

# i switch

## Isolation & Control Equipment 20A - 1000A

- Switch Disconnectors.
- Fuse Combination Units.
- Changeover Switch Disconnectors.
- High Temperature (Fire rated) Switch Disconnectors.
- LUL (Section 12) isolation equipment.
- Automatic Transfer Switches (ATS).



Made in the U.K.

**C&D** **CRAIG &  
DERRICOTT**

*...make the switch*

Craig & Derricott has been at the forefront of electrical switchgear design for more than 40 years. During that time the company's products have earned a well deserved reputation for quality and reliability.

Building on this, the latest 'i-switch' range combines modern styling within a cost effective design to ensure a quick and easy installation and maximum of safety in use.

Additionally the 'i-switch' range has been broadened to include:

- Sloping roof stainless steel switch disconnectors designed specifically for use where severe cleansing routines are expected. (Page 10)
- Large die-cast enclosure increases ratings to 80A (Pages 5-6)
- Smaller 'Compact' enclosures introduced into the IP41 & IP65 hinged lid ranges. (Pages 12-16)
- High temperature or 'Fire Rated' range designed to maintain power to essential services allowing safe evacuation during a fire. (Pages 19-20)
- London Underground 'Section 12' isolation equipment designed to meet strict regulations for use on the underground network. (Pages 21-22)
- Automatic Transfer Switches in two ranges, the 'Standard' and the more flexible 'Advanced' range. (Pages 23-25)

This catalogue covers our i-switch products. However, this is only a small part of our capability. As a U.K. based Design & Manufacturing business we pride ourselves on being able to offer bespoke and special versions of our products in one off or larger quantities delivered in short lead times.

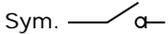
Simply contact our sales team to discuss your requirements and take advantage of our bespoke 'mi-switch' service for make to order products.

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## Product Guide

Comparing today's 'Trade' descriptions to European standards: -

BS EN 60947-3 Definition	'Trade' Description	Technical Description
<b>Switch-Disconnecter</b> Sym. 	<b>Isolator</b>	A ' <b>Disconnecter</b> ' is a mechanical switch which in the 'Open' position, complies with requirements specified for the isolating function. A ' <b>Disconnecter</b> ' or ' <b>Isolator</b> ' is an off-load device and marked 'Isolate elsewhere before opening' they have an AC20/DC20 utilisation category.  A ' <b>Switch</b> ' is a mechanical switching device capable of making, carrying and breaking current under normal circuit conditions, which may include specified operating overload conditions. They also carry, for a specified time, currents under specified abnormal circuit conditions, such as those of short circuit (i.e. Utilisation category AC23A duty).  A ' <b>Switch-Disconnecter</b> ' meets both of these criteria and with a Red/Yellow padlockable handle may also be called a ' <b>Safety Isolator</b> '.
<b>Changeover Switch-Disconnecter</b> Sym. 	<b>Changeover Switch</b>	A ' <b>Changeover</b> ' device is used to connect to one of two sources and in this isolation application will require a central 'Off' position. In all other respects it conforms to the 'Switch Disconnecter' requirements.
<b>Fuse Combination Unit</b> Sym. 	<b>Fuse Switch</b>	A ' <b>Fuse Combination Unit</b> ' is a combination of a mechanical switching device with fuses in a composite assembly.

BS EN 60947-3 descriptions have been used throughout this catalogue.

## Ingress Protection

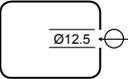
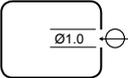
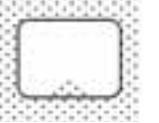
When choosing an isolating device, apart from the electrical performance, consideration must be given to the environmental conditions in which the device will be placed. The item may be subjected to dust or dirt or it may come in contact with degrees of moisture. Indoor conditions will vary considerably but items may well be placed outdoors where the full influence of rain, ice & snow will be present.

Protecting items to varying degrees is detailed in BS EN 60529:1992.

Employing a two digit code the standard defines protection against solid objects and separately protection against moisture i.e.

**IP66** (protection against solid objects)  
(protection against water)

The following extract defines the IP categories used within this document.

1st Digit	Protection against solid objects		2nd Digit	Protection against water	
0	Not Protected		0	Not Protected	
2		Protected against solid objects greater than Ø12.5	1		Protected against dripping water.
4		Protected against solid objects greater than Ø1.0	4		Protected against splashed water from any direction.
5		Protected against dust - allowing a degree of ingress that isn't harmful to the assembly.	5		Protected against water jets from any direction.
6		No ingress of dust.	6		Protected against strong water jets from any direction.

Please refer to BS EN 60529:1992 for full details.

## General Description

Switchgear housed in moulded plastic enclosures provide the basis for most industrial applications and the added benefits offered by the 'i-switch' range provide the user with a wealth of opportunities when selecting the correct item for a specific application. Sealing up to IP66 is a standard feature as is the ability to add a selection of auxiliary blocks providing additional contacts and a choice of Neutral assemblies.

With the 'i-switch' range comes an important safety feature which prevents the enclosure cover being removed when the device has been padlocked in the 'Off' position. When combined with the excellent on-load breaking capacity of the 'i-switch' family this feature ensures that the term 'Safety Switch' is fully satisfied.



## Safety Features

### Padlocking

All items allow for the insertion of up to three padlocks in the 'Off' position thus preventing the isolator being to the 'On' position.

Standard shackle diameter Ø6.4

(An option to allow padlocking in the 'On' position is available on request.)



### Safety Interlock

Screwed lid enclosures have always been open to abuse by having the lid removable when the isolator is 'Off' and padlocked. This would allow the switch shaft to be turned manually to the 'On' position, thus defeating the safety padlocking feature.

The 'i-switch' range now incorporates a mechanical interlock which when a padlock is inserted prevents the enclosure lid from being removed.



Watch a 3 minute video explaining the various safety features built-in to the design of the i-switch 'screwed lid' product family.

## Switch-Disconnectors (O-I)

### Catalogue Numbers

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	6P	GX20	SDP256	A (IP66)
	6P+2EB Aux	GX20	SDP256EB	
25A	2P	CS25	SDP252	A (IP66)
	3P	CS25	SDP253	
	3P+NL	CS25	SDP253NL	
	3P+N	CS25	SDP253N	
32A	3P+2EB Aux	CS25	SDP253EB	A (IP66)
	2P	CS32	SDP322	
	3P	CS32	SDP323	
	3P+NL	CS32	SDP323NL	
	3P+N	CS32	SDP323N	
40A	3P+2EB Aux	CS32	SDP323EB	A (IP66)
	2P	CS40R	SDP402	
	3P	CS40R	SDP403	
	3P+NL	CS40R	SDP403NL	
	3P+N	CS40R	SDP403N	
	6P	GX40	SDP406	
63A	6P+2EB Aux	GX40	SDP406EB	B (IP66)
	2P	CS63	SDP632	
	3P	CS63	SDP633	
	3P+NL	CS63	SDP633NL	
	3P+N	CS63	SDP633N	
80A	3P+2EB Aux	CS63	SDP633EB	B (IP66)
	2P	CS80	SDP802	
	3P	CS80	SDP803	
	3P+NL	CS80	SDP803NL	
	3P+N	CS80	SDP803N	
100A	3P+2EB Aux	CS80	SDP803EB	C (IP65)
	2P	CS100	SDP1002	
	3P	CS100	SDP1003	
	3P+NL	CS100	SDP1003NL	
	3P+N	CS100	SDP1003N	
100A	3P+2EB Aux	CS100	SDP1003EB	D (IP65)

'N' = switched neutral (Early make, late break)

'NL' = Unswitched neutral

## Changeover Switch-Disconnectors (I-O-II)

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	2P	GX20	SCODP252	A (IP66)
	3P	GX20	SCODP253	
	4P	GX20	SCODP254	
40A	2P	GX40	SCODP402	B (IP66)
	3P	GX40	SCODP403	
	4P	GX40	SCODP404	

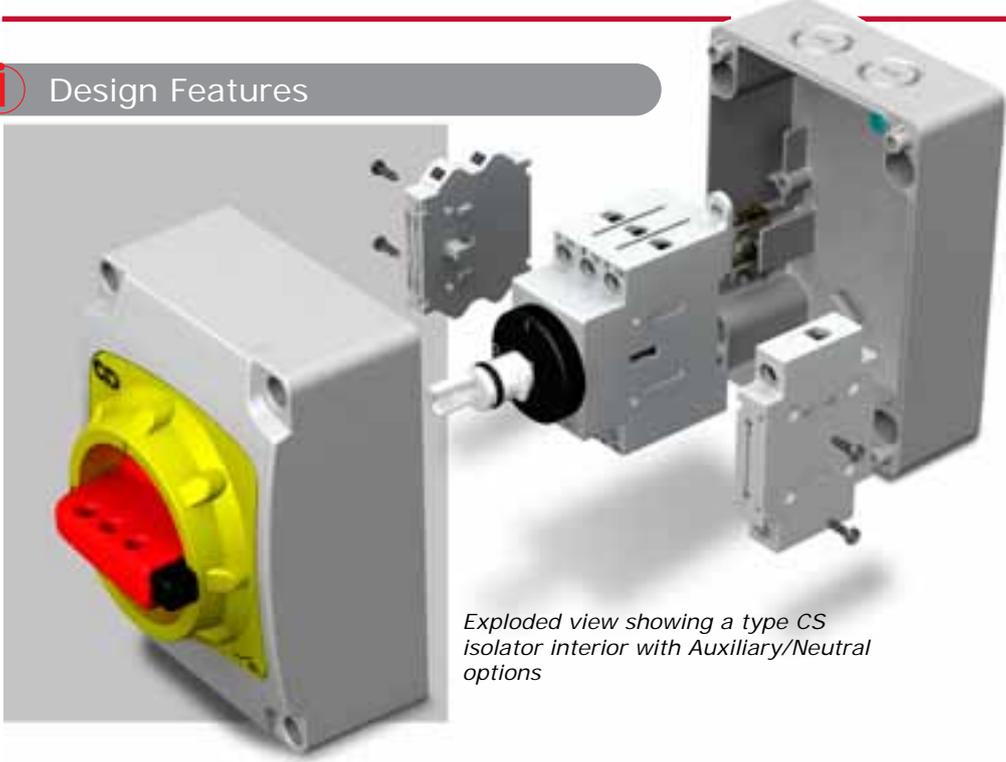


Neutral Link (Unswitched)    2 Early Break Auxiliary    Neutral Link (Switched)

**i Accessories** (applicable to type 'CS' interiors only)

Description	Cat. No.
Auxiliary Contact - 2 Early Break	SAUX2EB
Auxiliary Contact - 1 N/O + 1 N/C	SAUXCO
25A Neutral (Unswitched)	SNL25
32A & 40A Neutral (Unswitched)	SNL40
63A Neutral (Unswitched)	SNL63
80A Neutral (Unswitched)	SNL80
100A Neutral (Unswitched)	SNL100
25A Neutral (Switched)	SSP25
32A & 40A Neutral (Switched)	SSP40
63A Neutral (Switched)	SSP63
80A Neutral (Switched)	SSP80
100A Neutral (Switched)	SSP100

**i Design Features**



*Exploded view showing a type CS isolator interior with Auxiliary/Neutral options*

**Enclosure**

Material	20A-63A PC/ABS 80A-100A PC	
Colour	Enclosure - Grey RAL 7035	
Entries	<b>Size A Enclosure</b> - 2 x M20 knock-outs on top & bottom faces. <b>Size B Enclosure</b> - 2 x M20/25 knock-outs on top & bottom faces. Back face - 2 x M20 knock-outs. <b>Size C &amp; D Enclosures</b> - Blank sides.	
Cover Screws	Stainless Steel (Captive)	
Fixings	Outside sealed cavity.	

**Switch-Disconnectors**

2 & 3 Pole	Type <b>CS</b> - base mounted. (Accepts add-on Aux. blocks & Neutrals)
6 Pole	Type <b>GX</b> - base mounted. (also available with 2 E/B Aux.)

