

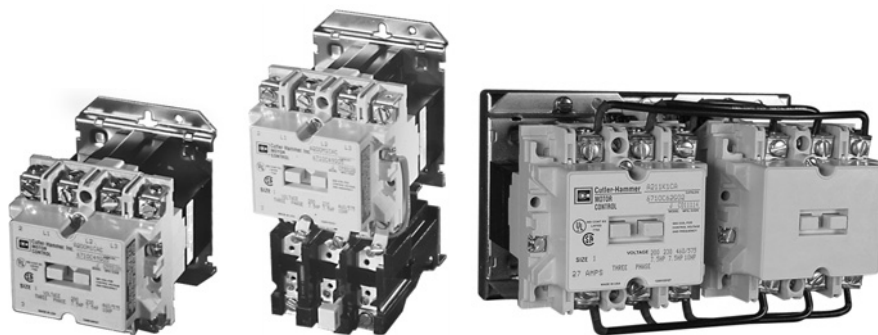
January 2006

A200 NEMA Contactors and Starters

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Note: Supplement to Publication No. CA08102001E, Tab 33.

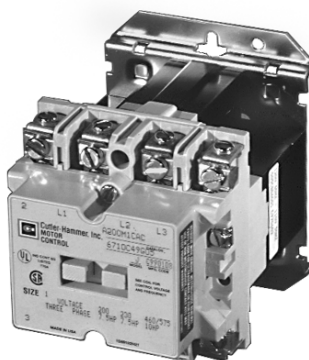


A200 NEMA Contactors and Starters

Contactors — Non-reversing and Reversing

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Size 1 Contactor

Product Description — Sizes 00 – 4

Application

Magnetic contactors are used to switch transformers and capacitors and to control electrical power circuits such as heating, lighting and motors that require no overload protection, or where overload protection is separately provided. They can be operated remotely by manual or automatic pilot devices.

Class A201 Contactors, Sizes 00 – 4; Three-Phase, 1-1/2 – 100 hp

These Cutler-Hammer® A201 Magnetic Contactors from Eaton's electrical business are 600V rated devices available in NEMA Sizes 00 – 4, 10A through 150A (open rating). Product features include:

- Straight-through wiring to line and load terminals located up front for ease of installation.
- Moving and stationary contacts are front accessible, simplifying inspection and maintenance.
- Reliable U-shaped magnet for reduced power consumption.
- Coil design reduces inventory/maintenance expenses. For a given voltage, one size coil fits all contactors Sizes 00 – 2, and a second coil fits three-pole Model J Sizes 3 and 4. Model K coils are different design.

A201 contactors have normally open holding circuit interlocks which are supplied as standard.

Panel layout and drilling are simplified through the use of common backplates, one for Sizes 00 – 2 and one for Sizes 3 – 4. In addition, panel space is reduced dramatically through the use of unique corner cavities for mounting the wide variety of modifications shown on **Page 20**.

For reversing applications, two contactors are supplied on a common base with electrical and mechanical interlocks which prevent both contactors from being closed at the same time.

A201 contactors are UL listed components and also have CSA certification.



Size 5 Contactor

Product Description — Sizes 5 – 9

Class A201, Contactors, Sizes 5 – 9; Three-Phase, Over 100 hp

These Cutler-Hammer AC magnetic contactors utilize clapper design and feature straight-through wiring.

Contacts are silver alloy for longer life. The contacts close with optimum wiping action which serves to keep the contacting surfaces clean. De-ion® arc quenchers draw the arc away from the contacts at opening, which reduces burning and pitting and increases contact life.

All of the contactors are complete with one unwired, normally-open (NO) auxiliary contact mounted and have accommodations for additional auxiliary contacts. No control circuit wiring or terminal markings are included.

Size 5, 300A, 600V, Open Size 6, 600A, 600V, Open

Cutler-Hammer Class A201 Size 5 and 6 contactors are front clapper design, AC operated with the armature pivoting on dual needle bearings which assure accurate contact alignment.

The contactor base is molded of a high impact, non-tracking, non-hygroscopic glass polyester material permitting front mounting and wiring on a steel panel.

Floating magnet assures quiet operation.

Size 5 and 6 contactors must be mounted with the line terminals directly above the load terminals.

Multi-voltage coil ratings allow selection of the voltage which closely matches the actual system voltage to assure optimum contactor operation.

Each contactor accommodates two Type J11 auxiliary contacts, providing up to four auxiliary circuits, normally-open or normally-closed (NO and NC).

A201 Size 5 and 6 contactors and starters are UL recognized when supplied without terminals. When supplied with terminals, the devices are UL listed.

Two special configurations of the Class A201 Size 5 and 6 contactors are available:

■ **Latched Design** — This is a mechanically held, electrically released device. It is applied where the contactor must remain closed during extreme voltage fluctuations or power failure. It is also suitable for applications requiring quiet operation since the operating coil is de-energized when the contactor is closed. The latch assembly consists of a mechanical latch mechanism, electrically operated AC trip solenoid and a clearing contact.

■ **DC Operated** — This device is DC operated. It is used where low drop-out voltage or exceptionally quiet operation is desired. The DC assembly consists of a DC operating coil, integrally mounted rectifier and shorting contact.

Size 7, 900A, 600V, Open Size 8, 1350A, 600V, Open Size 9, 2500A, 600V, Open

Cutler-Hammer Class A201 Size 7 and 8 contactors are DC operated side clapper design with the shaft mounted on dual needle bearings to ensure positive contact alignment and long contact life.

A steel panel base permits mounting on angle or channel without additional support, for versatile low cost installation.

Each stationary contact assembly is mounted on an individual molded insulator. Each pair of contacts is surrounded by a De-ion grid type arc quencher for rapid and confined arc interruption and long contact life.

The shunt for each pole is made of flexible, braided copper cable for freedom of movement and long life.

The rugged DC operating coils are designed to operate at high temperature and insulated to meet Class H service.

An integrally mounted avalanche type silicon rectifier supplies DC coil voltage from the AC control circuit.

Sizes 7 and 8 accommodate three Type L-63 auxiliary contacts which are easily converted from normally-open to normally-closed, providing auxiliary circuit flexibility. Size 9 uses L-64 auxiliary contacts with a total of four circuits.

A201 Size 7, 8 and 9 contactors and starters are UL recognized when supplied without terminals. When supplied with terminals, the devices are UL listed.

Instructional Leaflets

16960B	Sizes 00 – 1 Magnetic Contactor, Non-reversing or Reversing
16961E	Size 2 Magnetic Contactor, Non-reversing or Reversing
13238G	Size 3 Magnetic Contactor, Non-reversing or Reversing
17001C	Size 4 Magnetic Contactor, Non-reversing or Reversing
17049D	Size 5 Magnetic Contactor, Non-reversing or Reversing
17053B	Size 6 Magnetic Contactor, Non-reversing or Reversing
17048	Sizes 7 – 8 Magnetic Contactor, Non-reversing or Reversing
16978	Size 9 Magnetic Contactor, Non-reversing or Reversing

Contactors — Non-reversing and Reversing

Dimensions and Shipping Weights

Not to be used for construction purposes unless approved.

Table 1. Non-reversing Open Contactors Dimensions

NEMA Size	No. of Poles	Fig.	Mounting Screws		Approximate Dimensions in Inches (mm)								Weight, Lbs. (kg)
			No.	Size	A	B	C	D	E	F	G	H	
00, 0, 1	2-4	A	3	#10	3.31 (84.1)	4.38 (111.3)	4.61 (117.1)	3.95 (100.3)	1.50 (38.1)	1.66 (42.2)	.23 (5.8)	—	2.6 (1.2)
	5	A	3	#10	4.19 (106.4)	4.38 (111.3)	4.61 (117.1)	3.95 (100.3)	1.50 (38.1)	2.09 (53.1)	.23 (5.8)	—	3.2 (1.5)
2	2, 3	A	3	#10	3.31 (84.1)	4.38 (111.3)	4.94 (125.5)	3.95 (100.3)	1.50 (38.1)	1.66 (42.2)	.23 (5.8)	—	3.3 (1.5)
	4, 5	A	3	#10	5.06 (128.5)	4.38 (111.3)	4.94 (125.5)	3.95 (100.3)	1.50 (38.1)	2.53 (64.3)	.23 (5.8)	—	4.5 (2.0)
3, 4	2, 3	A	3	1/4 in.	4.63 (117.6)	6.63 (168.4)	6.75 (171.5)	6.00 (152.4)	1.88 (47.8)	2.31 (58.7)	.38 (9.7)	—	9.3 (4.2)
	4, 5	A	3	1/4 in.	7.25 (184.2)	6.63 (168.4)	6.75 (171.5)	6.00 (152.4)	1.88 (47.8)	3.63 (92.2)	.38 (9.7)	—	13.0 (5.9)
5	2, 3	B	4	3/8 in.	7.22 (183.4)	12.00 (304.8)	7.75 (196.9)	11.00 (279.4)	2.75 (69.9)	—	.59 (15.0)	2.22 (56.4)	25.0 (11.4)
6	2, 3	C	4	3/8 in.	7.22 (183.4)	13.50 (342.9)	9.50 (251.3)	11.00 (279.4)	2.75 (69.9)	—	.59 (15.0)	2.22 (56.4)	42.0 (19.1)
7	3	D	4	3/8 in.	23.50 (596.9)	18.63 (473.2)	11.00 (279.4)	12.00 (304.8)	22.00 (558.8)	—	5.63 (143.0)	.75 (19.1)	215.0 (97.6)
8	3	D	4	3/8 in.	23.50 (596.9)	19.25 (489.0)	11.00 (279.4)	12.00 (304.8)	22.00 (558.8)	—	5.63 (143.0)	.75 (19.1)	265.0 (120.3)
9	3	D	4	1/2 in.	33.00 (838.2)	29.75 (755.7)	12.94 (328.7)	8.00 (203.2)	30.75 (781.1)	—	14.50 (368.3)	1.63 (41.4)	315.0 (143.0)

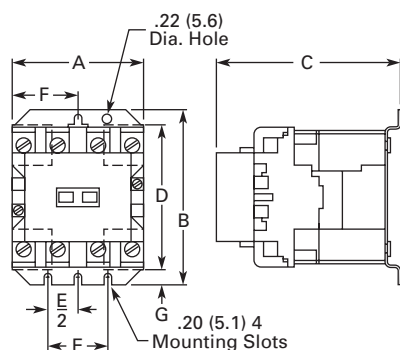


Figure A
Sizes 00 – 4 A201 Contactors

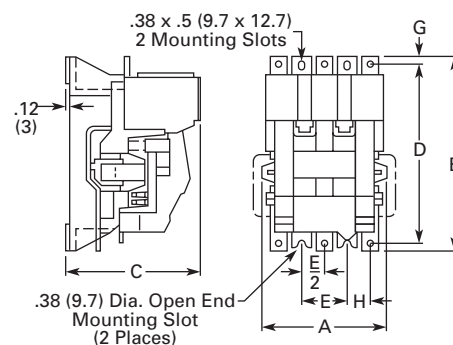


Figure B
Size 5

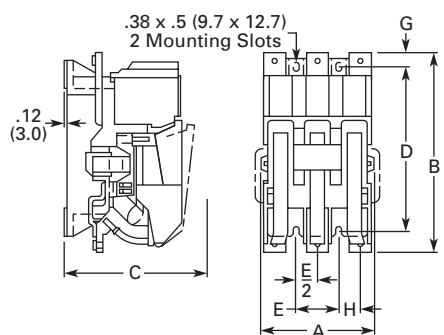


Figure C
Size 6

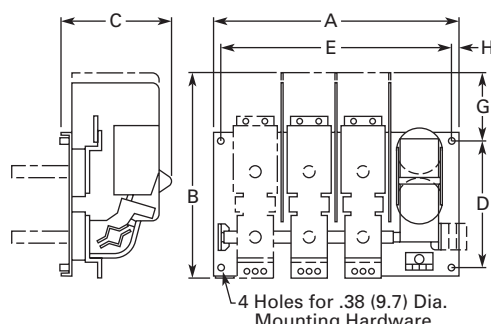


Figure D
Sizes 7 – 9

Figure 1. Non-reversing Open Contactors Dimensions

January 2006

Contactors — Non-reversing and Reversing

Not to be used for construction purposes unless approved.

Table 2. Reversing Open Contactors Dimensions

NEMA Size	No. of Poles	Fig.	Mounting Screws		Approximate Dimensions in Inches (mm)								Weight, Lbs. (kg)
			No.	Size	A	B	C	D	E	F	G	H	
00, 0, 1	3 x 3 H.	A	3	#10	7.13 (181.1)	4.45 (113.0)	5.05 (128.3)	3.95 (100.3)	5.31 (134.9)	3.56 (90.4)	.25 (6.4)	—	7.8 (3.5)
	3 x 3 V.	B	3	#10	3.33 (84.6)	9.61 (244.1)	5.05 (128.3)	9.08 (230.6)	2.16 (54.9)	.75 (19.1)	.25 (6.4)	4.52 (114.8)	8.9 (4.0)
2	3 x 3 H.	A	3	#10	7.13 (181.1)	4.45 (113.0)	5.38 (136.7)	3.95 (100.3)	5.31 (134.9)	3.56 (90.4)	.25 (6.4)	—	9.1 (4.1)
	3 x 3 V.	B	3	#10	3.33 (84.6)	9.61 (244.1)	5.38 (136.7)	9.08 (230.6)	2.16 (54.9)	.75 (19.1)	.25 (6.4)	4.52 (114.8)	10.0 (4.5)
3, 4	3 x 3 H.	A	3	1/4 in.	9.75 (247.7)	6.88 (174.8)	7.25 (184.2)	6.00 (152.4)	7.00 (177.8)	4.88 (124.0)	.44 (11.2)	—	24.0 (10.9)
	3 x 3 V.	B	3	1/4 in.	4.63 (117.6)	16.56 (420.6)	7.25 (184.2)	15.69 (398.5)	2.75 (69.9)	.94 (23.9)	.44 (11.2)	7.78 (197.6)	25.0 (11.4)
5	3 x 3 H.	C	8	3/8 in.	17.22 (437.4)	12.00 (304.8)	7.75 (196.9)	11.00 (279.4)	2.75 (69.9)	10.00 (254.0)	.59 (15.0)	1.38 (35.1)	55.0 (25.0)
	3 x 3 V.	D	8	3/8 in.	8.25 (209.6)	30.00 (762.0)	7.75 (196.9)	18.00 (457.8)	2.75 (69.9)	—	—	1.38 (35.1)	55.0 (26.0)
6	3 x 3 H.	C	8	3/8 in.	17.22 (437.4)	13.50 (342.9)	8.75 (222.3)	11.00 (279.4)	2.75 (69.9)	10.00 (254.0)	.59 (15.0)	1.38 (35.1)	90.0 (40.9)
	3 x 3 V.	D	8	3/8 in.	8.25 (209.6)	41.50 (1054.1)	8.75 (222.3)	28.00 (711.2)	2.75 (69.9)	—	—	1.38 (35.1)	90.0 (40.9)
7	3 x 3 V.	E	8	3/8 in.	23.50 (596.9)	38.63 (981.2)	11.00 (279.4)	20.00 (508.0)	22.00 (558.8)	—	5.63 (143.0)	.75 (19.1)	450.0 (204.3)
8	3 x 3 V.	E	8	3/8 in.	23.50 (596.9)	39.25 (997.0)	11.00 (279.4)	20.00 (508.0)	22.00 (558.8)	—	5.63 (143.0)	.75 (19.1)	550.0 (249.7)
9	3 x 3 V.	E	8	1/2 in.	33.00 (838.2)	62.75 (1593.9)	12.94 (328.7)	33.00 (838.2)	30.75 (781.1)	—	14.50 (368.3)	1.63 (41.4)	650.0 (295.1)

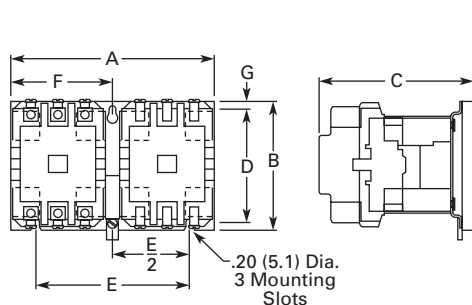
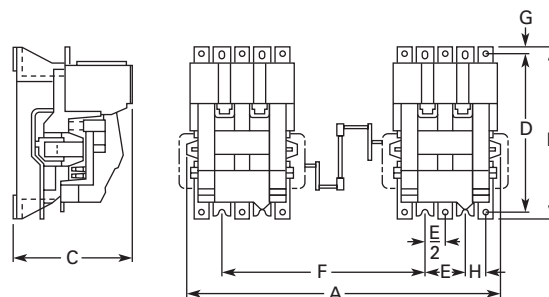
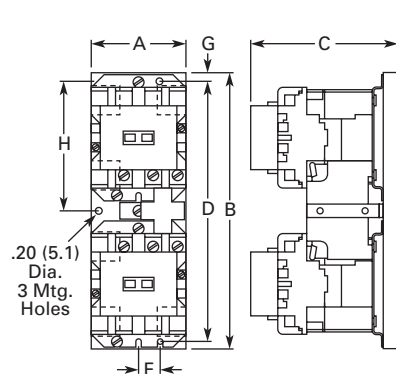
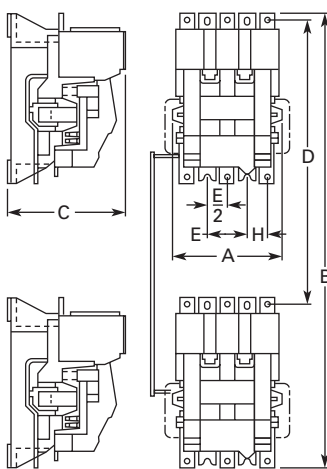
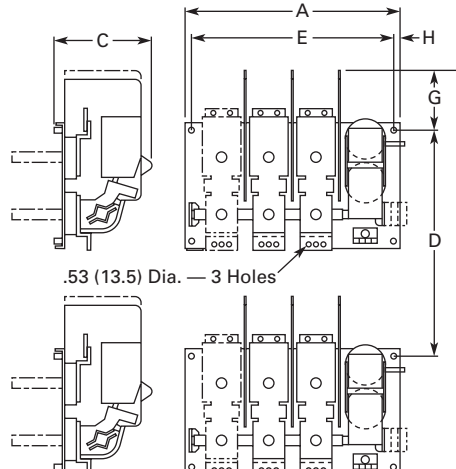
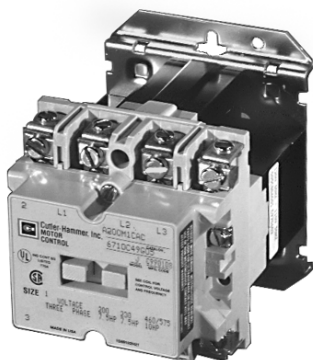
Figure A
Sizes 00 – 4 HorizontalFigure C
Sizes 5, 6 HorizontalFigure B
Sizes 00 – 4 VerticalFigure D
Sizes 5, 6 VerticalFigure E
Sizes 7 – 9 Vertical

Figure 2. Reversing Open Contactors Dimensions

Contactors — Non-reversing and Reversing



A201 Size 1 Contactor

Product Selection — Non-reversing, Sizes 00 – 9

When Ordering Specify

Order by Catalog Number from **Table 3**, plus Suffix for coil voltages, verifying usage of appropriate sizes.

Table 3. Front Connected Contactors Selection

Size	Amps	Max. UL Horsepower						2 Poles — Open		3 Poles — Open		4 Poles — Open		5 Poles — Open	
		1-Phase		3-Phase				Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
		115V	230V	208V	240V	480V	600V								

Sizes 00 – 6

00	9	1/3	1	1-1/2	1-1/2	2	2	A201KAB_	234.	A201KAC_	267.	A201KAD_	357.	A201KAE_	484.
0	18	1	2	3	3	5	5	A201K0B_	301.	A201K0C_	336.	A201K0D_	426.	A201K0E_	560.
1	27	2	3	7-1/2	7-1/2	10	10	A201K1B_	357.	A201K1C_	393.	A201K1D_	483.	A201K1E_	620.
2	45	3	7-1/2	10	15	25	25	A201K2B_	670.	A201K2C_	715.	A201K2D_	950.	A201K2E_	1,395.
3	90	—	—	25	30	50	50	A201K3B_	1,080.	A201K3C_	1,170.	A201K3D_	1,495.	A201K3E_	2,225.
4	135	—	—	40	50	100	100	A201K4B_	2,560.	A201K4C_	2,775.	A201K4D_	3,840.	A201K4E_	5,310.
5	270	—	—	75	100	200	200	A201K5B_	5,530.	A201K5C_	5,380.	—	—	—	—
6	540	—	—	150	200	400	400	A201K6B_	14,010.	A201K6C_	14,690.	—	—	—	—

Sizes 7 – 9

7 ①	810	—	—	200	300	600	600	A201K7B_	20,440.	A201K7C_	23,320.	—	—	—	—
8 ①	1215	—	—	400	450	900	900	A201K8B_	*	A201K8C_	35,990.	—	—	—	—
9 ①	2250	—	—	—	800	1600	—	A201K9B_	*	A201K9C_Z1 ②③	59,290.	—	—	—	—

① Sizes 7 – 9 use rectifier with DC coil.

② For Size 9, only available coil voltage is 120V.

③ Supplied without terminal lugs.

Table 4. Rear Connected Contactors Selection

120 Volt Rectified Coil/Open Only		
Size	Catalog Number	Price U.S.
7	A201K7CJZ1Z4	35,990.
8	A201K8CJZ1Z4	35,990.
9	A201K9CJZ1Z4	35,990.

Table 5. Coils for Sizes 00 – 6

Coil Volts and Hz	Code Suffix
120/60 or 110/50	A
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 6. Coils for Sizes 7, 8 and 9 ④

Coil Volts and Hz	Code Suffix
110 – 120/50 or 60	J
220 – 240/50 or 60	K
440 – 480/50 or 60	U
600/60	E

④ For Size 9, only available coil voltage is 120V.

*Please contact your local Eaton sales office.

Modification Kits,	
Accessories	Pages 20 – 22
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Other Coil Voltages	Page 19
Technical Data	Pages 16 – 19
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Discount Symbol	1CD1



Size 1 Horizontal Reversing Contactor

Product Selection — Reversing, Sizes 00 – 9

When Ordering Specify

Order by Catalog Number from **Table 7**, plus Suffix for coil voltages, verifying usage of appropriate sizes.

