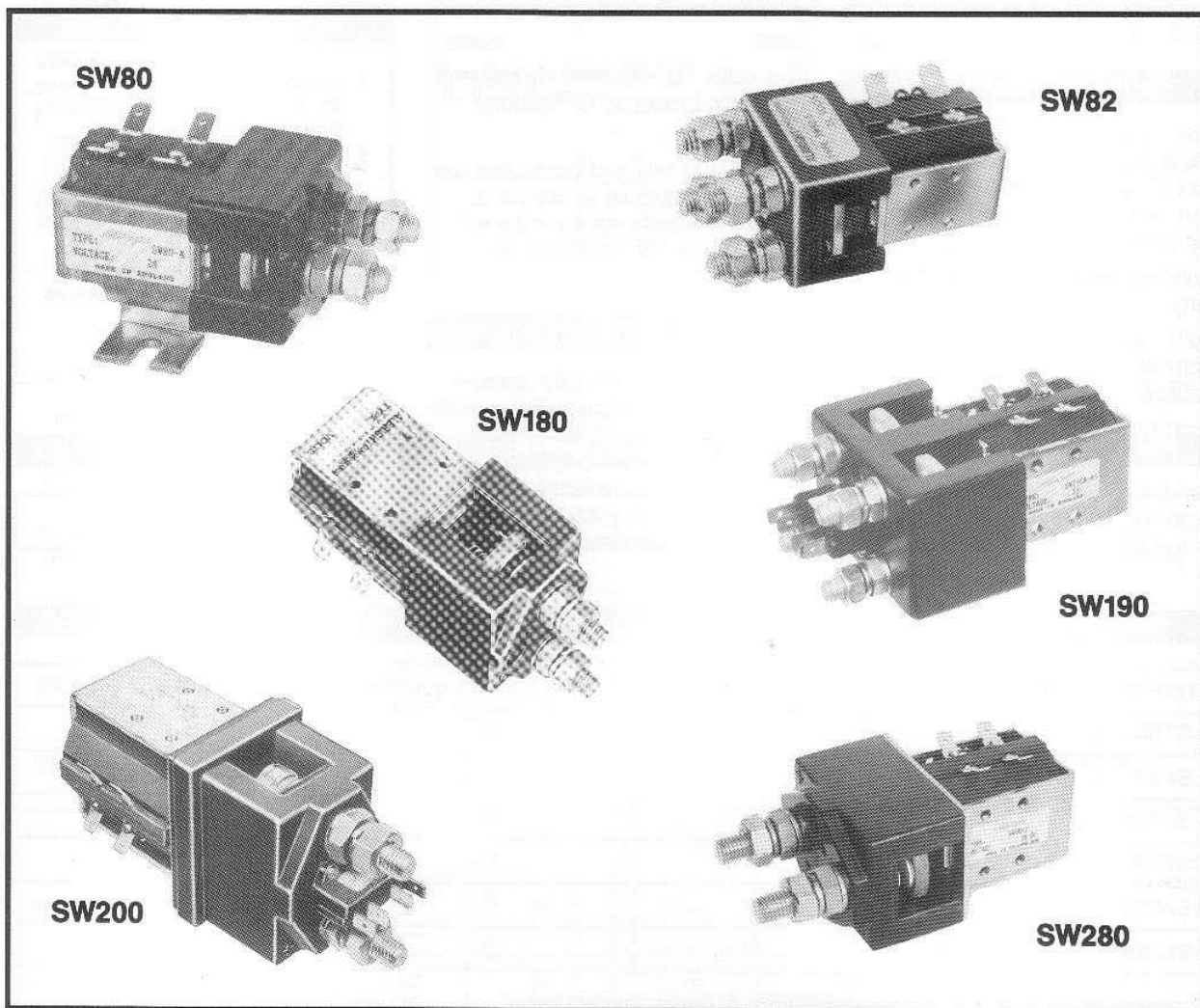




ALBRIGHT INTERNATIONAL LTD

ALBRIGHT (Engineers) LTD

# **HEAVY DUTY D.C. CONTACTORS FOR USE IN POWER DISTRIBUTION CENTRES FOR COMMUNICATIONS EQUIPMENT SW80, SW82, SW180, SW190, SW200 AND SW280 SERIES OF CONTACTORS**



