

# Overload Relay Heater Tables

## Selection of Heater Elements for Overload Relays

General

**Use only when motor full load current is not known.** Motor amps will vary depending on the type and manufacturer of the motor. These average values, for motors with service factor of 1.15, are to be used only as a guide. The formulas at the bottom of the page may be used to obtain approximate amps for other motors.

**Note:** RPM shown for 60 cycle motors. For 50 cycle motors, multiply RPM by .83.

**CAUTION:** Actual motor amps may be higher or lower than the values listed below for a particular motor. For more reliable motor protection, select heater elements by using the full load motor nameplate amps.

**Single Phase** motor full load amps of the same horsepower, voltage and speed vary over wide ranges. The following table conforms with table 430.148 of the NEC.

### 1-Phase

Hp	Full Load Current (60Hz)	
	115 Volts	230 Volts
1/8	4.4	2.2
1/4	5.8	2.9
1/2	7.2	3.6
3/4	9.8	4.9
1	13.8	6.9
1 1/2	16	8
2	20	10
3	24	12
5	34	17
7 1/2	56	28
10	80	40
15	100	50

### 3-Phase

Hp	Syn Speed RPM	Full Load Current (60Hz)				50 Hz
		200 Volts	230 Volts	460 Volts	575 Volts	380 Volts
1/4	1800	1.09	0.95	0.48	0.38	0.55
	1200	1.61	1.40	0.70	0.56	0.81
	900	1.84	1.60	0.80	0.64	0.93
1/2	1800	1.37	1.19	0.60	0.48	0.64
	1200	1.83	1.59	0.80	0.64	0.92
	900	2.07	1.80	0.90	0.72	1.04
3/4	1800	1.98	1.72	0.86	0.69	0.99
	1200	2.47	2.15	1.08	0.86	1.24
	900	2.74	2.38	1.19	0.95	1.38
1	1800	2.83	2.46	1.23	0.98	1.42
	1200	3.36	2.82	1.46	1.17	—
	900	3.75	3.26	1.63	1.30	1.88
1 1/2	3600	3.22	2.80	1.40	1.12	1.70
	1800	4.09	3.56	1.78	1.42	2.06
	1200	4.32	3.76	1.88	1.50	2.28
2	3600	4.95	4.30	2.15	1.72	2.60
	1800	5.01	4.36	2.18	1.74	2.69
	1200	5.59	4.86	2.43	1.94	2.94
3	3600	6.07	5.28	2.64	2.11	3.20
	1800	6.44	5.60	2.80	2.24	3.39
	1200	6.44	5.60	2.80	2.24	3.39
4	3600	6.44	5.60	2.80	2.24	3.39
	1800	7.36	6.40	3.20	2.56	3.84
	1200	7.87	6.84	3.42	2.74	4.14
5	3600	9.09	7.90	3.95	3.16	4.77
	1800	9.59	8.34	4.17	3.34	5.02
	1200	10.8	9.40	4.70	3.76	5.70
7 1/2	3600	11.7	10.2	5.12	4.10	6.20
	1800	13.1	11.4	5.70	4.55	6.80
	1200	15.5	13.5	5.76	5.41	8.20
10	3600	16.6	14.4	7.21	5.78	8.74
	1800	18.2	15.8	7.91	6.32	9.59
	1200	18.3	15.9	7.92	6.33	9.60
15	3600	22.4	19.5	9.79	7.81	11.50
	1800	24.7	21.5	10.7	8.55	13.00
	1200	25.1	21.8	10.9	8.70	13.20
20	3600	26.5	23.0	11.5	9.19	13.90
	1800	29.2	25.4	12.7	10.1	15.40
	1200	30.8	25.8	13.4	10.7	16.30
30	3600	32.2	28.0	14.0	11.2	16.90
	1800	35.1	30.5	15.2	12.2	18.50
	1200	41.9	36.4	18.2	14.5	22.00
40	3600	45.1	39.2	19.6	15.7	23.70
	1800	47.6	41.4	20.7	16.5	25.00
	1200	51.2	44.5	22.2	17.8	26.90
50	3600	58.0	50.4	25.2	20.1	30.50
	1800	58.9	51.2	25.6	20.5	31.00
	1200	60.7	52.8	26.4	21.1	31.90
75	3600	63.1	54.9	27.4	21.9	33.20

### 3-Phase

Hp	Syn Speed RPM	Full Load Current (60Hz)				50 Hz
		200 Volts	230 Volts	460 Volts	575 Volts	380 Volts
25	3600	69.9	60.8	30.4	24.3	36.80
	1800	74.5	64.8	32.4	25.9	39.20
	1200	75.4	65.6	32.8	26.2	39.60
	900	77.4	67.3	33.7	27.0	40.70
30	3600	84.8	73.7	36.8	29.4	—
	1800	86.9	75.6	37.8	30.2	45.70
	1200	90.6	78.8	39.4	31.5	47.60
	900	94.1	81.8	40.9	32.7	49.50
40	3600	111	96.4	48.2	38.5	—
	1800	116	101	50.4	40.3	61.00
	1200	117	102	50.6	40.4	61.20
	900	121	105	52.2	41.7	63.20
50	3600	138	120	60.1	48.2	—
	1800	143	124	62.2	49.7	75.20
	1200	145	126	63.0	50.4	76.20
	900	150	130	65.0	52.0	78.50
60	3600	164	143	71.7	57.3	—
	1800	171	149	74.5	59.4	90.00
	1200	173	150	75.0	60.0	91.10
	900	177	154	77.0	61.5	93.10
75	3600	206	179	89.6	71.7	—
	1800	210	183	91.6	73.2	111.00
	1200	212	184	92.0	73.5	112.00
	900	222	193	96.5	77.5	117.00
100	3600	266	231	115	92.2	—
	1800	271	236	118	94.8	144.00
	1200	275	239	120	95.6	145.00
	900	290	252	126	101	153.00
125	3600	—	292	146	116	—
	1800	—	293	147	117	177.00
	1200	—	298	149	119	180.00
	900	—	305	153	122	186.00
150	3600	—	343	171	137	—
	1800	—	348	174	139	210.00
	1200	—	350	174	139	210.00
	900	—	365	183	146	211.00
200	3600	—	458	229	184	—
	1800	—	452	226	181	274.00
	1200	—	460	230	184	276.00
	900	—	482	241	193	279.00
250	3600	—	559	279	223	—
	1800	—	568	284	227	343.00
	1200	—	573	287	229	345.00
	900	—	600	300	240	347.00
300	1800	—	684	342	274	392.00
	1200	—	684	342	274	395.00
400	1800	—	896	448	358	—

#### Formula—Approximate Full Load Amps for Other Motors

208 Volt Full Load Amp  $\approx$  230 Volt current  $\times$  110%

2-Phase FLA  $\approx$  0.866  $\times$  the 3-Phase FLA

2-Phase, 3-wire current in common wire  $\approx$  1.41  $\times$  that in the other 2 lines

25Hz 1500 RPM, amps  $\approx$  amps of 60Hz, 3600 RPM

25Hz 750 RPM, amps  $\approx$  amps of 60Hz, 1800 RPM

Service factor 1.0  $\approx$  amps  $\times$  0.9

50°C–55°C motor  $\approx$  amps  $\times$  0.9

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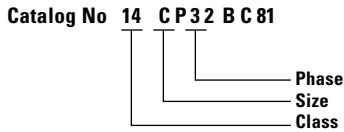
# Overload Relay Heater Tables

## Selection of Heater Elements for Overload Relays

*General*

To Select Heater Catalog Number Use

- Product Class
- Controller Size
- Motor Amp
- Phase



1. Find heater table number below, using the Product Class, Controller Size and Phase. Heater table number is found in the column under the type of overload and phase.