Class A211 Reversing Contactors — Horizontally Mounted
Class A251 Reversing Contactors — Vertically Mounted

Table 7. Reversing Contactors Selection

Size	Amps	Max. UL Horsepower						Horizontal Design		Vertical Design	
		1-Phase			3-Phase			Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
		115V	230V	208V	240V	480V	600V				

Sizes 0 – 6

0	18	1	2	3	3	5	5	A211K0C_	845.	A251K0C_	*
1	27	2	3	7-1/2	7-1/2	10	10	A211K1C_	960.	A251K1C_	960.
2	45	3	7-1/2	10	15	25	25	A211K2C_	1,810.	A251K2C_	1,810.
3	90	—	—	25	30	50	50	A211K3C_	2,985.	A251K3C_	2,985.
4	135	—	—	40	50	100	100	A211K4C_	7,420.	A251K4C_	*
5	270	—	—	75	100	200	200	A211K5C_	13,580.	A251K5C_	*
6	540	—	—	150	200	400	400	A211K6C_	*	A251K6C_	*

Sizes 7 – 9

7 ①	810	—	—	200	300	600	600	—	—	A251K7C_	*
8 ①	1215	—	—	400	450	900	900	—	—	A251K8C_	*
9 ①	2250	—	—	—	800	1600	—	—	—	A251K9C_ ②	*

① Sizes 7 – 9 use rectifier with DC coil.

② For Size 9, only available coil voltage is 120V.

Table 8. Coils for Sizes 00 – 6

Coil Volts and Hz	Code Suffix
120/60 or 110/50	A
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 9. Coils for Sizes 7, 8 and 9 ③

Coil Volts and Hz	Code Suffix
110 – 120/50 or 60	J
220 – 240/50 or 60	K
440 – 480/50 or 60	U
600/60	E

③ For Size 9, only available coil voltage is 120V.

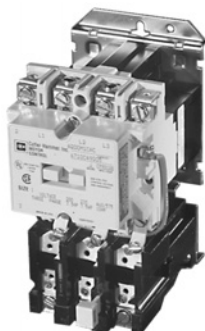
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Discount Symbol.....	1CD1

Starters — Non-reversing and Reversing

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Size 1 Starter

Product Description — Sizes 00 – 4

Application

Magnetic starters are used for full-voltage, across-the-line starting and stopping of squirrel cage motors. They can be operated locally or remotely by manual or automatic pilot devices.

NEMA Sizes 00 – 4; Three-Phase, 1-1/2 – 100 hp

These Cutler-Hammer® Starters from Eaton's electrical business use Class A201 contactors as described on **Page 2**. Contactor features are enhanced through the ability to provide positive motor protection in the form of several types of overload relays. See **Pages 28 – 36**.

Type B Overload Relay, Manual Reset Only

Supplied as standard on Class A200 and A900 starters (two-speed). The bi-metallic overload relay offers ambient compensation and trip-to-test feature (relay contact status check) as standard. In addition, an isolated normally-open contact is available in kit form for customer mounting. Type B overload relays are manual reset only.

Type A Overload Relay, Manual or Automatic Reset

This is an optional overload relay, offering the capability of field conversion to automatic reset. It is available as an ambient compensated or non-compensated type.

Non-reversing Starters

Non-reversing starters are supplied as open devices. All starters are supplied with a normally-open holding circuit interlock.

Class A200 starters are available as UL listed or recognized components, as well as with CSA certification.

Reversing Starters

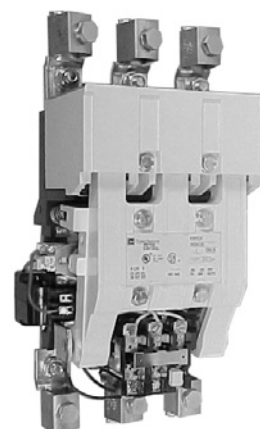
For reversing applications (Class A210), a starter and a contactor electrically and mechanically interlocked are supplied on a common baseplate. Reversing starters are used to start, stop and reverse AC squirrel cage motors and for primary control of reversing wound-rotor motors.

For plugging or inching, when operations exceed five times per minute, decreased horsepower ratings in accordance with NEMA Standard ICS 2-321 are recommended.

Two-Speed Starters, A900s

For across-the-line starting of two-speed constant hp, constant torque squirrel cage motors, two-speed starters (Class A900) are available. These Cutler-Hammer starters consist of two starters, one for each motor speed, mechanically and electrically interlocked and wired for manual speed selection by means of pushbuttons. Auxiliary relays may be added to provide automatic acceleration or deceleration.

Starters for two-speed, two independent winding motors consist of two-, three- or four-pole starters electrically and mechanically interlocked. Starters for two-speed, single reconnectable winding motors consist of one three-pole and one five-pole starter mechanically and electrically interlocked.



Size 5 Starter

Product Description — Sizes 5 – 9

NEMA Sizes 5 – 9; Three-Phase 75 to 1600 hp

Non-reversing (Class A200), and reversing (Classes A210, A250) full voltage starters are used for across-the-line starting of squirrel cage induction motors. They are used with motors rated above 50 hp at 230V, and above 100 hp at 460 through 600V.

Sizes 5 and 6 Cutler-Hammer starters use Class A201 contactors as described on **Page 3**. In addition to standard motor starters, special application devices are available: Sizes 5 and 6 starters with integrally rectified AC to DC coils for applications where low voltage problems are prevalent are available.

Class A200 starters are UL listed and recognized and also carry CSA certification.

Front Removable Parts — All operating parts can be removed quickly and easily from the front. Straight-through wiring and conveniently located connection points for external wires and cables minimize installation time.

Type B Block Type Thermal Overload Relay — Dependable overload protection is assured by these snap-action, manual reset relays. Automatic reset Type A relays are available as an option.

Technical Data **Pages 16 – 19**

Types of Starters

Class A200, Sizes 5 and 6 — Non-reversing starters contain an AC magnetically-operated Size 5 or Size 6 line contactor and block Type B three-pole overload relay, along with three current transformers. A control relay whose contacts handle the coil current of the starter is provided with Size 6 starters.

Class A200, Sizes 7, 8 and 9 — Non-reversing starters contain a DC operated line contactor, DC power supply, block Type B three-pole overload relay with three current transformers and a control relay.

Class A960/A970/A980 Multi-Speed Starters: Refer to **Page 15**.

Features and Benefits**Sizes 00 – 4**

- **Straight-Through Wiring, Up-Front, Out-Front Terminals** for ease in installation.
- **Unique Accessory Mounting Cavities** reduce panel space requirements.
- **Snap-in Accessories** for application flexibility.
- **Vertical and Horizontal Interlocking** capability increases application flexibility.
- **Ambient Compensated Overload Relays** available as standard, offering superior motor protection in variable motor/controller environments.
- **Isolated Normally Open Relay Contact** available in kit mounting form on Type B Overload Relay.

Sizes 5 – 9

- **Rectified AC/DC Coils** available to reduce premature drop-out or “kiss” problems due to inherent low voltage conditions.
- **Clapper Design** armature assembly pivots on needle bearings resulting in quick, smooth opening and closing of the magnet.
- **Stainless Steel Kick-Out Spring** assures quick, positive drop-out time.
- **Front Removable Parts** all current carrying parts front removable for easy inspection and maintenance.

Instructional Leaflets

16958	Sizes 00 – 1, 3-Pole Motor Controller
16956	Sizes 00 – 1, 2-Pole, Single-Phase Motor Controller
16959	Size 2, 3-Pole Motor Controller
16957	Size 2, 2-Pole, Single-Phase Motor Controller
15465C	Sizes 3 and 4J Motor Controller
17000C	Size 4, Model K Motor Controller
17054C	Size 5 Motor Controller
17055C	Size 6 Motor Controller

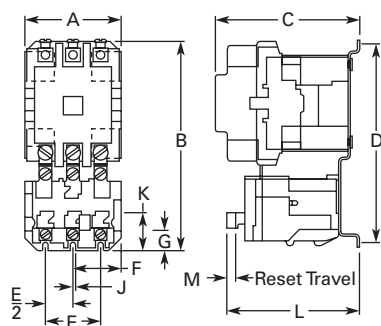
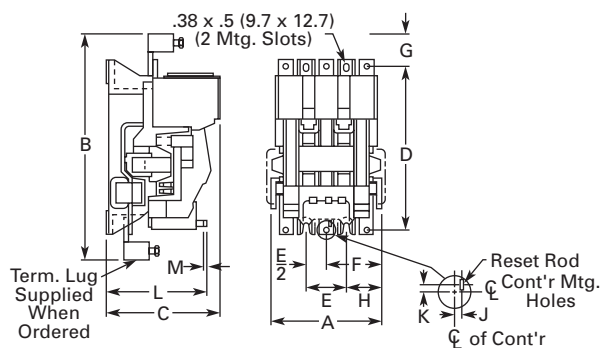
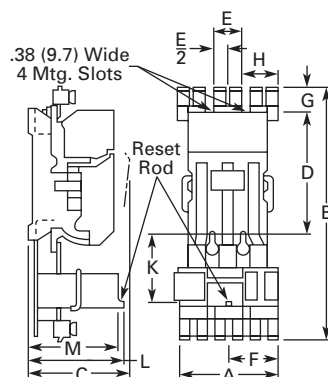
Starters — Non-reversing and Reversing
Dimensions and Shipping Weights

Not to be used for construction purposes unless approved.

Table 10. Open Non-reversing Starters Dimensions

NEMA Size	No. of Poles	Fig.	Mounting Screws		Dimensions in Inches (mm)													Weight, Lbs. (kg)
			No.	Size	A	B	C	D	E	F	G	H	J	K	L	M		
00, 0, 1	2, 3	A	3	#10	3.31 (84.1)	6.42 (163.1)	4.61 (117.1)	6.00 (152.4)	1.88 (47.8)	1.66 (42.2)	.23 (5.8)	—	.39 (9.9)	.59 (15.0)	4.48 (113.8)	.27 (6.9)	35.0 (15.9)	
2	2, 3	A	3	#10	3.31 (84.1)	7.17 (182.1)	4.94 (125.5)	6.75 (171.5)	1.88 (47.8)	1.66 (42.2)	.23 (5.8)	—	.41 (10.4)	.77 (19.6)	4.53 (115.1)	.27 (6.9)	43.0 (19.5)	
3, 4	2, 3	A	3	1/4 in.	4.63 (117.6)	9.94 (252.5)	6.75 (171.5)	9.25 (235.0)	2.88 (73.2)	.94 (23.9)	.38 (9.7)	—	.55 (14.0)	.80 (20.3)	6.36 (161.5)	.27 (6.9)	115.0 (52.2)	
5	3	B	4	3/8 in.	7.59 (192.8)	16.22 (412.0)	7.75 (196.9)	11.00 (279.4)	2.75 (69.9)	3.81 (96.8)	2.69 (68.3)	2.42 (61.5)	.33 (8.4)	.33 (8.4)	7.00 (177.8)	.27 (6.9)	29.0 (13.2)	
6	3	C	4	3/8 in.	9.25 (235.0)	23.50 (596.9)	9.50 (241.3)	11.00 (279.4)	2.75 (69.9)	4.81 (122.2)	2.75 (69.9)	3.06 (77.7)	—	6.50 (165.1)	8.44 (214.4)	.27 (6.9)	55.0 (25.0)	
7	3	①	①	①	37.88 (962.2)	21.50 (546.1)	11.75 (298.5)	—	—	—	—	—	—	—	—	—	—	
8	3	①	①	①	37.88 (962.2)	21.50 (546.1)	11.75 (298.5)	—	—	—	—	—	—	—	—	—	—	
9	3								①									

① Refer to factory.


Figure A, Sizes 00 – 4

Figure B, Size 5

Figure C, Size 6
Figure 3. Open Non-reversing Starters Dimensions

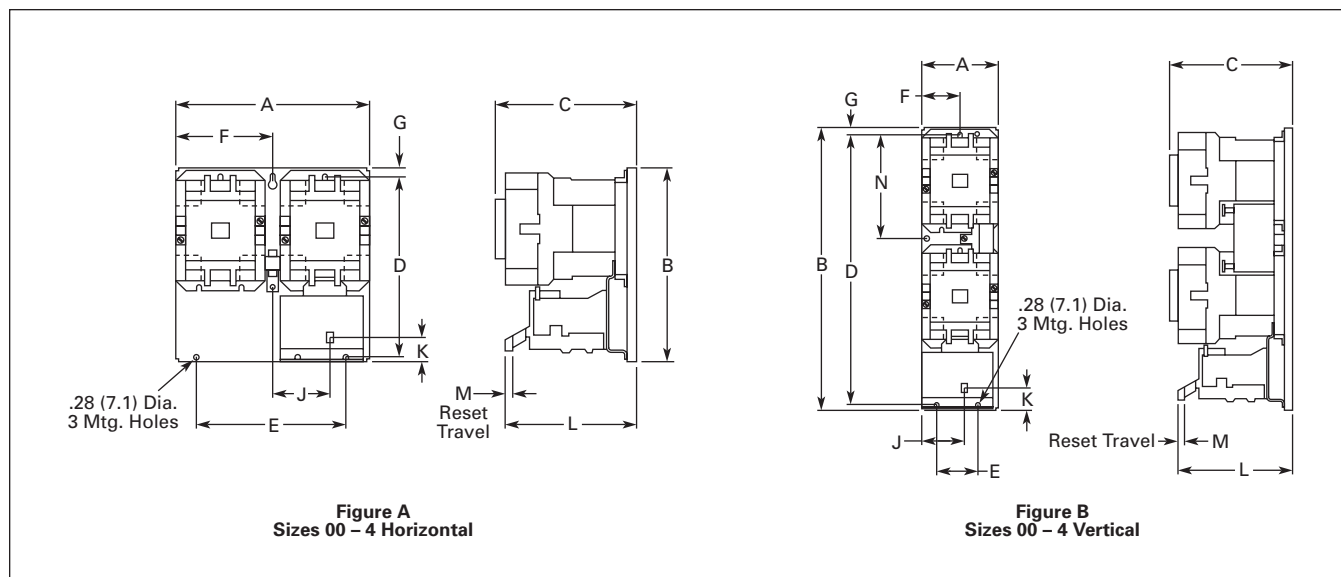
January 2006

Starters — Non-reversing and Reversing

Not to be used for construction purposes unless approved.**Table 11. Open Reversing Starters Dimensions**

NEMA Size	Number of Poles	Fig.	Mounting Screws		Dimensions in Inches (mm)													Weight, Lbs. (kg)
			No.	Size	A	B	C	D	E	F	G	J	K	L	M	N		
00, 0, 1	3 × 3 Horiz.	A	3	#10	7.13 (181.1)	6.50 (165.1)	5.05 (128.3)	6.00 (152.4)	5.69 (144.5)	3.56 (90.4)	.25 (6.4)	2.3 (58.4)	.59 (15.0)	4.92 (125.0)	.27 (6.9)	—	9.0 (4.0)	
	3 × 3 Vert.	B	3	#10	3.33 (84.6)	11.63 (295.4)	5.05 (128.3)	11.13 (282.7)	1.88 (47.8)	1.66 (42.2)	.25 (6.4)	.39 (9.9)	.59 (15.0)	4.92 (125.0)	.27 (6.9)	4.52 (114.8)	9.8 (4.4)	
2	3 × 3 Horiz.	A	3	#10	7.13 (181.1)	7.25 (184.2)	5.38 (136.7)	6.75 (171.5)	5.69 (144.5)	3.56 (90.4)	.25 (6.4)	2.31 (58.7)	.77 (19.6)	4.97 (126.2)	.27 (6.9)	—	10.8 (4.9)	
	3 × 3 Vert.	B	3	#10	3.33 (84.6)	12.38 (314.5)	5.38 (136.7)	11.88 (301.8)	1.88 (47.8)	1.66 (42.2)	.25 (6.4)	.39 (9.9)	.77 (19.6)	4.97 (126.2)	.27 (6.9)	4.52 (114.8)	12.2 (5.5)	
3, 4	3 × 3 Horiz.	A	3	1/4 in.	9.75 (247.7)	10.13 (257.3)	7.25 (184.2)	9.25 (235.0)	8.00 (203.2)	4.88 (124.0)	.44 (11.2)	3.11 (79.0)	.80 (20.3)	6.86 (174.2)	.27 (6.9)	—	26.0 (11.8)	
	3 × 3 Vert.	B	3	1/4 in.	4.63 (117.6)	19.81 (503.2)	7.25 (184.2)	18.94 (481.1)	2.88 (73.2)	2.94 (74.7)	.44 (11.2)	.55 (14.0)	.80 (20.3)	6.86 (174.2)	.27 (6.9)	7.91 (200.9)	28.0 (12.7)	
5	3 × 3 Horiz.	—	4	3/8 in.	35.25 (895.4)	25.50 (647.7)	8.75 (222.3)	—	—	—	—	—	—	—	—	—	73.0 (33.1)	
6	3 × 3 Horiz.	—	4	3/8 in.	35.25 (895.4)	25.50 (647.7)	10.50 (266.7)	—	—	—	—	—	—	—	—	—	127.0 (57.7)	
7	①																	
8	①																	
9	①																	

① Refer to factory.

**Figure 4. Open Reversing Starters Dimensions**

Starters — Non-reversing and Reversing

Not to be used for construction purposes unless approved.

Table 12. Open Multi-Speed Starters Dimensions

NEMA Size	Number of Poles	Fig.	Mounting Screws		Dimensions in Inches (mm)															Weight, Lbs. (kg)
			No.	Size	A	B	C	D	E	F	G	J	K	L	M	N	P	R		
00, 0, 1	3 x 3 Horiz.	A	3	#10	7.13 (181.1)	6.50 (165.1)	5.05 (128.3)	6.00 (152.4)	5.69 (144.5)	3.56 (90.4)	.25 (6.4)	2.30 (58.4)	.33 (8.4)	4.92 (125.0)	.27 (6.9)	3.81 (96.8)	—	2.91 (73.9)	10.0 (4.5)	
	5 x 3 Horiz.	B	3	#10	8.00 (203.2)	6.50 (165.1)	5.05 (128.3)	6.00 (152.4)	6.53 (165.9)	3.56 (90.4)	.25 (6.4)	2.30 (58.4)	.48 (12.2)	4.92 (125.0)	.27 (6.9)	4.66 (118.4)	—	2.91 (73.9)	11.0 (5.0)	
2	3 x 3 Horiz.	A	3	#10	7.13 (181.1)	7.25 (184.2)	5.38 (136.7)	6.75 (171.5)	5.69 (144.5)	3.56 (90.4)	.25 (6.4)	2.69 (68.3)	.69 (17.5)	4.97 (126.2)	.27 (6.9)	3.81 (96.8)	—	2.91 (73.9)	11.0 (5.0)	
	5 x 3 Horiz.	B	3	#10	8.88 (225.6)	7.25 (184.2)	5.38 (136.7)	6.75 (171.5)	6.56 (166.6)	3.56 (90.4)	.25 (6.4)	2.69 (68.3)	.69 (17.5)	4.97 (126.2)	.27 (6.9)	4.66 (118.4)	—	2.84 (72.1)	13.0 (5.9)	
3, 4	3 x 3 Horiz.	A	3	1/4 in.	9.75 (247.7)	10.13 (257.3)	7.25 (184.2)	9.25 (235.0)	8.00 (203.2)	4.88 (124.0)	.44 (11.2)	3.11 (79.0)	.80 (20.3)	6.86 (174.2)	.27 (6.9)	5.13 (130.3)	—	4.00 (101.6)	28.0 (12.7)	
	5 x 3 Horiz.	B	3	1/4 in.	12.38 (314.5)	10.13 (257.3)	7.25 (184.2)	9.25 (235.0)	9.31 (236.5)	4.88 (124.0)	.44 (11.2)	3.11 (79.0)	.80 (20.3)	6.86 (174.2)	.27 (6.9)	6.44 (163.6)	—	4.00 (101.6)	33.5 (15.2)	
5											①									
6											①									

① Refer to factory.

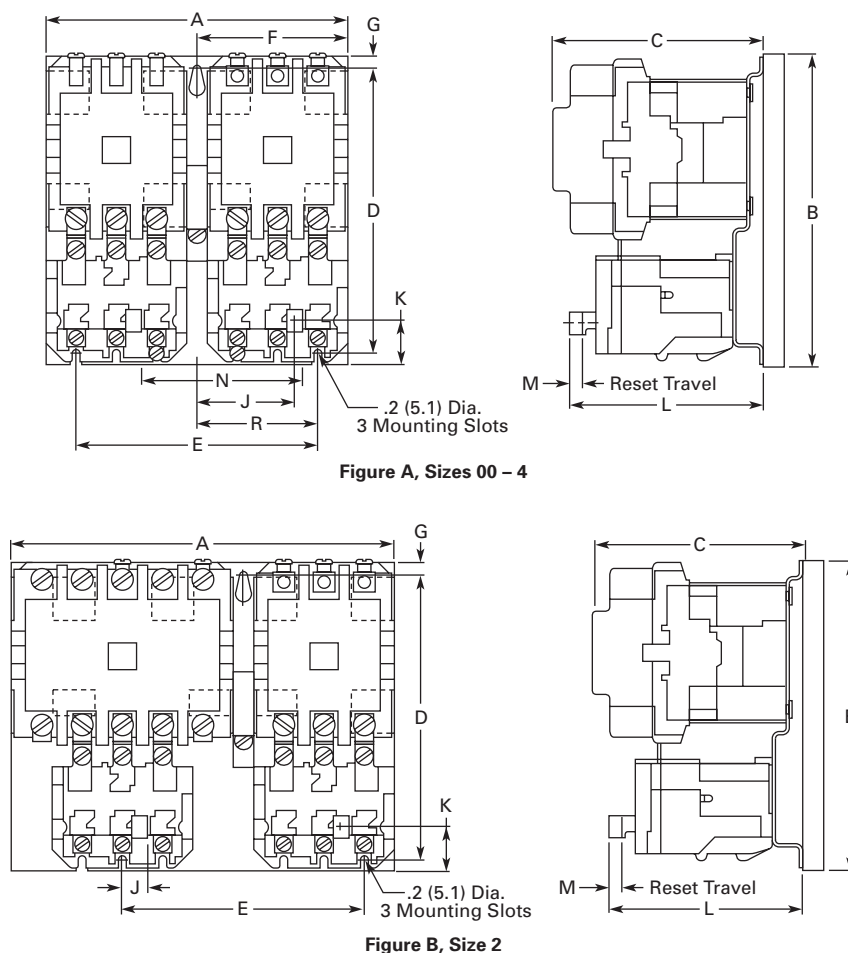
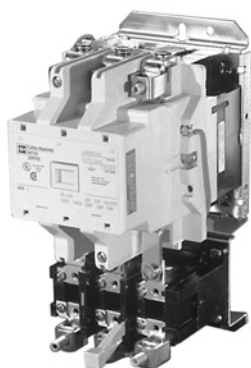


Figure 5. Open Multi-Speed Starters Dimensions

Starters — Non-reversing and Reversing



Size 3 Starter

Product Selection —
Non-reversing, Sizes 00 – 9

When Ordering Specify

Order by Catalog Number from **Table 13** or **Table 14**, plus Suffix for coil voltages, verifying usage of appropriate sizes.

Heaters

Enter heaters as separate item by listing Catalog Number from tables, **Pages 35 – 36**, as required per starter.

