

FUSERBLOC BS88 changeover switch

BS fuse combination changeover switches
from 32 to 400 A



fuser_426.eps

The solution for

- > Data centre
- > Industry

Strong points

- > Optimum safety
- > High breaking capacity

Conformity to standards

- > IEC 60947-3

Function

The **FUSERBLOC range of fuse switches** is a great solution for safeguarding your energy supply and protecting and isolating pumps and sensitive loads.

Advantages

Optimum safety

- Complete isolation of the fuse with double breaking per pole (top and bottom of fuse).
- Positive break indication.

High breaking capacity

Protection against overloads and shortcircuits thanks to high breaking capacity fuses (100 kA rms).

General characteristics

- Range from 32 to 400 A.
- Available in 3P or 4P.
- BS fuses.

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References

BS 88 - External front - 32 to 400 A

Rating (A) Fuse size Frame size	Number of poles	Reference Changeover I - 0 - II	Changeover external front handle I - 0 - II	Shaft extensions for handle	Terminal shrouds ⁽³⁾	U type A/C ⁽²⁾				
CD 32 A A1 0	3 P	3680 3001	S1 type Black IP65 1413 2113 ⁽¹⁾ Red/Yellow IP65 1414 2113	320 mm 1401 0532						
	3 P + switched neutral	3680 4001								
63 A A2-A3 12	3 P	3880 3006		S2 type Black IP65 1423 2113 ⁽¹⁾ Red/Yellow IP65 1424 2113						
	4 P	3880 6006								
100 A A4 ⁽⁴⁾ 13	3 P	3880 3010						3 P 3998 3016 4 P 3998 4016		
	4 P	3880 6010								
160 A A4 14	3 P	3880 3015								
	4 P	3880 6015								
CD 200 A A3-A4 ^{(4) (5)} 13 A	3 P	3880 3019	S2 type Black IP65 1423 2113 ⁽¹⁾ Red/Yellow IP65 1424 2113	320 mm 1400 1032	3 P 3998 3016 4 P 3998 4016	1 contact NO 3999 0701 1 contact NC 3999 0702				
	4 P	3880 6019								
250 A B1-B2-B3 ⁽⁵⁾ 15	3 P	3880 3024							3P 3998 3025 4P 3998 4025	
	4 P	3880 6024								
400 A B1-B2-B3-B4 ⁽⁵⁾ 16	3 P	3880 3039							3P 3998 3040 4P 3998 4040	
	4 P	3880 6039								

(1) Standard.

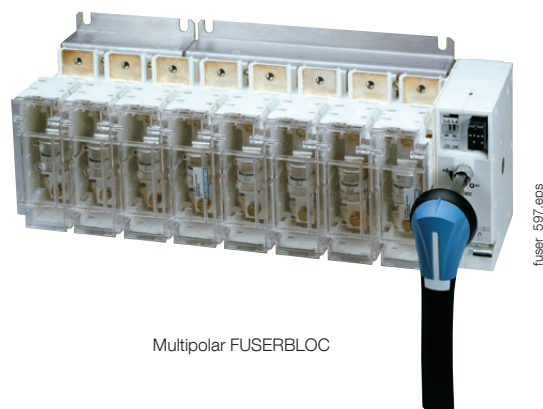
(2) Please refer to the accessories section for auxiliary contact capacity.

(3) Top or bottom; to shroud incoming and outgoing side order quantity 2.

(4) For fuse size A4: max diameter 31 mm.

(5) Fuse ratings to be adapt for other lower ratings

Customised solutions



Multipolar FUSERBLOC

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Accessories

Direct operation handle

For front operation				
Rating (A)	Frame size	Figure no.	Handle colour	Reference
63 ... 400	12 ... 16	2	Black	3629 7910 ⁽¹⁾

(1) Direct operation handle for switches 3880 xxxx.



