

C396 Electronic Overload

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Note: Supplement to Publication No. CA08102001E — Tabs 33, 34 and 35.



C396 Electronic Overload Relays

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C396 Electronic Overload Relay

Product Description

The C396 is a self-powered, robust electronic overload designed for integrated use with Freedom NEMA, *XT* IEC, and DP contactors. The overload can also be ordered as a stand-alone device that is designed for Panel-Mounting and for use on 35 mm DIN rail. The C396 has an FLA range of 0.1 – 150 Amps with internal CTs, and up to 1500 Amps using external CTs.

Features

- Standard Version: Selectable trip class (5, 10, 20, 30) with Selectable Manual or Auto Reset
- Broad 5:1 FLA range
- Self-Powered Design, will accept AC voltages from 12 – 690V 50/60 Hz
- Ambient Temperature Compensation
- Low Heat Generation
- Phase Loss Protection
- Phase Unbalance Protection
- Electrically isolated 1NO-1NC Contacts (Push-to-Test)
- Trip Status Indicator
- FLA range of 0.1 – 1500 Amps

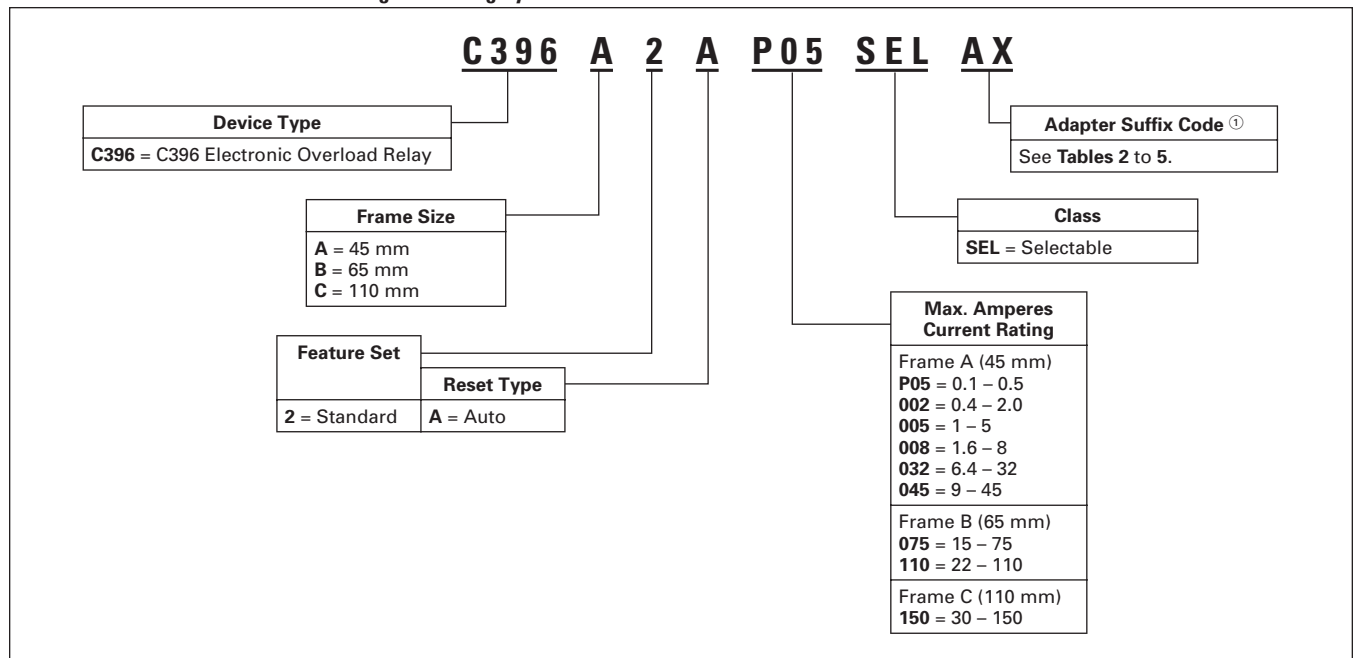
Standards and Certifications

- UL Listed Components: Stand-alone, starter-mounted devices and remote reset kit.
- CSA Certified Components: Stand-alone, starter-mounted devices and remote reset kit.
- IEC EN 60947-4-1, EN 60947-5-1
- CE
- CCC
- RoHS



Catalog Number Selection

Table 1. C396 Electronic Overload Catalog Numbering System



① Choose appropriate adapter based on application FLA range and contactor's frame size.

