

# NEMA Contactors and Starters

Separate Enclosures, Coil Modification Kits,  
Replacement Parts, and Accessories

Catalog  
9999CT9701R08/17  
**2017**  
Class 9991, 9998, 9999



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## NEMA Contactors and Starters Separate Enclosures

## NEMA Type 3R, 4, 4X, and 12 Class 9991



Type SCA11  
NEMA 12 Enclosure



Type SCW11  
NEMA 4 Enclosure



Type SCH2  
NEMA 3R Enclosure



Type SCW21  
NEMA 4X Enclosure

Separate enclosures can be used with open style devices for field assembly of enclosed controls. These enclosures, plus the open style components, are equivalent to a factory-assembled device. Separate enclosures are to be used only with the equipment listed below:

- **NEMA 4 and 12, Class 9991 Separate Enclosures for Type S devices**  
Standard devices come with closing plates. See the selection chart below for the specific number of closing plates on various enclosures. For applications requiring enclosures without closing plates, consult your local Schneider Electric representative.
- **NEMA 3R Enclosures** for field assembly of equipment for outdoor applications  
Standard devices come with three closing plates, a reset mechanism, and a predrilled panel. For conduit connection to the top of these enclosures, select watertight hubs from *Digest* Section 16 in accordance with applicable code requirements. Square D™ brand NEMA 12 enclosures can also be modified for outdoor use. For details, refer to the NEMA 12 enclosure modification information on page 4.  
**NOTE:** Not for use in high-corrosive outdoor locations or sea coast environments.
- **NEMA 4X Enclosures for Type S devices, Sizes 0–2 and 30–60 A**  
Standard devices come without closing plates. Cover-mounted control units for NEMA 4X separate enclosures are available as a factory modification only.

Cover-mounted control units, Class 9001 Type K or Type SK, can easily be installed into the openings when the closing plates are removed from NEMA 4, 12, and 3R enclosure covers. Refer to Table 37 on page 13.

**Table 1: Equipment Used with Separate Enclosures**

| For Use With                                                                    |               | Enclosure Classification      |                                    |                                       |                             |                        |                             |                 |
|---------------------------------------------------------------------------------|---------------|-------------------------------|------------------------------------|---------------------------------------|-----------------------------|------------------------|-----------------------------|-----------------|
|                                                                                 |               | NEMA Size or<br>Ampere Rating | NEMA 4X<br>Glass-Polyester<br>Type | NEMA 4 [1]<br>Stainless Steel<br>Type | Number of<br>Closing Plates | NEMA 12/3R<br>Type [2] | Number of<br>Closing Plates | NEMA 3R<br>Type |
| <b>Manual Starters</b>                                                          |               |                               |                                    |                                       |                             |                        |                             |                 |
| 2510                                                                            | MBO, MCO      | M0, M1, M1P                   | MW1 [3]                            | MW11                                  | —                           | MA1                    | —                           | —               |
| <b>Magnetic Contactors</b>                                                      |               |                               |                                    |                                       |                             |                        |                             |                 |
| 8502 [4]                                                                        | SAO, SBO, SCO | 00, 0, 1                      | SCW20                              | SCW11                                 | 2                           | SCA11                  | 2                           | SCH2            |
|                                                                                 | SDO           | 2                             | SDW20                              | SDW11                                 | 2                           | SDA11                  | 2                           | SDH1            |
|                                                                                 | SEO           | 3                             | —                                  | SEW11                                 | 3                           | SEA11                  | 3                           | SEH1            |
|                                                                                 | SFO           | 4                             | —                                  | SFW11                                 | 3                           | SFA11                  | 3                           | SFH1            |
| <b>Magnetic Starters</b>                                                        |               |                               |                                    |                                       |                             |                        |                             |                 |
| 8536                                                                            | SAO, SBO, SCO | 00, 0, 1                      | SCW21                              | SCW11                                 | 2                           | SCA11                  | 2                           | SCH2            |
|                                                                                 | SDO           | 2                             | SDW21                              | SDW11                                 | 2                           | SDA11                  | 2                           | SDH1            |
|                                                                                 | SEO           | 3                             | —                                  | SEW11 [5]                             | 3                           | SEA11 [5]              | 3                           | SEH1            |
|                                                                                 | SFO           | 4                             | —                                  | SFW11 [5]                             | 3                           | SFA11                  | 3                           | SFH1            |
| <b>Lighting Contactors, Non-Combination, Electrically and Mechanically Held</b> |               |                               |                                    |                                       |                             |                        |                             |                 |
| 8903 [4]                                                                        | LO, LXO       | 20 A                          | SDW20                              | SDW11                                 | 2                           | SDA11                  | 2                           | SDH1            |
|                                                                                 | SMO           | 30 A                          | SCW20 [6]                          | SCW11                                 | 2                           | SCA11                  | 2                           | SCH2            |
|                                                                                 | SPO           | 60 A                          | SCW20 [6]                          | SDW11                                 | 2                           | SDA11                  | 2                           | SDH1            |
|                                                                                 | SQO           | 100 A                         | —                                  | SEW11                                 | 3                           | SEA11                  | 3                           | SEH1            |
|                                                                                 | SVO           | 200 A                         | —                                  | —                                     | —                           | —                      | —                           | SFH1            |
| <b>Reversing and Two-Speed, Horizontally Arranged Contactors and Starters</b>   |               |                               |                                    |                                       |                             |                        |                             |                 |
| 8702 [4]                                                                        | SBO, SCO      | 0, 1                          | —                                  | SCW12                                 | 3                           | SCA12                  | 3                           | —               |
| 8736                                                                            | SDO           | 2                             | —                                  | SDW12                                 | —                           | SDA12                  | —                           | —               |
| 8810                                                                            | SBO & SCO     | 0, 1                          | —                                  | SCW13                                 | 3                           | SCA13                  | 3                           | —               |

[1] The standard cabinet has a brushed finish.

[2] NEMA 12 enclosures for Type S devices can be field modified for outdoor non-corrosive and non-service entrance rated applications. See page 4 for more information.

[3] Type MBO, Size M0 only.

[4] For contactors, replace the reset assembly with a proper closing plate: for NEMA 4, use 9001K52; for NEMA 3R and 12, use 9001K51. Class 9991 Types SCW20 and SDW20 are designed for contactors only; reset closing plates are not required.

[5] The enclosure is suitable for starters with melting alloy overload relays or solid-state overload relays only.

[6] For electrically held devices only.

**Table 2: How to Order**

| To Order, Specify | Catalog Number |       |
|-------------------|----------------|-------|
| • Class Number    | Class          | Type  |
| • Type Number     | 9991           | SCA11 |

## NEMA Contactors and Starters Separate Enclosures

**Flush-Mounting General Purpose** separate enclosures include the following provisions for cover-mounted control units:

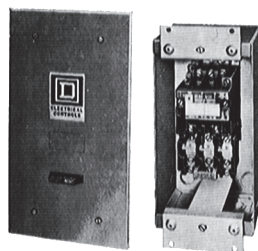
- Type S Sizes 0–2, or 30–60 A: knock-outs in the cover for field assembly of one Class 9999 push button or selector switch kit and one Class 9999 pilot light kit. See page 13.
- Type S Size 3, or 100 A: three closing plates for installation of Class 9001 Type K oiltight control units. For enclosure dimensions, see page 8.

**Table 3: Flush Mounting Selection**

| For Use With                                                             |                                  | NEMA<br>Size<br>or<br>Ampere<br>Rating | Flush Mounting General Purpose (Components) |                                           |                   |         |
|--------------------------------------------------------------------------|----------------------------------|----------------------------------------|---------------------------------------------|-------------------------------------------|-------------------|---------|
|                                                                          |                                  |                                        | Flush Plates                                |                                           | Mounting<br>Strap | Pullbox |
|                                                                          |                                  |                                        | Standard                                    | Stainless Steel [1]                       |                   |         |
| Class                                                                    | Types (All Pole<br>Arrangements) |                                        | Type                                        | Type                                      | Type              | Type    |
| Manual Contactors                                                        |                                  |                                        |                                             |                                           |                   |         |
| 2510                                                                     | MBO & MCO                        | M0<br>M1<br>M1P                        | MF1                                         | (includes pullbox and plaster adjustment) |                   |         |
|                                                                          |                                  |                                        | MF2                                         | (includes mounting strap but not pullbox) |                   |         |
| Magnetic Contactors                                                      |                                  |                                        |                                             |                                           |                   |         |
| 8502 [2]                                                                 | SBO & SCO                        | 0, 1                                   | SCF11                                       | SCF12                                     | SCF2              | SCF1    |
|                                                                          | SDO                              | 2                                      | SDF11                                       | SDF12                                     | SDF2              | SDF1    |
|                                                                          | SEO                              | 3                                      | SEF11                                       | (enclosure complete)                      |                   |         |
| Magnetic Starters                                                        |                                  |                                        |                                             |                                           |                   |         |
| 8536                                                                     | SBO & SCO                        | 0, 1                                   | SCF11                                       | SCF12                                     | SCF2              | SCF1    |
|                                                                          | SDO                              | 2                                      | SDF11                                       | SDF12                                     | SDF2              | SDF1    |
| Lighting Contactors, Non-Combination, Electrically and Mechanically Held |                                  |                                        |                                             |                                           |                   |         |
| 8903 [2]                                                                 | LO, LXO                          | 20 A                                   | SDF13                                       | —                                         | SDF2              | SDF1    |
|                                                                          | SMO 1–4                          | 30 A                                   | SCF11                                       | —                                         | SCF2              | SCF1    |
|                                                                          | SMO 10–13                        | 30 A                                   | SCF13                                       | —                                         | SCF2              | SCF1    |
|                                                                          | SPO 1–4                          | 60 A                                   | SDF11                                       | —                                         | SDF2              | SDF1    |
|                                                                          | SPO 10–13                        | 60 A                                   | SDF13                                       | —                                         | SDF2              | SDF1    |
|                                                                          | SQO 1–13                         | 100 A                                  | SEF11                                       | (enclosure complete)                      |                   |         |



Type SCG8, NEMA 1 Enclosure



Flush Mounting Starter Pullbox and Mounting Strap with Plaster Adjustment Feature

**Table 4: How to Order**

| To Order, Specify: | Catalog Number |      |
|--------------------|----------------|------|
| • Class Number     | Class          | Type |
| • Type Number      | 9991           | DPG1 |

[1] The standard cabinet has a brushed finish.

[2] For contactors, replace the reset assembly with a proper closing plate. For flush mounting, use Class 9999 Type SG2—except for Class 9991 Type SDF11, which requires a Class 9001 Type K51 or K11 closing plate. Class 9991 Type SEF11 is designed for contactors only; reset closing plates are not required.

## NEMA 1 and Flush Mounting Class 9991

The **NEMA 1 General Purpose** separate enclosures listed in Table 5—when used with open style components—are equivalent to a standard factory assembled control device.

**Table 5: NEMA 1 Selection**

| Class      | For Use With                                                                         |                            | NEMA 1 Class 9991 |
|------------|--------------------------------------------------------------------------------------|----------------------------|-------------------|
|            | Type                                                                                 | Number of Poles            | Type              |
| 2510       | F and K                                                                              | All                        | EN1               |
|            | M-Sizes M0 and M1                                                                    | All                        | MG1               |
|            | M-Size M1P                                                                           | All                        | MG2               |
| 8501       | CO                                                                                   | All                        | UE1               |
|            | XO                                                                                   | 2–12, 2–4 with attachments | UE7               |
|            | XDO                                                                                  | 2–8 without attachments    |                   |
| 8502       | SAO, SBO, SCO                                                                        | 2–4                        | SCG7              |
|            | SDO                                                                                  | 2–4                        | SDG7              |
|            | SEO                                                                                  | 2–4                        | SEG7              |
|            | SFO                                                                                  | 2–4                        | SFG8              |
| 8536       | SAO, SBO, SCO                                                                        | 2–4                        | SCG8              |
|            | SDO                                                                                  | 2–4                        | SDG8              |
|            | SEO                                                                                  | 2–4                        | SEG8 [1]          |
|            | SFO                                                                                  | 2–4                        | SFG8 [1]          |
|            | SGO                                                                                  | 3                          | SGG8 [1], [2]     |
| 8702, 8736 | SAO, SBO, SCO                                                                        | All                        | SCG9 [3]          |
|            | SDO                                                                                  | All                        | SDG9 [3]          |
| 8903       | LO, LXO                                                                              | All                        | LXG1 [4]          |
|            | SMO                                                                                  | All                        | SCG7 [5]          |
|            | SPO                                                                                  | All                        | SDG7 [5]          |
|            | SQO                                                                                  | All                        | SFG8              |
|            | SVO                                                                                  | All                        | SFG4              |
| 8910       | DP                                                                                   | 1–2                        | DPG1              |
|            | DPA12, 13, 22, 23, 32, 33, 42, 43                                                    | 2–3                        | DPG1              |
|            | DPA14, 24, 34, 44, 52, 53                                                            | 2–4                        | DPG2              |
|            | DPA62, 63                                                                            | 2–3                        | DPG3              |
|            | DPA72, 73, 92, 93                                                                    | 2–3                        | DPG4              |
| 8911       | DPSO13, 23, 33, 43                                                                   | 3                          | DPSG1             |
|            | DPSO53                                                                               | 3                          | DPSG2             |
| 9050       | AO (Single Head)                                                                     | All                        | UE6               |
|            | HO                                                                                   | All                        | UE6               |
| 9070       | EO51, EO61, EO71, K750, K1000                                                        | —                          | SDG4              |
|            | EO2, EO3, EO4, EO15, EO16, EO18, EO19, T75, T100, T150, T200, T250, T300, T350, T500 | —                          | LG1               |
|            | EO1, EO17, T50                                                                       | —                          | UE7               |
|            |                                                                                      |                            |                   |
|            |                                                                                      |                            |                   |

[1] The enclosure is suitable **only** for starters with melting alloy or solid-state overload relays (SSOLRs). For SSOLR on Sizes 3–4, the reset extender kit (9999ER4) must be used.

[2] Series B starter enclosure.

[3] For horizontally arranged Class 8702 contactors, replace the reset assembly with a Class 9001 Type K51 closing plate.

[4] If cover-mounted control units are required, select an oversize enclosure as listed in Table 9 on page 5.

[5] For electrically held contactors only.

**Addition of Control Circuit Transformer—Oversize NEMA 1, 4, and 12/3R Enclosures**



**Type SCW4**  
**NEMA 4 Enclosure**

**NEMA Contactors and Starters: Class 8502 or 8536, Type S, NEMA Size 0, 1, 1P, or 2**

The Class 9991 oversize enclosures listed in Table 6 accept an open-style contactor or starter, along with a fused control-circuit transformer (Form F4T), for field assembly of enclosed controllers. Knock-outs in the cover of the Class 9991 Type SCG1 enclosure provide for field addition of Class 9999 rectangular cover-mounted control units. All other Class 8502 and 8536 enclosures include a panel with space and drilling for an open-style device and a fused control-circuit transformer. In addition, each cover includes three closing plates for easy installation of Class 9001 Type K or SK control units.

**Lighting Contactors: Class 8903 Type L and LX (20 A) and Type S (30 and 60 A)**

Oversize enclosures for open-style electrically and mechanically held lighting contactors include a drilled panel with space for the following: an open-style contactor, a fused control-circuit transformer (Form F4T), and an auxiliary relay for use with single-pole pilot devices (Form R6). When an auxiliary relay is required, use a Class 8501 Type XO11 relay. Three closing plates come standard for easy installation of Class 9001 Type K or SK control units.