Table 13. Non-reversing Starters Selection — 2 Poles ^②

Size	Amps	Max. UL Horsepower						Open	
		1-Phase		3-Phase				Catalog Number ^①	Price U.S. \$
		115V	230V	208V	240V	480V	600V		

Sizes 00 – 2

00	9	1/3	—	1-1/2	1-1/2	2	2	A200MABR	314.
0	18	1	—	3	3	5	5	A200M0BR	351.
1	27	2	—	7-1/2	7-1/2	10	10	A200M1BR	451.
1-1/2	36	3	—	—	—	—	—	A200MDBR	535.
2	45	7-12	—	10	15	25	25	A200M2BR	755.

^① For ambient compensated overload relay with auto-reset, add Suffix D.

^② Single-phase with one single-pole overload relay.

Table 14. Non-reversing Starters Selection — 3 Poles

Size	Amps	Max. UL Horsepower						Open	
		1-Phase		3-Phase				Catalog Number ^③	Price U.S. \$
		115V	230V	208V	240V	480V	600V		

Sizes 00 – 6

00	9	1/3	—	1-1/2	1-1/2	2	2	A200MAC_	314.
0	18	1	—	3	3	5	5	A200M0C_	393.
1	27	2	—	7-1/2	7-1/2	10	10	A200M1C_	451.
2	45	7-12	—	10	15	25	25	A200M2C_	835.
3	90	—	—	25	30	50	50	A200M3C_	1,335.
4	135	—	—	40	50	100	100	A200M4C_	3,025.
5	270	—	—	75	100	200	200	A200M5C_	7,390.
6	540	—	—	150	200	400	400	A200M6C_	17,490.

Sizes 7 – 9

7 ^④	810	—	—	200	300	600	600	A200M7C_	*
8 ^④	1215	—	—	400	450	900	900	A200M8C_	*
9 ^④	2250	—	—	—	800	1600	—	A200M9C_ ^⑤	*

^③ For ambient compensated overload relay with auto-reset, add Suffix D.

^④ Sizes 7 – 9 use rectifier with DC coil.

^⑤ For Size 9, only available coil voltage is 120V.

Table 15. Coils for Sizes 00 – 6

Coil Volts and Hz	Code Suffix
120/60 or 110/50	AC
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 16. Coils for Sizes 7, 8 and 9 ^⑥

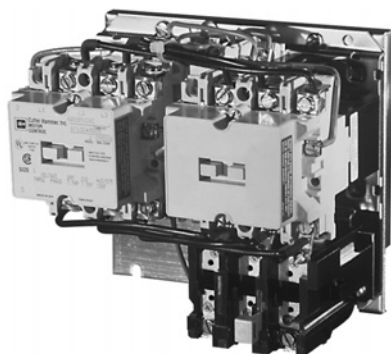
Coil Volts and Hz	Code Suffix
110 – 120/50 or 60	J
220 – 240/50 or 60	W
440 – 480/50 or 60	X
600/60	E

^⑥ For Size 9, only available coil voltage is 120V.

*Please contact your local Eaton sales office.

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Modification Kits, Accessories.....	Pages 20 – 22
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Discount Symbol	1CD1

Starters — Non-reversing and Reversing



Size 1 Horizontal Reversing Starter

Product Selection — Reversing, Sizes 00 – 9

When Ordering Specify

Order by Catalog Number from **Table 17**, plus Suffix for coil voltages, verifying usage of appropriate sizes.

Heaters

Enter heaters as separate item by listing Catalog Number from tables, **Pages 35 – 36**, as required per starter.

Table 17. Reversing Starters Selection

Size	Amps	Max. UL Horsepower						Horizontal Design		Vertical Design	
		1-Phase			3-Phase			Catalog Number ①	Price U.S. \$	Catalog Number ①	Price U.S. \$
		115V	230V	208V	240V	480V	600V				

Sizes 00 – 6

00	9	1/3	1	1-1/2	1-1/2	2	2	A210MAC_	760.	A250MAC_	760.
0	18	1	2	3	3	5	5	A210M0C_	900.	A250M0C_	900.
1	27	2	3	7-1/2	7-1/2	10	10	A210M1C_	1,020.	A250M1C_	1,020.
2	45	3	7-1/2	10	15	25	25	A210M2C_	1,910.	A250M2C_	1,910.
3	90	—	—	25	30	50	50	A210M3C_	2,860.	A250M3C_	2,860.
4	135	—	—	40	50	100	100	A210M4C_	7,690.	A250M4C_	7,690.
5	270	—	—	75	100	200	200	A210M5C_	*	A250M5C_	*
6	540	—	—	150	200	400	400	A210M6C_	*	A250M6C_	*

Sizes 7 – 9

7 ②	810	—	—	200	300	600	600	—	—	A250M7C_	*
8 ②	1215	—	—	400	450	900	900	—	—	A250M8C_	*
9 ②	2250	—	—	—	800	1600	—	—	—	A250M9C_ ③	*

① For ambient compensated overload relay with auto-reset, add Suffix **D**.

② Sizes 7 – 9 use rectifier with DC coil.

③ For Size 9, only available coil voltage is 120V.

Table 18. Coils for Sizes 00 – 6

Coil Volts and Hz	Code Suffix
120/60 or 110/50	AC
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 19. Coils for Sizes 7, 8 and 9 ④

Coil Volts and Hz	Code Suffix
110 – 120/50 or 60	J
220 – 240/50 or 60	W
440 – 480/50 or 60	X
600/60	E

④ For Size 9, only available coil voltage is 120V.

*Please contact your local Eaton sales office.

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Starters — Two-Speed

Product Selection

For Separate Two-Winding Motors

Heaters

Enter heaters as separate item by listing Catalog Number from table, Pages 35 – 36, as required per starter.

Table 20. Three-Phase, Non-reversing, Reversing 60 Hz Starters — Heater Selection

NEMA	Amps	Constant Horsepower				Constant or Variable Torque				3 Poles — Open	
		208V	240V	480V	600V	208V	240V	480V	600V	Catalog Number ①	Price U.S. \$
Sizes 0 – 6											
0	18	3	3	5	5	2	2	3	3	A960M0C_	1,235.
1	27	7-1/2	7-1/2	10	10	5	5	7-1/2	7-1/2	A960M1C_	1,370.
2	45	10	15	25	25	7-1/2	10	20	20	A960M2C_	2,380.
3	90	25	30	50	50	20	25	40	40	A960M3C_	3,685.
4	135	40	50	100	100	30	40	75	75	A960M4C_	9,190.
5	270	75	100	200	200	60	75	150	150	A960M5C_	*
6	540	150	200	400	400	100	150	300	300	A960M6C_	*

① For ambient compensated overload relay with auto-reset, add Suffix D.

For Single-Winding Motors

Table 21. Product Selection — Sizes 0 – 6

NEMA	Amps	208V	240V	480V	600V	3 Poles — Open	
						Catalog Number ②	Price U.S. \$
Constant Horsepower							
0	18	3	3	5	5	A970M0C_	*
1	27	7-1/2	7-1/2	10	10	A970M1C_	1,855.
2	45	10	15	25	25	A970M2C_	*
3	90	25	30	50	50	A970M3C_	*
4	135	40	50	100	100	A970M4C_	12,700.
5	270	75	100	200	200	A970M5C_	*
6	540	150	200	400	400	A970M6C_	*
Constant or Variable Torque							
0	18	2	2	3	3	A980M0C_	1,735.
1	27	5	5	7-1/2	7-1/2	A980M1C_	1,855.
2	45	7-1/2	10	20	20	A980M2C_	3,265.
3	90	20	25	40	40	A980M3C_	4,915.
4	135	30	40	75	75	A980M4C_	12,700.
5	270	60	75	150	150	A980M5C_	*
6	540	100	150	300	300	A980M6C_	*

② For ambient compensated overload relay with auto-reset, add Suffix D.

*Please contact your local Eaton sales office.

Table 22. Coils for Sizes 0 – 6

Coil Volts and Hz	Coil Suffix
120/60 or 110/50	AC
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 23. Coils for Sizes 0 – 6

Coil Volts and Hz	Coil Suffix
120/60 or 110/50	AC
200 – 208/60	B
240/60	W
480/60	X
600/60	E

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Technical Data and Specifications

Electrical Characteristics

Table 24. Electrical Characteristics — Sizes 00 – 4

	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4
Max. Voltage Rating	600V	600V	600V	600V	600V	600V
Ampere Rating (Open)	10A	20A	30A	50A	100A	150A
(Enclosed)	9A	18A	27A	45A	90A	135A

Squirrel Cage Motor

Maximum Horsepower At:						
200V/60 Hz	1-1/2 hp	3 hp	7-1/2 hp	10 hp	25 hp	40 hp
230V/60 Hz	1-1/2 hp	3 hp	7-1/2 hp	15 hp	30 hp	50 hp
380V/50 Hz	1-1/2 hp	5 hp	10 hp	25 hp	50 hp	75 hp
460V – 575V/60 Hz	2 hp	5 hp	10 hp	25 hp	50 hp	100 hp

Resistive Heating kW ^①

Single-Phase, 2-Pole						
120V	—	—	3 kW	5 kW	10 kW	15 kW
240V	—	—	6 kW	10 kW	20 kW	30 kW
480V	—	—	12 kW	20 kW	40 kW	60 kW
600V	—	—	15 kW	25 kW	50 kW	75 kW
Three-Phase, 3-Pole						
120V	—	—	5 kW	8.5 kW	17 kW	26 kW
240V	—	—	10 kW	17 kW	34 kW	68 kW
480V	—	—	20 kW	34 kW	68 kW	105 kW
600V	—	—	25 kW	43 kW	86 kW	130 kW

Capacitor Switching kVAR, Three-Phase

240V	—	—	—	12 kVAR	27 kVAR	40 kVAR
480V	—	—	—	25 kVAR	53 kVAR	80 kVAR
600V	—	—	—	31 kVAR	67 kVAR	100 kVAR

Transformer Switching kVA ^②

Single-Phase, 2-Pole						
120V	—	.6 kVA	1.2 kVA	2.1 kVA	4.1 kVA	6.8 kVA
240V	—	1.2 kVA	2.4 kVA	4.1 kVA	8.1 kVA	14 kVA
480V	—	2.4 kVA	4.9 kVA	8.3 kVA	16 kVA	27 kVA
600V	—	3 kVA	6.2 kVA	10 kVA	20 kVA	34 kVA
Three-Phase, 3-Pole						
120V	—	1.8 kVA	3.6 kVA	6.3 kVA	12 kVA	20 kVA
240V	—	2.1 kVA	4.3 kVA	7.2 kVA	14 kVA	23 kVA
480V	—	4.2 kVA	8.5 kVA	14 kVA	28 kVA	47 kVA
600V	—	5.2 kVA	11 kVA	18 kVA	35 kVA	59 kVA

① Resistive loads having inrush currents not exceeding 1.5 times continuous rating.

② These ratings are for transformers having inrush currents not more than 20 times peak of continuous current ratings. For inrush currents greater than 20 times, refer to factory.

Table 25. Electrical Characteristics — Sizes 5 – 9

	Size 5	Size 6	Size 7	Size 8	Size 9
Max. Voltage Rating	600V	600V	600V	600V	600V
Ampere Rating (Open)	300A	600A	900A	1350A	2500A
(Enclosed)	270A	540A	810A	1215A	2250A

Squirrel Cage Motor

Maximum Horsepower At:					
200V/60 Hz	75 hp	150 hp	—	—	—
230V/60 Hz	100 hp	200 hp	300 hp	450 hp	800 hp
380V/50 Hz	150 hp	300 hp	—	—	—
460V – 575V/60 Hz	200 hp	400 hp	600 hp	900 hp	1600 hp

Resistive Heating kW ^④

Single-Phase, 2-Pole					
120V	30 kW	60 kW	90 kW	③	③
240V	60 kW	120 kW	180 kW	③	③
480V	120 kW	240 kW	360 kW	③	③
600V	150 kW	300 kW	450 kW	③	③
Three-Phase, 3-Pole					
120V	52 kW	105 kW	155 kW	③	③
240V	105 kW	210 kW	315 kW	③	③
480V	210 kW	415 kW	625 kW	③	③
600V	260 kW	515 kW	775 kW	③	③

Capacitor Switching kVAR, Three-Phase

240V	80 kVAR	160 kVAR	240 kVAR	360 kVAR	665 kVAR
480V	160 kVAR	320 kVAR	480 kVAR	720 kVAR	1325 kVAR
600V	200 kVAR	400 kVAR	600 kVAR	900 kVAR	1670 kVAR

Transformer Switching kVA ^⑤

Single-Phase, 2-Pole					
120V	14 kVA	27 kVA	41 kVA	61 kVA	112 kVA
240V	27 kVA	54 kVA	81 kVA	122 kVA	225 kVA
480V	54 kVA	108 kVA	162 kVA	244 kVA	450 kVA
600V	68 kVA	135 kVA	203 kVA	304 kVA	562 kVA
Three-Phase, 3-Pole					
120V	41 kVA	81 kVA	122 kVA	182 kVA	337 kVA
240V	47 kVA	94 kVA	140 kVA	210 kVA	342 kVA
480V	94 kVA	188 kVA	280 kVA	420 kVA	783 kVA
600V	117 kVA	234 kVA	351 kVA	526 kVA	975 kVA

③ For ratings refer to factory.

④ Resistive loads having inrush currents not exceeding 1.5 times continuous rating.

⑤ These ratings are for transformers having inrush currents not more than 20 times peak of continuous current ratings. For inrush currents greater than 20 times, refer to factory.

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DC Power Pole Ratings

The following represent typical production test values and should not be interpreted as a guarantee of actual performance.

Table 26. DC Operated 120 and 240V Coils

Contactor Size	DC Contact Amp Rating 2 Poles in Series ^①	
	120V	240V
0	—	—
1	20	10
2	45	30
3	75	40
4	90	70

^① Non-inductive load.

380V, 50 Hz Starter Maximum Horsepower Ratings

Table 27. 380V, 50 Hz Starters — Maximum Horsepower Ratings

NEMA Size	00	0	1	2	3	4	5	6	7	8
Maximum Horsepower	1-1/2	5	10	25	50	75	150	300	450	700

Operating Coil Characteristics at Rated Coil Volts, Sizes 00 – 9

The following represent typical production test values and should not be interpreted as a guarantee of actual performance.

Table 28. Operating Coil Characteristics

	Sizes 00, 0, 1	Size 2	Size 3	Size 4 ^②	Size 5	Size 6	Size 7	Size 8	Size 9
AC Coil									
Burden (Open VA)	160 VA	160 VA	625 VA	700 VA	1700 VA	2900 VA	③	③	③
(Closed VA)	25 VA	25 VA	50 VA	64 VA	180 VA	220 VA	③	③	③
(Closed Watts)	7.8 W	7.8 W	18 W	21 W	32 W	42 W	—	—	—
Pick-Up Volts ^④	85%	85%	85%	85%	78%	70%	—	—	—
Drop-Out Volts ^④	40 – 60%	40 – 60%	40 – 60%	40 – 60%	65 to 75%	60 to 70%	—	—	—
Pick-Up Time Hz ^{⑦⑧}	1 – 1-1/2	1-1/2 – 2	2 – 2-1/2	1 – 1-1/2	1.5	4.0	—	—	—
Drop-Out Time Hz ^⑦	3/4 – 1	3/4 – 1	3/4 – 1	3/4 – 1	.75	.75	—	—	—
DC Coil									
Burden (Open VA)	17 VA	17 VA	35 VA	35 VA	600 VA	2120 VA	400 VA	400 VA	2100 VA
(Closed VA)	17 VA	17 VA	35 VA	35 VA	22 VA	21 VA	400 VA	400 VA	350 VA
(Closed Watts)	18 W	18 W	35 W	35 W	20 W	20 W	400 W	400 W	350 W
Pick-Up Volts ^④	80%	80%	80%	80%	64%	73%	45% – 65% ^⑤	45% – 65% ^⑤	50% – 65% ^⑤
Drop-Out Volts ^④	5 – 10%	5 – 10%	5 – 10%	5 – 10%	18%	13%	30% – 45% ^⑤	30% – 45% ^⑤	40% – 50% ^⑤
Pick-Up Time Hz ^⑧	—	25 – 75 mS	25 – 75 mS	25 – 75 mS	2.7 Hz ^⑦	3 Hz ^⑦	21 – 41 Hz ^{⑤⑦}	17 – 29 Hz ^{⑤⑦}	16 – 18 ^{⑤⑦}
Drop-Out Time Hz ^⑦	—	16 – 25 mS	16 – 25 mS	16 – 25 mS	9.3 Hz ^⑦	17.5 Hz ^⑦	7 – 12 Hz ^{⑥⑦}	7 – 12 Hz ^{⑥⑦}	18 – 20 Hz ^{⑤⑦}

^② AC coil data pertains to Model K, DC coil data pertains to Model J.

^③ DC Operated only.

^④ Percent of rated coil voltage.

^⑤ Lower figure when coil is cold. Higher figure when coil is hot.

^⑥ Drop-out time to clear arc. Time varies with type of load and contact wear.

^⑦ At 60 Hz base.

^⑧ To contact touch.

Mechanical Characteristics

NEMA Standard ICS 2-110

Direct-current operated contactors shall withstand 110% of their rated voltage continuously without injury to the operating coils and shall close successfully at 80% of their rated voltage.

Alternating-current operated contactors shall withstand 110% of their rated voltage continuously without injury to the operating coils and shall close successfully at 85% of their rated voltage.

Table 29. Mechanical Characteristics, Sizes 00–9

	Sizes 00, 0, 1	Size 2	Size 3	Size 4	Size 5	Size 6	Size 7	Size 8	Size 9
Dimensions in Inches (mm)									
Height	6.45 (163.8)	7.16 (181.9)	9.93 (252.2)	9.93 (252.2)	12.00 (304.8) ①	13.50 (342.9) ①	18.62 (472.9) ①	19.25 (489) ①	25.00 (635) ①
Width	3.31 (84.1)	3.31 (84.1)	4.62 (117.3)	4.62 (117.3)	7.00 (177.8) ①	7.00 (177.8) ①	23.50 (596.9) ①	23.50 (596.9) ①	32.00 (812.8) ①
Depth	4.61 (117.1)	4.96 (126)	6.75 (171.5)	6.75 (171.5)	7.75 (196.9) ①	8.75 (222.3) ①	11.00 (279.4) ①	11.00 (279.4) ①	13.00 (330.2) ①
Panel Area — Square Inches	21.35	23.7	46.0	46.0	84.0	94.5	437.5	452.4	800
Weight — Pounds	3.5 Lbs.	3.5 Lbs.	11.5 Lbs.	11.5 Lbs.	25 Lbs.	42 Lbs.	215 Lbs.	265 Lbs.	315 Lbs.
Cable Connection	—	—	—	—	Front	Front	Front/Rear	Front/Rear	Front/Rear
Maximum Cable Size/Phase Copper (AWG/MCM)	6 AWG	3 AWG	1/0	4/0	1-500 MCM	2-500 MCM	3-500 MCM	4-500 MCM	8-500 MCM
Auxiliary Electrical Circuits Available	8	6	6	6	4	4	3	3	4
Latched Version Available	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Mechanical Interlock Combinations Available									
Sizes 00, 0, 1, 2, 3, 4	Verti., Horiz.	Vert., Horiz.	Vert., Horiz.	Vert., Horiz.	Vert., Horiz.	—	—	—	—
5	—	—	—	—	Vert., Horiz.	—	—	—	—
6	—	—	—	—	Vert., Horiz.	—	—	—	—
7, 8	—	—	—	—	Vert., Horiz.	Vertical	Vertical	Vertical	Vertical
9	—	—	—	—	—	—	Vertical	Vertical	Vertical

① For Sizes 5–9 contactors only; for starter Sizes 5–9, refer to factory.

Table 30. Data from Tables 430 — 147 Through 150 of 1996 NEC: Motor Amperes at Full Load ②, Three-Phase AC

hp	Single-Phase AC		Induction Type Squirrel-Cage and Wound-Rotor Amperes				DC		hp	Single-Phase AC		Induction Type Squirrel-Cage and Wound-Rotor Amperes				DC	
	115V	230V	200V	230V	460V	575V	120V	240V		115V	230V	200V	230V	460V	575V	120V	240V
1/6	4.4	2.2	—	—	—	—	—	—	30	—	—	92	80	40	32	—	106
1/4	5.8	2.9	—	—	—	—	3.1	1.6	40	—	—	120	104	52	41	—	140
1/3	7.2	3.6	—	—	—	—	4.1	2.0	50	—	—	150	130	65	52	—	173
1/2	9.8	4.9	2.5	2.2	1.1	.9	5.4	2.7	60	—	—	177	154	77	62	—	206
3/4	13.8	6.9	3.7	3.2	1.6	1.3	7.6	3.8	75	—	—	221	192	96	77	—	255
1	16	8	4.8	4.2	2.1	1.7	9.5	4.7	100	—	—	285	248	124	99	—	341
1-1/2	20	10	6.9	6.0	3.0	2.4	13.2	6.6	125	—	—	359	312	156	125	—	425
2	24	12	7.8	6.8	3.4	2.7	17	8.5	150	—	—	414	360	180	144	—	506
3	34	17	11.0	9.6	4.8	3.9	25	12.2	200	—	—	552	480	240	192	—	675
5	56	28	17.5	15.2	7.6	6.1	40	20	250	—	—	—	—	302	242	—	—
7-1/2	80	40	25.3	22	11	9	58	29	300	—	—	—	—	361	289	—	—
10	100	50	32.2	28	14	11	76	38	350	—	—	—	—	414	336	—	—
15	—	—	48.3	42	21	17	—	55	400	—	—	—	—	477	382	—	—
20	—	—	62.1	54	27	22	—	72	450	—	—	—	—	515	412	—	—
25	—	—	78.2	68	34	27	—	89	500	—	—	—	—	590	472	—	—

② These current values are for motors running at usual speeds and with normal torque characteristics. Motors for special low speed or high torque may require higher current. In all cases, heaters should be selected on basis of information on motor nameplate or motor card data.

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Combination Ratings

Table 31. Combination Ratings — Sizes 00 – 2

Short-Circuit Protective Device (SCPD)	Max. Rating SCPD	Circuit Breaker Interrupting Rating	Short-Circuit Withstand Capability	
			Current	Voltage
Sizes 00, 0, 1				
Class H Fuse	60A	—	5,000A	600V
Class J Fuse	60A	—	100,000A	600V
Class R Fuse	60A	—	100,000A	600V
Class T Fuse	60A	—	100,000A	600V
Magnetic Only ①	30A	Marked HMCP	100,000A	480V
Type CB ②			50,000A	600V
Thermal/Mag. Type CB ③	50A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ④	30A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑤	50A	150,000A	100,000A	480V

Size 2

Class H Fuse	100A	—	5,000A	600V
Class J Fuse	100A	—	100,000A	600V
Class R Fuse	100A	—	100,000A	600V
Class T Fuse	100A	—	100,000A	600V
Magnetic Only ①	50A	Marked HMCP	100,000A	480V
Type CB ②			50,000A	600V
Thermal/Mag. Type CB ③	90A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ④	50A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑤	50A	150,000A	100,000A	480V

① Instantaneous Adjustable Trip.

