



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.

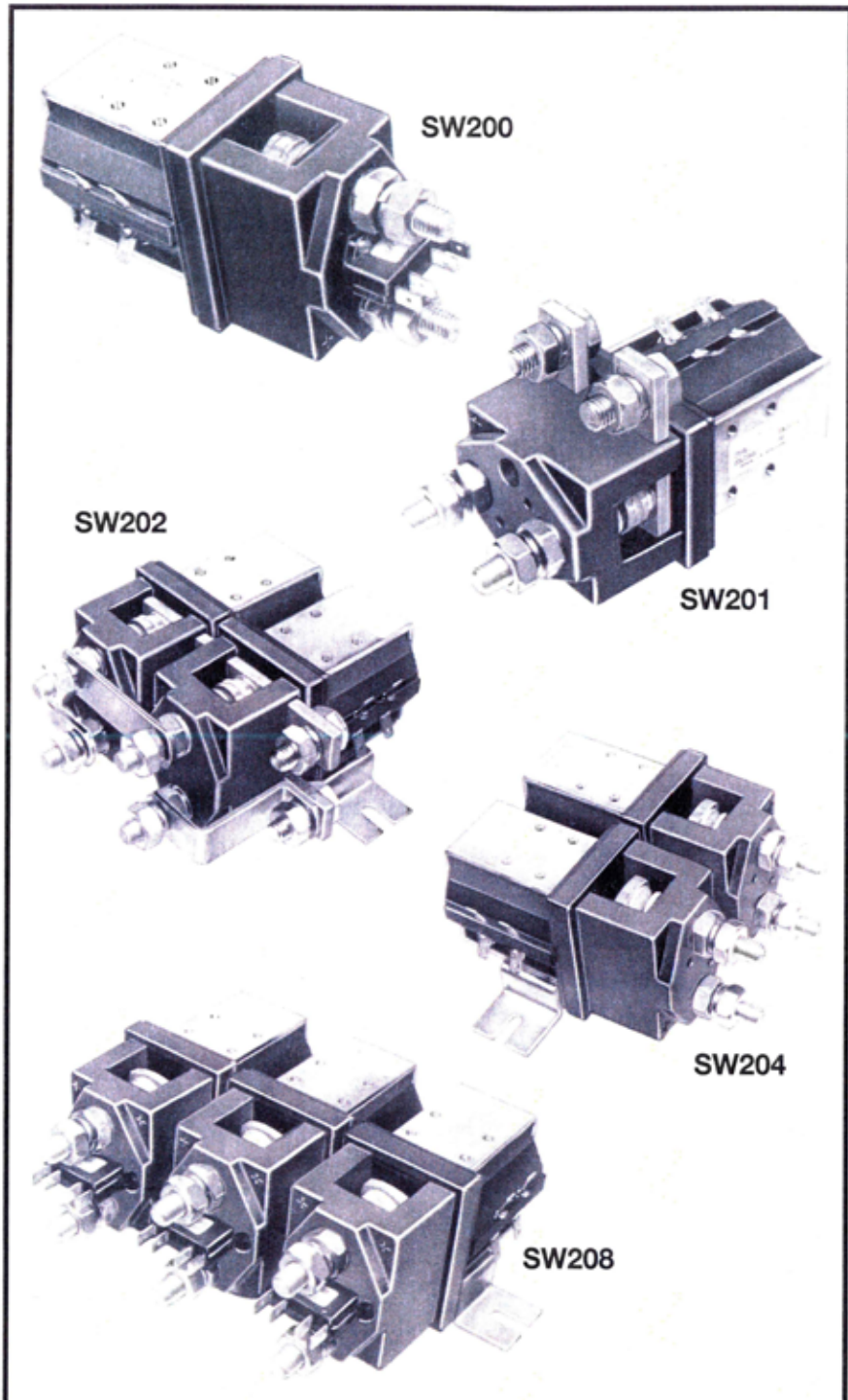
Mounting attitudes are detailed in the drawings on the following pages.

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.