**NOTE:** If a Form F4T control transformer (with or without cover control units) is required on a Class 8903 Type SMO, 30 A, electrically held lighting contactor, then a Class 9991 Type SCG1, NEMA 1 separate enclosure can also be used.

**Table 6: Oversize Enclosure and Transformer Selection**

| For Use With                     |                                      |                         |              | Class 9991 Enclosure |            |                | Recommended Class 9070 Transformer Selection |                 |                |          |        | Fuse Block [1]       |
|----------------------------------|--------------------------------------|-------------------------|--------------|----------------------|------------|----------------|----------------------------------------------|-----------------|----------------|----------|--------|----------------------|
| Class                            | Type                                 | NEMA Size or Rating (A) | No. of Poles | NEMA 1               | NEMA 4 [2] | NEMA 12/3R [3] | Standard                                     |                 | Extra Capacity |          |        |                      |
|                                  |                                      |                         |              | Type                 | Type       | Type           | Type                                         | VA              | Type           | 100 VA   | 150 VA |                      |
| Magnetic Contactors and Starters |                                      |                         |              |                      |            |                |                                              |                 |                |          |        |                      |
| 8502, 8536 [4]                   | SAO, SBO & SCO                       | 00, 0, & 1              | 1–3<br>4–5   | SCG1 [1]             | SCW4       | SCA4           | T50<br>T100 [5]                              | 50 VA<br>100 VA | T100 [5]       | T150 [5] | —<br>— | Class 9999 Type SFR4 |
|                                  | SDO                                  | 2                       | 2–5          | SDG4                 | SDW4       | SDA4           | T100                                         | 100 VA          | —              | T150     | T300   |                      |
|                                  | Lighting Contactors, Non-Combination |                         |              |                      |            |                |                                              |                 |                |          |        |                      |
| 8903                             | LO, LXO                              | 20 A                    | All          | SDG3                 | SDW3       | SDA3           | T50                                          | 50 VA           | —              | —        | —      |                      |
|                                  |                                      |                         |              |                      |            |                | T50                                          | 50 VA           | T100 [5]       | T150 [5] | —      |                      |
|                                  | SMO [6]                              | 30 A                    | 1–3<br>4–5   |                      |            |                | T100 [5]                                     | 100 VA          | —              | T150 [5] | —      |                      |
|                                  |                                      |                         |              |                      |            |                |                                              |                 |                |          |        |                      |
|                                  | SPO [6]                              | 60 A                    | 2–5          |                      |            |                |                                              |                 |                | T100     | 100 VA |                      |

[1] The Class 9991 Type SCG1 enclosure comes standard with a Class 9999 Type SF4 fuse block.

[2] The standard cabinet has a brushed finish. For electropolished finish, specify Form G16.

[3] NEMA 12 modified for outdoor use (see below).

[4] For contactors (Class 8502), a separate closing plate is provided with each enclosure to replace the reset mechanism—with the exception of Class 9991 Type SCG1, which requires a separate reset closing plate, Class 9999 Type SG2.

[5] For mounting an SCG1 enclosure, a Class 9991 Type S1 adapter bracket is also required.

[6] Mechanically held.

**NEMA 12 Enclosures Modified for Outdoor Applications**

(Do not use in salt air or corrosive environments)

**Field Modifications for NEMA 3** dusttight, raintight, and sleet resistant outdoor applications include: Watertight conduit hubs or equivalent provision for watertight connection at the conduit entrance shall be used.

**Field Modifications for NEMA 3R** dusttight, rainproof, and sleet resistant outdoor applications include:

1. Watertight conduit hubs or an equivalent provision for watertight connection at the conduit entrance, when the conduit enters at a level higher than the lowest live part, shall be used.
2. Drain holes of 1/8 in. diameter must be added to the bottom of the enclosure.

**Table 7: Control Unit Selection Table**

| Class 9999 Type | Control Function              | Kit Contents  |                            |
|-----------------|-------------------------------|---------------|----------------------------|
|                 |                               | Class & Type  | Description                |
| SA3             | Start-Stop Push Button        | 1–9001 KR1B   | Start Operator             |
|                 |                               | 1–9001 KR1R   | Stop Operator              |
|                 |                               | 1–9001 KN201  | Start Legend Plate         |
|                 |                               | 1–9001 KN202  | Stop Legend Plate          |
|                 |                               | 2–9001 KA1    | Contact Block              |
| SC8             | Hand-Off-Auto Selector Switch | 1–9001 KS43B  | Selector Operator Switch   |
|                 |                               | 1–9001 KN260  | Hand-Off-Auto Legend Plate |
|                 |                               | 1–9001 KA1    | Contact Block              |
| SP28R           | Pilot Light (120 V)           | 1–9001 KP1R31 | Red Pilot Light            |

Class 9001 Type K oiltight/watertight control units can easily be installed in separate enclosures (NEMA 4, 12, and oversize Type 1) that include closing plates. When installing control units, simply remove the closing plates and install the proper Class 9001 Type K components.

Convenient control unit kits, complete with assembled and pre-wired operators for quick installation, are available as Class 9999 field modification kits. See Table 7 for kit contents. As an alternative, Class 9001 Type SK, NEMA 4X corrosion-resistant control units can be used.

**Table 8: NEMA 1 General Purpose Enclosures (Standard)**

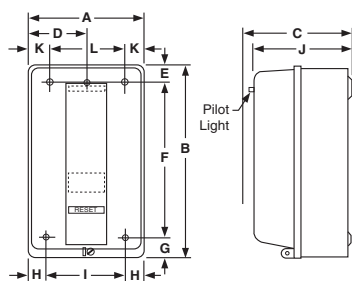
| Class<br>9991<br>Type No. | For Use With |                   |                          |                 | Fig.<br>No. | Mounting<br>Screws | Dimensions, in. (mm) |                |               |                |              |                |                |              |               |               |              |               |    | Weight<br>(lb) |
|---------------------------|--------------|-------------------|--------------------------|-----------------|-------------|--------------------|----------------------|----------------|---------------|----------------|--------------|----------------|----------------|--------------|---------------|---------------|--------------|---------------|----|----------------|
|                           | Class        | Type              | NEMA Size<br>or A Rating | No. of<br>Poles |             |                    | A                    | B              | C             | D              | E            | F              | G              | H            | I             | J             | K            | L             |    |                |
| LXG1                      | 8903         | LO, LXO           | 20 A                     | 2–12            | 1           | —                  | 7.81<br>(198)        | 12.69<br>(322) | 6.03<br>(153) | —              | 1.09<br>(28) | 10.50<br>(267) | 1.09<br>(28)   | 1.09<br>(28) | 5.63<br>(143) | 5.75<br>(146) | 1.09<br>(28) | 5.63<br>(143) | 8  |                |
| DPG1                      | 8910         | DP<br>DPA         | 20–40 A                  | 1–2<br>1–3      | 1           | (4) #10            | 4.85<br>(123)        | 8.5<br>(216)   | 4.03<br>(102) | 2.42<br>(62)   | 0.109<br>(3) | 5.75<br>(146)  | 0.531<br>(13)  | 0.92<br>(23) | 3.00<br>(76)  | 3.75<br>(95)  | —            | —             | 2  |                |
| SCG7                      | 8903         | SMO (E.H.)        | 30 A                     | All             | 1           | (3) #10            | 6.00<br>(152)        | 10.00<br>(254) | 5.28<br>(134) | 3.00<br>(76)   | 0.88<br>(22) | 8.13<br>(206)  | 1.00<br>(25)   | 0.94<br>(24) | 4.13<br>(105) | 5.00<br>(127) | —            | —             | 4  |                |
|                           | 8502         | SAO               | 00                       | 2–3             |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
|                           |              | SBO<br>SCO        | 0<br>1                   | All             |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| SCG8                      | 8536         | SAO<br>SBO<br>SCO | 00<br>0<br>1             | 2–3<br>All      | 1           | (3) #10            | 6.00<br>(152)        | 10.00<br>(254) | 5.56<br>(141) | 3.00<br>(76)   | 0.88<br>(22) | 8.13<br>(206)  | 1.00<br>(25)   | 0.94<br>(24) | 4.13<br>(105) | 5.00<br>(127) | —            | —             | 4  |                |
| DPG2                      | 8910         | DP                | —                        | —               |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| DPSG1                     | 8911         | DPS               | —                        | —               |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| SDG7                      | 8903         | SPO (E.H.)        | 60 A                     | 2–12            | 1           | (4) 1/4"           | 7.81<br>(198)        | 12.69<br>(322) | 6.03<br>(153) | —              | 1.09<br>(28) | 10.50<br>(267) | 1.09<br>(28)   | 1.09<br>(28) | 5.63<br>(143) | 5.75<br>(146) | 1.09<br>(28) | 5.63<br>(143) | 8  |                |
| SDG8                      | 8502         | SDO               | 2                        | All             |             |                    |                      |                | 6.31<br>(160) |                |              |                |                |              |               |               |              |               |    |                |
| DPG3                      | 8910         | DPA               | —                        | —               |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| DPSG2                     | 8911         | DPS               | —                        | —               | 1           | (4) 3/8"           | 11.44<br>(286)       | 21.81<br>(554) | 8.00<br>(203) | —              | 1.53<br>(39) | 18.75<br>(476) | 1.53<br>(39)   | 1.53<br>(39) | 8.38<br>(213) | 7.75<br>(197) | 1.53<br>(39) | 8.38<br>(213) | 23 |                |
| SEG7                      | 8502         | SEO               | 3                        | All             |             |                    |                      |                | 8.38<br>(213) |                |              |                |                |              |               |               |              |               |    |                |
| SEG8                      | 8536         | SEO               | 3                        | All             |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| DPG4                      | 8910         | DPA               | —                        | —               | 2           | (4) 7/16"          | 11.25<br>(286)       | 25.15<br>(639) | 8.99<br>(228) | 8.60<br>(218)  | 1.25<br>(32) | 1.25<br>(32)   | 22.31<br>(567) | 1.42<br>(36) | 0.44<br>(11)  | —             | —            | —             | 34 |                |
| SFG8                      | 8502         | SFO               | 4                        | All             |             |                    |                      |                | 8.99<br>(228) |                |              |                |                |              |               |               |              |               |    |                |
|                           | 8536         | SFO               | 4                        | All             |             |                    |                      |                |               |                |              |                |                |              |               |               |              |               |    |                |
| SCG9                      | 8702<br>[1]  | SBO, SCO          | 2                        | All             | 2           | (4) 5/16"          | 11.88<br>(302)       | 11.88<br>(302) | 7.41<br>(188) | 9.75<br>(248)  | 1.06<br>(27) | 1.06<br>(27)   | 9.75<br>(248)  | 1.06<br>(27) | 0.31<br>(8)   | —             | —            | —             | 16 |                |
|                           | 8922         | ETBC20,<br>ETBC36 | —                        | All             |             |                    |                      |                | 7.41<br>(188) |                |              |                |                |              |               |               |              |               |    |                |
| SDG9                      | 8702<br>[1]  | SCO               | 2                        | All             | 2           | (4) 5/16"          | 14.88<br>(378)       | 14.13<br>(359) | 7.56<br>(192) | 12.75<br>(324) | 1.06<br>(27) | 1.06<br>(27)   | 12.00<br>(305) | 1.06<br>(27) | 0.31<br>(8)   | —             | —            | —             | 24 |                |
|                           | 8922         | ETBC60            | —                        | All             |             |                    |                      |                | 7.56<br>(192) |                |              |                |                |              |               |               |              |               |    |                |

[1] Standard enclosure has space for a fused control transformer, Form F4T, on Sizes 0–2.

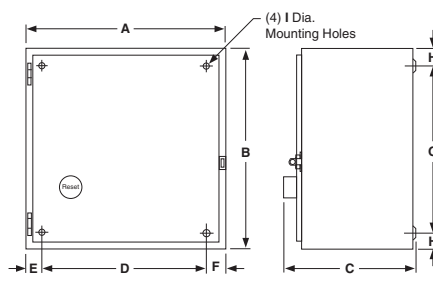
**Table 9: NEMA 1—General Purpose Enclosures (Oversize)**

| Class<br>9991<br>Type No. | For Use With |                                         |                                  |                 | Dimensions, in. (mm) |                    |                |                |               |                |              |                |                |              |             | Weight<br>(lb) |
|---------------------------|--------------|-----------------------------------------|----------------------------------|-----------------|----------------------|--------------------|----------------|----------------|---------------|----------------|--------------|----------------|----------------|--------------|-------------|----------------|
|                           | Class        | Type                                    | NEMA Size<br>or Ampere<br>Rating | No. of<br>Poles | Fig.<br>No.          | Mounting<br>Screws | A              | B              | C             | D              | E            | F              | G              | H            | I           |                |
| SDG3                      | 8903         | LO, LXO<br>SMO (M.H.)<br>SPO (Form F4T) | 20 A<br>30 A<br>60 A             | All             | 2                    | (4) 5/16"          | 14.88<br>(378) | 14.13<br>(359) | 7.56<br>(192) | 12.75<br>(324) | 1.06<br>(27) | 1.06<br>(27)   | 12.00<br>(305) | 1.06<br>(27) | 0.31<br>(8) | 15             |
| SDG4                      | 8502         | SDO (Form F4T)                          | 2                                | All             |                      |                    |                |                | 21            |                |              |                |                |              |             |                |
|                           | 8536         | SDO (Form F4T)                          | 2                                | All             |                      |                    |                |                |               |                |              |                |                |              |             |                |
|                           | 9070         | EO51, EO61, EO71,<br>T750, T1000        | —                                | —               |                      |                    |                |                |               |                |              |                |                |              |             |                |
| SCG1                      | 8502         | SBO, SCO (Form F4T)                     | 0, 1                             | All             | 3                    | (4) 9/32"          | 6.34<br>(161)  | 15.88<br>(403) | 5.19<br>(132) | 4.66<br>(118)  | 0.84<br>(21) | 14.38<br>(365) | 0.75<br>(19)   | 0.28<br>(7)  | 0.35<br>(9) | SCG1           |
|                           | 8536         | SBO, SCO (Form F4T)                     | 0, 1                             | All             |                      |                    |                |                | 5.19<br>(132) |                |              |                |                |              |             |                |
|                           | 8903         | SMO (E.H.) (Form F4T)                   | 30 A                             | All             |                      |                    |                |                |               |                |              |                |                |              |             |                |

