Switchgear Systems Ltd

Manufacturers of Electrical Switchgear

FOR THOSE WHO NEED *speed!*

At Switchgear Systems Ltd. we build most of our switchgear in wall mounting sheet steel powder coated RAL 7035 enclosures. There should be no need for spreader boxes with our equipment as the enclosures are suitably sized for the spreading of typical cable sizes suitable for the switchgear's current carrying capacity. Where larger sizes and quantities of cables are being used we can put them into bigger enclosures and manufacture bespoke extension terminals. As well as the standard enclosure we also offer a range of material options for both the enclosure and gland plate/s, as well as a number of accessories.

Enclosure material options:
- Standard RAL7035 sheet steel
- Alternative colour options
- Stainless steel enclosures
- GRP enclosures
- Floor standing sheet steel

Gland plate material options:
- Standard sheet steel
- Aluminium
- Brass
- Insulation board
- Brushed cable entry

Accessories:
- Mounting brackets
- Padlockable hasps
- Metering and CT's
- Indicator lights
- Castell Interlocks
- And many others

Reference diagram for dimensions shown in tables throughout catalogue

H - Height of enclosure

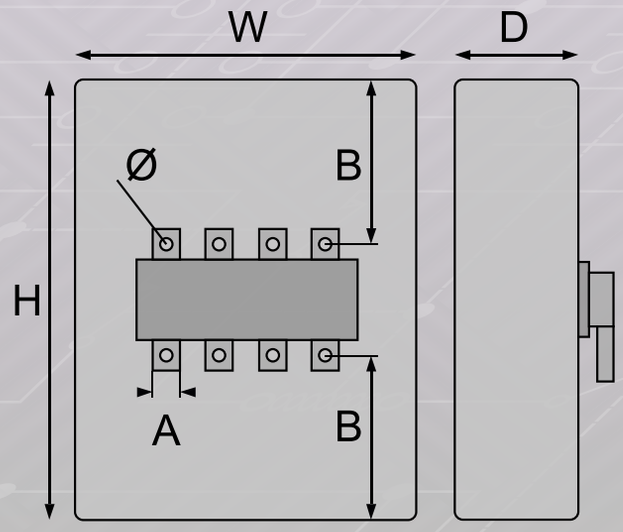
W - Width of enclosure

D - Depth of enclosure
(does not include handle or any other external components)

A - Width of terminal

B - Cable room measured from connection point to the end of enclosure

Ø - Terminal connection diameter



INDEX

Proline
Sheet Steel Enclosed Switchfuses

Our Proline range is designed to offer cost effective, quality solutions for most indoor applications.

- AC22A Rated 415V Phase-To-Phase, 240V Phase-To-Neutral
- BSEN 60947-3 conformity
- Door interlocked padlockable handles on hinged units
- Alternative pole configurations and auxiliary contacts available
- Removable gland plate top & bottom (knock-outs on SPN units)
- Ingress protection IP41

Nominal Rating I_e 415V	Ordering Reference TP&N	Ordering Reference 4P	Fuse (included)	Dimensions (mm) *see inner front cover for reference diagram					
				H	W	D	A	Ø	B
Switchfuses with hinged door									
20A	SF20	SF20-4P	10x38	300	180	110	10 cage		70
32A	SF32	SF32-4P	10x38	300	180	110	16 cage		70
63A	SF63	SF63-4P	A3	395	230	110	20	M8	105
100A	SF100	SF100-4P	A3	395	230	110	20	M8	105
125A	SF125	SF125-4P	A3	395	230	110	20	M8	105

SP&N Switchfuses with screw lid							
63A	SF63SPN	22x58	250	115	60	25 cage	80
80A	SF80SPN	22x58	250	115	60	25 cage	80
100A	SF100SPN	22x58	305	135	60	25 cage	110

SP&N Switchfuses with screw lid and 3rd amendment flap							
63A	SF63SPN-3A	22x58	250	115	90	25 cage	80
80A	SF80SPN-3A	22x58	250	115	90	25 cage	80
100A	SF100SPN-3A	22x58	305	135	90	25 cage	110

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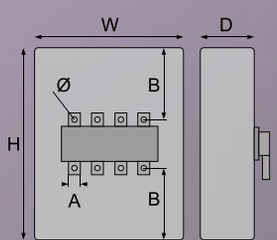
Proline
Sheet Steel Enclosed Isolators

Nominal Rating Ie 415V	Ordering Reference TP&N	Ordering Reference 4P	Dimensions (mm) *see inner front cover for reference diagram					
			H	W	D	A	Ø	B
Load Break Isolators with hinged door								
20A	LB20	LB20-4P	300	180	110	10 cage		130
32A	LB32	LB32-4P	300	180	110	16 cage		130
63A	LB63	LB63-4P	300	180	110	25 cage		130
100A	LB100	LB100-4P	395	230	110	20	M8	145
125A	LB125	LB125-4P	395	230	110	20	M8	145
160A	LB160	LB160-4P	395	230	110	20	M8	145

The fireman switch is a switch disconnector/isolator for special applications. You can often see these switches on the outside wall of commercial buildings. They are designed to be easy to identify and are operated by a fireman's hook to turn off neon-lighting or other hazardous electrical equipment in the event of a fire.

- Die cast aluminium enclosure
- Operates with fireman hook or axe - down for OFF
- Two handed switch ON
- 2 pole 240V AC22A
- 2 x M25 gland entries top and bottom

Nominal Rating Ie 240V	Ordering Reference	Dimensions (mm) *see inner front cover for reference diagram					
		H	W	D	A	Ø	B
Fireman Switch							
25A	FMS25/2	130	109	60	10 cage		50



The Proline range is not customisable. See pages 04-05 for options that can feature bespoke requirements including:

- Spreader terminals
- Auxiliary contacts
- Larger enclosures for additional cable room
- GRP, Stainless, Rain hoods and IP65 etc.

Sheet Steel Enclosed Double Break Switchfuses

- Fully load rated AC23A 415-690V
- BSEN 60947-3 conformity
- Door interlocked padlockable handle
- IP2X terminal shrouds
- Removable gland plate top (up to 700 H) and bottom
- Fitted with general purpose BS88 HRC fuses
- Double break, fuses isolated on both sides
- Ingress protection IP55

Nominal Rating I_e 415V		Ordering Reference TP&N	Ordering Reference 4P	BS88 Fuse (included)	Dimensions (mm) *see inner front cover for reference diagram					
					H	W	D	A	Ø	B
63A	30kW	ST IHF 6/3+N+F	ST IHF 6/4+F	A3	400	300	200	14	M6	149
100A	45kW	ST IHF 10/3+N+F	ST IHF 10/4+F	A4	500	400	200	20	M8	179
125A	55kW	ST IHF 12/3+N+F	ST IHF 12/4+F	B2	500	400	200	20	M8	194
160A	75kW	ST INF 16/3+N+F	ST INF 16/4+F	B2	500	400	200	20	M8	194
200A	105kW	ST INF 20/3+N+F	ST INF 20/4+F	B2	700	500	250	25	M10	294
250A	132kW	ST INF 25/3+N+F	ST INF 25/4+F	B3/B4	700	500	250	30	M10	282
315A	155kW	ST INF 30/3+N+F	ST INF 30/4+F	B3/B4	700	500	250	30	M10	282
400A	200kW	ST INF 40/3+N+F	ST INF 40/4+F	B3/B4	800	600	300	40	M12	332
500A	355kW	ST INF 50/3+N+F	ST INF 50/4+F	C2	1000	600	300	40	M12	400
630A	355kW	ST INF 63/3+N+F	ST INF 63/4+F	C2	1000	600	300	40	M12	400
800A	400kW	ST INF 80/3+N+F	ST INF 80/4+F	C3	1200	800	300	40	M12	500

GRP enclosures are available in a variety of sizes

Units can be fitted in floor standing enclosures for additional wiring room

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Sheet Steel Enclosed Load Break Isolators

- Fully load rated AC23A 415-690V
- BSEN 60947-3 conformity
- Door interlocked padlockable handle
- IP2X terminal shrouds
- Removable gland plate top (up to 700 H) and bottom
- Ingress protection IP55

Nominal Rating I_e 415V		Ordering Reference TP&N	Ordering Reference 4P	Dimensions (mm) *see inner front cover for reference diagram					
				H	W	D	A	Ø	B
20A	5.5kW	ST ISO 2/3+N	ST ISO 2/4	200	200	120	10 cage		80
32A	9.5kW	ST ISO 3/3+N	ST ISO 3/4	200	200	120	16 cage		80
63A	18.5kW	ST ISO 6/3+N	ST ISO 6/4	200	200	120	25 cage		75
100A	30kW	ST ISO 10/3+N	ST ISO 10/4	400	300	150	50 cage		158
125A	37kW	ST ISO 12/3+N	ST ISO 12/4	400	300	150	50 cage		158
160A	80kW	ST ISO 16/3+N	ST ISO 16/4	500	400	200	20	M8	190
200A	110kW	ST ISO 20/3+N	ST ISO 20/4	500	400	200	20	M8	190
250A	132kW	ST ISO 25/3+N	ST ISO 25/4	700	500	200	25	M10	280
315A	155kW	ST ISO 30/3+N	ST ISO 30/4	700	500	200	30	M10	280
400A	200kW	ST ISO 40/3+N	ST ISO 40/4	700	500	200	30	M10	280
500A	355kW	ST ISO 50/3+N	ST ISO 50/4	800	600	300	40	M12	300
630A	355kW	ST ISO 63/3+N	ST ISO 63/4	800	600	300	40	M12	300
800A	400kW	ST ISO 80/3+N	ST ISO 80/4	1000	800	300	40	M12	400
1000A	500kW	ST ISO 100/3+N	ST ISO 100/4	1200	800	300	40	M12	440
1250A	on app	ST ISO 125/3+N	ST ISO 125/4	1200	800	300	40	M12	440
* 1600A	on app	ST ISO 160/3+N	ST ISO 160/4	1600	800	600	40	M12	665
* 2000A	on app	ST ISO 200/3+N	ST ISO 200/4	1600	800	600	40	M12	665