Fig.2

External front operation handle

Padlockable handle in position 0							
Rating (A)	Frame size	Handle type	Handle colour	Operation	External IP ⁽¹⁾	Defeatable handle	Reference
CD 32	0	S1	Black	I-O-II	IP65	Yes	1413 2113
CD 32	0/12	S1	Red/Yellow	I-O-II	IP65	Yes	1414 2113
63 ... 400	12 ... 16	S2	Black	I-O-II	IP55	Yes	1421 2113
63 ... 400	12 ... 16	S2	Red/Yellow	I-O-II	IP65	Yes	1424 2113

(1) IP: protection degree according to IEC 60529 standard.



S1 type handle

S2 type handle

Alternative S-type handle cover colours

Use

For single lever handles S1, S2 types.
Other colours: please consult us.

Handle colour	To be ordered in multiples of	Handle type	Reference
Light grey	50	S1, S2	1401 0001
Dark grey	50	S1, S2	1401 0011



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Shaft guide for external operation

Use

To guide the shaft extension into the external handle.
This accessory enables the handle to engage the extension shaft with a misalignment of up to 15 mm.
Required for a shaft lengths over 320 mm.

Description	Reference
Shaft guide	1429 0000



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Solid links

BS88 switches				
Rating (A)	Frame size	Fuse size	I _{max} (A)	Reference
63	12	A2-A3	63	3629 9006
100	13	A4	160	3629 9010
160	14	A4	160	3629 9010
250	15	B1-B2-B3	315	3629 9025
400	16	B1-B2-B3-B4	400	3629 9040

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Shaft for external front operation handle

Use

Standard lengths: Other lengths: consult us.

- 200 mm
- 320 mm
- 400 mm
- 500 mm.

Rating (A)	Frame size	Shaft length (mm)	Reference
CD 32	0	200	1401 0520
CD 32	0	320	1401 0532
CD 32	0	400	1401 0540 ⁽¹⁾
63 ... 400	12 ... 16	200	1400 1020
63 ... 400	12 ... 16	320	1400 1032
63 ... 400	12 ... 16	500	1400 1050 ⁽²⁾

⁽¹⁾ Use the shaft guide accessory for external operation.

⁽²⁾ Use the front operation shaft support accessory.

Dimension X (mm)

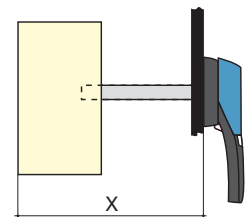
Rating (A)	CD 32	63 ... 160	250 ... 400
Fuse size	A1	A2-A3/A4	B1-B2-B3
Frame size	0	12/13/14	15/16
Shaft length (mm)			
200	102 ... 245	125 ... 230	160 ... 230
320	102 ... 365	125 ... 350	160 ... 350
400	102 ... 445		
500		125 ... 530	160 ... 530



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U-type auxiliary contacts⁽¹⁾

Use

Compact universal type auxiliary contacts which can be configured for operation in either, or both, ON and TEST positions for CD 32 to 400 A FUSERBLOC. Each slot can accommodate up to two interlocked A/Cs.

Connection to the control circuit

By terminals with max. section 2 x 2.5 mm².
For FUSERBLOC CD 32 to 400 A. Pre-break and signalling of positions 0, I and TEST.

References

NO auxiliary contacts			
Rating (A)	Frame size	Contact(s)	Reference ⁽¹⁾
CD 32 ... 400	0 ... 16	1	3999 0701 ⁽²⁾
NC auxiliary contacts			
Rating (A)	Frame size	Contact(s)	Reference ⁽¹⁾
CD 32 ... 400	0 ... 16	1	3999 0702 ⁽²⁾
Contact holder for additional auxiliary contacts			
Rating (A)	Frame size	Contact(s) ⁽³⁾	Reference
CD 32	0	4 (2 x 2 max)	3999 0710
63 ... 400	12 ... 16	4 (2 x 2 max)	3999 0600

⁽¹⁾ Cannot be mounted in direct operation CD 32 switches.

