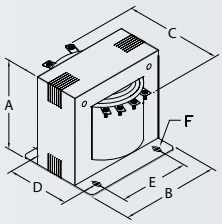
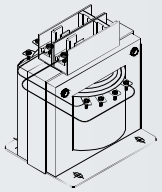
Features

- All Copper Windings
- Rugged coil mounted screw terminals
- UL Class 105°C insulation system, 55°C temperature rise through 750 VA
- UL Class 180°C insulation system, 115°C temperature rise 1000 VA and above
- All designs rated 50 / 60 Hertz
- Primary fuse blocks and secondary fuse holders available
- Combination screw heads for ease of installation
- Meets or exceeds UL 506, NEMA ST-1 and ANSI standards
- Nonstandard designs are available by consulting the factory or your Dongan Representative.





50 Series Voltage Combinations		
Suffix	Primary	Secondary
-052	120 x 240	24
-053	240 x 480	120 Triple Rated
-054	208	120
-056	600	120
-058	220/380/415	95/115
-059	208 or 500	85/100/110
	220/380/440/550	91/110/120
	230/400/460/575	95/115/125
	240/416/480/600	99/120/130
-134	240 x 480	120 / 240 Triple Rated

Suffix -052

Primary 120 x 240 - Secondary 24									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	120/240 V	24 V
50	50-0050-052	3	2.50/64	3.00/76	3.00/76	2.00/51	2.50/64	.203x.375 (5.2 x 9.5)	.42/21	2.08
75	50-0075-052	3	2.50/64	3.00/76	3.38/86	2.50/64	2.50/64	.203x.375 (5.2 x 9.5)	.63/.31	3.13
100	50-0100-052	4	2.81/71	3.38/86	3.38/86	2.38/60	2.81/71	.203x.375 (5.2 x 9.5)	.83/.42	4.17
150	50-0150-052	6	3.13/80	3.75/95	3.90/99	2.63/67	3.13/80	.203x.375 (5.2 x 9.5)	1.25/.63	6.25
200	50-0200-052	8	3.75/95	4.50/114	4.12/105	2.50/64	3.75/95	.203x.375 (5.2 x 9.5)	1.67/.83	8.33
250	50-0250-052	9	3.75/95	4.50/114	4.25/108	2.75/70	3.75/95	.203x.375 (5.2 x 9.5)	2.08/1.04	10.42
300	50-0300-052	11	3.75/95	4.50/114	4.75/121	3.13/80	3.75/95	.203x.375 (5.2 x 9.5)	2.50/1.25	12.50
375	50-0375-052	12	3.75/95	4.50/114	5.25/133	3.63/92	3.75/95	.203x.375 (5.2 x 9.5)	3.13/1.56	15.63
500	50-0500-052	17	4.38/111	5.25/133	5.88/149	3.63/92	4.38/111	.281x562 (7.1 x 14.3)	4.17/2.08	20.83
750	50-0750-052	25	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	6.25/3.13	31.25
1000	50-1000-052	26	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	8.33/4.17	41.67

Suffix -053

Primary 240 x 480, 230 x 460, 220 x 440 - Secondary 120, 115, 110 - Triple Rated									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	240/480 V	120 V
50	50-0050-053	3	2.50/64	3.00/76	3.00/76	2.00/51	2.50/64	.203x.375 (5.2 x 9.5)	.21/.10	.42
75	50-0075-053	3	2.50/64	3.00/76	3.38/86	2.50/64	2.50/64	.203x.375 (5.2 x 9.5)	.31/.16	.63
100	50-0100-053	4	2.81/71	3.38/86	3.38/86	2.38/60	2.81/71	.203x.375 (5.2 x 9.5)	.42/.21	.83
150	50-0150-053	6	3.13/80	3.75/95	3.90/99	2.63/67	3.13/80	.203x.375 (5.2 x 9.5)	.63/.31	1.25
200	50-0200-053	8	3.75/95	4.50/114	4.12/105	2.50/64	3.75/95	.203x.375 (5.2 x 9.5)	.83/.42	1.67
250	50-0250-053	9	3.75/95	4.50/114	4.25/108	2.75/70	3.75/95	.203x.375 (5.2 x 9.5)	1.04/.52	2.08
300	50-0300-053	11	3.75/95	4.50/114	4.75/121	3.13/80	3.75/95	.203x.375 (5.2 x 9.5)	1.25/.63	2.50
375	50-0375-053	12	3.75/95	4.50/114	5.25/133	3.63/92	3.75/95	.203x.375 (5.2 x 9.5)	1.56/.78	3.13
500	50-0500-053	17	4.38/111	5.25/133	5.88/149	3.63/92	4.38/111	.281x562 (7.1 x 14.3)	2.08/1.04	4.17
750	50-0750-053	25	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	3.13/1.56	6.25
1000	50-1000-053	26	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	4.17/2.08	8.33
1500	50-1500-053	32	5.62/143	6.38/162	7.00/178	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	6.25/3.13	12.50
2000	50-2000-053	38	5.62/143	6.38/162	7.62/194	5.00/127	5.31/135	.312x.625 (7.9 x 15.9)	8.33/4.17	16.67
3000	50-3000-053	50	6.62/168	7.50/191	7.75/197	4.75/121	6.75/171	.312x.625 (7.9 x 15.9)	12.50/6.25	25.00
5000	50-5000-053	70	6.62/168	7.5/191	10.25/	6.88/	6.75/171	.312x.625 (7.9 x 15.9)	20.83/10.42	41.67

