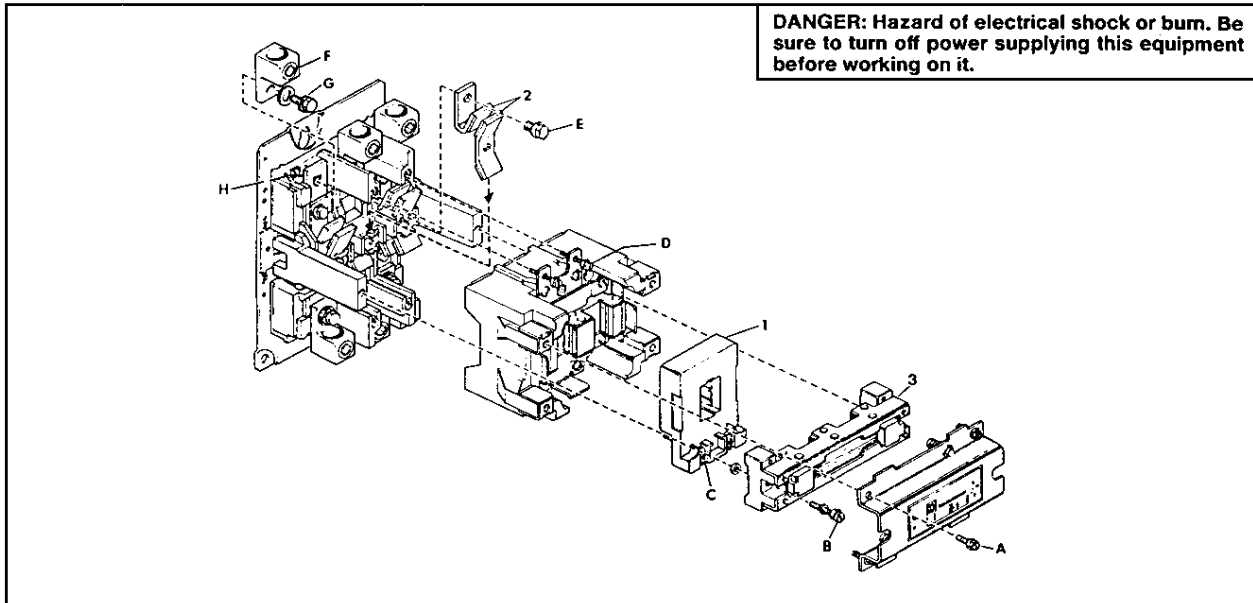




Class 8903 — 2 and 3 Pole — 300 Amp Electrically Held AC Magnetic Lighting Contactors, Type SX, Series A



ELECTRICAL INTERLOCKS — N.O. or N.C. interlocks can be field installed. Refer to Square D Catalog, Class 9999 section, for selection and application information.

COVER MOUNTED CONTROL UNITS — The NEMA 1 General Purpose Enclosure is supplied with three punched holes with closing plates for field addition of Class 9001 Type K oiltight control units. The following are the parts needed to add control units in the field.

| Kit | Class & Type | Quantity Needed | Description |
|-------------------------------|---|-----------------|------------------------------|
| On-Off Pushbutton | 9001 KR-1B | 1 | On Operator |
| | 9001 KR-1R | 1 | Off Operator |
| | 9001 KN-203 | 1 | "On" Legend Plate |
| | 9001 KN-204 | 1 | "Off" Legend Plate |
| | 9001 KA-1 | 2 | Contact Block |
| Hand-Off-Auto Selector Switch | 9001 KS-43B | 1 | Selector Switch Operator |
| | 9001 KN-260 | 1 | "Hand-Off-Auto" Legend Plate |
| | 9001 KA-1 | 1 | Contact Block |
| Pilot Light | Select correct Class 9001 Type KP Unit. | | |

TERMINALS — Power terminals on standard contactors manufactured after February 1, 1978 are suitable for use with either copper or aluminum conductors. The lugs on these terminals can be identified by their aluminum appearance and by the CU-AL marking on them. LUGS ON CONTACTORS MANUFACTURED BEFORE FEBRUARY 1, 1978 ARE SUITABLE FOR COPPER CONDUCTORS ONLY.

CONTACTS — Are not harmed by discoloration and slight pitting. DO NOT FILE THEM as dressing wastes contact material. Replacement is necessary only when the contact has worn thin.

REPLACEMENT CONTACTS — Replacement contacts for lighting contactors are available as kits. Order from Parts List.

CONTACT INSPECTION — It is unnecessary to remove any wiring to inspect contacts. Simply loosen the two screws (Item B) holding the armature to the movable contact carrier and loosen the four screws (Item D) holding the contact actuator to the contact block. Lift the contact actuator to expose the contacts.

To insure proper alignment of the contact actuator when the device is reassembled, it is recommended that the four screws (Item D) holding the contact actuator to the contact carrier be tightened in sequence. As you face the lighting contactor with it mounted in the normal vertical position, the tightening sequence is lower left, upper left, upper right and lower right. Follow recommended driving torques when assembling device. After device has been assembled, manually operate it while the disconnect switch is open to insure all parts are functioning properly.