2. Refer to the specified table and use the controller size and motor amps to select the heater catalog number.

- a. If motor amps are not known, an approximate value may be found on the previous page. These values should be used with caution and only when motor amps are not available.

Heaters shown on the following pages provide a maximum trip rating of 125% of minimum motor amperes for 40°C motors (service factor 1.15). For other motors (service factor 1.0), select the next lower listed heater catalog number within the designated table which provides a maximum trip rating of approximately 115%.

Overload relays do not provide protection against short circuits. To ensure proper coordination with short circuit protective device, select heaters from the information packaged with the control device.

Class	Description	Size or Amperage	Controller Size Letter	Heater Table Number			
				Bimetal Standard Trip (Class 20)		Bimetal Quick Trip (Class 10)	
				Compensated E Heaters Green Reset		Compensated K Heaters Green Reset	
				1Ph	3Ph	1Ph	3Ph
SMF	Manual Magnetic	All	—	See Page 17-165			
14, 22	Non-reversing, Reversing	00-4	B-J	213	233	313	332
17, 18 25, 26 30, 32 <sup>ⓐ</sup> 83, 84 87, 89	Combination Reversing Combination Multi Speed Pump Controllers Motor Control Centers	0-4	C-J	—	233	—	332
48	Panel Mounted Overload Relay	25-180A	D-J	216	238	316	335

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ESP200 starters do not require heater elements.

ⓐ **Overload Relay Selection Multi-Speed**

Each speed requires a separate set of overloads. The adjustment range must be selected on the basis of the full-load current for each particular speed.

# Manual Control

## Heater Elements, Class SMF

General



Heater Elements Class SMF

### Ordering Information

- Determine number of heater elements required from Table A.
- Determine motor full load current and service factor.  
**NOTE: If motor amps are unknown, an approximate value may be found on page 17-163. These values should be used with caution and only when motor amps are not available.**
- If the motor and controller are in the same ambient temperature:
  - For 1.15 to 1.25 service factor motors use 100% of motor full load current for heater element selection.
  - For 1.0 service factor motors use 90% of motor full load current for heater element selection.
  - Heater elements are class 20.
- If the motor and controller are in different ambient temperatures multiply motor full load current by the multiplier in Table B. Use the resultant full load current for heater element selection.
- Select proper heater element from table below.
- All tables are based on the operation of the motor and controller in the same ambient temperature, 40°C (104°F) or less. Always be certain the correct heater element is installed in the starter before operating the motor.

Heater Catalog Number	Motor Full-Load Current (Amps)	List Price \$
SMFH01	0.157-0.173	
SMFH02	0.174-0.192	
SMFH03	0.193-0.212	
SMFH04	0.213-0.235	
SMFH05	0.236-0.261	
SMFH06	0.262-0.289	
SMFH07	0.290-0.321	
SMFH08	0.322-0.355	
SMFH09	0.356-0.399	
SMFH10	0.41-0.44	
SMFH11	0.45-0.49	
SMFH12	0.50-0.53	
SMFH13	0.54-0.58	
SMFH14	0.59-0.65	
SMFH15	0.66-0.71	
SMFH16	0.72-0.78	
SMFH17	0.79-0.85	
SMFH18	0.86-0.96	
SMFH19	0.97-1.04	
SMFH20	1.05-1.16	
SMFH21	1.17-1.25	
SMFH22	1.30-1.39	
SMFH23	1.38-1.54	
SMFH24	1.48-1.63	
SMFH25	1.57-1.75	
SMFH26	1.66-1.86	

**Table A**  
Number of Heater Elements

Device	Number of Heater Elements	Notes
SMFF*1 SMFF*2 SMFF*3 SMFF*4 SMFF*5 SMFF*6	1	All single pole and two pole SMF starters require only 1 Heater Element.
SMFF*22 SMFF*44	2	Duplex Unit. One Heater Element per starter.
SMFF*11 SMFF*22	2	Two Speed Starter. One Heater Element per speed.

Heater Catalog Number	Motor Full-Load Current (Amps)	List Price \$
SMFH27	1.80-1.99	
SMFH28	1.96-2.15	
SMFH29	2.16-2.38	
SMFH30	2.39-2.75	
SMFH31	2.76-2.84	
SMFH32	2.85-3.06	
SMFH33	3.07-3.45	
SMFH34	3.46-3.70	
SMFH35	3.71-4.07	
SMFH36	4.08-4.32	
SMFH37	4.33-4.90	
SMFH38	4.91-5.35	
SMFH39	5.36-5.85	
SMFH40	5.86-6.41	
SMFH41	6.42-6.79	
SMFH42	6.80-7.57	
SMFH43	7.58-8.15	
SMFH44	8.16-8.98	
SMFH45	8.99-9.67	
SMFH46	9.68-9.95	
SMFH47	9.96-10.8	
SMFH48	10.9-12.1	
SMFH49	12.2-13.1	
SMFH50	13.2-13.9	
SMFH51	14.0-15.0	
SMFH52	15.1-16.0	

**Table B—Special Applications**  
Heater Element Selection

Continuous Duty Motor Service Factor	Ambient Temperature of Motor		
	Same as Controller Ambient	Constant 10°C (18°F) Higher Than Controller Ambient	Constant 10°C (18°F) Lower Than Controller Ambient
	Full Load Current Multiplier		
1.15 to 1.25	1.0	0.9	1.05
1.0	0.9	0.8	0.95

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# Overload Relay Heater Tables

## Full Load Motor Amps, Single Phase, Trip Class 20 – Tables 213, 216

Selection

Table 213 for Class 14, 22 (1-Phase)

Full Load Amps			Heater Catalog No	List Price \$
Size 00, 0, 1	Size 1P	Size 2, 2½		
0.37-0.40	—	—	E3	
0.41-0.44	0.41-0.44	—	E4	
0.45-0.47	0.45-0.47	—	E5	
0.48-0.52	0.48-0.52	—	E6	
0.53-0.57	0.53-0.57	—	E7	
0.58-0.62	0.58-0.62	—	E8	
0.63-0.69	0.63-0.69	—	E9	
0.70-0.74	0.70-0.74	—	E11	
0.75-0.81	0.75-0.81	—	E12	
0.82-0.85	0.82-0.85	—	E13	
0.86-0.93	0.86-0.93	—	E14	
0.94-1.03	0.94-1.03	—	E16	
1.04-1.11	1.04-1.11	—	E17	
1.12-1.22	1.12-1.22	—	E18	
1.23-1.34	1.23-1.34	—	E23	
1.35-1.53	1.35-1.53	—	E24	
1.54-1.71	1.54-1.71	—	E26	
1.72-1.92	1.72-1.92	—	E27	
1.93-2.12	1.93-2.12	—	E28	
2.13-2.24	2.13-2.24	—	E29	
2.25-2.43	2.25-2.43	—	E31	
2.44-2.57	2.44-2.57	—	E32	
2.58-2.86	2.58-2.86	—	E33	
2.87-3.16	2.87-3.16	—	E34	
3.17-3.35	3.17-3.35	—	E36	
3.36-3.58	3.36-3.58	—	E37	
3.59-3.90	3.59-3.90	—	E38	
3.91-4.25	3.91-4.25	—	E39	
4.26-4.77	4.26-4.77	—	E41	
4.78-5.35	4.78-5.35	—	E42	
5.36-5.76	5.36-5.76	—	E44	
5.77-6.33	5.77-6.33	—	E46	
6.34-6.98	6.34-6.98	—	E47	
6.99-7.37	6.99-7.37	—	E48	
7.38-7.71	7.38-7.71	—	E49	
7.72-8.51	7.72-8.51	—	E50	
8.52-9.31	8.52-9.31	—	E51	
9.32-10.1	9.32-10.1	—	E52	
10.2-10.9	10.2-10.9	—	E53	
11.0-12.2	11.0-12.2	—	E54	
12.3-13.5	12.3-13.5	—	E55	
13.6-15.7	13.6-15.7	—	E56	
15.8-17.3	15.8-17.3	19.4-22.0	E57	
17.4-19.9	17.4-19.9	22.1-23.5	E60	
20.0-21.7	20.0-21.7	23.6-25.0	E61	
21.8-23.4	21.8-23.4	25.1-27.0	E62	
23.5-24.0	23.5-23.7	27.1-28.9	E65	
—	—	23.8-25.1	E66	
—	—	25.2-27.9	E67	
—	—	31.1-34.8	E69	
—	—	34.9-36.9	E70	
—	32.3-34.0	37.0-43.9	E72	
—	—	44.0-46.0	E73	
—	—	46.1-48.3	E74	
—	—	48.4-55.0	E76	
—	—	55.1-60.0	E76	

