



## SW200 SERIES OF D.C. CONTACTORS

### UNIQUE RANGE

The SW200 series of contactors has been designed for direct current loads, particularly motors as used on larger electric vehicles such as industrial trucks, airport tractors, etc.

They have double breaking main contacts with silver alloy contact tips, which are weld resistant, hard wearing and have excellent conductivity.

The range comprises: Single Pole, on/off types (SW200), Single Pole normally closed types (SW210), paired version of these for motor reversing (SW202) and derivatives of these types to give various combinations and configurations.

### COMPACT SIZE

The contactors are compact in size and are fully serviceable, with a full range of spare parts available.

### EASY INSTALLATION

Mounting is by means of 5mm tapped holes in the switch frame together with a range of mounting brackets complete with screws and washers.

Coil connections are by means of 6mm spades of which two are supplied per terminal.

Contactors types SW202, SW204, SW205, SW208, SW213 and SW214 are supplied as an assembly which includes a mounting bracket as a standard feature.

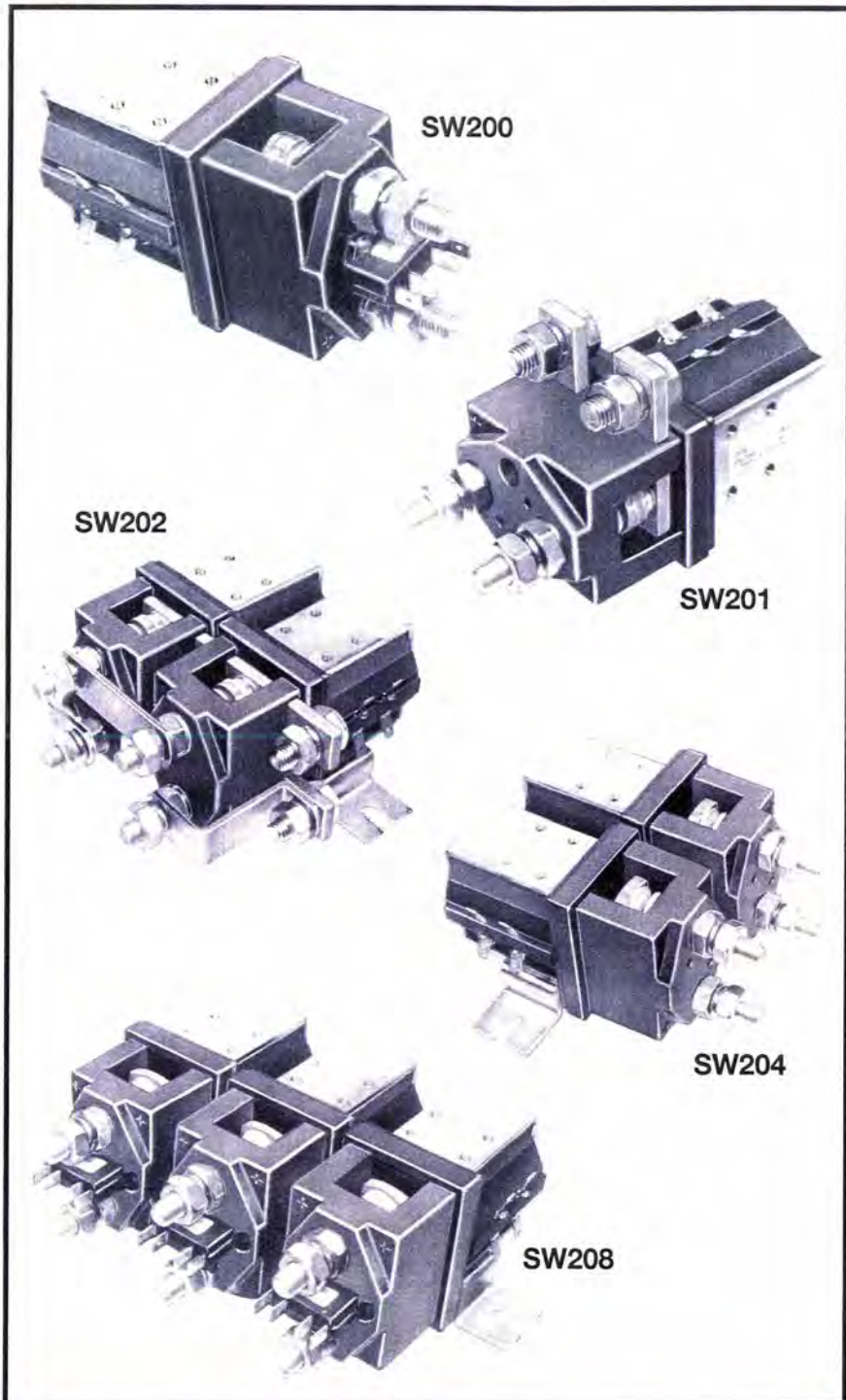
Mounting attitudes are detailed in the drawings on the following pages.