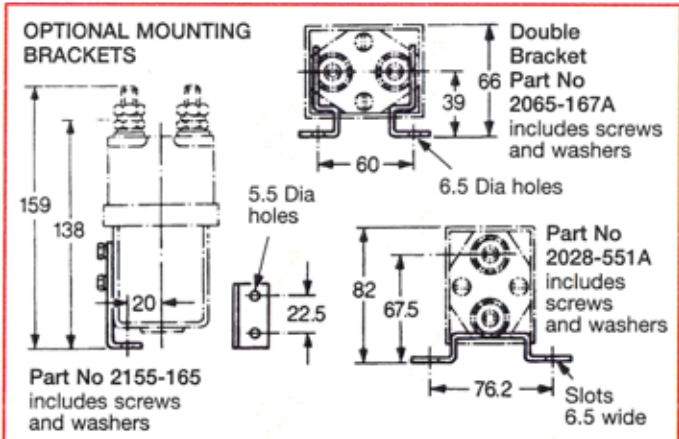
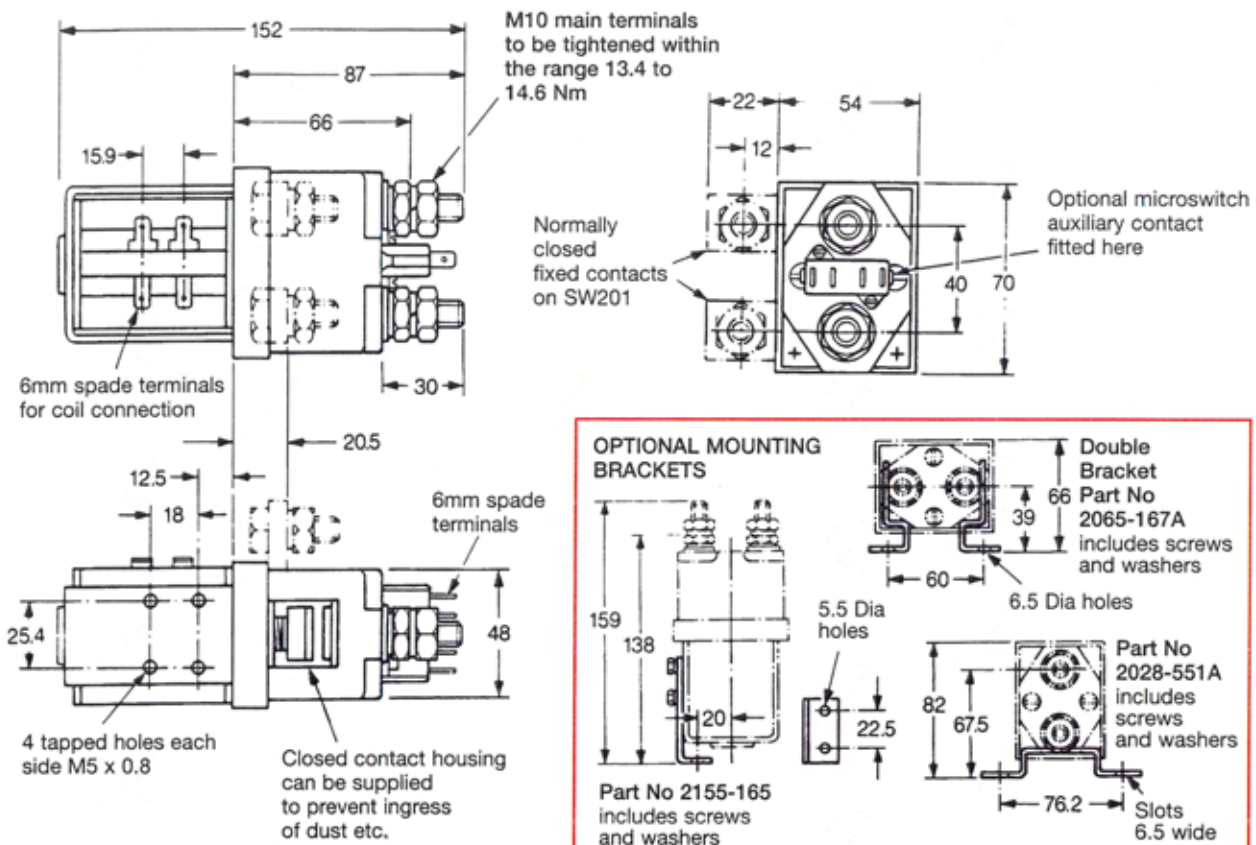
Coils are normally wound for intermittent duty (up to 70% "on" time) but continuous duty version (100%) are also available.



