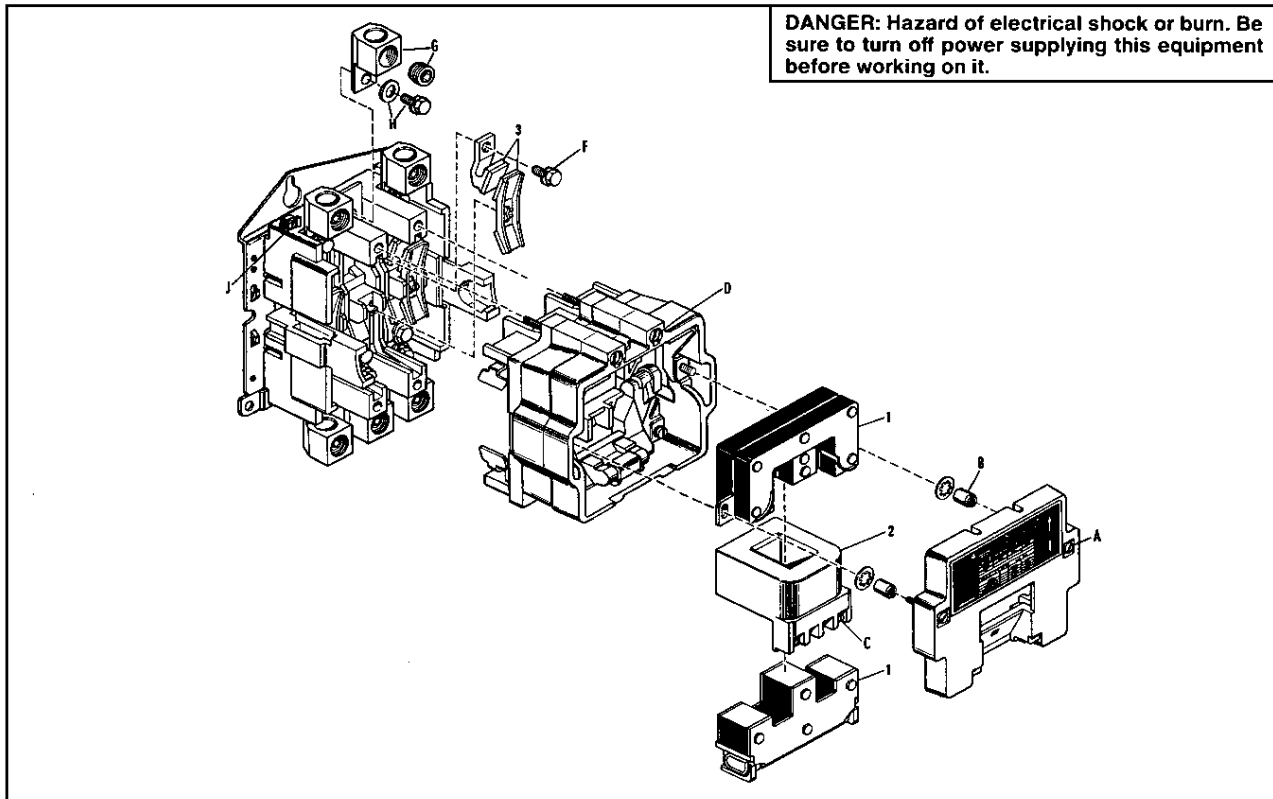




Class 8903 — 200 Amp — 2, 3 and 4 Pole AC Electrically Held Magnetic Lighting Contactors — Type SV, Series B



ELECTRICAL INTERLOCKS — N.O. or N.C. interlocks can be field installed. Refer to Parts List for Class and Type numbers. For application, see Service Bulletin 287AS or the Square D Company Catalog.

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
Hand-Off-Auto Selector Switch	9001 KA-1	2	Contact Block
	9001 KS-43B	1	Selector Switch Operator
	9001 KN-260	1	"Hand-Off-Auto" Legend Plate
Pilot Light	9001 KA-1	1	Contact Block
	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.

CONTACT INSPECTION — It is unnecessary to remove any wiring to inspect contacts. Merely loosen the four screws (Item D) holding the contact actuator to the contact block. Lift the contact actuator to expose the contacts.

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

TIMER ATTACHMENT — A mechanically operated pneumatic timer is available for field addition. Refer to Parts List for Class and Type numbers. For application information see Square D Company Catalog.

MANUAL OPERATION — Manual operation of lighting 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 starter is isolated from the line.

COIL REPLACEMENT — To remove the coil loosen the two captive cover screws (Item A). Disconnect wires from the coil terminals and remove the cover. Loosen the two nuts (Item B) that hold the magnet in place. Remove the coil and magnet. Manually operate the contact carrier and remove the armature. Separate the coil from the magnet.

To replace the coil, first assemble the magnet, coil and armature. Manually operate the contact carrier and insert the complete unit. When installing the nuts (Item B) and lockwashers that hold the magnet in place make sure the magnet is pressed firmly

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

ASSEMBLY INSTRUCTIONS — Factory recommended torque 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 in the Instruction Sheets.

SHORT CIRCUIT PROTECTION — Branch-circuit overcurrent protection must be provided for each contactor in accordance with the National Electrical Code.

Branch-circuit protection device rating must not exceed 200 amperes.

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 below 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	145	230	355
208	445	695	1000
240	595	925	1400
277	795	1200	1900
480	990	890	740

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

ORDERING INSTRUCTIONS — Specify quantity, part number or class and type, and description of part, giving complete nameplate data of device. For example, one armature and magnet kit 31091-514-50 for Class 8903, Type SVO-2, Series A lighting contactor.

PARTS LIST					
Item	Description	Part Number	Quantity		
			2 Pole	3 Pole	4 Pole
1	Armature and Magnet Kit	31091-514-50	1	1	1
2	Coil	See Table Below	1	1	1
3	Contact Kit	Class 9998-	1	1	1
	Type SL-15		1		2
	Type SL-16			1	
†	Timer Attachment	Class 9999-			
	On Delay	Type SK-4	...	...	...
	Off Delay	Type SK-3	...	...	...
†	Electrical Interlock	Class 9999-			
	One Normally Open	Type SX-6	...	...	...
	One Normally Closed	Type SX-7	...	...	...
	One Normally Open and One Normally Closed	Type SX-8	...	...	...
	One Normally Open, Overlapping	Type SX-9	...	...	...
	One Normally Closed, Overlapping	Type SX-10	...	...	...
G	Lug (For Aluminum and Copper Wire)	25065-04603	4	6	8
H	Lug Mounting Hardware (For Al-Cu Lugs)				
	W 5/16	23601-00222	4	6	8
	W 5/16 Belleville	23903-32002	4	6	8
	S 5/16-18 x 3/4	21401-22240	4	6	8
†	Lug and Hardware Kit (For copper wire only)	Class 9999 Type SCU-5	2	3	4

† Not shown.

MAGNET COILS®																
Coil Prefix	Hertz	Coil Suffix														
		24 Volts	110 Volts	115 Volts	120 Volts	208 Volts	220 Volts	230 Volts	240 Volts	277 Volts	380 Volts	440 Volts	460 Volts	480 Volts	550 Volts	600 Volts
*31091-400	60	16	Use 120 Volt	Use 120 Volt	38	44	Use 240 Volt	Use 240 Volt	47	49	...	Use 480 Volt	Use 480 Volt	57	Use 600 Volt	60
	50	17	38	...	39	...	47	...	48	...	54	57	...	58	60	61

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

* Complete part number of coil consists of the prefix followed by the suffix. (Example: order a 120 Volt, 60 hertz coil or part number 31091-400-38.)