GRP enclosures are available in a variety of sizes

* 1600A+ come in floor standing enclosures

Sheet Steel Enclosed MCCBs and ACBs

- Fully load rated breakers
- BSEN 60947-2 conformity
- Door interlocked padlockable handles
- IP2X terminal shrouds
- 63A-250A Fixed magnetic, adjustable thermal 63-100%
- 400A-1250A Electronic LSI, adjustable 40-100%
- Ingress protection IP55

Nominal Rating I_e 415V	I_{cu} Short circuit breaking	Order Reference TP&N	Order Reference 4P	Trip type	Dimensions (mm) *see inner front cover for reference diagram					
					H	W	D	A	Ø	B
63A	16kA	ST MCCB 6/3+N	ST MCCB 6/4	Th/Mag	400	300	200	17	M8	105
100A	16kA	ST MCCB 10/3+N	ST MCCB 10/4	Th/Mag	400	300	200	17	M8	105
125A	16kA	ST MCCB 12/3+N	ST MCCB 12/4	Th/Mag	500	400	200	17	M8	155
160A	16kA	ST MCCB 16/3+N	ST MCCB 16/4	Th/Mag	500	400	200	17	M8	155
200A	25kA	ST MCCB 20/3+N	ST MCCB 20/4	Th/Mag	600	400	200	23	M10	190
250A	25kA	ST MCCB 25/3+N	ST MCCB 25/4	Th/Mag	600	400	200	23	M10	190
400A	50kA	ST MCCB 40/3+N	ST MCCB 40/4	Electronic	800	600	250	28	M12	235
630A	50kA	ST MCCB 63/3+N	ST MCCB 63/4	Electronic	800	600	250	28	M12	235
800A	50kA	ST MCCB 80/3+N	ST MCCB 80/4	Electronic	1000	800	300	40	M12	300
1000A	50kA	ST MCCB 100/3+N	ST MCCB 100/4	Electronic	1200	800	300	45	M12	380
1250A	50kA	ST MCCB 125/3+N	ST MCCB 125/4	Electronic	1200	800	300	45	M12	350

Enclosed ACB's are also available up to 6300A. Using floor standing sheet steel enclosures and mounted on rails these are built to allow for maximum cable room and can be made specifically to your cable directions.

- Fully load rated breakers
- Range of trips and breaking capacities
- BSEN60947-2, IEC 60439-1 conformity
- Withdrawable or fixed options
- IP2X terminal shrouds
- Aluminium glands optional on all sides
- Vents or forced air upon request

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Sheet Steel Enclosed RCBOs

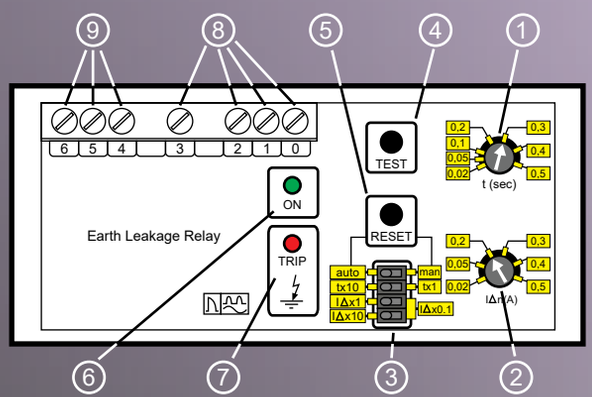
RCBOs have a built in one piece toroidal tranformer and earth leakage relay featuring:

- Fully load rated breakers
- BSEN 60947-2, IEC 60439-1 conformity
- Door interlocked padlockable handles
- IP2X terminal shrouds
- Variable tripping current 0.025 - 25A
- Adjustable time delay 0.02 - 5 sec
- Auto or manual trip reset and test button
- 63A-250A Fixed magnetic, adjustable thermal 63-100%
- 400A-1250A Electronic LSI, adjustable 40-100%
- Ingress protection IP55

Nominal Rating I_e 415V	I_{cu} Short circuit breaking	Order Reference TP&N	Trip type	Dimensions (mm) *see inner front cover for reference diagram						
				H	W	D	A	Ø	B Top	B Bottom
63A	16kA	ST MCCB 6/4 ELR	Th/Mag	500	400	200	17	M8	130	230
100A	16kA	ST MCCB 10/4 ELR	Th/Mag	500	400	200	17	M8	130	230
125A	16kA	ST MCCB 12/4 ELR	Th/Mag	600	400	200	17	M8	160	260
160A	16kA	ST MCCB 16/4 ELR	Th/Mag	600	400	200	17	M8	160	260
200A	25kA	ST MCCB 20/4 ELR	Th/Mag	700	500	250	23	M10	200	300
250A	25kA	ST MCCB 25/4 ELR	Th/Mag	700	500	250	23	M10	200	300
400A	50kA	ST MCCB 40/4 ELR	Electronic	1000	600	300	28	M12	240	440
630A	50kA	ST MCCB 63/4 ELR	Electronic	1000	600	300	28	M12	240	440

1) Tripping delay time adjustment
2) Fault current to earth adjustment
3) Dip switches settings:
   3a - auto reset - man reset
   auto reset = automatic reset
   man reset = manual reset through the RESET key on the front. For remote resetting, simply shut off the auxiliary supply for about 1 second.
   3b - tx10 - tx1 constant selection for tripping delay time adjustment.
   3c - IΔnx0,1 - IΔnx1 - IΔnx10 constant selection for fault current to earth adjustment. The constants in relation to the position of the 2 dip switches are the following:
   – dip switch position IΔnx0.1 and IΔnx0.1 K = 0.1
   – dip switch position IΔnx1 and IΔnx0.1 K = 1
   – dip switch position IΔnx1 and IΔnx10 K = 10
4) Test push-button
5) Manual reset push-button
6) Signalling lamp of existing auxiliary voltage supply (green LED)
7) Signalling lamp of tripped relay (red LED)
8) Terminals for auxiliary supply
9) Relay output terminals

ELR settings only accessible when switch is in the 'OFF' position.



Sheet Steel Enclosed 4 Pole Contactors

- 110V - 240V coil with fuse protection
- Normally open contactors
- IEC 60947-4-1 rated
- IP2X terminal shrouds
- Ingress protection IP55

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference 4P	Dimensions (mm) *see inner front cover for reference diagram					
				H	W	D	A	Ø	B
45A	20A	11kW	ST CON 4/4	300	180	110	10 cage		115
70A	40A	22kW	ST CON 7/4	400	300	150	35 cage		150
100A	53A	30kW	ST CON 10/4	400	300	150	35 cage		150
125A	80A	45kW	ST CON 12/4	500	400	200	50 cage		200
160A	116A	55kW	ST CON 16/4	600	400	200	13	M6	240
200A	140A	75kW	ST CON 20/4	600	400	250	13	M6	240
275A	190A	90kW	ST CON 27/4	700	500	250	16	M8	250
400A	265A	132kW	ST CON 40/4	800	600	300	20	M10	290

Stop/Start units have a red twist to reset emergency stop and a green start pushbutton wired into a standard stop/start circuit. Additional terminals are provided for wiring in an E-stop loop.

- Auto or manual trip reset and test button

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference 4P	Dimensions (mm) *see inner front cover for reference diagram					
				H	W	D	A	Ø	B
45A	20A	11kW	ST CON 4/4 STP	300	180	110	10 cage		115
70A	40A	22kW	ST CON 7/4 STP	400	300	150	35 cage		150
100A	53A	30kW	ST CON 10/4 STP	400	300	150	35 cage		150
125A	80A	45kW	ST CON 12/4 STP	500	400	200	50 cage		200
160A	116A	55kW	ST CON 16/4 STP	600	400	200	13	M6	240
200A	140A	75kW	ST CON 20/4 STP	600	400	250	13	M6	240
275A	190A	90kW	ST CON 27/4 STP	700	500	250	16	M8	250
400A	265A	132kW	ST CON 40/4 STP	800	600	300	20	M10	290

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Cut-out Contactors for Solar PV application

Cut-out contactors are designed for use in solar PV installations where a generator backup is included.

When the cut-out loses power from the mains it will disconnect the solar supply to prevent paralleling with an unsynchronised backup/generator.

As standard it is fitted with a spring return key operated start switch so it can only be turned back on by designated personnel but it also includes parallel start terminals which can be connected to remote/automatic start systems.

- 110V - 240V coil with fuse protection
- Normally Open contactors
- IEC 60947-4-1 rated
- IP2X terminal shrouds
- Ingress Protection IP55
- Spring return key operated start switch

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference 4P	Dimensions (mm)					
				H	W	D	A	Ø	B
45A	20A	11kW	ST CON 4/4 SCO	300	180	110	10 cage		115
70A	40A	22kW	ST CON 7/4 SCO	400	300	150	35 cage		150
100A	53A	30kW	ST CON 10/4 SCO	400	300	150	35 cage		150
125A	80A	45kW	ST CON 12/4 SCO	500	400	200	50 cage		200
160A	116A	55kW	ST CON 16/4 SCO	600	400	200	13	M6	240
200A	140A	75kW	ST CON 20/4 SCO	600	400	250	13	M6	240
275A	190A	90kW	ST CON 27/4 SCO	700	500	250	16	M8	250
400A	265A	132kW	ST CON 40/4 SCO	800	600	300	20	M10	290