Table 2. Stand-Alone Overload Relay Suffix Code

FLA Range	Frame Size	Suffix
All	N/A	AX

Table 3. XTIEC Adapter Suffix Code

Contactor Frame Size	FLA Range (Amps)	Suffix
IEC Frame B	0.1 – 0.5 0.4 – 2.0 1 – 5 1.6 – 8 6.4 – 32	XB
IEC Frame C	0.1 – 0.5 0.4 – 2.0 1 – 5 1.6 – 8 6.4 – 32	XC
IEC Frame D	6.4 – 32 9 – 45 15 – 75	XD
IEC Frame F – G	22 – 110	XF

Table 4. Freedom NEMA Adapter Suffix Code

FLA Range (Amps)	Contactor Frame Size	Suffix
0.1 – 0.5	NEMA Size 00 NEMA Size 0 NEMA Size 1	FD
0.4 – 2.0	NEMA Size 00 NEMA Size 0 NEMA Size 1	FD
1 – 5	NEMA Size 00 NEMA Size 0 NEMA Size 1	FD
1.6 – 8	NEMA Size 00 NEMA Size 0 NEMA Size 1 NEMA Size 2	FG
6.4 – 32	NEMA Size 0 NEMA Size 1	FB FD
9 – 45	NEMA Size 2	FG
22 – 110	NEMA Size 3	FK

Table 5. DP Contactor Adapter Suffix Code

FLA Range (Amps)	Contactor Frame Size	Suffix
0.1 – 0.5 0.4 – 2.0 1 – 5	15, 25, 30A	DC
1.6 – 8	15, 25, 30, 40A	DE
6.4 – 32	15, 25, 30, 40, 50A	DF
9 – 45	40, 50A	DF
15 – 75	60, 75A	DG

Product Selection



Cat. No.
C396B2A110SELFK



Cat. No.
C396C3A150SELAX

Table 6. C396 Stand-Alone Overload Relay ①

FLA Range (Amps)	Description	Standard Class 5/10/20/30	
		Catalog Number	Price U.S. \$
45 mm Overload Frame Size			
0.1 – 0.5 0.4 – 2.0 1 – 5 1.6 – 8 6.4 – 32 9 – 45	—	C396A2AP05SELAX C396A2A002SELAX C396A2A005SELAX C396A2A008SELAX C396A2A032SELAX C396A2A045SELAX	118. 118. 118. 118. 130. 183.
65 mm Overload Frame Size			
15 – 75 22 – 110	—	C396B2A075SELAX C396B2A110SELAX	212. 242.
110 mm Overload Frame Size			
30 – 150	—	C396C2A150SELAX	449.
45 mm Overload with External Current Transformer			
Overload Relay			
1 – 5	—	C396A2A005SELAX	118.
Current Transformer Kits			
60 – 300	300: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396)	C396CTK300	450.
120 – 600	600: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396)	C396CTK600	525.
200 – 1000	1000: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT and Hardware to mount C396)	C396CTK1000	630.
300 – 1500	1500: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT and Hardware to mount C396)	C396CTK1500	730.

① Product available May 2007.