Dimensions and weights may change. Consult factory for Certified Drawings.

Suffix -054

Primary 208 - Secondary 120									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	208 V	120 V
50	50-0050-054	3	2.50/64	3.00/76	3.00/76	2.00/51	2.50/64	.203x.375 (5.2 x 9.5)	.24	.42
75	50-0075-054	3	2.50/64	3.00/76	3.38/86	2.50/64	2.50/64	.203x.375 (5.2 x 9.5)	.36	.63
100	50-0100-054	4	2.81/71	3.38/86	3.38/86	2.38/60	2.81/71	.203x.375 (5.2 x 9.5)	.48	.83
150	50-0150-054	6	3.13/80	3.75/95	3.90/99	2.63/67	3.13/80	.203x.375 (5.2 x 9.5)	.72	1.25
200	50-0200-054	8	3.75/95	4.50/114	4.12/105	2.50/64	3.75/95	.203x.375 (5.2 x 9.5)	.96	1.67
250	50-0250-054	9	3.75/95	4.50/114	4.25/108	2.75/70	3.75/95	.203x.375 (5.2 x 9.5)	1.20	2.08
300	50-0300-054	11	3.75/95	4.50/114	4.75/121	3.13/80	3.75/95	.203x.375 (5.2 x 9.5)	1.44	2.50
375	50-0375-054	12	3.75/95	4.50/114	5.25/133	3.63/92	3.75/95	.203x.375 (5.2 x 9.5)	1.80	3.13
500	50-0500-054	17	4.38/111	5.25/133	5.88/149	3.63/92	4.38/111	.281x562 (7.1 x 14.3)	2.40	4.17
750	50-0750-054	25	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	3.61	6.25
1000	50-1000-054	26	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	4.81	8.33
1500	50-1500-054	32	5.62/143	6.38/162	7.00/178	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	7.21	12.50
2000	50-2000-054	38	5.62/143	6.38/162	7.62/194	5.00/127	5.31/135	.312x.625 (7.9 x 15.9)	9.62	16.67
3000	50-3000-054	50	6.62/168	7.50/191	7.75/197	4.75/121	6.75/171	.312x.625 (7.9 x 15.9)	14.42	25.00

