



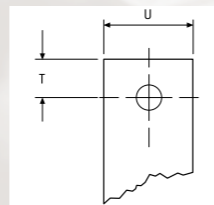
THE SANTON
FCS-TYPE
SWITCH DISCONNECT

FUSE COMBINATION SWITCHES - 32A TO 800A

The technical information given in this table applies to 3 and 4 pole fuse combination switches.

	FRAME SIZE NOMINAL RATING	1		2		3		3		4		4A		4B		5		6		6					
		32A	63A	100A	125A	160A	200A	250A	315A	400A	500A	630A	800A	250A	315A	400A	500A	630A	800A	250A	315A	400A	500A	630A	800A
Rated insulation voltage (3)		690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
Rated thermal current and operational current AC22, Ambient 40°C, free	in open air	550V	32A	63A	100A	125A	160A	200A	200A	250A	400A	400A	630A	800A											
	in enclosure	550V	32A	63A	100A	125A	160A	200A	200A	220A	400A	400A	630A	800A											
mounting position	in enclosure with solid links	550V	45A	63A	125A	160A	200A	315A	315A	630A	630A	800A	1000A												
Rated operational voltage		550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V	550V
Rated operational current in categories		220V	32A	63A	100A	125A	160A	200A	200A	250A	315A	400A	630A	710A											
AC23 and AC3. Time interval between operations 30s in AC3 (2)		380V	32A	63A	100A	125A	160A	200A	200A	250A	315A	400A	630A	710A											
		415V	32A	63A	100A	125A	160A	200A	200A	250A	315A	400A	630A	710A											
		500V	32A	63A	100A	125A	160A	200A	200A	250A	315A	400A	-	710A											
		550V	32A	63A	100A	125A	160A	200A	200A	250A	315A	400A	-	710A											
Rated operational current DC23	single pole	110V	32A	32A	100A	125A	160A	200A	200A	250A	315A	400A	630A	800A											
	two poles in series	250V	32A	32A	100A	125A	160A	200A	200A	250A	315A	400A	630A	800A											
	two poles in series	500V	32A	32A	100A	80A	160A	200A	-	-	-	-	-	-											
Rated operational power in categories		220V	7.5kW	15kW	30kW	37kW	45kW	55kW	55kW	75kW	110kW	132kW	200kW	220kW											
AC23 and AC3. Time interval between operations 30s in AC3 (2)		380V	15kW	30kW	45kW	55kW	75kW	110kW	110kW	130kW	150kW	185kW	315kW	355kW											
		415V	15kW	30kW	45kW	55kW	75kW	110kW	110kW	130kW	150kW	225kW	375kW	410kW											
		500V	20kW	37kW	60kW	75kW	-	130kW	150kW	185kW	280kW	-	470kW												
		550V	22kW	45kW	75kW	90kW	-	150kW	185kW	225kW	300kW	-	600kW												
Rated breaking capacity AC, cos = 0.35		415V	250A	500A	800A	1000A	1280A	1600A	2000A	2500A	3200A	4000A	5680A												
		500V	250A	500A	800A	1000A	1280A	1600A	2000A	2500A	3200A	-	5680A												
		550V	250A	500A	800A	1000A	1280A	1600A	2000A	2500A	3200A	-	5680A												
Rated breaking capacity DC, L/R = 15ms	single pole	110V	128A	250A	250A	500A	640A	800A	1000A	1260A	1600A	2520A	2840A												
	two poles in series	250V	128A	250A	250A	500A	640A	800A	1000A	1260A	1600A	2520A	2840A												
	two poles in series	500V	128A	250A	250A	320A	640A	800A	-	-	-	-	-												
Short circuit current in closed position	R.M.S. value	415V	63kA	100kA	100kA	63kA	63kA	63kA	100kA	63kA	63kA	50kA	50kA												
Rated fused short circuit current and making capacity on fault level		500V	63kA	100kA	100kA	63kA	63kA	63kA	100kA	63kA	63kA	50kA	50kA												
	Peak value	550V	130kA	210kA	210kA	130kA	130kA	130kA	210kA	130kA	130kA	105kA	105kA												
	R.M.S. value	415V	63kA	100kA	100kA	63kA	63kA	63kA	100kA	63kA	63kA	50kA	50kA												
		500V	63kA	100kA	100kA	63kA	63kA	63kA	100kA	63kA	63kA	50kA	50kA												
	Peak value	550V	130kA	210kA	210kA	130kA	130kA	130kA	210kA	130kA	130kA	105kA	105kA												
Max. peak let through current		6kA	15kA	15kA	15kA	22kA	29kA	29kA	52kA	52kA	71kA	71kA													
Rated short-time withstand current, 1s.	R.M.S. value	550V	1.5kA	3kA	3kA	5kA	5kA	5kA	10kA	10kA	12.6kA	16kA													
Rated capacitor power (1)	(kVA)	380V	21	41	50	82	100	130	130	180	180	250	310												
	(kVA)	415V	24	45	55	90	120	140	140	200	200	270	340												
Rated impulse withstand voltage peak value		10kV	12kV	12kV	12kV	12kV	12kV	12kV	12kV	12kV	12kV	12kV	15kV												
Mechanical endurance (operations)		10000	10000	10000	10000	10000	10000	10000	8000	8000	8000	5000	5000												
Fuse types BS pattern	BS88 ref.	A1	0/A	A2-A3	A2-A4	0/A	B1-B2	B1-B2	B1-B4	B1-B4	C1-C3	C1-C3													
	Fuse fixing centres (mm)	44.5	73	73	73/94	73/94	111	111	111	111	133,184	133,184													
Solid copper links		20MLK	63MLK	100MLK	100MLK	100MLK	200MLK	200MLK	400MLK	400MLK	600MLK	800MLK													
Weight (cartoned) without HRC fuselinks	TP	1.04kg	1.57kg	1.57kg	2.51kg	6.70kg	6.70kg	6.70kg	18.5kg	18.5kg	38kg	38kg													
	TPN, TPSN	1.20kg	1.81kg	1.81kg	2.78kg	7.50kg	7.50kg	7.50kg	19.5kg	19.5kg	41kg	41kg													