Table 216 for Class 48

Full Load Amps			Heater Catalog No	List Price \$
48DA, 48GA	48HA	48JA		
0.34-0.36	—	—	E3	
0.37-0.40	—	—	E4	
0.41-0.43	—	—	E5	
0.44-0.47	—	—	E6	
0.48-0.51	—	—	E7	
0.52-0.56	—	—	E8	
0.57-0.62	—	—	E9	
0.63-0.67	—	—	E11	
0.68-0.73	—	—	E12	
0.74-0.77	—	—	E13	
0.78-0.84	—	—	E14	
0.85-0.93	—	—	E16	
0.94-1.00	—	—	E17	
1.01-1.10	—	—	E18	
—	—	—	E19	
1.11-1.21	—	—	E23	
1.22-1.38	—	—	E24	
1.39-1.54	—	—	E26	
1.55-1.73	—	—	E27	
1.74-1.91	—	—	E28	
1.92-2.02	—	—	E29	
2.03-2.19	—	—	E31	
2.20-2.32	—	—	E32	
2.33-2.58	—	—	E33	
2.59-2.85	—	—	E34	
2.86-3.02	—	—	E36	
3.03-3.23	—	—	E37	
3.24-3.52	—	—	E38	
3.53-3.83	—	—	E39	
3.84-4.30	—	—	E41	
4.31-4.82	—	—	E42	
4.83-5.19	—	—	E44	
5.20-5.71	—	—	E46	
5.72-6.29	—	—	E47	
6.30-6.64	—	—	E48	
6.65-6.95	—	—	E49	
6.96-7.67	—	—	E50	
7.68-8.39	—	—	E51	
8.40-9.19	—	—	E52	
9.20-9.94	—	—	E53	
9.95-10.9	—	—	E54	
11.0-12.2	—	—	E55	
12.3-14.2	—	—	E56	
14.3-15.6	—	—	E57	
—	—	—	E59	
15.7-17.9	—	—	E60	
18.0-19.6	—	—	E61	
19.7-22.3	—	—	E62	
22.4-24.0	—	—	E65	
24.1-25.9	—	—	E66	
26.0-29.5	27.1-30.0	—	E67	
29.6-32.5	30.1-33.2	—	E69	
32.6-33.5	33.3-35.7	—	E70	
33.6-36.9	35.8-39.4	—	E71	
37.0-39.2	39.5-43.4	—	E72	
39.3-43.1	43.5-46.9	—	E73	
43.2-47.4	47.0-51.5	—	E74	
47.5-50.0	51.6-57.0	—	E76	
50.1-55.2	57.1-62.8	—	E77	
55.3-60.0	62.9-69.1	—	E78	
—	69.2-75.0	—	E79	
—	75.1-83.3	—	E80	
—	—	50.0-55.9	E88	
—	—	56.0-60.9	E89	
—	—	61.0-65.9	E91	
—	—	66.0-69.9	E92	
—	—	70.0-75.9	E93	
—	—	76.0-81.9	E94	
—	83.4-86.9	82.0-86.9	E96	
—	87.0-92.9	87.0-92.9	E97	
—	93.0-100.0	93.0-97.9	E98	
—	—	98.0-107.9	E99	
—	—	108.0-113.9	E101	
—	—	114.0-125.0	E102	
—	—	126.0-138.0	E103	
—	—	139.0-153.0	E104	
—	—	154.0-163.0	E106	
—	—	164.0-180.0	E107	

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# Overload Relay Heater Tables

## Full Load Motor Amps, 3-Phase, Trip Class 20 – Tables 233, 238

Selection

Table 233 for Class 14, 17, 18, 22, 25, 26, 30, 32, 83, 84, 87 (3-Phase)

Full Load Amps					Heater Catalog No	List Price \$
Size 00, 0, 1	Size 1¼	Size 2, 2½	Size 3, 3½	Size 4		
0.38-0.40	—	—	—	—	E6	
0.41-0.43	—	—	—	—	E7	
0.44-0.48	—	—	—	—	E8	
0.49-0.53	—	—	—	—	E9	
0.54-0.57	—	—	—	—	E11	
0.58-0.62	—	—	—	—	E12	
0.63-0.66	—	—	—	—	E13	
0.67-0.72	—	—	—	—	E14	
0.73-0.80	—	—	—	—	E16	
0.81-0.85	—	—	—	—	E17	
0.86-0.92	—	—	—	—	E18	
0.93-0.99	—	—	—	—	E19	
1.00-1.08	—	—	—	—	E23	
1.09-1.23	—	—	—	—	E24	
1.24-1.37	—	—	—	—	E26	
1.38-1.54	—	—	—	—	E27	
1.55-1.69	—	—	—	—	E28	
1.70-1.80	—	—	—	—	E29	
1.81-1.94	—	—	—	—	E31	
1.95-2.07	—	—	—	—	E32	
2.08-2.26	—	—	—	—	E33	
2.27-2.54	2.27-2.54	—	—	—	E34	
2.55-2.69	2.55-2.69	—	—	—	E36	
2.70-2.88	2.70-2.88	—	—	—	E37	
2.89-3.14	2.89-3.14	—	—	—	E38	
3.15-3.40	3.15-3.40	—	—	—	E39	
3.41-3.81	3.41-3.81	—	—	—	E41	
3.82-4.26	3.82-4.25	—	—	—	E42	
4.27-4.62	4.26-4.62	—	—	—	E44	
4.63-5.09	4.63-5.09	—	—	—	E46	
5.10-5.61	5.10-5.61	—	—	—	E47	
5.62-5.91	5.62-5.91	—	—	—	E48	
5.92-6.15	5.92-6.15	—	—	—	E49	
6.16-6.70	6.16-6.70	—	—	—	E50	
6.71-7.54	6.71-7.54	—	—	—	E51	
7.55-8.29	7.55-8.29	—	—	—	E52	
8.30-8.99	8.30-8.99	—	—	—	E53	
9.00-9.85	9.00-9.85	—	—	—	E54	
9.86-10.4	9.86-10.4	—	—	—	E55	
10.5-12.0	10.5-12.0	10.5-12.0	—	—	E56	
12.1-13.6	12.1-13.6	12.1-13.6	—	—	E57	
13.7-15.6	13.7-15.6	13.7-15.6	—	—	E60	
15.7-17.0	15.7-17.0	15.7-17.1	—	—	E61	
17.1-18.4	17.1-19.4	17.2-19.4	—	—	E62	
18.5-19.4	19.5-20.9	19.5-20.9	—	—	E65	
19.5-21.3	21.0-22.2	21.0-22.2	—	—	E66	
21.4-24.4	22.3-25.3	22.3-25.3	—	—	E67	
24.5-25.9	25.4-26.9	25.4-26.9	30.0-33.5	—	E69	
26.0-27.0	27.0-30.2	27.0-30.2	33.6-36.4	—	E70	
—	—	—	36.5-39.6	—	E71	
—	30.3-33.3	30.3-33.3	—	—	E72	
—	33.4-36.0	33.4-35.3	39.7-43.6	—	E73	
—	—	—	43.7-46.5	—	E73A	
—	—	35.4-41.5	46.6-51.6	—	E74	
—	—	41.6-45.0	51.7-54.4	—	E76	
—	—	45.1-52.3	54.5-58.0	—	E77	
—	—	52.4-55.7	58.1-63.0	—	E78	
—	—	55.8-60.0	63.1-67.7	—	E79	
—	—	—	67.8-72.4	—	E80	
—	—	—	—	—	E88	
—	—	—	—	56.9-60.9	E89	
—	—	—	—	61.0-63.9	E91	
—	—	—	—	64.0-67.7	E92	
—	—	—	—	67.8-72.4	E93	
—	—	—	72.5-77.7	72.5-77.7	E94	
—	—	—	80.1-88.1	77.8-85.9	E96	
—	—	—	88.2-91.5	86.0-91.9	E97	
—	—	—	91.6-96.8	92.0-96.7	E98	
—	—	—	96.9-99.0	96.8-105	E99	
—	—	—	99.1-108.0	—	E101	
—	—	—	—	106-115	E102	
—	—	—	—	116-130	E103	
—	—	—	—	—	E104	