Suffix -056

Primary 600/575/550 - Secondary 120/115/110 Triple Rated									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	600 V	120 V
50	50-0050-056	3	2.50/64	3.00/76	3.00/76	2.00/51	2.50/64	.203x.375 (5.2 x 9.5)	.08	.42
75	50-0075-056	3	2.50/64	3.00/76	3.38/86	2.50/64	2.50/64	.203x.375 (5.2 x 9.5)	.13	.63
100	50-0100-056	4	2.81/71	3.38/86	3.38/86	2.38/60	2.81/71	.203x.375 (5.2 x 9.5)	.17	.83
150	50-0150-056	6	3.13/80	3.75/95	3.90/99	2.63/67	3.13/80	.203x.375 (5.2 x 9.5)	.25	1.25
200	50-0200-056	8	3.75/95	4.50/114	4.12/105	2.50/64	3.75/95	.203x.375 (5.2 x 9.5)	.33	1.67
250	50-0250-056	9	3.75/95	4.50/114	4.25/108	2.75/70	3.75/95	.203x.375 (5.2 x 9.5)	.42	2.08
300	50-0300-056	11	3.75/95	4.50/114	4.75/121	3.13/80	3.75/95	.203x.375 (5.2 x 9.5)	.50	2.50
375	50-0375-056	12	3.75/95	4.50/114	5.25/133	3.63/92	3.75/95	.203x.375 (5.2 x 9.5)	.63	3.13
500	50-0500-056	17	4.38/111	5.25/133	5.88/149	3.63/92	4.38/111	.281x562 (7.1 x 14.3)	.83	4.17
750	50-0750-056	25	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	1.25	6.25
1000	50-1000-056	26	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	1.67	8.33
1500	50-1500-056	32	5.62/143	6.38/162	7.00/178	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	2.50	12.50
2000	50-2000-056	38	5.62/143	6.38/162	7.62/194	5.00/127	5.31/135	.312x.625 (7.9 x 15.9)	3.33	16.67
3000	50-3000-056	50	6.62/168	7.50/191	7.75/197	4.75/121	6.75/171	.312x.625 (7.9 x 15.9)	5.00	25.00

Suffix -058

Primary 220/380/415 - Secondary 95/115									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	220/380/415 V	95/115 V
250	50-0250-058	11	3.75/95	4.50/114	4.81/122	3.38/86	3.75/95	.203x.375 (5.2 x 9.5)	1.14/.66/.60	2.63/2.17
500	50-0500-058	22	4.38/111	5.25/133	6.63/168	4.60/117	4.38/111	.281x562 (7.1 x 14.3)	2.27/1.32/1.20	5.26/4.35
750	50-0750-058	23	4.25/108	5.75/146	7.38/187	4.38/111	4.94/125	.281x562 (7.1 x 14.3)	3.41/1.97/1.81	7.89/6.52
1000	50-1000-058	32	5.31/135	6.38/162	6.75/171	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	4.5/2.6/2.4	10.5/8.7
1500	50-1500-058	41	6.25/159	7.50/191	6.25/159	4.00/102	6.75/171	.312x.625 (7.9 x 15.9)	6.8/3.9/3.6	15.7/13.0
2000	50-2000-058	49	6.25/159	7.50/191	7.80/198	4.75/121	6.75/171	.312x.625 (7.9 x 15.9)	9.0/5.2/4.8	21.0/17.3
3000	50-3000-058	75	6.25/159	7.50/191	9.88/251	6.88/175	6.75/171	.312x.625 (7.9 x 15.9)	13.6/7.8/7.2	31.5/26.0
5000	50-5000-058	113	7.50/191	9.00/229	9.12/232	6.93/176	7.50/191	.437x.750 (111 x 19.1)	22.7/13.1/12.0	52.6/43.4

Dimensions and weights may change. Consult factory for Certified Drawings.

Suffix -059

Primary - Secondary 208/500 - 85/100/110 220/380/440/550 - 91/110/120 230/400/460/575 - 95/115/125 240/416/480/600 - 99/120/130									Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)			
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	
150	50-0250-059	11	4.38/111	5.25/133	4.57/116	2.63/	4.38/111	.281x562 (7.1 x 14.3)	1.25
250	50-0250-059	15	4.38/111	5.25/133	5.25/133	3.38/86	4.38/111	.281x562 (7.1 x 14.3)	2.25
375	50-0375-059	18	4.25/108	5.75/146	6.25/159	3.44/	4.94/	.281x562 (7.1 x 14.3)	3.2
500	50-0500-059	22	4.25/108	5.75/146	6.68/	4.38/111	4.94/	.281x562 (7.1 x 14.3)	4.5
750	50-0750-059	32	5.31/135	6.38/162	6.75/170	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	6.25
1000	50-1000-059	35	5.31/135	6.38/162	7.25/	5.00/	5.31/135	.312x.625 (7.9 x 15.9)	9
1500	50-1500-059	53	6.25/159	7.50/191	8.63/	5.25/	6.75/171	.312x.625 (7.9 x 15.9)	15
2000	50-2000-059	60	6.25/159	7.50/191	8.75/	5.80/	6.75/171	.312x.625 (7.9 x 15.9)	20
3000	50-3000-059	74	6.25/159	7.50/191	10.25/	6.88/	6.75/171	.312x.625 (7.9 x 15.9)	25