### OPERATING COILS

Coil voltages ranging from 6 to 240 are available and these are wound for D.C. operation.

However coils can be fitted with a bridge rectifier for use from A.C. supplies.

Coils are normally wound for intermittent duty (up to 70% "on" time) but continuous duty version (100%) are also available.



### CONTACTORS IN THE SERIES

**SW200 SINGLE POLE SINGLE THROW**

**SW201 SINGLE POLE DOUBLE THROW**

**SW202 PAIRED SINGLE POLE DOUBLE THROW ON DOUBLE BRACKET (for motor reversing)**

**SW204 2xSW200 ON DOUBLE BRACKET**

**SW205 2xSW201 ON DOUBLE BRACKET**

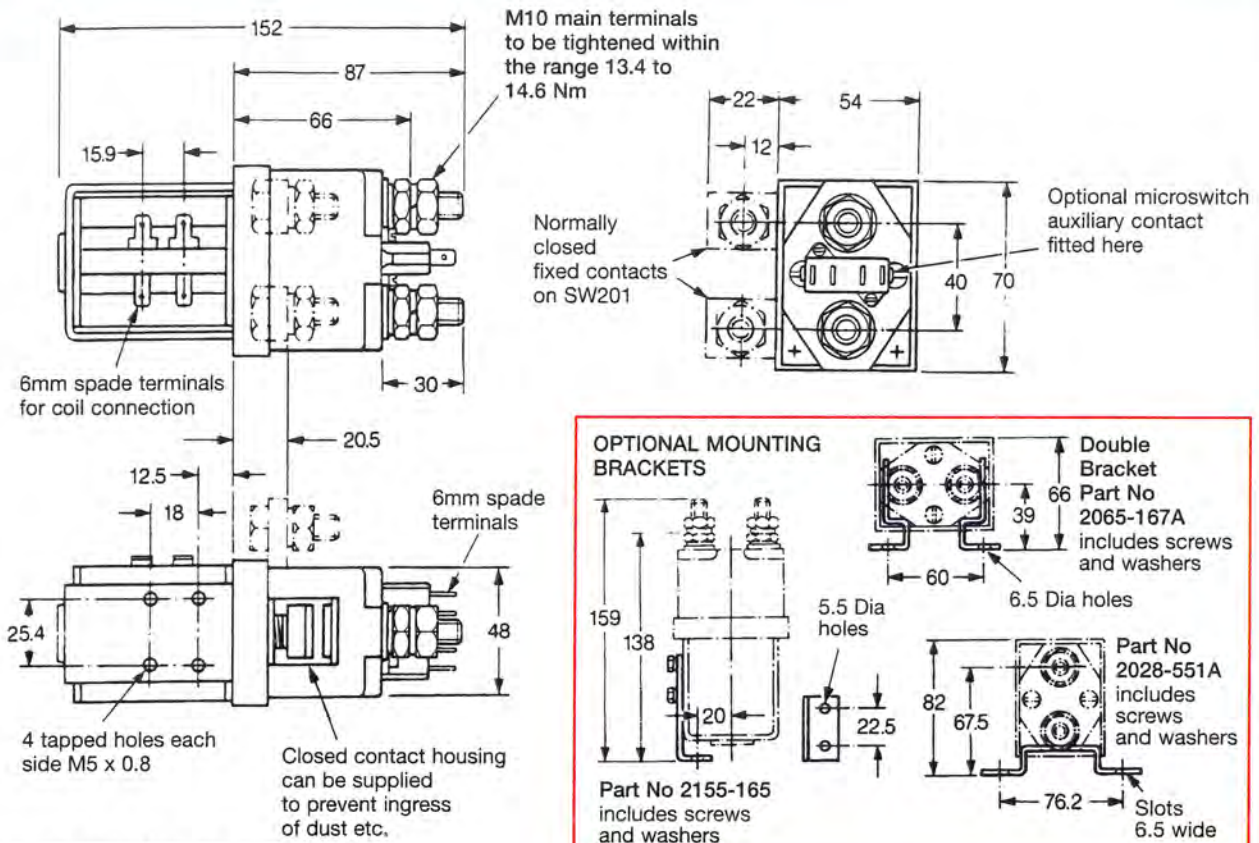