② Circuit Breaker.

③ Inverse Time Circuit Breaker.

④ Instantaneous Adjustable Trip with Current Limiting Attachment.

⑤ Inverse Time with Built-In Current Limiting Attachment.

Coil Suffix

Table 33. Other Available Coil Voltages — AC and DC Coils ⑩

Coils	Catalog Number Suffix	Coil Rating (Volts/Hertz)	Catalog Number Suffix	Coil Rating (Volts/Hertz)
AC	A	120/60, 110/50	N	110/50
	B	200-208/60	P	48/60
	C ⑪	240/60 and 480/60	Q ⑫	AC/DC Volts Specified
	D	440/50	R ⑬	120/60 and 240/60
	E	600/60 Hz	U	440-480/50 or 60 Rect. to DC
	G	220/50	V	110/60
	H	380/50	W	240/60
	I	24/60	X	480/60
	J	110-120/50 or 60 Rect. to DC	Y	415/50
	K	220-240/50 or 60 Rect. to DC	Z	277/60
DC ⑭⑮	L	24V DC	S	125V DC
	M	48V DC	T	250V DC

⑩ List Price Addition for dual voltage coils. See Table 35.

⑪ List Price Addition for DC coils. See Table 35.

⑫ DC coils for Size 5 and 6 contactors and starters are intermittent duty rated only. A mechanical latch is required.

⑬ DC coils. Use only on contactors originally supplied with a DC coil.

⑭ For Q suffixes "order by description" consult Technical Support Center.

⑮ Availability may be limited.

Table 32. Combination Ratings — Sizes 3 and 4

Short-Circuit Protective Device (SCPD)	Max. Rating SCPD	Circuit Breaker Interrupting Rating	Short-Circuit Withstand Capability	
			Current	Voltage
Size 3				
Class H Fuse	60A	—	5,000A	600V
Class J Fuse	60A	—	100,000A	600V
Class R Fuse	60A	—	100,000A	600V
Class T Fuse	60A	—	100,000A	600V
Magnetic Only ⑥	100A	Marked HMCP	100,000A	480V
Type CB ⑦			50,000A	600V
Thermal/Mag. Type CB ⑧	150A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ⑨	100A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CLB ⑩	150A	50,000A	100,000A	480V

Size 4

Class H Fuse	400A	—	10,000A	600V
Class J Fuse	400A	—	100,000A	600V
Class R Fuse	400A	—	100,000A	600V
Class T Fuse	400A	—	100,000A	600V
Magnetic Only ⑥	150A	Marked HMCP	100,000A	480V
Type CB ⑦			50,000A	600V
Thermal/Mag. Type CB ⑧	250A	65,000A	65,000A	480V
		25,000A	25,000A	600V
		100,000A	100,000A	480V
		35,000A	35,000A	600V
Magnetic Only Type CB + CL ⑨	150A	HMCP + Current Limiter	100,000A	600V
Thermal/Mag. Type CB + CL ⑩	250A	200,000A	100,000A	600V
Thermal/Mag. Type CLB ⑪	250A	150,000A	100,000A	480V

⑥ Instantaneous Adjustable Trip.

⑦ Circuit Breaker.

⑧ Inverse Time Circuit Breaker.

⑨ Instantaneous Adjustable Trip with Current Limiting Attachment.

⑩ Inverse Time with Built-In Current Limiting Attachment.

⑪ Inverse Time Current Limiting Breaker.

Table 34. Other DC Coils Available (For Q Suffix) ⑫

Voltages	Sizes 0 & 1	Size 2	Voltages	Sizes 0 & 1	Size 2
	1- to 4-Pole	1- to 3-Pole		1- to 4-Pole	1- to 3-Pole
	Style Number			Style Number	
12	1268C86G07		79	1268C86G08	
28	1268C86G06		96	1268C86G15	
32	1268C86G09		200	1268C86G11	
34	1268C86G16		300	1268C86G14	
37.5	1268C86G17		315	1268C86G12	
40	1268C86G13		125/250	1268C86G03	
50	1268C86G10		—		

⑫ For Q suffixes "order by description" consult Technical Support Center. Availability may be limited.

Table 35. Other Available Coil Voltage Adders

NEMA Size	Coil	
	Dual Voltage AC Coil Adder Price, U.S. \$	DC Coil (24, 48, 125, 250V DC) Adder Price, U.S. \$
0, 1	16.	134.
2	16.	150.
3	16.	260.
4	16.	346.
5, 6	16.	542.

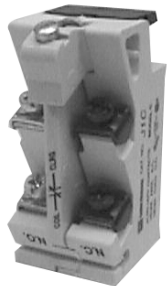
Discount Symbol 1CD1C

Factory Modifications

Table 36. A200 Factory Modifications

Modifications	Description	Catalog Number Suffix	NEMA Size									
			00 – 1	2	3	4	5	6	7	8	9	
			Adder U.S. \$									
Control Circuit	1 Extra Auxiliary Contact (1NO-1NC) Non-reversing, Reversing, 2-Speed Unwired	J1	97.00 194.00	97.00 194.00	97.00 194.00	97.00 194.00	97.00 194.00	97.00 194.00	97.00 194.00	291.00 585.00	291.00 585.00	
	2 Extra Auxiliary Contact Non-reversing, Reversing, 2-Speed Unwired	J2	194.00 388.00	194.00 388.00	194.00 388.00	194.00 388.00	194.00 388.00	194.00 388.00	194.00 388.00	585.00 1,170.00	585.00 1,170.00	
	3 Extra Auxiliary Contact Non-reversing, Unwired	J3	291.00	291.00	291.00	291.00	—	—	—	—	—	
	4 Extra Auxiliary Contact Non-reversing, Unwired	J4	388.00	388.00	388.00	388.00	—	—	—	—	—	
	Wired for Separate Control (NC)	C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	
	Omit Control Wiring (NC)	X	213.00	213.00	213.00	213.00	213.00	213.00	213.00	213.00	213.00	
Overload Relays (Substitutions)	Ambient Compensated with Auto Reset (NC)	D	N/C	N/C	N/C	N/C	N/C	N/C	—	—	—	
	Fast Trip — Ambient Compensated (Specify Motor FLA)	D7	176.00	176.00	176.00	176.00	176.00	176.00	—	—	—	
	Overload Relay Alarm Contact (NO) per overload	E	43.75	43.75	43.75	43.75	43.75	43.75	—	—	—	

Accessories and Field Modification Kits



Type J Auxiliary Contact

Type J Auxiliary Contact

- Capable of being field mounted in a contactor or starter (Classes A200, A900 Sizes 00 – 6, V200, V201 vacuum and definite purpose controllers).

- Provides two separate electrical contact sets which wire vertically and are color coded; black designates NC and silver designates NO. Please note that the vertical wiring is contrary to the horizontal wiring of the L-56 auxiliary contacts.
- Designed to fit within dimensions of starter; no additional panel space is required.
- Provides circuit isolation (no polarity restrictions) and single break bifurcated contacts.

Table 37. Auxiliary Contact Ratings

Voltage	Make	Break
NEMA A600		
120 – 600V AC	7200 VA	720 VA
72 – 120V AC	60A	720 VA
28 – 72V AC	60 VA	10A
NEMA R300		
28 – 300V DC	28 VA	28 VA

Table 38. Auxiliary Contact Types

Contact Type	Max.	Catalog Number	Price U.S. \$
1NO and 1NC	4	J11	96.50
2NC	4	J02	96.50
2NO	4	J20	96.50
1 Coil Clearing NC and 1NO	4	J1C	96.50

Discount Symbol 1CD1C

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Accessories



SS-56 Surge Suppressor

SS-56 Surge Suppressor

- Designed to be used with magnetic motor controllers through Size 4 in 120V, 60 Hz control circuit applications where electronic equipment is used.
- Steady State Coil Volts: 120, 60 Hz, RMS
- Peak Input Volts: 169.6, 60 Hz, Max. Amplitude
- Max. Ambient Temperature: 65°C
- Nominal Limiting Volts: 270 Peak
- Nominal Rate of Volt Rise: .5 per mS

Table 39. Surge Suppressor ①

Type Mounting	Kit Catalog Number	Price U.S. \$ ②
Starter	SS-56	92.00

① Can be used on Sizes 5 and 6 with 120V coil. Mounting bracket required — order separately. Mounting Bracket 177C043G04.

② Discount Symbol 1CD1.

Mechanical Interlock

- Prevents closing of one member of a reversing or multi-speed contactor until the opposite member is completely open.

Table 42. Mechanical Interlock

Contactors Arrangement (Number of Poles, Horizontal or Vertical)	Continuous Size	Interlock Catalog Number	Price U.S. \$
3 x 3 Horizontal	0, 1	M-33-1B	71.50
4 x 4 Horizontal	0, 1	M-33-1B	71.50
5 x 3 Horizontal	0, 1	M-33-1B	71.50
All Pole Combination, Vertical	0, 1	M-34-1A	71.50
3 x 3 Horizontal Reversing	2	M-33-2B	71.50
3 x 3 Vertical Reversing	2	M-34-2A	71.50
5 x 3 Horizontal	2	M-35-2A	71.50
4 x 4 Horizontal	2	M-36-2A	71.50
All Pole Combination Horizontal	3, 4	M-33-3B	119.00
All Pole Combination Vertical	3, 4	M-34-3	119.00

F-56 Fuse Block

- Facilitates installation of fuses (15A, 600V max.) in control circuits.
- Utilizes Bussman type KTK fuses, or equivalent.
- Mounts in same cavity as Type J auxiliary contact.
- No tools or mounting hardware needed.
- Fuse not included.

Table 40. Fuse Block

Mounting	Kit Catalog Number	Price U.S. \$
Starter Panel	F56 F56-P	47.75 *

R-56 Interposing Relay

The R-56AA interposing relay is a low energy solid-state device with a single NO solid-state contact. It can be used as a 120V AC control relay, and will operate on as little as 40V AC input. Is useful in applications requiring long control wiring runs where excessive voltage drop would prevent the contactor or relay from energizing. Will operate a Size 4 contactor from 10,000 feet using 18 AWG wire.

Table 41. Interposing Relay

Type Mounting	Kit Catalog Number	Price U.S. \$ ③
Starter or Panel	R56-AA	580.00

③ Discount Symbol 1CD1.

- Lever type mechanism assures positive action.
- Can be factory assembled or field mounted on A200 and A900 starters and contactors.

B3NO Bell Alarm Contact

- Isolated Normally Open Bell Alarm Contact.
- Mounts in Type B block-type overload relay.

Table 43. Bell Alarm Contact

Kit Catalog Number	Price U.S. \$
B3NO-2	35.75
B3NO-4 ④	35.75

④ For Size 3 and 4.

Table 44. Control Contact Ratings (B600)

AC Volts	Maximum Amperes	
	Make	Break
24 – 120	30	3.00
121 – 600	3600 VA	360 VA
Continuous Current Rating: 5A		

Overload Relay Reset Extension

- Used to adjust overload reset rod depth of Class A200 Model J starters and current design overload relays to same dimensions as obsolete B200 starters and overloads identified by suffix B, i.e., BA13B.

When replacing obsolete B200 device with Class A200 starter and Type B overload, order Style 6710C11H03. No charge.

When replacing obsolete B200 device with Class A200 starter and Type A overload, order Style 1490C15H10. No charge.

Power Pole Kit

- Adds 1NO or 1NC power pole to Size 00 – 1 A201 Class contactors.
- Factory installed or field mountable in load side auxiliary cavities.
- 600V AC.
- Continuous current rating of 18A for Size 0, 27A for Size 1.

Table 45. Power Pole Kit ⑤

Continuous Current Rating	Kit Size	Kit Catalog Number	Price U.S. \$
Normally Open			
18	0	PN0-0	132.00
27	1	PN0-1	177.00
Normally Closed			
18	0	PNC-0	132.00
27	1	PNC-1	177.00

⑤ Do not use with DC operated contactors.

*Please contact your local Eaton sales office.

Discount Symbol 1CD1C

Accessories

Replacement Auxiliary Contacts

Table 46. Replacement Auxiliary Contacts

Contactor Size	Contact Arrangement	Aux. Elect. Contact		Price U.S. \$
		Catalog Number	Style Number	
5, 6	1NO + 1NC	J11	9084A17G01	96.50
	2NO	J20	9084A17G02	96.50
	2NC	J02	9084A17G03	96.50
7, 8	1NO	—	578D461G01	240.00
	1NC	—	578D461G03	255.00
9	1NO + 1NC	—	843D943G04	212.00
	2NO	—	843D943G05	212.00
	2NC	—	843D943G06	212.00

Extra Auxiliary Contact Kits

All starters include an auxiliary contact with 1NO and 1NC contact. These kits include an auxiliary contact with contacts as shown, plus operating arm and mounting bracket when required.

Table 47. Extra Auxiliary Contact Kits

Contactor Size	Contact Arrangement	Style Number	Price U.S. \$
5, 6	1NO + 1NC	3463D94G18	141.00
	2NO	3463D94G04	118.00
	2NC	3463D94G19	141.00
7, 8 ①	2NO	818D498G06	740.00
	1NO	818D498G04	366.00

① Size 7 and larger use DC coils as standard.

DC Coil Conversion Kits

Kits listed below include all necessary parts to convert from AC to DC control including the DC coil with built-in diode, rectifier, auxiliary interlock and all mounting hardware.

Table 48. DC Coil Conversion Kits

Size	Voltage	Kit Style Number	Price U.S. \$
5	110-120	7864A28G01	730.00
	220-240	7864A28G02	*
	440-480	7864A28G03	790.00
6	110-120	7864A29G01	805.00
	220-240	7864A29G02	805.00
	440-480	7864A29G03	870.00

Mechanical Interlocks

Table 49. Mechanical Interlocks

Contactor Sizes	Style Numbers		Price U.S. \$
	Horizontal	Vertical	
3, 4 and 5	2050A11G75	2050A11G65	*
5 and 5	2050A11G25	2050A11G15	*
5 and 6	2050A11G27	2050A11G17	*
6 and 6	2050A11G26	2050A11G16	*
6 and 7, 8	—	2050A11G55	*
7, 8 and 7, 8	No (Rear Conn.)	567D624G01	*
7, 8 and 9	No (Rear Conn.)	9944D56G06	*
9 and 9	No (Rear Conn.)	9944D56G01	*

Overload Protection

Overload Protection Size 5 Starters

Type B overload relay is a three-pole, block type, thermal ambient compensated device with manual reset mounted integrally. Current transformers are enclosed in a protective case and integrally mounted to save panel space. Standard ratio is 300:5.

Overload Protection Size 6 Starters

Overload protection assembly consists of three current transformers, Type B three-pole block overload relay and an optional interposing relay. These parts are mounted on a panel which connects directly to the load terminal of the contactor. Current transformers are 600:5 ratio as standard.

If automatic reset is required, the Type A, three-pole block, ambient compensated relay is available upon request.

Overload Relay Kits

Each kit includes three current transformers (standard ratio) and one Type B, three-pole block overload relay, ambient compensated with manual reset.

Table 50. Overload Relay Kits

Kit Size	Kit Part Number	Price U.S. \$
5	2057A34G01	815.00
6	6379D80G10	1,100.00

Table 51. Replacement Terminal Lugs ②

Contactor Size	Cable Size	Terminals		Kit Style Number	Price U.S. \$
		Qty. in Kit	Qty. Req'd. per Pole		
5	1-500 MCM	6	2	2119A76G01	110.00
6	2-500 MCM	6	2	7858A96G01	251.00
7	4-500 MCM	12	4	7858A96G02	*
8	4-500 MCM	12	4	7858A96G03	*

② All mounting hardware is included in kit.

*Please contact your local Eaton sales office.

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Renewal Parts

When Ordering Specify

Use this renewal parts data to identify device by style number, catalog number and/or description.

Select style number of replacement part from the following pages.

For clarification of ordering procedure, pricing and discounts, contact the Customer Support Center.

General Information

This renewal parts data will provide the proper identification of standard parts which may be required for maintenance of Eaton's Cutler-Hammer components.

It is the intent of this catalog section to make it possible to quickly select the parts needed.

An investment in renewal parts and regular maintenance program will protect against downtime and ensure a proper duty cycle for your equipment.

To maintain maximum operating efficiency and dependability of your equipment, only genuine Cutler-Hammer replacement parts should be used.

This section identifies the replacements parts which are available. Order by style number.

JF Autostarters**Table 52. JF Autostarter Kits**

Frame Size	Start Contacts			Run Contacts			Grid Stack Kit		
	Required	Style Number	Price U.S. \$	Required	Style Number	Price U.S. \$	Required	Style Number	Price U.S. \$
2 – 3	1	38A7018G12	338.	1	38A7018G13	1,105.	1	3354D90G10	392.
4 – 5 5L	1	550D409G18	555.	1	550D409G19	3,425.	1	3354D90G10	392.
5M – 5MM	1	3354D90G08	2,250.	1	3354D90G09	*	2	3354D90G10	392.

Note: Kits contain a complete set of moving contacts, stationary contacts and springs.

Table 53. Solenoid Assembly with Coil (All Sizes) ①

Volt	Hz	Style Number ②	Price U.S. \$
115	60	5264C05H01	865.
230	60	5264C05H02	865.
460	60	5264C05H03	865.
575	60	5264C05H04	865.

① When replacing solenoid assembly series 416C160 use adapter plate style 9917D02H01 — 1 required.

② These styles replace coil style 296B892G___. When ordering new style as replacement, customer must order adapter plate 9917D02H01, Quantity 1 required.

*Please contact your local Eaton sales office.

Discount Symbol 1CD1C

Renewal Parts

AC Starters, Contactors A200, A201

Table 54. AC Contactors Model J Sizes 00, 0, 1, 2 Kits ①

Part	Poles	Size 00		Size 0		Size 1		Size 2	
		Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$
Contact Kit	2	373B331G17	67.50	373B331G02	82.50	373B331G07	96.00	373B331G11	173.00
	3	373B331G18	99.00	373B331G04	124.00	373B331G09	144.00	373B331G12	255.00
	4	373B331G18	99.00	373B331G04	124.00	373B331G09	144.00	373B331G13	*
	5	373B331G19	*	373B331G05	206.00	373B331G10	239.00 ③		
Arc Box ②	2, 3, 4	6714C74G01	*	6714C74G02	31.75	6714C74G03	31.75	6714C74G07 (2-, 3-pole)	57.00
	5	6714C74G04	*	6714C74G05	*	6714C74G06	*	6714C74G08 (4-, 5-pole)	91.00
Cross Bar	2, 3	N/A	—	N/A	—	N/A	—	672B788G32	71.00
	4, 5	N/A	—	N/A	—	N/A	—	672B788G34	110.00
Upper Base (for single rated coils only)	2, 3	N/A	—	N/A	—	N/A	—	672B788G33	117.00
	4, 5	N/A	—	N/A	—	N/A	—	672B788G35	142.00
Lower Base	2, 3	N/A	—	N/A	—	N/A	—	1250C33G09	86.50
	4, 5	N/A	—	N/A	—	N/A	—	1250C33G05	170.00
KO Spring (Pk of 10)	All	N/A	—	N/A	—	N/A	—	503C796G01	71.00
Terminal Line/Load (Pk of 3)	All	N/A	—	N/A	—	N/A	—	371B870G03	60.00

① Model C contact tips and coils 00-4, 2-, 3-, 4- and 5-pole contactors are same as Model J. All other parts are unavailable.

② Mounting hardware included.

③ Use one each of 373B331G11 and 373B331G12.

Table 55. AC Coils

Voltage	Hz	Size 00, 0, 1				Size 2			
		2-, 3-, 4-Pole		5-Pole		2-, 3-Pole		4-, 5-Pole	
		Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$
120/110	60/50	505C806G01	97.50	505C808G01	111.00	505C806G01	97.50	505C818G01	111.00
208	60	505C806G02	97.50	505C808G02	111.00	505C806G02	97.50	505C818G02	*
600/550	60/50	505C806G05	97.50	505C808G05	*	505C806G05	97.50	505C818G05	111.00
380	50	505C806G07	97.50	505C808G07	*	505C806G07	97.50	505C818G07	*
240/220	60/50	505C806G12	97.50	505C808G12	111.00	505C806G12	97.50	505C818G12	111.00
480/440	60/50	505C806G13	97.50	505C808G13	111.00	505C806G13	97.50	505C818G13	111.00
24	60	505C806G16	97.50	N/A	—	505C806G16	97.50	505C818G15	*
277	60	505C806G18	97.50	505C808G16	111.00	505C806G18	97.50	505C818G16	111.00
240/480 ④	60/60	505C806G03	97.50	505C808G03	*	505C806G03	97.50	505C818G03	*
120/240 ⑤	60/60	505C806G10	97.50	505C808G10	*	505C806G10	97.50	505C818G10	*

④ Dual Voltage Coils. Use only on contactors or starters originally supplied with a dual voltage coil.

⑤ Use only on contactors originally supplied with a DC coil.

Table 56. DC Coil ⑦

Voltage	Size 0, 1	Size 2	Price U.S. \$
	1, 2, 3, 4 Pole	1, 2, 3 Pole	
	Style Number		
12	1268C86G07		*
24	1268C86G04		173.00
48	1268C86G05		173.00
125	1268C86G02		173.00
250	1268C86G01		173.00
125/250 ⑥	1268C86G03		*

⑥ Dual Voltage Coils. Use only on contactors or starters originally supplied with a dual voltage coil.

⑦ Use only on contactors originally supplied with a DC coil.

Accessories for Size 5 – 9 AC Contactors

Note: A rectifier circuit converts the AC supply to DC supply. This conversion provides pick up and drop out characteristics. All necessary parts are included in the kit.

Table 57. AC-DC Coil Conversion Kits

Voltage	Size 5		Size 6	
	Style Number	Price U.S. \$	Style Number	Price U.S. \$
120V AC	7864A28G01	730.00	7864A29G01	805.00
240V AC	7864A28G02	*	7864A29G02	805.00
480V AC	7864A28G03	790.00	7864A29G03	870.00

Table 58. Replacement Coils for Above

Voltage	Size 5		Size 6	
	Style Number	Price U.S. \$	Style Number	Price U.S. \$
120V AC	7856A15G05	435.00	7856A16G05	435.00
240V AC	7856A15G10	463.00	7856A16G10	*
480V AC	7856A15G15	435.00	7856A16G15	463.00

*Please contact your local Eaton sales office.