Suffix -134

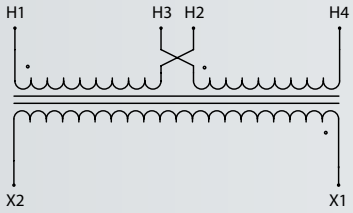
Primary 240 x 480, 230 x 460, 220 x 440 - Secondary 120/240, 115/230, 110/220 - Triple Rated									Primary Max Amps	Secondary Max Amps
			Dimensions (Inches/mm)			Mounting Dimensions (Inches/mm)				
VA	Catalog Number	Weight lbs	Height A	Width B	Depth C	D	E	F	240/480 V	120/240 V
50	50-0050-134	3	2.50/64	3.00/76	3.00/76	2.00/51	2.50/64	.203x.375 (5.2 x 9.5)	.21/.10	.42/21
75	50-0075-134	3	2.50/64	3.00/76	3.38/86	2.50/64	2.50/64	.203x.375 (5.2 x 9.5)	.31/.16	.63/.31
100	50-0100-134	4	2.81/71	3.38/86	3.38/86	2.38/60	2.81/71	.203x.375 (5.2 x 9.5)	.42/.21	.83/.42
150	50-0150-134	6	3.13/80	3.75/95	3.90/99	2.63/67	3.13/80	.203x.375 (5.2 x 9.5)	.63/.31	1.25/.63
200	50-0200-134	8	3.75/95	4.50/114	4.12/105	2.50/64	3.75/95	.203x.375 (5.2 x 9.5)	.83/.42	1.67/.83
250	50-0250-134	9	3.75/95	4.50/114	4.25/108	2.75/70	3.75/95	.203x.375 (5.2 x 9.5)	1.04/.52	2.08/1.04
300	50-0300-134	11	3.75/95	4.50/114	4.75/121	3.13/80	3.75/95	.203x.375 (5.2 x 9.5)	1.25/.63	2.50/1.25
375	50-0375-134	12	3.75/95	4.50/114	5.25/133	3.63/92	3.75/95	.203x.375 (5.2 x 9.5)	1.56/.78	3.13/1.56
500	50-0500-134	17	4.38/111	5.25/133	5.88/149	3.63/92	4.38/111	.281x562 (7.1 x 14.3)	2.08/1.04	4.17/2.08
750	50-0750-134	25	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	3.13/1.56	6.25/3.13
1000	50-1000-134	26	4.38/111	5.25/133	7.50/191	5.25/133	4.38/111	.281x562 (7.1 x 14.3)	4.17/2.08	8.33/4.17
1500	50-1500-134	32	5.62/143	6.38/162	7.00/178	4.50/114	5.31/135	.312x.625 (7.9 x 15.9)	6.25/3.13	12.50/6.25
2000	50-2000-134	38	5.62/143	6.38/162	7.62/194	5.00/127	5.31/135	.312x.625 (7.9 x 15.9)	8.33/4.17	16.67/8.33
3000	50-3000-134	50	6.62/168	7.50/191	7.75/197	4.75/121	6.75/171	.312x.625 (7.9 x 15.9)	12.50/6.25	25.00/12.50

Dimensions and weights may change. Consult factory for Certified Drawings.

50 Series

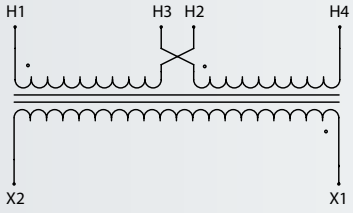
Suffix -052

Primary			Secondary	
Voltage	Jumper	Connect Incoming Lines To	Voltage	Connect Load To
120	H1 to H3 & H2 to H4	H1 & H4	24	X1 & X2
240	H2 to H3	H1 & H4		



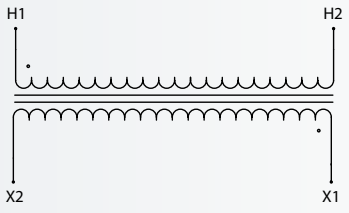
Suffix -053

Primary			Secondary	
Voltage	Jumper	Connect Incoming Lines To	Voltage	Connect Load To
240 230 220	H1 to H3 & H2 to H4	H1 & H4	120 115 110	X1 & X2
480 460 440	H2 to H3	H1 & H4		