Table 7. C396 Overload for Integrated Use with XT IEC Contactors ②

FLA Range (Amps)	XT IEC Contactor Frame Size / Width	Standard Class 5/10/20/30	
		Catalog Number	Price U.S. \$
45 mm Overload Frame Size			
0.1 – 0.5	B / 45 mm	C396A2AP05SELXB	95
0.4 – 2.0	B / 45 mm	C396A2A002SELXB	95
1 – 5	B / 45 mm	C396A2A005SELXB	95
1.6 – 8	B / 45 mm	C396A2A008SELXB	95
6.4 – 32	B / 45 mm	C396A2A032SELXB	107
0.1 – 0.5	C / 45 mm	C396A2AP05SELXC	95
0.4 – 2.0	C / 45 mm	C396A2A002SELXC	95
1 – 5	C / 45 mm	C396A2A005SELXC	95
1.6 – 8	C / 45 mm	C396A2A008SELXC	95
6.4 – 32	C / 45 mm	C396A2A032SELXC	107
6.4 – 32	D / 55 mm	C396A2A032SELXD	140
9 – 45	D / 55 mm	C396A2A045SELXD	150
65 mm Overload Frame Size			
15 – 75	D / 55 mm	C396B2A075SELXD	180
22 – 110	F – G / 90 mm	C396B2A110SELXF	210
110 mm Overload Frame Size — Stand-Alone or Direct to XT Contactor with Indicated Kit			
30 – 150	G / 90 mm	C396C2A150SELAX ③	449
110 mm XT Bus Bar Kit ②		C396CBARXT	105

② Product available May 2007.

③ Catalog Number shown is for Stand-Alone C396 Overload Relay. For direct connection to Frame G contactor, order additional 110 mm XT Bus Bar Kit, C396CBARXT, shown in Tables 7 and 10.

Technical Data **Page 6**
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Discount Symbol **1CD7**

Table 8. C396 Overload for Integrated Use with Freedom NEMA Contactors ①②

FLA Range (Amps)	NEMA Contactor Frame Size	Description	Standard Class 5/10/20/30	
			Catalog Number	Price U.S. \$
45 mm Overload Frame Size				
0.1 – 0.5	00, 0, 1	—	C396A2AP05SELFD	170
0.4 – 2.0	00, 0, 1		C396A2A002SELFD	170
1 – 5	00, 0, 1		C396A2A005SELFD	170
1.6 – 8	00, 0, 1, 2		C396A2A008SELFG	170
6.4 – 32	0 1	—	C396A2A032SELFB C396A2A032SELFD	170 245
9 – 45	2	—	C396A2A045SELFG	257
65 mm Overload Frame Size				
22 – 110	3	—	C396B2A110SELFK	342
110 mm Overload Frame Size — Stand-Alone				
30 – 150	4	—	C396C2A150SELAX ③	449
45 mm Overload with External Current Transformer				
Overload Relay				
1 – 5	5 – 8	—	C396A2A005SELAX ③	118
Current Transformer Kits				
60 – 300	—	300: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396)	C396CTK300 ③	450
120 – 600	—	600: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396)	C396CTK600 ③	525
200 – 1000	—	1000: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT and Hardware to mount C396)	C396CTK1000 ③	630
300 – 1500	—	1500: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT and Hardware to mount C396)	C396CTK1500 ③	730

① Product available May 2007.

② Discount Symbol 1CD1.

③ Discount Symbol 1CD7.

Table 9. C396 Overload for Integrated Use with DP Contactors by Feature Set ④⑤

FLA Range (Amps)	DP Contactor Rating	Standard Class 5/10/20/30	
		Catalog Number	Price U.S. \$
45 mm Overload Frame Size			
0.1 – 0.5	15, 25, 30	C396A2AP05SELDC	152
0.4 – 2.0	15, 25, 30	C396A2A002SELDC	152
1 – 5	15, 25, 30	C396A2A005SELDC	152
1.6 – 8	15, 25, 30, 40	C396A2A008SELDC	152
6.4 – 32	15, 25, 30, 40, 50	C396A2A032SELDF	152
9 – 45	40, 50	C396A2A045SELDF	229
65 mm Overload Frame Size			
15 – 75	60, 75	C396B2B075SELDG	265

④ Product available June 2007.

⑤ Discount Symbol 1CD-5C.

Accessories

Table 10. C396 Electronic Overload Accessories ⑥

Description	Catalog Number	Price U.S. \$
Reset Bar Kit ⑦	C396ARST	16.
110 mm Lug Kit ⑦⑧	C396CLUG	66.
110 mm Bus Bar Kit ⑦⑧	C396CBAR	115.
110 mm XT Bus Bar Kit ⑦	C396CBARXT	105.
Remote Reset 24V DC ⑨	C396RR024DC	—
Remote Reset 24V AC ⑨	C396RR024AC	—
Remote Reset 120V AC ⑨	C396RR120AC	—
Remote Reset 240V AC ⑨	C396RR240AC	—

⑥ Discount Symbol 1CD7.