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Renewal Parts

AC Starters, Contactors A200, A201 (Continued)

Accessories for Size 5 – 9 AC Contactors

Table 59. Auxiliary Electrical Interlocks Size 7 – 9 AC and All DC Units

Type	Circuits	Application	Style Number	Price U.S. \$
L63	NO	Size 7 – 8	578D461G01	240.00
L63	NC	Size 7 – 8	578D461G03	255.00
L64	NO-NC	Size 9	843D943G04	212.00
L64	2NO	Size 9	843D943G05	212.00
L64	2NC	Size 9	843D943G06	212.00

Accessories for Size 00 – 6 AC Contactors

Table 60. Auxiliary Electrical Interlocks

Catalog Number (Obsolete)	Style Number (Obsolete)	Circuits	Catalog Number Current	Style Number Current	Price U.S. \$
(L-56)	(2609D01G01)	1NO & 1NC 2NO	J11	9084A17G01	96.50
(L-56D)	(2609D01G02)	1NO & 1NC	J20	9084A17G02	96.50
(L-56E)	(2609D01G03)	2NO	J11	9084A17G01	96.50
(L-56B)	(2609D01G04)	2NO	J20	9084A17G02	96.50
(L-56H)	(2609D01G05)		J20	9084A17G02	96.50
(L-56J)	(2609D01G06)	1NO & 1NC DB	J1C	9084A17G04	96.50
(L-56A)	(2609D01G07)	N/A	N/A	N/A	—
(L-56B)	(2609D01G08)	N/A	N/A	N/A	—
(L-56F)	(2609D01G09)	N/A	N/A	N/A	—
(L-56G)	(2609D01G10)	1NO & 1NC DB	J1C	9084A17G04	96.50
(L-56C)	(2609D01G11)	2NC	J02	9084A17G03	96.50
(L-56M)	(2609D01G12)	N/A	N/A	N/A	—
(L-56P)	(2609D01G17)	1NO & 1NC 2NC	J11	9084A17G01	96.50
(L-56R)	(2609D01G18)	1NO & 1NC	J02	9084A17G03	96.50
(L-56S)	(2609D01G19)		J11	9084A17G01	96.50

Model J – K, Sizes 3 and 4

Table 61. Model J – K Series 3, 4 Kits ①

Part	Poles	Size 3 – Model J		Size 4 – Model J ③		Size 4 – Model K ②	
		Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$
Contact Kit	2	626B187G12	279.00	626B187G16	585.00	5250C81G16	585.00
	3	626B187G13	418.00	626B187G17	885.00	5250C81G17	885.00
	4	④		⑥		5250C81G18	1,170.00
	4	⑤		⑦		5250C81G19	1,465.00
	5						
Arc Box	2, 3	6714C74G09	130.00	6714C74G11	130.00	6714C74G11	130.00
	4, 5	6714C74G10	*	6714C74G12	161.00	6714C74G12	161.00
Cross Bar	2, 3	672B788G36	140.00	672B788G36	140.00	672B788G40	140.00
	4, 5	672B788G38	180.00	672B788G38	180.00		
Upper Base	2, 3	672B788G37	210.00	672B788G37	210.00	672B788G52	210.00
	4, 5	672B788G39	283.00	672B788G39	283.00		
Lower Base	2, 3	1250C33G03	159.00	1250C33G03	159.00	1250C33G10	111.00
	4, 5	1250C33G06	214.00	1250C33G06	214.00		
KO Spring (Pk of 10)	All	503C796G02	71.00	503C796G02	71.00	672B788G50	71.00
Terminal Line/Load (Pk of 3)	All	372B357G12	60.00	372B357G18	60.00	372B357G18	60.00

① Model C contact tips and coils 00-4, 2-, 3-, 4- and 5-pole contactors are same as model J. All other parts are unavailable.

② Model K replaces Model J, offering superior design life characteristics. Renewal parts are different. Use parts for proper model only.

③ For 200 Amp A202 Magnetically Latched Lighting Contactors order 3-pole contact kit style 672B788G07.

④ Use Qty. 2 of 626B187G12.

⑤ Use Qty. 1 each of 626B187G12 and 626B187G13.

⑥ Use Qty. 2 of 626B187G16.

⑦ Use Qty. 1 each of 626B187G16 and 626B187G17.

*Please contact your local Eaton sales office.

Discount Symbol 1CD1C

Renewal Parts

AC Starters, Contactors A200, A201 (Continued)

Accessories for Model J – K, Series 3, 4

Table 62. DC Coils ①

Voltage	Model J Size 3, 4	
	2-, 3-Pole	
	Style Number	Price U.S. \$
24	1255C68G04	288.00
48	1255C68G05	288.00
125	1255C68G01	288.00
250	1255C68G02	*
125/250 ②	1255C68G03	288.00

① Use only on units originally supplied with DC coil.

② Dual Voltage Coils. Use only on contactors or starters originally supplied with dual voltage coil.

Table 63. AC Coils

Voltage	Hz	Model J Size 3, 4				Model K Size 4 ③			
		2-, 3-Pole		4-, 5-Pole		2-, 3-Pole		4-, 5-Pole	
		Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$
120/110	60/50	505C633G01	218.00	505C635G01	263.00	5250C79G01	218.00	5250C80G01	263.00
208	60	505C633G02	218.00	505C635G02	263.00	5250C79G02	218.00	5250C80G02	*
600/550	60/50	505C633G05	218.00	505C635G05	263.00	5250C79G05	218.00	5250C80G05	*
380	50	505C633G07	218.00	505C635G07	*	5250C79G07	218.00	5250C80G07	*
240/220	60/50	505C633G12	218.00	505C635G12	263.00	5250C79G12	218.00	5250C80G12	263.00
480/440	60/50	505C633G13	218.00	505C635G13	263.00	5250C79G13	218.00	5250C80G13	263.00
24	60	505C633G34	218.00	N/A	—	5250C79G34	218.00	N/A	—
277	60	505C633G14	218.00	N/A	—	5250C79G14	218.00	N/A	—
240/480 ④	60/60	505C633G03	218.00	505C635G03	*	5250C79G03	218.00	5250C80G03	*
120/244 ④	60/60	505C633G10	218.00	505C635G10	*	5250C79G10	*	5250C80G10	*

③ Model K replaces Model J, offering superior design life characteristics. Renewal parts are different. Use parts for proper model only.

④ Dual Voltage Coils. Use only on contactors or starters originally supplied with dual voltage coil.

A201 Contactors — Size 5 – 9

Table 64. GCA 530/630 — GPD 7, 8, 9 Kits ⑤

Part	Size 5		Size 6		Size 7		Size 8		Size 9	
	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$	Style Number	Price U.S. \$
Contact Kit (1 per pole)	477B477G05 ⑥	530.00	2066A10G11	1,490.00	461A757G17	1,810.00	646C829G05	2,455.00	5264C42G01 (R.C.)	7,120.00
Arc Box	2050A15G45	600.00	2066A10G45	605.00	831D580G01	875.00	831D580G01	875.00	5264C42G02 (F.C.)	7,120.00
Magnet Assy.	2050A15G46	560.00	2050A15G46	560.00	N/A	—	N/A	—	9917D69G02	⑧
Mag. Spg. Kit	2050A15G47	100.00	2050A15G47	100.00	N/A	—	N/A	—	N/A	—
Acr Cup Kit	2050A15G48	57.00	N/A	—	N/A	—	N/A	—	N/A	—
Load Conn. Kit	2050A15G49	194.00	2066A10G49	*	N/A	—	N/A	—	N/A	—
Line Conn. Kit	2050A15G50	194.00	2066A10G50	*	N/A	—	N/A	—	N/A	—
K.O. Spring – 6	2050A15G51	83.50	2066A10G46	94.00	N/A	—	N/A	—	N/A	—
C.T. 300/5	655C285H03	318.00	N/A	—	N/A	—	N/A	—	N/A	—
C.T. 400/5	655C285H04	*								
C.T. 600/5 ⑦	N/A	—	2066A10G18	565.00	N/A	—	N/A	—	N/A	—
C.T. 800/5 ⑦	N/A	—	2066A10G19	625.00	N/A	—	N/A	—	N/A	—
Phase Barrier	N/A	—	N/A	—	640C441G01	150.00	640C441G01	150.00	5264C35G03 (R.C.)	*
Cross Bar	2050A15G12	289.00	2066A10G15	935.00	N/A	—	N/A	—	N/A	—
Shunt	N/A	—	2066A10G48	164.00	650C129G01	175.00	646C831G02 (Set of 3)	1,070.00	5264C39G02 (Set of 4)	*

⑤ Catalog Number A201/A200 Series replaces GCA/GPD series. Renewal parts are the same.

⑥ Use 477B477G06 for Silver Tungsten applications.

⑦ C.T. kit which replaces the single molded 1 CT assembly used on the old size 6 airbreak. The kit includes a single molded 3 C.T. assembly, 2 bus bar and hardware. This C.T. kit also replaces the single molded 3 C.T. assembly used on the present size 6 airbreak and size vacuum.

⑧ Consult factory for prices.

*Please contact your local Eaton sales office.

Discount Symbol 1CD1C

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Renewal Parts

Accessories for A201 Contactors — Size 5 – 9

Table 65. Coils

Voltage	Hz	Size 5		Size 6	
		Style Number	Price U.S. \$	Style Number	Price U.S. \$

Sizes 5 and 6

110/120	60	2050A14G05	420.	2050A12G05	595.
110/120	50	2050A14G06	420.	2050A12G06	595.
200/208	50	2050A14G07	*	2050A12G07	*
220/240	50	2050A14G08	420.	2050A12G08	*
200/208	60	2050A14G09	420.	2050A12G09	595.
220/240	60	2050A14G10	420.	2050A12G10	595.
277/303	60	2050A14G12	420.	2050A12G12	595.
380/415	50	2050A14G14	420.	2050A12G14	595.
440/480	60	2050A14G15	420.	2050A12G15	595.
440/480	50	2050A14G16	420.	2050A12G16	*
550/600	60	2050A14G17	420.	2050A12G17	595.
550/600	50	2050A14G18	420.	2050A12G18	595.
380/415	60	2050A14G19	420.	2050A12G19	595.
120/240	60	2050A14G20	420.	2050A12G20	595.
24 DC		2050A14G21	*	2050A12G21	*
48 DC		2050A14G22	420.	2050A12G22	*
125 DC		2050A14G25	420.	2050A12G25	*
250 DC		2050A14G27	420.	2050A12G27	*

Line Voltage	Size 7, 8		Required
	Style Number	Price U.S. \$	

Sizes 7 and 8

125V DC	438C805G04	*	2
230V DC	438C805G02	*	2
250V DC	438C805G03	*	2
110/120V AC ① ④	438C805G12	1,570.	2
220/240V AC ② ④	438C805G11	1,570.	2
380V AC ③ ④	438C805G15	*	2
440/480V AC ③ ④	438C805G10	1,570.	2
550/575V AC ③ ④	438C805G13	*	2

Line Voltage	Size 9	
	Style Number	Price U.S. \$

Size 9

110V DC	5264C34G01 ⑤	*
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① Rectifier 125V 2018A40G01 (1 required).

② Rectifier 250V 2018A40G02 (1 required).

③ Rectifier 600V 2018A40G03 (1 required).

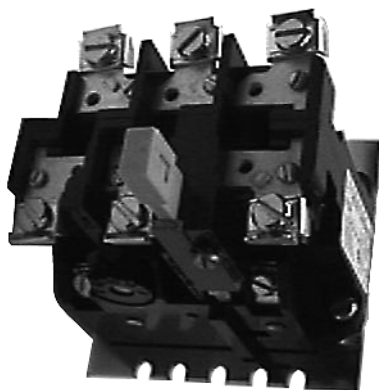
④ These coils require an external rectifier. If the rectifier needs replacement, order by the appropriate style number.

⑤ Contains coil and resistor.

*Please contact your local Eaton sales office.

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Type A Overload Relay
3-Pole Panel Mount

Product Family Overview

Type B and Type A, Class 20 Cutler-Hammer® Thermal Overload Relays from Eaton's electrical business will protect the motor against abnormal overload conditions. Bimetallic actuated, they are available as either ambient compensated or non-compensated in either single-pole or block type three-pole design. The Type B use one pole of the three-pole block for single-phase.

Single-pole relays are also available as Fast Trip Class 10 ambient compensated type, which provides approximately 125% motor protection with a tripping time of less than 10 seconds, at 600% of heater current rating.

Fast trip relays can be identified by the green reset rods. They are available for panel or starter mounting. The three-pole fast trip design is composed of three single-pole relays on a common baseplate, with a common reset bar.

The bimetal element is actuated by precisely calibrated heater elements which are connected directly in the circuit to be protected. Thermal actuation of this device opens the contacts in the coil circuit of a contactor or relay which results in the disconnection of power to the overloaded circuit.

Interchangeable thermal heater elements for single-pole standard trip and block type overload relays are available to cover motor full load currents from .29 to 133A in approximately 10% steps (see Heater Application Table). Fast trip overload relays do not have interchangeable heater elements but are available in a series of ratings to cover motor full load currents from 1.6 to 150A in approximately 50% steps.

Design Features

Manual or Automatic Reset

The Type B is furnished with a manual reset. The Type A is normally furnished set for manual reset operation and may be quickly adjusted for automatic reset when required. Automatic reset should not be used with 2-wire control or where automatic restarting would endanger either personnel or equipment.

Trip Indication

An immediate visible indication of trip is provided on the overload relay. When an overload occurs, which causes the relay to operate, a trip indicator projects out and thus shows positive visual indication of trip. The Type B has a mechanical trip bar to manually check the NC contact operation on the overload relay.

Adjustable Trip

On the Type A, the trip rating of a specific heater element can be adjusted over a range of approximately 85% to 115% of its respective rating to permit the desired close protection.

This is accomplished by turning the adjusting knob on the relay to the respective stop position.

Positive Contact Break

A follow-through contact, provided on the stationary terminal of the snap action control switch, provides reliable electrical continuity during toggling, thus eliminating false trip sometimes prevalent with thermally operated switches. This contact also allows contact wipe for further reliability.

Ambient Compensation

Motor overload protection can be provided with the same trip characteristics in ambient temperature from -40° to 77°C (-40° to 167°F). A compensating bimetal maintains a constant "travel to trip" distance independent of ambient conditions. The compensating feature is fully automatic and no adjustments are required over wide fluctuations in ambient temperatures. Compensated relays are identified by black reset rods on the Type A and light gray reset rods on the Type B, while non-compensated relays use red reset rods. AA three-pole units have gray reset rods. AA one-pole units have black reset rods.

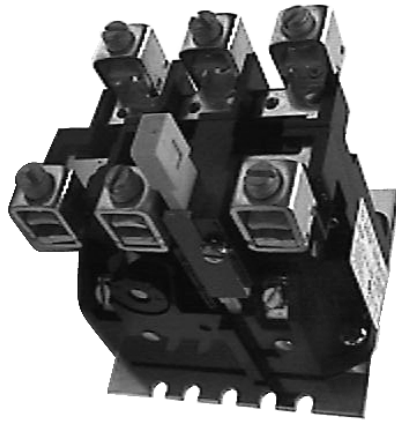
Control Contact

Single-pole and block type relays are supplied as standard with a SPST NC control contact. A SPDT NO-NC with common is available as a factory modification on the Type A. An isolated NO contact can be supplied on the Type B as either a factory modification or as a field kit.

Instruction Leaflets

- 14885B Fast Trip A Sizes 0 – 4, 3-Pole OL Relay
- 14567E Type A Sizes 1 – 2, 1-Pole OL Relay Mod A
- 14568 Type A Sizes 1 – 2, 3-Pole OL Relay Mod J
- 14570D Type A Sizes 3 – 4, 3-Pole OL Relay Mod J
- 14569C Type A Sizes 3 – 4, 1-Pole OL Relay Mod A
- 17093A Type B OLR for Sizes 7, 8 and 9 Contactors
- 16955A Type B Sizes 1 – 2, 1-Pole OL Relay
- 16954A Type B Sizes 1 – 2, 3-Pole OL Relay
- 15392B Type B Sizes 3 – 4, 3-Pole OL Relay
- 13676F Fast Trip Sizes 0 – 4, 1-Pole OL Relay

Thermal Type B, Class 20, Manual Reset



*Type B Overload Relay
Panel Mounting*

Application Description

The Type B overload relay is designed to protect industrial motors against overload conditions. Using modern block type, bimetallic design, this relay will provide Class 20 operation in either single-phase or 3-phase applications.

Features

- Ambient compensation standard
- Alarm contact field mountable
- Class 20 — 600V design
- Inverse time delay trip
- Test trip device for weld check
- Hi-visibility up-front trip indication
- Trip-free reset mechanism

Operation

The Type B overload relay is a bimetallic actuated device. The bimetal elements are operated by precisely calibrated heaters. The heater elements are connected either directly in the circuit to be measured, or through current transformers on applications NEMA Size 5 and larger.

As the bimetals are heated by motor current flow, a deflection force is produced. Upon a sustained level of abnormal current flow, the deflection becomes great enough to open the snap-action output contact.

Ambient Compensation

The Type B ambient compensated design is supplied as standard on all A200 starters. This design uses a second compensating bimetal responsive to ambient air temperature in the surrounding enclosure. This feature reduces nuisance tripping in applications using compact control panels and motor control centers where internal temperature rise is significant compared to motor ambient temperature. The compensating characteristic is maintained in ambient temperatures from 40° to 77°C.

Standards and Certifications

- UL508
- CSA
- ANSI/NEMA ICS 2-222

Technical Data

Table 66. Control Contact Ratings — NEMA B600 NO and NC Control Contact Rating

AC Volts	Make	Break
24 – 120 120 – 600	30A 3600 VA	3A 360 VA

Accessories

Table 67. Alarm Contact Kit Selection ①

Type B Overload Relay Size	Catalog Number	Price U.S. \$
1, 2	B3NO-2	35.75
3, 4	B3NO-4	35.75

① Alarm contact available as factory modification of field mountable. For factory modification, add suffix B.

Product Selection

Heaters

Enter heaters as separate item by listing Catalog Number from tables, **Pages 35 – 36**, as required per starter.

Relays

Table 68. Product Selection — Thermal Type B Overload Relay Selection

Motor Full Load Amps	Panel Mounted		Starter Mounted Catalog Numbers				Price U.S. \$
	Catalog Numbers		Replacement for Type B Overload Relays		Replacement for Type A Overload Relays in Manual Reset Mode (3-Pole Only) ②		
	Ambient Comp.	Non comp.	Ambient Comp.	Non-comp.	Ambient Comp.	Non-comp.	

Single-Pole (One NC Contact)

.25 – 26.2	BA11JP	BN11JP	BA11A	BN11A	—	—	53.50
26.3 – 45	BA21JP	BN21JP	BA21A	BN21A	—	—	*
19 – 90	Use 3-Pole Design, Wire 3 Poles in Series						
19 – 135							

Three-Pole (One NC Contact)

.25 – 26.2	BA13JP	BN13JP	BA13A ③	BN13A ③	BA13J	BN13J	107.00
26.3 – 45	BA23JP	BN23JP	BA23A	BN23A	BA23J	BN23J	*
19 – 90	BA33P	BN33P	BA33A	BN33A	BA33A	BN33A	204.00
19 – 135	BA43P	BN43P	BA43A	BN43A	BA43A	BN43A	320.00

② Includes contactor mounting bracket, overload relay and connection straps to contactor.

③ For replacement on B200 size 00, 0, 1 use BA23A instead of BA13A and use BN23A instead of BN13A.

*Please contact your local Eaton sales office.

Relays — Thermal and Fast Trip, Thermal Type B
Dimensions

Not to be used for construction purposes unless approved.

Table 69. Thermal Type B Overload Relays Dimensions

Relay Size	Approximate Dimensions in Inches (mm)			
	A	B	C	D
3	3.13 (79.5)	4.06 (103.1)	.44 (11.2)	.31 (7.9)
4	3.38 (85.9)	4.38 (111.3)	.31 (7.9)	.19 (4.8)

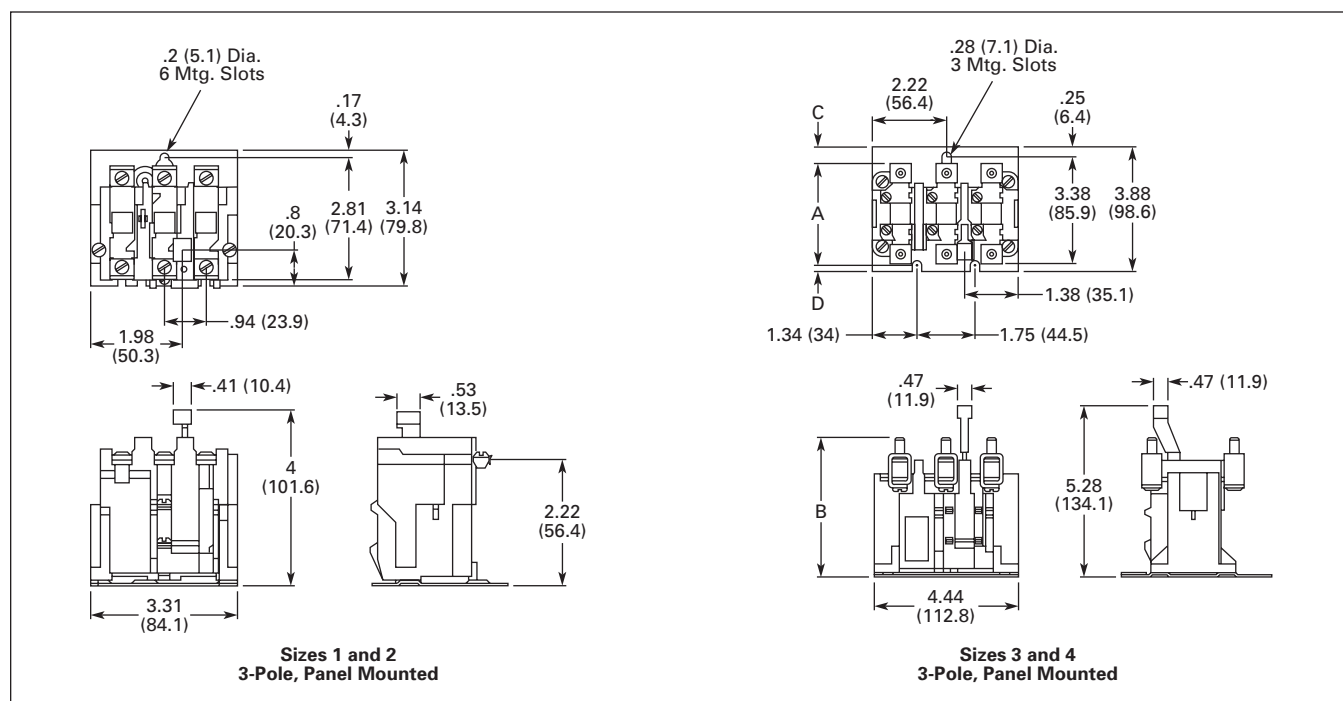


Figure 6. Thermal Type B Overload Relays Dimensions in Inches (mm)

**Thermal Type A, Class 20,
Auto/Manual Reset**

*Type A Overload Relay
1-Pole Panel Mounting*

Application Description

The Type A overload relay is designed to protect industrial motors against overload conditions. Using modern block type, bimetallic design, this relay will provide Class 20 operation in either single- or 3-phase applications.