**Changeover Switch-Disconnectors**

2, 3 & 4 Pole	Type <b>GX</b> - base mounted.
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**Earthing**

Earth terminals are provided in the base of the enclosures.



## General Description

The 'i-switch' die cast range provides the user with a product that will withstand a good deal of rough treatment. With sealing up to IP66 these assemblies can be placed in environments where resistance to impacts, moisture and dust/dirt are a concern. The option to add a selection of auxiliary blocks providing additional contacts and a choice of Neutral assemblies increases the flexibility of the product range.



Size A & Size B enclosures as Switch Disconnectors in both Red & Grey



20A Changeover Switch-Disconnector in a size A enclosure

## Catalogue Numbers

### Switch-Disconnectors (O-I)

Rating	Format	Interior Switch product range	Catalogue Nos.		Enclosure Size
			Grey	Red	
20A	6P	GX20	SDDG256	SDDR256	A (IP66)
	6P+2EB Aux	GX20	SDDG256EB	SDDR256EB	
25A	2P	CS25	SDDG252	SDDR252	A (IP66)
	3P	CS25	SDDG253	SDDR253	
	3P+NL	CS25	SDDG253NL	SDDR253NL	
	3P+N	CS25	SDDG253N	SDDR253N	
32A	2P	CS32	SDDG322	SDDR322	A (IP66)
	3P	CS32	SDDG323	SDDR323	
	3P+NL	CS32	SDDG323NL	SDDR323NL	
	3P+N	CS32	SDDG323N	SDDR323N	
40A	3P+2EB Aux	CS32	SDDG323EB	SDDR323EB	B (IP66)
	2P	CS40R	SDDG402	SDDR402	
	3P	CS40R	SDDG403	SDDR403	
	3P+NL	CS40R	SDDG403NL	SDDR403NL	
	3P+N	CS40R	SDDG403N	SDDR403N	
	3P+2EB Aux	CS40R	SDDG403EB	SDDR403EB	
63A	6P	GX40	SDDG406	SDDR406	B (IP66)
	6P+2EB Aux	GX40	SDDG406EB	SDDR406EB	
	2P	CS63	SDDG632	SDDR632	
	3P	CS63	SDDG633	SDDR633	
	3P+NL	CS63	SDDG633NL	SDDR633NL	
	3P+N	CS63	SDDG633N	SDDR633N	
80A	3P+2EB Aux	CS63	SDDG633EB	SDDR633EB	B (IP66)
	6P	CS63	SDDG636	SDDR636	
	6P+2EB Aux	CS63	SDDG636EB	SDDR636EB	
80A	3P+NL	CS80	SDDG803NL	SDDR803NL	B (IP66)
	3P+N	CS80	SDDG803N	SDDR803N	

'N' = switched neutral (Early make, late break)  
'NL' = Unswitched neutral

### C/O Switch-Disconnectors (I-O-II)

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	2P	GX20	SCODG252	A (IP66)
	3P	GX20	SCODG253	
	4P	GX20	SCODG254	
40A	2P	GX40	SCODG402	B (IP66)
	3P	GX40	SCODG403	
	4P	GX40	SCODG404	

## Accessories (applicable to type 'CS' interiors only)

Description	Cat. No.
Auxiliary Contact - 2 Early Break	SAUX2EB
Auxiliary Contact - 1 N/O + 1 N/C	SAUXCO
25A Neutral (Unswitched)	SNL25
32A & 40A Neutral (Unswitched)	SNL40
63A Neutral (Unswitched)	SNL63
25A Neutral (Switched)	SSP25
32A & 40A Neutral (Switched)	SSP40
63A Neutral (Switched)	SSP63

## Safety Features

Screwed lid enclosures have always been open to abuse by having the lid removable when the isolator is 'Off' and padlocked. This would allow the switch shaft to be turned manually to the 'On' position, thus defeating the safety padlocking feature.

The 'i-switch' range now incorporates a mechanical interlock which when a padlock is inserted prevents the enclosure lid from being removed.

All safety features are identical to the plastic moulded range - see page 3 for details.

## Design Features

### Enclosure

**Material** Die cast aluminium alloy LM24 (BS1490)

**Paint finish** **Grey** - RAL 7035    
**Red** - RAL 3020.

**Entries** Included with std. catalogue No: -  
**Size A** - 2xM20 on bottom face.  
**Size B** - 40A & 63A: -  
 2xM25 + 1xM20 on bottom face.  
 80A: -  
 2xM32 + 1xM20 on bottom face.

Maximum number of possible entries: -  
**Size A** - 4 (2 Top+2 Bottom).  
**Size B** - 6 (3 Top+3 Bottom).

**Cover Screws** Stainless Steel (Captive)

**Earthing** Terminals are provided on both lid and base to allow full earth continuity to be maintained.

**Mounting** All fixings are internal but outside of the IP66 sealed area. Guide channels are provided to assist with the fixing screw location.

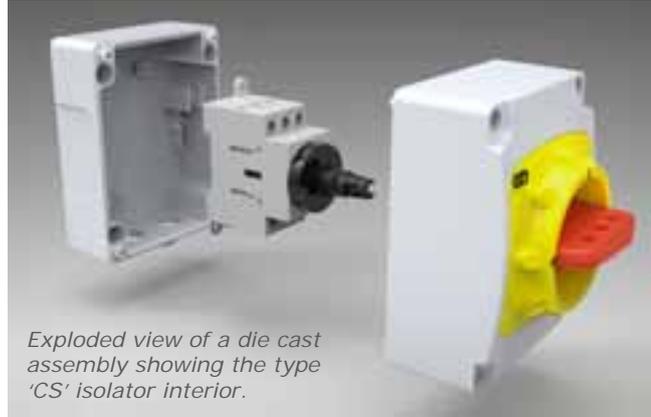
### Switch-Disconnectors

2, 3 & 6 Pole Type **CS** - base mounted.  
 (Accepts add-on Aux. blocks & Neutrals, see page 9 for ratings)

6 Pole Type **GX** - base mounted.  
 (also available with 2 E/B Aux.)

### Changeover Switch-Disconnectors

2, 3 & 4 Pole Type **GX** - base mounted.



*Exploded view of a die cast assembly showing the type 'CS' isolator interior.*



The size 'B' enclosure is available with 'Start/Stop' or 'Start/Emergency Stop' pushbuttons. Please contact our sales team for details.



*...products for the real world*

Craig & Derricott the market leaders in die cast enclosed isolation equipment



## General Description

Craig & Derricott have been manufacturing flush mounting isolators for more than 40 years and in that time the design has been carefully modified to give features that installers and end users really need.

The assembly consists of a zinc plated back box (complete with knock-outs) and a stainless steel fascia plate which carries the isolating switch and lockable handle. The fascia plate now comes in an attractive brushed finish which resists the fingerprint effect associated with highly polished surfaces.

Equally at home in kitchens, laboratories, food processing areas, hospitals and many other areas where an elegant, low projection isolation device is required.



## Design Features

### Enclosure

Fascia plate      Stainless steel 304, thickness 1.2mm  
*Finish*      Brushed.

Back box      Sheet steel, thickness 1.4mm  
*Finish*      Galvanised

### Entries

Knockouts in back box.

## Installation

Whilst the joint between the isolating switch and the stainless steel fascia plate is factory sealed to IP66 min, when installed, the fascia to mounting surface seal is the responsibility of the installer.

To maintain the sealing overall, an efficient bond must be made using some form of gasketing material. This is particularly vital on tiled surfaces where grout lines can channel moisture down the wall.

A continuous bead of moisture resistant mastic is a simple way of providing a seal, and can improve the appearance of the final assembly on an uneven surface.

## Safety Features

All safety features are identical to the plastic moulded range - see page 3 for details.

## Switch-Disconnectors (O-I)



### Catalogue Numbers

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	2P	GX	SDFL252	A
	3P		SDFL253	
	4p		SDFL254	
32A	2P	GX	SDFL322	A
	3P		SDFL323	
	4p		SDFL324	
40A	2P	GX	SDFL402	B
	3P		SDFL403	
	4p		SDFL404	
63A	2P	GN	SDFL632	C
	3P		SDFL633	
	4p		SDFL634	

### Sealing

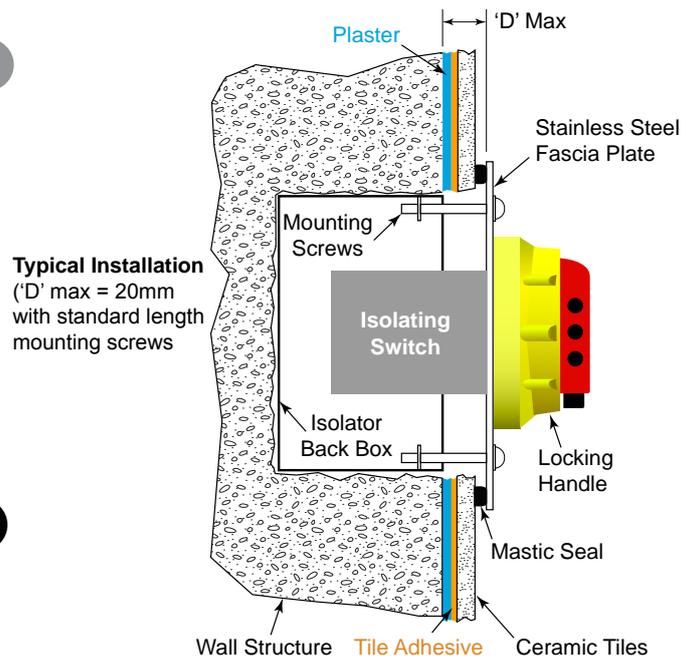
Isolating switch to stainless steel fascia plate - IP66.

### Fascia plate securing screws

Stainless steel (M5 x 25 with 'Allen Key' head).

### Earthing

Separate earthing points on fascia plate and back box.



## General Description

Switchgear housed in mild steel enclosures provides the user with a robust and cost effective assembly along with the added features offered by the 'i-switch' range. Sealing to IP66 is a standard feature as is the ability to add a selection of auxiliary blocks providing additional contacts and a choice of Neutral assemblies. External mounting feet in stainless steel are offered as an accessory sized to match each enclosure.

With the 'i-switch' range comes an important safety feature which prevents the enclosure cover being removed when the device has been padlocked in the 'Off' position. When combined with the excellent on-load breaking capacity of the 'i-switch' family this feature ensures that the term '**Safety Switch**' is fully satisfied.



## Switch-Disconnectors (O-I)

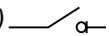


### Catalogue Numbers

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	6P	GX20	SDMG256	A
	6P+2EB Aux	GX20	SDMG256EB	
25A	2P	CS25	SDMG252	A
	3P	CS25	SDMG253	
	3P+NL	CS25	SDMG253NL	
	3P+N	CS25	SDMG253N	
	3P+2EB Aux	CS25	SDMG253EB	
32A	2P	CS32	SDMG322	A
	3P	CS32	SDMG323	
	3P+NL	CS32	SDMG323NL	
	3P+N	CS32	SDMG323N	
	3P+2EB Aux	CS32	SDMG323EB	
40A	2P	CS40R	SDMG402	B
	3P	CS40R	SDMG403	
	3P+NL	CS40R	SDMG403NL	
	3P+N	CS40R	SDMG403N	
	3P+2EB Aux	CS40R	SDMG403EB	
	6P	GX40	SDMG406	
63A	6P+2EB Aux	GX40	SDMG406EB	B
	2P	CS63	SDMG632	
	3P	CS63	SDMG633	
	3P+NL	CS63	SDMG633NL	
	3P+N	CS63	SDMG633N	
	3P+2EB Aux	CS63	SDMG633EB	

'N' = switched neutral (Early make, late break)  
'NL' = Unswitched neutral

## Changeover Switch-Disconnectors (I-O-II)



Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	2P	GX20	SCODMG252	A
	3P	GX20	SCODMG253	
	4P	GX20	SCODMG254	
40A	2P	GX40	SCODMG402	B
	3P	GX40	SCODMG403	
	4P	GX40	SCODMG404	

## Accessories (applicable to type 'CS' interiors only)

Description	Cat. No.
Auxiliary Contact - 2 Early Break	SAUX2EB
Auxiliary Contact - 1 N/O + 1 N/C	SAUXCO
25A Neutral (Unswitched)	SNL25
32A & 40A Neutral (Unswitched)	SNL40
63A Neutral (Unswitched)	SNL63
25A Neutral (Switched)	SSP25
32A & 40A Neutral (Switched)	SSP40
63A Neutral (Switched)	SSP63

## Safety Features

All safety features are identical to the plastic moulded range - see page 3 for details.

