm <sup>2</sup> / 8AWG	1x16mm <sup>2</sup> / 8AWG

### AMBIENT CONDITIONS

Operating temperature	-20...+70°C
Storage temperature	-40...+80°C
Maximum altitude	3,000m
Operation position	Any
Fixing	On 35mm DIN rail (IEC/EN 60715)

<sup>Ⓛ</sup> Values valid only for FB01 A 1M type.

<sup>Ⓜ</sup> Use with gG/aM class 125A fuses, not dissipating more than 12W power.

### TECHNICAL CHARACTERISTICS FOR FE01 D... FUSES

TYPE	Rated current [A]	Power consumption at 0.7 $I_n$ [W]	Power consumption at $I_n$ [W]	Prearcing $I^2t$ [A <sup>2</sup> s]	Total $I^2t$ at 1000VDC [A <sup>2</sup> s]
FE01 D 00200	2	0.78	1.45	0.62	1
FE01 D 00400	4	0.64	1.57	6.9	11
FE01 D 00600	6	0.76	1.84	24	38
FE01 D 00800	8	0.8	1.92	62	99
FE01 D 01000	10	0.94	2.2	10	48
FE01 D 01200	12	0.98	2.4	18	94
FE01 D 01600	16	1.1	2.7	46	110
FE01 D 02000	20	1.2	2.9	118	282

### TIME-CURRENT CHARACTERISTICS FOR FE01 D 0... FUSES