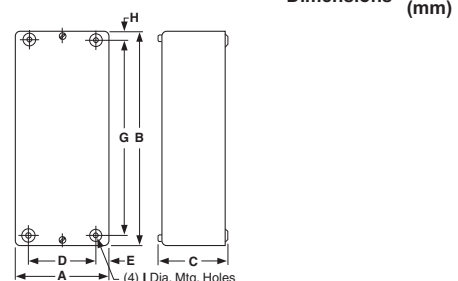
**Figure 1**



**Figure 2**



**Figure 3**



# NEMA Contactors and Starters

## Separate Enclosures

# NEMA 1, 3R—Approximate Dimensions

## Class 9991

**Table 10: NEMA 1 General Purpose Enclosures—see Figure 4**

| Class 9991<br>Type No. | For Use With |                                                                                              |                               | Dimensions, in. (mm) |               |               |               |               |              |              | Dia.<br>H               | K.O., in.                       |                                 | Weight<br>(lb) |
|------------------------|--------------|----------------------------------------------------------------------------------------------|-------------------------------|----------------------|---------------|---------------|---------------|---------------|--------------|--------------|-------------------------|---------------------------------|---------------------------------|----------------|
|                        | Class        | Type                                                                                         | No. of Poles                  | A                    | B             | C             | D             | E             | F            | G            |                         | J                               | L                               |                |
| UE1 <sup>[1]</sup>     | 8501         | CO                                                                                           | All                           | 3.63<br>(92)         | 5.28<br>(134) | 3.31<br>(84)  | 1.88<br>(48)  | 3.63<br>(92)  | 1.06<br>(27) | 1.50<br>(38) | 0.25 in. <sup>[1]</sup> | 0.5<br>0.75                     | 0.5<br>0.75                     | 2              |
| UE6                    | 8910         | H, J, K, L & M                                                                               | All                           | 4.91<br>(125)        | 5.75<br>(146) | 5.53<br>(140) | 3.50<br>(89)  | 4.38<br>(111) | 1.56<br>(40) | 2.00<br>(51) | 0.28 in.                | 0.5<br>0.75<br>1<br>1.25        | 0.5<br>0.75                     | 2              |
|                        | 9050         | AO (single head)                                                                             | All                           |                      |               |               |               |               |              |              |                         |                                 |                                 |                |
|                        |              | HO                                                                                           | All                           |                      |               |               |               |               |              |              |                         |                                 |                                 |                |
| UE7                    | 8501         | XO                                                                                           | 2–12, 2–4 with<br>attachments | 4.87<br>(125)        | 7.79<br>(196) | 7.53<br>(191) | 3.50<br>(89)  | 6.38<br>(162) | 1.31<br>(33) | 1.88<br>(48) | #10                     | 0.5<br>0.75                     | 0.5<br>0.75                     | 4              |
|                        |              | XDO                                                                                          | 2–8                           |                      |               |               |               |               |              |              |                         |                                 |                                 |                |
|                        | 9070         | EO1, EO17, T25, & T50                                                                        | —                             |                      |               |               |               |               |              |              |                         |                                 |                                 |                |
| LG1 <sup>[2]</sup>     | 9070         | EO2, EO3, EO4, EO15, EO16,<br>EO18, EO19, K75, K100, K150,<br>K200, K250, K300, K350, & K500 | —                             | 7.53<br>(191)        | 9.78<br>(248) | 5.91<br>(150) | 6.13<br>(155) | 8.38<br>(213) | 1.31<br>(33) | 1.88<br>(48) | 0.28 in.                | 0.5<br>0.75<br>1 <sup>[2]</sup> | 0.5<br>0.75<br>1 <sup>[2]</sup> | 10             |

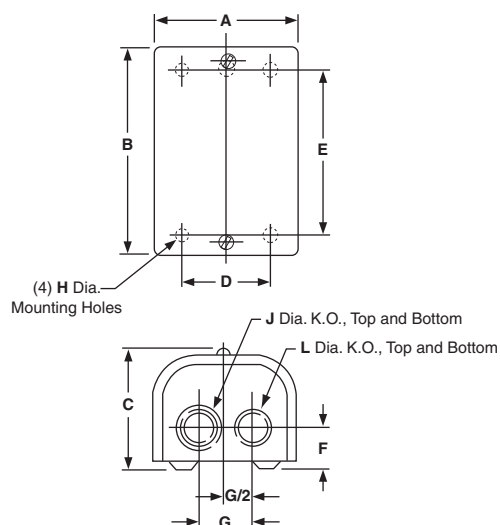
<sup>[1]</sup> Class 9991 UE1 has only three mounting holes: two in the bottom as shown in Figure 4, and one centered at the top.

<sup>[2]</sup> Class 9999 LG1 has three knockouts, top and bottom.

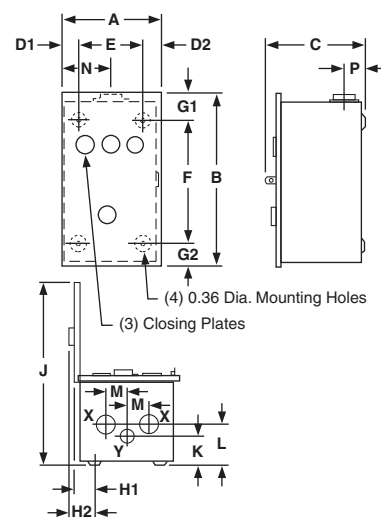
**Table 11: NEMA 3R—Rainproof and Sleet-Resistant Enclosures—see Figure 5**

| Class<br>9991<br>Type No. | For Use With |             |                          |                 | Dimensions, in. (mm) |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       | K.O., in.        |  |
|---------------------------|--------------|-------------|--------------------------|-----------------|----------------------|-----------------|---------------|--------------|--------------|----------------|----------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|---------------|--------------|-----------------------|------------------|--|
|                           | Class        | Type        | NEMA Size<br>or A Rating | No. of<br>Poles | A                    | B               | C             | D1           | D2           | E              | F              | G1           | G2           | H1           | H2           | J              | K            | L            | M            | N             | P            | X                     | Y                |  |
| SCH2                      | 8502<br>8536 | SBO,<br>SCO | 0, 1                     | All             | 8.83<br>(224)        | 12.30<br>(312)  | 7.12<br>(181) | 1.39<br>(35) | 1.44<br>(37) | 6.00<br>(152)  | 7.50<br>(191)  | 2.61<br>(66) | 2.19<br>(56) | 2.08<br>(53) | 2.62<br>(66) | 14.28<br>(363) | 1.37<br>(35) | 1.37<br>(35) | 1.88<br>(48) | 4.38<br>(111) | 1.83<br>(46) | 0.5<br>0.75<br>1      | 0.5<br>0.75<br>1 |  |
|                           | 8903         | SMO         | 30 A                     |                 |                      |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       |                  |  |
| SDH1                      | 8502<br>8536 | SDO         | 2                        | All             | 9.83<br>(250)        | 16.30<br>(414)  | 6.62<br>(219) | 1.39<br>(35) | 1.44<br>(37) | 7.00<br>(178)  | 11.50<br>(192) | 2.61<br>(66) | 2.19<br>(56) | 2.08<br>(53) | 2.62<br>(66) | 16.78<br>(426) | 1.31<br>(33) | 1.75<br>(44) | 2.13<br>(54) | 4.88<br>(124) | 1.83<br>(46) | 1<br>1.25<br>1.5      | 0.5<br>0.75      |  |
|                           | 8903         | LO<br>LXO   | 20 A                     |                 |                      |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       |                  |  |
|                           | 8903         | SPO         | 60 A                     |                 |                      |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       |                  |  |
| SEH1                      | 8502<br>8536 | SEO         | 3                        | All             | 12.63<br>(326)       | 25.30<br>(643)  | 8.62<br>(219) | 1.39<br>(35) | 1.44<br>(37) | 10.00<br>(254) | 20.60<br>(521) | 2.61<br>(66) | 2.19<br>(56) | 2.08<br>(53) | 2.62<br>(66) | 19.78<br>(502) | 1.31<br>(33) | 2.31<br>(59) | 2.69<br>(68) | 6.38<br>(162) | 1.83<br>(46) | 1<br>1.25<br>2<br>2.5 | 0.5<br>0.75      |  |
|                           | 8903         | SQO         | 100 A                    |                 |                      |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       |                  |  |
| SFH1                      | 8502<br>8536 | SFO         | 4                        | All             | 12.63<br>(326)       | 40.30<br>(1024) | 9.12<br>(232) | 1.39<br>(35) | 1.44<br>(37) | 10.00<br>(254) | 35.50<br>(902) | 2.61<br>(66) | 2.19<br>(56) | 2.08<br>(53) | 2.62<br>(66) | 20.28<br>(515) | 1.31<br>(33) | 2.31<br>(59) | 2.69<br>(68) | 6.38<br>(162) | 1.83<br>(46) | 1<br>1.25<br>2<br>2.5 | 0.5<br>0.75      |  |
|                           | 8903         | SVO         | 200 A                    | 2–3             |                      |                 |               |              |              |                |                |              |              |              |              |                |              |              |              |               |              |                       |                  |  |

**Figure 4**



**Figure 5**





**Table 12: NEMA 4X—Watertight and Corrosion Resistant Enclosures—see Figure 6**

| Class<br>9991<br>Type No. | For Use With |               |                          |                 | Dimensions, in. (mm) |               |                |              |               |                |              |              |                |              |              |             | Hub Dia., in. |       | Weight<br>(lb) |
|---------------------------|--------------|---------------|--------------------------|-----------------|----------------------|---------------|----------------|--------------|---------------|----------------|--------------|--------------|----------------|--------------|--------------|-------------|---------------|-------|----------------|
|                           | Class        | Type          | NEMA Size<br>or A Rating | No. of<br>Poles | A                    | B             | C              | D            | E             | F              | G            | H            | I              | J            | K            | L           | W [1]         | X [2] |                |
| SCW20                     | 8903         | SMO<br>(E.H.) | 30 A                     | All             | 6.50<br>(165)        | 6.44<br>(164) | 12.13<br>(308) | 0.75<br>(19) | 5.00<br>(127) | 8.25<br>(210)  | 1.69<br>(43) | 3.34<br>(85) | 10.06<br>(256) | 1.31<br>(33) | 2.13<br>(54) | 0.31<br>(8) | 0.75          | 1     | 7              |
|                           | 8502         | SBO,<br>SCO   | 0, 1                     | All             |                      |               |                |              |               |                |              |              |                |              |              |             |               |       |                |
| SCW21                     | 8536         | SBO,<br>SCO   | 0, 1                     | All             |                      |               |                |              |               |                |              |              |                |              |              |             |               |       |                |
| SDW20                     | 8903         | LO,<br>LXO    | 20 A                     | All             | 8.50<br>(216)        | 7.06<br>(179) | 13.88<br>(352) | 0.75<br>(19) | 7.00<br>(178) | 10.50<br>(267) | 1.69<br>(43) | 3.91<br>(99) | 11.94<br>(303) | 1.63<br>(41) | 2.38<br>(60) | 0.31<br>(8) | 0.75          | 1.5   | 13             |
|                           | 8903         | SPO<br>(E.H.) | 60 A                     | All             |                      |               |                |              |               |                |              |              |                |              |              |             |               |       |                |
|                           | 8502         | SDO           | 2                        | All             |                      |               |                |              |               |                |              |              |                |              |              |             |               |       |                |
| SDW21                     | 8536         | SDO           | 2                        | All             |                      |               |                |              |               |                |              |              |                |              |              |             |               |       |                |

**Table 13: NEMA 4—Watertight Enclosures (Standard)—see Figure 6**

| Class<br>9991<br>Type No. | For Use With |          |                          |                 | Dimensions, in. (mm) |               |                |              |                |                |              |               |                |              |              |              | Hub Dia., in.    |                  | Weight<br>(lb) |
|---------------------------|--------------|----------|--------------------------|-----------------|----------------------|---------------|----------------|--------------|----------------|----------------|--------------|---------------|----------------|--------------|--------------|--------------|------------------|------------------|----------------|
|                           | Class        | Type     | NEMA Size<br>or A Rating | No. of<br>Poles | A                    | B             | C              | D            | E              | F              | G            | H             | I              | J            | K            | L            | W <sup>[1]</sup> | X <sup>[2]</sup> |                |
| SCW11                     | 8903         | SMO      | 30 A                     | All             | 6.38<br>(162)        | 7.13<br>(181) | 13.19<br>(335) | 1.56<br>(40) | 3.25<br>(83)   | 12.00<br>(305) | 0.59<br>(15) | 1.88<br>(48)  | 11.78<br>(299) | 1.63<br>(41) | 2.31<br>(59) | 0.31<br>(8)  | 0.75             | 1                | 12             |
|                           | 8502         | SBO, SCO | 0, 1                     | All             |                      |               |                |              |                |                |              |               |                |              |              |              |                  |                  |                |
|                           | 8536         | SBO, SCO | 0, 1                     | All             | 6.38<br>(162)        | 7.81<br>(198) | 13.19<br>(335) | 1.56<br>(40) | 3.25<br>(83)   | 12.00<br>(305) | 0.59<br>(15) | 1.88<br>(48)  | 11.78<br>(299) | 1.63<br>(41) | 2.31<br>(59) | 0.31<br>(8)  |                  |                  |                |
| SDW11                     | 8903         | LO, LXO  | 20 A                     | All             | 8.13<br>(206)        | 7.88<br>(200) | 16.19<br>(411) | 1.56<br>(40) | 5.00<br>(127)  | 15.00<br>(381) | 1.09<br>(28) | 1.94<br>(49)  | 14.75<br>(375) | 2.00<br>(51) | 2.63<br>(67) | 0.31<br>(8)  | 0.75             | 1.5              | 18             |
|                           | 8903         | SPO      | 60 A                     | All             |                      |               |                |              |                |                |              |               |                |              |              |              |                  |                  |                |
|                           | 8502         | SDO      | 2                        | All             |                      |               |                |              |                |                |              |               |                |              |              |              |                  |                  |                |
|                           | 8536         | SDO      | 2                        | All             | 8.13<br>(206)        | 8.56<br>(217) | 16.19<br>(411) | 1.56<br>(40) | 5.00<br>(127)  | 15.00<br>(381) | 1.09<br>(28) | 2.88<br>(73)  | 14.75<br>(375) | 2.00<br>(51) | 2.63<br>(67) | 0.31<br>(8)  |                  |                  |                |
| SEW11                     | 8903         | SQO      | 100 A                    | All             | 18.15<br>(461)       | 8.77<br>(223) | 32.21<br>(818) | 3.08<br>(78) | 12.00<br>(305) | 30.50<br>(775) | 0.86<br>(22) | 3.67<br>(93)  | 26.71<br>(678) | 2.58<br>(66) | 3.19<br>(81) | 0.44<br>(11) | 0.75             | 2.5              | 51             |
|                           | 8502         | SEO      | 3                        | All             |                      |               |                |              |                |                |              |               |                |              |              |              |                  |                  |                |
|                           | 8536         | SEO      | 3                        | All             | 18.15<br>(461)       | 9.58<br>(243) | 32.21<br>(818) | 3.08<br>(78) | 12.00<br>(305) | 30.50<br>(775) | 0.86<br>(22) | 4.48<br>(114) | 26.71<br>(678) | 2.58<br>(66) | 3.19<br>(81) | 0.44<br>(11) |                  |                  |                |
| SFW11                     | 8502         | SFO      | 4                        | All             | 18.15<br>(461)       | 8.77<br>(223) | 32.21<br>(818) | 3.08<br>(78) | 12.00<br>(305) | 30.50<br>(775) | 0.86<br>(22) | 3.67<br>(93)  | 26.71<br>(678) | 2.58<br>(66) | 3.19<br>(81) | 0.44<br>(11) |                  |                  |                |

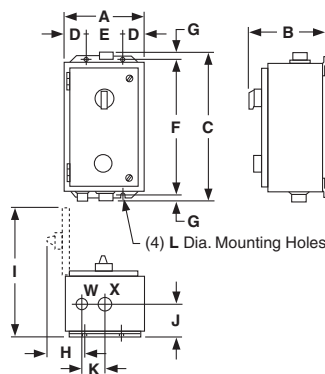
**Table 14: NEMA 4—Watertight Enclosures (Oversize)—see Figure 7**

| Class 9991 Type No. | For Use With |                                   |                       |              | Dimensions, in. (mm) |               |                |              |               |                |              |              |                |              |              |             |                  | Hub Dia., in.    |    | Weight (lb) |
|---------------------|--------------|-----------------------------------|-----------------------|--------------|----------------------|---------------|----------------|--------------|---------------|----------------|--------------|--------------|----------------|--------------|--------------|-------------|------------------|------------------|----|-------------|
|                     | Class        | Type                              | NEMA Size or A Rating | No. of Poles | A                    | B             | C              | D            | E             | F              | G            | H            | I              | J            | K            | L           | W <sup>[1]</sup> | X <sup>[2]</sup> |    |             |
| SCW2                | 8702<br>8736 | SCO                               | 1                     | All          | 12.63<br>(321)       | 7.81<br>(198) | 14.69<br>(373) | 2.56<br>(65) | 7.50<br>(191) | 13.50<br>(343) | 0.59<br>(15) | 3.88<br>(98) | 18.41<br>(468) | 1.66<br>(42) | 2.31<br>(59) | 0.31<br>(8) | 0.75             | 1                | 23 |             |
| SCW3                | 8810         | SBO<br>SCO                        | 0<br>1                | All          |                      |               |                |              |               |                |              |              |                |              |              |             |                  |                  | 19 |             |
| SCW4                | 8502<br>8536 | SBO, SCO<br>(Form F4T)            | 0, 1                  | All          |                      |               |                |              |               |                |              |              |                |              |              |             |                  |                  | 24 |             |
| SDW2                | 8702<br>8736 | SDO                               | 2                     | All          | 14.88<br>(378)       | 7.25<br>(184) | 16.19<br>(411) | 2.56<br>(65) | 9.75<br>(248) | 15.00<br>(381) | 0.38<br>(10) | 3.88<br>(98) | 20.88<br>(530) | 1.72<br>(44) | 2.63<br>(67) | 0.31<br>(8) | 0.75             | 1.5              | 25 |             |
| SDW3                | 8903         | LO, LXO<br>SMO, SPO<br>(Form F4T) | 20 A<br>30 A<br>60 A  | All          |                      |               |                |              |               |                |              |              |                |              |              |             |                  |                  | 29 |             |
| SDW4                | 8502<br>8536 | SDO<br>(Form F4T)                 | 2                     | All          |                      |               |                |              |               |                |              |              |                |              |              |             |                  |                  | 28 |             |

[1] Bottom Only.