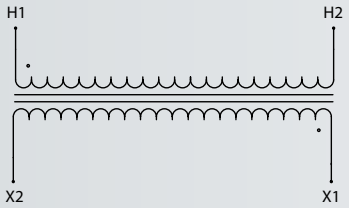
Suffix -054

Primary			Secondary	
Voltage	Jumper	Connect Incoming Lines To	Voltage	Connect Load To
208	-	H1 & H2	120	X1 & X2



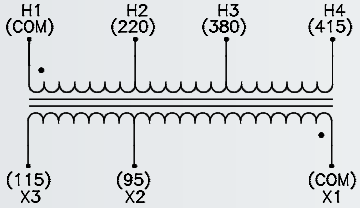
Suffix -056

Primary			Secondary	
Voltage	Jumper	Connect Incoming Lines To	Voltage	Connect Load To
600	-	H1 & H2	120	X1 & X2
575			115	X1 & X2
550			110	X1 & X2



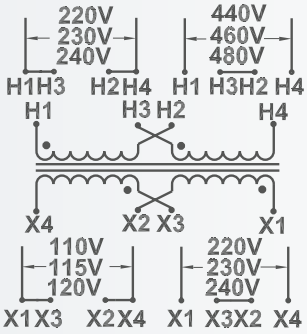
Suffix -058

Primary			Secondary	
Voltage	Jumper	Connect Incoming Lines To	Voltage	Connect Load To
220	-	H1 & H2	95	X1 & X2
380	-	H1 & H3		
415	-	H1 & H4	115	X1 & X3



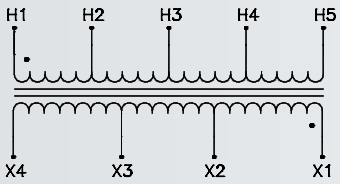
Suffix -134

Primary			Secondary		
Voltage	Jumper	Connect Incoming Lines To	Voltage	Jumper	Connect Load To
240 230 220	H1 to H3 & H2 to H4	H1 & H4	120 115 110	X1 to X3 & X2 to X4	X1 & X4
480 460 440	H2 to H3	H1 & H4	120 115 110	X1 to X3 & X2 to X4	X1 & X4
240 230 220	H1 to H3 & H2 to H4	H1 & H4	240 230 220	X2 to X3	X1 & X4
480 460 440	H2 to H3	H1 & H4	240 230 220	X2 to X3	X1 & X4

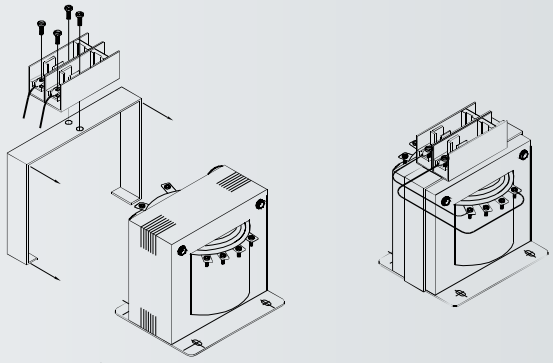


Suffix -059

Primary				Secondary		
Connect Incoming Lines To H1 & H2	Connect Incoming Lines To H1 & H3	Connect Incoming Lines To H1 & H4	Connect Incoming Lines To H1 & H5	Connect Load To X1 & X2	Connect Load To X1 & X3	Connect Load To X1 & X4
208	-	-	500	85	100	110
220	380	440	550	91	110	120
230	400	460	575	95	115	125
240	416	480	600	99	120	130



Series 50 Primary Fuse Kit BR-734



I Fuse Kit BR-734

- Meets UL 508
- Meets NEC Article 450
- Uses Class CC Fuses

Installation Procedure

- Looosen bolts holding transformer to the panel backplate.
- Slide the BR-734 bracket over the transformer.
- Connect the Fuse Holder leads to the transformer terminals with the Jumper Leads furnished.

Series 50 Recommended Fuse Type by Manufacturer

Manufacturer	Bussman	Gould	Littlefuse
Primary Fuse Type	FNQ-R	ATQR / ATDR	KLDR / CCRM
Secondary Fuse Type Fuse Holder 265-B	FNM / FNQ (250V) (500v)	TRM / ATQ (250V) (500V)	FLM / FLQ (250V) (500V)
Secondary Fuse Type Fuse Holder GLF 1 ¼	MDQ (250V)	GDL (250V)	3AB (250V)

Note: Fuses sold separately.