## Design Features

### Enclosure

Material Sheet steel, thickness 1.2mm  
 Paint finish Epoxy Powder Coated.  
 Colour Enclosure - Grey RAL 7035  
 Entries **Size A Enclosure** - 2 x M20  
**Size B Enclosure** - 2 x M20 + 2 x M25  
 Cover Screws Stainless Steel (Captive)  
 External Feet Size A enclosure - Cat. No. **EFA**  
 Size B enclosure - Cat. No. **EFB**  
 (See page 26 for dimensions)

### Switch-Disconnectors

2 & 3 Pole Type **CS** - base mounted.  
 (Accepts add-on Aux. blocks & Neutrals)  
 6 Pole Type **GX** - base mounted.  
 (also available with 2 E/B Aux.)

### Changeover Switch-Disconnectors

2, 3 & 4 Pole Type **GX** - base mounted.

### Earthing

Earth continuity terminals are provided in the base and lid of each enclosure.



## General Description

Switchgear housed in stainless steel enclosures provides the user with an assembly that can be installed in the harshest of environments. Outdoor in unprotected positions or indoor and subject to severe environmental conditions, the standard stainless steel i-switch range with a flush back surface offers the ideal solution. Sealing to IP66 is a standard feature as is the ability to add a selection of auxiliary blocks providing additional contacts and a choice of Neutral assemblies. External mounting feet in stainless steel are offered as an accessory sized to match each enclosure.

With the 'i-switch' range comes an important safety feature which prevents the enclosure cover being removed when the device has been padlocked in the 'Off' position. When combined with the excellent on-load breaking capacity of the 'i-switch' family this feature ensures that the term 'Safety Switch' is fully satisfied.



### **i** Safety Features

All safety features are identical to the plastic moulded range - see page 3 for details.

### **i** Design Features

#### Enclosure (Flush rear surface)

Material	Stainless steel, Grade 304, thickness 1.2mm (Grade 316 to special order)
Finish	Brushed -  Satin (150 grit)
Entries	<b>Size A Enclosure</b> - 2 x M20 <b>Size B Enclosure</b> - 2 x M20 + 2 x M25
Cover Screws	Stainless Steel (Captive)
External Feet	Size A enclosure - Cat. No. <b>EFA</b> Size B enclosure - Cat. No. <b>EFB</b> (See page 26 for dimensions)

#### Switch-Disconnectors

2 & 3 Pole	Type <b>CS</b> - base mounted. (Accepts add-on Aux. blocks & Neutrals)
6 Pole	Type <b>GX</b> - base mounted. (also available with 2 E/B Aux.)

#### Changeover Switch-Disconnectors

2, 3 & 4 Pole	Type <b>GX</b> - base mounted.
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#### Earthing

Earth continuity terminals are provided in the base and lid of each enclosure.

## Standard Switch-Disconnectors (O-I)

### Catalogue Numbers

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	6P	GX20	SDS256	A
	6P+2EB Aux	GX20	SDS256EB	
25A	2P	CS25	SDS252	A
	3P	CS25	SDS253	
	3P+NL	CS25	SDS253NL	
	3P+N	CS25	SDS253N	
	3P+2EB Aux	CS25	SDS253EB	
32A	2P	CS32	SDS322	A
	3P	CS32	SDS323	
	3P+NL	CS32	SDS323NL	
	3P+N	CS32	SDS323N	
	3P+2EB Aux	CS32	SDS323EB	
40A	2P	CS40R	SDS402	B
	3P	CS40R	SDS403	
	3P+NL	CS40R	SDS403NL	
	3P+N	CS40R	SDS403N	
	3P+2EB Aux	CS40R	SDS403EB	
	6P	GX40	SDS406	
	6P+2EB Aux	GX40	SDS406EB	
63A	2P	CS63	SDS632	B
	3P	CS63	SDS633	
	3P+NL	CS63	SDS633NL	
	3P+N	CS63	SDS633N	
	3P+2EB Aux	CS63	SDS633EB	

'N' = switched neutral (Early make, late break)

'NL' = Unswitched neutral

## Changeover Switch-Disconnectors (I-O-II)

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20A	2P	GX20	SCODS252	A
	3P	GX20	SCODS253	
	4P	GX20	SCODS254	
40A	2P	GX40	SCODS402	B
	3P	GX40	SCODS403	
	4P	GX40	SCODS404	

### **i** Accessories (applicable to type 'CS' interiors only)

Please refer to the table on page 4.

Based upon Craig & Derricott's 'i-switch' range of isolation equipment, the specially designed stainless steel 'sloping roof' enclosure is ideally suited for hygienic environments with their associated severe cleaning routines

The design has been created to minimise areas where dirt can accumulate and incorporates a flush rear surface and universal fixing that include IP66 sealings.

With the 'i-switch' range comes an important safety feature which prevents the enclosure cover being removed when the device has been padlocked in the 'Off' position. When combined with the excellent on-load breaking capacity of the 'i-switch' family this feature ensures that the term '**Safety Switch**' is fully satisfied.



### **i** Safety Features

All safety features are identical to the plastic moulded range - see page 3 for details.

### **i** Design Features

#### Enclosure (Flush rear surface)

Material	Stainless steel, Grade 316, thickness 1.2mm body, 1.5mm lid. (15° Slope)
Finish	Brushed -  Satin 150 grit
Entries	The enclosures are supplied as standard without entries. Optional pre-drilled bottom entries can be supplied as follows: - Size A - 2xM20 (add M20 to cat No.) Size B - 2xM25 (add M25 to cat No.) e.g. <b>SDSSR322/M20</b> , <b>SDSSR403N/M25</b>
Cover Screws	Stainless Steel (Captive) (See page 25 for dimensions)



#### Sloping Roof Switch-Disconnectors (O-I)

#### Catalogue Numbers

Rating	Format	Interior Switch product range	Cat. No.	Enclosure Size
20/ 25A	2P	CS25	<b>SDSSR252</b>	A
	3P	CS25	<b>SDSSR253</b>	
	3P+2EB AUX	CS25	<b>SDSSR253EB</b>	
	3P+N	CS25	<b>SDSSR253N</b>	
	6P	GX20	<b>SDSSR256</b>	
	6P+2EB AUX	GX20	<b>SDSSR256EB</b>	
32A	2P	CS32	<b>SDSSR322</b>	A
	3P	CS32	<b>SDSSR323</b>	
	3P+2EB AUX	CS32	<b>SDSSR323EB</b>	
	3P+N	CS32	<b>SDSSR323N</b>	
40A	2P	CS40R	<b>SDSSR402</b>	B
	3P	CS40R	<b>SDSSR403</b>	
	3P+2EB AUX	CS40R	<b>SDSSR403EB</b>	
	3P+N	CS40R	<b>SDSSR403N</b>	
	6P	GX40	<b>SDSSR406</b>	
	6P+2EB AUX	GX40	<b>SDSSR406EB</b>	
63A	2P	CS63	<b>SDSSR632</b>	B
	3P	CS63	<b>SDSSR633</b>	
	3P+2EB AUX	CS63	<b>SDSSR633EB</b>	
	3P+N	CS63	<b>SDSSR633N</b>	

'N' - switched neutral (Early make, late break)

#### Fixings

Universal fixings across the range.

#### Switch-Disconnectors

2 & 3 Pole	Type <b>CS</b> - base mounted. (Accepts add-on Aux. blocks & Neutrals)
6 Pole	Type <b>GX</b> - base mounted. (also available with 2 E/B Aux.)

#### Earthing

Earth continuity terminals are provided in the base and lid of each enclosure.

### **i** Accessories (applicable to type 'CS' interiors only)

Please refer to the table on page 4.

*Section view showing the enclosures flush rear face with 'sealed' fixings that ensure the IP66 seal is maintained.*



### **i** Technical Data (For pages 3-10)

Data supplied against tests to IEC/BS EN 60947-3

Application	Sym.	Unit	Category	Rating							
				20A	25A	32A	40A	63A	80A	100A	
Switch product range	-	-		GX20	CS25	CS32	GX40	CS40R	CS63	CS80	CS100
Rated thermal current	$I_{the}$	A		20	25	32	40	40	63	80	100
Rated insulation voltage	$U_i$	V		690	690	690	690	690	690	690	1000
Rated impulse voltage	$U_{imp}$	kV		6	6	6	6	6	6	6	8.0
Rated operational power(3 phase AC)		kW	380/440 - AC23	7.5	11	15	18.5	15	25	30	59
			500V - AC23	7.5	15	15	15	15	30	37	63
			690V - AC23	7.5	15	15	15	15	30	30	51
Rated short time withstand current (1 sec)	$I_{cw}$	A		250	500	600	800	600	1300	1400	2600
Max. fuse size for short circuit protection (gG Characteristic)		kA	10kA	20	35	35	40	40	80	80	160
			25kA	16	32	32	35	32	63	63	160
			50kA	-	32	32	-	32	63	63	160
Recommended connecting capacity		-	Terminal type								
		mm <sup>2</sup>	Flexible cable	2.5 x 2	6	6	6 x 2	6	16	16	50
		mm <sup>2</sup>	Rigid cable	2.5 x 2	10	10	10 x 2	10	25	25	70
		Nm	Tightening torque	1.2	1.0	1.2	1.0	1.2	1.2	1.2	1.2

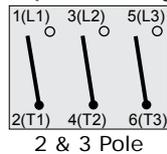
### Auxiliary Contacts

Data supplied against tests to IEC/BS EN 60947-5-1

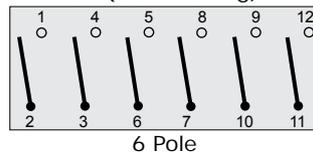
Application	Category	Sym.	Unit	Rating
Rated insulation voltage	-	$U_i$	V	690
Rated thermal current	-	$I_{th}$	A	10
Rated operational current (AC15)	110V	$I_e$	A	8
	220-240V			8
	380-400V			3
	660-690V			1
Max. conductor size	-	-	mm <sup>2</sup>	1.5
Tightening torque	-	-	Nm	0.6

### Terminal Markings

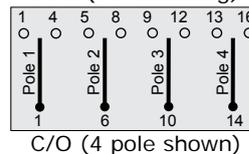
O-I (90° indexing)



O-I (90° indexing)



I-O-II (90° indexing)



## General Description

Supplied in 'hinged lid' grey powder coated sheet steel enclosures, these IP41 sealed assemblies are eminently suitable for most indoor industrial applications. Supplied as 'Switch-Disconnectors' or 'Fuse Combination Units' all items are supplied in generously sized enclosures which helps to avoid the need for extension boxes.

The design offers a choice of accessories and options to match a variety of *real world* applications.



The internal arrangement of a typical switch disconnector (Isolator)

## Design Features

- Safety handle - when padlocked in the 'Off' position, the enclosure door cannot be opened. Capable of accepting up to three padlocks in the 'Off' position. (Locking in 'On' position on request)
- Door interlock handle can be defeated to enable emergency opening or for testing purposes. (Must be carried out by a competent person)
- Removable gland plates on top & bottom of all enclosures.
- Enclosure size 2 and above isolating switches are mounted on a removable galvanised chassis plate.
- All Fuse Combination Units are supplied complete with a set of fully rated fuse links.
- Terminal covers are supplied for incoming terminals.
- Earth terminals fitted to door and gland plates.