Table 238 for Class 48

Full Load Amps				Heater Catalog No	List Price \$
48DC	48GC	48HA	48JA		
0.30-0.32	—	—	—	E3	
0.33-0.35	—	—	—	E4	
0.36-0.38	—	—	—	E5	
0.39-0.41	—	—	—	E6	
0.42-0.44	—	—	—	E7	
0.45-0.49	—	—	—	E8	
0.50-0.54	—	—	—	E9	
0.55-0.58	—	—	—	E11	
0.59-0.63	—	—	—	E12	
0.64-0.67	—	—	—	E13	
0.68-0.73	—	—	—	E14	
0.74-0.81	—	—	—	E16	
0.82-0.87	—	—	—	E17	
0.88-0.94	—	—	—	E18	
0.95-1.00	—	—	—	E19	
1.01-1.10	—	—	—	E23	
1.11-1.26	—	—	—	E24	
1.27-1.40	—	—	—	E26	
1.41-1.58	—	—	—	E27	
1.59-1.74	—	—	—	E28	
1.75-1.85	—	—	—	E29	
1.86-1.99	—	—	—	E31	
2.00-2.11	—	—	—	E32	
2.12-2.31	—	—	—	E33	
2.32-2.59	—	—	—	E34	
2.60-2.75	—	—	—	E36	
2.76-2.95	—	—	—	E37	
2.96-3.21	—	—	—	E38	
3.22-3.48	—	—	—	E39	
3.49-3.89	—	—	—	E41	
3.90-4.35	—	—	—	E42	
4.36-4.73	—	—	—	E44	
4.74-5.21	—	—	—	E46	
5.22-5.74	—	—	—	E47	
5.75-6.05	—	—	—	E48	
6.06-6.46	—	—	—	E49	
6.47-6.95	—	—	—	E50	
6.96-8.09	—	—	—	E51	
8.10-9.29	—	—	—	E52	
9.30-10.4	—	—	—	E53	
—	—	—	—	E54	
10.5-10.9	—	—	—	E55	
11.0-12.0	—	—	—	E56	
12.1-14.5	—	—	—	E57	
14.6-16.8	—	—	—	E60	
16.9-18.4	16.9-18.4	—	—	E61	
18.5-20.9	18.5-20.9	—	—	E62	
21.0-22.5	21.0-22.5	—	—	E65	
22.6-24.3	22.6-24.7	—	—	E66	
24.4-27.2	24.8-27.2	27.1-30.0	—	E67	
27.3-29.2	27.3-29.2	30.1-33.2	—	E69	
29.3-30.0	29.3-32.0	33.3-35.7	—	E70	
—	32.1-34.9	35.8-39.4	—	E71	
—	—	39.5-43.4	—	E72	
—	35.0-37.8	43.5-46.9	—	E73	
—	37.9-41.7	—	—	E73A	
—	41.8-45.9	47.0-51.5	—	E74	
—	46.0-49.0	51.6-57.0	—	E76	
—	49.1-54.2	57.1-62.8	—	E77	
—	54.3-60.0	62.9-69.1	—	E78	
—	—	69.2-75.0	—	E79	
—	—	75.1-83.3	—	E80	
—	—	—	50.0-55.9	E88	
—	—	—	56.0-60.9	E89	
—	—	—	61.0-65.9	E91	
—	—	—	66.0-69.9	E92	
—	—	—	70.0-75.9	E93	
—	—	—	76.0-81.9	E94	
—	—	83.4-86.9	82.0-86.9	E96	
—	—	87.0-92.9	87.0-92.9	E97	
—	—	93.0-100.0	93.0-97.9	E98	
—	—	—	98.0-107.9	E99	
—	—	—	108-113.9	E101	
—	—	—	114-125.9	E102	
—	—	—	126-138.9	E103	
—	—	—	139-153.9	E104	
—	—	—	154-163.9	E106	
—	—	—	164-180.9	E107	

NEMA & General Purpose Control

17 CONTROL PRODUCTS

# Overload Relay Heater Tables

## Full Load Motor Amps, Single Phase, Trip Class 10 – Tables 313, 316

*Selection*

**Table 313 for Class 14, 22 (1-Phase)**

Full Load Amps			Heater Catalog No	List Price \$
Size 00, 0, 1	Size 1P	Size 2, 2½		
1.85-2.05	1.85-2.05	—	<b>K21</b>	
2.06-2.35	2.06-2.35	—	<b>K22</b>	
2.36-2.64	2.36-2.64	—	<b>K24</b>	
2.65-2.96	2.65-2.96	—	<b>K27</b>	
2.97-3.31	2.97-3.31	—	<b>K28</b>	
3.32-3.51	3.32-3.51	—	<b>K29</b>	
3.52-3.87	3.52-3.87	—	<b>K31</b>	
3.88-4.31	3.88-4.31	—	<b>K32</b>	
4.32-4.79	4.32-4.79	—	<b>K33</b>	
4.80-5.21	4.80-5.21	—	<b>K34</b>	
5.22-5.75	5.22-5.75	—	<b>K36</b>	
5.76-6.11	5.76-6.11	—	<b>K37</b>	
6.12-6.95	6.12-6.95	—	<b>K39</b>	
6.96-7.73	6.96-7.73	—	<b>K41</b>	
7.74-8.47	7.74-8.47	—	<b>K42</b>	
8.48-9.52	8.48-9.52	—	<b>K43</b>	
9.53-10.4	9.53-10.4	—	<b>K49</b>	
10.5-11.1	10.5-11.1	—	<b>K50</b>	
11.2-12.4	11.2-12.4	—	<b>K52</b>	
12.5-13.5	12.5-13.5	—	<b>K53</b>	
13.6-15.1	13.6-15.1	—	<b>K54</b>	
15.2-16.6	15.2-16.6	—	<b>K55</b>	
16.7-17.6	16.7-17.6	—	<b>K57</b>	
17.7-18.8	17.7-18.8	18.7-19.7	<b>K58</b>	
18.9-21.6	18.9-21.6	19.8-21.3	<b>K60</b>	
21.7-22.7	21.7-22.7	21.4-22.8	<b>K61</b>	
22.8-25.3	22.8-25.3	22.9-24.2	<b>K62</b>	
—	25.4-26.6	24.3-26.5	<b>K63</b>	
—	26.7-30.1	26.6-29.3	<b>K64</b>	
—	30.2-33.0	29.4-32.0	<b>K67</b>	
—	33.1-34.1	32.1-35.6	<b>K68</b>	
—	—	35.7-37.9	<b>K69</b>	
—	—	38.0-40.3	<b>K70</b>	
—	—	40.4-44.3	<b>K72</b>	
—	—	44.4-49.5	<b>K73</b>	
—	—	49.6-52.1	<b>K74</b>	
—	—	52.2-53.7	<b>K75</b>	
—	—	53.8-60.0	<b>K76</b>	