Sheet Steel Busbar Chambers & Accessories

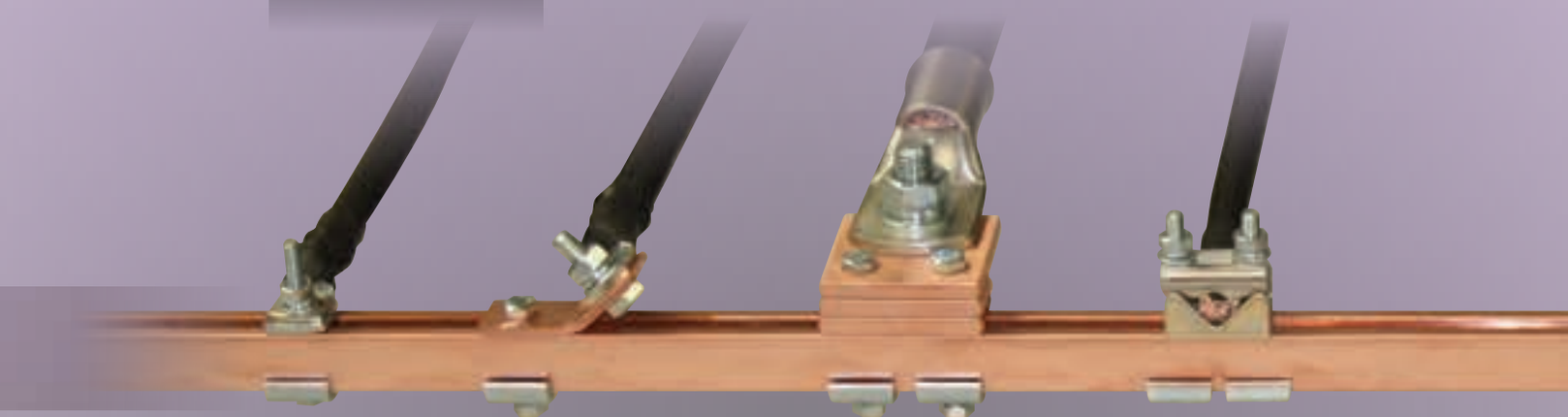
PLEASE NOTE: **These units are for power distribution. If you require a connecting unit for cable extension please see our Junction Box range on page 13.**

- 4 fully rated poles ranging from 125A up to 800A
- Twin copper bar design to allow for convenient clamping
- BSEN 61439-1 conformity
- All four side panels removable for easy glanding
- Ingress protection IP41

Nominal Rating Ie 415V	Order reference by width (mm)						Dimensions	
	600	900	1200	1500	1800*	2100*	H	D
125A	BB12/6	BB12/9	-	-	-	-	380	210
200A	BB20/6	BB20/9	BB20/12	BB20/15	BB20/18	BB20/21	380	210
400A	BB40/6	BB40/9	BB40/12	BB40/15	BB40/18	BB40/21	380	210
630A	BB63/6	BB63/9	BB63/12	BB63/15	BB63/18	BB63/21	380	210
800A	BB80/6	BB80/9	BB80/12	BB80/15	BB80/18	BB80/21	380	210
-	CAB6	CAB9	Empty cabinets for spreader boxes				380	210

Max Load	Order reference	Consists Of
Joining Kits		
630A	JJK6	4 x Clamps & Bolts
800A	JJK8	4 x Clamps & Bolts

***1800 wide and above busbars will be shipped in 2 or more sections with relevant joining kits.**
These kits are also available for purchase seperately for retro fitting (see page 32).



BCT/1 **BCT/2** **BCT/3** **BCE/50**

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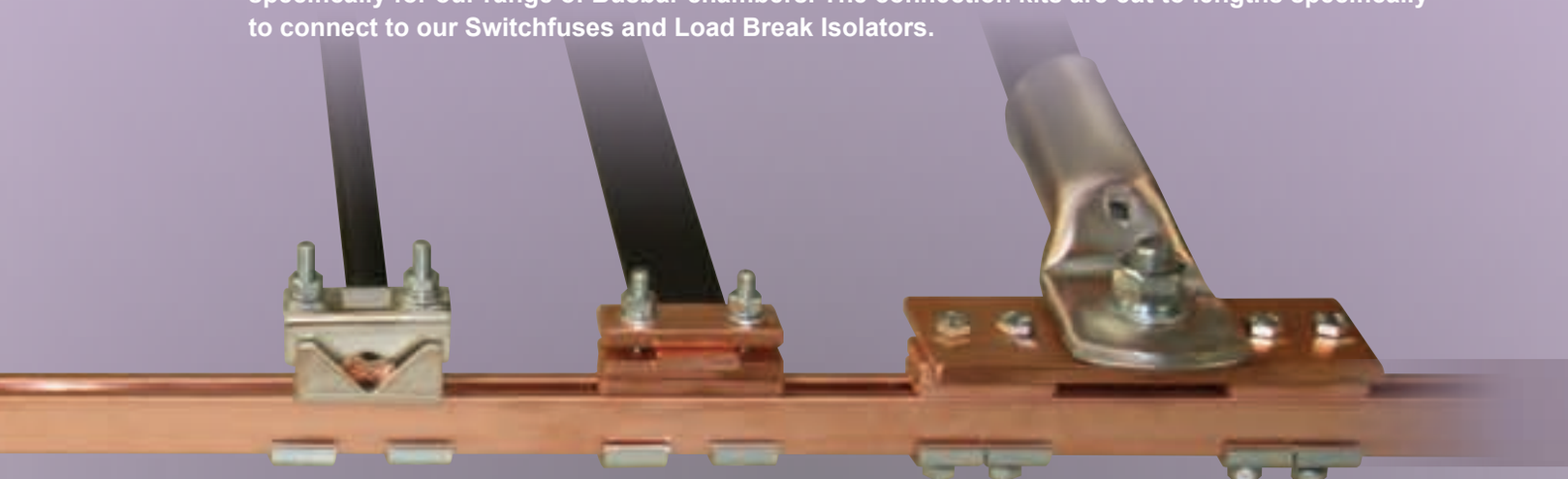
Sheet Steel Busbar Chambers & Accessories

Max Load	Order reference	Max Cable mm²	Connection	
Connection Clamps				
160A	BCT/1	1 x 50	LUG	M6
200A	BCT/2	1 x 70 (or 2 x 50)	LUG	M8
800A	BCT/3	1 x 240	LUG	M12
800A	BCT/400	1 x 400	LUG	M12
160A	BCE/50	1 x 50	Direct cable	
250A	BCE/95	1 x 95	Direct cable	

Max Load	Order reference (Isolator Kit)	Order reference (Switchfuse Kit)
Connection Kits		
160A	▼	BCCKSF/16
200A	BCCKD/20	▼
315A	▼	BCCKSF/30
400A	BCCKD/40	BCCKSF/40
630A	BCCKD/63	BCCKSF/63
800A	BCCKD/80	BCCKSF/80

Kit = 4 x Flexibar connectors and fixing clamps

Important: SEE PAGE 32 FOR DETAILS ON THESE ACCESSORIES. These Busbar accessories are designed specifically for our range of Busbar chambers. The connection kits are cut to lengths specifically to connect to our Switchfuses and Load Break Isolators.



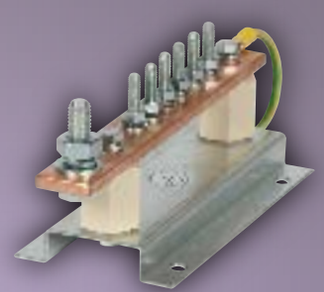
BCE/95 **CONNECTION-KIT** **BCT/400**

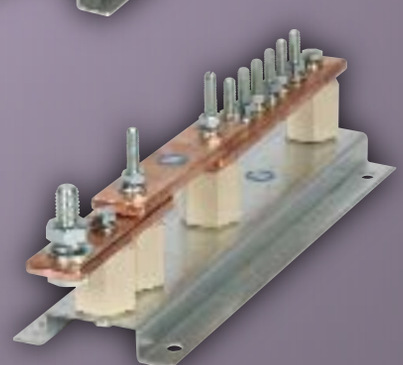
Power rated earth & neutral bars

Our power rated earth and neutral bars are manufactured on sturdy 60mm din rail for mounting direct to the wall or inside distribution enclosures. Alternative sizes are available upon request to suit customer requirements.

The earth bars have continuity bonding from the copper to the din rail.
The neutral bars are fully insulated from the din rail.

Nominal Rating	Outgoing Fixings	Incoming Fixing	Ordering Reference Earth Bar	Ordering Reference Neutral Bar	Overall Length (mm)
Non-Splittable Bars					
100A	6 x M6	1 x M10	EB6/100	NB6/100	180
100A	8 x M6	1 x M10	EB8/100	NB8/100	210
100A	12 x M6	1 x M10	EB12/100	NB12/100	270
160A	6 x M8	1 x M10	EB6/160	NB6/160	210
160A	8 x M8	1 x M10	EB8/160	NB8/160	250
160A	12 x M8	1 x M10	EB12/160	NB12/160	330
250A	6 x M10	1 x M10	EB6/250	NB6/250	240
250A	8 x M10	1 x M10	EB8/250	NB8/250	290
250A	12 x M10	1 x M10	EB12/250	NB12/250	390
400A	8 x M12	1 x M10	EB8/400	NB8/400	430
400A	12 x M12	1 x M10	EB12/400	NB12/400	570
630A	8 x M12	1 x M12	EB8/630	NB8/630	550
630A	12 x M12	1 x M12	EB12/630	NB12/630	750
Splittable Bars					
100A	6 x M6	1 x M10	EBS6/100	NBS6/100	290
100A	8 x M6	1 x M10	EBS8/100	NBS8/100	320
100A	12 x M6	1 x M10	EBS12/100	NBS12/100	380
160A	6 x M8	1 x M10	EBS6/160	NBS6/160	320
160A	8 x M8	1 x M10	EBS8/160	NBS8/160	360
160A	12 x M8	1 x M10	EBS12/160	NBS12/160	440
250A	6 x M10	1 x M10	EBS6/250	NBS6/250	350
250A	8 x M10	1 x M10	EBS8/250	NBS8/250	400
250A	12 x M10	1 x M10	EBS12/250	NBS12/250	500
400A	8 x M12	1 x M10	EBS8/400	NBS8/400	580
400A	12 x M12	1 x M10	EBS12/400	NBS12/400	720
630A	8 x M12	1 x M12	EBS8/630	NBS8/630	700
630A	12 x M12	1 x M12	EBS12/630	NBS12/630	900





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Sheet Steel Enclosed Junction Boxes