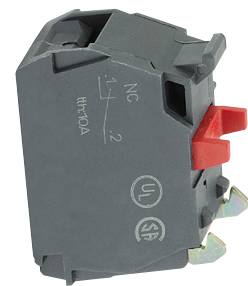
⁽²⁾ CD 32 - CD 200 A 4 auxiliary contacts can be fitted without additional A/C holder.

200 - 400 A 8 auxiliary contacts can be fitted without additional A/C holder.

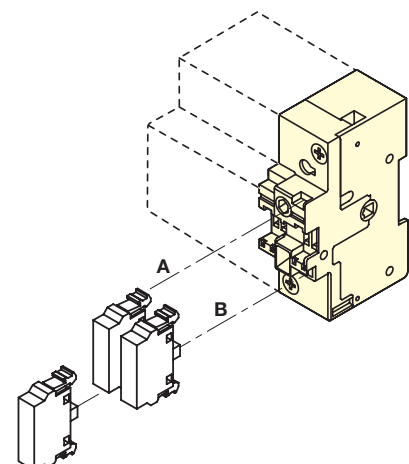
⁽³⁾ Allows an additional 4 auxiliary contacts to be fitted.

Characteristics

Rating (A)	Operating current I _e (A)			
	250 VAC	400 VAC	24 VDC	48 VDC
	AC-15	AC-15	DC-13	DC-13
CD 32 ... 400	3	1.8	2.8	1.4



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⁽¹⁾ CD 32 : U-type auxiliary contacts cannot be mounted on switches with an integrated solid neutral or with direct operation handle.

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Accessories (continued)

S and ST-type auxiliary contacts

Use

For FUSERBLOCs 63 to 400 A, position 0 and I signalling by 1 to 4 NO + NC auxiliary contacts.

Electrical principle

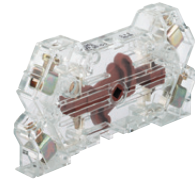
The NO + NC S-type auxiliary contacts can be configured as 2 NC or 2 NO.

Connection

By terminals with max. cross-section 10 mm².

Mechanical characteristics

30 000 operations.



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References

S-type auxiliary contacts 0-I

for external front and right-side operation (Standard operation)

Rating (A)	Frame size	Contact type	S-type AC Reference	Drive shaft (optional) Reference
63 ... 400	12 ... 18	NC+NO	3999 0041 ⁽¹⁾	3999 0003

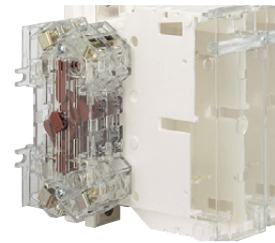
ST-type auxiliary contacts I-0-TEST

for external front and right-side operation (TEST operation)

Rating (A)	Frame size	Contact type	Description	ST-type AC Reference	Drive shaft Reference
63 ... 400	12 ... 16	NC+NO	TEST + ON	3999 0141 ⁽²⁾	3999 0103
63 ... 400	12 ... 16	2 O	TEST + ON	3999 0241 ⁽²⁾	3999 0103

(1) Drive shaft included with S-type Auxiliary Contact.

(2) Drive shaft to be ordered in addition to the ST-type Auxiliary Contact.



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Characteristics

Rating (A)	Current nominal (A)	Operating current I _o (A)	
		250 VAC AC-13	400 VAC AC-13
63 ... 400	20	10	8

Important:

> For the 400 A frame size 16, an adaptation kit reference 3999 0000 must be ordered in addition to the auxiliary contact kit.

Terminal shrouds

Use

Top or bottom IP20 protection (on the front) against direct contact with terminals or connection parts.

Two sets required to fully shroud both incoming and outgoing terminals.