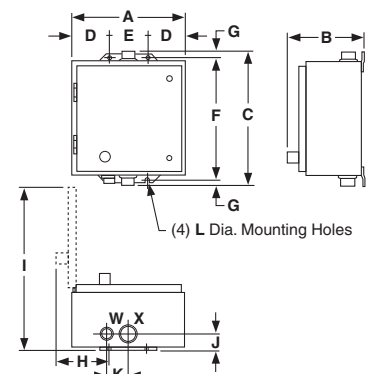
[2] Top and Bottom.

**Figure 6**



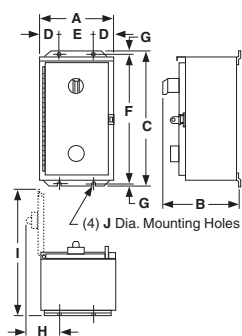
Dimensions in.  
(mm)

**Figure 7**



**Table 15: NEMA 12/3R—Dusttight and Driptight Enclosures (Standard)—See Figure 8**

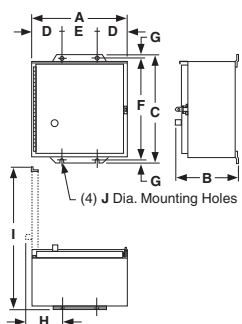
| Class 9991 Type No. | For Use With |          |                       |              | Dimensions, in. (mm) |       |       |      |       |       |      |       |       |      | Weight (lb) |
|---------------------|--------------|----------|-----------------------|--------------|----------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------------|
|                     | Class        | Type     | NEMA Size or A Rating | No. of Poles | A                    | B     | C     | D    | E     | F     | G    | H     | I     | J    |             |
| SCA11               | 8502         | SBO, SCO | 0, 1                  | All          | 6.38                 | 8.53  | 12.75 | 1.56 | 3.25  | 12.00 | 0.38 | 3.56  | 12.50 | 0.31 | 10          |
|                     | 8536         | SBO, SCO | 0, 1                  | All          | (162)                | (217) | (324) | (40) | (83)  | (305) | (10) | (90)  | (318) | (8)  |             |
|                     | 8903         | SMO      | 30 A                  | All          |                      |       |       |      |       |       |      |       |       |      |             |
| SDA11               | 8502         | SDO      | 2                     | All          |                      |       |       |      |       |       |      |       |       |      | 15          |
|                     | 8536         | SDO      | 2                     | All          | 8.13                 | 9.28  | 16.00 | 1.56 | 5.00  | 15.00 | 0.50 | 3.56  | 15.38 | 0.31 |             |
|                     | 8903         | LO, LXO  | 20 A                  | All          | (206)                | (236) | (406) | (40) | (127) | (381) | (13) | (90)  | (391) | (8)  |             |
|                     | 8903         | SPO      | 60 A                  | All          |                      |       |       |      |       |       |      |       |       |      |             |
| SEA11               | 8903         | SQO      | 100 A                 | All          | 18.15                | 9.24  | 31.50 | 3.08 | 12.0  | 30.50 | 0.50 | 3.67  | 26.71 | 0.44 | 51          |
|                     | 8502         | SEO      | 3                     | All          | (461)                | (235) | (800) | (78) | (305) | (775) | (13) | (93)  | (678) | (11) |             |
|                     | 8536         | SEO      | 3                     | All          | 18.15                | 9.58  | 31.50 | 3.08 | 12.0  | 30.50 | 0.50 | 4.48  | 26.71 | 0.44 |             |
| SFA11               | 8536         | SFO      | 4                     | All          | (461)                | (243) | (800) | (78) | (305) | (775) | (13) | (114) | (678) | (11) | 51          |
|                     | 8502         | SFO      | 4                     | All          | 18.15                | 9.24  | 31.50 | 3.08 | 12.0  | 30.50 | 0.50 | 3.67  | 26.71 | 0.44 |             |



**Figure 8**

**Table 16: NEMA 12/3R—Dusttight and Driptight Enclosures (Oversize)—See Figure 9**

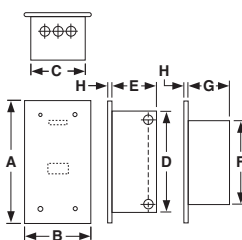
| Class 9991 Type No. | For Use With |                             |                       |              | Dimensions, in. (mm) |       |       |      |       |       |      |      |       |      | Weight (lb) |
|---------------------|--------------|-----------------------------|-----------------------|--------------|----------------------|-------|-------|------|-------|-------|------|------|-------|------|-------------|
|                     | Class        | Type                        | NEMA Size or A Rating | No. of Poles | A                    | B     | C     | D    | E     | F     | G    | H    | I     | J    |             |
| SCA2                | 8702         | SCO                         | 1                     | All          |                      |       |       |      |       |       |      |      |       |      | 17          |
|                     | 8736         | SCO                         | 1                     | All          |                      |       |       |      |       |       |      |      |       |      |             |
| SCA3                | 8810         | SBO, SCO                    | 0, 1                  | All          | 11.88                | 7.75  | 13.5  | 2.56 | 6.75  | 12.75 | 0.38 | 3.66 | 18.13 | 0.31 | 18          |
|                     |              |                             |                       |              | (302)                | (197) | (343) | (65) | (171) | (324) | (10) | (93) | (460) | (8)  |             |
| SCA4                | 8502         | SBO, SCO (Form F4T)         | 0, 1                  | All          |                      |       |       |      |       |       |      |      |       |      | 19          |
|                     | 8536         | SBO, SCO (Form F4T)         | 0, 1                  | All          |                      |       |       |      |       |       |      |      |       |      |             |
| SDA2                | 8702         | SDO                         | 2                     | All          |                      |       |       |      |       |       |      |      |       |      | 24          |
|                     | 8736         | SDO                         | 2                     | All          |                      |       |       |      |       |       |      |      |       |      |             |
| SDA3                | 8903         | LO, LXO SMO, SPO (Form F4T) | 20 A 30 A 60 A        | All          | 14.88                | 7.88  | 16.00 | 2.56 | 9.75  | 15.00 | 0.50 | 3.66 | 21.25 | 0.31 | 27          |
|                     |              |                             |                       |              | (378)                | (200) | (406) | (65) | (248) | (381) | (13) | (93) | (540) | (8)  |             |
| SDA4                | 8502         | SDO (Form F4T)              | 2                     | All          |                      |       |       |      |       |       |      |      |       |      | 27          |
|                     | 8536         | SDO (Form F4T)              | 2                     | All          |                      |       |       |      |       |       |      |      |       |      |             |



**Figure 9**

**Table 17: Flush Mounting General Purpose Enclosures—see Figure 10**

| Class 9991 Type No.   | For Use With |            |                       |              | Dimensions, in. (mm) |       |       |       |       |       |       |      | Weight (lb) |
|-----------------------|--------------|------------|-----------------------|--------------|----------------------|-------|-------|-------|-------|-------|-------|------|-------------|
|                       | Class        | Type       | NEMA Size or A Rating | No. of Poles | A                    | B     | C     | D     | E     | F     | G     | H    |             |
| SDF13 (w/SDF1 & SDF2) | 8903         | LO, LXO    | 20 A                  | All          | 15.19                | 8.94  | 7.63  | 12.88 | 5.44  | 10.94 | 5.13  | 0.38 | 17          |
|                       |              |            |                       |              | (386)                | (227) | (194) | (327) | (138) | (278) | (130) | (10) |             |
| SCF11 (w/SCF1 & SCF2) | 8502         | SBO, SCO   | 0, 1                  | All          |                      |       |       |       |       |       |       |      | 10          |
|                       | 8536         | SBO, SCO   | 0, 1                  | All          | 13.44                | 7.19  | 5.88  | 11.13 | 4.75  | 9.19  | 4.50  | 0.38 |             |
|                       | 8903         | SMO (E.H.) | 30 A                  | All          | (341)                | (183) | (149) | (283) | (121) | (233) | (114) | (10) |             |
| SDF11 (w/SDF1 & SDF2) | 8502         | SDO        | 2                     | All          |                      |       |       |       |       |       |       |      | 17          |
|                       | 8536         | SDO        | 2                     | All          | 15.19                | 8.94  | 7.63  | 12.88 | 5.44  | 10.94 | 5.13  | 0.38 |             |
|                       | 8903         | SPO (E.H.) | 60 A                  | All          | (386)                | (227) | (194) | (327) | (138) | (278) | (130) | (10) |             |
| SEF11                 | 8502         | SEO        | 3                     | All          | 31.00                | 16.75 | 14.25 | 26.25 | 8.00  | —     | —     | 0.18 | 48          |
|                       | 8903         | SQO        | 100 A                 | All          | (787)                | (425) | (362) | (667) | (203) |       |       | (5)  |             |



**Figure 10**

Dimensions in.  
(mm)



**Table 18: Replacement AC Magnet Coils for Magnetic Contactors and Starters**  
(See Table 21 on page 10 for the listing of mechanically held unlatch coils)

| Equipment To Be Serviced                                                                                                                                                                                                                                                                             |                              |                                   |                                   | Coil Prefix,<br>or Class<br>and Type              | Hz        | Suffix Number (the complete coil part number consists<br>of the prefix or the Class and Type, followed by the suffix) |           |          |          |          |          |         |          |          |          |          |          |              |              | Coil VA |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------|-----------------------------------|---------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------|-----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|--------------|--------------|---------|--|
| Device                                                                                                                                                                                                                                                                                               | Size                         | Type                              | Poles                             |                                                   |           | 24 V                                                                                                                  | 110–115 V | 120 V    | 208 V    | 220 V    | 240 V    | 277 V   | 380 V    | 440 V    | 480 V    | 550 V    | 600 V    | In-<br>rush  | Sealed       |         |  |
| Coils<br>for<br>Present<br>Design<br>Magnetic<br>Contactors<br>and<br>Starters<br>Classes<br>8502,<br>8536,<br>8538,<br>8539,<br>8606,<br>8630,<br>8640,<br>8647,<br>8650,<br>8651,<br>8702,<br>8736,<br>8738,<br>8739,<br>8810,<br>8811,<br>8812,<br>8903,<br>8910<br>and<br>8940<br>(except<br>NP) | 30 A                         | L                                 | 2–6                               | 9998L                                             | 60<br>50  | 23<br>24                                                                                                              | —<br>44   | 44<br>45 | 50<br>52 | —<br>53  | 53<br>54 | 55<br>— | —<br>60  | —<br>62  | 62<br>63 | —<br>65  | 65<br>66 | 150<br>140   | 30<br>30     |         |  |
|                                                                                                                                                                                                                                                                                                      |                              |                                   | 8–12                              | 9998LH                                            | 60<br>50  | 23<br>24                                                                                                              | —<br>44   | 44<br>45 | 50<br>—  | —<br>53  | 53<br>54 | 55<br>— | —<br>60  | —<br>62  | 62<br>—  | —<br>65  | 65<br>—  | 180<br>170   | 35<br>35     |         |  |
|                                                                                                                                                                                                                                                                                                      |                              | LX<br>(Latch)                     | 2–4                               | 9998L                                             | 60<br>50  | 23<br>24                                                                                                              | —<br>44   | 44<br>45 | 50<br>52 | —<br>53  | 53<br>54 | 55<br>— | —<br>60  | —<br>62  | 62<br>63 | —<br>65  | 65<br>66 | 150<br>140   | —<br>—       |         |  |
|                                                                                                                                                                                                                                                                                                      |                              |                                   | 6–12                              | 9998LH                                            | 60<br>50  | 23<br>24                                                                                                              | —<br>44   | 44<br>45 | 50<br>—  | —<br>53  | 53<br>54 | 55<br>— | —<br>60  | —<br>62  | 62<br>—  | —<br>65  | 65<br>—  | 180<br>170   | —<br>—       |         |  |
|                                                                                                                                                                                                                                                                                                      | 00                           | SA<br>(Series B)                  | All                               | 9998SAC                                           | 60<br>50  | 23<br>—                                                                                                               | —<br>45   | 45<br>—  | 52<br>—  | —<br>54  | 55<br>—  | 59<br>— | —<br>62  | 62<br>—  | —<br>65  | 65<br>—  | 165<br>— | 33<br>—      |              |         |  |
|                                                                                                                                                                                                                                                                                                      | 00<br>0, 1,<br>1–P &<br>30 A | SA (Series A)<br>SB, SC & SM      | All                               | 31041-400                                         | 60<br>50  | 20<br>22                                                                                                              | —<br>42   | 42<br>43 | 48<br>—  | —<br>51  | 51<br>53 | 52<br>— | 56<br>57 | 58<br>60 | —<br>60  | 61<br>62 | 62<br>64 | 245<br>232   | 27<br>26     |         |  |
|                                                                                                                                                                                                                                                                                                      | 2 &<br>60 A                  | SD & SP                           | 2–3                               | 31063-409                                         | 60<br>50  | 16<br>17                                                                                                              | —<br>38   | 38<br>39 | 44<br>—  | —<br>47  | 47<br>48 | 49<br>— | 53<br>54 | —<br>57  | 57<br>—  | —<br>60  | 60<br>61 | 311<br>296   | 37<br>36     |         |  |
|                                                                                                                                                                                                                                                                                                      |                              |                                   | 4–5                               | 31063-400                                         | 60<br>50  | 16<br>17                                                                                                              | —<br>38   | 38<br>39 | 44<br>—  | —<br>47  | 47<br>48 | 49<br>— | 53<br>54 | —<br>57  | 57<br>—  | —<br>60  | 60<br>61 | 438<br>429   | 38<br>37     |         |  |
|                                                                                                                                                                                                                                                                                                      | 3 &<br>100 A                 | DPA12,<br>SE, SQ &<br>SYD138      | 2–3                               | 31074-400                                         | 60<br>50  | 16<br>17                                                                                                              | —<br>38   | 38<br>39 | 44<br>—  | —<br>47  | 47<br>48 | 49<br>— | 53<br>54 | —<br>57  | 57<br>—  | —<br>60  | 60<br>61 | 700<br>678   | 46<br>47     |         |  |
|                                                                                                                                                                                                                                                                                                      |                              |                                   | 4–5                               | 31091-400                                         | 60<br>50  | —<br>—                                                                                                                | —<br>38   | 38<br>39 | 44<br>—  | —<br>47  | 47<br>48 | 49<br>— | 53<br>54 | —<br>57  | 57<br>58 | —<br>60  | 60<br>61 | 1185<br>1260 | 85<br>89     |         |  |
|                                                                                                                                                                                                                                                                                                      | 4 &<br>200 A                 | SF, SV &<br>SYD230                | All                               | 31091-400                                         | 60<br>50  | —<br>—                                                                                                                | —<br>38   | 38<br>39 | 44<br>—  | —<br>47  | 47<br>48 | 49<br>— | 53<br>54 | —<br>57  | 57<br>58 | —<br>60  | 60<br>61 | 1185<br>1260 | 85<br>89     |         |  |
|                                                                                                                                                                                                                                                                                                      | 5 &<br>300 A                 | SG, SX &<br>SYD368 Series A       | All                               | 31096-400                                         | 60<br>50  | —<br>—                                                                                                                | —<br>09   | 09<br>10 | 15<br>—  | —<br>18  | 18<br>—  | 19<br>— | 21<br>22 | —<br>24  | 24<br>—  | —<br>29  | 29<br>30 | 2970<br>2970 | 212<br>250   |         |  |
|                                                                                                                                                                                                                                                                                                      |                              | SG, SX &<br>SYD368 Series B       | All                               | 31096-320                                         | 60<br>50  | —<br>—                                                                                                                | 50<br>50  | 50<br>50 | 51<br>—  | 52<br>52 | 52<br>52 | 53<br>— | 54<br>54 | 55<br>55 | 55<br>55 | —<br>—   | —<br>—   | 1300<br>—    | 14<br>—      |         |  |
|                                                                                                                                                                                                                                                                                                      | 6 & 7                        | SH & SJ                           | 2–3                               | Coil Part Number 3110440050 (All System Voltages) |           |                                                                                                                       |           |          |          |          |          |         |          |          |          |          |          | 1780         | 48           |         |  |
|                                                                                                                                                                                                                                                                                                      | 400,<br>600 &<br>800 A       | SY, SZ, SJ<br>(Electrically Held) |                                   |                                                   |           |                                                                                                                       |           |          |          |          |          |         |          |          |          |          |          | 1960         | 59           |         |  |
|                                                                                                                                                                                                                                                                                                      |                              |                                   | SY, SZ, SJ<br>(Mechanically Held) | 2–3                                               | 31104-418 | 60<br>50                                                                                                              | —<br>—    | —<br>09  | 09<br>—  | 15<br>—  | —<br>18  | 18<br>— | 19<br>—  | —<br>—   | —<br>24  | 24<br>—  | —<br>29  | 29<br>—      | 1530<br>1250 | —<br>—  |  |