| Type No. | Description | Max. continuous<br>thermal current rating (amperes) | U.L. File No. |
|----------|-------------|-----------------------------------------------------|---------------|
| SW80     | S.P. On/Off | 125                                                 | E165921       |
| SW82     | D.P. On/Off | 100                                                 | E165921       |
| SW180    | S.P. On/Off | 200                                                 | E165921       |
| SW190    | D.P. On/Off | 200                                                 | —             |
| SW200    | S.P. On/Off | 400                                                 | E165921       |
| SW280    | S.P. On/Off | 350                                                 | —             |

### UNIQUE RANGE

These contactors have been designed for direct current loads but can also be used for alternating currents.

The contact tips are silver alloy which is weld resistant, hard wearing and has very good conductivity.

### COMPACT SIZE

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

### 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 wound for continuous duty.

Pull-in voltages (coil at 20°C) are approximately 66% of the rated voltage.

Drop-out voltage is nominally greater than 10% of rated voltage.

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

Coil connections are by means of 6mm spades.

### MAGNETIC BLOWOUTS

Contactors can be fitted with magnetic blowouts except for SW82 (see optional extras chart below). These are to allow the contactors to switch D.C. voltages up to 250. The fitting of blowouts makes the contacts polarity sensitive thus the positive markings on the top cover of the contactor must be observed.

The double pole type, SW190, is not polarity sensitive when blowouts are fitted.

The suffix "B" denotes the fitting of magnetic blowouts, for example SW180B.

The SW200 range of contactors are fitted with blowouts as standard. Should blowouts not be required then a suffix "N" is added, for example SW200N.

### AUXILIARY CONTACTS

A double circuit normally open, normally closed microswitch can be fitted to all types except SW82 (see optional extras chart below). They have a D.C. resistive rating of 5 amperes at 24 volts. The suffix "A" should be added to the type

number when auxiliary contacts are needed, for example SW200A.

### EASY INSTALLATION

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

### CHANGEOVER TYPES

This brochure shows on/off contactors but changeover versions are available if required.

### NOTES

- 1 The mechanical life of the contactors is normally greater than one million operations.
- 2 The typical contact bounce period of time is 3ms.
- 3 The auxiliary contact thermal rating is 5 amperes.
- 4 The auxiliary contact switching capacities (resistive load) are as follows:  
5 amperes at 24v D.C.  
2 amperes at 48v D.C.  
0.5 amperes at 240v D.C.
- 5 All performance data shown in this literature should be used as a guide only. Alternative ratings may be considered according to applications.