Features

- Field selectable manual/auto reset
- Alarm contact factory available
- Class 20 — 600V design
- Inverse time delay trip
- Adjustable trip rating $\pm 15\%$
- Color coded reset rod:
 - Compensated (Gray)
 - Non-compensated (Red)

Operation

The Type A overload relay is a bimetallic actuated device. The bimetal elements are operated by precisely calibrated heaters. The heater elements are connected either directly in the circuit to be measured, or through current transformers on applications NEMA Size 5 and larger.

As the bimetals are heated by motor current flow, a deflection force is produced. Upon a sustained level of abnormal current flow, the deflection becomes great enough to open the snap-action output contact.

Automatic Reset

The Type A overload relay can be supplied as an option on all A200 starters to provide automatic reset operation. The overload relay is always shipped in the non-automatic mode. To set up auto operation, reposition the reset rod by loosening and re-tightening a hold-down clamp at the base of overload relay.

Product Selection**Heaters**

Enter heaters as separate item by listing Catalog Number from tables, **Pages 35 – 36**, as required per starter.

Relays**Table 71. Product Selection — Thermal Type A Overload Relay Selection**

Motor Full Load Amps	Panel Mounted		Starter Replacement		Price U.S. \$
	Ambient Comp.	Non-comp.	Ambient Comp.	Non-comp.	
	Catalog Number	Catalog Number	Catalog Number	Catalog Number	

Single-Pole (One NC Contact)

.25 – 26.2	AA11P	AN11P	AA11A	AN11A	75.50
26.3 – 45	AA21P	AN21P	AA21A	AN21A	107.00
19 – 90	AA31P	AN31P	AA31A	AN31A	142.00
19 – 135	AA41P	AN41P	AA41A	AN41A	224.00

Three-Pole (One NC Contact)

.25 – 26.2	AA13P ①	AN13P ①	AA13A ①	AN13A ①	146.00
26.3 – 45	AA23P ①	AN23P ①	AA23A ①	AN23A ①	213.00
19 – 90	AA33P ①	AN33P ①	AA33A ①	AN33A ①	279.00
19 – 135	AA43P ①	AN43P ①	AA43A ①	AN43A ①	442.00

Note: For Alarm Contact (Form C), add Suffix **B**. Available only as factory modification on Type A relay. **Adder U.S. \$54.00**

① 3-Pole Type B Overload Relay is a suitable alternative to a 3-Pole Type A Overload Relay in Manual Reset Mode. For example, BA13JP for AA13P, BN23J for AN23A, etc. (See **Page 29**.)

Standards and Certifications

- UL508
- CSA
- ANSI/NEMA ICS 2-222

Technical Data**Table 70. Control Contact Ratings**

AC Volts	Normally Closed		Normally Open	
	Make	Break	Make	Break

Three-Pole Control Contact Ratings

24 – 120	20A	2A	.5A	.5A
120 – 600	2400 VA	240 VA	600 VA	60 VA

One-Pole Control Contact Ratings

24 – 120	30A	3A	10A	1A
120 – 600	3600 VA	360 VA	1200 VA	120 VA

Relays — Thermal and Fast Trip, Thermal Type A

Dimensions

Not to be used for construction purposes unless approved.

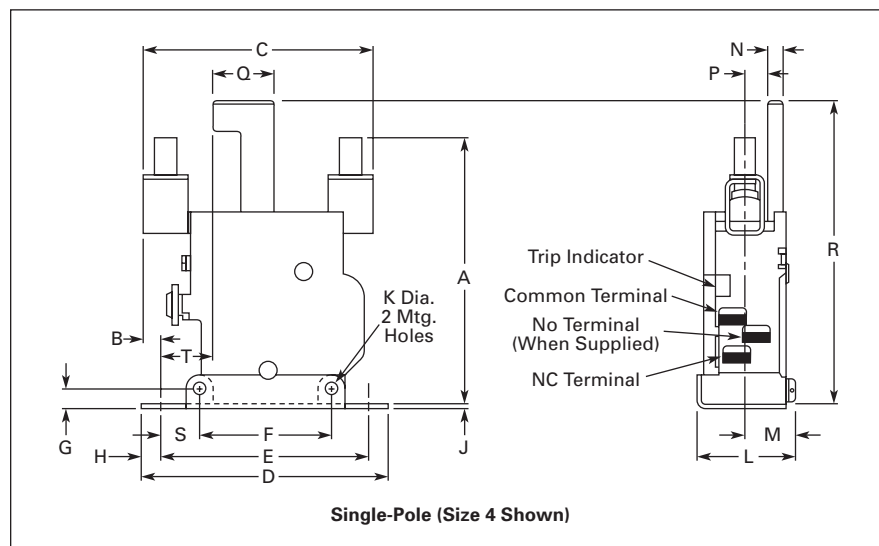


Figure 7. Type A Single-Pole Approximate Dimensions

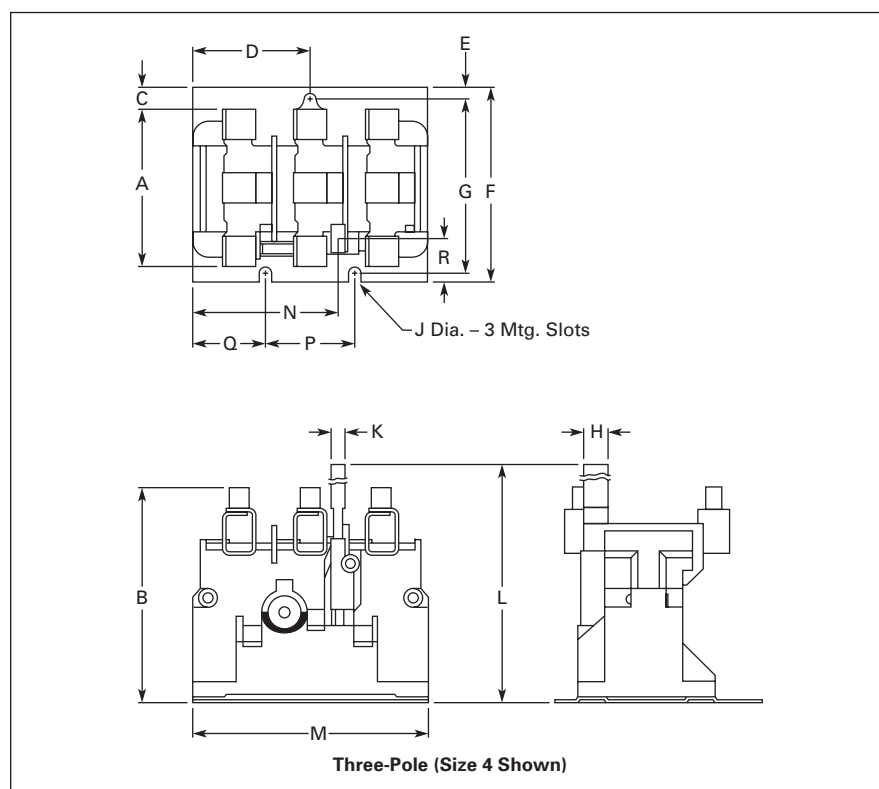


Figure 8. Type A Three-Pole Approximate Dimensions

Table 72. Type A Single-Pole — Approximate Dimensions in Inches (mm)

Dim.	Relay Size			
	1	2	3	4
A	2.72 (69.1)	3.48 (88.4)	4.19 (106.4)	4.5 (114.3)
B	.94 (23.9)	.67 (17.0)	.25 (6.4)	.38 (9.7)
C	2.75 (69.9)	3.5 (88.9)	3.53 (89.7)	3.78 (96.0)
D	3.25 (82.6)		4.13 (104.9)	
E	2.63 (66.8)		3.38 (85.9)	
F	1.34 (34.0)		2.19 (55.6)	
G	.25 (6.4)		.28 (7.1)	
H	.31 (7.9)		.38 (9.7)	
J	.06 (1.5)		.06 (1.5)	
K	.22 (5.6)		.27 (6.8)	
L	1.34 (34.0)		1.69 (42.9)	
M	.66 (16.8)		.88 (22.4)	
N	.16 (4.1)		.27 (6.8)	
P	.22 (5.6)		.34 (8.6)	
Q	.06 (1.5)		.69 (17.5)	
R	4.00 (101.6)		5.19 (131.8)	
S	.47 (11.9)		.59 (15.0)	
T	1.11 (28.2)		.69 (17.5)	

Table 73. Type A Three-Pole — Approximate Dimensions in Inches (mm)

Dim.	Relay Size			
	1	2	3	4
A	2.38 (60.5)	2.44 (62.0)	3.13 (79.5)	3.38 (85.9)
B	3.13 (79.5)	3.17 (80.5)	4.06 (103.1)	4.38 (111.3)
C	.36 (9.1)	.33 (8.4)	.44 (11.2)	.31 (7.9)
D	1.66 (42.2)		2.22 (56.4)	
E	.17 (4.3)		.25 (6.4)	
F	2.81 (71.4)		3.38 (85.9)	
G	3.08 (78.2)		3.88 (98.6)	
H	.47 (11.9)		.47 (11.9)	
J	.20 (5.1)		.28 (7.1)	
K	.28 (7.1)		.47 (11.9)	
L	4.00 (101.6)		5.28 (134.1)	
M	3.31 (84.1)		4.44 (112.8)	
N	1.80 (45.7)		2.77 (70.4)	
P	1.89 (48.0)		1.75 (44.5)	
Q	1.00 (25.4)		1.34 (34.0)	
R			1.03 (26.2)	

January 2006

Relays — Thermal and Fast Trip, Type FT Fast Trip

Type FT Fast Trip, Class 10

Application Description

The Type FT overload relay is designed to protect special purpose motors having restricted thermal and locked rotor capabilities. Using modern block type, bimetallic design, this relay will provide Class 10 operation in single- or three-phase applications.

Operation

The Type FT overload relay is a bimetallic actuated device. The bimetal elements are operated directly from line current, thus separate calibrating heater elements are not utilized. The overload relay may be wired directly in the motor circuit, or through-current transformers on applications larger than 150A.

As the bimetals are heated by motor current flow, a deflection force is produced. Upon a sustained level of abnormal current flow, the deflection becomes great enough to open the snap action output contact.

Features

- Class 10 — 600V design
- Inverse time delay trip
- Color coded reset rod — green
- Alarm contact factory available
- Field selectable manual/auto reset
- Adjustable trip rating $\pm 20\%$
- Ambient compensation included

Technical Data

Table 74. Control Contact Ratings

AC Volts	Normally Closed		Normally Open	
	Make	Break	Make	Break
24 – 120	30A	3A	10A	1A
120 – 600	3600 VA	360 VA	1200 VA	120 VA

Product Selection

Table 75. Type FT Single-Pole (One NC Contact); Three-Phase (Three NC Contacts in Series)

Motor Full Load Amperes	Panel Mounted				Starter Replacement		
	Single-Pole		Three-Pole		NEMA Size	Single-Pole	
	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$		Catalog Number	Price U.S. \$
.76 – 1.1	FT11P-1.1	*	FT13P-1.1	*	—	FT11A-1.1	*
1.1 – 1.6	FT11P-1.6	*	FT13P-1.6	284.00	—	FT11A-1.6	*
1.6 – 2.4	FT11P-2.4	*	FT13P-2.4	*	0, 1	FT11A-2.4	*
2.4 – 3.6	FT11P-3.6	*	FT13P-3.6	284.00	0, 1	FT11A-3.6	*
3.6 – 5.4	FT11P-5.4	96.50	FT13P-5.4	*	0, 1	FT11A-5.4	*
5.4 – 8.0	FT11P-8.0	96.50	FT13P-8	*	0, 1	FT11A-8	*
8.0 – 12	FT11P-12	96.50	FT13P-12	284.00	0, 1	FT11A-12	*
12 – 18	FT11P-18	96.50	FT13P-18	*	1	FT11A-18	*
16 – 24	—	—	FT13P-24	284.00	—	—	—
22 – 32	FT11P-32	96.50	FT13P-32	284.00	0, 1	FT11A-32	*
24 – 36	FT21P-36	*	FT23P-36	353.00	2	FT21A-36	*
36 – 54	FT21P-54	*	FT23P-54	*	2	FT21A-54	*
22 – 32	FT31P-32	*	FT33P-32	*	3	FT31A-32	*
32 – 48	FT31P-48	*	FT33P-48	*	3	FT31A-48	*
48 – 72	FT31P-72	144.00	FT33P-72	425.00	3	FT31A-72	*
72 – 110	FT41P-110	204.00	FT43P-110	600.00	4	FT41A-110	*
100 – 150	FT41P-150	204.00	FT43P-150	600.00	4	FT41A-150	204.00

Note: Single-Pole (1NO-NC Contact): Add Suffix **B**.

Three-Pole (3NO-NC Contacts): Add Suffix **B**. Example: FT13PB-12.

*Please contact your local Eaton sales office.

Discount Symbol 1CD1C

Relays — Thermal and Fast Trip, Type FT Fast Trip
Dimensions

Not to be used for construction purposes unless approved.

Table 76. Type FT Overload Relays Dimensions

Relay Size	Approximate Dimensions in Inches (mm)				
	A	B	C	D	E
3	4.25 (108.0)	.53 (13.5)	2.91 (73.9)	.09 (2.3)	.06 (1.5)
4	4.50 (114.3)	.59 (15.0)	3.03 (77.0)	.22 (5.6)	.19 (4.8)

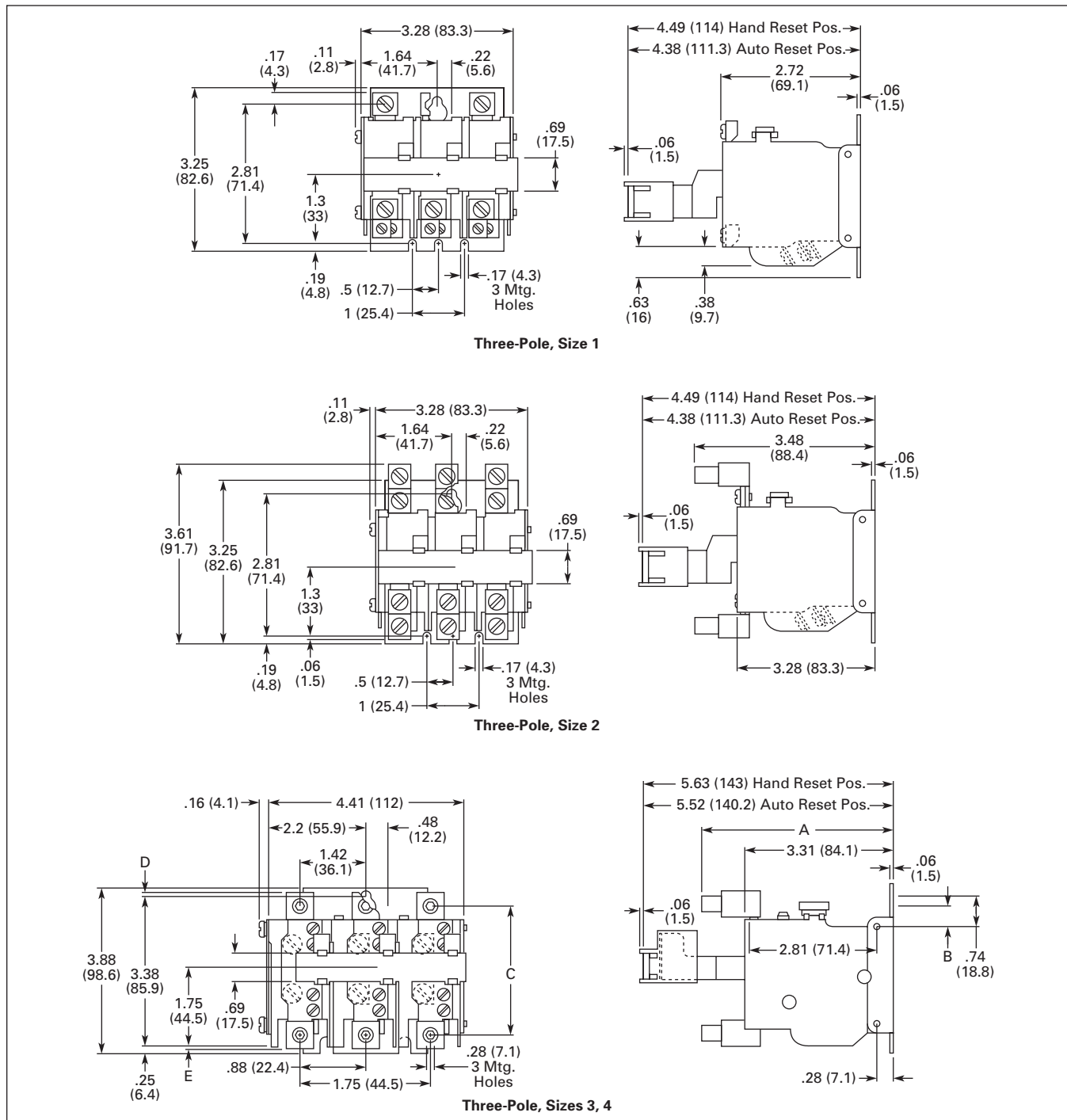


Figure 9. Type FT Overload Relays Dimensions in Inches (mm)

Heater Selection

General Information on Heater Coil Selection

For maximum motor protection and compliance with Article 430-32 of the National Electrical Code, select heater coils from the tables in this section on the basis of motor nameplate full load current.

When the full load current is unknown, selection may be made on the basis of average full load currents as shown on Pages 33-244 and 33-245 of Eaton's Cutler-Hammer Catalog. **Caution — The average ratings could be high or low for a specific motor and therefore selection on this basis always involves risk. For fully reliable motor protection, select heater coils on the basis of full load current rating as shown on the motor nameplate.**

Heater coils are rated to protect 40°C rise motors, and open and drip-proof motors having a **service factor of 1.15** where the motor and the controller are at the same ambient temperature.

For other conditions:

1. For 50°C, 55°C, 75°C rise motors and **enclosed motors having a service factor of 1.0, select one size smaller coil.**
2. Ambient temperature of controller lower than motor by 26°C (47°F), use one size smaller coil.
3. Ambient temperature of controller higher than motor by 26°C (47°F), use one size larger coil.

Ultimate tripping current of heater coils is approximately 1.25 times the minimum current rating listed in the tables.

Table 77. Heater Selection — Type A and B Overload Relays, Sizes 3 and 4

Size Starter	Ambient Compensated Enclosed Starters	Non-compensating Enclosed Starters	Heater (One Heater per Catalog Number)	
	All Applications		Catalog Number	Price U.S. \$
	Full Load Current of Motor Amps			
For Size 4 Starters	12.8 – 14.1	11.9 – 13.0	FH68	17.70
	14.2 – 15.5	13.1 – 14.3	FH69	17.70
	15.6 – 17.1	14.4 – 15.9	FH70	17.70
	17.2 – 18.9	16.0 – 17.4	FH71	17.70
	19.0 – 20.8	17.5 – 19.1	FH72	17.70
	20.9 – 22.9	19.2 – 21.1	FH73	17.70
	23.0 – 25.2	21.2 – 23.2	FH74	17.70
	25.3 – 27.8	23.3 – 25.6	FH75	17.70
	27.9 – 30.6	25.7 – 28.1	FH76	17.70
	30.7 – 33.5	28.2 – 30.8	FH77	17.70
For Size 3 Starters	33.6 – 37.5	30.9 – 34.5	FH78	17.70
	37.6 – 41.5	34.6 – 38.2	FH79	17.70
	41.6 – 56.3	38.3 – 42.6	FH80	17.70
	46.4 – 50	42.7 – 46	FH81	17.70
	51 – 55	47 – 51	FH82	17.70
	56 – 61	52 – 56	FH83	17.70
	62 – 66	57 – 61	FH84	17.70
	67 – 73	62 – 67	FH85	17.70
	74 – 78	68 – 72	FH86	17.70
	79 – 84	73 – 77	FH87	17.70
	85 – 92	78 – 84	FH88	17.70
	93 – 101	85 – 91	FH89	17.70
	102 – 110	92 – 99	FH90	17.70
	111 – 122	100 – 110	FH91	17.70
	123 – 129	111 – 122	FH92	17.70
	130 – 133	123 – 128	FH93	17.70
	—	129 – 133	FH94	17.70

Table 78. Heater Selection — Type A and B Overload Relays, Sizes 5 and 6

Compensated Overload Relay		Heater (One Heater per Catalog Number)	
Open Starter	Enclosed Starter	Catalog Number	Price U.S. \$
Full Load Current of Motor (Amps)			
Size 5 (with 300/5 Current Transformers)			
—	—	FH23	17.70
118 – 129	118 – 129	FH24	17.70
130 – 141	130 – 141	FH25	17.70
142 – 155	142 – 155	FH26	17.70
156 – 170	156 – 170	FH27	17.70
171 – 187	171 – 187	FH28	17.70
188 – 205	188 – 205	FH29	17.70
206 – 224	206 – 224	FH30	17.70
225 – 244	225 – 244	FH31	17.70
245 – 263	245 – 263	FH32	17.70
264 – 292	264 – 292	FH33	17.70
293 – 300	—	FH34	17.70
Size 6 (with 600/5 Current Transformers)			
—	—	FH23	17.70
236 – 259	236 – 259	FH24	17.70
260 – 283	260 – 283	FH25	17.70
284 – 310	284 – 310	FH26	17.70
311 – 340	311 – 340	FH27	17.70
341 – 374	341 – 374	FH28	17.70
375 – 411	375 – 411	FH29	17.70
412 – 448	412 – 448	FH30	17.70
449 – 489	449 – 489	FH31	17.70
490 – 527	490 – 527	FH32	17.70
528 – 585	528 – 540	FH33	17.70
586 – 600	—	FH34	17.70

Note: Size 7 and Larger — Advise Full Load Current.