### NEMA Size 5 E-Coil Modification Kit

These kits are for use with devices of the following Classes: 8502, 8536, 8538, 8539, 8606, 8630, 8640, 8647, 8650, 8651, 8702, 8736, 8738, 8739, 8810, 8811, 8812, 8910, and 8903.

The kits include the following:

- E-coil
- Armature
- Bottom magnet
- 15 A, 600 V fuse and holder (Class 9999SFR)
- Instruction manual

**Table 19: Coil Modification Kits**

| Description | Catalog Number |
|-------------|----------------|
| 120 V       | 9998SG120      |
| 480 V       | 9998SG480      |
| 277 V       | 9998SG277      |
| 208 V       | 9998SG208      |
| 240 V       | 9998SG240      |
| 380 V       | 9998SG380      |

**Table 20: How to Order**

| To Order, Specify          | Catalog Number |
|----------------------------|----------------|
| Coil Prefix and Suffix     | 31063-409-38   |
| Class and Type plus Suffix | 9998L23        |

**Table 21: Replacement AC Magnet Coils for Relays, Timers, and Contactors**

| Equipment To Be Serviced                                                                           |                    |       | Coil Prefix, or Class and Type | Hz    | Suffix Number (the complete coil part number consists of the prefix or the Class and Type, followed by the suffix) |           |           |           |           |           |           |        |           |           |           |           | Coil VA |        |
|----------------------------------------------------------------------------------------------------|--------------------|-------|--------------------------------|-------|--------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------|-----------|-----------|-----------|-----------|---------|--------|
| Device                                                                                             | Type               | Poles |                                |       | 24 V                                                                                                               | 110–115 V | 120 V     | 208 V     | 220 V     | 240 V     | 277 V     | 380 V  | 440 V     | 480 V     | 550 V     | 600 V     | In-rush | Sealed |
| Classes 8501 and 9050                                                                              |                    |       |                                |       |                                                                                                                    |           |           |           |           |           |           |        |           |           |           |           |         |        |
| 8501 (Relays)                                                                                      | X                  | All   | 9998X [1]                      | 60 50 | 23 24                                                                                                              | — 44      | 44 —      | 51 52     | 52 53     | 53 —      | 55 —      | — —    | — 62      | 62 —      | — 65      | 65 —      | 148 143 | 23 25  |
| 9050 (Timer)                                                                                       | A                  | All   | 2959-S49-                      | 60 50 | W25A W25B                                                                                                          | W31B W32A | W32A W32B | W34A W34B | W34B W35A | W35A W35B | W35B W36A | — —    | W37B W38A | W38A W38B | W38B W39A | W39A W39B | 74 68   | 17 17  |
|                                                                                                    | B [2]              | All   | 31017-400-                     | 60 50 | 33 34                                                                                                              | — —       | 54 55     | 61 —      | 61 63     | 63 64     | 65 —      | — —    | 70 72     | 72 73     | 73 75     | 75 76     | 165 155 | 27 27  |
| Mechanically Held <i>Unlatch</i> Coils—Class 8903 (for <i>latch</i> coils, see Table 18 on page 9) |                    |       |                                |       |                                                                                                                    |           |           |           |           |           |           |        |           |           |           |           |         |        |
| 8903 (Lighting Contactors)                                                                         | LX                 | All   | 9998LX                         | 60 50 | 23 —                                                                                                               | — 44      | 44 —      | 51 —      | — 53      | 53 —      | 55 —      | — —    | — 62      | 62 —      | — 65      | 65 —      | 25 —    | — —    |
|                                                                                                    | SM, SP             | All   | 2959-S13                       | 60 50 | W23B W24B                                                                                                          | — W30B    | W30B W31B | W33A —    | — W33B    | W33B W34B | W34A —    | — W36A | — W36B    | W36B —    | — W37B    | W37B —    | 80 —    | — —    |
|                                                                                                    | SQ, SV, SX, SY, SZ | All   | 31096-416                      | 60 50 | 03 —                                                                                                               | — 09      | 09 —      | 15 —      | — 18      | 18 —      | 20 —      | — 22   | — 24      | 24 —      | — 28      | 28 —      | 550 —   | — —    |
|                                                                                                    | SJ                 | All   | 31123-403                      | 60 50 | 03 —                                                                                                               | — 09      | 09 —      | 15 —      | — 18      | 18 —      | 20 —      | — 22   | — 24      | 24 —      | — 28      | 28 —      | 2100 —  | — —    |

[1] To order an unlatch coil, add letter L to the Type number and letter B to the suffix number. Example: For a 120 V 60 Hz unlatch coil, order Class 9998 Type XL44B.

[2] Series C (double pole) and Series E (single pole).

**Table 22: Replacement DC Magnet Coils for Magnetic Relays and Timers**

| Equipment To Be Serviced |      |       | Coil Prefix,<br>or Class<br>and Type | Suffix Number (the complete coil part number consists<br>of the prefix or the Class and Type, followed by the suffix) |      |      |      |      |      |      |      |      |       |                   |       |                   | Coil<br>Burden<br>(Watts) |
|--------------------------|------|-------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|-------|-------------------|-------|-------------------|---------------------------|
| Class                    | Type | Poles |                                      | 6 V                                                                                                                   | 12 V | 18 V | 24 V | 32 V | 48 V | 64 V | 72 V | 90 V | 110 V | 115/ 125 V        | 220 V | 230/ 250 V        |                           |
| 8501<br>(Relays)         | XD   | All   | 9998 XD                              | 19                                                                                                                    | 28   | 34   | 37   | 40   | 46   | 49   | 52   | 55   | —     | 58                | —     | 67                | 18                        |
|                          | XDL  | —     | 9998 XDL                             | 19                                                                                                                    | 28   | 34B  | 37B  | 40B  | 46B  | 49B  | 52B  | 55B  | —     | 58B               | —     | 67B               | 50                        |
|                          | XUD  | All   | 9998 XUD                             | 19                                                                                                                    | 28   | —    | 37   | —    | 46   | —    | —    | —    | —     | 58 <sup>[1]</sup> | —     | 67 <sup>[1]</sup> | 16                        |
| 9050<br>(Timers)         | C    | —     | 31018-400-                           | 22                                                                                                                    | 31   | —    | 40   | —    | 49   | —    | —    | —    | —     | 61                | —     | 70                | 14                        |
|                          | H    | —     | 4491S1                               | W21                                                                                                                   | W24  | —    | W27  | —    | W30  | —    | —    | —    | —     | W34               | —     | W37               | 14                        |

[1] Not dual voltage rated; 250 Vdc only.

**Table 23: Replacement Coil for 8903 Panel Board Lighting Contactors**

| Class | Type | Replacement Solenoid | Catalog Number |
|-------|------|----------------------|----------------|
| 8903  | PB   | 120 V                | 9998PBV02      |
|       |      | 208 V                | 9998PBV08      |
|       |      | 240/277 V            | 9998PBV39      |
|       |      | 480 V                | 9998PBV28      |

**Table 24: How to Order**

| To Order, Specify | Catalog Number |       |
|-------------------|----------------|-------|
| • Class Number    | Class          | Type  |
| • Type Number     | 9998           | PBV02 |

## NEMA Contactors and Starters Replacement Parts

Class 9998 replacement parts kits are available for servicing Square D relays, contactors, and starters as well as pressure, vacuum, and float switches. Each kit contains the necessary movable and stationary contacts, contact springs (when required), and additional hardware needed to service the devices listed below. When servicing devices with more poles than the corresponding kit contains, you may need to order an additional kit.

**Table 25: Magnetic Contactor and Starter Contact Kits**

| Present Designs—NEMA, Type S Contactors                                                                                                      |                           |             |                     |                               |
|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------|---------------------|-------------------------------|
| Equipment To Be Serviced                                                                                                                     |                           | NEMA Size   | No. of Poles in Kit | Class 9998 Parts Kit Type No. |
| Class                                                                                                                                        | Type                      |             |                     |                               |
| 8502<br>8536<br>8538<br>8539<br>8547<br>8549<br>8606<br>8630<br>8640<br>8647<br>8702<br>8736<br>8738<br>8739<br>8810<br>8811<br>8812<br>8940 | SA (Series B)             | 00          | 3                   | SJ1                           |
|                                                                                                                                              | SB                        | 0           | 3<br>4              | SL2<br>SL12                   |
|                                                                                                                                              | SB, SC (Power Pole Adder) | 0 & 1       | 1                   | SL22                          |
|                                                                                                                                              | SC                        | 1 & 1P<br>1 | 3<br>4              | SL3<br>SL13                   |
|                                                                                                                                              | SD                        | 2           | 3<br>4              | SL4<br>SL14                   |
|                                                                                                                                              | SD (Power Pole Adder)     | 2           | 1                   | SL24                          |
|                                                                                                                                              | SE                        | 3           | 2<br>3              | SL6<br>SL7                    |
|                                                                                                                                              | SF                        | 4           | 2<br>3              | SL8<br>SL9                    |
|                                                                                                                                              | SG                        | 5           | 2<br>3              | SL10<br>SL11                  |
|                                                                                                                                              | SH                        | 6           | 2<br>3              | SL25<br>SL26                  |
|                                                                                                                                              | SJ                        | 7           | 2<br>3              | SL30<br>SL31                  |

### Lighting Contactors

| Equipment To Be Serviced |                              | Rating (A)      | No. of Poles in Kit | Class 9998 Parts Kit Type No. |
|--------------------------|------------------------------|-----------------|---------------------|-------------------------------|
| Class                    | Type                         |                 |                     |                               |
| 8903                     | L (Series C) & LX (Series B) | 30 A            | 4                   | RA5B                          |
|                          | SM                           | 30 A            | 3<br>4              | SL3<br>SL13                   |
|                          | SP                           | 60 A            | 3<br>4              | SL4<br>SL14                   |
|                          | SQ                           | 100 A           | 2<br>3              | SL6<br>SL7                    |
|                          | SV                           | 200 A           | 2<br>3              | SL8<br>SL9                    |
|                          | SX                           | 300 A           | 2<br>3              | SL10<br>SL11                  |
|                          | SY                           | 400 A           | 2<br>3              | SL25<br>SL26                  |
|                          | SZ                           | 600 A           | 2<br>3              | SL32<br>SL33                  |
|                          | SJ                           | 800 A           | 2<br>3              | SL30<br>SL31                  |
|                          | PBM, PBP                     | 30, 60 A        | 2                   | PB2                           |
|                          | PBN, PBQ                     | 75, 100 A       |                     |                               |
|                          | PBM, PBP                     | 30, 60 A        | 3                   | PB3                           |
|                          | PBN, PBQ                     | 75, 100 A       |                     |                               |
|                          | PBR, PBV, PBW                | 150, 200, 225 A | 2                   | PB14                          |
|                          | PBR, PBV, PBW                | 150, 200, 225 A | 3                   | PB15                          |

### Obsolete Designs

| Equipment To Be Serviced |                                     | NEMA Size | No. of Poles in Kit | Class 9998 Parts Kit Type No. |
|--------------------------|-------------------------------------|-----------|---------------------|-------------------------------|
| Class                    | Type                                |           |                     |                               |
| 8502 & 8536 [1]          | SA (Series A)                       | 00        | 3<br>4              | SL2<br>SL12                   |
| 8903                     | LL, L (Series A, B) & LX (Series A) | 20 A      | 4                   | RA5                           |

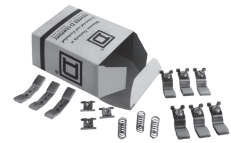
**Table 26: How to Order**

| To Order, Specify | Catalog Number |      |
|-------------------|----------------|------|
| • Class Number    | Class          | Type |
| • Type Number     | 9998           | SL6  |

[1] Includes reversing, two speed, and similar devices.