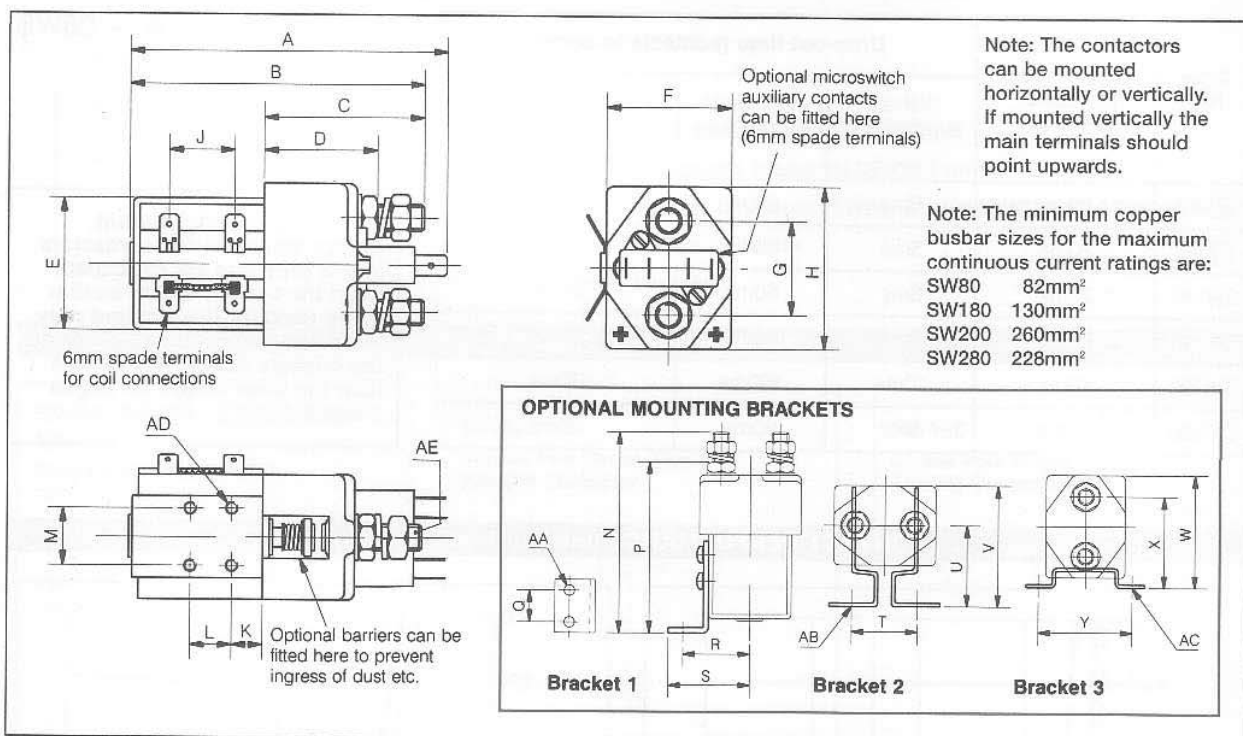
### OPTIONAL EXTRAS

| Type No | Auxiliary Contacts | Magnetic Blowouts | Closed Contact Housing | Contactor Weights (Grams) |
|---------|--------------------|-------------------|------------------------|---------------------------|
| SW80    | O                  | O                 | O                      | 350                       |
| SW82    | N                  | N                 | O                      | 430                       |
| SW180   | O                  | O                 | O                      | 640                       |
| SW190   | O                  | O                 | N                      | 760                       |
| SW200   | O                  | S                 | O                      | 1350                      |
| SW280   | O                  | O                 | O                      | 790                       |

'O' denotes optional extra 'N' denotes not available 'S' denotes standard feature

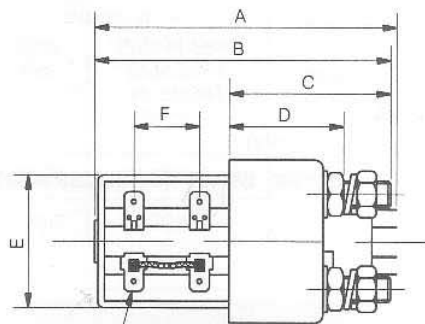
Regarding the above weights, add 20 grams for auxiliary contacts and 50 grams for magnetic blowouts