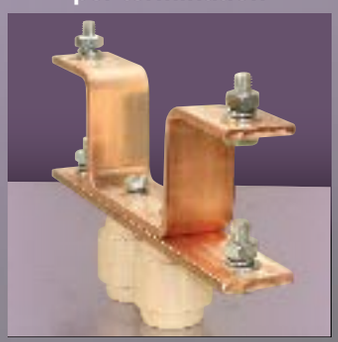
- Insulator rating 1000V
- Bolt connection for cable lugs from 120mm² +
- IP2X terminal protection
- Padlockable hinged door enclosure
- Ingress protection IP55

Max cable size per phase	Nominal Rating I_e 415V	Ordering Reference 3P	Ordering Reference 4P	Ordering Reference 5P including bonded earth	Dimensions (mm) *see inner front cover for reference diagram					
					H	W	D	A	Ø	B
Units with individual screw down terminals (for bootlace ferrules)										
35	125A	STJB 35/3	STJB 35/4	STJB 35/5	400	300	150	35 cage		200
70	192A	STJB 70/3	STJB 70/4	STJB 70/5	500	400	200	70 cage		210
Units with individually shrouded power terminals (for lugs)										
120	250A	STJB 120/3	STJB 120/4	STJB 120/5	600	400	200	20	M10	230
185	350A	STJB 185/3	STJB 185/4	STJB 185/5	800	600	250	25	M12	320
300	500A	STJB 300/3	STJB 300/4	STJB 300/5	800	600	250	30	M16	320
Units with individual copper bars on insulators with all over shrouding (for lugs)										
2 x 300	500A	STJB 500/3	STJB 500/4	STJB 500/5	1000	600	250	40	M12	390
2 x 400	630A	STJB 630/3	STJB 630/4	STJB 630/5	1000	600	300	50	M12	390
2 x 400	800A	STJB 800/3	STJB 800/4	STJB 800/5	1000	800	300	50	M12	390
2 x 400	1000A	STJB 1000/3	STJB 1000/4	STJB 1000/5	1200	800	300	60	M12	490

If you require any bespoke layouts or additions then please get in touch with our sales team.

All cables from one direction

Multiple cables per termination



Stainless Steel

Floor Standing Bespoke Units

Sheet Steel Enclosed Generator Hook-Ups

Our generator hook-up units are designed for remote connection of a temporary generator.

- Insulator rating 1000V
- IP2X terminal protection
- Padlockable hinged door
- Letter brush entry at bottom of enclosure with removable gland plate
- Bottom entry, rear/top exit
- Ingress protection IP65

Max Load	Order Reference 4P	Order Reference 5P	Dimensions (mm) *see inner front cover for reference diagram					
			H	W	D	A	Ø	B
with individually shrouded power terminals								
250A	STGH 25/4	STGH 25/5	600	400	200	20	M10	250
400A	STGH 40/4	STGH 40/5	800	600	250	30	M16	350
with individual copper bars on insulators with all over shrouding								
800A	STGH 80/4	STGH 80/5	1000	600	250	50	M12	380
1250A	STGH 125/4	STGH 125/5	1200	600	300	50	M12	480

If you require any bespoke layouts or additions then please get in touch with our sales team.

All cables from one direction

Multiple cables per termination

Stainless Steel

Floor Standing Bespoke Units

Switchgear Systems Ltd. **Tel:** 01788 577399 **E-mail:** sales@switchgear-systems.com

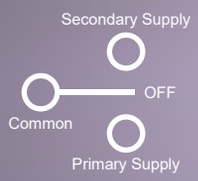
Sheet Steel Enclosed Changeover Switches I-O-II

- Fully load rated AC22A 415V - 690V
- BSEN 60947-3 conformity
- Break-Before-Make with centre OFF
- Complete changeover switching system in one unit (no bridging bars required)
- IP2X terminal shrouds
- Removable gland plate top (up to 700 H) and bottom
- Ingress protection IP55

PLEASE NOTE: Changeover switch should be selected to match the current taken by the load being supplied. In the absence of this information select based on the higher current of the supplies. If using a generator it is unreliable to use its kVA rating to calculate changeover switch size.

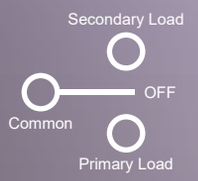
Switchgear Systems' changeover switches are a one piece construction with three sets of contacts driven from a single shaft.

This makes them ideal for selecting between two supplies to a common output.



or

For use where there is a single supply to be used on either of two outputs.



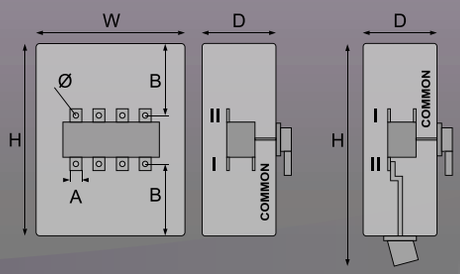
1-2 Transfer switches with no OFF position are available on request.

Nominal Rating I_e 415V	Ordering Reference 4P	Dimensions (mm) *see inner front cover for reference diagram					
		H	W	D	A	Ø	B
63A	ST CHO 6/4	500	400	200	15	M6	180
100A	ST CHO 10/4	500	400	200	15	M6	180
125A	ST CHO 12/4	500	400	200	15	M6	180
160A	ST CHO 16/4	500	400	200	20	M8	180
200A	ST CHO 20/4	600	400	250	20	M8	225
250A	ST CHO 25/4	700	500	250	25	M10	250
315A	ST CHO 30/4	700	500	250	30	in M12	250
400A	ST CHO 40/4	800	600	250	30	out	300
500A	ST CHO 50/4	800	600	250	35	M12	300
630A	ST CHO 63/4	1000	600	250	35	M12	400
800A	ST CHO 80/4	1000	600	300	40	M12	375
1000A	ST CHO 100/4	1200	800	300	40	M12	475
1250A	ST CHO 125/4	1200	800	300	40	M12	475

Changeover switches complete with 5 pin 415V Appliance Inlet on the bottom, wired to secondary input terminals							
63A	ST CHO 6/4+INLET	639	400	200	15	M6	180
125A	ST CHO 12/4+INLET	639	400	200	15	M6	180

Units can be customised to your specifications.
Please call for any bespoke requirements including:

- Spreader terminals
- Auxiliary contacts
- Larger enclosures for additional cable room
- GRP, Stainless, Rainhoods and IP65 etc.



Choosing an Automatic Transfer Switch

Bypass Switch Style

Single Line Bypass

Suitable for most life safety applications as required by BSEN 8519:2020. When in bypass mode this arrangement isolates the output of the ATS and both power supplies. It then re-routes one of the supplies (normally the primary) around the ATS to it's load. It also includes a central 'Test' position where bypass is maintained but power is closed to the ATS so it can be tested without interuption to the load.

Dual Line Bypass

Similar to the single line with the ability to divert either power source to the load via an additional changeover switch. These also conform to the same regulations as the single line arrangement.

ATS Panel Style

M2M - Mains To Mains

These are simple ATS units and are used where the backup supply is always assumed to be available. They do not include any timers, firefighting indication or generator start facility and will simply monitor the primary supply for over and under voltage, phase loss and correct phase sequence. If it senses a fault it will switch power to the secondary supply, only returning power to the primary source when it returns.

M2B - Mains To Backup

These ATS units do everything that the M2M model does with the addition of firefighting indication as requried by BSEN 9999, delay timers often required for lifts and generator start signalling for the secondary supply where required. The V2 model covers all the requirements for BSEN 8519:2020. When the ATS senses that the primary supply is healthy again it will switch back to it. An adjustable cooldown timer keeps the generator running for a period of time.

M2G - Mains To Generator

These ATS panels are designed specifically for advanced mains to generator applications which require more functionality, normally because the genset is in a remote location. Fitted with a Deep Sea Electronics 331 microprocessor controller that requires a small but constant DC supply, normally taken from the battery on the GenSet. All V2 models conform to BSEN 8519:2020. Other controllers with addititional functionality can also be supplied where necessary.

Choosing an Automatic Transfer Switch

ATS type	M2M Mains-to-mains				M2B Mains-to-backup				M2G Mains-to-generator			
Bypass type	SLV2	DLV2	None	SLV1	SLV2	DLV2	None	SLV1	SLV2	DLV2	None	SLV1
Phase failure and undervoltage monitoring of primary supply	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interlocked Contactor switching			✓*	✓			✓*	✓			✓*	✓
Motorised Changeover switching	✓	✓	✓*		✓	✓	✓*		✓	✓	✓*	
Test facilities & supply override	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supply available indication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supply in use indication					✓	✓	✓	✓	✓	✓	✓	✓
Adjustable time delay between switching					✓	✓	✓	✓				
Generator start signal timer and cool down timer					✓	✓	✓	✓	✓	✓	✓	✓
Advanced interface for GenSet control									✓	✓	✓	✓
Requires constant DC supply to operate									✓	✓	✓	✓
Suitable for standard Remote Indication Unit	✓	✓	✓	✓					✓	✓	✓	✓
Suitable for advanced Remote Indication Unit					✓	✓	✓	✓				
Suitable for firefighting lifts as detailed in BSEN 9999					✓	✓		✓				
Conforms to life safety requirements of BSEN 8519:2020	✓	✓			✓	✓			✓	✓		

*Dependant on current rating - Interlocked contactors upto 160A & motorised changeover switches 200A and above

ATS Part Code Construction

ATS 10 / 4 M2B / SL V2

- **Catalogue Prefix** — ATS
- **Amperage** (not including units) — 10
- **Number of Poles (2 or 4)** — 4
- **ATS Type** (M2M, M2B or M2G) — M2B
- **Bypass Type** (single or dual line) — SL
- **Life Safety Suitability** — V2

Life Safety ATS Panels with Single Line Bypass

These models are designed to satisfy the life safety requirements for BSEN 8519:2020

- Designed in compliance with BSEN 60947-6-1
- For life safety requirements as detailed in BSEN 8519:2020 and BSEN 9999
- Manual single line bypass in seperate compartment conforming to BSEN 61439-2
- Electrical and mechanical interlocks between supplies via motorised changeover switch
- All phases on primary supply monitored to protect against total power loss, phase failure, incorrect phase sequence and under/over voltage
- Test facilities and supply override
- Adjustable over and under voltage trip delay
- Adjustable over and under voltage limits
- External LED indicators and volt free remote terminals to show supply status
- Ingress protection IP55
- Delay timers for supply load, generator warmup and generator cooldown (M2B and M2G only)