Rating (A)	Frame size	Position	No. of poles	Reference
CD 32	12	top / bottom	2 / 3 / 4 P	integrated
63... 200	13/14	top / bottom	3 P	3998 3016
63 ... 200	13/14	top / bottom	4 P	3998 4016
200 ... 400	15	top / bottom	3 P	3998 3025
200 ... 400	15	top / bottom	4 P	3998 4025
400	16	top / bottom	3 P	3898 3040
400	16	top / bottom	4 P	3898 4040



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Electronic fuse monitoring device (FMD)

Use

Provides fuse status monitoring and fuse blown indication even for fuse links without monitoring device strikers. Suitable for use with BS88, DIN and UL type fuses.

Principle

The Fuse Monitoring Device (FMD) detects fuse status and provides a signal via: a relay and a bi-stable relay and 3 LEDs (FMD30).

The FMD can be DIN rail or back plate mounted close to the Fuserbloc, directly mounted on the FUSERBLOC, or it can be door mounted to provide information directly on the front of a panel.

References

For FUSERBLOC 63 to 1250A - size 000 to 4		
Nb of LEDs	Operating voltage Ph/Ph	Reference
3 (FMD30)	120 - 260 VAC	3899 3120
3 (FMD30)	380 - 690 VAC	3899 3380
Accessories		Reference
Kit for connection accessories		Standard 3819 9120
Kit for connection accessories		Door mounted 3829 9120

Relay characteristics

Rating (A)	Relay operating current I _c (A)	
	AC-15	DC-13
63 ... 400	2.5 A	0.2



3 LED version (FMD30)

Important:

- > For direct mounting on the 400 A frame size 16, an adaptation kit reference 3999 0000 must be ordered in addition to the FMD.

Cage terminals

Use

Connection of bare copper cables onto the terminals (without lugs).

References

Rating max (A)	Frame size	No. of poles	Reference
CD 32	0 ... 12	2 / 3 / 4 P	integrated
63 ... 160	13/14	3 P	5400 3016
63 ... 160	13/14	4 P	5400 4016
250	15	3 P	5400 3025
250	15	4 P	5400 4025
400	16	3 P	5400 3040
400	16	4 P	5400 4040

Connections

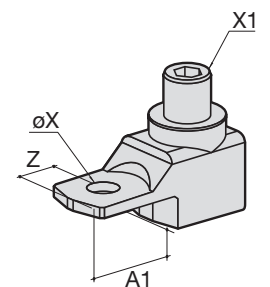
Rating (A)	Flexible cable cross-section (mm ²)	Rigid cable cross-section (mm ²)	Flexible bar width (mm)	Stripped over (mm)
100 ... 160	16 ... 95	16 ... 95	13	22
250	16 ... 185	16 ... 185	18	27
400	50 ... 240	50 ... 300	20	34

Dimensions

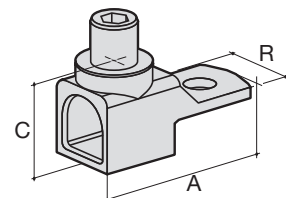
Rating (A)	A	A1	C	R	ØX	X1	Z
100 ... 160	47.5	22.5	25	20	8.5	M12	10
250	62	31.5	31.5	25	10.5	M16	14
400	71.5	32	38	32	10.5	M20	15



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Label holder

Use

Recognisable self-adhesive label allowing identification of the devices.

Dimensions W x H (mm)	Nb of pieces in KIT	Reference
18 x 13	5	7769 9999



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from 32 to 400 A

Characteristics according to IEC 60947-3

32 to 160 A

Reference (replace "x" with 3=3 poles & 6=4 poles)	3680 x004	3880 x006	3880 x010	3880 x015
Type	CD 32 A	Mod. 63 A	Mod. 100 A	Mod. 160 A
Frame size	0	12	13	13
Power pole pitch (mm)	-	32	36	36
Number of pole (SWN= switched neutral)	3, 4(SWN)	3, 4	3, 4	3, 4
Thermal current I_{th} (35°C)	CD 32 A	63 A	100 A	160A
Fuse size BS88	A1	A2-A3	A4*	A4
Rated operational voltage U _e (V)	690	690	690	690V
Rated insulation voltage U _i (V)	800	800	800	800
Rated impulse withstand voltage U _{imp} (kV)	8	8	8	8