# SW80, SW180, SW200 AND SW280 DIMENSIONED DRAWINGS



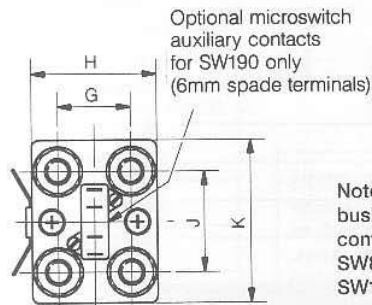
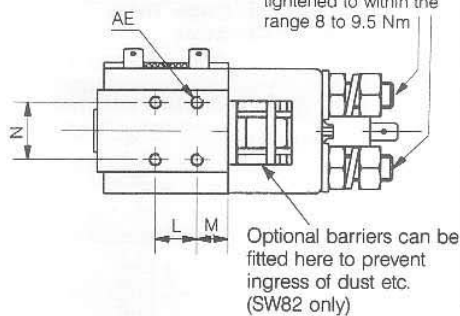
|           | SW80                                                              |                 | SW180                                                             |                 | SW200                                                                  |                 | SW280                                                                  |                 |
|-----------|-------------------------------------------------------------------|-----------------|-------------------------------------------------------------------|-----------------|------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------|-----------------|
|           | mm                                                                | inches          | mm                                                                | inches          | mm                                                                     | inches          | mm                                                                     | inches          |
| A         | 97                                                                | 3.82            | 127                                                               | 5.00            | 152                                                                    | 5.98            | 132.5                                                                  | 5.22            |
| B         | 91                                                                | 3.58            | 121.5                                                             | 4.78            | 152                                                                    | 5.98            | 132.5                                                                  | 5.22            |
| C         | 49.5                                                              | 1.95            | 65.5                                                              | 2.58            | 87                                                                     | 3.43            | 75.5                                                                   | 2.97            |
| D         | 36                                                                | 1.42            | 50.5                                                              | 1.99            | 66                                                                     | 2.60            | 54                                                                     | 2.13            |
| E         | 40                                                                | 1.58            | 45                                                                | 1.77            | 58.4                                                                   | 2.30            | 45                                                                     | 1.77            |
| F         | 38                                                                | 1.50            | 44.6                                                              | 1.76            | 54                                                                     | 2.13            | 48                                                                     | 1.89            |
| G         | 28.6                                                              | 1.13            | 35                                                                | 1.38            | 40                                                                     | 1.58            | 40                                                                     | 1.58            |
| H         | 50                                                                | 1.97            | 60.7                                                              | 2.39            | 70                                                                     | 2.76            | 66                                                                     | 2.60            |
| J         | 18                                                                | 0.71            | 18                                                                | 0.71            | 18                                                                     | 0.71            | 18                                                                     | 0.71            |
| K         | 9.5                                                               | 0.37            | 12.7                                                              | 0.50            | 12.5                                                                   | 0.49            | 12.7                                                                   | 0.50            |
| L         | 12.7                                                              | 0.50            | 16                                                                | 0.63            | 18                                                                     | 0.71            | 16                                                                     | 0.63            |
| M         | 17.5                                                              | 0.69            | 25.4                                                              | 1.00            | 25.4                                                                   | 1.00            | 25.4                                                                   | 1.00            |
| N         | 96.7                                                              | 3.81            | 130                                                               | 5.12            | 159                                                                    | 6.26            | 139.1                                                                  | 5.48            |
| P         | 82.5                                                              | 3.25            | 114.5                                                             | 4.51            | 138                                                                    | 5.43            | 117.6                                                                  | 4.63            |