## Switch-Disconnectors (0-I)



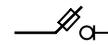
### Catalogue Numbers

Rating	Format	Cat. No.	Encl. Size
32A	3P+N	SD41G00323N	1
	3P+NL	SD41G00323NL	1
63A	3P+N	SD41G00633N	1
	3P+NL	SD41G00633NL	1
	6P+2E/B	SD41G00636EB	2
80A	3P+N	SD41GC00803N	3A
	3P+NL	SD41GC00803NL	3A
100A	3P+N	SD41GC01003N	3A
	3P+NL	SD41GC01003NL	3A
125A	3P+N	SD41GC01253N	4A
	3P+NL	SD41G01253NL	4A
160A	3P+N	SD41GC01603N	4A
	3P+NL	SD41GC01603NL	4A
200A	3P+N	SD41GC02003N	5A
	3P+NL	SD41GC02003NL	5A
250A	3P+N	SD41G02503N	5
	3P+NL	SD41G02503NL	5
400A	3P+N	SD41G04003N	6
	3P+NL	SD41G04003NL	6
630A	3P+N	SD41G06303N	8
	3P+NL	SD41G06303NL	8

'N' = switched neutral (Early make, late break)

'NL' = Unswitched neutral

## Fuse Combination Units (0-I)



### Catalogue Numbers

Rating	Format	Cat. No.	Enclosure Size
32A	TP&N	SDF41G00323N	2
63A	TP&N	SDF41G00633N	2
100A	TP&N	SDF41G01003N	3
125A	TP&N	SDF41G01253N	4
160A	TP&N	SDF41G01603N	4
200A	TP&N	SDF41G02003N	5
250A	TP&N	SDF41G02503N	5
315A	TP&N	SDF41G03153N	6
400A	TP&N	SDF41G04003N	6
630A	TP&N	SDF41G06303N	8



## Spares/Accessories



For electrical ratings please refer to the following pages:-  
**Type A - page 11**  
**Types B & C - Page 18**

## Auxiliary Contacts

Add-on auxiliary blocks are available for all IP41 products. Please select the blocks/kit from the tables below.

All auxiliaries are supplied as 1 N/O+1 N/C pair.

All N/O auxiliary contacts are early break with respect to the main poles when switching from 'On' to 'Off'.

## Catalogue Numbers

For Switch-Disconnectors

Rating (A)	32-200	250	400-630
Cat No	SAUXCO	SAUXKITB	SAUXKITC
Type	A	B	B

For Fuse Combination Units

Rating (A)	32-160	200-400	630
Cat No	SAUXKITA	SAUXKITC	SAUXKITD
Type	C	B	C



IEC/BS EN 60269 (BS88) fuse links

## Fuse Links

All of the Fuse Combination Units are supplied fitted with a set of fully rated IEC/BS EN 60269 (BS88) fuse links. Replacements can be supplied as individual fuse links to the table below.

Fuse links can be fitted to a lower rating to suit a particular load: please refer to the rating table below to maintain the correct size/tag format (A2, A4, B1 etc.).

Rating (A)	32	63	100	125	160	200	250	315	400	630
C&D Cat. No.	SFL32	SFL63	SFL100	SFL125	SFL160	SFL200	SFL250	SFL315	SFL400	SFL630
Cooper Bussmann Cat. No.	AA032	BA063	CE0100	DE0125	DD160	DD200	ED250	ED315	ED400	FF630
Lawson Cat. No.	TIA32	TIS63	TCP100	TFP125	TF160	TF200	TKF250	TKF315	TMF400	3T630
BS fuse format	A2, A3	A2, A3	A4	A4	B1, B2	B1-B2	B1-B2	B1-B4	B1-B4	C1-C3

## Terminal Covers

Terminal protection is provided on all items for live incoming terminals; spare terminal covers are available for replacement or extending the protection to the outgoing terminals.



## Catalogue Numbers - individual covers

For Switch-Disconnectors

Isol Rating (A)	32-160	200	250-400	630
Cat No	Not reqd	STS1	STS2	STS3

For Fuse Combination Units

Isol Rating (A)	32-63	100-250	400	630
Cat No	Not reqd	STS1	STS2	STS3



The internal arrangement of a typical Fuse Combination Unit

## General Description

In addition to the basic features of the IP41 enclosed range, the IP65 sealed family of products introduces: -

- IP65 Handle assemblies.
- Sealed gland plates
- Up to 1000A Switch Disconnectors
- Changeover Switch-Disconnectors
- Grey or Stainless steel enclosures (Red also available)

*Need something special?*

*Why compromise?*

*Give our technical sales a call to discuss your requirements.*

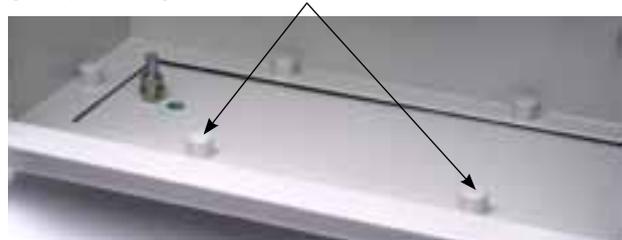
*We can design, build & supply what you really need.*

## Design Features

- Safety handle - when padlocked in the 'Off' position, the enclosure door cannot be opened. Capable of accepting up to three padlocks in the 'Off' position. ('On' position on request)
- Door interlock handle can be defeated to enable emergency opening or for testing purposes. (Must be carried out by a competent person)
- Removable gland plates on top & bottom of all enclosures.
- Enclosure size 2 and above isolating switches are mounted on a removable galvanised chassis plate.
- All Fuse Combination Units are supplied complete with a set of fully rated fuse links.
- Stainless steel enclosures for severe environments.
- Changeover Switch Disconnectors in four pole format.
- Enclosures finished Red (RAL 3020) are available to order, please contact our Sales team for details.



Removable gland plates are fitted to the top & bottom faces and employ 'blind' fixings that will maintain the IP sealing even if a gland plate fixing screw should be missed.



### Switch-Disconnectors\* (O-I)

Catalogue Numbers				
Rating	Format	Sheet steel (Grey)	Stainless Steel	Encl. Size
63A	3P+N	SDG00633N	SDS00633N	1
	3P+NL	SDG00633NL	SDS00633NL	1
	6P+2E/B	SDG00636EB	SDS00636EB	2
80A	3P+N	SDGC00803N	SDSC00803N	3A
	3P+NL	SDGC00803NL	SDSC00803NL	3A
100A	3P+N	SDGC01003N	SDSC01003N	3A
	3P+NL	SDGC01003NL	SDSC01003NL	3A
125A	3P+N	SDGC01253N	SDSC01253N	4A
	3P+NL	SDGC01253NL	SDSC01253NL	4A
160A	3P+N	SDGC01603N	SDSC01603N	4A
	3P+NL	SDGC01603NL	SDSC01603NL	4A
200A	3P+N	SDGC02003N	SDSC02003N	5A
	3P+NL	SDGC02003NL	SDSC02003NL	5A
250A	3P+N	SDG02503N	SDS02503N	5
	3P+NL	SDG02503NL	SDS02503NL	5
400A	3P+N	SDG04003N	SDS04003N	6
	3P+NL	SDG04003NL	SDS04003NL	6
630A	3P+N	SDG06303N	SDS06303N	8
	3P+NL	SDG06303NL	SDS06303NL	8
800A	3P+N	SDG08003N	SDS08003N	8
	3P+NL	SDG08003NL	SDS08003NL	8
1000A	3P+N	SDG10003N	SDS10003N	10
	3P+NL	SDG10003NL	SDS10003NL	10

'N' = switched neutral (Early make, late break)  
'NL' = Unswitched neutral

### Fuse Combination Units\* (O-I)

Catalogue Numbers				
Rating	Format	Sheet steel (Grey)	Stainless Steel	Encl. Size
32A	TP&N	SDFG00323N	SDFS00323N	2
63A	TP&N	SDFG00633N	SDFS00633N	2
100A	TP&N	SDFG01003N	SDFS01003N	3
125A	TP&N	SDFG01253N	SDFS01253N	4
160A	TP&N	SDFG01603N	SDFS01603N	4
200A	TP&N	SDFG02003N	SDFS02003N	5
250A	TP&N	SDFG02503N	SDFS02503N	5
315A	TP&N	SDFG03153N	SDFS03153N	6
400A	TP&N	SDFG04003N	SDFS04003N	6
630A	TP&N	SDFG06303N	SDFS06303N	8

### Changeover Isolating-Switches (I-O-II)

Catalogue Numbers				
Rating	Format	Sheet steel	Stainless Steel	Encl. Size
63A	4P C/O	SCODGC00634	SCODSC00634	3
100A	4P C/O	SCODGC01004	SCODSC01004	3
125A	4P C/O	SCODGC01254	SCODSC01254	5
160A	4P C/O	SCODGC01604	SCODSC01604	5
200A	4P C/O	SCODGC02004	SCODSC02004	5
250A	4P C/O	SCODG02504	SCODS02504	7
400A	4P C/O	SCODG04004	SCODS04004	9
630A	4P C/O	SCODG06304	SCODS06304	9

\* Items finished Red (RAL3020) are readily available. Please contact our Sales team for further details or a brochure.



...products for the real world

Image shows a 'flagged' switch disconnector which are available to special order like any other feature not shown as a standard item in this catalogue.

Most of the products in this catalogue are readily available through our stockist network.

Give us a call to find your nearest outlet or visit our website for a full up-to-date list of our U.K. and international distributors.

www.craigandderricott.co.uk/content/how-to-buy



## Spares/Accessories



For electrical ratings please refer to the following pages: -  
**Type A - page 11**  
**Types B & C - Page 18**

### Auxiliary Contacts

Add-on auxiliary blocks are available for all IP65 products. Please select the blocks/kit from the tables below. All auxiliaries are supplied as 1 N/O+1 N/C pair. All N/O auxiliary contacts are early break with respect to the main poles when switching from 'On' to 'Off'. For additional contacts or details regarding auxiliaries for Changeover Switch Disconnectors please contact our sales team.

#### Catalogue Numbers

For Switch-Disconnectors

Rating (A)	63-200	250	400-800	1000
Cat No	SAUXCO	SAUXKITB	SAUXKITC	SAUXKITD
Type	A	B	B	C

For Fuse Combination Units

Rating (A)	32-160	200-400	630
Cat No	SAUXKITA	SAUXKITC	SAUXKITD
Type	C	B	C

### Fuse Links



IEC/BS EN 60269 (BS88) fuse links

All of the Fuse Combination Units are supplied fitted with a set of fully rated IEC/BS EN 60269 (BS88) fuse links. Replacement can be supplied as individual fuse links to the table below.

Fuse links can be fitted to a lower rating to suit a particular load: please refer to the rating table below to maintain the correct size/tag format (A2, A4, B1 etc.).

Rating (A)	32	63	100	125	160	200	250	315	400	630
C&D Cat. No.	SFL32	SFL63	SFL100	SFL125	SFL160	SFL200	SFL250	SFL315	SFL400	SFL630
Cooper Bussmann Cat. No.	AA032	BA063	CE0100	DE0125	DD160	DD200	ED250	ED315	ED400	FF630
Lawson Cat. No.	TIA32	TIS63	TCP100	TFP125	TF160	TF200	TKF250	TKF315	TMF400	3T630
BS fuse format	A2, A3	A2, A3	A4	A4	B1, B2	B1-B2	B1-B2	B1-B4	B1-B4	C1-C3

### Terminal Covers



Terminal protection is provided on all items for live incoming terminals; spare terminal covers are available for replacement or extending the protection to the outgoing terminals. (Not available for 800A & 1000A switch disconnectors.)