**SW208 3xSW200 ON TRIPLE BRACKET**

**SW210 SINGLE POLE SINGLE THROW (normally closed)**

**SW213 3xSW210 ON TRIPLE BRACKET**

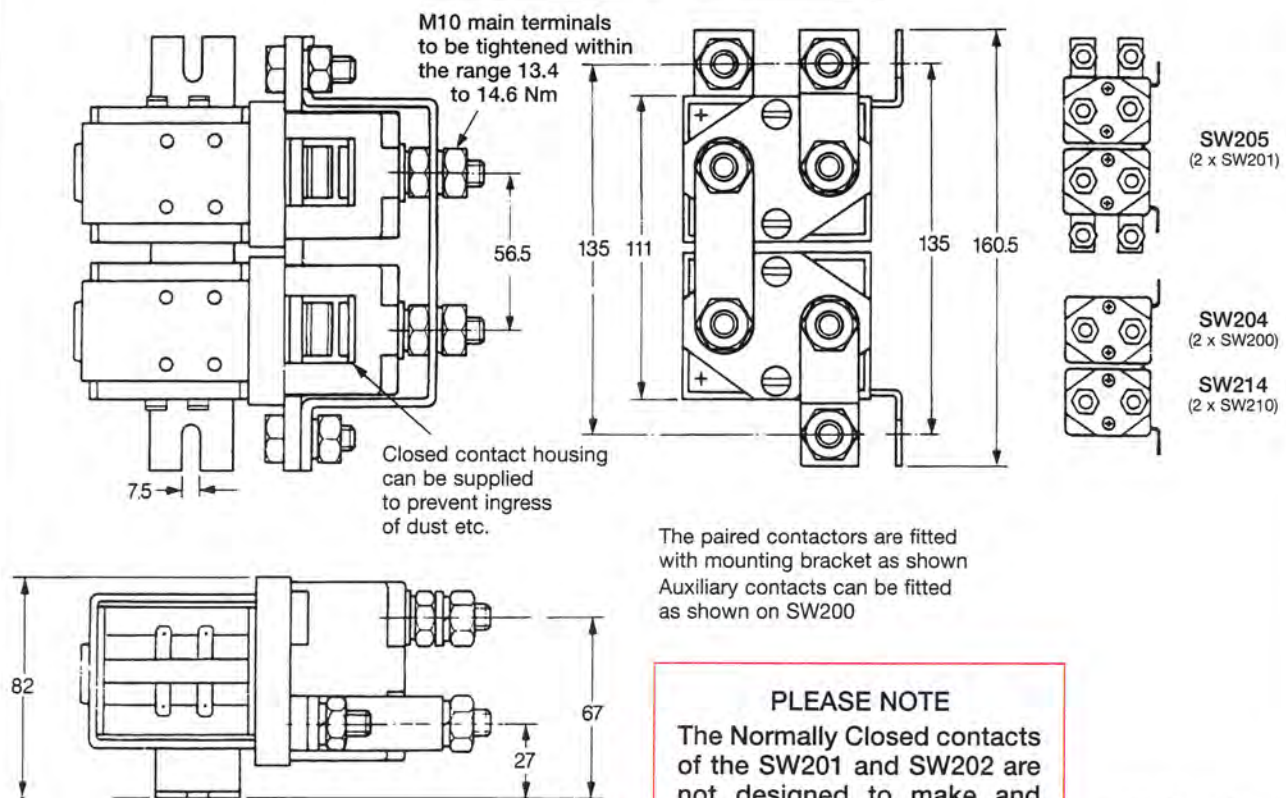
**SW214 2xSW210 ON DOUBLE BRACKET**

**DIMENSION DRAWINGS**



**SW200, 201 AND 210**

The contactors can be mounted either horizontally or vertically. If mounted vertically the contact studs must point upwards with the exception of the SW210 and its derivatives which should be mounted with the contact studs pointing downwards.