## Contact Kits and Control Transformers Class 9998

**NOTE:** Contact springs are built into the contact carrier, and are not available for NEMA Size 3 and above.



**Table 27: Manual Starter Contact Kits**

| Equipment To Be Serviced |        | NEMA Size  | No. of Poles in Kit | Class 9998 Parts Kit Type No. |
|--------------------------|--------|------------|---------------------|-------------------------------|
| Class                    | Type   |            |                     |                               |
| 2510 Manual Starters     | M-, T- | M-0        | 3                   | ML1                           |
|                          |        | M-1 & M-1P | 3                   | ML2                           |

**Table 28: Replacement Control Transformers (150 VA)  
Class 8502, 8536 Type S Size 6**

| Voltage     |             | Part Number |
|-------------|-------------|-------------|
| 60 Hz       | 50 Hz       |             |
| 240/480–120 | 220/440–110 | 3110451250  |
| 208–120     | —           | 3110451252  |
| 277–120     | —           | 3110451253  |
| —           | 380–110     | 3110451254  |
| 600–120     | 550–110     | 3110451251  |
| 120–120     | 110–110     | 3110451255  |
| 240–120     | 220–110     | 3110451256  |

**Table 29: Replacement Control Transformers (200 VA)  
Class 8502/8536 Type S, Size 7**

| Voltage     |             | Part Number |
|-------------|-------------|-------------|
| 60 Hz       | 50 Hz       |             |
| 240/480–120 | 220/440–110 | 3112350150  |
| 208–120     | —           | 3112350152  |
| 277–120     | —           | 3112350153  |
| —           | 380–110     | 3112350154  |
| 600–120     | 550–110     | 3112350151  |
| 120–120     | 110–110     | 3112350155  |
| 240–120     | 220–110     | 3112350156  |

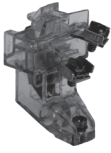
**Table 30: Class 8910, 8911, and 8965  
Replacement Contact Kits**

| Device To Be Serviced |                 |                 |        | Class 9998      |                 |
|-----------------------|-----------------|-----------------|--------|-----------------|-----------------|
| Class 8910 Type       | Class 8911 Type | Class 8965 Type | Series | 1-Pole Type No. | 3-Pole Type No. |
| SYD138                | —               | —               | —      | —               | SL27            |
| SYD230                | —               | —               | —      | —               | SL28            |
| SYD368                | —               | —               | —      | —               | SL29            |
| DPA_50A               | DPSO5_          | DPR5_           | A, B   | DRC5            | —               |
| DPA_60 [1]            | DPSO6_          | DPR6_           | A, B   | DRC6            | —               |
| DPA_75A               | DPSO7_          | —               | A      | DRC7            | —               |
| DPA_90A               | DPSO9_          | —               | A      | DRC9            | —               |

**Table 31: Class 8965  
Replacement Contact Kits**

| Device Type | Device Series | Class 9998 Kit Type    | Device Series | Class 9998 Kit Type |
|-------------|---------------|------------------------|---------------|---------------------|
| DPR53       | A             | DRC5 (single-pole kit) | —             | —                   |
| DPR63       | A             | DRC6 (single-pole kit) | —             | —                   |
| RO10        | A & B         | RA10                   | C             | RA14                |
| RO11        | A & B         | RA11                   | C             | RA15                |
| RO12        | A & B         | RA12                   | C             | RA16                |
| RO13        | A & B         | RA13                   | C             | RA17                |

[1] For Class 8911, 60 A starter, use the 9998DRC7 contact kit.



**Class 9998 Type SO1**



**Overload Contact Unit  
Part No. 31102-514-50**

**Table 33: Contact Units for Melting Alloy Style Overload Relays**

One normally closed contact, Class 9998 Type SO1, is provided in each overload relay block on Type S starters, Sizes 00-6. (On the Size 5, Series A, a normally closed contact was provided with each of the three overload relay blocks). The Class 9998 Type SO1 contact unit listed below is provided as standard in each Class 9065 Type M melting alloy overload relay. Contact modules can be easily replaced and are identified in Table 33. Isolated overload relay alarm circuit contacts are available as an optional feature. A pilot light or alarm bell can be wired in series with this contact to indicate that the overload relay has tripped. For further information on isolated alarm contacts, refer to Class 9999 Types SO4 and SO5.

| NEMA Size       | Magnetic Starter   |        | Description                                    | Parts Kit Number                   |
|-----------------|--------------------|--------|------------------------------------------------|------------------------------------|
|                 | Type               | Series |                                                |                                    |
| 00-4, 6<br>00-6 | SA-SF, SH<br>SA-SH | A<br>B | Standard N.C. contact unit                     | Class 9998 Type SO1 <sup>[1]</sup> |
| 5               | SG                 | A      | Standard N.C. contact unit                     | 31102-514-50                       |
|                 |                    |        | N.C. and N.O. alarm (three point) contact unit | 31102-514-51                       |

<sup>[1]</sup> The Type SO1 is also the replacement contact unit for Class 9065 Type M melting alloy overload relays.

**Table 34: Class 9998 Type UB Universal Baseplate**

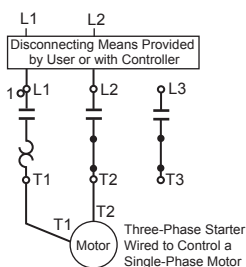
A universal baseplate may be used to retrofit a Square D Type S NEMA starter into an application that is currently using a competitor's NEMA starter. The universal baseplate is a metal plate that attaches to the panel in the location of the starter to be replaced. The Type S starter then mounts to the baseplate. It is available for NEMA Sizes 00-4, and mounting screws are provided with each plate.

The universal baseplate adapter allows the Type S starter to replace the following competitor's starters.

| Competitor's Starter         | NEMA Size |           |           |           |
|------------------------------|-----------|-----------|-----------|-----------|
|                              | Type UB01 | Type UB02 | Type UB03 | Type UB04 |
| Allen-Bradley 509            | 0, 1      | 2         | 3         | 4         |
| Allen-Bradley 709            | 1         | 2         | 3         | 4         |
| Cutler Hammer Freedom Series | 00, 0, 1  | 2         | 3         | 4         |
| Furnas ESP100                | 0, 1      | 2         | 3         | 4         |
| Furnas INNOVA                | 0, 1      | 2         | 3         | 4         |
| General Electric CR306       | 00, 0, 1  | 2         | 3         | 4         |

**Table 35: Melting Alloy Overload Relay Jumper Strap Kits**

Jumper strap kits are for use on three-phase manual or magnetic starters with melting alloy overload relays only, where a three-phase starter is used to control a single-phase motor. These kits include two jumper straps, a wiring diagram showing how to wire a three-phase starter to control a single-phase motor, and single-phase (one thermal unit) selection tables.



**Melting Alloy Overload  
Relay Jumper Strap Kits**

| Class | For Starter                            |                                        | Class 9998<br>Kit Type Number |
|-------|----------------------------------------|----------------------------------------|-------------------------------|
|       | Size                                   | Type                                   |                               |
| All   | 00, 0, 1, 2, 5 (Series B), and M0 & M1 | SA, SB, SC, SD, SG, and M & T (Manual) | SO31                          |
|       | 3, 4                                   | SE, SF                                 | SO32                          |
|       | 5 (Series A)                           | SG                                     | None Available                |

**Table 36: How to Order**

| To Order, Specify | Catalog Number |      |
|-------------------|----------------|------|
| • Class Number    | Class          | Type |
| • Type Number     | 9998           | UB02 |

### Cover-Mounted Control Units

With the Class 9999 cover-mounted control unit kits, you can field install push buttons, selector switches, and pilot lights into the enclosure cover of a NEMA 1, 3R, 4, or 12 Type S contactor or starter. Knockouts or removable closing plates are furnished with many enclosure covers for convenient field installation of control units. Kits include leads and clearly illustrated instructions. The Class 9999 cover-mounted control unit kits are identical to the factory-installed units.

**NOTE:** No field modification kits are available for the polyester enclosures.

**Table 37: Cover-Mounted Control Unit Selection (6–600 V, 50–60 Hz), Class 9999**

| For Use With                        |                          |                                  |                      | NEMA 1 Kit<br>Class 8538, 8539, or 8903<br>Pre-Series K |                      |                    |                     |                       |                     | NEMA 1 and 12/3R Kit<br>Class 8538, 8539, or 8903<br>Series K and Later <sup>[1]</sup>                          |                             |                       | NEMA 4/4X Kit<br>(Stainless) <sup>[1]</sup>                                                                     |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|-------------------------------------|--------------------------|----------------------------------|----------------------|---------------------------------------------------------|----------------------|--------------------|---------------------|-----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------|--------------------|-----|-----------------------------------------------------------------------------------------------------------------|------|-----|-----------------------------------------------------------------------------------------------------------------|--------------------|-----|-----------------------------------------------------------------------------------------------------------------|------|-----|
| Class                               | Type                     | NEMA<br>Size or<br>Rating<br>(A) | No. of<br>Poles      | Red or Green Pilot Light <sup>[2]</sup>                 |                      | Push Button        |                     | Selector Switch       |                     | Red or Green<br>Pilot Light                                                                                     | Push<br>Button              | Selector<br>Switch    | Red or Green<br>Pilot Light                                                                                     | Push<br>Button              | Selector<br>Switch    |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     |                          |                                  |                      | With Control<br>Transformer<br>(Form F4T)               | Standard             | Start-<br>Stop     | On-<br>Off          | Hand-<br>Off-<br>Auto | On-<br>Off          | 120 V<br>60 Hz                                                                                                  | Start-<br>Stop or<br>On-Off | Hand-<br>Off-<br>Auto | 120 V<br>60 Hz                                                                                                  | Start-<br>Stop or<br>On-Off | Hand-<br>Off-<br>Auto |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     |                          |                                  |                      | Type                                                    | Type                 | Type               | Type                | Type                  | Type                | Type                                                                                                            | Type                        | Type                  | Type                                                                                                            | Type                        | Type                  |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
| 8502<br>8536                        | SA, SB,<br>SC            | 00, 0, 1,<br>1P                  | All                  | SP28R <sup>[3]</sup>                                    | SP2R                 | SA2                | SA10                | SC2                   | SC22                | SP28R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL28R<br>(LED–Red)<br><br>SPL28G<br>(LED–Green) | SA3 <sup>[5]</sup>          | SC8                   | SP29R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL29R<br>(LED–Red)<br><br>SPL29G<br>(LED–Green) | SA13                        | SC9                   |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SD                       | 2                                | All                  | SP28R <sup>[3]</sup>                                    | SP3R                 |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SE                       | 3                                | 2–3                  | SP28R <sup>[3]</sup>                                    | SP4R                 |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     |                          |                                  | 4–5                  | SP28R <sup>[3]</sup>                                    | SP5R                 |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SF                       | 4                                | All                  | SP28R <sup>[3]</sup>                                    | SP28R <sup>[3]</sup> | SA3                | SA3                 | SC8                   | —                   |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
| SG–SJ                               | 5–7                      | All                              | SP28R <sup>[3]</sup> | SP28R <sup>[3]</sup>                                    | SA3                  | SA3                | SC8                 | —                     |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
| 8538<br>8539<br>8702<br>8736        | SB, SC                   | 0, 1                             | All                  | SP12R                                                   | SP12R                | SA2                | SA10                | SC2                   | SC22                |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       | SP28R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL28R<br>(LED–Red)<br><br>SPL28G<br>(LED–Green) | SA3 <sup>[5]</sup> | SC8 | SP29R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL29R<br>(LED–Red)<br><br>SPL29G<br>(LED–Green) | SA13 | SC9 |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SD                       | 2                                | All                  | SP13R                                                   | SP13R                |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SE                       | 3                                | All                  | SP14R                                                   | SP14R                |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SF                       | 4                                | All                  | SP15R                                                   | SP15R                |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SG–SJ                    | 5–7                              | All                  | SP28R <sup>[3]</sup>                                    | SP28R <sup>[3]</sup> | SA3                | SA3                 | SC8                   | —                   |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
| 8903<br>(Elec-<br>trically<br>Held) | L                        | 20 A                             | All                  | SP28R <sup>[3]</sup>                                    | —                    | —                  | SA10 <sup>[4]</sup> | —                     | SC22 <sup>[4]</sup> |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     | SP28R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL28R<br>(LED–Red)<br><br>SPL28G<br>(LED–Green) | SA3 <sup>[5]</sup> | SC8 | SP29R <sup>[2]</sup> , <sup>[3]</sup><br>(incandescent)<br><br>SPL29R<br>(LED–Red)<br><br>SPL29G<br>(LED–Green) | SA13 | SC9 |
|                                     | SM                       | 30 A                             | All                  | SP28R <sup>[3]</sup>                                    | SP2R                 | SA2 <sup>[5]</sup> | SA10 <sup>[5]</sup> | SC2                   | SC22                |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SP                       | 60 A                             | All                  | SP28R <sup>[3]</sup>                                    | SP3R                 |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SQ                       | 100 A                            | All                  | SP28R <sup>[3]</sup>                                    | SP28R <sup>[3]</sup> |                    |                     |                       |                     |                                                                                                                 |                             |                       |                                                                                                                 |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |
|                                     | SJ, SV,<br>SX, SY,<br>SZ | 200–800<br>A                     | All                  | SP28R <sup>[3]</sup>                                    | SP28R <sup>[3]</sup> |                    |                     |                       |                     | SA3 <sup>[5]</sup>                                                                                              | SA3 <sup>[5]</sup>          | SC8                   | —                                                                                                               |                             |                       |                                                                                                                 |                    |     |                                                                                                                 |      |     |                                                                                                                 |                    |     |                                                                                                                 |      |     |

[1] User-made openings are required in order to field install these modification kits on standard Class 8502 and 8536 Type S NEMA Size 0–2, and Class 8903 Size 30–60 A, NEMA 4 and 12 enclosures.

[2] Each pilot light kit contains one red and one green lens cap.

[3] The pilot light rating must match the coil voltage. The listed kit contains one 120 Vac, 60 Hz red pilot light control unit, 9001KP1R31. For other voltages, refer to the 9001KP pilot light selection tables in Section 19 of the *Digest*.

[4] To mount a control unit in a NEMA 1 enclosure, a 9999LX bracket is also required.

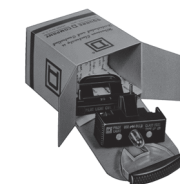
[5] Also requires an N.O. auxiliary contact for the holding circuit contact when used on Class 8903 electrically held lighting contactors.

**Table 38: NEMA 1 Enclosure Closing Plates**

| For Use With                  |                   |                               |                                     | Description                                                        | Type                  |
|-------------------------------|-------------------|-------------------------------|-------------------------------------|--------------------------------------------------------------------|-----------------------|
| Class                         | Type              | Type S Contactor<br>NEMA Size | Lighting Contactor<br>Ampere Rating |                                                                    |                       |
| 8502, 8536, 8903              | SA–SE or<br>SM–SP | 00–3                          | 30–60 A                             | For Pilot Light or Reset—Slip-on Cover, NEMA 1 Enclosure           | SG2                   |
|                               |                   |                               |                                     | For Push Button or Selector Switch—Slip-on Cover, NEMA 1 Enclosure | SG3                   |
| 8538, 8539 pre-Series K       | SB–SF             | 0–4                           | —                                   | For Push Button or Selector Switch—Hinged Cover, NEMA 1 Enclosure  | SG1                   |
|                               |                   |                               |                                     | For Pilot Light—Hinged Cover, NEMA 1 Enclosure                     | SG2                   |
| 8538, 8539 Series J and later | SB–SF             | 0–4                           | —                                   | Push Button or Pilot Light, NEMA Combination Starter               | Class9001<br>Type K51 |
| 8903                          | SM–SV             | —                             | 30–400 A                            | Combination Lighting Contactor                                     |                       |

**Table 39: How to Order**

| To Order, Specify                                                                   | Catalog Number |       |
|-------------------------------------------------------------------------------------|----------------|-------|
| <ul style="list-style-type: none"> <li>Class Number</li> <li>Type Number</li> </ul> | Class          | Type  |
|                                                                                     | 9999           | SP29R |



9999SP2R



9999SA2



9999SC2



9999SA3

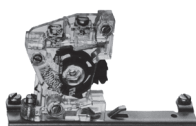
**Auxiliary Contacts for Manual and Magnetic Contactors and Starters**  
**Internal Contacts**



**Internal Auxiliary Contact**

The **Class 9999 Type SX11** internal contact kit is a replacement unit for the N.O. holding circuit contact that comes standard on Type S Size 00–2 three-phase starters and contactors. The **Class 9999 Type SX12** is a replacement unit for the N.C. electrical contact that comes standard on Type S, Size 00–2 mechanically interlocked devices (for example, Class 8736 reversing starters). Internal contacts are also used on Class 2510 Type M and T manual starters. The internal contacts can be used for other applications as long as the electrical rating is not exceeded. See Table 40 for electrical ratings.