- The capacitor rating of the switch is limited by the fuselink fitted.
- Some fuselinks limit these figures further. Starting current characteristics must be considered separately.
- Units rated insulation voltage at 1000V available to special order.

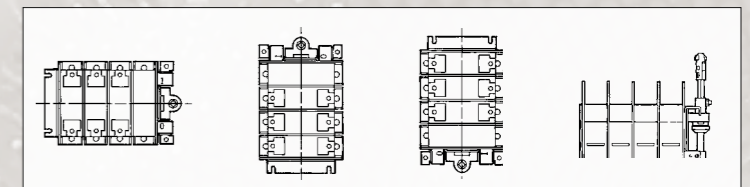


Connector sizes and termination torque settings

Frame Sizes	Maximum Connector Sizes		Torque Setting Maximum Cable Sizes	Torque Setting Cable Terminals (NM)	Torque Setting Fuse Terminals (NM)	Auxiliary Terminals (NM)
	Dimension T	Dimension U				
1	Box Clamp up to 25 mm ² cable		25mm ²	3.0 (M5)	1.2 (M4)	0.5 (M3)
2	10mm	19mm	35mm ²	5.0 (M6)	2.0 (M5)	0.5 (M3)
3	12mm	22mm	70mm ²	12.0 (M8)	4.0/2.0 (M5/M6)	0.5 (M3)
4 + 4A	22mm	32mm	150mm ²	25.0 (M10)	25.0 (M8)	0.5 (M3)
4B	22mm	40mm	240mm ²	25.0 (M10)	25.0 (M8)	0.5 (M3)
5	22mm	58mm	500mm ²	50.0 (M14)	50.0 (m8)	0.5 (M3)
6	40mm	70mm	630mm ²	100.0 (M20)	100.0 (M10)	0.5 (M3)