⑦ Product available May 2007.

⑧ Set of 3 lugs and hardware, 2 sets are required to wire line and load sides. Bus Bar Kit is needed to use the Lug Kit.

⑨ Contact local sales office for pricing and availability.

Technical Data and Specifications

Table 11. Overload Relay Specifications

General Description	C396_2_ Standard
Protection	
Thermal	1.05 x FLA: Does not trip 1.25 x FLA: Overload trip
Phase Loss	1 Phase = 0, Trip time = 3s (Hot Status)
Phase Imbalance	Max - Min / Max > 40%, Trip time = 3s (Hot Status)
Inrush Current	> 8 x Max FLA, Trip time is 0.3s (Cold Status)
Trip Class	
Class 5, 10, 20, 30	Selectable
Reset	
M / M-O A / A-O	Manual / Manual + Stop Auto / Auto + Stop Auto Reset Time = 165s
Indications	
Test Indicator	Yellow
Trip Indicator	Yellow
PCBA	
Power Sensing	3 phase
Instant Reset by Power ON	CPU reset by Power ON after 2 – 3s
Thermal memory	< 3 min.
Cold and Hot Trip Curves	Power ON > 20 min. is Hot Status
Power Consumption	< 300 mW
Options	
Safety Cover	Covers FLA dial, DIP switches
Remote Reset	24V DC, 24V AC, 120V AC, 240V AC

Table 11. Overload Relay Specifications (Continued)

General Description	C396_2_ Standard
Climate Considerations	
Ambient Temperature (Operating)	-25° to 65°C (-13° to 149°F) inside enclosure
Ambient Temperature (Storage / Transportation)	-40° to 80°C (-40° to 176°F)
Humidity	UL991 (H3): 20 – 95% non-condensing
Altitude (Operating)	NEMA ICS1: 2000 meters max above sea level
Pollution (Operating — External)	Pollution degree 3
Mechanical Shock Resistance (IEC/EN 68-2-17)	15g
Vibration (Lloyd's Register of Shipping, Vibration Test 2)	6g
Temperature Compensation	Continuous
Voltages	
Control Voltage	12 – 690V AC, 50/60 Hz
Insulation Voltage (Ui) — Main Circuit	1000V AC
Insulation Voltage (Ui) — Control Circuit	690V AC
Impulse Withstand Voltage (Uimp) VAC	6000
FLA Range	
45 mm Frame: C396A_	0.1 – 45A
65 mm Frame: C396B_	15 – 110A
110 mm Frame: C396C_	30 – 150A
Safety	
Degree of Protection	IP20 (Stand-Alone Version Only)
Capacity	
Control Terminal Capacity	18 – 14 AWG
Control Terminal Tightening Torque in Nm (lb-in)	0.79 (7)
Load Terminal Capacity	
45 mm Frame: C396A_	14 – 6 AWG
65 mm Frame: C396B_	10 – 1 AWG
110 mm Frame: C396C_	6 AWG – 250 mcm
Load Terminal Tightening Torque in Nm (lb-in)	
45 mm Frame: C396A_	3.2 (28)
65 mm Frame: C396B_	9.0 (80)
110 mm Frame: C396C_	22.6 (200)