#### Catalogue Numbers - individual covers

For Switch-Disconnectors

Isol Rating (A)	63-160	200	250-400	630
Cat No	Not reqd	STS1	STS2	STS3

For Fuse Combination Units

Isol Rating (A)	32-63	100-250	400	630
Cat No	Not reqd	STS1	STS2	STS3



### Technical Specification Switch-Disconnectors $\alpha$

Data supplied against tests to BS EN 60947-3				Rating (A)														
				3P	3P	6P	3P	3P	3P	3P	3P	3P	3P	3P	3P	3P	3P	
Application	Sym	Unit	Category	32	63	63	80	100	125	160	200	250	400	630	800	1000		
Rated thermal current	$I_{the}$	A		32	63	63	80	100	125	160	200	270	500	630	720	1000		
Rated insulation voltage	$U_i$	V		690	690	690	690	1000	1000	1000	1000	1000	1000	1000	1000	1000		
Rated impulse voltage	$U_{imp}$	kV		6	6	6	6	8	8	8	8	12	12	12	12	8		
Rated operational current (AC)	$I_e$	A	Up to 415V - AC21A	32	63	63	80	100	125	160	200	250	400	630	800	1000		
			440-690V - AC21A	-	-	-	-	-	-	-	-	250	400	630	800	1000		
			Up to 415V - AC22A	-	-	-	-	-	-	-	-	250	400	630	800	1000		
			690V - AC22A	-	-	-	-	-	-	-	-	250	400	630	800	-		
			Up to 415V - AC23A	-	-	-	-	-	-	-	-	250	400	630	720	-		
			690V - AC23A	-	-	-	-	-	-	-	-	250	350	350	350	-		
Rated operational current (DC) (/poles in series)	$I_e$	A	Up to 48V - DC21A	-	-	-	-	-	-	-	-	250/2	400/2	630/1	800/1	1000/1		
			220V - DC21A	-	-	-	-	-	-	-	-	250/2	400/2	630/2	800/2	1000/3		
			Up to 48V - DC22A	-	-	-	-	-	-	-	-	250/2	400/1	630/1	800/1	-		
			220V - DC22A	-	-	-	-	-	-	-	-	250/2	400/2	630/2	800/2	-		
			Up to 48V - DC23A	-	-	-	-	-	-	-	-	250/2	400/1	630/1	800/1	-		
			220V - DC23A	-	-	-	-	-	-	-	-	250/2	400/2	630/2	630/2	-		
Rated operational power	$P_e$	kW	400/415V - AC23A	15	25	25	30	59	63	75	75	132	200	315	355	400		
			690V - AC23A	15	30	30	30	51	55	55	55	200	315	355	355	-		
Short circuit making capacity	$I_{cm}$	kA	Peak value	-	-	-	-	-	-	-	-	35	65	80	80	105		
Short circuit withstand (1sec)	$I_{cw}$	kA	rms value	0.6	1.3	1.3	1.4	2.6	2.8	3.0	3.0	8	17	17	17	50		
Min. mechanical endurance	-	-	Operations	-	-	-	-	-	-	-	-	16,000	10,000	10,000	10,000	6,000		
Min. electrical endurance	-	-	415V - at 0.65 pf	-	-	-	-	-	-	-	-	1,000	1,000	500	500	500		
Connecting capacity			- Terminal type															
			mm <sup>2</sup> Min/Max	2.5/10	2.5/25	2.5/25	-/25	-/70	-/70	-/70	-/95							
			mm Stud/Cu palm width	-	-	-	-	-	-	-	-	-x20	10x25	10x25	12x40	12x40	12x60	
			Nm Tightening torque	1.2	1.3	1.3	2	2	2	2	2	12	25	25	40	40	40	



### Technical Specification Fuse Combination Units

Data supplied against tests to BS EN 60947-3

Application	Sym	Unit	Category	Rating (A)									
				32	63	100	125	160	200	250	315	400	630
Rated thermal current	$I_{the}$	A		32	63	100	125	160	200	250	315	400	630
Rated insulation voltage	$U_i$	V		750	750	750	750	750	750	750	750	750	750
Rated impulse voltage	$U_{imp}$	kV		8	8	12	12	12	12	12	12	12	12
Rated operational current (AC)	$I_e$	A	415V - AC23A	32	63	100	125	160	200	250	315	400	630
Rated operational current (DC)*			220V - DC23A	-	-	100	125	160	200	250	315	400	630
Rated making capacity (AC23A)		A	415V, 0.35 pf	320	630	1,000	1,250	1,600	2,000	2,500	3,150	4,000	6,300
Rated breaking capacity (AC23A)		A	415V, 0.35 pf	256	504	800	1,000	1,280	1,600	2,000	2,520	3,200	5,040
Rated Conditional (Fused) short circuit		kA	S/C current rms	80	80	80	80	80	80	80	80	80	80
		A	back-up fuse	32	63	100	125	160	200	250	315	400	630
Min. mechanical endurance		-	Operations	25,000	25,000	15,000	15,000	15,000	10,000	10,000	10,000	10,000	6,000
Min. electrical endurance		-	415V - at 0.65 pf	1,500	1,500	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
BS fuse format				F2	F2	A4	A4	B1, B2	B1, B2	B1, B2	B1, B4	B1, B4	C1, C3
Connecting capacity		-	Terminal type										
		mm <sup>2</sup>	Min/Max	16	25	95	95	120	240	240	300	300	400
		mm	Stud/Cu palm width	-	-	8x20	8x20	8x20	10x25	10x25	10x25	10x25	12x50
		Nm	Tightening torque	3.5	5.5	9	12	16	25	30	35	45	50

\* Two poles in series

### Technical Specification Changeover Switch-Disconnectors

Data supplied against tests to BS EN 60947-3

Application	Sym	Unit	Category	Rating (A)								
				63	100	125	160	200	250	400	630	
Rated thermal current	$I_{the}$	A		63	100	125	160	200	250	400	630	
Rated insulation voltage	$U_i$	V		750	750	1000	1000	1000	1000	1000	1000	
Rated impulse voltage	$U_{imp}$	kV		6	6	6	6	6	12	12	12	
Rated operational current	$I_e$	A	415V - AC22A	63	100	125	160	200	250	400	630	
			415V - AC23A	63	100	125	160	160	250	400	630	
Rated making capacity (AC23A)		A	415V, 0.35 pf	630	630	1,250	1,600	2,000	2,500	4,000	6,300	
Rated breaking capacity (AC23A)		A	415V, 0.35 pf	504	504	1,000	1,280	1,600	2,000	3,200	5,040	
Short circuit current		kA	rms (with fuses)	80	80	80	80	80	100	100	80	
Rated S/C making capacity		A	Peak	15	15	20	20	20	30	40	50	
Min. mechanical endurance		-	Operations	20,000	20,000	10,000	10,000	10,000	10,000	10,000	10,000	
Min. electrical endurance		-	415V - at 0.65 pf	2,500	1,500	1,000	1,000	1,000	1,000	1,000	500	
Connecting capacity		-	Terminal type									
		mm <sup>2</sup>	Max	16	25	50	70	95	240	300	400	
		mm	Stud/Cu palm width	6x13.6	6x13.6	8x22	8x22	8x22	10x25	10x25	12x50	
		Nm	Tightening torque	5	5	12	12	12	30	45	50	

**Auxiliary Blocks** Data supplied against tests to BS EN 60947-1

	Sym.	Category	Auxiliary blocks type 'B'	Auxiliary blocks type 'C'
Thermal current	$I_{th}$		10A	10A
Rated insulation voltage	$U_i$		660V a.c. or d.c.	500V
Utilisation Category	-	AC15	6.0A at 120V, 4.0A at 250V, 2.0A at 660V	240V - Make 30A, Break 3A 480V - Make 15A, Break 1.5A
		DC13	1.0A at 120V, 0.5A at 240V, 0.1A at 660V	240V - Make 30A, Break 3A 480V - Make 15A, Break 1.5A
		Pure Resistive	10A	-



## General Description

Craig & Derricott have been designing electrical switchgear for more than 65 years and it's from this expertise that a development for the ventilation industry has led to the extensive 'High Temperature Isolator' range. Contact stability at extended temperatures, typically 400°C for 2 hours (F400), is the basis of the design.

The critical role these switches perform is to maintain the power to vital equipment such as smoke extraction fans, allowing the safe evacuation of business, car-parks or public areas. Often these devices are mounted local to the extraction fans and, as an assembly, it is essential that they comply with the stringent thermal requirements of BS EN 12101-3: 2003.

The complete range are housed in metal enclosures; the user can therefore be assured that there will be no distortion affecting the connecting cables and their supports under high temperature conditions.

## Catalogue References.

Rating	Format	Assembly Form	Catalogue No. (Finished Red)	Temp. Class.	Encl. size
20A	2P	Lid mounted in sheet steel enclosure	FSDMR0202	F400	A
	3P		FSDMR0203		
	3P+2EB Aux		FSDMR0203EB		
	3P+N		FSDMR0203N		
	4P		FSDMR0204		
	6P		FSDMR0206		
32A	2P	Lid mounted in die-cast aluminium enclosure	FSDDR0322	F400	B
	3P		FSDDR0323		
	3P+2EB Aux		FSDDR0323EB		
	3P+N		FSDDR0323N		
	4P		FSDDR0324		
	6P		FSDDR0326		
63A	2P	Base mounted in hinged lid sheet steel enclosure	FSDMR0632	F400	C
	3P		FSDMR0633		
	3P+2EB Aux		FSDMR0633EB		
	3P+N		FSDMR0633N		
	4P		FSDMR0634		
	6P		FSDMR0636		
125A	2P	Base mounted in hinged lid sheet steel enclosure	RS1BD11/HPHT	F400	D
	3P		RS1BT21/HPHT		
	3P+2EB Aux		RS1BT31/2EB/HPHT		
	3P+N		RS1BT21/HPHT/NL		
	4P		RS1BQ21HPHT		
	6P		RS1BY31/HPHT		
	6P+2EB Aux	RS1BY41/2EB/HPHT			

## Specification

Within BS EN 12101-3: 2003 (Smoke and heat controls) there are several classes of duty which define a specific temperature gradient, upper temperature limit and time period.

**F200** 200°C for 120 min. **F300** 300°C for 60 min. **F400** 400°C for 120 min.

The specification calls for dynamic tests designed to check the performance of the complete ventilation system. The critical function of the associated isolator is required to maintain the essential supply for the duration of the test.

*"Smoke kills more people than fire"*

A well known fact, and it's the job of the ventilation designer to ensure this doesn't happen - to do this effectively he will need continuous power.



## Technical Specification

Data supplied against tests to IEC/BS EN 60947-3

Application	Sym.	Unit	Category	20A	32A	63A	125A	
Rated thermal current	$I_{the}$	A		20	32	63	125	
Rated insulation voltage	$U_i$	V		690	690	690	690	
Rated impulse voltage	$U_{imp}$	kV		6.0	6.0	6.0	6.0	
Rated operational power (3 phase AC)		A/kW	415V - AC23A	20/9.5	32/15	40/18.5	100/55	
			690V - AC23B	20/9.5	20/9.5	20/9.5	-	
			660V - AC23B	-	-	-	30/22	
Conditional Short Circuit Current	Fuse gG	kA/ Fuse(A)	415V	50/32	50/32	50/63	50/200	
			690V	40/32	40/32	40/63	50/63	
Recommended connecting capacity		-	Terminal type					
			mm <sup>2</sup>	Flexible cable	2.5	6	16	50
			mm <sup>2</sup>	Rigid cable	2.5	10	25	50
			Nm	Tightening tor.	1.2	1.2	3.0	10.0



High velocity extraction fans installed in an underground car park



*If you need something special, then give our sales team a call.*

*They will be pleased to offer advice and suggest the next step to move your enquiry forward.*

Fire Rated (High Temperature)



## Background

Following the Kings Cross fire of 1987, the resulting Fennell enquiry prompted the introduction of additional fire precautions for 'Sub-surface Railway Stations'. These additional requirements were introduced under section 12 of the Fire Precautions Act 1971, and since then have been known simply as 'Section 12' regs. There are at present around 120 London Underground stations that come under Section 12 requirements.

The forensic report on the fire cited several instances of a 'flash over' effect caused by materials and paint finishes being ignitable. Exacerbating the conditions underground were toxic fumes given off by certain materials being excessively heated.

Although the new regulations dealt with all aspects of fire prevention such as the removal of wooden escalators, the installation of heat detectors, improved staff training etc, as far as actual equipment supplied for underground use, the overriding emphasis was on materials and paint finishes.