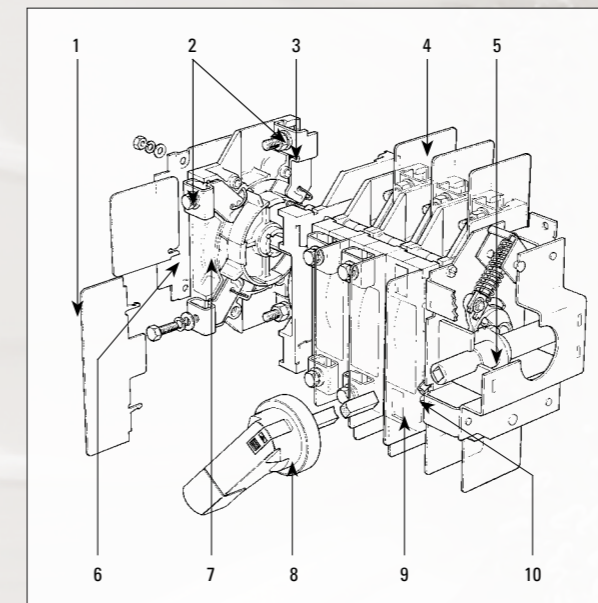
FEATURES

- TP, TPN, TPSN pole configurations
- Accommodate BS88 HRC fuselinks
- Comply with BSEN 60947-3
- ASTA certified
- Superior performance AC22 and AC23 switch ratings
- Complete fuse isolation in the OFF position
- Double break wiping action contact system ensures minimal contact wear
- Fuselinks remain stationary providing high reliability for fuse and contact system
- Positive contact indication provided by the handle and the switch
- Operating handles provide IP54 protection and clear ON / OFF indication
- Door interlocking is also provided by the handle
- Padlocks may be fitted in the OFF position
- Moulded handles up to 400A, cast metal above
- Supplied without fuselinks fitted



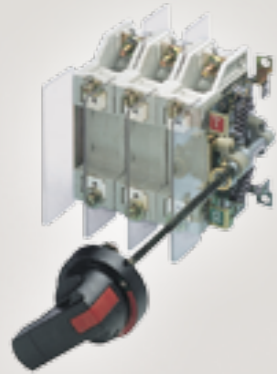
MOUNTING POSITIONS

Switches may be mounted in the positions illustrated above, without the need for de-rating.



- Polycarbonate inter-phase shields.
- Fixed contacts.
- 100A-800A terminations are provided with bolts for easy attachment of cable lugs or solid copper connections.
- Polycarbonate snap-fastening connection barriers.
- Manually independent over centre spring switching mechanism.
- Contact system provides four breaks in series per phase.
- Moving contacts.
- Fully interlocked rotary action operating handle. Interlock may be overridden by a competent operator for inspection and maintenance.
- Choice of switched (neutral makes first, breaks last) or solid neutrals.
- Positive contact indicator shows contact position with door open.

FUSE COMBINATION SWITCHES - 32A TO 800A TP, TPN & TPSN



BS Fuse Version, TP Standard Operation Triple Pole

FRAME SIZE	AC-23A RATING, A @ 550V	AC-22A RATING, A @ 550V	ENCLOSED THERMAL RATING, A	BS88 FUSELINK REF.	TRIPLE POLE CAT. NO.
1	32A	32A	32A	A1	SA32
1	63A	63A	63A	0/A	SA63
2	100A	100A	100A	A2-A3	SA100
3	125A	125A	125A	A2-A4	SA125
3	160A	160A	160A	B1-B2	SA160
4	200A	200A	200A	B1-B2	SA200
4A	250A	250A	250A	B1-B2	SA250
4B	315A	400A	400A	B1-B4	SA315
5	400A	400A	400A	B1-B4	SA400
6	630A	630A	630A	C1-C3	SA630
6	710A	800A	800A	C1-C3	SA800



BS fuse version, TPN standard operation triple pole & bolted neutral

FRAME SIZE	AC-23A RATING, A @ 550V	AC-22A RATING, A @ 550V	ENCLOSED THERMAL RATING, A	BS88 FUSELINK REF.	TRIPLE POLE & BOLTED NEUTRAL CAT. NO.
1	32A	32A	32A	A1	SA32N
1	63A	63A	63A	0/A	SA63N
2	100A	100A	100A	A2-A3	SA100N
3	125A	125A	125A	A2-A4	SA125N
3	160A	160A	160A	B1-B2	SA160N
4	200A	200A	200A	B1-B2	SA200N
4A	250A	250A	250A	B1-B2	SA250N
4B	315A	400A	400A	B1-B4	SA315N
5	400A	400A	400A	B1-B4	SA400N
6	630A	630A	630A	C1-C3	SA630N
6	710A	800A	800A	C1-C3	SA800N



