

Overload Relay Heater Tables

Class 16 Starters, Class 48 Overloads

Selection of Heater Elements for Overload Relays

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

Selection Instructions

To select the proper heater follow the steps below:

1. Choose the proper table using the size, trip type, and number of poles ①

Ambient Compensated Bimetal Heater Element Tables

Class	Size		Standard Trip (Class 20)		Quick Trip (Class 10)	
	FLA	3rd Letter of Catalog No.	E Heaters Green Reset		K Heaters Green Reset	
			2 Poles	3 Poles	2 Poles	3 Poles
16	25 - 90	A - G	295	297	395	398
	120 - 150	H - I	—	299	—	393

2. If you do not know the trip amps, use the motor FLA to calculate the trip amps by multiplying the FLA by a factor of 1.15 ②
3. Match the trip amps of your starter to the trip amps value below the starter size of the appropriate table. The choice should be as close as possible but NOT greater than the selected trip amp value in the table to allow for proper protection.
4. Select the proper heater from the last column and order the appropriate number of heaters (single phase requires at least two, three phase requires at least three).

Examples

Starter	Size Starter	Phase	Trip	Heater Table	Motor FLA	Trip Amps	Heater Element
16CF15AF8	40	Single	Standard	295	35	40.25	E69
16EF35AF4	60	Three	Quick	398	56	64.40	K77

① 5th character in the catalog number equals 1 for single phase 2 pole or 3 for three phase 3 pole.

② For 40 degrees C motors, the maximum Trip Amps are 115% of the Motor FLA or TRIP AMPS = FLA*1.15.

Overload Relay Heater Tables

Tables 295, 297, 299
Trip Amps

Table 295

Size FLA		Heater Code
25, 30 40	50,60	
.67		E7
.73		E8
.81		E9
.88		E11
.96		E12
1.05		E13
1.11		E14
1.20		E16
1.33		E17
1.43		E18
1.54		E23
1.81		E24
2.07		E26
2.30		E27
2.59		E28
2.86		E29
3.02		E31
3.29		E32
3.48		E33
3.81		E34
4.25		E36
4.51		E37
4.85		E38
5.27		E39
5.72		E41
6.40		E42
7.15		E44
7.78		E46
8.56		E47
9.43		E48
9.93		E49
10.3		E50
11.4		E51
12.6		E52
13.8		E53
15.2		E54
16.4		E55
17.6		E56
19.1		E57
21.7		E60
25.0	25.4	E61
28.5	29.0	E62
30.0	30.6	E65
33.6	34.3	E66
39.0	39.9	E67
45.0	46.1	E69
47.6	48.8	E70
55.0	56.4	E72
	58.0	E73
	64.0	E74
	69.0	E76
	81.0	E77

Table 297

Size FLA			Heater Code
25,30 40	50,60	75,90	
.36			E3
.40			E4
.44			E5
.47			E6
.51			E7
.55			E8
.61			E9
.67			E11
.72			E12
.78			E13
.83			E14
.91			E16
1.01			E17
1.07			E18
1.16			E19
1.25			E23
1.36			E24
1.55			E26
1.72			E27
1.93			E28
2.12			E29
2.26			E31
2.43			E32
2.60			E33
2.83			E34
3.18			E36
3.37			E37
3.61			E38
3.93			E39
4.26			E41
4.77			E42
5.32			E44
5.78			E46
6.37			E47
7.02			E48
7.40			E49
7.70			E50
8.38			E51
9.43			E52
10.3			E53
11.2			E54
12.3			E55
13.1			E56
15.1			E57
17.1			E60
19.6			E61
21.4	22.5		E62
23.1	25.4		E65
24.8	27.1		E66
27.4	29.0		E67
30.6	32.0		E69
32.5	34.0		E70
36.8	38.0	48.4	E72
39.5	42.0	50.0	E73
50.0	49.0	55.0	E74
55.0	54.0	59.5	E76
	57.5	68.0	E77
	65.0	72.5	E78
		77.0	E79
	73.0	87.0	E80
	82.0		E81
		95.0	E94
		103.0	E96
		115.0	E97

Table 299

Size FLA				Heater Code
120,150 H, I	180 J	270, 360 R, K	650 M	
			215	E24
			242	E26
		110	268	E27
		123	307	E28
		136	330	E29
		143	351	E31
		154	380	E32
		164	406	E33
		176	438	E34
		195	469	E36
		207	510	E37
		222	551	E38
		242	598	E39
		262	648	E41
		292	700	E42
		326	755	E44
		354		E46
		372		E47
		409		E48
		427		E50
		470		E51
37.5				E69
42.0				E70
45.6				E71
49.6				E73
54.6				E73A
58.3				E74
64.6				E76
68.1				E77
72.6				E78
78.9				E79
84.7				E80
	68.0			E88
	71.0			E89
	78.0			E91
	84.0			E92
	89.5			E93
90.6	97.0			E94
100	106			E96
110	111			E97
115	118			E98
121	126			E99
124	135			E101
130	147			E102
138	160			E103
151	177			E104
157	193			E106
168	210			E107
180				E108