| Q         | 15.1                                                              | 0.60            | 22.5                                                              | 0.89            | 22.5                                                                   | 0.89            | 22.5                                                                   | 0.89            |
| R         | 32                                                                | 1.26            | 35.5                                                              | 1.40            | 42                                                                     | 1.65            | 35.5                                                                   | 1.40            |
| S         | 39                                                                | 1.54            | 42.5                                                              | 1.67            | 49                                                                     | 1.93            | 42.5                                                                   | 1.67            |
| T         | 38 min crs                                                        | 1.50 min crs    | 47                                                                | 1.85            | 60                                                                     | 2.36            | 47                                                                     | 1.85            |
| U         | 31                                                                | 1.22            | 39.5                                                              | 1.56            | 39                                                                     | 1.54            | 39.5                                                                   | 1.56            |
| V         | 50                                                                | 1.97            | 62                                                                | 2.44            | 66                                                                     | 2.60            | 63.5                                                                   | 2.50            |
| W         | 54                                                                | 2.13            | 68                                                                | 2.68            | 82                                                                     | 3.23            | 70.2                                                                   | 2.76            |
| X         | 45                                                                | 1.77            | 55                                                                | 2.17            | 67.5                                                                   | 2.66            | 57.2                                                                   | 2.25            |
| Y         | 44.5                                                              | 1.75            | 62 min crs                                                        | 2.44 min crs    | 76.2 min crs                                                           | 3.00 min crs    | 76.2 min crs                                                           | 3.00 min crs    |
| AA        | Ø5.2 holes                                                        | 0.21 dia holes  | Ø5.5 holes                                                        | 0.22 dia holes  | Ø5.5 holes                                                             | 0.22 dia holes  | Ø5.5 holes                                                             | 0.22 dia holes  |
| AB        | slots 6 wide                                                      | slots 0.24 wide | Ø6.5 holes                                                        | 0.26 dia holes  | Ø6.5 holes                                                             | 0.26 dia holes  | Ø6.5 holes                                                             | 0.26 dia holes  |
| AC        | Ø5.2 holes                                                        | 0.21 dia holes  | slots 6.5 wide                                                    | slots 0.26 wide | slots 7.1 wide                                                         | slots 0.28 wide | slots 6.5 wide                                                         | slots 0.26 wide |
| AD        | M4 fixing holes (4-off each side)                                 |                 | M5 fixing holes (4-off each side)                                 |                 | M5 fixing holes (4-off each side)                                      |                 | M5 fixing holes (4-off each side)                                      |                 |
| AE        | M8 main terminals to be tightened to within the range 8 to 9.5 Nm |                 | M8 main terminals to be tightened to within the range 8 to 9.5 Nm |                 | M10 main terminals to be tightened to within the range 13.4 to 14.6 Nm |                 | M10 main terminals to be tightened to within the range 13.4 to 14.6 Nm |                 |
| Bracket 1 | Part No. 2070-40 includes screws and washers                      |                 | Part No. 2155-165 includes screws and washers                     |                 | Part No. 2155-165 includes screws and washers                          |                 | Part No. 2155-165 includes screws and washers                          |                 |
| Bracket 2 | Integral bracket frame                                            |                 | Double bracket Part No. 2065-167A includes screws and washers     |                 | Double bracket Part No. 2065-167A includes screws and washers          |                 | Double bracket Part No. 2065-167A includes screws and washers          |                 |
| Bracket 3 | Part No. 2126-48A includes screws and washers                     |                 | Part No. 2159-47 includes screws and washers                      |                 | Part No. 2028-551A includes screws and washers                         |                 | Part No. 2159-47 includes screws and washers                           |                 |