Relays — Thermal and Fast Trip, Heater Selection

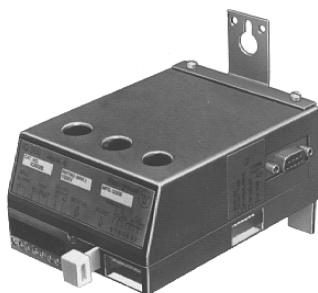
Table 79. Heater Selection — Type A and B Overload Relays, Sizes 0, 1 and 2

Size Starter	Non-compensated Open Starters and Ambient Comp. Open and Enclosed Starters		Heater (One Heater per Catalog Number)		Non-compensating Enclosed Starters		Heater	
	Block Type Overload Using 3 Heaters	Single-Pole Type Overload	Catalog Number	Price U.S. \$	Block Type Overload Using 3 Heaters	Single-Pole Type Overload	Catalog Number	Price U.S. \$
	Full Load Current of Motor (Amps)							
For Size 2 Starters	.25 – .27	.29 – .31	FH03	17.70	.24 – .25	.28 – .30	FH03	17.70
	.28 – .31	.32 – .35	FH04	17.70	.26 – .28	.31 – .34	FH04	17.70
	.32 – .34	.36 – .39	FH05	17.70	.29 – .31	.35 – .37	FH05	17.70
	.35 – .38	.40 – .43	FH06	17.70	.32 – .35	.38 – .42	FH06	17.70
	.39 – .42	.44 – .48	FH07	17.70	.36 – .39	.43 – .47	FH07	17.70
	.43 – .46	.49 – .53	FH08	17.70	.40 – .43	.48 – .52	FH08	17.70
	.47 – .50	.54 – .58	FH09	17.70	.44 – .47	.53 – .56	FH09	17.70
	.51 – .55	.59 – .64	FH10	17.70	.48 – .51	.57 – .63	FH10	17.70
	.56 – .62	.65 – .71	FH11	17.70	.52 – .57	.64 – .70	FH11	17.70
	.63 – .68	.72 – .79	FH12	17.70	.58 – .63	.71 – .77	FH12	17.70
	.69 – .75	.80 – .87	FH13	17.70	.64 – .70	.78 – .85	FH13	17.70
	.76 – .83	.88 – .96	FH14	17.70	.71 – .77	.86 – .94	FH14	17.70
For Size 1 Starters	.84 – .91	.97 – 1.06	FH15	17.70	.78 – .85	.95 – 1.03	FH15	17.70
	.92 – 1.00	1.07 – 1.16	FH16	17.70	.86 – .93	1.04 – 1.13	FH16	17.70
	1.01 – 1.11	1.17 – 1.28	FH17	17.70	.94 – 1.03	1.14 – 1.25	FH17	17.70
	1.12 – 1.22	1.29 – 1.41	FH18	17.70	1.04 – 1.13	1.26 – 1.38	FH18	17.70
	1.23 – 1.34	1.42 – 1.55	FH19	17.70	1.14 – 1.25	1.39 – 1.52	FH19	17.70
	1.35 – 1.47	1.56 – 1.71	FH20	17.70	1.26 – 1.37	1.53 – 1.67	FH20	17.70
	1.48 – 1.62	1.72 – 1.87	FH21	17.70	1.38 – 1.51	1.68 – 1.83	FH21	17.70
	1.63 – 1.78	1.88 – 2.06	FH22	17.70	1.52 – 1.65	1.84 – 2.01	FH22	17.70
	1.79 – 1.95	2.07 – 2.26	FH23	17.70	1.66 – 1.81	2.02 – 2.21	FH23	17.70
	1.96 – 2.15	2.27 – 2.48	FH24	17.70	1.82 – 1.99	2.22 – 2.43	FH24	17.70
	2.16 – 2.35	2.49 – 2.72	FH25	17.70	2.00 – 2.19	2.44 – 2.66	FH25	17.70
	2.36 – 2.58	2.73 – 2.99	FH26	17.70	2.20 – 2.39	2.67 – 2.92	FH26	17.70
For Size 0 Starters	2.59 – 2.83	3.00 – 3.28	FH27	17.70	2.40 – 2.63	2.93 – 3.21	FH27	17.70
	2.84 – 3.11	3.29 – 3.60	FH28	17.70	2.64 – 2.89	3.22 – 3.53	FH28	17.70
	3.12 – 3.42	3.61 – 3.95	FH29	17.70	2.90 – 3.17	3.54 – 3.87	FH29	17.70
	3.43 – 3.73	3.96 – 4.31	FH30	17.70	3.18 – 3.47	3.88 – 4.22	FH30	17.70
	3.74 – 4.07	4.32 – 4.71	FH31	17.70	3.48 – 3.79	4.23 – 4.61	FH31	17.70
	4.08 – 4.39	4.72 – 5.14	FH32	17.70	3.80 – 4.11	4.62 – 4.9	FH32	17.70
	4.40 – 4.87	5.15 – 5.6	FH33	17.70	4.12 – 4.55	5.0 – 5.5	FH33	17.70
	4.88 – 5.3	5.7 – 6.2	FH34	17.70	4.56 – 5.0	5.6 – 6.0	FH34	17.70
	5.4 – 5.9	6.3 – 6.8	FH35	17.70	5.1 – 5.5	6.1 – 6.6	FH35	17.70
	6.0 – 6.4	6.9 – 7.5	FH36	17.70	5.6 – 5.9	6.7 – 7.3	FH36	17.70
	6.5 – 7.1	7.6 – 8.2	FH37	17.70	6.0 – 6.6	7.4 – 8.0	FH37	17.70
	7.2 – .78	8.3 – 9.0	FH38	17.70	6.7 – 7.2	8.1 – 8.7	FH38	17.70
For Size 0 Starters	7.9 – 8.5	9.1 – 9.9	FH39	17.70	7.3 – 7.9	8.8 – 9.7	FH39	17.70
	8.6 – 9.4	10.0 – 10.8	FH40	17.70	8.0 – 8.7	9.8 – 10.5	FH40	17.70
	9.5 – 10.3	10.9 – 11.9	FH41	17.70	8.8 – 9.5	10.6 – 11.7	FH41	17.70
	10.4 – 11.3	12.0 – 13.1	FH42	17.70	9.6 – 10.5	11.8 – 12.7	FH42	17.70
	11.4 – 12.4	13.2 – 14.3	FH43	17.70	10.6 – 11.5	12.8 – 14.0	FH43	17.70
	12.5 – 13.5	14.4 – 15.7	FH44	17.70	11.6 – 12.6	14.1 – 15.3	FH44	17.70
	13.6 – 14.9	15.8 – 17.2	FH45	17.70	12.7 – 13.8	15.4 – 16.6	FH45	17.70
	15.0 – 16.3	17.3 – 18.9	FH46	17.70	13.9 – 15.1	16.7 – 18.3	FH46	17.70
	16.4 – 18.0	19.0 – 20.8	FH47	17.70	15.2 – 16.7	18.4 – 20.0	FH47	17.70
	18.1 – 19.8	20.9 – 22.9	FH48	17.70	16.8 – 18.3	20.1 – 21.9	FH48	17.70
	19.9 – 21.7	23.0 – 25.2	FH49	17.70	18.4 – 20.2	22.0 – 23.9	FH49	17.70
	21.8 – 23.9	25.3 – 27.6	FH50	17.70	20.3 – 22.2	24.0 – 26.2	FH50	17.70
For Size 0 Starters	24.0 – 26.2	27.7 – 30.3	FH51	17.70	22.3 – 24.3	26.3 – 28.8	FH51	17.70
	26.3 – 28.7	30.4 – 33.3	FH52	17.70	24.4 – 26.6	28.9 – 31.4	FH52	17.70
	28.8 – 31.4	33.4 – 36.4	FH53	17.70	26.7 – 29.1	31.5 – 34.5	FH53	17.70
	31.5 – 34.5	36.5 – 39.9	FH54	17.70	29.2 – 32.0	34.6 – 37.9	FH54	17.70
	34.6 – 37.9	40.0 – 43.9	FH55	17.70	32.1 – 35.2	38.0 – 41.9	FH55	17.70
	38.0 – 41.5		FH56	17.70	35.3 – 38.5	42.0 – 45.0	FH56	17.70
	41.6 – 45.0		FH57	17.70	38.6 – 42.3		FH57	17.70

Discount Symbol 1CD1C

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Catalog Number IQ502A

Product Description

The IQ500 is a heaterless, current-sensing, solid-state motor protective relay with optional communications capabilities. Several functions are incorporated into the base relay (IQ502/IQ504) as standard:

- Overload (overcurrent) protection
- Phase unbalance and phase loss protection
- Ground current protection (Class II)

The base relay can serve as the initial building block for a motor protection system by adding the IQ500M Special Function Module. The module can address application related motor load functions with the additional features:

- Underload protection
- Long acceleration
- Jam protection
- Load control

The IQ500 can provide a cost-effective alternative to conventional protective relays such as current relays, ground fault relays and phase loss or phase unbalance relays. Used with the PowerNet system, a low-cost, local area communication network, information such as current values,

status, setpoint values and cause of trip can be displayed remotely. The IQ500 relay is ideal for a variety of industrial applications such as mining, timber, material handling, air conditioning compressors, wastewater treatment plants and petrochemical industries.

Features

- Overload class is adjustable using DIP switches for 5, 10, 20 or 30 seconds, maximum trip times at six times rated current
- Designed for 1000V and less distribution systems
- Form C (NO/NC) contact on output relay
- Isolated alarm relay output contact
- Communications capability using IMPACC network
- Manual or automatic reset (either a true manual or remote electrical reset) — selectable
- Overload, Class II ground current, phase unbalance and single-phase protection are standard
- LED indication (bi-colored — red/green) for device status, including overload, phase unbalance or ground current trip
- Special Function Module adds protection for underload and jam conditions, also provides for long acceleration
- Optional load control feature available with special function module
- Feed-through current transformer windows for contactors, NEMA Sizes 1 – 4 (for Size 5 and larger, external current transformers can be used)
- Fits mounting footprint of Eaton's Cutler-Hammer MORA relay
- Panel or starter mountable
- Cause of trip is held in memory through a power loss
- Bell alarm contact available for remote status indication
- DIP switch provided for setting operating frequency — 50 or 60 Hz
- Plug-in terminal block for control power, trip relay and bell alarm relay connections
- Operating temperature: -20° to 60°C (-4° to 140°F)

Benefits

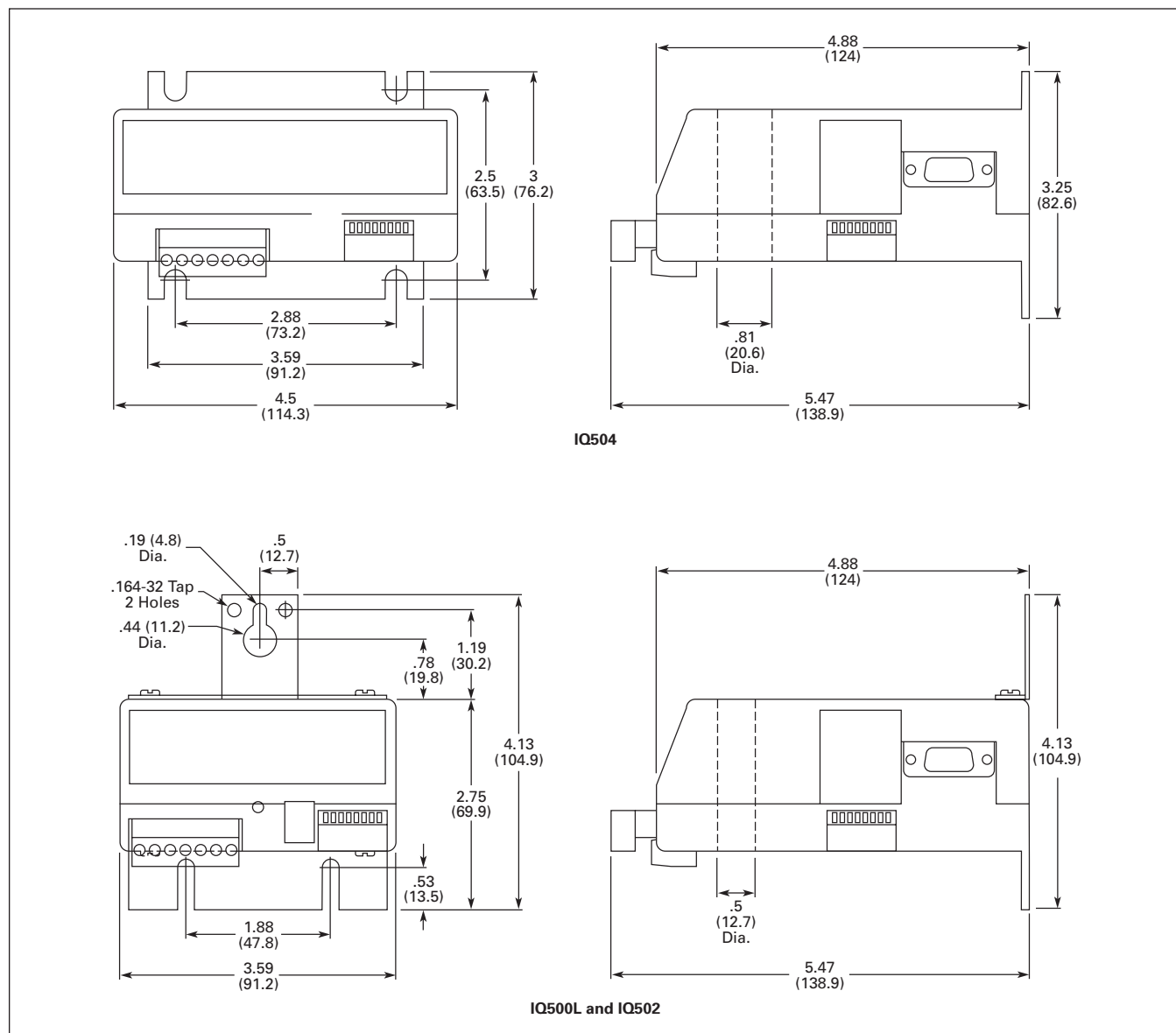
- No external current transformers are required since they are internal to the IQ500.
- DIP switches used to select functions and settings on base relay are clearly marked and covered with screw-on plastic covers.
- On the automatic reset, the reset times can be selected for long (90 second) or short (10 second) delay.
- Device can be set for different motor full load currents without additional parts or modules.

Optional Benefits

- With the addition of the IQ500M Special Function Module, the enhanced protection includes jam (overtorque) and underload and provides long acceleration time (high inertia load).
- The underload and jam protection functions each have independent Form C output relays as part of the module. In addition, the underload and jam functions each have their own LEDs for status indication.
- The underload and jam functions also have separate selectable trip levels and adjustable trip-delay and start-delay settings.
- The IQ500M can be used as a load control module that allows "shedding and restoring" a particular load that contributes to the load being monitored.
- The PONI (Product Operated Network Interface) card attaches directly to the base relay or special function module for interfacing with the Eaton's Cutler-Hammer PowerNet communications system.
- Localized display can be achieved with the Central Monitoring Unit.

Standards and Certifications

- UL File No. E19223

Relays — Current Sensing Protective
Dimensions

Figure 10. Approximate Dimensions in Inches (mm)
Product Selection
Table 80. Current Sensing Protective Relay

Maximum Horsepower			Ampere Rating	Catalog Number		Price U.S. \$
				Control Voltage		
200V	230V	460 – 475V		110/120V 50/60 Hz	220/240V 50/60 Hz	
20	25	50	3.4 to 66A	IQ502A	IQ502B	825.
60	75	150	10.8 to 207A	IQ504A	IQ504B	825.
—	—	—	.32 to 5.4A	IQ500LA ①	IQ500LB ①	825.
Special Function Module				IQ500M		497.

① Can be used with external CTs having 5A secondary.

 Discount Symbol **1CD1C**

January 2006

Enclosed Starters — Non-reversing, Sizes 00 – 9

Product Selection

Table 81. Starters — Non-reversing, Sizes 00 – 4, Class A200, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts	Type 1 General Purpose Enclosure		Type 3R Outdoor Use Enclosure		Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Stainless Steel Enclosure ②		Open (No Enclosure)
					Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number
— 1-1/2 1-1/2 2 2	— 200 230 480 575	00	9	120 208 240 480 600	A200SACAC A200SACB A200SACW A200SACX A200SACE	174. 174. 174. 174. 174.	Use Size 0		Use Size 0		A200MACAC A200MACB A200MACW A200MACX A200MACE
— 3 3 5 5	— 200 230 460 575	0	18	120 208 240 480 600	A200S0CA A200S0CB A200S0CW A200S0CX A200S0CE	216. 216. 216. 216. 216.	A200R0CA A200R0CB A200R0CW A200R0CX A200R0CE	288. 288. 288. 288. 288.	A200W0CA A200W0CB A200W0CW A200W0CX A200W0CE	426. 426. 426. 426. 426.	A200M0CAC A200M0CB A200M0CW A200M0CX A200M0CE
— 7-1/2 7-1/2 10 10	— 200 230 480 575	1	27	120 208 240 480 600	A200S1CA A200S1CB A200S1CW A200S1CX A200S1CE	246. 246. 246. 246. 246.	A200R1CA A200R1CB A200R1CW A200R1CX A200R1CE	318. 318. 318. 318. 318.	A200W1CA A200W1CB A200W1CW A200W1CX A200W1CE	462. 462. 462. 462. 462.	A200M1CAC A200M1CB A200M1CW A200M1CX A200M1CE
— 10 15 25 25	— 200 230 480 575	2	45	120 208 240 480 600	A200S2CA A200S2CB A200S2CW A200S2CX A200S2CE	486. 486. 486. 486. 486.	A200R2CA A200R2CB A200R2CW A200R2CX A200R2CE	618. 618. 618. 618. 618.	A200W2CA A200W2CB A200W2CW A200W2CX A200W2CE	918. 918. 918. 918. 918.	A200M2CAC A200M2CB A200M2CW A200M2CX A200M2CE
— 25 30 50 50	— 200 230 480 575	3	90	120 208 240 480 600	A200S3CA A200S3CB A200S3CW A200S3CX A200S3CE	810. 810. 810. 810. 810.	A200R3CA A200R3CB A200R3CW A200R3CX A200R3CE	966. 966. 966. 966. 966.	A200W3CA A200W3CB A200W3CW A200W3CX A200W3CE	1,422. 1,422. 1,422. 1,422. 1,422.	A200M3CAC A200M3CB A200M3CW A200M3CX A200M3CE
— 40 50 100 100	— 200 230 480 575	4	135	120 208 240 480 600	A200S4CA A200S4CB A200S4CW A200S4CX A200S4CE	1,830. 1,830. 1,830. 1,830. 1,830.	A200R4CA A200R4CB A200R4CW A200R4CX A200R4CE	2,346. 2,346. 2,346. 2,346. 2,346.	A200W4CA A200W4CB A200W4CW A200W4CX A200W4CE	2,874. 2,874. 2,874. 2,874. 2,874.	A200M4CAC A200M4CB A200M4CW A200M4CX A200M4CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

② Stainless steel through Size 4 only. For stainless steel construction for Sizes 5 – 9.

③ Price does not include Overload Relay Heaters.

Table 82. Single-Phase with One Single Pole Overload Relay ④

Max. hp 240V	Max. hp 120V	NEMA Size	Cont. Amps Encl.	Coil Volts	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤
1 2 3 5 7-1/2	1/3 1 2 3 3	00 0 1 1-1/2 2	9 18 27 36 45	120/240	A200MABR A200M0BR A200M1BR A200MDBR A200M2BR	162. 183. 213. 279. 387.	A200SABR A200S0BR A200S1BR A200SDBR A200S2BR	174. 195. 225. 291. 447.	— A200R0BR A200R1BR A200RDBR A200R2BR	— 267. 297. 333. 579.	— A200W0BR A200W1BR A200WDBR A200W2BR	— 405. 441. 507. 927.

④ For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

⑤ Price does not include heater for relay.

Ordering Information

Order by Catalog Number. Example:
A200SACAC.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16958
- Size 00-0-1-1PH 16956
- Size 2 16959
- Size 2-1PH 16957
- Size 3-4 15465
- Size 4 (Model K) 17000
- Size 5 17054
- Size 6 17055

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Dimensions.....	Page 11
Renewal Parts	Pages 23 – 27
Discount Symbol	C10-S2

Enclosed Starters — Non-reversing, Sizes 00 – 9

Table 83. Starters — Non-reversing, Sizes 5 – 9, Class A200, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts	Type 1 General Purpose Enclosure		Type 3R Outdoor Use Enclosure		Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Stainless Steel Enclosure ②		Open (No Enclosure)
					Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number
— 75 100 200 200	— 200 230 460 575	5	270	120 208 240 480 600	A200S5CA A200S5CB A200S5CW A200S5CX A200S5CE	4,317. 4,317. 4,317. 4,317. 4,317.	A200R5CA A200R5CB A200R5CW A200R5CX A200R5CE	5,637. 5,637. 5,637. 5,637. 5,637.	A200V5CA A200V5CB A200V5CW A200V5CX A200V5CE	6,507. 6,507. 6,507. 6,507. 6,507.	A200M5CAC A200M5CB A200M5CW A200M5CX A200M5CE
— 150 200 400 400	— 200 230 460 575	6	540	120 208 240 480 600	A200S6CA A200S6CB A200S6CW A200S6CX A200S6CE	12,165. 12,165. 12,165. 12,165. 12,165.	A200R6CA A200R6CB A200R6CW A200R6CX A200R6CE	13,785. 13,785. 13,785. 13,785. 13,785.	A200V6CA A200V6CB A200V6CW A200V6CX A200V6CE	15,165. 15,165. 15,165. 15,165. 15,165.	A200M6CAC A200M6CB A200M6CW A200M6CX A200M6CE
— 300 600 600	— 230 460 575	7	810	120 240 480 600	— A200S7CW A200S7CX A200S7CE	— 16,587. 16,587. 16,587.	— A200R7CW A200R7CX A200R7CE	— 18,207. 18,207. 18,207.	— A200V7CW A200V7CX A200V7CE	— 19,587. 19,587. 19,587.	A200M7CJ A200M7CW A200M7CX A200M7CE
— 450 900 900	— 230 460 575	8	1215	120 240 480 600	— A200S8CW A200S8CX A200S8CE	— 23,328. 23,328. 23,328.	— A200R8CW A200R8CX A200R8CE	— 24,945. 24,945. 24,945.	— A200V8CW A200V8CX A200V8CE	— 26,325. 26,325. 26,325.	A200M8CJ A200M8CW A200M8CX A200M8CE
— 800 1600 1600	— 240 480 600	9	2250	120 240 480 600	A200S9CJ A200S9CW A200S9CX A200S9CE	34,053. 34,053. 34,053. 34,053.	A200R9CJ A200R9CW A200R9CX A200R9CE	37,473. 37,473. 37,473. 37,473.	A200V9CJ A200V9CW A200V9CX A200V9CE	38,853. 38,853. 38,853. 38,853.	A200M9CJ A200M9CW A200M9CX A200M9CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

② Stainless steel through Size 4 only. For stainless steel construction for Sizes 5 – 9.

③ Price does not include Overload Relay Heaters.