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference M2M	Ordering Reference M2B	Ordering Reference M2G	Dimensions (mm) *see inner front cover for reference diagram					
						H	W	D	A	Ø	B
2 Pole for single phase supplies											
40A	40A	11kW	ATS 4/2 M2M/SLV2	ATS 4/2 M2B/SLV2	ATS 4/2 M2G/SLV2	900	400	200	25 cage		100
63A	40A	11kW	ATS 6/2 M2M/SLV2	ATS 6/2 M2B/SLV2	ATS 6/2 M2G/SLV2	900	400	200	25 cage		100
80A	40A	11kW	ATS 8/2 M2M/SLV2	ATS 8/2 M2B/SLV2	ATS 8/2 M2G/SLV2	900	400	200	35 cage		100
100A	80A	22kW	ATS 10/2 M2M/SLV2	ATS 10/2 M2B/SLV2	ATS 10/2 M2G/SLV2	1000	400	200	35 cage		100
4 Pole for three phase supplies											
40A	20A	11kW	ATS 4/4 M2M/SLV2	ATS 4/4 M2B/SLV2	ATS 4/4 M2G/SLV2	900	400	200	25 cage		120
63A	40A	22kW	ATS 6/4 M2M/SLV2	ATS 6/4 M2B/SLV2	ATS 6/4 M2G/SLV2	1000	400	200	25 cage		120
80A	53A	30kW	ATS 8/4 M2M/SLV2	ATS 8/4 M2B/SLV2	ATS 8/4 M2G/SLV2	800	600	200	35 cage		150
100A	53A	30kW	ATS 10/4 M2M/SLV2	ATS 10/4 M2B/SLV2	ATS 10/4 M2G/SLV2	800	600	200	35 cage		150
125A	80A	45kW	ATS 12/4 M2M/SLV2	ATS 12/4 M2B/SLV2	ATS 12/4 M2G/SLV2	800	600	200	70 cage		150
160A	116A	55kW	ATS 16/4 M2M/SLV2	ATS 16/4 M2B/SLV2	ATS 16/4 M2G/SLV2	1200	600	400	20	M8	180
200A	200A	80kW	ATS 20/4 M2M/SLV2	ATS 20/4 M2B/SLV2	ATS 20/4 M2G/SLV2	1400	600	400	20	M8	280
250A	250A	100kW	ATS 25/4 M2M/SLV2	ATS 25/4 M2B/SLV2	ATS 25/4 M2G/SLV2	1400	600	400	25	M10	280
400A	400A	150kW	ATS 40/4 M2M/SLV2	ATS 40/4 M2B/SLV2	ATS 40/4 M2G/SLV2	1400	600	400	30	M10	280
630A	630A	150kW	ATS 63/4 M2M/SLV2	ATS 63/4 M2B/SLV2	ATS 63/4 M2G/SLV2	1600	800	400	30	M10	280
800A +	For ATS panels of 800A or above, or where you have special requirements please contact us for a quote										

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Life Safety ATS Panels with Dual Line Bypass

These models are designed to satisfy the life safety requirements for BSEN 8519:2020

- Designed in compliance with BSEN 60947-6-1
- For life safety requirements as detailed in BSEN 8519:2020 and BSEN 9999
- Manual dual line bypass in seperate compartment conforming to BSEN 61439-2 allowing diversion of either incoming supply during bypass operations.
- Electrical and mechanical interlocks between supplies via motorised changeover switch
- All phases on primary supply monitored to protect against total power loss, phase failure, incorrect phase sequence and under/over voltage
- Test facilities and supply override
- Adjustable over and under voltage trip delay
- Adjustable over and under voltage limits
- External LED indicators and volt free remote terminals to show supply status
- Ingress protection IP55
- Delay timers for supply load, generator warmup and generator cooldown (M2B and M2G only)

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference M2M	Ordering Reference M2B	Ordering Reference M2G	Dimensions (mm) *see inner front cover for reference diagram H	W	D	A	Ø	B
2 Pole for single phase supplies											
40A	40A	11kW	ATS 4/2 M2M/DLV2	ATS 4/2 M2B/DLV2	ATS 4/2 M2G/DLV2	800	600	200	25 cage		100
63A	40A	11kW	ATS 6/2 M2M/DLV2	ATS 6/2 M2B/DLV2	ATS 6/2 M2G/DLV2	800	600	200	25 cage		100
80A	40A	11kW	ATS 8/2 M2M/DLV2	ATS 8/2 M2B/DLV2	ATS 8/2 M2G/DLV2	800	600	200	35 cage		100
100A	80A	22kW	ATS 10/2 M2M/DLV2	ATS 10/2 M2B/DLV2	ATS 10/2 M2G/DLV2	800	600	200	35 cage		100
4 Pole for three phase supplies											
40A	20A	11kW	ATS 4/4 M2M/DLV2	ATS 4/4 M2B/DLV2	ATS 4/4 M2G/DLV2	1000	600	200	25 cage		120
63A	40A	22kW	ATS 6/4 M2M/DLV2	ATS 6/4 M2B/DLV2	ATS 6/4 M2G/DLV2	1000	600	200	25 cage		120
80A	53A	30kW	ATS 8/4 M2M/DLV2	ATS 8/4 M2B/DLV2	ATS 8/4 M2G/DLV2	1200	600	200	35 cage		180
100A	53A	30kW	ATS 10/4 M2M/DLV2	ATS 10/4 M2B/DLV2	ATS 10/4 M2G/DLV2	1200	600	200	35 cage		180
125A	80A	45kW	ATS 12/4 M2M/DLV2	ATS 12/4 M2B/DLV2	ATS 12/4 M2G/DLV2	1200	600	200	70 cage		180
160A	116A	55kW	ATS 16/4 M2M/DLV2	ATS 16/4 M2B/DLV2	ATS 16/4 M2G/DLV2	1800	800	400	20	M8	280
200A	200A	80kW	ATS 20/4 M2M/DLV2	ATS 20/4 M2B/DLV2	ATS 20/4 M2G/DLV2	1800	800	400	20	M8	280
250A	250A	100kW	ATS 25/4 M2M/DLV2	ATS 25/4 M2B/DLV2	ATS 25/4 M2G/DLV2	1800	800	400	25	M10	280
400A	400A	150kW	ATS 40/4 M2M/DLV2	ATS 40/4 M2B/DLV2	ATS 40/4 M2G/DLV2	1800	800	400	30	M10	280
630A +	For ATS panels of 630A or above, or where you have special requirements please contact us for a quote										

ATS without Bypass

These models are a simpler design and are suited to non-life safety systems where bypass equipment has not been requested

- Designed in compliance with BSEN 60947-6-1
- Electrical and mechanical interlocks between supplies
  Dual interlocked contactors on 160A units and below
  Motorised changeover switches on 200A units and above
- All phases on primary supply monitored to protect against total power loss, phase failure, incorrect phase sequence and under/over voltage
- Test facilities and supply override
- Adjustable over and under voltage trip delay
- Adjustable over and under voltage limits
- External LED indicators and volt free remote terminals to show supply status
- Ingress protection IP55
- Delay timers for supply load, generator warmup and generator cooldown (M2B and M2G only)

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference M2M	Ordering Reference M2B	Ordering Reference M2G	Dimensions (mm) *see inner front cover for reference diagram					
						H	W	D	A	Ø	B
2 Pole for single phase supplies											
40A	40A	11kW	ATS 4/2 M2M	ATS 4/2 M2B	ATS 4/2 M2G	500	400	200	25 cage		100
63A	40A	11kW	ATS 6/2 M2M	ATS 6/2 M2B	ATS 6/2 M2G	500	400	200	25 cage		100
80A	40A	11kW	ATS 8/2 M2M	ATS 8/2 M2B	ATS 8/2 M2G	600	400	200	35 cage		120
100A	80A	22kW	ATS 10/2 M2M	ATS 10/2 M2B	ATS 10/2 M2G	600	400	200	35 cage		120
4 Pole for three phase supplies											
40A	20A	11kW	ATS 4/4 M2M	ATS 4/4 M2B	ATS 4/4 M2G	600	400	200	25 cage		120
63A	40A	22kW	ATS 6/4 M2M	ATS 6/4 M2B	ATS 6/4 M2G	600	400	200	25 cage		120
80A	53A	30kW	ATS 8/4 M2M	ATS 8/4 M2B	ATS 8/4 M2G	700	500	200	35 cage		150
100A	53A	30kW	ATS 10/4 M2M	ATS 10/4 M2B	ATS 10/4 M2G	700	500	200	35 cage		150
125A	80A	45kW	ATS 12/4 M2M	ATS 12/4 M2B	ATS 12/4 M2G	700	500	200	70 cage		150
160A	116A	55kW	ATS 16/4 M2M	ATS 16/4 M2B	ATS 16/4 M2G	800	600	250	70 cage		180
200A	200A	80kW	ATS 20/4 M2M	ATS 20/4 M2B	ATS 20/4 M2G	800	600	250	20	M8	300
250A	250A	100kW	ATS 25/4 M2M	ATS 25/4 M2B	ATS 25/4 M2G	800	600	300	25	M10	300
400A	400A	150kW	ATS 40/4 M2M	ATS 40/4 M2B	ATS 40/4 M2G	800	600	300	30	M10	300
630A	630A	150kW	ATS 63/4 M2M	ATS 63/4 M2B	ATS 63/4 M2G	1000	600	300	35	M10	400
800A	800A	80kW	ATS 80/4 M2M	ATS 80/4 M2B	ATS 80/4 M2G	1000	800	300	40	M12	375
1000A	1000A	100kW	ATS 100/4 M2M	ATS 100/4 M2B	ATS 100/4 M2G	1200	800	300	40	M12	475
1250A	1250A	150kW	ATS 125/4 M2M	ATS 125/4 M2B	ATS 125/4 M2G	1200	800	300	40	M12	475