TIMER ATTACHMENT — A mechanically operated pneumatic timer is available for field addition. Refer to Square D Catalog, Class 9999 section, for selection and application information.

MANUAL OPERATION — Manual operation of contactors may be accomplished by pushing the contact carrier down with a screwdriver. There is a step on the outside of the contact carrier that is suitable for this use. **DANGER** — Do not operate manually unless contactor is isolated from the line.

COIL REPLACEMENT — To remove the coil (Item 1) loosen the two captive cover screws (Item A). Disconnect wires from the coil terminals and remove the cover. Loosen the two screws (Item B) holding the magnet (Item 3) in place. Remove the coil and magnet assembly. Separate the coil from the magnet assembly.

To replace the coil, first assemble the magnet, coil, and armature and insert as a unit. Approximately $\frac{3}{8}$ of an inch space should exist between the top outside surface of the coil and inside surface of the magnet. If this space does not exist and magnet tends to be loose and not quite in place, grasp the coil firmly and slide it down toward the armature. Magnet will then fall in place.

Before installing the cover, manually operate (See Manual Operation, page 1) the device to insure that all parts are functioning properly. Follow recommended tightening torques in reassembly of device.

Supersedes 335A5 dated November, 1975

FEBRUARY, 1979
(Minor Revision 1/86)

PERFORM U.S.A. CPC

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ASSEMBLY INSTRUCTIONS — Factory recommended torques for mechanical, electrical and pressure wire connections are listed in the Recommended Driving Torque Table. These must be followed to insure proper functioning of the device, and can be found on the Instruction Sheet.

DISTANT CONTROL OF ELECTRICALLY HELD LIGHTING CONTACTORS — To assure proper contactor operation, series impedance and shunt capacitance of the control circuit must be considered. The table at right is based on both series impedance and shunt capacitance, whichever is the limiting factor, and lists the maximum length allowed for control-circuit wiring. If distances to ON or OFF stations are longer than those listed, the wire-run configuration and materials must be analyzed. Consult your local Square D field office for additional information.

| Coil Voltage (60 Hz) | Maximum Control Distance (in feet)* | | |
|----------------------|-------------------------------------|-----------------|-----------------|
| | #16 Copper Wire | #14 Copper Wire | #12 Copper Wire |
| 120 | 85 | 130 | 200 |
| 208 | 260 | 400 | 605 |
| 240 | 345 | 530 | 810 |
| 277 | 460 | 710 | 1000 |
| 480 | 1300 | 2100 | 2200 |

* These distances are for 2 wire control. For 3 wire control, maximum distances may be shorter. Consult your local Square D field office.

SHORT CIRCUIT PROTECTION — Branch circuit overcurrent protection must be provided for each contactor in accordance with the National Electrical Code. Branch-circuit protective device rating must not exceed 300 amperes.

ORDERING INSTRUCTIONS — Specify quantity, part number and description of part, giving complete nameplate data of the device. For example: One contact kit Class 9998 Type SL-11 for Class 8903 Type SXO-2, Series A Lighting Contactor.

| PARTS LIST | | | | |
|------------|---|-----------------------|----------|--------|
| Item | Description | Part Number | Quantity | |
| | | | 2 Pole | 3 Pole |
| 1 | Coil | See Table Below | 1 | 1 |
| 2 | Contact Kit | Class 9998: | ... | ... |
| | | Type SL-10 | 1 | ... |
| | | Type SL-11 | ... | 1 |
| F | Lug (For Aluminum and Copper Wire) | 30016-064-01 | 4 | 6 |
| G | Lug-Mounting Hardware (For Al-Cu Lugs) | | | |
| | W 1/2 | 23606-00282 | 4 | 6 |
| | W 1/2 Belleville | 23903-33204 | 4 | 6 |
| | S 1/2-13 x 1 | 21401-28320 | 4 | 6 |
| † | Lug and Hardware Kit (For Copper Wire Only) | Class 9999 Type SCU-6 | 2 | 3 |

† Not Shown

| MAGNET COILS® | | | | | | | | | | | | |
|---------------|-------|---------------------|-----------|-----------|--------------|-----------|-----------|-----------|--------------|-----------|--------------|-----------|
| Coil Prefix | Hertz | Coil Suffix Numbers | | | | | | | | | | |
| | | 110 Volts | 120 Volts | 208 Volts | 220 Volts | 240 Volts | 277 Volts | 380 Volts | 440 Volts | 480 Volts | 550 Volts | 600 Volts |
| Δ31096-400- | 60 | Use 120 Volt | 09 | 15 | Use 240 Volt | 18 | 19 | 21 | Use 480 Volt | 24 | Use 600 Volt | 29 |
| | 50 | 09 | 10 | ... | 18 | ... | ... | 22 | 24 | ... | 29 | 30 |

® When ordering replacement coils, give part number, voltage, and frequency of coil being replaced.

Δ Complete part number of coil consists of the prefix followed by the suffix. (Example: order a 120 volt, 60 hertz coil, part number 31096-400-09.)