Primary Fuse Holder Brackets for 50 Series

Series VA	052	053	054	056	058	059	134
50	BR-734-1	BR-734-1	BR-734-1	BR-734-1			BR-734-1
75	BR-734-1	BR-734-1	BR-734-1	BR-734-1			BR-734-1
100	BR-734-2	BR-734-2	BR-734-2	BR-734-2			BR-734-2
150	BR-734-3	BR-734-3	BR-734-3	BR-734-3		BR-734-6	BR-734-3
200	BR-734-4	BR-734-4	BR-734-4	BR-734-4			BR-734-4
250	BR-734-4	BR-734-4	BR-734-4	BR-734-4	BR-734-4	BR-734-6	BR-734-4
300	BR-734-4	BR-734-4	BR-734-4	BR-734-4			BR-734-4
375	BR-734-4	BR-734-4	BR-734-4	BR-734-4		BR-734-5	BR-734-4
500	BR-734-6	BR-734-6	BR-734-6	BR-734-6	BR-734-6	BR-734-5	BR-734-6
750	BR-734-6	BR-734-6	BR-734-6	BR-734-6	BR-734-5	BR-734-7	BR-734-6
1000	BR-734-6	BR-734-6	BR-734-6	BR-734-6	BR-734-7	BR-734-7	BR-734-6
1500		BR-734-7	BR-734-7	BR-734-7	BR-734-8	BR-734-8	BR-734-7
2000		BR-734-7	BR-734-7	BR-734-7	BR-734-8	BR-734-8	BR-734-7
3000		BR-734-8	BR-734-8	BR-734-8	BR-734-8	BR-734-8	BR-734-8
5000		BR-734-8			BR-734-9		

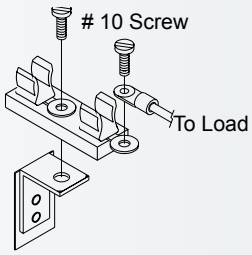
Series 50 Secondary Fuse Kits

Fuse Kit 265 B

- Meets UL 508
- Meets NEC Article 450
- Uses Class 13/32 x 1 ½ Fuses

Installation Procedure

- Remove the #10 screw in the transformer terminal to be fused.
- Fasten 265 B Fuse Holder to the transformer terminal with the longer #10 screw provided, as shown in the diagram.
- Connect the load lead to the terminal provided on the 265 B Fuse Holder

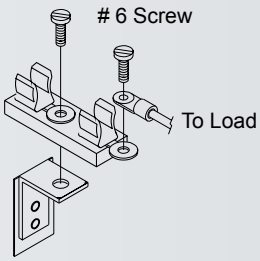


Fuse Kit GLF 1 ¼

- Meets UL 508
- Meets NEC Article 450
- Uses Class ¼ x 1 ¼ Fuses

Installation Procedure

- Remove the #6 screw in the transformer terminal to be fused.
- Fasten GLF 1 ¼ Fuse Holder to the transformer terminal with the longer #6 screw provided, as shown in the diagram.
- Connect the load lead to the terminal provided on the GLF 1 ¼ Fuse Holder



Note: Fuses sold separately.

Selecting and Sizing an Industrial Control Transformer

Selecting The Correct Transformer VA Capacity

Once Selection VA is calculated by one of the above methods, the selection charts on the right can be used.

Calculated Selection Inrush VA should be equal to or greater than the maximum inrush VA from the chart. To assure adequate capacity, a power factor of 40% has been employed in the selection chart.

The use of the 90% or 95% of rated secondary voltage column is recommended for transformer selection. The use of the 85% rated secondary voltage column may not provide adequate voltage output to accommodate existing below normal distribution voltages and voltage dips during equipment and motor startups.

Example:
Sizing Data:

Sealed VA = 270 VA
Inrush VA = 1,728 VA

Using the formula in Method 1:
Selection Inrush VA

$= \sqrt{(\text{VA sealed})^2 + (\text{VA inrush})^2}$
$= \sqrt{(270)^2 + (1{,}728)^2}$
$= 1{,}749$ VA

In the above example, at 95% of rated secondary voltage (.4 PF), the correct transformer size is 500 VA.