Short-circuit characteristics with gM/gG fuse

Associated gM/gG fuse rating (A)	32	63	100	160
Prospective short-circuit current at U _e 400/415 VAC (kA rms)	80	50	80	50
Prospective short-circuit current at U _e 660/690 VAC (kA rms)	-	50	50	50
Dynamic withstand in I _{sc} U _e 415 VAC (peak kA)	5.5	7.3	11.9	-
Dynamic withstand in I _{sc} U _e 690 VAC (peak kA)	-	7.3	15.8	-

Rated operational currents I_e (A)

Nominal voltage	Category of use	A/B ⁽¹⁾	A/B ⁽¹⁾	A/B ⁽¹⁾	A/B ⁽¹⁾
415 VAC	AC 21 A / AC 21 B	32/32	63/63	100/100	160/160
415 VAC	AC 22 A / AC 22 B	32/32	63/63	100/100	160/160
415 VAC	AC 23 A / AC 23 B	32/32	63/63	100/100	160/160
500 VAC	AC 21 A / AC 21 B	32/32	63/63	100/100	160/160
500 VAC	AC 22 A / AC 22 B	32/32	63/63	100/100	160/160
500 VAC	AC 23 A / AC 23 B	32/32	63/63	100/100	160/160
690 VAC	AC 20 A / AC 20 B	32/32	63/63	100/100	160/160
690 VAC	AC 21 A / AC 21 B	32/32	63/63	100/100	160/160
690 VAC ⁽²⁾	AC 22 A / AC 22 B	32/32	63/63	100/100	160/160
690 VAC ⁽²⁾	AC 23 A / AC 23 B	32/32	63/63	100/100	125/125
220 VDC	DC 21 A / DC 21 B	-/32	-/63	100/100	160/160
220 VDC	DC 22 A / DC 22 B	-/32	-	100/100	160/160
220 VDC	DC 23 A / DC 23 B	-/25 ⁽¹⁾	-	100/100	125/125
400 VDC	DC 21 A / DC 21 B	-	-/63 ⁽³⁾	100 ⁽³⁾ /100 ⁽³⁾	160 ⁽³⁾ /160 ⁽³⁾
400 VDC	DC 22 A / DC 22 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	160 ⁽³⁾ /160 ⁽³⁾
400 VDC	DC 23 A / DC 23 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	125 ⁽³⁾ /125 ⁽³⁾
440 VDC	DC 21 A / DC 21 B	-	-/63 ⁽³⁾	100 ⁽³⁾ /100 ⁽³⁾	160 ⁽³⁾ /160 ⁽³⁾
440 VDC	DC 22 A / DC 22 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	160 ⁽³⁾ /160 ⁽³⁾
440 VDC	DC 23 A / DC 23 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	125 ⁽³⁾ /125 ⁽³⁾
500 VDC	DC 21 A / DC 21 B	-	-/63 ⁽³⁾	100 ⁽³⁾ /100 ⁽³⁾	-
500 VDC	DC 22 A / DC 22 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	-
500 VDC	DC 23 A / DC 23 B	-	-	100 ⁽³⁾ /100 ⁽³⁾	-

Rated operational power in AC-23 (kW)

At U _e 415 VAC w/o pre-break auxiliary contact ⁽¹⁾⁽⁴⁾	15	30	51	80
At U _e 690 VAC w/o pre-break auxiliary contact ⁽¹⁾⁽⁴⁾	25	55	90	110

Reactive power (kvar)