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Contactor based ATS with single line Bypass

These are contactor based ATS not suitable for modern life safety requirements but offer a more budget friendly alternative when bypass is still required

- Designed in compliance with BSEN 60947-6-1
- Manual single line bypass in seperate compartment conforming to BSEN 61439-2
- Electrical and mechanical interlocks between supplies via dual interlocked contactors
- All phases on primary supply monitored to protect against total power loss, phase failure, incorrect phase sequence and under/over voltage
- Test facilities and supply override
- Adjustable over and under voltage trip delay
- Adjustable over and under voltage limits
- External LED indicators and volt free remote terminals to show supply status
- Ingress protection IP55
- Delay timers for supply load, generator warmup and generator cooldown (M2B and M2G only)

AC1 Rating 380-440V	AC3 Rating 380-440V		Ordering Reference M2M	Ordering Reference M2B	Ordering Reference M2G	Dimensions (mm) *see inner front cover for reference diagram					
						H	W	D	A	Ø	B
2 Pole for single phase supplies with single line bypass switches											
40A	40A	11kW	ATS 4/2 M2M/SLV1	ATS 4/2 M2B/SLV1	ATS 4/2 M2G2/SLV1	500	400	200	25 cage		100
63A	40A	11kW	ATS 6/2 M2M/SLV1	ATS 6/2 M2B/SLV1	ATS 6/2 M2G/SLV1	500	400	200	25 cage		100
80A	40A	11kW	ATS 8/2 M2M/SLV1	ATS 8/2 M2B/SLV1	ATS 8/2 M2G/SLV1	600	400	200	35 cage		120
100A	80A	22kW	ATS 10/2 M2M/SLV1	ATS 10/2 M2B/SLV1	ATS 10/2 M2G/SLV1	600	400	200	35 cage		120
4 Pole for three phase supplies with single line bypass switches											
40A	20A	11kW	ATS 4/4 M2M/SLV1	ATS 4/4 M2B/SLV1	ATS 4/4 M2G/SLV1	600	400	200	25 cage		120
63A	40A	22kW	ATS 6/4 M2M/SLV1	ATS 6/4 M2B/SLV1	ATS 6/4 M2G/SLV1	600	400	200	25 cage		120
80A	53A	30kW	ATS 8/4 M2M/SLV1	ATS 8/4 M2B/SLV1	ATS 8/4 M2G/SLV1	700	500	200	35 cage		150
100A	53A	30kW	ATS 10/4 M2M/SLV1	ATS 10/4 M2B/SLV1	ATS 10/4 M2G/SLV1	700	500	200	35 cage		150
125A	80A	45kW	ATS 12/4 M2M/SLV1	ATS 12/4 M2B/SLV1	ATS 12/4 M2G/SLV1	700	500	200	70 cage		150
160A	116A	55kW	ATS 16/4 M2M/SLV1	ATS 16/4 M2B/SLV1	ATS 16/4 M2G/SLV1	800	600	250	70 cage		180

ATS Accessories

ATS Panel Remote Indication Units

The ATS panels are supplied with volt free remote indication terminals which can be used to inform remote systems, such as a BMS, of the ATS panel's status. We supply a range of remote indication boxes which can be powered from these terminals.

Type	Ordering Reference	Dimensions (mm) *see inner front cover for reference diagram					
		H	W	D	A	Ø	B
Halogen free thermoplastic enclosure - IP55							
Standard	RBOX	135	160	83	2.5 cage		60
Advanced	RBOXADV	135	160	83	2.5 cage		60
Flush mounted satin finish stainless steel enclosure - IP55							
Standard	RBOX/SF	160	220	85	2.5 cage		72
Advanced	RBOXADV/SF	160	220	85	2.5 cage		72

Self Sustaining DC Power Supplies

Whether built in or standalone, these self-sustaining power supplies include a charger and battery to power the digital controller on the M2G mains to generator ATS panels when an alternative source of DC power is not available.

Self Maintained Power Supplies	12V DC Order Reference	24V DC Order Reference
Built into the panel. Suffix reference	12V MPS	24V MPS
Stand alone MPS	160012	160024

Retro-Fit Voltage Change Kit	12V DC Order Reference	24V DC Order Reference
Kit of 3 relays	12VCK	24VCK

*Note: All M2G panels need a continuous DC supply to power the control panel. This is normally taken from the generator battery; hence the control voltage has been selected to match normal battery voltages.

If you do not wish to use the generator battery a built-in or stand-alone self-maintained power source can be used.

ATS Accessories

ATS Bypass switches

Switchgear systems also offer a range of both single line and dual line standalone ATS bypass switches for single phase and three phase ATS applications. These are designed to be retrofitted into installations where an existing ATS panel requires the addition of bypass facilities

	Nominal Rating I_e 415V	Ordering Reference	Operating Handles	Dimensions (mm) *see inner front cover for reference diagram				
				H	W	D	A	Ø
Single Line 2 Pole								
	63A	ST BYATS 6/2 SL	2	600	400	200	35 cage	
	100A	ST BYATS 10/2 SL	2	600	400	200	35 cage	
	125A	ST BYATS 12/2 SL	2	600	400	200	70 cage	
Single Line 4 Pole								
	63A	ST BYATS 6/4 SL	2	600	400	200	35 cage	
	100A	ST BYATS 10/4 SL	2	700	500	200	35 cage	
	125A	ST BYATS 12/4 SL	2	700	500	200	70 cage	
	250A	ST BYATS 25/4 SL	1	800	600	400	25	M10
	400A	ST BYATS 40/4 SL	1	800	600	400	30	M10
	630A	ST BYATS 63/4 SL	1	1000	600	400	30	M10
Dual Line 2 Pole								
	63A	ST BYATS 6/2 DL	4	800	600	300	35 cage	
	100A	ST BYATS 10/2 DL	4	800	600	300	35 cage	
	125A	ST BYATS 12/2 DL	4	800	600	300	70 cage	
Dual Line 4 Pole								
	63A	ST BYATS 6/4 DL	4	800	600	300	35 cage	
	100A	ST BYATS 10/4 DL	4	800	600	300	35 cage	
	125A	ST BYATS 12/4 DL	4	800	600	300	70 cage	
*	250A	ST BYATS 25/4 DL	2	1400	800	400	25	M10
*	400A	ST BYATS 40/4 DL	2	1400	800	400	30	M10
*	630A	ST BYATS 63/4 DL	2	1400	800	400	30	M10

* 250A-630A dual line units come in floor standing enclosures

Sheet Steel Enclosed Bypass Switches I-O-II

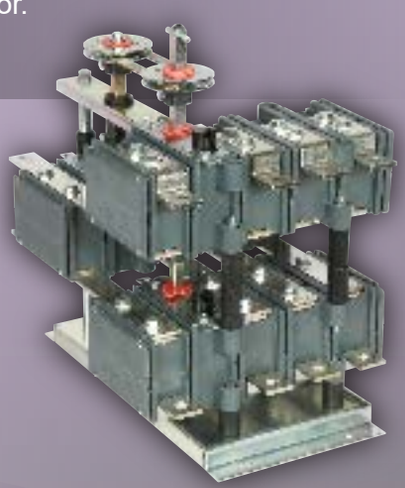
- Break-Before-Make 3 position (I-O-II)
- Fully load rated AC22A 415-690V
- BSEN 60947-3 conformity
- Door interlocking padlockable handle
- Ingress protection IP55

Horizontal Bypass Switches

Designed to easily facilitate all cables from one direction with linking on the other side.

Layered Bypass Switches

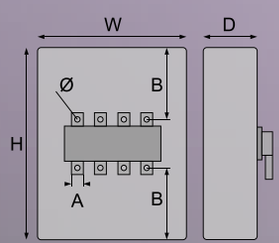
Designed to minimise panel width and keep each set of cables separated.
As standard they facilitate bypass cabling from one direction and equiptment from the other. However a variety of cable directions can be catered for.



Nominal Rating I_e 415V	Ordering Reference	Dimensions (mm) *see inner front cover for reference diagram					
		H	W	D	A	Ø	B
Horizontal Bypass Switches							
63A	ST BYP 6/4	700	500	200	15	M6	280
100A	ST BYP 10/4	700	500	200	15	M6	280
125A	ST BYP 12/4	700	500	200	15	M6	280
160A	ST BYP 16/4	700	500	200	20	M8	280
Layered Bypass Switches							
250A	ST BYP 25/4	800	600	400	25	M10	280
315A	ST BYP 30/4	1000	600	400	25	M10	380
400A	ST BYP 40/4	1000	600	400	20	M10	380
630A	ST BYP 63/4	1400	800	500	30	M12	550
800A	ST BYP 80/4	1400	800	500	30	2xM12	550
Layered Bypass Switches in floor standing enclosures							
1000A	ST BYP 100/4	1700	800	600	40	2xM12	570
1250A	ST BYP 125/4	1900	800	600	40	2xM12	670
1600A	ST BYP 160/4	1900	800	600	40	2xM12	670

Units can be customised to your specifications.
Please call for any bespoke requirements including:

- Spreader terminals
- Auxiliary contacts
- Larger enclosures for additional cable room
- GRP, Stainless, Rainhoods and IP65 etc.



Switchgear Systems Ltd. **Tel:** 01788 577399 **E-mail:** sales@switchgear-systems.com

Sheet Steel Enclosed UPS Bypass Switches I-II

Our range of single handle operation UPS Make-Before-Break bypass switches are designed to minimise the panel width and keep each set of cables separated. As standard they facilitate bypass cabling from one direction and the UPS from the other. However a variety of cable directions can be catered for.