Using the formula in Method 2:

= VA Sealed + VA Inrush
= 270 + 1728
= 1,998 VA

In the above example, at 95% of rated secondary voltage (.4 PF), the correct transformer size is 750 VA.

Conversion to kVA:
The formula used to convert single phase VA to kVA is as follows:

$$\text{kVA} = \frac{\text{VA (Volt Amperes)}}{1000}$$

Typical Va Requirements of 3 pole, 60 Hz, 120 volt contractors are listed in the chart below:

Selection Inrush VA Charts

IC Series

Series IC Inrush VA		Selection Inrush VA at 85%, 90%, and 95% of Rated Secondary Voltage					
		20% Power Factor			40% Power Factor		
VA Rating	Catalog Number	85%	90%	95%	85%	90%	95%
50	IC-0050-xxx	330	270	210	240	200	140
75	IC-0075-xxx	520	430	340	370	310	220
100	IC-0100-xxx	840	690	540	590	480	352
150	IC-0150-xxx	1390	1150	900	1280	1030	722
250	IC-0250-xxx	2850	2300	1850	1980	1650	1060
350	IC-0350-xxx	3980	3200	2580	2900	2400	1680
500	IC-0500-xxx	7400	6130	4800	5200	4340	3200
750	IC-0750-xxx	12000	10400	8100	8800	7400	5100
1000	IC-1000-xxx	19100	15700	11400	13500	11200	7700

50 Series

Series 50 Inrush VA		Selection Inrush VA at 85%, 90%, and 95% of Rated Secondary Voltage					
		20% Power Factor			40% Power Factor		
VA Rating	Catalog Number	85%	90%	95%	85%	90%	95%
50	50-0050-xxx	270	230	190	250	185	140
75	50-0075-xxx	580	480	350	460	340	250
100	50-0100-xxx	820	660	490	520	410	305
150	50-0150-xxx	1350	1000	820	1250	900	640
200	50-0200-xxx	1920	1380	840	1320	960	690
250	50-0250-xxx	2780	1990	1190	1840	1290	790
300	50-0300-xxx	3600	2680	1630	2470	1800	1070
375	50-0375-xxx	4580	3300	2050	3100	2250	1300
500	50-0500-xxx	6150	4450	2750	4350	3100	1900
750	50-0750-xxx	10200	7300	4300	8450	5500	3700
1000	50-1000-xxx	11800	8400	4600	8900	5900	3950
1500	50-1500-xxx	22400	16300	9200	16500	12900	6900
2000	50-2000-xxx	24600	16800	9800	19600	13300	7200
3000	50-3000-xxx	32500	23600	13900	26500	19600	11700
5000	50-5000-xxx	62000	46000	26800	49800	37200	29500

HC Series

Series HC Inrush VA		Selection Inrush VA at 85%, 90%, and 95% of Rated Secondary Voltage					
		20% Power Factor			40% Power Factor		
VA Rating	Catalog Number	85%	90%	95%	85%	90%	95%
50	HC-0050-xxx	270	230	190	250	185	140
75	HC-0075-xxx	580	480	350	460	340	250
100	HC-0100-xxx	810	630	440	620	530	350
150	HC-0150-xxx	1350	1050	820	1250	900	640
250	HC-0250-xxx	2040	1610	1170	1940	1420	980
375	HC-0375-xxx	3240	2450	2030	2900	2050	1650
500	HC-0500-xxx	5600	4050	2900	4500	3500	2350
750	HC-0750-xxx	9300	6650	4800	7100	5650	3850
1000	HC-1000-xxx	14500	11000	7900	12600	9700	5800
1500	HC-1500-xxx	24200	18700	13500	19500	14100	9800
2000	HC-2000-xxx	37500	27500	19800	27500	20500	14000

Control Circuit Overcurrent Protection

Current North American Standards specify overcurrent protection on all control circuit transformers. These standards include the US National Electric Code® andUL 508. Specified overcurrent protection may be accomplished by one of two options.

Option 1: Provide primary overcurrent protection based on the parameters below.

Option 2: Provide both primary and secondary overcurrent protection. When this option is followed, the primary overcurrent device should be rated at no more than 250% of rated primary current and the secondary overcurrent device at no more than 125% of rated secondary current.