CONTACTORS IN THE SERIES

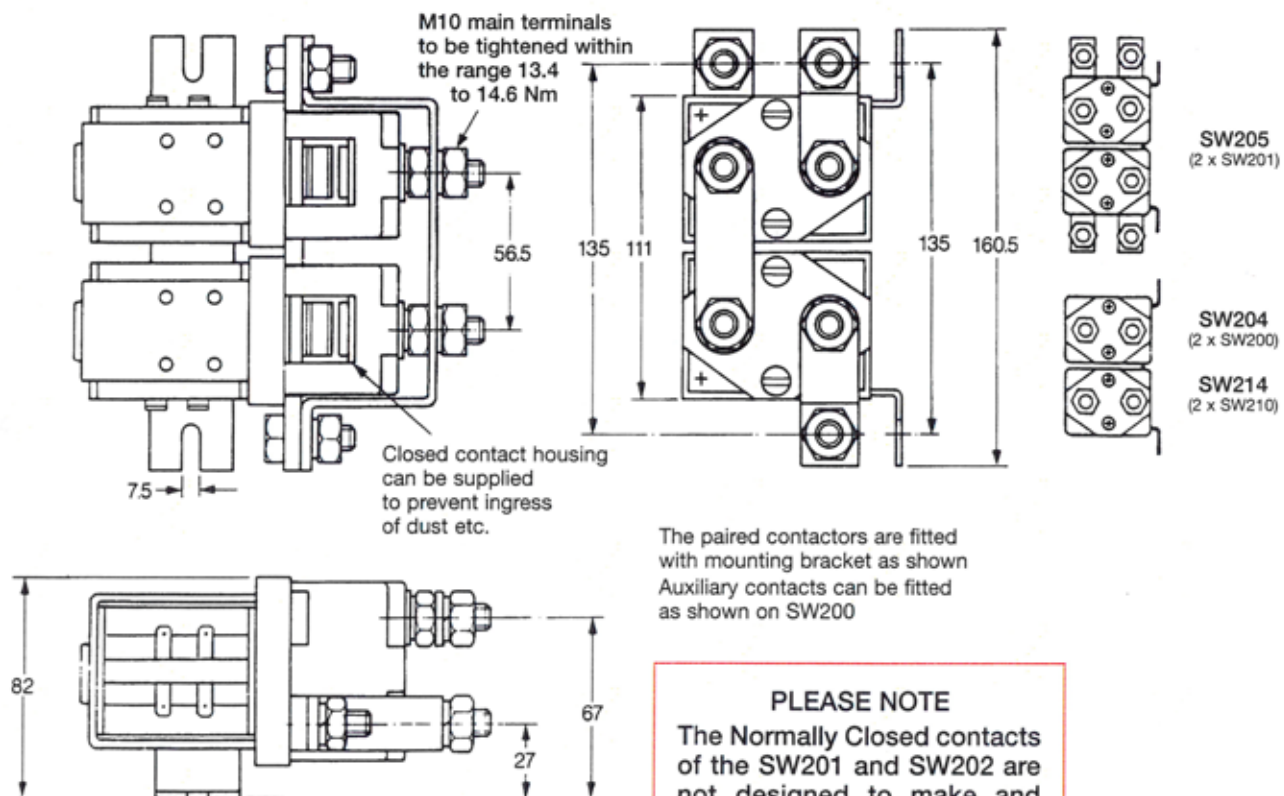
SW200	SINGLE POLE SINGLE THROW	SW205	2xSW201 ON DOUBLE BRACKET
SW201	SINGLE POLE DOUBLE THROW	SW208	3xSW200 ON TRIPLE BRACKET
SW202	PAIRED SINGLE POLE DOUBLE THROW ON DOUBLE BRACKET (for motor reversing)	SW210	SINGLE POLE SINGLE THROW (normally closed)
SW204	2xSW200 ON DOUBLE BRACKET	SW213	3xSW210 ON 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.