At U _e 415 VAC ⁽⁴⁾	15	28	45	75
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Power dissipation (W/pole)	4.4	8.4	14.5	21,6
Power dissipated by the fuse (W/pole)	1,8	6	9	12
Power dissipation by device (W/pole)	2.6	4.35	6.8	10,4

Connection capacity

Minimum copper cable cross section (mm ²)	2.5	10	25	35
Maximum copper cable cross section (mm ²)	6	25	95	95
Maximum bar width (mm)	-	-	20	20
Minimum tightening torque (Nm)	2	3	9	9

Mechanical characteristics

Durability (number of operating cycles)	10 000	10 000	10 000	10 000
Operating torque (Nm)	2.4/3	8.7	9.7	10.2
Weight of a non-accessorized 3-pole device (kg)	0.50	1	1.5	1.8
Weight of a non-accessorized 4-pole device (kg)	0.52	1.3	2	2.3
Weight in additional 1 P (kg)	-	0.3	0.5	0.5

Storage temperature (°C)				
Operating temperature (°C)				
Normative compliance				
Certification				
Pollution degree	3	3	3	3

⁽¹⁾ Category with index A = frequent operation / Category with index B = infrequent operation.

⁽²⁾ with terminal shrouds or with terminal separation screen

⁽³⁾ 3-pole device with 2 poles "+" in series and 1 pole "-".

⁽⁴⁾ The power value is given for information only, the current values vary from one manufacturer to another..

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160 to 400 A

Reference (replace "x" with 3=3 poles & 6=4 poles)	3880 x019	3880 x024	3880 x039
Type	Mod. CD 200 A	Mod. 250 A	Mod. 400 A
Frame size	13A	15	16
Power pole pitch (mm)	36	60	66
Number of pole (SWN= switched neutral)	3, 4	3, 4	3, 4
Thermal current I _{th} (35°C)	200A	250A	400A
Fuse size BS88	A3 - A4*	B1-B2-B3	B1-B2-B3-B4
Rated operational voltage U _e (V)	415V	690V	690V
Rated insulation voltage U _i (V)	800	800	1000
Rated impulse withstand voltage U _{imp} (kV)	8	8	12

Short-circuit characteristics with gM/gG fuse

Associated gM/gG fuse rating (A)	200	250	400
Prospective short-circuit current at U _e 400/415 VAC (kA rms)	80	80	50
Prospective short-circuit current at U _e 660/690 VAC (kA rms)	50	50	50
Dynamic withstand in I _{sc} U _e 415 VAC (peak kA)	5.52	23,9	33,5
Dynamic withstand in I _{sc} U _e 690 VAC (peak kA)	6.5	29	29,9

Rated operational currents I_e (A)

Nominal voltage	Category of use	A/B ⁽¹⁾	A/B ⁽¹⁾	A/B ⁽¹⁾
415 VAC	AC 21 A / AC 21 B	-/200	250/250	400/400
415 VAC	AC 22 A / AC 22 B	-/200	250/250	400/400
415 VAC	AC 23 A / AC 23 B	200/200	250/250	400/400
500 VAC	AC 21 A / AC 21 B	-	250/250	-/400
500 VAC	AC 22 A / AC 22 B	-	250/250	-/400
500 VAC	AC 23 A / AC 23 B	-	250/250	-
690 VAC ⁽²⁾	AC 20 A / AC 20 B	-	250/250	400/400
690 VAC ⁽²⁾	AC 21 A / AC 21 B	-	250/250	-/400
690 VAC ⁽²⁾	AC 22 A / AC 22 B	-	250/250	-/400
690 VAC ⁽²⁾	AC 23 A / AC 23 B	-	160/160	250/315
220 VDC	DC 21 A / DC 21 B	-	250/250	-
220 VDC	DC 22 A / DC 22 B	-	250/250	-
220 VDC	DC 23 A / DC 23 B	-	200/200	-
400 VDC	DC 21 A / DC 21 B	-	250 ⁽³⁾ /250 ⁽³⁾	-/250 ⁽¹⁾
400 VDC	DC 22 A / DC 22 B	-	250 ⁽³⁾ /250 ⁽³⁾	-/350 ⁽³⁾
400 VDC	DC 23 A / DC 23 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
440 VDC	DC 21 A / DC 21 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
440 VDC	DC 22 A / DC 22 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
440 VDC	DC 23 A / DC 23 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
500 VDC	DC 21 A / DC 21 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
500 VDC	DC 22 A / DC 22 B	-	250 ⁽³⁾ /250 ⁽³⁾	-
500 VDC	DC 23 A / DC 23 B	-	250 ⁽³⁾ /250 ⁽³⁾	-