Option 2 is the preferred method of overcurrent protection, as it minimizes nuisance trips due to startup inrush.

In either method, it is recommended that Class CC, time delay primary fuses be used in order to help prevent nuisance trips.

Recommended Primary Fuse Chart (UL & CSA)

Primary Voltage																		
VA ↓	115	120	200	208	220	230	240	277	380	400	416	440	460	480	550	575	600	VA ↓
50	1 1/4	1 1/4	3/4	6/10	6/10	6/10	8/10	1/2	3/10	3/10	3/10	3/10	3/10	3/10	1/4	1/4	2/10	50
75	1 8/10	1 8/10	1 1/8	1	1	8/10	8/10	8/10	1/2	1/2	1/2	1/2	4/10	4/10	4/10	3/10	3/10	75
100	2 1/2	2 1/4	1 1/2	1 4/10	1 1/4	1 1/4	1 1/4	1	3/4	3/4	6/10	6/10	6/10	6/10	1/2	1/2	1/2	100
150	3 1/2	3 1/2	2 1/4	2	2	1 8/10	1 8/10	1 6/10	1 1/8	1 1/8	1	1	8/10	8/10	8/10	3/4	3/4	150
200	5	5	3	2 8/10	2 1/2	2 1/2	2 1/4	2	1 1/2	1 1/2	1 4/10	1 1/4	1 1/4	1 1/4	1	1	8/10	200
250	4	4	3 1/2	3 1/2	3 3/10	3 3/10	3	2 1/2	1 1/8	1 8/10	1 8/10	1 6/10	1 6/10	1 1/2	1 1/4	1 1/4	1 1/4	250
300	5	5	4 1/2	4	4	3 1/2	3 1/2	3 2/10	2 1/4	2 1/4	2	2	1 8/10	1 8/10	1 6/10	1 1/2	1 1/2	300
350	5	5	5	5	4 1/2	4 1/2	4	3 1/2	2 1/2	2 1/2	2 1/2	2 1/4	2 1/4	2	1 8/10	1 8/10	1 6/10	350
500	8	8	4 1/2	5	4	4	3 1/2	5	3 1/2	3 1/2	3 1/2	3 2/10	3 2/10	3	2 1/2	2 1/2	2 1/4	500
750	10	10	7	6	6	6	5	5	5 6/10	5 6/10	5	5	4 1/2	4 1/2	4	3 1/2	3 1/2	750
1000	15	15	9	8	8	8	7	6	4 1/2	4 1/2	4	4	3 1/2	3 1/2	5	5	5	1000
1500	20	15	15	12	12	10	10	9	6 1/4	6 1/4	6	6	6	5	4 1/2	4 1/2	4	1500
2000	25	20	15	15	15	15	15	12	9	9	8	8	8	7	6	6	6	2000
3000			20	20	20	20	15	15	15	12	12	12	12	10	9	9	9	3000
5000				30	30	30	30	25	20	15	15	15	15	15	15	15	15	5000

Recommended Secondary Fuse Chart (UL & CSA)

Secondary Voltage												
VA ↓	24	95	100	110	115	120	125	130	220	230	240	VA ↓
50	3 2/10	8/10	8/10	3/4	6/10	6/10			3/10	3/10	3/10	50
75	5	1 1/4	1 1/4	1 1/8	1	1			1/2	1/2	1/2	75
100	6 1/4	1 6/10	1 6/10	1 1/2	1 4/10	1 1/4			3/4	6/10	6/10	100
150	10	2 1/2	2 1/2	2 1/4	2	2			1 1/8	1	1	150
200	12	3 1/2	3 3/10	3	2 8/10	2 1/2			1 1/2	1 4/10	1 1/4	200
250	15	4	4	3 1/2	3 1/2	3 2/10			1 8/10	1 8/10	1 6/10	250
300	20	5	5	4 1/2	4	4			2 1/4	2	2	300
350	20	6	5 6/10	5	5	4 1/2			2 1/2	2 1/2	2 1/4	350
500	30	8	8	7 1/2	7	6 1/4			3 1/2	3 1/2	3 3/10	500
750		12	12	10	10	10			5 6/10	5	5	750
1000		15	15	15	15	15			7	7	7	1000
1500		20	20	20	20	20			9	8	8	1500
2000		30	30	20	30	20			15	15	12	2000
3000									20	20	20	3000
5000									30	30	30	5000