**Table 316 for Class 48**

Full Load Amps				Heater Catalog No	List Price \$
48DA	48GA	48HA	48JA		
1.69-1.88	—	—	—	<b>K21</b>	
1.89-2.05	—	—	—	<b>K22</b>	
2.06-2.21	—	—	—	<b>K23</b>	
2.22-2.44	—	—	—	<b>K24</b>	
2.45-2.70	—	—	—	<b>K26</b>	
2.71-2.92	—	—	—	<b>K27</b>	
2.93-3.27	—	—	—	<b>K28</b>	
3.28-3.56	—	—	—	<b>K29</b>	
3.57-3.83	—	—	—	<b>K31</b>	
3.84-4.23	—	—	—	<b>K32</b>	
4.24-4.57	—	—	—	<b>K33</b>	
4.58-4.97	—	—	—	<b>K34</b>	
4.98-5.67	—	—	—	<b>K36</b>	
5.68-6.11	—	—	—	<b>K37</b>	
6.12-6.91	—	—	—	<b>K39</b>	
6.92-7.65	—	—	—	<b>K41</b>	
7.66-8.4	—	—	—	<b>K42</b>	
8.5-8.9	—	—	—	<b>K43</b>	
9.0-10.1	9.12-9.6	—	—	<b>K49</b>	
10.2-11.2	9.7-10.4	—	—	<b>K50</b>	
11.3-12.3	10.5-11.4	—	—	<b>K52</b>	
12.4-13.3	11.5-12.1	—	—	<b>K53</b>	
13.4-14.1	12.2-12.9	—	—	<b>K54</b>	
14.2-15.0	13.0-13.7	—	—	<b>K55</b>	
15.1-16.2	13.8-14.8	—	—	<b>K56</b>	
16.3-17.5	14.9-16.4	—	—	<b>K57</b>	
17.6-18.6	16.5-18.2	—	—	<b>K58</b>	
18.7-19.9	18.3-19.5	—	—	<b>K60</b>	
20.0-21.3	19.6-20.9	—	—	<b>K61</b>	
21.4-22.8	21.0-22.8	23.2-25.1	—	<b>K62</b>	
22.9-25.1	22.9-24.7	25.2-27.3	—	<b>K63</b>	
25.2-27.6	24.8-27.6	27.4-30.4	—	<b>K64</b>	
27.7-30.0	27.7-30.5	30.5-33.3	—	<b>K67</b>	
—	30.6-33.9	33.4-36.5	—	<b>K68</b>	
—	34.0-37.3	36.6-39.3	—	<b>K69</b>	
—	37.4-40.2	39.4-43.5	—	<b>K70</b>	
—	40.3-41.9	43.6-46.6	43.0-46.5	<b>K72</b>	
—	42.0-45.9	46.7-51.1	46.6-50.9	<b>K73</b>	
—	46.0-50.9	51.2-56.3	51.0-55.9	<b>K74</b>	
—	51.0-52.9	56.4-61.1	56.0-59.1	<b>K75</b>	
—	53.0-57.7	61.2-64.9	59.2-68.7	<b>K76</b>	
—	57.8-60.0	65.0-71.9	—	<b>K77</b>	
—	—	72.0-80.7	68.8-80.7	<b>K78</b>	
—	—	80.8-92.7	80.8-92.7	<b>K85</b>	
—	—	92.8-100.0	92.8-103.9	<b>K86</b>	
—	—	—	104.0-113.5	<b>K87</b>	
—	—	—	113.6-127.9	<b>K89</b>	
—	—	—	128.0-143.9	<b>K92</b>	
—	—	—	144.0-163.9	<b>K94</b>	
—	—	—	164.0-180.0	<b>K96</b>	

NEMA & General Purpose Control

CONTROL PRODUCTS 17

# Overload Relay Heater Tables

## Full Load Motor Amps, 3-Phase, Trip Class 10 – Tables 332, 335

*Selection*

Table 332 for Class 14, 17, 18, 22, 25, 26, 30, 32, 83, 84, 87 (3-Phase)

Full Load Amps					Heater Catalog No	List Price \$
Size 00, 0, 1	Size 1¼	Size 2, 2½	Size 3, 3½	Size 4		
1.52-1.65	1.52-1.65	—	—	—	K21	
1.66-1.79	1.66-1.79	—	—	—	K22	
1.80-1.94	1.80-1.94	—	—	—	K23	
1.95-2.15	1.95-2.15	—	—	—	K24	
2.16-2.37	2.16-2.37	—	—	—	K26	
2.38-2.56	2.38-2.56	—	—	—	K27	
2.57-2.87	2.57-2.87	—	—	—	K28	
2.88-3.13	2.88-3.13	—	—	—	K29	
3.14-3.37	3.14-3.37	—	—	—	K31	
3.38-3.72	3.38-3.72	—	—	—	K32	
3.73-4.00	3.73-4.00	—	—	—	K33	
4.01-4.35	4.01-4.35	—	—	—	K34	
4.36-4.99	4.36-4.99	—	—	—	K36	
5.00-5.38	5.00-5.38	—	—	—	K37	
5.39-5.79	5.39-5.79	—	—	—	K39	
5.80-6.43	5.80-6.43	—	—	—	K41	
6.44-6.83	6.44-6.83	—	—	—	K42	
6.84-7.83	6.84-7.83	—	—	—	K43	
7.84-8.23	7.84-8.23	—	—	—	K49	
8.24-9.59	8.24-9.59	—	—	—	K50	
9.60-9.90	9.60-9.90	—	—	—	K52	
10.0-10.7	10.0-10.7	—	—	—	K53	
10.8-11.6	10.8-11.6	12.1-12.7	—	—	K54	
11.7-12.3	11.7-12.3	12.8-13.5	—	—	K55	
12.4-13.4	12.4-13.4	13.6-14.6	—	—	K56	
13.5-14.2	13.5-14.2	14.7-15.9	—	—	K57	
14.3-15.1	14.3-15.1	16.0-16.9	—	—	K58	
15.2-17.5	15.2-17.5	17.0-18.2	—	—	K60	
17.6-18.7	17.6-18.7	18.3-19.5	—	—	K61	
18.8-20.0	18.8-20.0	19.6-20.9	—	—	K62	
20.1-21.5	20.1-21.5	21.0-23.1	—	—	K63	
21.6-23.9	21.6-23.9	23.2-25.4	—	—	K64	
24.0-25.8	24.0-25.8	25.5-27.9	—	—	K67	
—	—	25.9-29.5	—	—	K68	
—	—	28.0-30.5	—	—	K69	
—	29.6-32.7	30.6-33.5	36.8-40.0	—	K70	
—	32.8-36.0	33.6-37.2	40.1-42.4	—	K72	
—	—	37.3-40.7	42.5-46.3	—	K73	
—	—	40.8-43.0	46.4-49.6	—	K74	
—	—	43.1-47.9	49.7-52.3	49.7-52.3	K75	
—	—	48.0-52.7	52.4-57.5	52.4-57.5	K76	
—	—	52.8-58.3	57.6-63.9	57.6-63.0	K77	
—	—	58.4-60.0	64.0-67.9	63.1-68.1	K78	
—	—	—	68.0-74.3	68.2-74.3	K83	
—	—	—	74.4-77.9	74.4-79.9	K85	
—	—	—	78.0-83.1	80.0-87.4	K86	
—	—	—	83.2-91.4	87.5-90.0	K87	
—	—	—	91.5-99.9	90.1-100.0	K88	
—	—	—	100.0-108.0	100.1-108.0	K89	
—	—	—	—	108.1-119.0	K90	
—	—	—	—	119.1-130.0	K92	
—	—	—	—	—	K94	
—	—	—	—	—	K96	