BS fuse version, TPSN standard operation triple pole & switched neutral

FRAME SIZE	AC-23A RATING, A @ 550V	AC-22A RATING, A @ 550V	ENCLOSED THERMAL RATING, A	BS88 FUSELINK REF.	TRIPLE POLE & SWITCHED NEUTRAL CAT. NO.
1	32A	32A	32A	A1	SA32SN
1	63A	63A	63A	0/A	SA63SN
2	100A	100A	100A	A2-A3	SA100SN
3	125A	125A	125A	A2-A4	SA125SN
3	160A	160A	160A	B1-B2	SA160SN
4	200A	200A	200A	B1-B2	SA200SN
4A	250A	250A	250A	B1-B2	SA250SN
4B	315A	400A	400A	B1-B4	SA315SN
5	400A	400A	400A	B1-B4	SA400SN
6	630A	630A	630A	C1-C3	SA630SN
6	710A	800A	800A	C1-C3	SA800SN

SPN, SPSN and switches with test positions are available on request.



Safety Handles

Red/Yellow safety handles (IP54) suitable for up to three padlocks in the OFF position.

FRAME SIZE	FUSE-SWITCH RATING, A	RED/YELLOW SAFETY HANDLES (IP54) CAT. NO.
1-3	32A-160A	3SHN
4 + 4A + 4B	200A-315A	4SHN
5	400A	5SHN
6	630A-800A	6SHN



Extended Handle Shafts

Extended operating shafts, 200mm extra length.

FRAME SIZE	FUSE-SWITCH RATING, A	EXTENDED HANDLE SHAFTS CAT. NO.
1-3	32A - 160A	3SXS
4 + 4A + 4B	200A - 315A	4SXS
5-6	400A - 800A	6SXS

Mechanism Padlocking

To lock switch in OFF position when an enclosure is open.

FRAME SIZE	FUSE-SWITCH RATING, A	MECHANISM PADLOCKING DEVICE CAT. NO.
1-3	32A - 160A	3SPLD
4 + 4A + 4B	200A - 315A	4SPLD
5-6	400A - 800A	6SPLD

Figure Locking Device

To provide locking ON, OFF and interlocking facility. The device is a shaft mounting interlock cam attachment for adaption to Castell or Fortress figure locks (Not supplied).

FRAME SIZE	FUSE-SWITCH RATING, A	CAM ATTACHMENT CAT. NO.
1-3	32A - 160A	3SFLD
4 + 4A + 4B	200A - 315A	4SFLD
5-6	400A - 800A	6SFLD

Cable Terminal Shrouds

Clear polycarbonate shrouds to protect the cable terminations from unintentional contact. (1 per pack).

FRAME SIZE	FUSE-SWITCH RATING, A	POLE CONFIGURATION	CABLE SHROUD CAT. NO.
1	32A - 63A	TPSN, TP, TPN	0/A
2	100A	TP	100TS3
		TPN, TPSN	100TS4
3	125A - 160A	TP	160TS3
		TPN, TPSN	160TS4
4	200A	TP	200TS3
		TPN, TPSN	200TS4
4A	250A	TP	250TS3
		TPN, TPSN	250TS4
4B	315A	TP	315TS3
		TPN, TPSN	315TS4
5	400A	TP	400TS3
		TPN, TPSN	400TS4
6	630A - 800A	TP	800TS3
		TPN, TPSN	800TS4

FUSE COMBINATION SWITCHES - ACCESSORIES

AUXILIARY SWITCHES

Each auxiliary pack contains two sets of changeover contacts. These moulded units have been designed to offer protection against accidental finger contact.

Auxiliary packs can be added to the drive shaft of any switch rating using the appropriate mounting pack adaptor. See table (Applicable up to triple pole units).

UE	ACII	DCII
48V	10A	-
110V	10A	-
220/240V	6A	-
380/440V	4A	-



FRAME SIZE	FUSE-SWITCH RATING, A	NO. OF CONTACTS	AUXILIARY SWITCH CAT. NO.	MOUNTING PACK ADAPTOR CAT. NO.
1-3	32A-160A	2 c/n 2 c/o	1APS	+ 3SMP
		4 c/n 4 c/o	2APS	
		6 c/n 6 c/o	3APS	
		8 c/n 8 c/o	4APS	
4 + 4A + 4B	200A-315A	2 c/n 2 c/o	1APS	+ 4SMP
		4 c/n 4 c/o	2APS	
		6 c/n 6 c/o	3APS	
		8 c/n 8 c/o	4APS	
		12 c/n 12 c/o	6APS	
5-6	400A-800A	2 c/n 2 c/o	1APS	+ 6SMP
		4 c/n 4 c/o	2APS	
		6 c/n 6 c/o	3APS	
		8 c/n 8 c/o	4APS	
		12 c/n 12 c/o	6APS	



Frame size 1 - fuse-switches have finger protected main terminals.