**External Contacts**



**External Single-Circuit  
Auxiliary Contact**

The **Class 9999 Type SX6** external auxiliary contact comes standard as the N.O. holding circuit contact on Type S Size 3–7 starters and contactors. Additional auxiliary contacts can be added to Type S contactors, starters, and lighting contactors. These contacts mount on either side of the basic contactor, and are available with convertible or non-convertible contacts. The convertible contacts can be changed from N.O. to N.C. or vice versa in the field. The non-convertible contacts are fixed, either N.O. or N.C.

To determine the number of auxiliary contacts that can be added to each Type S contactor or starter, refer to the Class 8536 (non-reversing starter) or Class 8736 (reversing starter) section of the *Digest*.

See Table 40 for electrical ratings.

**Table 40: Maximum Ratings for Type S Auxiliary Contacts and Timers**

| Class 9999<br>Type No. | Vac     | Contact Ratings                    |        |            | Class 9999<br>Type No. | Vac     | Contact Ratings                    |        |            |
|------------------------|---------|------------------------------------|--------|------------|------------------------|---------|------------------------------------|--------|------------|
|                        |         | AC Only (35% Power Factor)<br>Make | Break  | Continuous |                        |         | AC Only (35% Power Factor)<br>Make | Break  | Continuous |
| SX11, SX12             | ≤120    | 30 A                               | 3 A    | 3 A        | SX6–SX10<br>SX13–SX17  | ≤120    | 60 A                               | 6 A    | 10 A       |
|                        | 120–600 | 3600 VA                            | 360 VA | 3 A        |                        | 120–600 | 7200 VA                            | 720 VA | 10 A       |

**Table 41: Type S Contactors  
and Starters**

| For Use With |           | Kit Description                                                                                                                                                   | Class 9999<br>Type No.                                             |
|--------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Type         | NEMA Size |                                                                                                                                                                   |                                                                    |
| SA–SJ        | 00–7      | External—Field Convertible<br>1 N.O. Contact<br>1 N.C. Contact<br>1 N.O. and 1 N.C. Isolated Contacts<br>1 N.O. Overlapping Contact<br>1 N.C. Overlapping Contact | SX6<br>SX7<br>SX8<br>SX9 <sup>[1]</sup><br>SX10 <sup>[1]</sup>     |
| SA–SJ        | 00–7      | External—Non-Convertible<br>1 N.O. Contact<br>1 N.C. Contact<br>1 N.O. and 1 N.C. Isolated Contacts<br>1 N.O. Overlapping Contact<br>1 N.C. Overlapping Contact   | SX13<br>SX14<br>SX15<br>SX16 <sup>[1]</sup><br>SX17 <sup>[1]</sup> |
| SA–SD        | 00–2      | Internal—Non-Convertible<br>1 N.O. Contact<br>1 N.C. Contact                                                                                                      | SX11 <sup>[2]</sup><br>SX12 <sup>[2]</sup>                         |

<sup>[1]</sup> Types SX9 and SX10 or Types SX16 and SX17 must be used together and mounted on the same side of the contactor. They are suitable for applications where it is necessary for a normally open contact to overlap a normally closed contact.

<sup>[2]</sup> Types SX11 and SX12 are not applicable on NEMA Size 3 or larger. Internal contacts can also be used on Class 2510 Types M and T manual starters.

**Table 42: Class 8965 Reversing/Hoist Contactors—  
Auxiliary Contacts**

| Device To Be Serviced<br>Class 8965<br>Type No. | Auxiliary Contact Kit  |                         |                        |
|-------------------------------------------------|------------------------|-------------------------|------------------------|
|                                                 | Contact<br>Arrangement | Type of<br>Connector    | Class 9999<br>Type No. |
| DPR                                             | 1 N.O.                 | Screw/<br>Quick Connect | D10                    |
|                                                 | 1 N.C.                 |                         | D01                    |
|                                                 | 1 N.O./1 N.C.          |                         | D11                    |
|                                                 | 2 N.O.                 |                         | D20                    |
| RO2 & RG2<br>RO10 Form X1<br>RO11 Form X1       | 1 N.O.<br>each side    | Slip-on                 | R10                    |
| RO3 & RG3<br>RO10 Form X2<br>RO11 Form X2       | 1 N.C.<br>each side    |                         | R11                    |
| RO5 & RG5<br>RO12 Form X1<br>RO13 Form X1       | 1 N.O.<br>each side    | Screw                   | R12                    |
| RO6 & RG6<br>RO12 Form X2<br>RO13 Form X2       | 1 N.C.<br>each side    |                         | R13                    |

**Table 43:  
How to Order**

| To Order,<br>Specify | Catalog<br>Number |      |
|----------------------|-------------------|------|
|                      | Class             | Type |
| • Class Number       | 9999              | R11  |
| • Type Number        |                   |      |

**Table 44: Class 8910 and 8911 Definite Purpose Contactors and Starters—  
Auxiliary Contacts**

| Definite Purpose<br>Device       | Auxiliary Contact Kit, Class 9999 |                                             |                                |
|----------------------------------|-----------------------------------|---------------------------------------------|--------------------------------|
|                                  | Contact<br>Arrangement            | 20–90 A                                     | 20–40 A                        |
|                                  |                                   | Series B, and Series C after date code 1401 | Series C before date code 1401 |
| Contactor<br>Class 8910 Type DPA | 1 N.O.                            | D10                                         | DD10                           |
|                                  | 1 N.C.                            | D01                                         | DD01                           |
| Starter<br>Class 8911 Type DPS   | 1 N.O./1 N.C.                     | D11                                         | DD11                           |
|                                  | 2 N.O.                            | D20                                         | DD20                           |



**Motor Logic™ Solid-State Overload Relay Accessories**

These Class 9999 accessories are for the Class 9065 Motor Logic solid-state overload relay (SSOLR).

**Table 45: Isolated Auxiliary Contacts for Motor Logic Overload Relays**

Overload relay auxiliary contacts are available factory installed or in kit form for field installation on Motor Logic overload relays. These contacts can be used for isolated alarm contact applications.

| For Use With        |               | Parts Kit Description                              | Class 9999 Type Number |
|---------------------|---------------|----------------------------------------------------|------------------------|
| Class and Type      | NEMA Size [1] |                                                    |                        |
| 8536 SA-SJ          | 00B through 7 | N.O. or N.C. Auxiliary Contact (Field Convertible) | AC04                   |
| 9065 SS, SR, SF, ST | 00B through 7 |                                                    |                        |

**Table 46: DIN Adapter**

The DIN adapter mounts the Motor Logic overload relay to a 35 mm DIN rail.

| For Use With   |                    | Parts Kit Description | Class 9999 Type Number |
|----------------|--------------------|-----------------------|------------------------|
| Class and Type | NEMA Size [1]      |                       |                        |
| 9065 SS or SF  | 00B, 00C, 0, and 1 | DIN Adapter           | DA01                   |

**Table 47: Lug-Lug and Lug Extender Kits**

Standard overload relays, Sizes 00B, 00C, 0, and 1 (Class 9065 Type SS and SF), come without lugs.

- A Class 9999 Type LL0 lug-lug kit can be field installed on separately mounted overload relays.
- A Class 9999 Type LB0 lug extender kit is designed for retrofit starter applications. This kit allows the lugs to be in the same location as for the Class 9065 melting alloy overload relay, eliminating the need for additional wire length.

| For Use With   |                    | Parts Kit Description                                           | Class 9999 Type Number |
|----------------|--------------------|-----------------------------------------------------------------|------------------------|
| Class and Type | NEMA Size [1]      |                                                                 |                        |
| 9065 SS or SF  | 00B, 00C, 0, and 1 | Lug-Lug Kit for separate mounting                               | LL0                    |
|                |                    | Lug Extender Kit for retrofitting existing Type S NEMA starters | LB0                    |

**Table 48: Remote Reset Module**

The remote reset module can easily be field installed on SSOLRs. This module allows the overload relay to be reset from a remote location.

| For Use With  |                     | Parts Kit Description                                                                    | Class 9999 Type Number |
|---------------|---------------------|------------------------------------------------------------------------------------------|------------------------|
| NEMA Size [1] | Class and Type      |                                                                                          |                        |
| 00B through 7 | 8536 SA-SJ          | Remote Reset Module (120 Vac power required)                                             | RR04                   |
|               | 9065 SS, SR, SF, ST |                                                                                          |                        |
| 3 and 4       | 8536 SE-SF          | Top Mounting Bracket (to mount the remote reset module on the top of the overload relay) | RB34                   |
|               | 9065 SS, SR, SF, ST |                                                                                          |                        |

[1] Sizes 00B and 00C are not actual NEMA sizes. These designations differentiate the lower FLA of these devices from the NEMA Size 00 Motor Logic SSOLR.

**Table 49: How to Order SSOLR Accessories**

| To Order, Specify | Catalog Number |      |
|-------------------|----------------|------|
| • Class Number    | Class          | Type |
| • Type Number     | 9999           | AC04 |

**Table 50: Power Pole Adders**

One single- or double-circuit power pole kit can be field added to a Size 0–2, basic two- or three-pole Type S contactor or starter, or to a 30–60 A lighting contactors. See the table below for selection. The ratings for these power pole adders correspond to the NEMA contact ratings found in Section 16 of the *Digest*. A two- or three-pole contactor or starter will accept only one single- or double-circuit unit. A power pole cannot be used on four- or five-pole devices or on mechanically interlocked devices.

Adding a power pole to a Size 2 or 60 A device requires a coil change. Select a 4–5 pole coil from the selection tables on page 9, or specify Form Y118 as noted in the footnote below. When adding a Size 0–2 power pole kit to a Size 3–7 or 100–800 A device, an adapter bracket (Class 9999 Type SBT1) is required.

The Class 9999 Types SB6–SB15 power pole kits are suitable for use with copper wire only. Types SB21–25 come with lugs suitable for copper and aluminum wire.

| Power Pole Adder Kit<br>Description       | For Use with Type S NEMA Contactors |      | For Use with Lighting Contactor |           | Power Pole Adder Kit<br>Class 9999 Type No. |
|-------------------------------------------|-------------------------------------|------|---------------------------------|-----------|---------------------------------------------|
|                                           | Type                                | Size | Type                            | Size      |                                             |
| One N.O.<br>power pole adder              | SB, SC                              | 0, 1 | SM                              | 30 A      | SB6                                         |
|                                           | SD                                  | 2    | —                               | —         | SB11 <sup>[1]</sup>                         |
|                                           | —                                   | —    | SP                              | 60 A      | SB21 <sup>[1]</sup>                         |
| One N.C.<br>power pole adder              | SB, SC                              | 0, 1 | SM                              | 30 A      | SB7                                         |
|                                           | SD                                  | 2    | —                               | —         | SB12 <sup>[1]</sup>                         |
|                                           | —                                   | —    | SP                              | 60 A      | SB22 <sup>[1]</sup>                         |
| One N.O. and one N.C.<br>power pole adder | SB, SC                              | 0, 1 | SM                              | 30 A      | SB8                                         |
|                                           | SD                                  | 2    | —                               | —         | SB13 <sup>[1]</sup>                         |
|                                           | —                                   | —    | SP                              | 60 A      | SB23 <sup>[1]</sup>                         |
| Two N.O.<br>power pole adders             | SB, SC                              | 0, 1 | SM                              | 30 A      | SB9                                         |
|                                           | SD                                  | 2    | —                               | —         | SB14 <sup>[1]</sup>                         |
|                                           | —                                   | —    | SP                              | 60 A      | SB24 <sup>[1]</sup>                         |
| Two N.C.<br>power pole adders             | SB, SC                              | 0, 1 | SM                              | 30        | SB10                                        |
|                                           | SD                                  | 2    | —                               | —         | SB15 <sup>[1]</sup>                         |
|                                           | —                                   | —    | SP                              | 60 A      | SB25 <sup>[1]</sup>                         |
| Adapter bracket                           | SE–SJ                               | 3–7  | SQ–SZ & SJ                      | 100–800 A | SBT1                                        |

<sup>[1]</sup> To order a Size 2 or a 60 A power pole kit complete with a new starter coil, specify Form Y118, the voltage, and the frequency (for example, Class 9999 Type SB11 Form Y118, 120 V, 60 cycles.)

**Table 51: Compression Lugs**

A Class 9999 Type AL hardware kit is required to install Versa-Crimp™ compression lugs on Class 8903 Type S, 100–800 A lighting contactors. The lugs are suitable for both copper and aluminum wire.

One VCEL lug is required for each line or load terminal. Each Class 9999 Type AL hardware kit includes mounting hardware for 3 terminals, line or load side.

Example: To install compression lugs on a 300 A three-pole device, line and load sides, order six VCEL–060–12H1 lugs and two Class 9999 Type AL11 hardware kits.

| For Use With         |                        | Versa-Crimp<br>Catalog Number                                                                                                                 | Wire Range                       | Hardware Kit<br>Class 9999 Type Number |
|----------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------|
| Rating               | Class 8903 Type Number |                                                                                                                                               |                                  |                                        |
| 100 A                | SQ                     | VCEL–021–14S1                                                                                                                                 | 8–1/0 AWG Al/Cu                  | None Required                          |
| 200 A                | SV                     | VCEL–022–516H1                                                                                                                                | 1–2/0 AWG Al/Cu                  | 2-Pole: AL13                           |
|                      |                        | VCEL–024–516H1                                                                                                                                | 2/0–4/0 AWG Al/Cu                | 3-Pole: AL14                           |
|                      |                        | VCEL–030–516H1                                                                                                                                | 4–300 MCM Al/Cu                  | 4-Pole: AL15                           |
| 300 A                | SX                     | VCEL–050–12H1                                                                                                                                 | 2/0–500 MCM Al/Cu                | AL11                                   |
|                      |                        | VCEL–060–12H1                                                                                                                                 | 400–600 MCM Al<br>400–500 MCM Cu |                                        |
|                      |                        | VCEL–075–12H1                                                                                                                                 | 500–750 MCM Al<br>500 MCM Cu     |                                        |
| 400 A<br>or<br>600 A | SY<br>or<br>SZ         | VCEL–060–12H2 [1]                                                                                                                             | 400–600 MCM Al<br>400–50 0MCM Cu | AL12                                   |
|                      |                        | VCEL–075–12H2 [1]                                                                                                                             | 500–750 MCM Al<br>500 MCM Cu     |                                        |
| 800 A                | SJ                     | Available only as a factory modification. Order <b>Form Y1574</b> . Specify wire size up to 750 MCM Al or 500 MCM Cu and number of terminals. |                                  |                                        |

<sup>[1]</sup> One or two lugs may be mounted on each terminal.