Dimensions

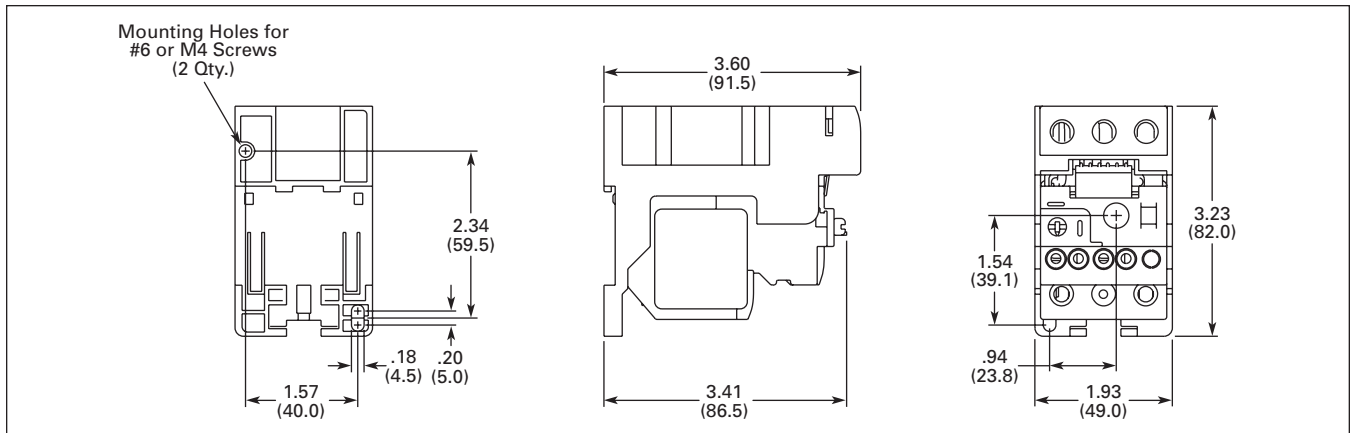


Figure 1. 45 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in Inches (mm)

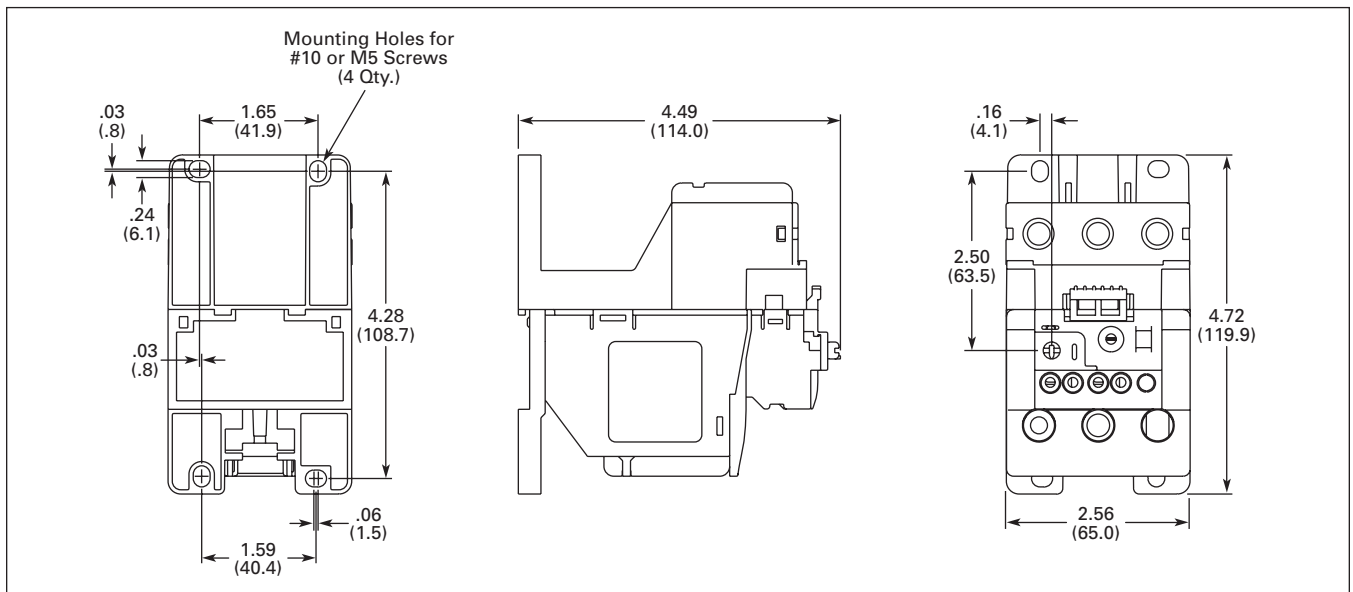


Figure 2. 65 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in Inches (mm)