With this isolation range, the overall consideration has been to meet, and where possible exceed, the Section 12 requirements. This has been achieved by the careful selection of individual component materials and the use of only recognised and approved paint finishes.



Products covered by London Underground Product Registration Certificates 638 & 639

## Die cast enclosures



### Switch-Disconnectors (0-I)

Rating	Format	Interior Switch product range	Catalogue Nos.		Enclosure Size
			Grey	Red	
25A	2P	GN25	DCG252LUL10	DCR252LUL10	A (IP65)
	3P	GN25	DCG253LUL10	DCR253LUL10	
	3P+2EB Aux	GN25	DCG253EBLUL10	DCR253EBLUL10	
	4P	GN25	DCG254LUL10	DCR254LUL10	
	6P	GN25	DCG256LUL10	DCR256LUL10	
40A	6P+2EB Aux	GN25	DCG256EBLUL10	DCR256EBLUL10	B (IP65)
	2P	R32	DCG402LUL10	DCR402LUL10	
	3P	R32	DCG403LUL10	DCR403LUL10	
	3P+2EB Aux	R32	DCG403EBLUL10	DCR403EBLUL10	
	4P	R32	DCG404LUL10	DCR404LUL10	
	6P	R32	DCG406LUL10	DCR406LUL10	
	6P+2EB Aux	R32	DCG406EBLUL10	DCR406EBLUL10	

To order a neutral link please include in the catalogue ref. as follows:-  
Example - 3 Pole + Neutral Link - DCG403**N**LUL10

## Design Features

- Paint Finishes:-  
Cupon EA9WB system  
Colour - Light Grey (RAL7035)  
Red (RAL3020)
- Captive lid fixing screws with a security head.
- Enclosure material - Aluminium (LM6)
- Sealing to IP65.
- Supplied with pre-finished steel mounting brackets.
- Padlocking cast lever handle.
- Positive break contacts.
- Earthing points on both lid and base plus external earth stud.
- Padlocking in both 'Off' & 'On'.
- Second product label supplied loose for fitting by the contractor where the original label may be obscured.
- Labels - Engraved traffolyte labels in various colours can be supplied attached to the side of the enclosure or supplied loose for fitting adjacent to the isolator.

## Technical Specification

Electrical ratings to BS EN 60947-3

Application	Sym	Unit	Category	Rating	
Rated thermal current	$I_{the}$	A	-	25A	40A
Rated operational power (3 phase AC)	-	kW	380/440V AC23A	11.0	15.0

## Stainless steel enclosures



## Switch-Disconnectors (0-I)

Rating	Format	Interior Switch product range	Catalogue Nos.		Enclosure Size
			Stainless steel		
25A	2P	GN25	DS252LUL10		C (IP65)
	3P	GN25	DS253LUL10		
	3P+2EB Aux	GN25	DS253EBLUL10		
	4P	GN25	DS254LUL10		
	6P	GN25	DS256LUL10		
40A	6P+2EB Aux	GN25	DS256EBLUL10		D (IP65)
	2P	GN40	DS402LUL10		
	3P	GN40	DS403LUL10		
	3P+2EB Aux	GN40	DS403EBLUL10		
	4P	GN40	DS404LUL10		
	6P	GN40	DS406LUL10		
	6P+2EB Aux	GN40	DS406EBLUL10		

To order a neutral link please include in the catalogue ref. as follows:- Example - 3 Pole + Neutral Link - DS256EBNLLUL10

## Design Features

- Lid mounted switch interiors.
- Captive lid fixing screws with a security head.
- Enclosure material - 18 gauge stainless steel grade 304.
- Finish - Natural - Brushed (Non glare)
- Sealing to IP65.
- Supplied with stainless steel mounting brackets.
- Padlocking cast lever handle.
- Positive break contacts.
- Earthing points on both lid and base plus external earth stud.
- Padlocking in both 'Off' & 'On'.
- Second product label supplied loose for fitting by the contractor where the original label may be obscured.
- Labels - Engraved traffolyte labels in various colours can be supplied attached to the side of the enclosure or supplied loose for fitting adjacent to the isolator.

## Technical Specification

Electrical ratings to BS EN 60947-3

Application	Sym	Unit	Category	Rating	
Rated thermal current	$I_{the}$	A	-	25A	40A
Rated operational power(3 phase AC)	-	kW	380/440V AC23A	11.0	18.5

Craig & Derricott produce many other products to meet 'Section 12' requirements; for example: -

### Hinged lid enclosed Switch Disconnectors.

- Ratings 40A - 400A (3P + switched N).
- Grey or Red 'Copen EA9WB' finish.
- All metal padlocking handle.
- Can be supplied lockable in both 'Off' & 'On'.
- Removable top & bottom gland plates.
- Sealing to IP65.

### Hinged lid enclosed Fuse Combination Units.

- Ratings 32A - 630A (3P + switched N).
- Grey or Red 'Copen EA9WB' finish.
- All metal padlocking handle.
- Can be supplied lockable in both 'Off' & 'On'.
- Removable top & bottom gland plates.
- Takes BS88 fuse links.
- Sealing to IP65.

If you require further information on these products please contact our technical sales team or download the relevant data sheets from our website: -

[www.craigandderricott.co.uk/casestudies/transport11/rail-infrastructure/section-12-equipment](http://www.craigandderricott.co.uk/casestudies/transport11/rail-infrastructure/section-12-equipment)



Typical 'Fuse Combination Unit' and all metal handle assembly.

### General Description

Automatic Transfer Switches (ATS) are essential wherever substantial power has to be maintained. Whether it's to ensure peoples safety in a work or public space, or to maintain essential supplies to a vital process, the fast and efficient transfer of power is automatically managed by the ATS system. The second source of power can either be from a generator or from an alternative/stand-by source. Either of which can be accommodated in Craig & Derricott's range of ATS systems.

At the core of each system is a three/four pole changeover device. The 'Standard' range utilises electromechanical contactors whilst the 'Advanced' range uses two load break isolators.

Two distinct ranges are available to cover differing requirements:-

The **'Standard Range'** provides all of the essential requirements for automatically providing a replacement power source. Facilities are provided to control the start of standby generators manually and to set the undervoltage values and the required time delay. Neon lights show the status of the supplies.

The **'Advanced Range'** provides a more comprehensive control system where the user has an extensive set of variables under their control.

### Standard Range

Rated from 45A to 800A, the Single and Three-phase **Auto Transfer Switches (ATS)** units allow automatic connection of a secondary electrical supply to a load upon failure of the primary.

### Technical Features

- Mechanically and electronically interlocked 3/4/ pole AC1 rated contactors. (AC1 - BS EN 60947-4-1)
- 'No volt' connection for remote generator start (N/O & N/C)
- Auxiliary power supply for Generator battery charging or jacket water heater.
- Two position key switch for 'Auto' & Generator 'Run'.
- Supply availability neon's for visual status indication.
- Incoming supply adjustable undervoltage and time delay relays for the setting of individual supply parameters.
- All equipment housed in a sheet steel hinged lid enclosure.

#### Enclosures

- Grey (RAL7035) textured powder coated Zintec steel construction with phosphate protected welds.
- Termination compartment with internal polycarbonate/ terminal protection shrouds and external panel key lock door.
- Top and bottom steel gland plates.
- Sealing to IP65.

Connections	Termination	Protection
<b>Input 1 (Mains)</b>	1/3P+N+E Hardwire	45 to 800A 3/4 P Contactor
<b>Input 2 (Generator)</b>	1/3P+N+E Hardwire	45 to 800A 3/4 P Contactor
<b>Outgoing (Load)</b>	1/3P+N+E Hardwire	N/A
<b>Aux.</b>	1/1P+N+E Hardwire	20A 2 Pole MCB



### Catalogue Numbers

Ratings	AC1 Rating	Cat No.	Encl. size
45A	45A x 4P	<b>ATS0454B</b>	<b>A</b>
63A	63A x 4P	<b>ATS0634B</b>	
90A	90A x 4P	<b>ATS0904B</b>	
100A	100A x 4P	<b>ATS1004B</b>	
110A	110A x 4P	<b>ATS1104B</b>	
125A	125A x 4P	<b>ATS1254B</b>	<b>B</b>
160A	160A x 4P	<b>ATS1604B</b>	
200A	200A x 4P	<b>ATS2004B</b>	
250A	250A x 4P	<b>ATS2504B</b>	<b>D</b>
275A	275A x 4P	<b>ATS2754B</b>	
300A	300A x 4P	<b>ATS3004B</b>	
350A	350A x 4P	<b>ATS3504B</b>	
400A	400A x 4P	<b>ATS4004B</b>	
450A	450A x 4P	<b>ATS4504B</b>	
500A	500A x 4P	<b>ATS5004B</b>	
550A	550A x 4P	<b>ATS5504B</b>	
600A	600A x 4P	<b>ATS6004B</b>	<b>E</b>
650A	650A x 4P	<b>ATS6504B</b>	
700A	700A x 4P	<b>ATS7004B</b>	
750A	750A x 4P	<b>ATS7504B</b>	
800A	800A x 4P	<b>ATS8004B</b>	

Typical 45A/63A interior layout



Typical 400A interior layout

### Advanced Range

With ratings from 40A to 400A Craig & Derricott's 'Advanced Range' incorporates a modular style assembly with electronic control over a wide range of parameters.

#### Typical interior assembly

All Craig & Derricott ATS products are supplied fully assembled in enclosures and ready to install.

Featuring: -

- Two mechanically interlocked four pole power switches.
- A configurable automatic control associated with an emergency manual operation.
- Built-in configuration and control interface.
- On load switch disconnectors providing safety isolation combined with high making and breaking capacity.
- Fast electromagnetic operation.



Typical assembly showing the optional front panel LCD display

### Technical Features

#### Single or three phase voltage and frequency control on networks I or II.

- Independent over/under voltage and over/under frequency thresholds +/- 20% of nominal values.
- Considerable associated hysteresis values.
- Phase rotation and unbalance control.

#### Metering

- 3 phases voltage measurements on networks I & II.
- Frequency measurement on networks I & II.
- Timers display & count down.

#### Display & Keypad

- Parameters configuration (thresholds, timers etc).
- 3 phases voltage and frequency for source I & II, timers, number of cycles and last event display.
- Tests and positions control facilities.

#### LED's

- Power On; Source availability; Changeover position; 'MAN/AUT' mode; Test/Control operation; Fault.

#### 3 Configurable Inputs

- Automatic mode inhibition; Test on load and off load; Manual re-transfer; Changeover position control; Network priority change.

#### Bi-stable output relay

- For Generator Start/Stop command - 30V DC/2A

#### Catalogue Numbers

Ratings	Format	Cat No.	Encl. size
40A	40A x 4P	<b>ATS0404</b>	A
63A	63A x 4P	<b>ATS0634</b>	
100A	100A x 4P	<b>ATS1004</b>	
125A	125A x 4P	<b>ATS1254</b>	
160A	160A x 4P	<b>ATS1604</b>	B
250A	250A x 4P	<b>ATS2504</b>	
400A	400A x 4P	<b>ATS4004</b>	

#### Two programmable output relays.

- Source I or II availability, Load shedding output; Fault relay.
- 250V AC/3A

#### Remote Display connection (Optional)

- RJ45 output connection.

#### Front of panel LCD display

- Provides visualisation and control.
- Inhibits controls on the front of the Switching assembly.