- Make-Before-Break two position I-II
- Single handle operation
- BSEN 60947-3 conformity
- Fully load rated AC22A 415 - 690V
- Door interlocking padlockable handle
- Ingress protection IP55

Nominal Rating Ie 415V	Ordering Reference	Dimensions (mm) *see inner front cover for reference diagram					
		H	W	D	A	Ø	B
125A	ST BYUPS 12/4	600	400	300	20	M8	225
160A	ST BYUPS 16/4	600	400	300	20	M8	225
250A	ST BYUPS 25/4	800	600	400	25	M10	300
400A	ST BYUPS 40/4	800	600	400	30	M10	300
630A	ST BYUPS 63/4	1000	600	400	35	M10	400
800A	ST BYUPS 80/4	1200	600	400	40	M12	480
1000A	ST BYUPS 100/4	1200	800	400	40	M12	480
1250A	ST BYUPS 125/4	1400	800	400	40	M12	580

Key Interlocking

Units can be supplied with Castell or Fortress bolt interlocks to key exchange with your UPS internal bypass. Key switches to fit in the UPS can also be supplied if not fitted.

Auxiliary Contacts

Up to four can be fitted in each switching position.
All auxiliary blocks are rated at AC11 4.5A 220-240V, 10A 24V

Colour	Order Reference	Legend	Action on closing	Action on opening
Red	EXNCAU2	N/C	early break	late make
Green	EXNCAU1V	N/O	late make	early break

Surge Protection Devices

Protection against over-voltages is the subject of BS 7671, the amendments in the 18th edition of wiring regulations calls for the retrofitting of Surge protection devices in many installations.

Note that installation of a Surge protection alone does not necessarily ensure compliance with BS 7671. The electrical specifier should use their judgement, consulting BS 7671 and the BS EN 62305 series (protection against lightning) to determine selection of surge protection devices

Type 1 – Surge protection which can discharge partial lightning current. Suited for location at the origin of potential surges.

Type 2 – Surge protection which can prevent the spread of over-voltages in electrical installations and protects equipment connected to it. Suited for location next to the protected equipment.

kA per Pole	Ordering Reference			Dimensions (mm) *see inner front cover for reference diagram				
	Basic	+ Volt Free Contacts	+ Volt Free Contacts & Over Current Protection	H	W	D	A	B
Type 2 - IP41 Sheet Steel Enclosed								
10	ST-SA T2	ST-SA T2+VF	ST-SA T2+OCP	305	135	60	35 cage	107
Type 2 - IP55 Plastic Enclosed								
10	I-SA T2	I-SA T2+VF	I-SA T2+OCP	175	83	111	35 cage	42
Type 2 - Panel Mounting								
10	SA T2	SA T2+VF	SA T2+OCP	-	-	-	35 cage	-
Type 1+2 - IP41 Sheet Steel Enclosed								
12.5	ST-SA T1+2/12.5	ST-SA T1+2/12.5+VF	-	305	135	60	35 cage	107
25	ST-SA T1+2/25	ST-SA T1+2/25+VF	ST-SA T1+2/25+OCP	400	200	80	50 cage	125
Type 1+2 - IP55 Plastic Enclosed								
12.5	I-SA T1+2/12.5	I-SA T1+2/12.5+VF	-	175	83	111	35 cage	42
25	I-SA T1+2/25	I-SA T1+2/25+VF	-	175	125	111	50 cage	42
25	-	-	I-SA T1+2/25+OCP	425	325	180	50 cage	137
Type 1+2 - Panel Mounting								
12.5	SA T1+2/12.5	SA T1+2/12.5+VF	-	-	-	-	35 cage	-
25	SA T1+2/25	SA T1+2/25+VF	SA T1+2/25+OCP	-	-	-	50 cage	-

*All devices, other than those with built in over current protection, must be connected to the network via an overload device such as an MCB or MCCB. Higher rated protection will allow the surge arrestor to perform at its optimum potential.

MCCB Panelboards

Switchgear Systems offer a customisation service on a range of wall mounting panelboards, MCCB's, meters and surge devices to suit customer requirements. We can offer a range of board sizes with side extension or metering chambers, top and bottom extension or multi service chambers, all with plinths or feet.

- IEC 61439-1 with Form 3b separation
- Short circuit withstand up to 65kA 1 sec
- 400A and 800A busbar in 6, 8, 12 and 18 way
- 1250A busbar in fixed pattern
- SP, TP and 4 pole outgoing devices
- KWH, Multifunction and MIDI approved meters
- Type 1, 2 and 3 Surge Protection Devices

Metering:

kWh, multifunction and Midi approved metering with pulse or Modbus output is available for both the Incoming and Outgoing ways. If meters are required we would fit the unit with side chambers to not only mount the meters to but also to allow for ample cableing room going through the mounted CT's. Each metered unit will be powered up and meters will be set to the ampage of their corresponding MCCB's before it is shipped for testing purposes and to make installation that little bit easier.

Custom Section Boards

Switchgear Systems offer a fast and flexible design and build service for custom floor standing section boards fully tested to IEC 61439-2. With forms of separation up to form 4-7 our panels can come with front or rear access, top/bottom or both cable entry with plain or glassed doors, fixed covers or vented panels, all designed to accommodate future expansion.

- IEC 61439-1 with separation up to Form 4-7
- Short circuit withstand up to 120kA 1 sec
- 400-4000A busbar with fixed or withdrawable device compartments

Available Components:

- ACBs, MCCBs and RCBOs
  - Single, three and four pole
  - 16A - 4000A
  - 16kA - 120kA
  - Thermomagnetic or electronic trips
- 63A - 800A vertical or horizontal switchfuses
- 40A - 4000A automatic or manual changeover and bypass switches
- KWH, multifunction and MIDI approved meters
- Type 1, 2 and 3 Surge Protection Devices
- Power factor correction

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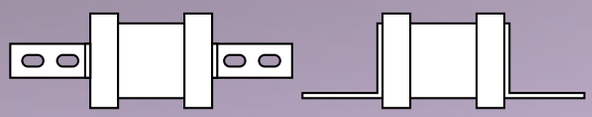
Additional Information

Fuses: Most of our switchfuses come with standard BS88 gG 415VAC fuses with 80kA fault ratings. Where required we can also supply mG motor rated fuses to be fitted into AC-23 switchfuses, please note however the device being selected should always be chosen based on the upper motor rating of the fuse, i.e. a 100A/125A motor rated fuse should be fitted into a 125A switchfuse rather than a 100A switchfuse to better protect the switchgear.

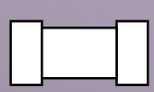
A3-B4



C2-C3

BS88 Fuse Type	Fixing Distance (mm)	Amp capacities available													
		20A	32A	63A	80A	100A	125A	160A	200A	250A	315A	400A	500A	630A	800A
A3	73	✓	✓	✓	✓	✓	✓								
A4	94			✓	✓	✓	✓								
B2	111			✓	✓	✓	✓	✓	✓	✓	✓	✓			
B3/B4	111			✓	✓	✓	✓	✓	✓	✓	✓	✓			
C2	184/133												✓	✓	✓
C3	184/133												✓	✓	✓

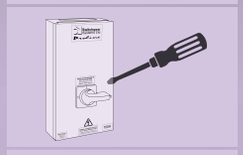
Cylindrical Fuse Size	Amp capacities available				
	20A	32A	63A	80A	100A
(10x38)	✓	✓			
(22x58)			✓	✓	✓



Cylindrical

Additional Information

Ingress Protection: **The IP rating is not a guarantee of weather protection. For outdoor applications we can offer rain hoods, GRP or Stainless Steel enclosures.**

1		Protected against solid object greater than 50mm such as a hand	Protected against vertically falling drops of water. Limited ingress permitted		1
2		Protected against solid object greater than 12.5mm such as a finger	Protected against vertically falling drops of water with enclosure tilted to 15° from the vertical. Limited ingress permitted		2
3		Protected against solid object greater than 2.5mm such as a screwdriver	Protected against sprays of water up to 60° from the vertical. Limited ingress permitted for three minutes		3
4		Protected against solid object greater than 1mm such as a wire	Protected against water splashed from all directions. Limited ingress permitted		4
5		Dust protected. Limited ingress of dust permitted. Will not interfere with operation of the equiptment. Two to eight hours	Protected against jets of water. Limited ingress permitted		5
6		Dust tight. No ingress of dust. Two to eight hours.	Water from heavy seas or water projected in poweful jets shall not enter the enclosure in harmful quantities		6
			Protection against the effects of immersion in water between 15cm and 1m for 30 minutes		7

IP55

*example

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Additional Information

Utilisation Categories:

Utilisation categories for Switches, Disconnectors, Switch-Disconnectors and Fuse-Combination Units

Type of Current	Typical Applications	Utilisation Catergory	
		Frequent Operation	Occasional Operation
IEC Product Standard - 60947-3			
AC	Making and breaking without load	AC-20A	AC-20B
AC	Switching resistive loads including low overloads	AC-21A	AC-21B
AC	Switching mixed resistive and inductive loads, including low overloads	AC-22A	AC-22B
AC	Switching motors and other highly inductive loads	AC-23A	AC-23B
DC	Making and breaking without load	DC-20A	DC-20B
DC	Switching resistive loads including low overloads	DC-21A	DC-21B
DC	Switching mixed resistive and inductive loads, including low overloads (e.g. shunt motors)	DC-22A	DC-22B
DC	Switching highly inductive loads (e.g. series motors)	DC-23A	DC-23B

Category AC-23 includes occasional switching of individual motors. The utilisation categories in the above table do not apply to an equipment normally used to start, accelerate and/or stop individual motors. The utilisation categories for such equipment are dealt with in the following table:

	IEC Product Standard - 60947-4-1	
AC	Slip-ring motors: starting, plugging[1)], switching off	AC-2
AC	Squirrel-cage motors: starting, switching off running motors	AC-3
AC	Squirrel-cage motors: starting, plugging[1)], inching[2)]	AC-4
DC	Shunt motors: starting, plugging[1)], inching[2)], dynamic breaking of d.c. motors	DC-3
DC	Series motors: starting, plugging[1)], inching[2)], dynamic breaking of d.c. motors	DC-4