Rated operational power in AC-23 (kW)

At U _e 415 VAC w/o pre-break auxiliary contact ⁽¹⁾⁽⁴⁾	80	132	220
At U _e 690 VAC w/o pre-break auxiliary contact ⁽¹⁾⁽⁴⁾	110	220	220

Reactive power (kvar)

At U _e 415 VAC ⁽⁴⁾	90	115	185
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Power dissipation (W/pole)	21,6	41,1	65,6
Power dissipated by the fuse (W/pole)	12	23	33
Power dissipation by device (W/pole)	10,4	19	29,6

Connection capacity

Minimum copper cable cross section (mm ²)	35	95	1x185
Maximum copper cable cross section (mm ²)	95	240	1x240
Maximum bar width (mm)	20	32	45
Minimum tightening torque (Nm)	9	20	20

Mechanical characteristics

Durability (number of operating cycles)	10 000	10 000	10 000
Operating torque (Nm)	10.2	13	17
Weight of a non-accessorized 3-pole device (kg)	2,1	3.2	4.7
Weight of a non-accessorized 4-pole device (kg)	2,6	4.5	5,9
Weight in additional 1 P (kg)	0.6	1.3	1.4

Storage temperature (°C)			
Operating temperature (°C)			
Normative compliance			
Certification			
Pollution degree	3	3	3

⁽¹⁾ Category with index A = frequent operation / Category with index B = infrequent operation.

⁽²⁾ with terminal shrouds or with terminal separation screen

⁽³⁾ 3-pole device with 2 poles "+" in series and 1 pole "-".

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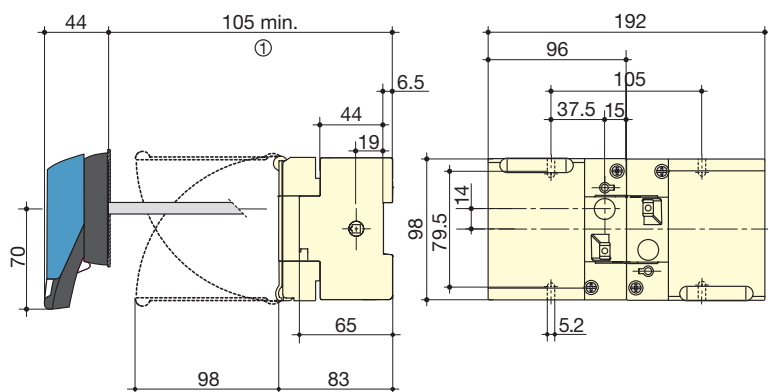
from 32 to 400 A