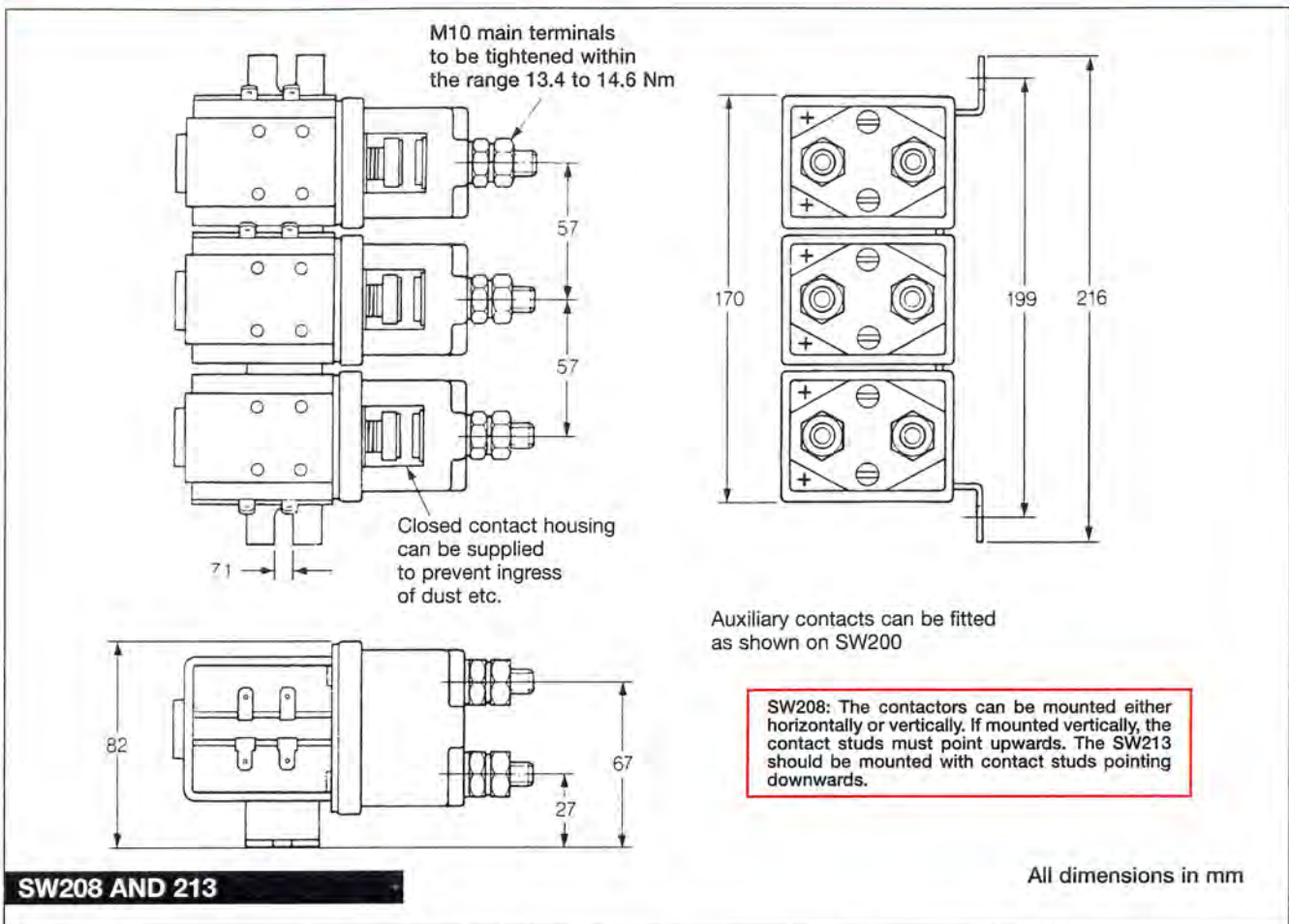
**SW202, 204, 205 AND 214**

The paired contactors are fitted with mounting bracket as shown. Auxiliary contacts can be fitted as shown on SW200.

**PLEASE NOTE**  
The Normally Closed contacts of the SW201 and SW202 are not designed to make and break current.

All dimensions in millimetres

## DIMENSION DRAWINGS



Pull-in voltages are approximately 60% and 66% of the rated voltage for intermittent and continuously rated types respectively.

Drop out voltage is nominally 10% of rated voltage.

Variations from these pull-in and drop-out figures can be engineered to suit particular applications.

### DOUBLE AND TRIPLE CONTACTOR ASSEMBLIES

Double or triple assemblies can be supplied on a common bracket together with inter-connecting electrical links. The most important of these arrangements are the motor reversing circuits provided by the SW202 contactor pair.

The SW202 type has a built in failsafe so that if both coils are energised simultaneously the contact design creates an open circuit situation.

### MAGNETIC BLOWOUTS

The contactors are of double break configuration and are fitted with permanent magnetic blowouts

across both contact gaps as standard.