Ordering Information

Order by Catalog Number. Example:
A200S5CA.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16958
- Size 00-0-1-1PH 16956
- Size 2 16959
- Size 2-1PH 16957
- Size 3-4 15465
- Size 4 (Model K) 17000
- Size 5 17054
- Size 6 17055

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Discount Symbol	C10-S2

January 2006

Enclosed Starters — Non-reversing, Sizes 00 – 9

Table 84. Starters — Non-reversing, Sizes 00 – 4, Class A200, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts	Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Polyester Enclosure		Types 4X, 7, 9 ② Hazardous Location Enclosures		Types 4X, 7, 9 ② Hazardous Location Enclosures		Type 12 Dust-Tight, Industrial Use Enclosure		Open (No Enclosure)
					Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	
— 1-1/2 1-1/2 2 2	— 200 230 480 575	00	9	120 208 240 480 600	Use Size 0		— — — — —	— — — — —	— — — — —	— — — — —	Use Size 0		A200MACAC A200MACB A200MACW A200MACX A200MACE
— 3 3 5 5	— 200 230 480 575	0	18	120 208 240 480 600	A200P0CA A200P0CB A200P0CW A200P0CX A200P0CE	426. 426. 426. 426. 426.	A200U0CA A200U0CB A200U0CW A200U0CX A200U0CE	1,090. 1,090. 1,090. 1,090. 1,090.	A200C0CA A200C0CB A200C0CW A200C0CX A200C0CE	1,090. 1,090. 1,090. 1,090. 1,090.	A200J0CA A200J0CB A200J0CW A200J0CX A200J0CE	288. 288. 288. 288. 288.	A200M0CAC A200M0CB A200M0CW A200M0CX A200M0CE
— 7-1/2 7-1/2 10 10	— 200 230 480 575	1	27	120 208 240 480 600	A200P1CA A200P1CB A200P1CW A200P1CX A200P1CE	462. 462. 462. 462. 462.	A200U1CA A200U1CB A200U1CW A200U1CX A200U1CE	1,112. 1,112. 1,112. 1,112. 1,112.	A200C1CA A200C1CB A200C1CW A200C1CX A200C1CE	1,112. 1,112. 1,112. 1,112. 1,112.	A200J1CA A200J1CB A200J1CW A200J1CX A200J1CE	318. 318. 318. 318. 318.	A200M1CAC A200M1CB A200M1CW A200M1CX A200M1CE
— 10 15 25 25	— 200 230 480 575	2	45	120 208 240 480 600	A200P2CA A200P2CB A200P2CW A200P2CX A200P2CE	918. 918. 918. 918. 918.	A200U2CA A200U2CB A200U2CW A200U2CX A200U2CE	1,798. 1,798. 1,798. 1,798. 1,798.	A200C2CA A200C2CB A200C2CW A200C2CX A200C2CE	1,798. 1,798. 1,798. 1,798. 1,798.	A200J2CA A200J2CB A200J2CW A200J2CX A200J2CE	618. 618. 618. 618. 618.	A200M2CAC A200M2CB A200M2CW A200M2CX A200M2CE
— 25 30 50 50	— 200 230 480 575	3	90	120 208 240 480 600	A200P3CA A200P3CB A200P3CW A200P3CX A200P3CE	1,422. 1,422. 1,422. 1,422. 1,422.	A200U3CA A200U3CB A200U3CW A200U3CX A200U3CE	2,701. 2,701. 2,701. 2,701. 2,701.	A200C3CA A200C3CB A200C3CW A200C3CX A200C3CE	2,701. 2,701. 2,701. 2,701. 2,701.	A200J3CA A200J3CB A200J3CW A200J3CX A200J3CE	966. 966. 966. 966. 966.	A200M3CAC A200M3CB A200M3CW A200M3CX A200M3CE
— 40 50 100 100	— 200 230 480 575	4	135	120 208 240 480 600	A200P4CA A200P4CB A200P4CW A200P4CX A200P4CE	2,874. 2,874. 2,874. 2,874. 2,874.	A200U4CA A200U4CB A200U4CW A200U4CX A200U4CE	4,361. 4,361. 4,361. 4,361. 4,361.	A200C4CA A200C4CB A200C4CW A200C4CX A200C4CE	4,361. 4,361. 4,361. 4,361. 4,361.	A200J4CA A200J4CB A200J4CW A200J4CX A200J4CE	2,346. 2,346. 2,346. 2,346. 2,346.	A200M4CAC A200M4CB A200M4CW A200M4CX A200M4CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.② Discount Symbol, **C10-S4**.

③ Price does not include Overload Relay Heaters.

Table 85. Single-Phase with One Single Pole Overload Relay ④

Max. hp 240V	Max. hp 120V	NEMA Size	Cont. Amps Encl.	Coil Volts	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤	Catalog Number	Price U.S. \$ ⑤
1 2 3 5 7-1/2	1/3 1 2 3 3	00 0 1 1-1/2 2	9 18 27 36 45	120/240	— A200P0BR A200P1BR A200PDBR A200P2BR	— 405. 441. 507. 927.	A200U0BR A200U1BR A200UDBR A200U2BR	— 1,080. 1,102. 1,478. 1,798.	A200C0BR A200C1BR A200CDBR A200C2BR	— 1,080. 1,102. 1,478. 1,798.	A200J0BR A200J1BR A200JDBR A200J2BR	— 267. 297. 333. 579.

④ For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

⑤ Price does not include heater for relay.

Ordering Information

Order by Catalog Number. Example:
A200P0CA.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16958
- Size 00-0-1-1PH 16956
- Size 2 16959
- Size 2-1PH 16957
- Size 3-4 15465
- Size 4 (Model K) 17000
- Size 5 17054
- Size 6 17055

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 Discount Symbol C10-S2

Enclosed Starters — Non-reversing, Sizes 00 – 9

Table 86. Starters — Non-reversing, Sizes 5 – 9, Class A200, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts	Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Polyester Enclosure		Types 4X, 7, 9 ② Hazardous Location Enclosures		Types 4X, 7, 9 ② Hazardous Location Enclosures		Type 12 Dust-Tight, Industrial Use Enclosure		Open (No Enclosure)
							Bolted Flange Type 7, Cl, I, Grp. D Type 9, Cl, II, Grps. E, F, G		Threaded Type 7, Cl, I, Grp. D Type 9, Cl, II, Grps. E, F, G				
					Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	Catalog Number	Price U.S. \$ ③	
— 75 100 200 200	— 200 230 460 575	5	270	120 208 240 480 600	— — — — —	— — — — —	A200U5CA A200U5CB A200U5CW A200U5CX A200U5CE	10,422. 10,422. 10,422. 10,422. 10,422.	A200C5CA A200C5CB A200C5CW A200C5CX A200C5CE	10,422. 10,422. 10,422. 10,422. 10,422.	A200J5CA A200J5CB A200J5CW A200J5CX A200J5CE	5,637. 5,637. 5,637. 5,637. 5,637.	A200M5CAC A200M5CB A200M5CW A200M5CX A200M5CE
— 150 200 400 400	— 200 230 460 575	6	540	120 208 240 480 600	— — — — —	— — — — —	— — — — —	— — — — —	— — — — —	— — — — —	A200J6CA A200J6CB A200J6CW A200J6CX A200J6CE	13,785. 13,785. 13,785. 13,785. 13,785.	A200M6CAC A200M6CB A200M6CW A200M6CX A200M6CE
— 300 600 600	— 230 460 575	7	810	120 240 480 600	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	A200J7CW A200J7CX A200J7CE	18,207. 18,207. 18,207.	A200M7CJ A200M7CW A200M7CX A200M7CE
— 450 900 900	— 230 460 575	8	1215	120 240 480 600	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	A200J8CW A200J8CX A200J8CE	24,945. 24,945. 24,945.	A200M8CJ A200M8CW A200M8CX A200M8CE
— 800 1600 1600	— 240 480 600	9	2250	120 240 480 600	— — — —	— — — —	— — — —	— — — —	— — — —	— — — —	A200J9CJ A200J9CW A200J9CX A200J9CE	37,473. 37,473. 37,473. 37,473.	A200M9CJ A200M9CW A200M9CX A200M9CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.② Discount Symbol, **C10-S4**.

③ Price does not include Overload Relay Heaters.

Ordering Information

Order by Catalog Number. Example:
A200U5CA.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16958
- Size 00-0-1-1PH 16956
- Size 2 16959
- Size 2-1PH 16957
- Size 3-4 15465
- Size 4 (Model K) 17000
- Size 5 17054
- Size 6 17055

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Enclosed Starters — Reversing, Sizes 00 – 9

Table 87. Starters — Reversing, Sizes 00 – 4, Class A210, A250, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts AC Only	Type 1 General Purpose Enclosure		Type 3R Outdoor Use Enclosure		Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Stainless Steel Enclosure ③		Open (No Enclosure)	
					Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Catalog Number
— 1-1/2 1-1/2 2 2	— 200 230 480 575	00	9	120 208 240 480 600	A210SACAC A210SACB A210SACW A210SACX A210SACE	414. 414. 414. 414. 414.	Use Size 0		Use Size 0		A210MACAC A210MACB A210MACW A210MACX A210MACE	A250MACAC A250MACB A250MACW A250MACX A250MACE
— 3 3 5 5	— 200 230 460 575	0	18	120 208 240 480 600	A210S0CA A210S0CB A210S0CW A210S0CX A210S0CE	486. 486. 486. 486. 486.	A210R0CA A210R0CB A210R0CW A210R0CX A210R0CE	594. 594. 594. 594. 594.	A210W0CAC A210W0CB A210W0CW A210W0CX A210W0CE	762. 762. 762. 762. 762.	A210M0CAC A210M0CB A210M0CW A210M0CX A210M0CE	A250M0CAC A250M0CB A250M0CW A250M0CX A250M0CE
— 7-1/2 7-1/2 10 10	— 200 230 480 575	1	27	120 208 240 480 600	A210S1CA A210S1CB A210S1CW A210S1CX A210S1CE	558. 558. 558. 558. 558.	A210R1CA A210R1CB A210R1CW A210R1CX A210R1CE	666. 666. 666. 666. 666.	A210W1CA A210W1CB A210W1CW A210W1CX A210W1CE	942. 942. 942. 942. 942.	A210M1CAC A210M1CB A210M1CW A210M1CX A210M1CE	A250M1CAC A250M1CB A250M1CW A250M1CX A250M1CE
— 10 15 25 25	— 200 230 480 575	2	45	120 208 240 480 600	A210S2CA A210S2CB A210S2CW A210S2CX A210S2CE	1,086. 1,086. 1,086. 1,086. 1,086.	A210R2CA A210R2CB A210R2CW A210R2CX A210R2CE	1,266. 1,266. 1,266. 1,266. 1,266.	A210W2CA A210W2CB A210W2CW A210W2CX A210W2CE	1,710. 1,710. 1,710. 1,710. 1,710.	A210M2CAC A210M2CB A210M2CW A210M2CX A210M2CE	A250M2CAC A250M2CB A250M2CW A250M2CX A250M2CE
— 25 30 50 50	— 200 230 480 575	3	90	120 208 240 480 600	A210S3CA A210S3CB A210S3CW A210S3CX A210S3CE	1,812. 1,812. 1,812. 1,812. 1,812.	A210R3CA A210R3CB A210R3CW A210R3CX A210R3CE	2,208. 2,208. 2,208. 2,208. 2,208.	A210W3CA A210W3CB A210W3CW A210W3CX A210W3CE	2,736. 2,736. 2,736. 2,736. 2,736.	A210M3CAC A210M3CB A210M3CW A210M3CX A210M3CE	A250M3CAC A250M3CB A250M3CW A250M3CX A250M3CE
— 40 50 100 100	— 200 230 480 575	4	135	120 208 240 480 600	A210S4CA A210S4CB A210S4CW A210S4CX A210S4CE	4,326. 4,326. 4,326. 4,326. 4,326.	A210R4CA A210R4CB A210R4CW A210R4CX A210R4CE	4,938. 4,938. 4,938. 4,938. 4,938.	A210W4CA A210W4CB A210W4CW A210W4CX A210W4CE	5,958. 5,958. 5,958. 5,958. 5,958.	A210M4CAC A210M4CB A210M4CW A210M4CX A210M4CE	A250M4CAC A250M4CB A250M4CW A250M4CX A250M4CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix D.

② Price does not include Overload Relay Heaters.

③ Stainless steel through Size 4 only. For stainless steel construction for Sizes 5 – 9.

Ordering Information

Order by Catalog Number. Example:
A210SACAC.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16963
- Size 2 16964
- Size 3-4 15466
- Size 4 (Model K) 17004
- Size 5 17054
- Size 6 17055

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Enclosed Starters — Reversing, Sizes 00 – 9

Table 88. Starters — Reversing, Sizes 5 – 9, Class A210, A250, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts AC Only	Type 1 General Purpose Enclosure		Type 3R Outdoor Use Enclosure		Type 4/4X Watertight, Dust-Tight, Corrosion Resistant Stainless Steel Enclosure ③		Open (No Enclosure)	
					Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Catalog Number
— 75 100 200 200	— 200 230 460 575	5	270	120 208 240 480 600	A210S5CA A210S5CB A210S5CW A210S5CX A210S5CE	9,519. 9,519. 9,519. 9,519. 9,519.	A210R5CA A210R5CB A210R5CW A210R5CX A210R5CE	10,389. 10,389. 10,389. 10,389. 10,389.	A210V5CA A210V5CB A210V5CW A210V5CX A210V5CE	10,839. 10,839. 10,839. 10,839. 10,839.	A210M5CAC A210M5CB A210M5CW A210M5CX A210M5CE	A250M5CAC A250M5CB A250M5CW A250M5CX A250M5CE
— 150 200 400 400	— 200 230 460 575	6	540	120 208 240 480 600	A210S6CA A210S6CB A210S6CW A210S6CX A210S6CE	21,201. 21,201. 21,201. 21,201. 21,201.	A210R6CA A210R6CB A210R6CW A210R6CX A210R6CE	22,821. 22,821. 22,821. 22,821. 22,821.	A210V6CA A210V6CB A210V6CW A210V6CX A210V6CE	24,201. 24,201. 24,201. 24,201. 24,201.	A210M6CAC A210M6CB A210M6CW A210M6CX A210M6CE	A250M6CAC A250M6CB A250M6CW A250M6CX A250M6CE
— 300 600 600	— 230 460 575	7	810	120 240 480 600	A250S7CJ A250S7CW A250S7CX A250S7CE	29,223. 29,223. 29,223. 29,223.	A250R7CJ A250R7CW A250R7CX A250R7CE	30,843. 30,843. 30,843. 30,843.	A250V7CJ A250V7CW A250V7CX A250V7CE	32,223. 32,223. 32,223. 32,223.	— — — —	A250M7CJ A250M7CW A250M7CX A250M7CE
— 450 900 900	— 230 460 575	8	1215	120 240 480 600	A250S8CJ A250S8CW A250S8CX A250S8CE	41,832. 41,832. 41,832. 41,832.	A250R8CJ A250R8CW A250R8CX A250R8CE	43,449. 43,449. 43,449. 43,449.	A250V8CJ A250V8CW A250V8CX A250V8CE	44,823. 44,823. 44,823. 44,823.	— — — —	A250M8CJ A250M8CW A250M8CX A250M8CE
— 800 1600 1600	— 240 460 575	9	2250	120 240 480 600	A250S9CJ A250S9CW A250S9CX A250S9CE	62,823. 62,823. 62,823. 62,823.	A250R9CJ A250R9CW A250R9CX A250R9CE	66,243. 66,243. 66,243. 66,243.	A250V9CJ A250V9CW A250V9CX A250V9CE	67,623. 67,623. 67,623. 67,623.	— — — —	A250M9CJ A250M9CW A250M9CX A250M9CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

② Price does not include Overload Relay Heaters.

③ Stainless steel through Size 4 only. For stainless steel construction for Sizes 5 – 9.

Ordering Information

Order by Catalog Number. Example:
A210S5CA.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16963
- Size 2 16964
- Size 3-4 15466
- Size 4 (Model K) 17004
- Size 5 17054
- Size 6 17055

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Enclosed Starters — Reversing, Sizes 00 – 9

Table 89. Starters — Reversing, Sizes 00 – 4, Class A210, A250, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts AC Only	Types 4X, 7 and 9 ③ Hazardous Location Enclosures				Type 12 Dust-Tight, Industrial Use Enclosure		Open (No Enclosure)	
					Bolted Flange Type 7, Cl. I, Grp. D Type 9, Cl. II, Grps. E, F, G		Threaded Type 7, Cl. I, Grps. C, D Type 9, Cl. II, Grps. E, F, G				Horizontal	Vertical
					Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Catalog Number
— 1-1/2 1-1/2 2 2	— 200 230 480 575	00	9	120 208 240 480 600	— — — — —	— — — — —	— — — — —	— — — — —	Use Size 0		A210MACAC A210MACB A210MACW A210MACX A210MACE	A250MACAC A250MACB A250MACW A250MACX A250MACE
— 3 3 5 5	— 200 230 460 575	0	18	120 208 240 480 600	A210U0CA A210U0CB A210U0CW A210U0CX A210U0CE	1,883. 1,883. 1,883. 1,883. 1,883.	A210C0CA A210C0CB A210C0CW A210C0CX A210C0CE	1,883. 1,883. 1,883. 1,883. 1,883.	A210J0CA A210J0CB A210J0CW A210J0CX A210J0CE	594. 594. 594. 594. 594.	A210M0CAC A210M0CB A210M0CW A210M0CX A210M0CE	A250M0CAC A250M0CB A250M0CW A250M0CX A250M0CE
— 7-1/2 7-1/2 10 10	— 200 230 480 575	1	27	120 208 240 480 600	A210U1CA A210U1CB A210U1CW A210U1CX A210U1CE	1,975. 1,975. 1,975. 1,975. 1,975.	A210C1CA A210C1CB A210C1CW A210C1CX A210C1CE	1,975. 1,975. 1,975. 1,975. 1,975.	A210J1CA A210J1CB A210J1CW A210J1CX A210J1CE	666. 666. 666. 666. 666.	A210M1CAC A210M1CB A210M1CW A210M1CX A210M1CE	A250M1CAC A250M1CB A250M1CW A250M1CX A250M1CE
— 10 15 25 25	— 200 230 480 575	2	45	120 208 240 480 600	A210U2CA A210U2CB A210U2CW A210U2CX A210U2CE	3,299. 3,299. 3,299. 3,299. 3,299.	A210C2CA A210C2CB A210C2CW A210C2CX A210C2CE	3,299. 3,299. 3,299. 3,299. 3,299.	A210J2CA A210J2CB A210J2CW A210J2CX A210J2CE	1,266. 1,266. 1,266. 1,266. 1,266.	A210M2CAC A210M2CB A210M2CW A210M2CX A210M2CE	A250M2CAC A250M2CB A250M2CW A250M2CX A250M2CE
— 25 30 50 50	— 200 230 480 575	3	90	120 208 240 480 600	A210U3CA A210U3CB A210U3CW A210U3CX A210U3CE	5,302. 5,302. 5,302. 5,302. 5,302.	A210C3CA A210C3CB A210C3CW A210C3CX A210C3CE	5,302. 5,302. 5,302. 5,302. 5,302.	A210J3CA A210J3CB A210J3CW A210J3CX A210J3CE	2,208. 2,208. 2,208. 2,208. 2,208.	A210M3CAC A210M3CB A210M3CW A210M3CX A210M3CE	A250M3CAC A250M3CB A250M3CW A250M3CX A250M3CE
— 40 50 100 100	— 200 230 480 575	4	135	120 208 240 480 600	A210U4CA A210U4CB A210U4CW A210U4CX A210U4CE	9,112. 9,112. 9,112. 9,112. 9,112.	A210C4CA A210C4CB A210C4CW A210C4CX A210C4CE	9,112. 9,112. 9,112. 9,112. 9,112.	A210J4CA A210J4CB A210J4CW A210J4CX A210J4CE	4,938. 4,938. 4,938. 4,938. 4,938.	A210M4CAC A210M4CB A210M4CW A210M4CX A210M4CE	A250M4CAC A250M4CB A250M4CW A250M4CX A250M4CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

② Price does not include Overload Relay Heaters.

③ Discount Symbol, **C10-S4**.**Ordering Information**Order by Catalog Number. Example:
A210U0CA.**Further Information**

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16963
- Size 2 16964
- Size 3-4 15466
- Size 4 (Model K) 17004
- Size 5 17054
- Size 6 17055

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Discount Symbol	C10-S2

Enclosed Starters — Reversing, Sizes 00 – 9

Table 90. Starters — Reversing, Sizes 5 – 9, Class A210, A250, 3-Phase, 60 Hz ①

Max. hp	Motor Volts	NEMA Size	Cont. Amps Encl.	Coil Volts AC Only	Types 4X, 7 and 9 ③ Hazardous Location Enclosures				Type 12 Dust-Tight, Industrial Use Enclosure		Open (No Enclosure)	
					Bolted Flange Type 7, Cl. I, Grp. D Type 9, Cl. II, Grps. E, F, G		Threaded Type 7, Cl. I, Grps. C, D Type 9, Cl. II, Grps. E, F, G				Horizontal	Vertical
					Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Price U.S. \$ ②	Catalog Number	Catalog Number
— 75 100 200 200	— 200 230 460 575	5	270	120 208 240 480 600	A210U5CA A210U5CB A210U5CW A210U5CX A210U5CE	20,776. 20,776. 20,776. 20,776. 20,776.	— — — — —	— — — — —	A210J5CA A210J5CB A210J5CW A210J5CX A210J5CE	10,389. 10,389. 10,389. 10,389. 10,389.	A210M5CAC A210M5CB A210M5CW A210M5CX A210M5CE	A250M5CAC A250M5CB A250M5CW A250M5CX A250M5CE
— 150 200 400 400	— 200 230 460 575	6	540	120 208 240 480 600	— — — — —	— — — — —	— — — — —	— — — — —	A210J6CA A210J6CB A210J6CW A210J6CX A210J6CE	22,821. 22,821. 22,821. 22,821. 22,821.	A210M6CAC A210M6CB A210M6CW A210M6CX A210M6CE	A250M6CAC A250M6CB A250M6CW A250M6CX A250M6CE
— 300 600 600	— 230 460 575	7	810	120 240 480 600	— — — —	— — — —	— — — —	— — — —	A250J7CJ A250J7CW A250J7CX A250J7CE	30,843. 30,843. 30,843. 30,843.	— — — —	A250M7CJ A250M7CW A250M7CX A250M7CE
— 450 900 900	— 230 460 575	8	1215	120 240 480 600	— — — —	— — — —	— — — —	— — — —	A250J8CJ A250J8CW A250J8CX A250J8CE	43,449. 43,449. 43,449. 43,449.	— — — —	A250M8CJ A250M8CW A250M8CX A250M8CE
— 800 1600 1600	— 240 480 600	9	2250	120 240 480 600	— — — —	— — — —	— — — —	— — — —	A250J9CJ A250J9CW A250J9CX A250J9CE	66,243. 66,243. 66,243. 66,243.	— — — —	A250M9CJ A250M9CW A250M9CX A250M9CE

① For Ambient Compensated Overload Relay with Auto-Reset, add suffix **D**.

② Price does not include Overload Relay Heaters.

③ Discount Symbol, **C10-S4**.

Ordering Information

Order by Catalog Number. Example:
A210U5CA.

Further Information

■ Selling Policy: 25-000

■ Instruction Leaflets:

- Size 00-0-1 16963
- Size 2 16964
- Size 3-4 15466
- Size 4 (Model K) 17004
- Size 5 17054
- Size 6 17055

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Discount Symbol	C10-S2

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Printed in USA
Publication No. CA03303001E/CPG
January 2006