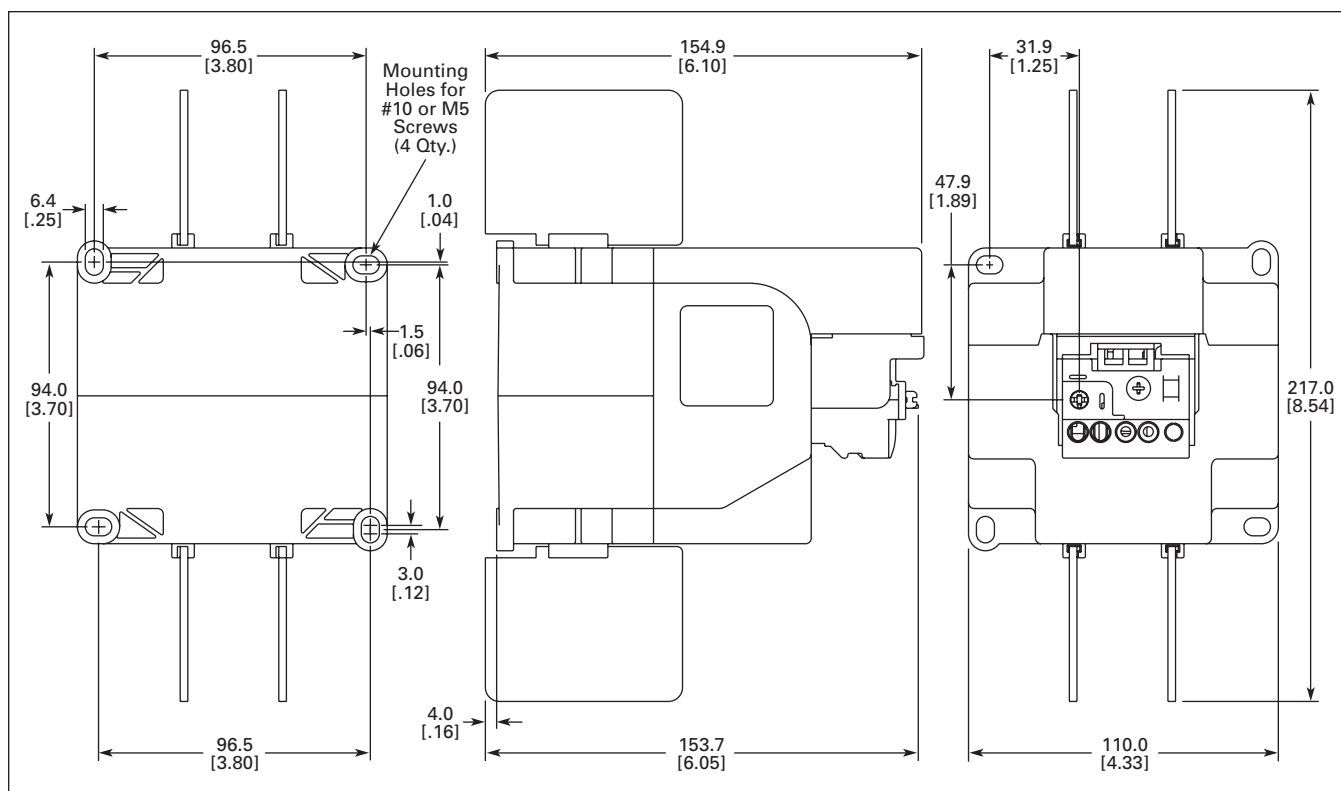


Figure 3. 110 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in mm [in]