These enable high currents to be ruptured very quickly so that arcing time is reduced to a minimum.

Should the contacts be required without magnetic blowouts, for example when used to switch alternating currents, these can be omitted. Closed contact housings can be supplied to prevent the ingress of dust and dirt although these are usually not recommended when magnetic blowouts are fitted.

The suffix 'N' denotes that magnetic blowouts are not fitted, for example SW200N.

Fitting of blowouts makes the contacts polarity sensitive and the **Positive markings** on the top cover of the contactor **must** be observed.

### AUXILIARY CONTACTS 'A'

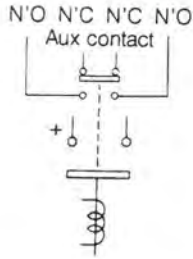
A double circuit normally open, normally closed microswitch can be fitted which has a D.C. resistive rating of 5 Amperes at 24v.

The suffix 'A' should be added to the type number when an auxiliary contact is required, for example, SW200A.

## CONNECTION DIAGRAMS

### SW200

Single Pole Single Throw (On/Off) Contactor



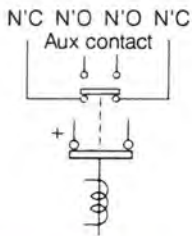
### SW201

Single Pole Double throw (Changeover) Contactor



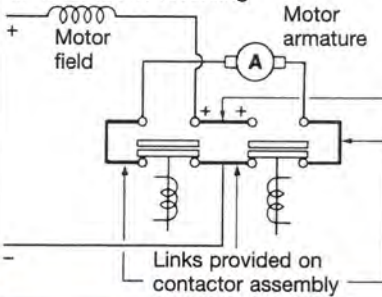
### SW210

Single Pole Single Throw (Off/On) Normally Closed Contactor



### SW202

Paired Single Pole Double Throw Contactor. Complete with necessary links for motor reversing



## CONTACTOR WEIGHTS

Add 20 gms for each auxiliary contact.

SW200 1350 gms

SW201 1600 gms

SW202 3350 gms

SW204 2900 gms

SW205 3400 gms

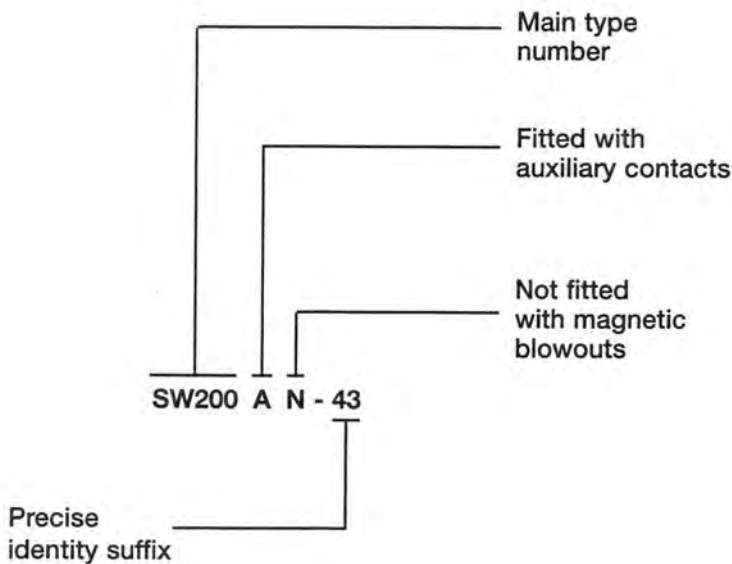
SW208 4300 gms

SW210 1400 gms

SW213 4400 gms

SW214 3000 gms

## EXPLANATION OF CONTACTOR TYPE NUMBERS



	Auxiliary Contacts	Magnetic Blowouts	Mounting Brackets	Closed Contact Housing
SW200	o	s	o	o
SW201	o	s	o	o
SW202	o	s	s	o
SW204	o	s	s	o
SW205	o	s	s	o
SW208	o	s	s	o
SW210	o	s	o	o
SW213	o	s	s	o
SW214	o	s	s	o

O = Optional Extra  
S = Standard Feature

## COIL RESISTANCES FOR POPULAR VOLTAGES

	12V DC	24V DC	36V DC	48V DC	60V DC	72V DC	80V DC
Intermittently rated coils (ohms)	4	15	32	54	94	167	141
Continuously rated coils (ohms)	8	32	94	141	245	360	360

## PERFORMANCE DATA

Thermal current rating (100%) 250 Amperes

Intermittent current rating  
 30% duty 450 Amperes  
 40% duty 390 Amperes  
 50% duty 360 Amperes  
 60% duty 320 Amperes  
 70% duty 300 Amperes

Typical fault currents which can be ruptured  
 (5ms time constant)  
 SW200N and SW210N 1500 Amperes at 48V D.C.  
 SW200 and SW210 1500 Amperes at 96V D.C.  
 SW201N \* and SW202N \* 1500 Amperes at 48V D.C.  
 SW201 \* and SW202 \* 1500 Amperes at 96V D.C.