Table 335 for Class 48

Full Load Amps				Heater Catalog No	List Price \$
48DC	48GC	48HA	48JA		
1.56-1.69	—	—	—	K21	
1.70-1.84	—	—	—	K22	
1.85-1.98	—	—	—	K23	
1.99-2.19	—	—	—	K24	
2.20-2.43	—	—	—	K26	
2.44-2.63	—	—	—	K27	
2.64-2.95	—	—	—	K28	
2.96-3.21	—	—	—	K29	
3.22-3.45	—	—	—	K31	
3.46-3.81	—	—	—	K32	
3.82-4.10	—	—	—	K33	
4.11-4.46	—	—	—	K34	
4.47-5.10	—	—	—	K36	
5.11-5.49	—	—	—	K37	
5.50-6.21	—	—	—	K39	
6.22-6.76	—	—	—	K41	
6.77-7.62	—	—	—	K42	
7.63-8.07	—	—	—	K43	
8.08-9.19	—	—	—	K49	
9.20-10.0	—	—	—	K50	
10.1-11.0	—	—	—	K52	
11.1-12.0	—	—	—	K53	
12.1-12.7	—	—	—	K54	
12.8-13.5	—	—	—	K55	
13.6-14.5	—	—	—	K56	
14.6-15.7	—	—	—	K57	
15.8-16.7	—	—	—	K58	
16.8-17.9	—	—	—	K60	
18.0-19.2	18.0-19.2	—	—	K61	
19.3-20.5	19.3-20.5	23.2-25.1	—	K62	
20.6-22.5	20.6-22.5	25.2-27.3	—	K63	
22.6-24.8	22.6-24.8	27.4-30.4	—	K64	
24.9-27.6	24.9-27.6	30.5-33.3	—	K67	
27.7-30.0	—	33.4-36.5	—	K68	
—	27.7-30.1	36.6-39.3	—	K69	
—	30.2-33.1	39.4-43.5	—	K70	
—	33.2-36.7	43.6-46.6	43.0-46.5	K72	
—	36.8-40.1	46.7-51.1	46.6-50.9	K73	
—	40.2-45.5	51.2-56.3	51.0-55.9	K74	
—	45.6-47.9	56.4-61.1	56.0-59.1	K75	
—	48.0-52.7	61.2-64.9	59.2-68.7	K76	
—	52.8-55.1	65.0-71.9	—	K77	
—	55.2-60.0	72.0-80.7	68.8-80.7	K78	
—	—	80.8-92.7	80.8-92.7	K85	
—	—	92.8-100.0	92.8-103.9	K86	
—	—	—	104.0-113.5	K87	
—	—	—	113.6-127.9	K89	
—	—	—	128.0-143.9	K92	
—	—	—	144.0-163.9	K94	
—	—	—	164.0-180.0	K96	

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# Replacement Parts

## Starters and Contactors – AC Coils

*Selection*

### Ordering Information

► 4th character of starter or contactor catalog number indicates model.

### AC Coils — For Class 14, 17, 18, 22, 25, 26, 30, 32, 36, 37, 40, 43, 83, 84, 87, 88

	Size	Model	Volts		Catalog Number	List Price \$
			60Hz	50Hz		
	00-2½	P U (ESP200)	24 120 110-120/220-240 208 220-240 277 220-240/440-480 440-480 575-600	24 110 110/190-220 — 190-220 240 190-220/380-440 380-440 550	75D73070J 75D73070F 75D73070A 75D73070D 75D73070G 75D73070L 75D73070C 75D73070H 75D73070E	
	3, 3½	P U (ESP200)	24 120 110-120/220-240 208 220-240 277 220-240/440-480 440-480 575-600	24 110 110/190-220 — 190-220 240 190-220/380-440 380-440 550	75D73251J 75D73251F 75D73251A 75D73251D 75D73251G 75D73251L 75D73251C 75D73251H 75D73251E	
	4	G U (ESP200)	24 120 120/220-240 208 220-240 277 220-240/440-480 440-480 575-600	24 110 110/190-220 — 190-220 240 190-220/380-440 380-440 550	75D70131J 75D70131F 75D70131A 75D70131D 75D70131G 75D70131L 75D70131C 75D70131H 75D70131E	
	4, 5	V (Vacuum)	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	3RT1966-5AB31 3RT1966-5AF31 3RT1966-5AM31 3RT1966-5AP31 3RT1966-5AU31 3RT1966-5AV31 3RT1966-5AR31 3RT1966-5AT31	
	5	P	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	3RT1965-5AB31 3RT1965-5AF31 3RT1965-5AM31 3RT1965-5AP31 3RT1965-5AU31 3RT1965-5AV31 3RT1965-5AR31 3RT1965-5AT31	
	6	P V (Vacuum)	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	23-26 110-127 200-220 220-240 240-277 380-420 440-480 575-600	3RT1975-5AB31 3RT1975-5AF31 3RT1975-5AM31 3RT1975-5AP31 3RT1975-5AU31 3RT1975-5AV31 3RT1975-5AR31 3RT1975-5AT31	
	7	H	100-250 150-500	100-250 150-500	75ZAF750-70 75ZAF750-71	
	8	H	100-250	100-250	75ZAF1650-70 <sup>Ⓢ</sup>	

<sup>Ⓢ</sup> Set of 2 coils. Recommend to change printed circuit board when changing coils. 49ZP1650 see page 17-171.

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# Replacement Parts

## Starters and Contactors – DC Coils, Late Break Aux Contacts, Rectifiers, Contact Kits *Selection*

### Ordering Information


- ▶ 4th character of starter or contactor catalog number indicates model.
- ▶ DC Coils for Size 00-4 require Late Break Interlock.

### DC Coils — For Class 14, 17, 18, 22, 25, 26, 30, 32, 40, 43


	Size	Model	Volts DC	Catalog Number	List Price \$
	00-2½	P U (ESP200)	12	75D73070R	
			24	75D73070S	
			32	75D73070T	
			48	75D73070U	
			125	75D73070V	
	3, 3½	P U (ESP200)	12	75D73251R	
			24	75D73251S	
			32	75D73251T	
			48	75D73251U	
			125	75D73251V	
	4	G U (ESP200)	48	75D70131U	
			125	75D70131V	
			250	75D70131W	
	4, 5	V (Vacuum)	23-26	3RT1966-5AB31	
			42-48	3RT1966-5AD31	
			110-127	3RT1966-5AF31	
240-277			3RT1966-5AU31		

Note: For sizes 7 & 8 contactors the AC coils are used for DC see page 17-168.