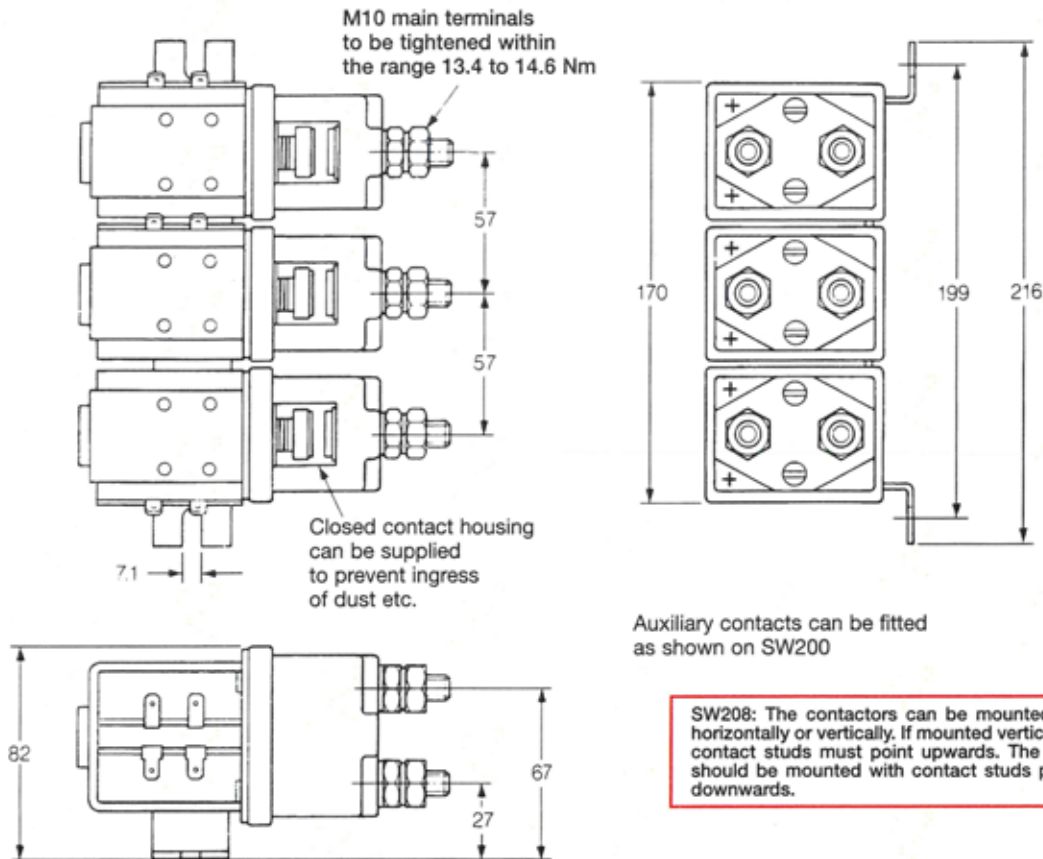


PLEASE NOTE
The Normally Closed contacts of the SW201 and SW202 are not designed to make and break current.

All dimensions in millimetres

SW202, 204, 205 AND 214

DIMENSION DRAWINGS



SW208: The contactors can be mounted either horizontally or vertically. If mounted vertically, the contact studs must point upwards. The SW213 should be mounted with contact studs pointing downwards.

SW208 AND 213

All dimensions in mm

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'

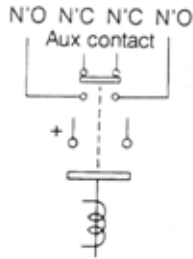
A double circuit normally open, normally closed microswitch can be fitted which has a D.C. resistive rating of 5 Amperes at 24v.