#### Ingress Protection

- IP65 (Without remote LCD display)



## Electrical Characteristics (4 pole Changeover)

### Rating (A)

Application	Sym.	Unit	Category	40A	63A	100A	125A	160A	250A	400A	
Sheet steel enclosure size (See page 30)			-	(1)	(1)	(1)	(1)	(1)	(2)	(2)	
Rated thermal current	$I_{th}$	A	-	40	63	100	125	160	250	400	
Rated impulse withstand	$U_{imp}$	kV	Power circuit	6	6	6	6	6	8	8	
Rated insulation voltage	$U_i$	V	Power circuit	800	800	800	800	800	800	800	
Rated operational current (AC) (BS EN 60947-3)	$I_e$	A	400/415V - AC21A	40	63	100	125	160	250	400	
			400/415V - AC22A	40	63	100	125	160	250	400	
			400/415V - AC23A	40	63	100	125	125	250	250	
Rated operational current (AC) (BS EN 60947-6-1)	$I_e$	A	415V - AC 31B	40	63	100	125	160	250	400	
Rated short time withstand (1 sec)	$I_{cw}$	kA	rms	4	4	4	4	4	9	9	
Short circuit making capacity *		kA	peak	17	17	17	17	17	30	30	
Prospective short circuit current *		kA	rms	50	50	50	50	50	50	18	
Associated fuse - rated *		A		40	63	100	125	160	250	400	
Minimum mechanical endurance			Cycles	$10 \times 10^3$	$10 \times 10^3$	$10 \times 10^3$	$10 \times 10^3$	$10 \times 10^3$	$8 \times 10^3$	$8 \times 10^3$	
Connecting capacity			Terminal type								
			mm	Cu busbar width	-	-	-	-	-	32	32
			mm <sup>2</sup>	Stranded cable	6 - 70	6 - 70	6 - 70	6 - 70	6 - 70	95 - 150	185 - 240
Tightening torque		Nm	-	4/6	4/6	4/6	4/6	4/6	20/26	20/26	

\* For a rated operating voltage  $U_e = 400V$  AC

### Enclosure Data

#### Materials

	Thickness
Mild steel	Size 1 1.2mm
	Size 2 1.5mm

#### Finish

Mild steel (Grey) Iron Phosphate pre treatment + Powder coat RAL 7035 (Light grey) textured finish.

#### Hinges

Metal with quick release pins.

#### Cabinet Locks

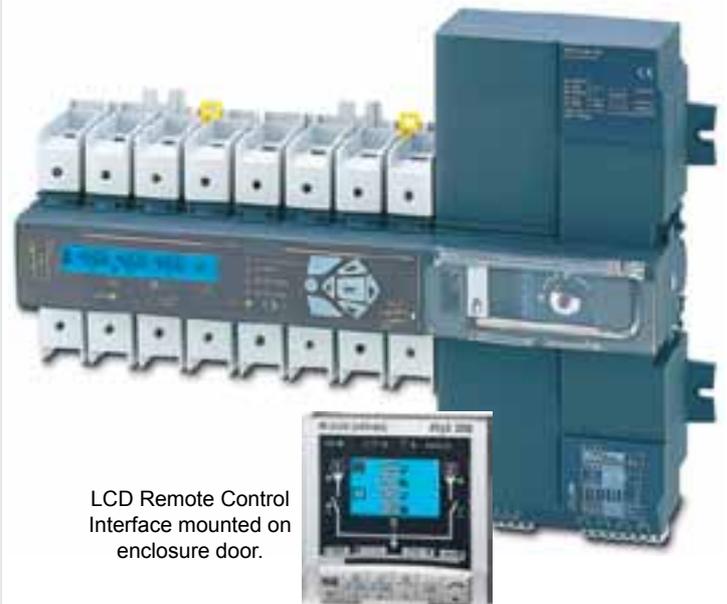
All metal locks supplied with one key per enclosure.  
Enclosure Size 1. 2 Locks  
Enclosure Size 2. 3 point locking

#### Gland Plates

All enclosures supplied with a 1.4mm thick removable gland plate on the bottom face finished to match the enclosure.

#### Chassis Plate

All assemblies are supplied with the switching element mounted on a removable internal chassis plate.  
Material - 2mm galvanised steel pre-drilled to accept optional components.



LCD Remote Control Interface mounted on enclosure door.

**Moulded Plastic Enclosures** refers to pages **3-4**

	Overall Dims.			Fixing details		
	H	W	D	F1	F2	Ø
Size A	135	100	95	85	98.5	5.5
Size B	175	130	115	115	135	5.5
Size C	255	180	125	163.5	238.5	4.5
Size D	255	180	175	163.5	238.5	4.5

refers to pages:  
3  
4

**Mild Steel & Stainless Steel Enclosures** refers to pages **8 - 9**

† Stainless steel enclosures are supplied without 'raised dimples' to allow flush mounting.  
†† Employing external mounting straps EFA or EFB.

	Overall Dims.			Internal Fixings			External Fixings ††			
	H	W	D	F1	F2	Ø	F3	F4	F5	ØØ
Size A	135	100	80	51	86	5.5	126	140	16	6.35
Size B	175	130	100	81	126	5.5	155	178	16	6.35

refers to pages:  
8  
9

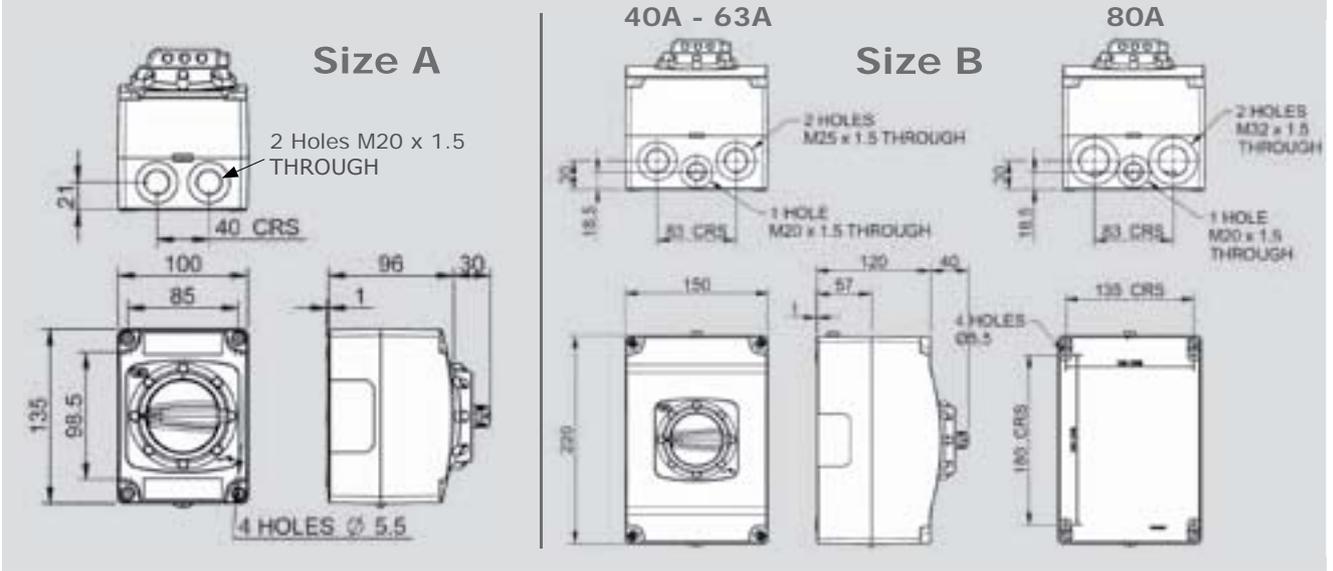
**Stainless Steel Sloping Roof Enclosures** refers to page **10**

		Size A	Size B
		Overall Dims.	H1
H2	165		200
W	135		185
D	80		100
D2	127		147
Internal Fixings	FCH	70	90
	FCV	110	130
	Ø	5.5	5.5

refers to page:  
10

## Die Cast Enclosures

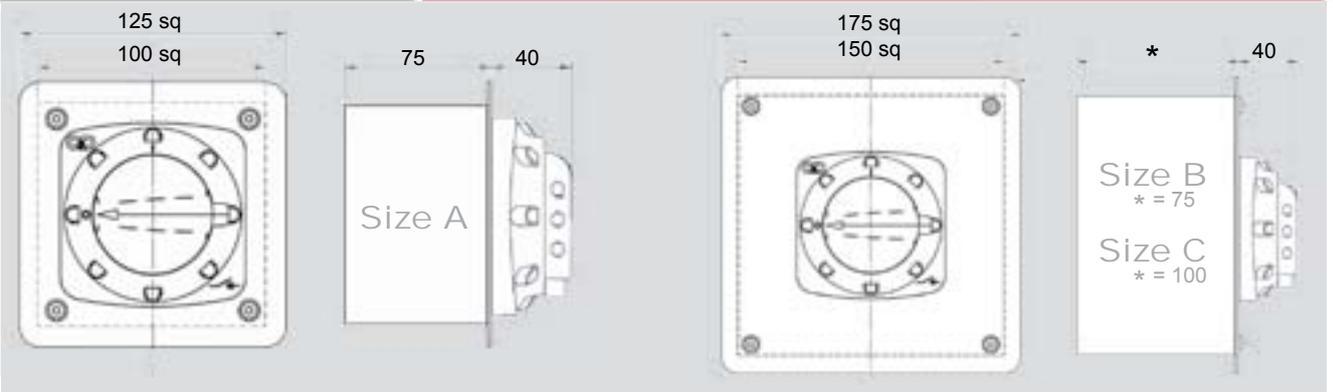
refers to pages **5 - 6**



refers to pages:  
**5**  
**6**

## Flush Enclosures

refers to page **7**

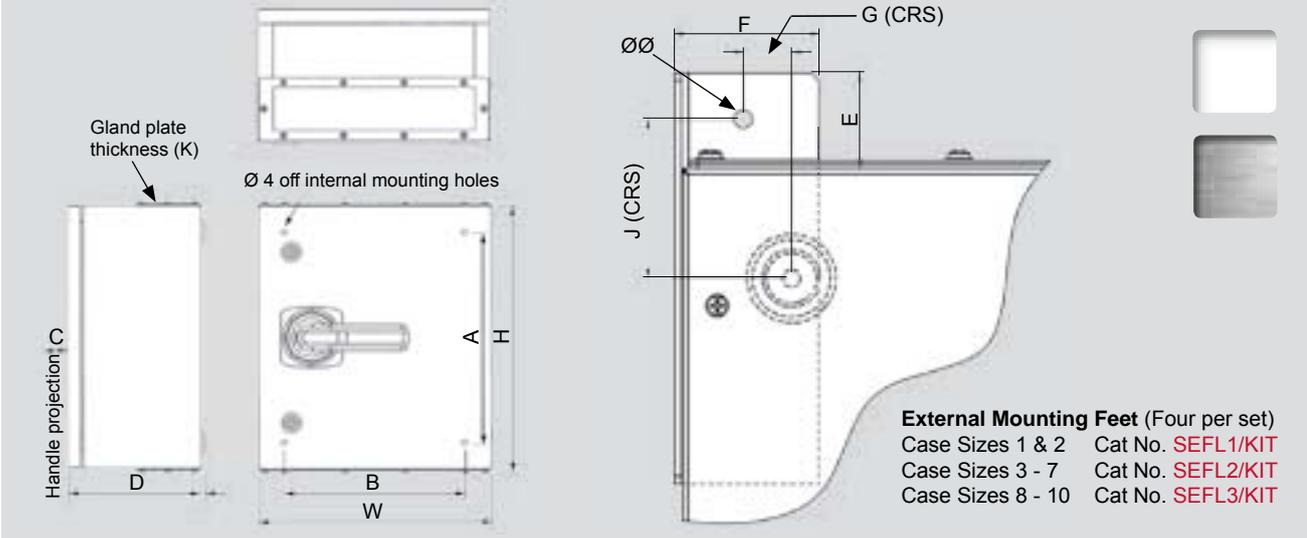


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**7**



## Hinged Lid Enclosures

refers to pages **12 to 16**



**External Mounting Feet** (Four per set)  
 Case Sizes 1 & 2 Cat No. **SEFL1/KIT**  
 Case Sizes 3 - 7 Cat No. **SEFL2/KIT**  
 Case Sizes 8 - 10 Cat No. **SEFL3/KIT**

### Case Sizes

Dim	1	2	3	3A	4	4A	5	5A	6	7	8	9	10
<b>H</b>	250	250	400	350	500	400	550	550	750	750	900	900	1000
<b>W</b>	250	300	350	300	350	300	450	400	450	600	600	600	750
<b>D</b>	100	200	200	175	200	175	250	175	275	300	300	400	300
<b>A</b>	170	170	320	270	420	320	470	470	670	670	820	820	920
<b>B</b>	170	220	270	220	270	220	370	320	370	520	520	520	670
<b>C</b>	40	67	67	67	67	67	67	67	67	67	67	67	67
<b>K</b>	1.5	1.5	1.5	2.0	1.5	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5
<b>Ø</b>	6.5	6.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	10.5	10.5	10.5

### External Feet

<b>E</b>	35	35	35	35	35	35	35	35	35	35	35	35	35
<b>F</b>	53	58	58	58	58	58	58	58	58	58	58	58	58
<b>G</b>	18	18	13	13	13	13	13	13	13	13	13	13	13
<b>J</b>	58	58	58	58	58	58	58	58	58	58	58	58	58
<b>ØØ</b>	6.5	6.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	10.5	10.5	10.5



## Enclosure Data

### Materials

- IP41 items Sheet steel
- IP65 items Sheet steel or stainless steel

### Finish

- IP41 & IP65 Sheet steel, iron phosphate pre treatment with a powder coat RAL 7035 (Light grey) textured finish.
- IP65 Stainless steel, grade 304 with a *brushed* finish.