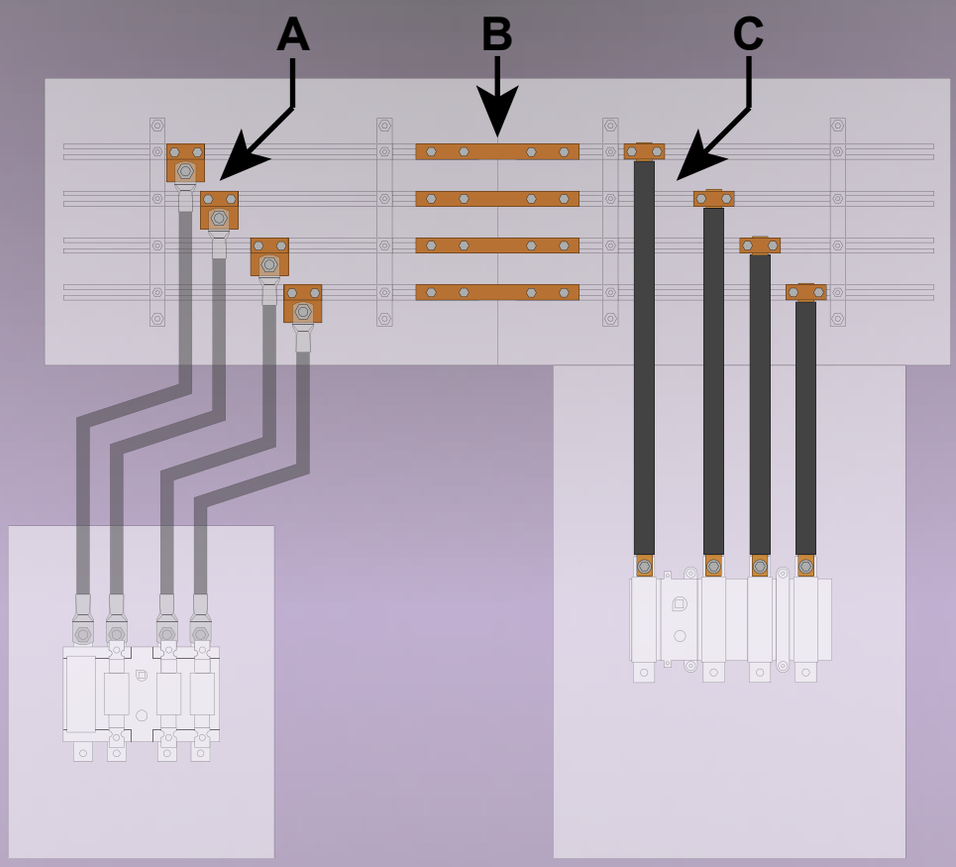
1) Plugging is understood to mean stopping or reversing the motor rapidly by reversing motor primary connections while the motor is running
2) Inching is understood to mean energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism

Reactive Power:

The switching of rotor circuits, capacitors or tungsten filament lamps shall be subject to special agreements between manufacturer and user; normally a min. of 33% de-rating factor.

Additional Information

Busbar Conections: Our Busbar accessories (P10-11) are designed specifically for the Switchgear Systems Ltd range of Busbar chambers (P10).
Here is a diagram showing how each accessory works in conjunction with our Busbar chambers.

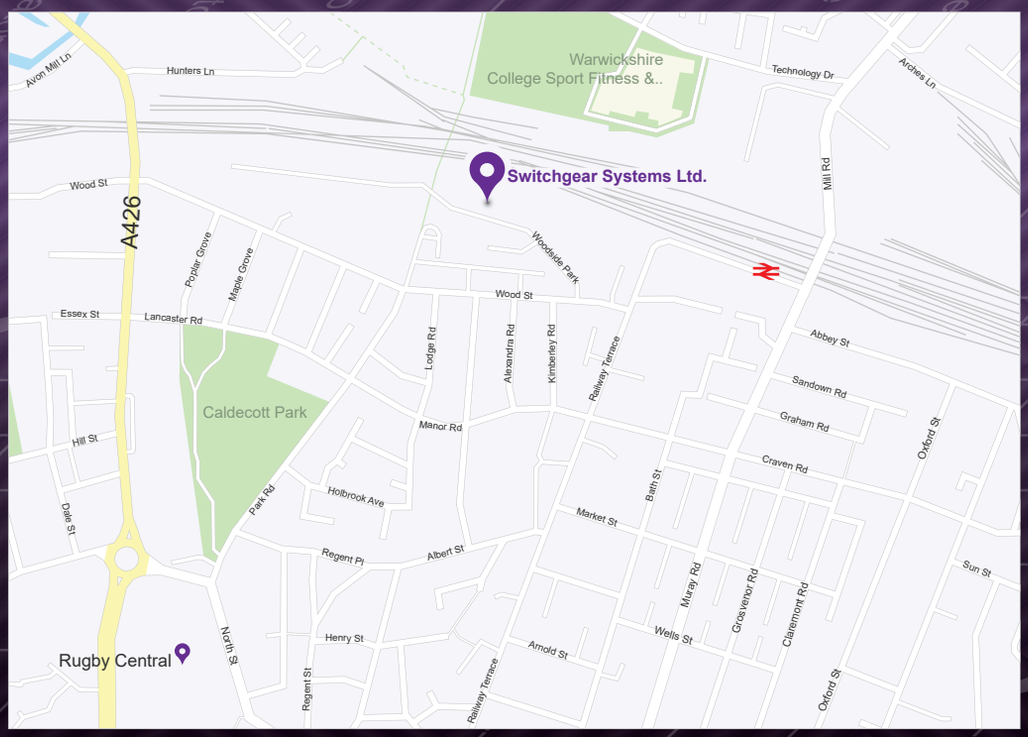


A: Connection - Clamps — These are designed for connecting cables to our Busbar chambers. Clamps starting with the code BCT are for lugged cables. Clamps starting with the code BCE are for direct cables.

B: Joining Kits - If you wish to connect two of our Busbar chambers together simply remove the end plates of the enclosures, bolt them together and fit our joining kit to bridge the gap between the copper bars.

C: Connection - Kits — These are complete 4P kits consisting of 4 flexi-copper bars and 4 connection clamps for flexi-copper. The bars are cut to lengths specifically designed to close couple our enclosed IP55/65 switchgear to our Busbar chambers.
Kits starting with the code BCCKSF are for our Switchfuses.
Kits starting with the code BCCKD are for our Load Break Isolators.

Important: These Busbar accessories are designed specifically for our range of Busbar chambers. The connection kits are cut to lengths specifically to connect to our switches.



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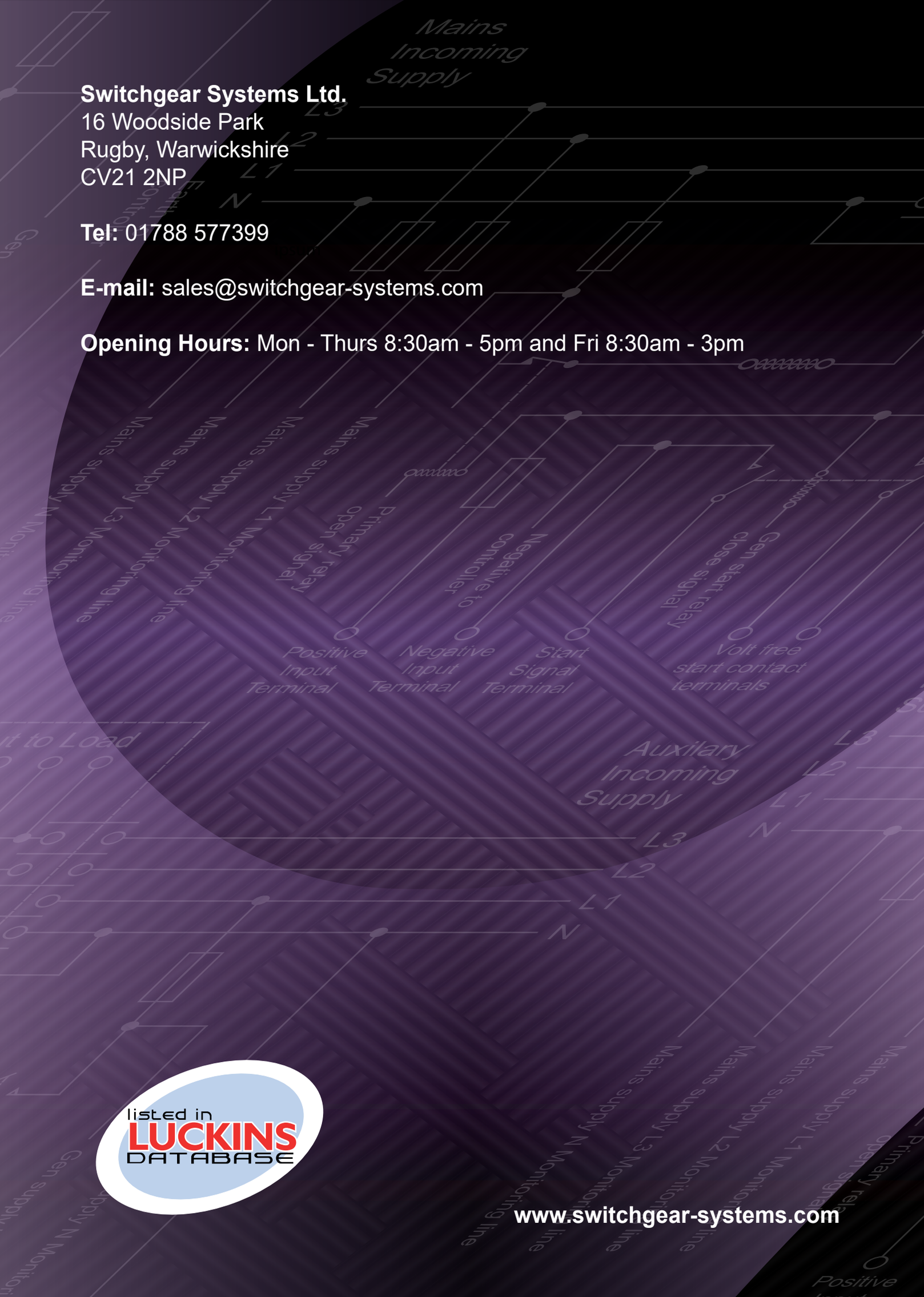

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