Fuse Covers

Clear polycarbonate clip-on covers to protect all fuses (BS type) from unintentional contact.

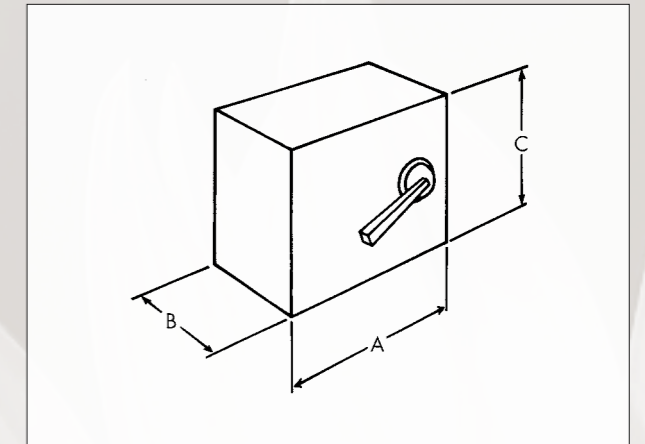
FRAME SIZE	FUSE-SWITCH RATING, A	POLE CONFIGURATION	FUSE COVER CAT. NO.
1	32A-63A	TP, TPSN	32FC3
	32A-63A	TPN	32FC4
2	100A	TP, TPSN	100FC3
	100A	TPN	100FC4
3	125A	TP, TPSN	125FC3
	125A	TPN	125FC4
3	160A	TP, TPSN	160FC3
	160A	TPN	160FC4
4	200A	TP, TPSN	200FC3
	200A	TPN	200FC4
4A	250A	TP, TPSN	250FC3
	250A	TPN	250FC4
4B	315A	TP, TPSN	315FC3
	315A	TPN	315FC4
5	400A	TP, TPSN	400FC3
	400A	TPN	400FC4
6	630A-800A	TP, TPSN	800FC3
	630A-800A	TPN	800FC4

Internal Enclosure Dimensions

These enclosure dimensions are for guidance only as recommended minimum inside enclosure dimensions, for temperature rise considerations.

Note: Larger dimensions may be necessary for the bending and termination of cables, copper, etc...

SWITCH RATING, A	A BS	B BS	C
32A-63A	170	100	180
100A, 125A	260	140	225
160A, 200A	325	200	350
315A, 400A	460	285	475
630A, 800A	675	375	575



Handle Operating Shaft

The cut length of the handle operating shaft must allow a distance of 'A' when the door is firmly closed, and any gasket is fully compressed. Dimension 'A'; distance from outside of door to underside of interlock lug is shown below:-

FRAME SIZE	1	2	3	4	5	6
A	14.0	14.0	14.0	14.0	17.0	18.0
SHAFT LENGTH (MM)	200	200	200	300	200	200
B						
MAX. DEPTH OF ENCLOSURE WITH STANDARD SHAFT	235	240	240	375	320	337

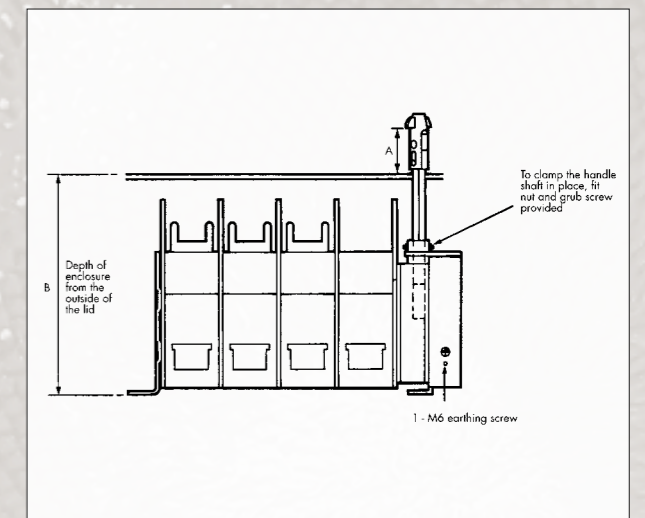
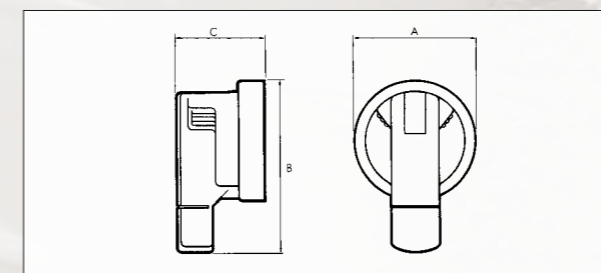
*Refer to ratings of fuse switches.