Dimensions

External operation

BS88 CD 32 A in size A1

External front operation fuse combination changeover



1. With 1 U-type AC: 130 mm
With 2 U-type AC: 155 mm.

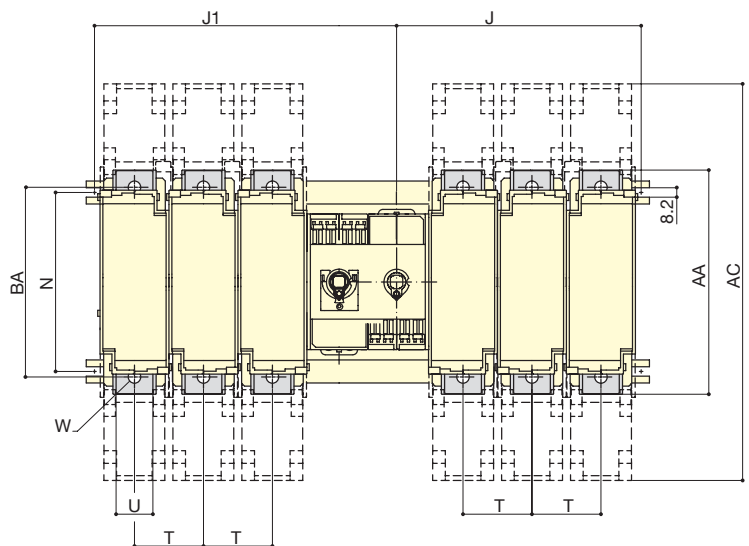
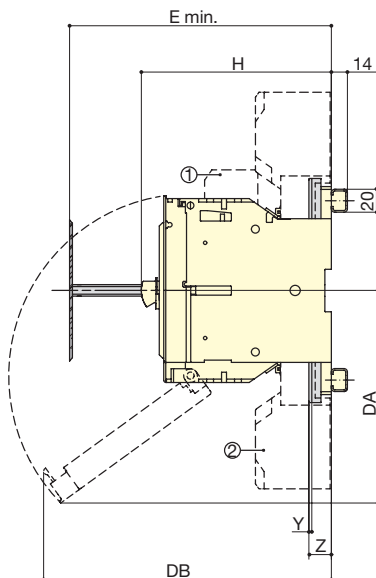
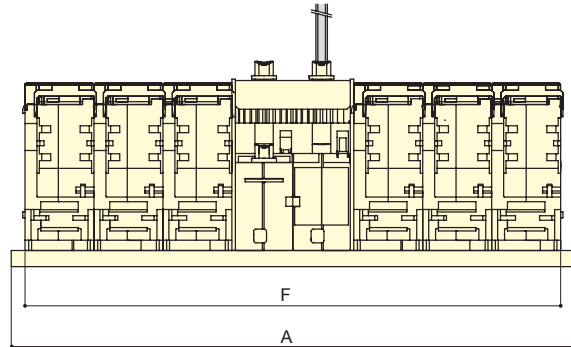
fuser_440

FUSERBLOC BS88 changeover switch

BS fuse combination changeover switches
from 32 to 400 A

BS88 - External front operation fuse combination changeover

63 to 400 A



- A. S1 handle: 63 A
- B. S1 handle: 100 to 400 A
- C. Door drilling

- 1. Fuse blown indication not available for BS88
- 2. Terminal shrouds

Rating (A)	Fuse size	Frame size	Dimensions				Terminal shrouds		Switch body							Switch mounting		Connection							
			A 3 P	A 4 P	E min	E max	AC	F 3 P	F 4 P	H	J 3 P	J 4 P	J 1 3 P	J 1 4 P	DA	DB	N	T	U	W	Y	Z	AA	BA	
63	A2-A3	12	294	358	124	145		272	336	116.5	121	153	157	189	159	145	90	32						118	
100	A4	13	318	390	124	145	268	296	368	116 ⁽²⁾	133	169	169	205	141	179	128	36	20	8.5	2.5	19.5	162	141	
160	A4	14	402	502	124	225	268	380	480	136.5	176	226	212	262	174	229	128	50	20	8.5	2.5	19.5	162	141	
250	B1-B2-B3	15	490	610	154	225	345	468	588	146	213	273	263	323	185	251	155	60	32	11	2.5	19.5	195	166	
400	B1-B2-B3-B4	16	526	658	157	225	355	504	636	149	231	297	281	347	200	260	168	66	50	11	3	20	205	175	

(1) 1 AC: + 23.5 mm / 2 AC: + 47 mm.
(2) 132 mm with 2 AC.