# SW82 AND SW190 DIMENSIONED DRAWINGS



6mm spade terminals  
for coil connections

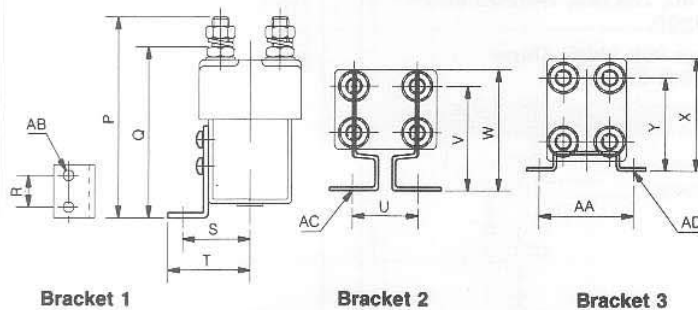
M8 main terminals to be  
tightened to within the  
range 8 to 9.5 Nm



Note: The contactors  
can be mounted  
horizontally or vertically.  
If mounted vertically the  
main terminals should  
point upwards.

Note: The minimum copper  
busbar sizes for the maximum  
continuous current ratings are:  
SW82 82mm<sup>2</sup>  
SW190 130mm<sup>2</sup>

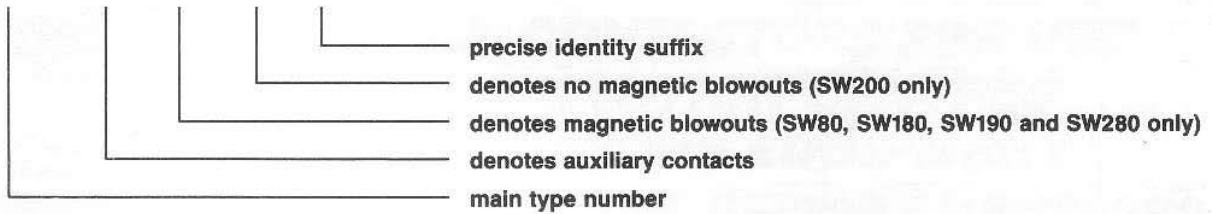
## OPTIONAL MOUNTING BRACKETS



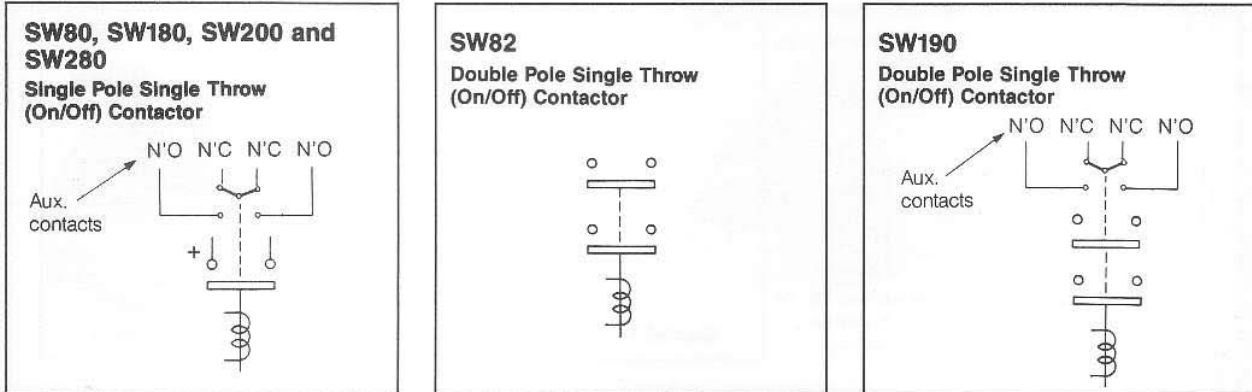
|           | SW82                                             |                 | SW190                                                            |                 |
|-----------|--------------------------------------------------|-----------------|------------------------------------------------------------------|-----------------|
|           | mm                                               | inches          | mm                                                               | inches          |
| A         | —                                                | —               | 127                                                              | 5.00            |
| B         | 91                                               | 3.58            | 121.5                                                            | 4.78            |
| C         | 49.5                                             | 1.95            | 65.5                                                             | 2.58            |
| D         | 36                                               | 1.42            | 50.5                                                             | 1.99            |
| E         | 40                                               | 1.58            | 45                                                               | 1.77            |
| F         | 18                                               | 0.71            | 18                                                               | 0.71            |
| G         | 22.2                                             | 0.87            | 29                                                               | 1.14            |
| H         | 38                                               | 1.50            | 49                                                               | 1.93            |
| J         | 30.4                                             | 1.20            | 34                                                               | 1.34            |
| K         | 50.1                                             | 1.97            | 74.5                                                             | 2.93            |
| L         | 12.7                                             | 0.50            | 16                                                               | 0.63            |
| M         | 9.5                                              | 0.37            | 12.7                                                             | 0.50            |
| N         | 17.5                                             | 0.69            | 25.4                                                             | 1.00            |
| P         | 96.7                                             | 3.81            | 130                                                              | 5.12            |
| Q         | 82.5                                             | 3.25            | 114.5                                                            | 4.51            |
| R         | 15.1                                             | 0.60            | 22.5                                                             | 0.89            |
| S         | 32                                               | 1.26            | 35.5                                                             | 1.40            |
| T         | 39                                               | 1.54            | 42.5                                                             | 1.67            |
| U         | 38 min crs                                       | 1.50 min crs    | 47 min crs                                                       | 1.85 min crs    |
| V         | 42                                               | 1.65            | 55                                                               | 2.17            |
| W         | 50                                               | 1.97            | 66                                                               | 2.60            |
| X         | 54                                               | 2.13            | 75                                                               | 2.95            |
| Y         | 44                                               | 1.73            | 55                                                               | 2.17            |
| AA        | 44.5                                             | 1.75            | 62                                                               | 2.44            |
| AB        | Ø5.2 holes                                       | 0.21 dia holes  | Ø5.5 holes                                                       | 0.22 dia holes  |
| AC        | slots 6 wide                                     | slots 0.24 wide | slots 6.5 wide                                                   | slots 0.26 wide |
| AD        | Ø5.2 holes                                       | 0.21 dia holes  | Ø6.5 holes                                                       | 0.26 dia holes  |
| AE        | M4 fixing holes (4-off each side)                |                 | M5 fixing holes (4-off each side)                                |                 |
| Bracket 1 | Part No. 2070-40<br>includes screws and washers  |                 | Part No. 2155-165<br>includes screws and washers                 |                 |
| Bracket 2 | Integral bracket frame                           |                 | Double bracket Part No. 2065-167A<br>includes screws and washers |                 |
| Bracket 3 | Part No. 2126-48A<br>includes screws and washers |                 | Part No. 2159-47<br>includes screws and washers                  |                 |