Note 1: First auxiliary pack with mounting plate adds 24.5mm to side of switch when attached. Each additional pack adds a further 10.5mm.

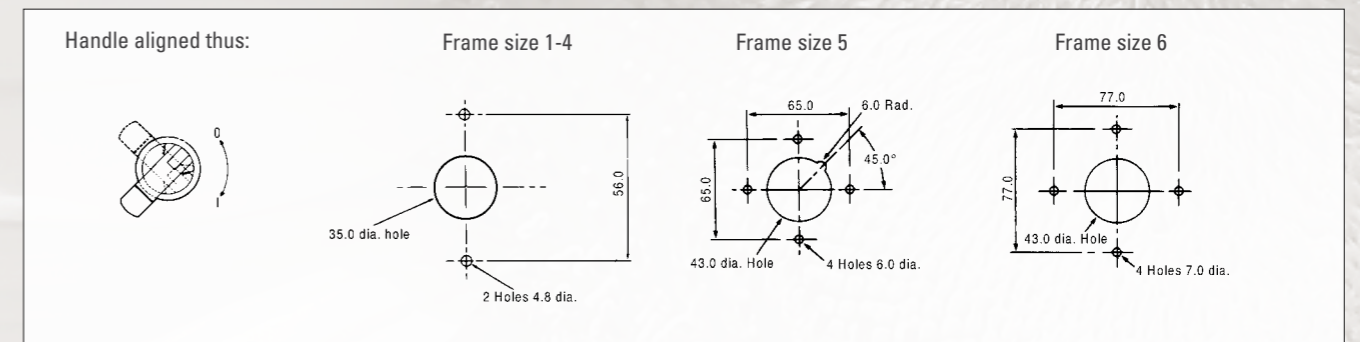
Handle Dimensions

FUSE SWITCH RATING, A	HANDLE CAT. NO.	A	B	C	FRAME SIZE
32A-160A	3HN	67	96.5	54	1-2-3
200A-315A	4HN	67	159.5	54	4-4A-4B
400A	5HN	76	245	52.4	5
630A-800A	6HN	90	260/365*	58.9	6