### Hinges

- Metal with quick release pins.

### Door Locks

- All metal locks supplied with one key per enclosure.
- Enclosures 1 & 2 IP41 - 2 screw fixings
- IP65 - 1 lock
- Enclosures 3 - 9 IP41 & IP65 - 2 locks
- Enclosure size 10 IP41 & IP65 - 3 locks

### Gland plates

- All enclosures are supplied with a removable gland plate on top & bottom faces finished to match the enclosure.

### Chassis plate

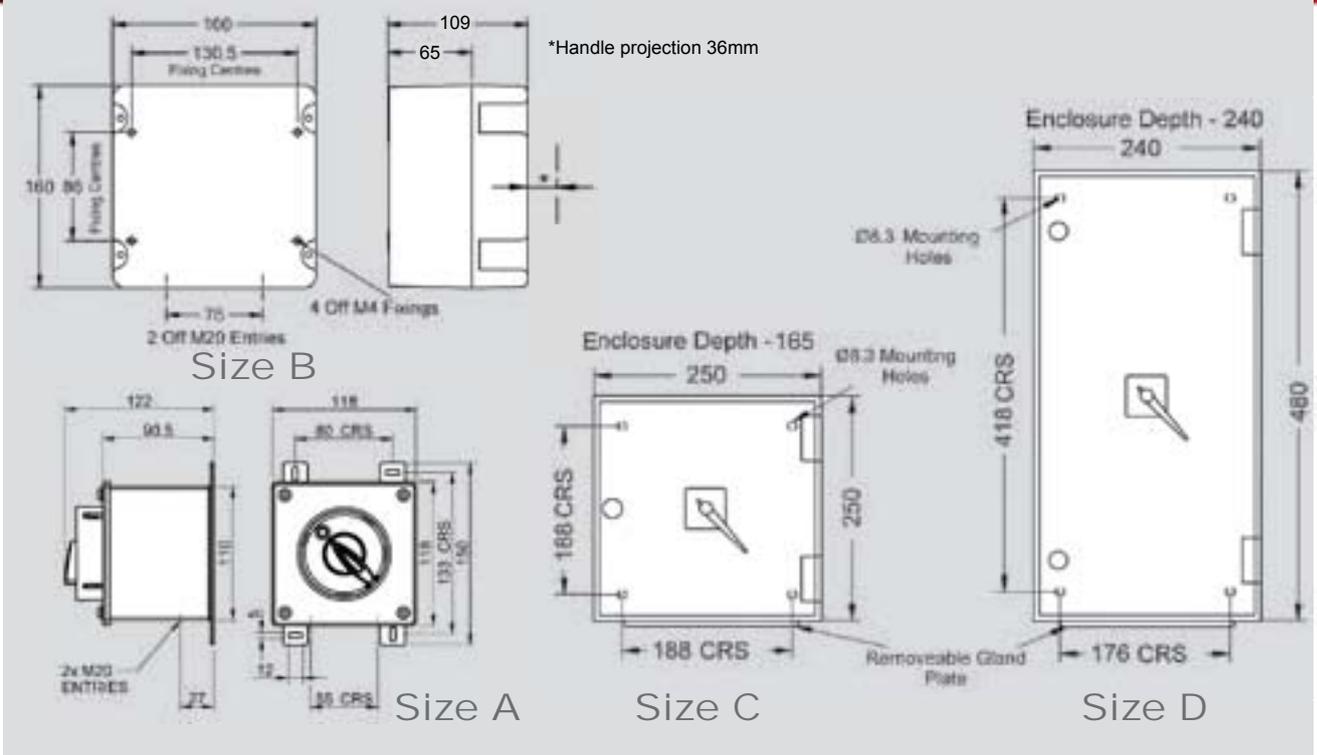
- Above case size 1, all assemblies have the switching element mounted on a removable chassis plate. Matl.- 2mm zinc plated steel.

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to  
16



**I Fire Rated (High Temp.)** refers to pages **19** to **20**

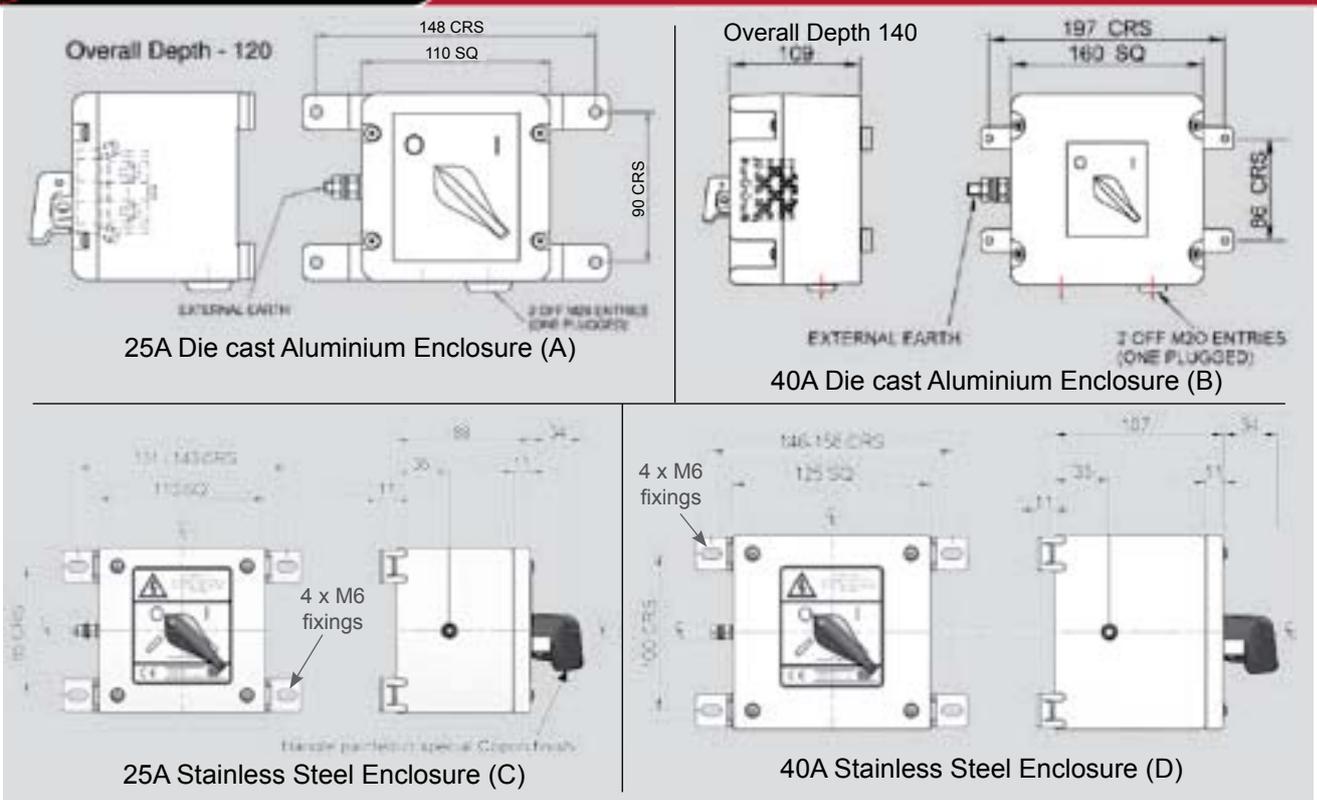


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**I LUL 'Section 12'** refers to pages **21** to **22**



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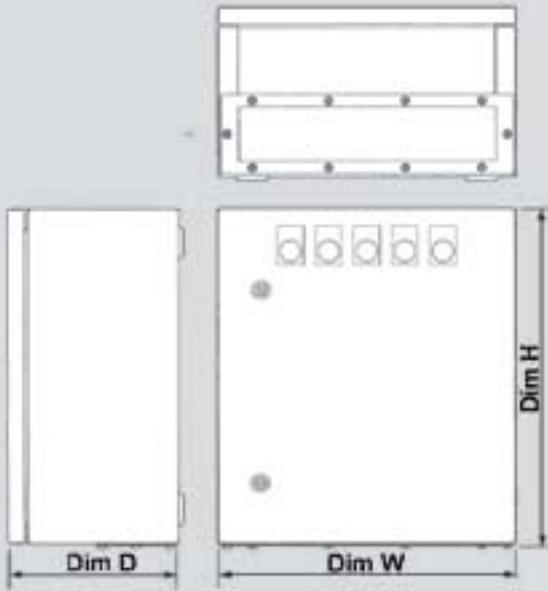
22



**i** ATS assemblies

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## Standard Range

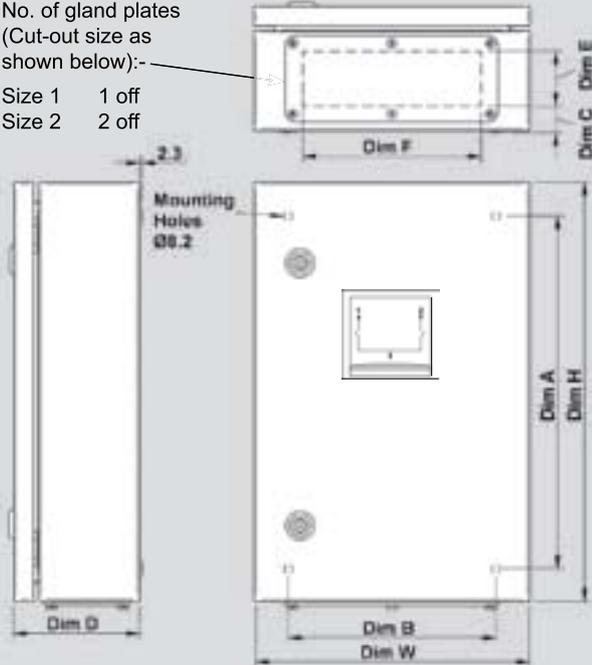


Overall Dims.

	H	W	D
Size A	400	300	150
Size B	600	400	250
Size C	700	500	250
Size D	800	600	300
Size E	1000	800	300

## Advanced Range

No. of gland plates  
(Cut-out size as shown below):-  
Size 1 1 off  
Size 2 2 off



	H	W	D	A	B	C	E	F
Size A	700	500	210	660	460	35	96	410
Size B	1000	800	400	960	760	35	96	310

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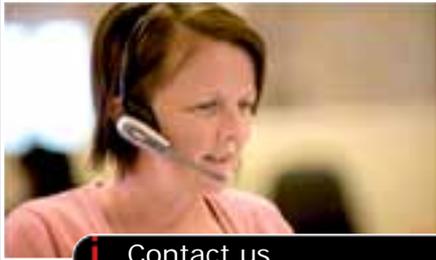
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