## EXPLANATION OF CONTACTOR PART NUMBERS

**SW80 - A - B - N - 57**



## CONNECTION DIAGRAMS



## PERFORMANCE DATA

| Type No. | Overload currents that can be ruptured (resistive load) in accordance with UL 508 |                       | Maximum recommended contact voltages (D.C.) |               | Typical voltage drop across contacts per 100 amps (per pole) | Coil power dissipation (watts) |
|----------|-----------------------------------------------------------------------------------|-----------------------|---------------------------------------------|---------------|--------------------------------------------------------------|--------------------------------|
|          | Without blowouts                                                                  | With blowouts         | Without blowouts                            | With blowouts |                                                              |                                |
| SW80     | 190 amps at 60v D.C.                                                              | 190 amps at 96v D.C.  | 60                                          | 250           | 40mV                                                         | 7 to 13                        |
| SW82     | 150 amps at 96v D.C.                                                              | N.A.                  | 96                                          | N.A.          | 50mV                                                         | 7 to 13                        |
| SW180    | 300 amps at 60v D.C.                                                              | 300 amps at 96v D.C.  | 60                                          | 250           | 40mV                                                         | 10 to 15                       |
| SW190    | 200 amps at 96v D.C.                                                              | 300 amps at 120v D.C. | 96                                          | 250           | 40mV                                                         | 10 to 15                       |
| SW200    | 600 amps at 60v D.C.                                                              | 600 amps at 96v D.C.  | 60                                          | 250           | 30mV                                                         | 13 to 25                       |
| SW280    | 525 amps at 60v D.C.                                                              | 525 amps at 96v D.C.  | 60                                          | 250           | 40mV                                                         | 10 to 15                       |