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



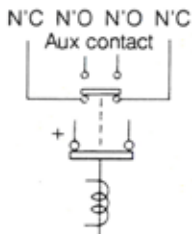
SW201

Single Pole Single Throw (Changeover) Contactor



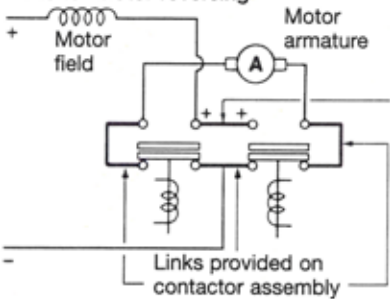
SW210

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

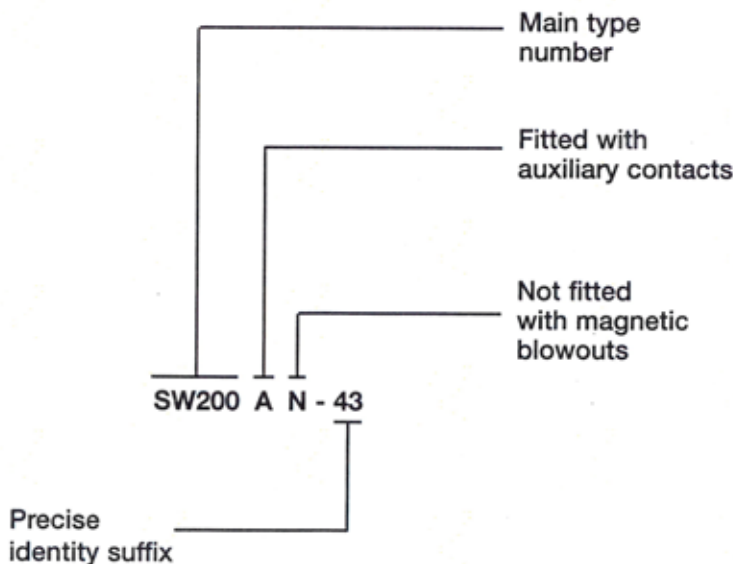
SW208 4300 gms

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

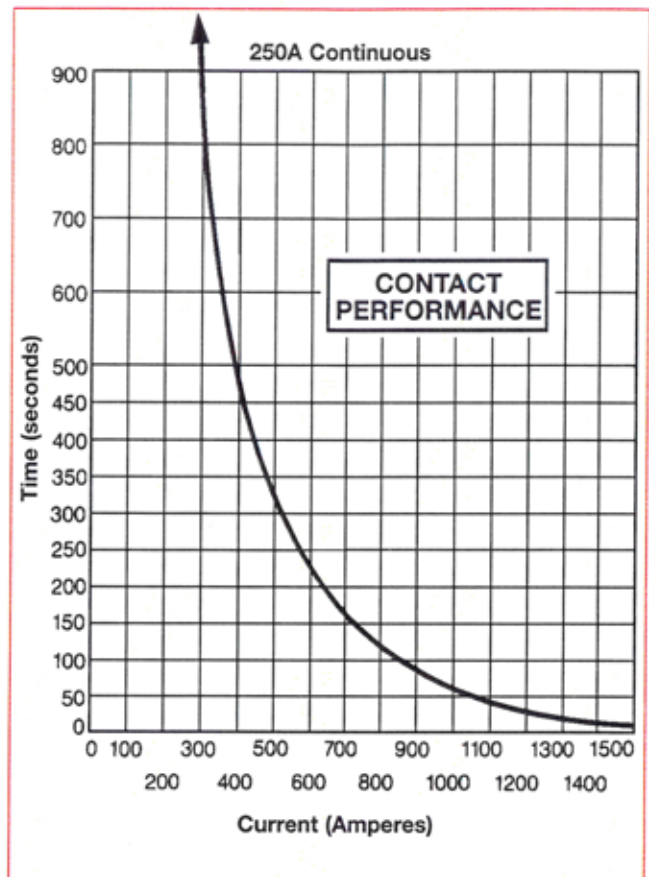
Typical drop-out time (n/o contacts to open)
 Without suppression 10ms
 With diode suppression 100ms
 With diode and resistor (depending on value) 30ms

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

Albright
INTERNATIONAL

Tel: +44 (0)1256 893060
Fax: +44 (0)1256 893562
Web Site: www.albrightinternational.com
Email: sales@albrightinternational.com
or technical@albrightinternational.com