### Late Break Auxiliary Contacts

	Control Size	Model	Catalog Number	List Price \$
	00-4	P, G, S, T	49AB01LB	

### Board for Size 8 Contactor

	Control Size	Model	Catalog Number	List Price
		8	H	

### Contact Kits – Single Pole Stationary and Movable Contacts, Contact Spring<sup>①</sup>

Description	Size	Number of Poles in Kit	Model (4th position in part number)	Catalog Number	List Price \$
	Internal Aux Contact (00-1-¾)		P, U	75AF14	
	00		P, U	75BF14	
	0		P, U	75CF14	
	1	1	P, U	75DF14	
	1¼-1P		P, U	75EF14	
	2	1	P, U	75FP14	
	2½	1	P, U	75GP14	
	3	1	P, U	75HF14	
	3½		P, U	75IF14	
	4	1	G, T	75JG14	
4 (Vacuum)	3 (Bottles)	V, C	3RT1966-6V		
5	3	P	3RT1966-6A		
5 (Vacuum)	3 (Bottles)	V, C	3RT1966-6V		
6	3	P	3RT1976-6A		
6 (Vacuum)	3 (Bottles)	V, C	3RT1976-6V		
14, 40	7		H	49ZL750	
	8	3	H	49ZL1650	

### Armature and Magnet Kits

Size	Catalog Number	List Price \$
00-2½	49AMSA2	
3-3½	49AMSA3	
4	49AMSA4	

① On 3-phase controls, all 3-poles should be replaced - 3 kits required.

# Replacement Parts

## Starters and Contactors – Coil VA Ratings and Overload Relays

*Selection*

### Coil VA Ratings

Device Type	Contactors Size	Amps	Volts	Number of Poles	Total Inrush VA	Total Sealed VA
NEMA Starter	00 thru 2 1/2	—	—	—	218	25
	3 thru 3 1/2	—	—	—	310	26
	4	—	—	—	510	51
	5	—	—	—	590	6.7
	6	—	—	—	830	9.2
	7	—	—	—	850	12
	8	—	—	—	1900	48
	4,5,6 (Vacuum)	—	—	—	630	7.4
Lighting Contactor Mechanically Held (CLM)	—	20	—	2-12	625	6
	—	30	—	2-5	410	40
	—	60	—	2-3	410	40
	—	60	—	4-5	600	40
	—	100 - 200	—	2-3	900	200
	—	100 - 200	—	4-5	1300	130
	—	300 - 400	—	3	1600	550
Lighting Contactor Electrically Held (LE)	—	20	24	3	49.6	6.9
	—	20	120	3	51.3	6.57
	—	20	208	3	75.79	11.94
	—	20	240	3	86.78	14.25
	—	20	277	3	79.1	11.97
	—	20	480	3	83.7	12.9
	—	20	600	3	84.1	13.2
	—	20	24	12	73.31	12.66
	—	20	120	12	75.1	13.1
	—	20	208	12	73.97	13.25
	—	20	240	12	89.15	14.85
	—	20	277	12	78.55	12.77
	—	20	480	12	84	12.9
	—	20	600	12	81.9	13.4
	—	30	24	3	49.67	7.08
	—	30	120	3	51.94	6.48
	—	30	208	3	76.57	11.78
	—	30	240	3	64.44	8.99
	—	30	277	3	77.85	14.2
	—	30	480	3	83.6	13.1
	—	30	600	3	82.1	13.4
	—	60	24	3	74.94	13.16
	—	60	120	3	75.77	13.59
	—	60	208	3	78.73	12.05
	—	60	240	3	89.92	14.42
	—	60	277	3	84.89	12.93
	—	60	480	3	87.6	12.7
	—	60	600	3	85.4	13.8
	—	100	24	3	182.28	32.85
	—	100	120	3	191.42	32.26
	—	100	208	3	187.78	31.15
	—	100	240	3	215.32	35.63
	—	100	277	3	175.92	30.62
	—	100	480	3	198.2	34.8
	—	100	600	3	171.1	29.6
	—	200	All Voltages Electrically Held	3	300	5.8
—	300		3	590	6.7	
—	400		3	830	9.2	

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### Overload Relays<sup>①②</sup> – For Class 14, 17, 18, 22, 25, 26, 30, 32, 83, 84, 87

Size	Half Size	Model	Number Poles	Ambient Comp Bimetal			
				Catalog Number (1) NC	List Price \$	Catalog Number (1) NO/NC	List Price \$
00-1	—	P	1 3	48DC18AA3 48DC38AA3		48DC39AA3	
1P	—	P	1	48EC18AA3			
—	1¼	P	3	48EC38AA3		48EC39AA3	
2	—	P	1 3	48GC18AA3 48GC38AA3		48GC39AA3	
—	2½	P	1 3	48GC18AA3 48GC38AA3		48GC39AA3	
3	—	P	3	48HC38AA3			
—	3½	P	3	48HC38AA3			
4	—	G	3	48JC38AA3			

**For Starter and Contactor replacement parts not found in this section, please refer to Field Modification kits found starting on page 17-92.**

① For replacement Solid State overload relays, please see the Overload Relay section found starting on page 17-49.


② Includes overload mounting plate to be coupled to contactor mounting plate.

# Replacement Parts


## Lighting and Heating Contactors, Type LE, CLM, CMF, CMN

Selection


### AC Coils – 20-400 Amps

 3RT1955-5AF31	Type	Contactor Size	Catalog Number						List Price \$	
			24VAC	120VAC	208VAC	240VAC	277VAC	480VAC		600VAC
LE		20, 30, 60 Amp	75D70646J	75D70646F	75D70646D	75D70646G	75D70646L	75D70646H	75D70646E	
		100 Amp	75D54772J	75D54772F	75D54772D	75D54772G	75D54772L	75D54772H	75D54772E	
		200 Amp <sup>①</sup>	3RT1955-5AB31	3RT1955-5AF31	3RT1955-5AM31	3RT1955-5AP31	3RT1955-5AU31	3RT1955-5AR31	3RT1955-5AT31	
		300 Amp <sup>①</sup>	3RT1965-5AB31	3RT1965-5AF31	3RT1965-5AM31	3RT1965-5AP31	3RT1965-5AU31	3RT1965-5AR31	3RT1965-5AT31	
		400 Amp <sup>①</sup>	3RT1975-5AB31	3RT1975-5AF31	3RT1975-5AM31	3RT1975-5AP31	3RT1975-5AU31	3RT1975-5AR31	3RT1975-5AT31	

### Main Contacts (Includes 3 Moving and 6 Fixed Contacts)

 3RT1965-6A	Type	Contactor Size	Catalog Number	List Price \$
	LE		20–100 Amp	Not Replaceable
200 Amp			3RT1956-6A <sup>①</sup>	
300 Amp			3RT1965-6A <sup>①</sup>	
400 Amp			3RT1975-6A <sup>①</sup>	


### Lighting Contact Assembly - 20 Amp (Power Poles)

	Type	Contactor Size	Catalog Number (Verify catalog number on side of contact assembly)	List Price \$
	LE		20 Amp	49LN02A, 2 NC Contacts Non-Stackable
49LN20A, 2 NO Contacts Non-Stackable				
49LS20A, 2 NO Contacts Stackable				
49LS10A, 1 NO Contact Stackable				