**Class 9999 Type SB6  
Single Power Pole Adder**



**Class 9999 Type SB9  
Double Power Pole Adder**



**Class 8903 with  
Compression Lugs  
Installed**

**Table 58: Control Circuit Fuse Holder**

| Description (fuses not included)   | Class 9999, Type No. |
|------------------------------------|----------------------|
| Single-Fuse Unit                   | SF3                  |
| Single-Fuse Unit for Class CC Fuse | SFR3                 |
| Two-Fuse Unit                      | SF4                  |
| Two-Fuse Unit for Class CC Fuses   | SFR4                 |

**Table 59: Transient Suppression Module**

| Description    | Class 9999 Type Number |
|----------------|------------------------|
| For Sizes 00–2 | ST1                    |
| For Sizes 3–5  | ST2                    |

**Table 61: Isolated Alarm Contacts for Melting Alloy Overload Relays**

| NEMA Size           | Magnetic Starter Type | Description                                                     | Class 9999 Parts Kit Type No. |
|---------------------|-----------------------|-----------------------------------------------------------------|-------------------------------|
|                     |                       |                                                                 |                               |
| 00–6 <sup>[1]</sup> | SA–SH                 | N.O. Isolated Alarm Contact Plus Standard N.C. Overload Contact | SO4                           |
|                     |                       | N.C. Isolated Alarm Contact Plus Standard N.C. Overload Contact | SO5                           |

<sup>[1]</sup> Isolated alarm contacts cannot be added in the field to the Type SG, Size 5, series A starter. Current transformers and a Size 1 overload block must be used. For factory installation specify **Form Y342**.

**Table 62: Tie Point Terminal Block**

| NEMA Size | Magnetic Contactor or Starter Type | Class 9999 Type Number |
|-----------|------------------------------------|------------------------|
|           |                                    |                        |
| 00–4      | SA–SF                              | T7                     |

**Table 63: Solid Neutral**

| Number of Lugs | Wire Capacity Per Lug (Cu/Al)                   | Class 9999 Type Number |
|----------------|-------------------------------------------------|------------------------|
| 4              | 14 AWG – 2/0 AWG                                | SN1                    |
| 3              | (1) 4 AWG – 600 MCM or<br>(2) 1/0 AWG – 250 MCM | SN2                    |
| 3 (Dual)       | (2) 2 AWG – 600 MCM                             | SN3                    |
| 2 (Dual)       | (2) 6 AWG – 350 MCM                             | SN4                    |

The **control circuit fuse holder** is for use on Type S contactors and starters, Sizes 00–7, when one or two control circuit fuses ≤600 V are required. The Type **SF3** and **SF4** fuse holders accept standard 600 V Bussmann® Type KTK or equivalent fuses (13/32 x 1-1/2"), 6 A maximum. The **SFR3** and **SFR4** accept Class CC 600 V Bussmann Type KTK–R or equivalent fuses only.

The **transient suppression module** is for use where the transient voltage (generated when opening the coil circuit) interferes with the proper operation of nearby integrated or solid-state control circuits. The module consists of an RC circuit and is designed to suppress the coil voltage transients to approximately 200% of peak coil supply voltage. The module is wired across the coil for Type S devices, Sizes 00–5, and is designed for coil voltages of 120 V only.

**Isolated overload relay alarm contacts** are available factory installed or in kit form for field installation in Type S, NEMA Size 00–6 <sup>[1]</sup> starters and Class 9065 Types M and S melting alloy overload relays.

The Type S, NEMA Size 7 device uses a solid-state overload relay, which has isolated alarm contacts as a standard feature. The alarm contacts allow the starter to be used in applications that require isolated contacts, such as inputs to a computer.

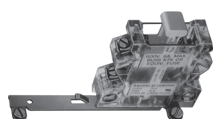
Class 9999 Types SO4 and SO5 modules are interchangeable with the standard module (Class 9998 Type SO1) and may be installed on starters already in service. The case is made of clear plastic (polycarbonate) to allow for visual inspection of contacts.

The **tie point terminal block** provides easy wiring of a Hand-Off-Auto selector switch or Start-Stop push buttons with separate control. The T7 terminal block requires no panel space. It simply snaps on Type S, Size 00–4 contactors and starters by two tabs, and is secured to the left hand coil terminal.

**Solid neutral**—The Class 9999 Type SN kit can be used on Class 8903 Type S lighting contactors and other controllers where field addition of a solid neutral is required. Each kit has lugs suitable for both copper and aluminum wire. The kit mounts with two screws.

**Table 64: How to Order**

| To Order, Specify | Catalog Number |      |
|-------------------|----------------|------|
|                   | Class          | Type |
| • Class Number    | 9999           | ST2  |
| • Type Number     |                |      |



Fuse Kit  
Class 9999 Type SF4



Class 9999 Type ST1  
Transient Suppression Module



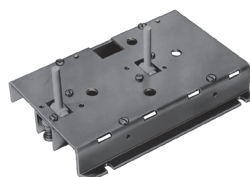
Tie Point Terminal Block



Isolated Alarm Contact  
Type SO4

## Mechanical Interlock

**General:** Type S contactors or starters can be mechanically interlocked so that only one device is energized at a time. The mechanical interlock is an interference (non-jamming) type, locking at the beginning of the stroke of any starter or contactor.



Type SM1

**Type S Sizes 00–2:** The mechanical interlock is mounted on the underside of the reversing baseplate. Two pins extend from the mechanical interlock through openings in the baseplate and engage the contact carrier of each contactor. Two styles of mechanical interlocks are used: one version for three-pole contactors, and another version for four- or five-pole contactors.

**NOTE:** When adding a power pole to the left-hand side of an existing Size 0–2 three-pole reversing contactor, a new mechanical interlock must also be installed. When added to the right-hand side only, the power pole will not be mechanically interlocked with the left-hand contactor.

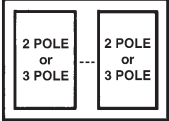
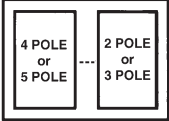
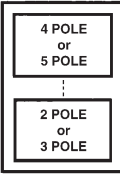
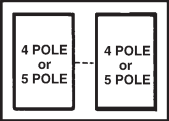
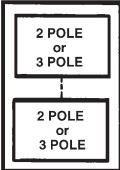
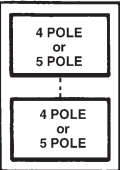
**Type S Sizes 3–4:** The mechanical interlock is separate from the mounting pan on Sizes 3–4. Cams on the mechanical interlocks are operated by the contact carrier of each contactor. The mechanical interlock is attached to the underside of the two contactor baseplates on Sizes 3–4.

**Table 65: Mechanical Interlock for Two Contactors**

The following mechanical interlock kits can be used to interlock 2–5 pole contactors. Mechanical interlocks for horizontal and vertical arrangement are listed in various pole arrangements.



Type SM12

| Mechanical Interlock Arrangements                                                                                                                                                      |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | Contactor<br>NEMA Size | Kit, Class 9999<br>Type Number |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|
|  <p>Horizontal<br/>Type SM1 for Size 00–1<br/>Type SM6 for Size 2<br/>Type SM12 for Sizes 3–4</p>    |  <p>Horizontal<br/>Type SM2 <sup>[1]</sup> for Size 0 or 1<br/>Type SM7 for Size 2<br/>Type SM12 for Sizes 3–4</p>       |  <p>Vertical<br/>Type SM2 <sup>[1]</sup> for Size 0 or 1<br/>Type SM10 for Size 2<br/>Type SM11 for Size 3<br/>Type SM13 for Size 4</p> | 00, 0, 1               | SM1                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 0, 1                   | SM2                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 0, 1                   | SM3                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 0, 1                   | SM4                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 0, 1                   | SM5                            |
|  <p>Horizontal<br/>Type SM3 for Size 0 or 1<br/>Type SM8 for Size 2<br/>Type SM12 for Sizes 3–4</p> |  <p>Vertical<br/>Type SM4 for Size 0 or 1<br/>Type SM9 for Size 2<br/>Type SM11 for Size 3<br/>Type SM13 for Size 4</p> |  <p>Vertical<br/>Type SM5 for Size 0 or 1<br/>Type SM11 for Size 3<br/>Type SM13 for Size 4</p>                                        | 2                      | SM6                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 2                      | SM7                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 2                      | SM8                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 2                      | SM9                            |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 2                      | SM10                           |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 3                      | SM11                           |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 3, 4                   | SM12                           |
|                                                                                                                                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                             | 4                      | SM13                           |

<sup>[1]</sup> The Type SM2 interlock is factory assembled for horizontal mounting but can easily be converted to vertical mounting. Conversion instructions are included.

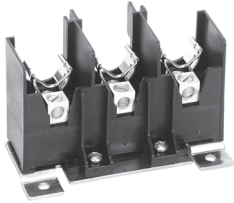
**Table 66: Overload Relay Mounting Bracket**

Mechanical interlocks, Types SM1–SM10 for Sizes 00–2 devices, use overload relay mounting brackets to support the overload relay portion of the starter.



Overload Relay  
Mounting Bracket

| Kit Description                                                                                              | Class 9999 Type Number |
|--------------------------------------------------------------------------------------------------------------|------------------------|
| Bracket for one overload relay used with horizontal mechanical interlocks, Types SM1–SM10                    | SO11                   |
| Bracket for two overload relays used with vertical mechanical interlocks, Types SM2, SM4, SM5, SM9, and SM10 | SO12                   |



**Class 9422 Type TC33  
Fuse Block**

## Fuse Clip Kits

**Table 67: Class 9422 Replacement Fuse Clip Kits**

A Class 9422 fuse clip kit can convert the following non-fusible devices to fusible: Sizes 0–2, Type S combination starters, Class 8538 (Series D and newer) and Class 8738 (Series E and newer); and 30–60 A lighting contactors, Class 8903 (Series C and newer). Both fusible and non-fusible combination devices have the same size enclosure in NEMA 1, 4, and 12 construction, which permits this conversion. The 9422 fuse clip kits contain line and load fuse clips, load base, and fuse pullers.

| For Use On                     |                                  | Disconnect Rating (A) | NEMA Class H, K, J, R Fuses |            | NEMA Class R Fuses               |        |
|--------------------------------|----------------------------------|-----------------------|-----------------------------|------------|----------------------------------|--------|
| Type S NEMA Combo Starter Size | Lighting Contactor Ampere Rating |                       | Fuse Clip Ratings (A)       |            | Rejection Kit Catalog Number [1] |        |
|                                |                                  |                       | 250 V Max.                  | 600 V Max. |                                  |        |
| 0, 1                           | 30 A                             | 30                    | 0–30                        | —          | 9422TC30 [2]                     | RFK03  |
|                                |                                  |                       | 31–60                       | 0–30       | 9422TC33 [2]                     | RFK06  |
| 2                              | 60 A                             | 60                    | 31–60                       | 0–30       | 9422TC33                         | RFK06  |
|                                |                                  |                       | —                           | 31–60      | 9422TD63                         | RFK06H |

[1] This is the full catalog number. No Class Number is required.

[2] When using the kit with a 9422 FTCN or FTCF disconnect switch in Class 8538 or 8738 combination starters, remove and discard the metal base plate.

**Table 68:  
How to Order**

| Specify | Catalog Number |      |
|---------|----------------|------|
| • Class | Class          | Type |
| • Type  | 9999           | R6   |

**Table 69: Class 9999 Replacement Fuse Clip Kits (8538 Pre-Series D, 8738 Pre-Series E)**

| For Use On      |                       | Disconnect<br>Rating (A) | NEMA Class H Fuses    |            |                   | NEMA Class R Fuses    |            |                    | NEMA Class J Fuses                     |      |
|-----------------|-----------------------|--------------------------|-----------------------|------------|-------------------|-----------------------|------------|--------------------|----------------------------------------|------|
| Type S<br>Combo | Lighting<br>Contactor |                          | Fuse Clip Ratings (A) |            | Type              | Fuse Clip Ratings (A) |            | Type               | Fuse Clip<br>Ratings (A)<br>600 V Max. | Type |
| NEMA Size       | Rating (A)            |                          | 250 V Max.            | 600 V Max. |                   | 250 V Max.            | 600 V Max. |                    |                                        |      |
| 0, 1            | 30 A                  | 30                       | 0–30                  | —          | S1                | 0–30                  | —          | SR1                | —                                      | —    |
|                 |                       |                          | —                     | 0–30       | S2                | —                     | 0–30       | SR2                | 0–30                                   | SJ2  |
|                 |                       |                          | 31–60                 | 0–30       | S2                | 31–60                 | 0–30       | SR2                | 0–30                                   | SJ2  |
| 2               | 60 A                  | 60                       | 31–60                 | 0–30       | S2                | 31–60                 | 0–30       | SR2                | 0–30                                   | SJ2  |
|                 |                       |                          | —                     | 31–60      | S3                | —                     | 31–60      | SR3                | 31–60                                  | SJ3  |
| 3               | 100 A                 | 100                      | 61–100                | 61–100     | S4 <sup>[1]</sup> | 61–100                | 61–100     | SR4 <sup>[2]</sup> | 61–100                                 | SJ4  |
|                 |                       |                          | 101–200               | —          | S5 <sup>[1]</sup> | 101–200               | —          | SR4 <sup>[2]</sup> | —                                      | —    |
| 4               | 200 A                 | 200                      | 101–200               | 101–200    | S5 <sup>[1]</sup> | 101–200               | 101–200    | SR4 <sup>[2]</sup> | —                                      | —    |
| 5               | 300 A                 | 400                      | —                     | —          | —                 | 201–400               | 201–400    | SR5 <sup>[2]</sup> | —                                      | —    |
| 6               | 400, 600 A            | 600                      | —                     | —          | —                 | 401–600               | 401–600    | SR5 <sup>[2]</sup> | —                                      | —    |

[1] Cannot be used in Series B or newer 8538 devices.

[2] Fuse clips are not included in the Type SR4 and SR5 kits. On new installations, Class 9999 Type S fuse clips must also be purchased. Three non-removable pins are included and can be installed only in the latest production devices, which have a hole in the lower fuse clips.

**Table 70: Class 9999 Auxiliary Contact Kits for Disconnect Switches and Circuit Breakers**

| For Use On                                  |                                       | Kit, Class 9999 Type |      |
|---------------------------------------------|---------------------------------------|----------------------|------|
| Class                                       | Type                                  | SPDT                 | DPDT |
| 8538, 8738                                  | SB, SC (Series C)                     | R45                  | R46  |
| 8539, 8739                                  | SB, SC, SD, SE, SF, SG                | R26                  | R27  |
| 8538                                        | SBA, SCA, SBG, SCG (Series K)         | TC11                 | TC21 |
| 8738                                        | SBA, SCA, SBG, SCG (Series K)         | TC10                 | TC20 |
| 8538                                        | SB [1], SC [1], SD [1] (Series B)     | R6                   | R7   |
| 8538                                        | SBAS8, SCAS8, SBGS8, SCGS8 (Series K) | TC10                 | TC20 |
| 8538, 8738                                  | SD (Series C)                         | R43                  | R44  |
| 8538                                        | SDA, SDA [1], SDG, SDG [1] (Series K) | TC10                 | TC20 |
| 8738                                        | SDA, SDG (Series K)                   | TC10                 | TC20 |
| 8538, 8738                                  | SE (Series B and C)                   | R41                  | R42  |
| 8538, 8738                                  | SE, SF (Series A)                     | R8                   | R9   |
| 8538, 8738                                  | SF (Series B and C)                   | R39                  | R40  |
| 8538, 8738                                  | SG                                    | R35                  | R36  |
| <b>Disconnect Switches</b>                  |                                       |                      |      |
| 9422                                        | BTCF, BTCN, BTDF, BTEF, BTEN          | TC11                 | TC21 |
| 9422                                        | TCF, TCN, TDF, TDN, TEF, TEN          | TC10                 | TC11 |
| 9422                                        | TF                                    | R8                   | R9   |
| <b>Circuit Breaker Operating Mechanisms</b> |                                       |                      |      |
| 9421                                        | LF, LK, LL, LM, LN, LP, LR, LT, LW    | R47                  | R48  |
| 9422                                        | RM, RN, RP, RQ, RR, RT                | R26                  | R27  |
| 9422                                        | CFA, CKA, CLA, CSF, CMP               | R26                  | R27  |

[1] Class 8538 Type numbers ending in suffix S8.

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