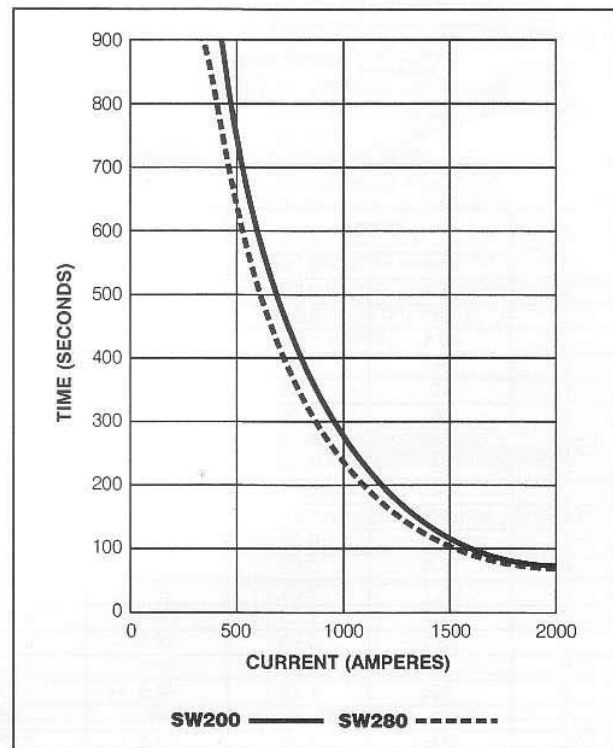
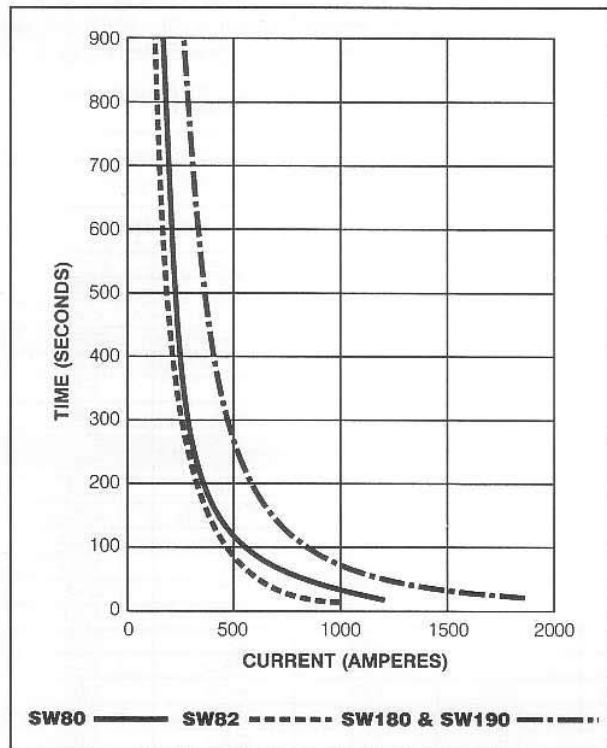
N.A. denotes not applicable

# PERFORMANCE DATA (cont)

| Type No. | Pull-in time (contacts to close) | Drop-out time (contacts to open) |                        |                                              |
|----------|----------------------------------|----------------------------------|------------------------|----------------------------------------------|
|          |                                  | Without suppression              | With diode suppression | With diode and resistor (depending on value) |
| SW80     | 20ms                             | 5ms                              | 50ms                   | 8 to 20ms                                    |
| SW82     | 20ms                             | 5ms                              | 50ms                   | 8 to 20ms                                    |
| SW180    | 30ms                             | 8ms                              | 60ms                   | 25ms                                         |
| SW190    | 30ms                             | 8ms                              | 60ms                   | 25ms                                         |
| SW200    | 40ms                             | 10ms                             | 100ms                  | 30ms                                         |
| SW280    | 30ms                             | 8ms                              | 60ms                   | 25ms                                         |

**NOTE:** The thermal current ratings stated for the contactors in this brochure are dependent upon the correct size of busbar being used for the required duty. For maximum continuous ratings the busbars should not be less than the sizes shown on pages 3 and 4.

# CONTACT PERFORMANCE (Intermittent ratings)



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