### AC Coils 20 Amps<sup>②</sup>

 CLM4097341	Type	Contactor Size	Number of Poles	120V, 60Hz 110V, 50Hz	List Price \$	240V, 60Hz 208V, 50Hz	List Price \$	277V 50/60Hz	List Price \$	480V, 60Hz 440V, 50Hz	List Price \$
	CLM	20 Amp	2–12	CLM4097341			CLM4097342		CLM4097343		CLM4097344

### AC Coils 30–400 Amps<sup>③</sup>

 CLMC4C120 CLMGU3C120	Type	Contactor Size	Number of Poles	Catalog Number						List Price \$	
				24V AC	120V AC	208V AC	220/240V AC	277V AC	480V AC	600V AC	
CLM†C		30 Amp	2–3-Pole	CLMC4C024	CLMC4C120	CLMC4C208	CLMC4C240	CLMC4C277	CLMC4C480	CLMC4C600	
			4-Pole	CLMC4C024	CLMC4C120	CLMC4C208	CLMC4C240	CLMC4C277	CLMC4C480	CLMC4C600	
			5-Pole	CLMC5C024	CLMC5C120	CLMC5C208	CLMC5C240	CLMC5C277	CLMC5C480	CLMC5C600	
CLM†D		60 Amp	2–3-Pole	CLMD3C024	CLMD3C120	CLMD3C208	CLMD3C240	CLMD3C277	CLMD3C480	CLMD3C600	
			4-Pole	CLMD5C024	CLMD5C120	CLMD5C208	CLMD5C240	CLMD5C277	CLMD5C480	CLMD5C600	
			5-Pole	CLMD5C024	CLMD5C120	CLMD5C208	CLMD5C240	CLMD5C277	CLMD5C480	CLMD5C600	
CLM†E		100, 200 Amp	2–3-Pole	CLME3C024	CLME3C120	CLME3C208	CLME3C240	CLME3C277	CLME3C480	CLME3C600	
			4-Pole	CLME5C024	CLME5C120	CLME5C208	CLME5C240	CLME5C277	CLME5C480	CLME5C600	
			5-Pole	CLME5C024	CLME5C120	CLME5C208	CLME5C240	CLME5C277	CLME5C480	CLME5C600	
CLM†G Latching Coil		300/400 Amp	2–3-Pole	—	CLMGL3C120	CLMGL3C208	CLMGL3C240	CLMGL3C277	CLMGL3C480	CLMGL3C600	
			2–3-Pole Unlatch Coil	—	CLMGU3C120	CLMGU3C208	CLMGU3C240	CLMGU3C277	CLMGU3C480	CLMGU3C600	

### Control Module Rectifier<sup>③</sup>

Type	Device	Contactor Size	Number of Poles	Catalog Number	List Price \$
CLM	CLM†C to CLM†F	30–200 Amps	All	CLMKCMR	

① Product Category: IEC.

② Coil kits for 20 amp CLM contactors include the coil clearing auxiliary contact.

③ For 30–200 amp CLM contactors, in the event that either the coil or the control module fails, it is recommended that both be replaced.

# Replacement Parts


## Lighting Contactors, CLM, CMB, CMF & CMN

*Selection*

### Ordering Information

- ▶ For **CLM**: 5th character of contactor catalog number indicates Frame Size.
- ▶ For **CMB, CMF, CMN**: 4th character of contactor catalog number indicates Frame Size.

### Main Contacts 20 Amp Lighting Contactors

 CLM4097334	Type	Contact Size	Number of Poles	Location	Catalog Number	List Price \$
	CLM	20 Amp	2 3 4 6	Top or Bottom Top Top or Bottom Top or Bottom	CLM4097331 CLM4097332 CLM4097333 CLM4097334	


### Main Contacts 30–400 Amp Lighting Contactors

Type	Frame Size	Contact Size	Number of Poles	Catalog Number	List Price \$
CLM	C	30 Amp	2	CLMCCK02	
			3	CLMCCK03	
			4	CLMCCK04	
			5	CLMCCK05	
	D	60 Amp	2	CLMDCK02	
			3	CLMDCK03	
			4	CLMDCK04	
			5	CLMDCK05	
	E	100 Amp	2	CLMECK02	
			3	CLMECK03	
			4	CLMECK04	
			5	CLMECK05	
F	200 Amp	2	CLMFCK02		
		3	CLMFCK03		
		4	CLMFCK04		
		5	CLMFCK05		
G	300 Amp	2	CLMGCK02		
		3	CLMGCK03		
H	400 Amp	2	CLMHCK02		
		3	CLMHCK03		

### Auxiliary Contact Blocks 20 Amp Lighting Contactors<sup>ⓐ</sup>

Type	Contact Size	Contacts	Catalog Number	List Price \$
CLM	20 Amp	1 Form C NO, NC Contact 2 Form C NO, NC Contacts	CLM4097291 CLM4097292	

### Auxiliary Contact Blocks 30–400 Amp Lighting Contactors

 CLMFCAK11	Type	Frame Size	Contact Size	Contact Configuration	Catalog Number	List Price \$
	CLM	C to F <sup>ⓑ</sup>	30–200 Amps	1 NO and 1 NC 2 NC 2 NO 1 Coil Clearing NO and NC	CLMFCAK11 CLMFCAK02 CLMFCAK20 CLMFCK11	
	G to H <sup>ⓐ</sup>	300–400 Amps	1 NO and 1 NC 2 NC 2 NO 1 Coil Clearing NO and NC	CLMHCAK11 CLMHCAK02 CLMHCAK20 CLMHCK11		

ⓐ Maximum 1 block per contactor.  
 ⓑ Maximum 2 blocks per contactor.

# Replacement Parts


## Miscellaneous

*Selection*

### Replacement Handle Assemblies and Disconnect Mechanisms Enclosure Types 1, 3R, 4, 4X Stainless Steel & 12

Class	Disconnect (Amps)	Enclosure Size	Handle Assembly Only		Handle Assembly and Disconnect Mechanism	
			Catalog Number	List Price \$	Catalog Number	List Price \$
17, 25, 32, 84, 87, CM, LE	30, 60 & 100	All Standard and Extra-wide Sizes	75D73944015		75D68257103	
37, 88	30 & 60		75D73944018		75D68257048	
17, 25, 32, 84	200		75D73944015		75D68257105	
37, 88, CM, LE	200		75D73944015		75D68257063	
87	200		75D73944023		75D68257068	
17, 25, 37, 87, 88, CM, LE	400 & 600		75D73944027		75D68257078	
Class	Motor Circuit Interrupter (Amps)	Enclosure Size	Handle Assembly Only		Handle Assembly and Disconnect Mechanism	
			Catalog Number	List Price \$	Catalog Number	List Price \$
18, 26, 32, CM, LE	3 - 125	(24"H x 11"W x 8"D), (24"H x 20"W x 8"D)	75D73944025		75D68257080	
18, 26, 32	100 - 125	(36"H x 24"W x 8"D)	75D73944025		75D68257073	
18, 26, 32	150 & 250	All Standard Sizes	75D73944028		75D68257089	
18, 26, 37, 87, 88, CM	300 - 600		75D73944027		75D68257078	
87	3 - 125		75D73944025		75D68257080	
87	150		75D73944028		75D68257089	
87	250		75D73944011		75D68257077	
37, 88	30 - 125		75D73944025		75D68257073	
37, 84, 88, CM	150 - 250		75D73944011		75D68257077	
84	3 - 125		75D73944025		75D68257074	

### Quarter Turn Assemblies

Description	Class	Enclosure Type	Catalog Number	List Price \$
	Quarter-Turn Latch	1, 3/3R & 12	75D46260004	
		4 & 4X	75D46260005	

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