*Extended length



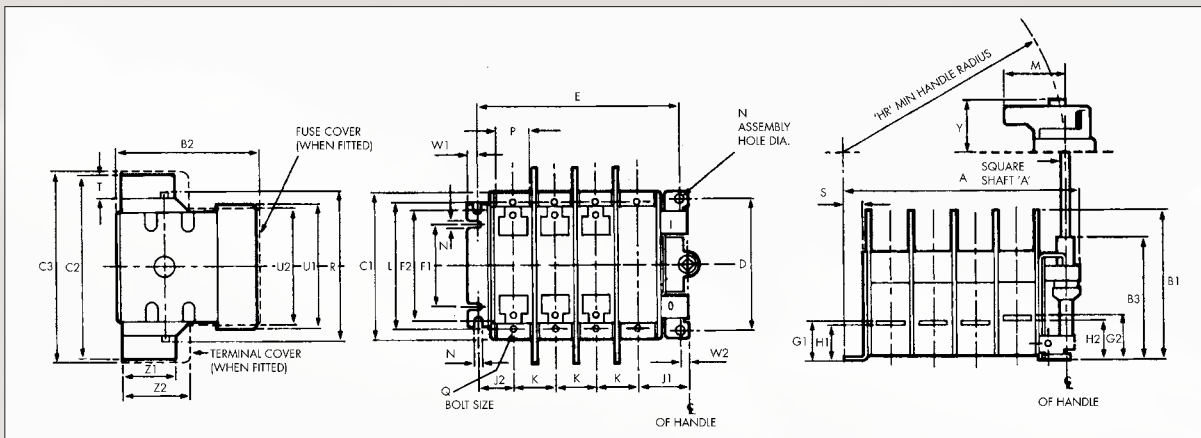
Operating Handle Fixing Apertures



FUSE COMBINATION SWITCHES - STANDARD OPERATION

Frame Size	Cat No.	A	B1	B2	B3	C1	C2	C3	D	E	F1	F2	G1	G2*	H1	H2*	HR	J1	J2	K	L	M	N	P	Q	R	S	T	U1	U2	W1	W2	X	Y	Z1	Z2
1	SA32	109,5	91	93	81	98	126	-	83,5	88,5	56	-	-	-	16,7	-	175	32,5	20	21	81,5	65	5,5	-	-	121	13	14	78	83	6	6	6,3	55	38	-
	SA32N	130,5								109,5																							6,3			
	SA32SN	130,5								109,5																							SQ			
1	SA63	109,5	91	93	81	98	126	-	83,5	88,5	56	-	-	-	16,7	-	175	32,5	20	21	81,5	65	5,5	-	-	121	13	14	78	83	6	6	6,3	55	38	-
	SA63N	130,5								109,5																							6,3			
	SA63SN	130,5								109,5																							SQ			
2	SA100	141	107	109	86	107	145	166	95	119,5	72	-	27	-	25,5	-	175	36,5	26,5	31	95,5	65	5,5	18	6	125	15	19	94	99	6,7	5,5	6,3	55	45	47
	SA100N	172								150,5																							6,3			
	SA100SN	172								150,5																							SQ			
3	SA125	169	124	135,5	86	142	181	209,5	120,5	144,5	80	-	23	-	21	-	175	41	30,5	40	123,5	65	5,5	22	8	125	15	19,5	120	125,5	7,5	7	6,3	55	45	47
	SA125N	209								184,5																							6,3			
	SA125SN	209								184,5																							SQ			
3	SA160	169	124	135,5	86	142	181	209,5	120,5	144,5	80	-	23	-	21	-	175	41	30,5	40	123,5	65	5,5	22	8	125	15	19,5	120	125,5	7,5	7	6,3	55	45	47
	SA160N	209								184,5																							6,3			
	SA160SN	209								184,5																							SQ			
4	SA200	227	168	190	141	196	286	307	182,5	176	120	-	34	-	31,5	-	250	63,5	37,5	45	167	130	6,5	32	10	266	22	45	154	159	10	15	9,5	55	57	69
	SA200N	272								221																							9,5			
	SA200SN	272								221																							SQ			
4A	SA250	278	168,5	170,5	141	196	319	324	182,5	225,5	120	-	34	-	31,5	-	250	74,3	50,5	58	167	130	6,5	32	10	266	22	61,5	160	157	10	15	9,5	55	68	70
	SA250N	328,5								276								9,5																		
	SA250SN	328,5								276								SQ																		
4B	SA315	311	202,5	204,5	141	196	319	367	182,5	258,5	120	-	34	-	31,5	-	250	74,3	56	69	167	130	6,5	32	10	266	22	61,5	160	157	10	15	14,5	55	68	70
	SA315N	374,5								322								14,5																		
	SA315SN	374,5								322								SQ																		
5	SA400	335	196	206	165	225	359	365	164	259	95	139	43	43	18	40	350	64	53,2	72	188	210	8,5	45	14	-	26,5	67	174	179	9,5	2,5	14,5	52	65	83
	SA400N	407								331								14,5																		
	SA400SN	407								331								SQ																		
6	SA630	395	257,5	268	183	320	464,5	472,5	164	319,5	140	180	48,3	60,3	32,5	54	350	74,5	63	92	266,5	214 to 320	8,5	64	20	-	26,5	72	240	245,5	9,5	2	14,5	60	85	133
	SA630N	485								411,5								14,5																		
	SA630SN	485								411,5								SQ																		
6	SA800	395	257,5	268	183	320	464,5	472,5	164	319,5	140	180	48,3	60,3	32,5	54	350	74,5	63	92	266,5	214 to 320	8,5	64	20	-	26,5	72	240	245,5	9,5	2	14,5	60	85	133
	SA800N	485								411,5								14,5																		
	SA800SN	485								411,5								SQ																		

* Unless otherwise stated, all Bolted Neutral Terminations G2, H2 are the same as Phase Terminations G1, H1.



'R' dimension represents the maximum width across mechanism spring guides. 'T' dimension = additional height of connecting barrier. First auxiliary pack adds 24.5mm to side of the switch when attached; each additional auxiliary pack adds a further 10.5mm.



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