\* Normally open contacts, not normally closed contacts.

Maximum recommended contact voltages  
 SW200N and SW210N 48V D.C.  
 SW200 and SW210 96V D.C.  
 SW201N and SW202N 48V D.C.  
 SW201 and SW202 96V D.C.

Typical voltage drop across contacts per 100 Amperes  
 SW200 and SW210 40mV  
 SW201 and SW202 (normally open contacts) 40mV  
 SW201 and SW202 (normally closed contacts) 40mV

Mechanical life  $> 5 \times 10^6$

Coil power dissipation  
 Intermittently rated types 30-60 Watts  
 Continuously rated types 13-21 Watts

Maximum pull-in voltage (coil at 20°C)  
 Intermittently rated types 60%V  
 Continuously rated types 66%V

Typical drop-out voltage 10-20%V

Typical pull-in time (n/o contacts to close) 40ms

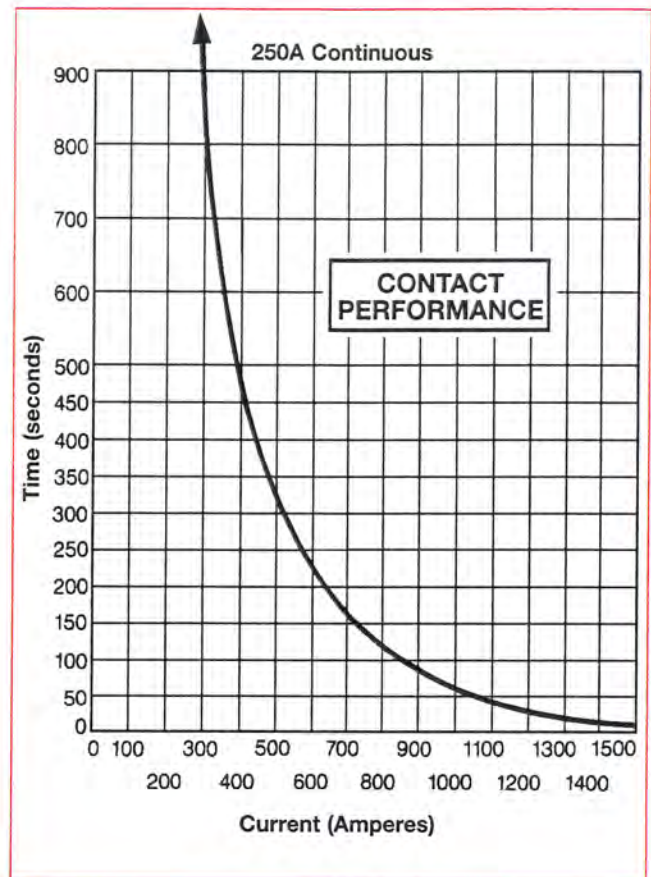
Typical drop-out time (n/o contacts to open)  
 Without suppression 10ms  
 With diode suppression 100ms  
 With diode and resistor (depending on value) 30ms

Typical main contact changeover time (SW201 and SW202)  
 Normally closed to normally open 14ms  
 Normally open to normally closed 8ms

Typical contact bounce period 3ms

Auxiliary contact thermal current rating 5 Amperes

Auxiliary contact switching capacities  
 (resistive load) 5A at 24V D.C.  
 2A at 48V D.C.  
 0.5A at 240V D.C.



All the above figures should be used as a guide only.  
 Some derating may be necessary according to type  
 and application.

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*Albright* International Limited  
Evingar Trading Estate  
Ardglen Road  
Whitchurch, Hampshire  
RG28 7BB, UK



**Tel:** +44 (0)1256 893060  
**Fax:** +44 (0)1256 893562  
**Web Site:** [www.albrightinternational.com](http://www.albrightinternational.com)  
**Email:** [sales@albrightinternational.com](mailto:sales@albrightinternational.com)  
or [technical@albrightinternational.com](mailto:technical@albrightinternational.com)