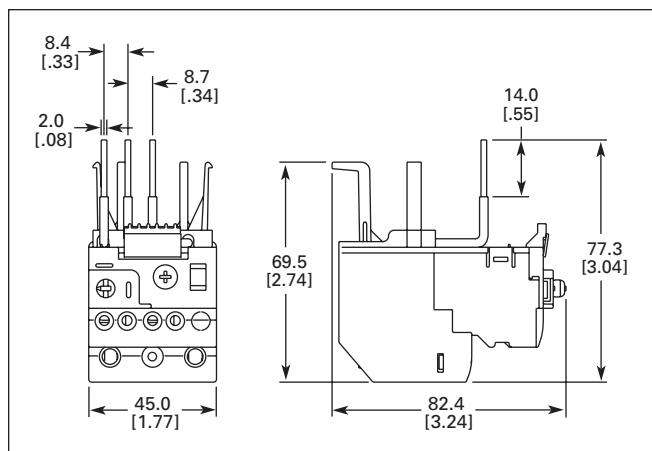


Figure 4. 45 mm C396 (0.1 – 8A) Direct Connect to X7 Frame B Contactor — Approximate Dimensions in mm [in]

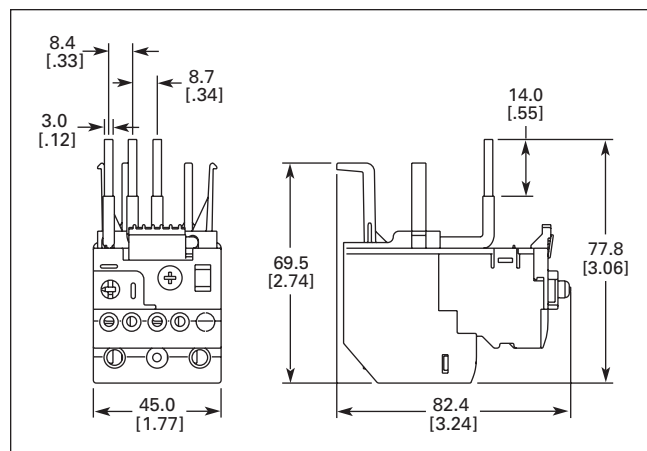


Figure 5. 45 mm C396 (6.4 – 32A) Direct Connect to X7 Frame B Contactor — Approximate Dimensions in mm [in]

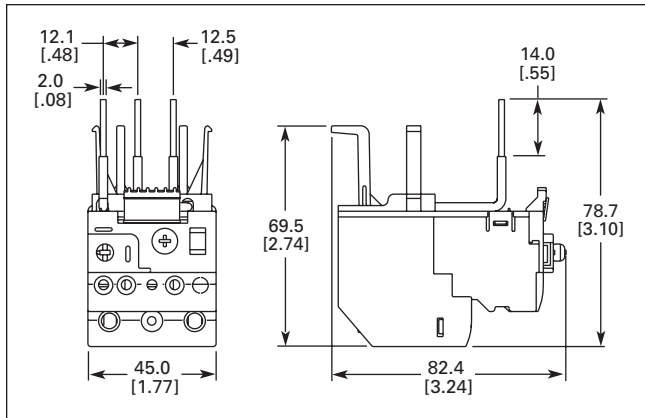


Figure 6. 45 mm C396 (0.1 – 8A) Direct Connect to XT Frame C Contactor — Approximate Dimensions in mm [in]

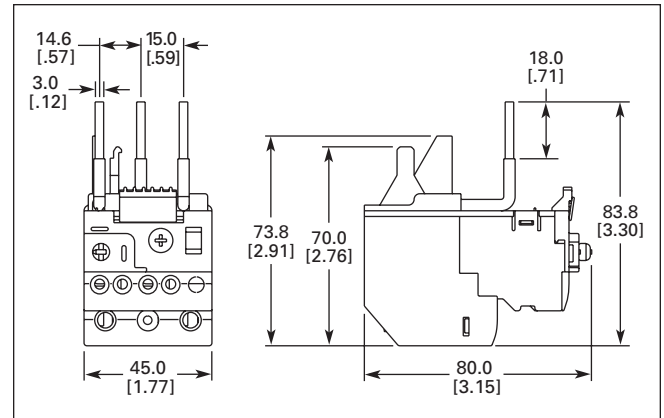


Figure 8. 45 mm C396 (6.4 – 45A) Direct Connect to XT Frame D Contactor — Approximate Dimensions in mm [in]

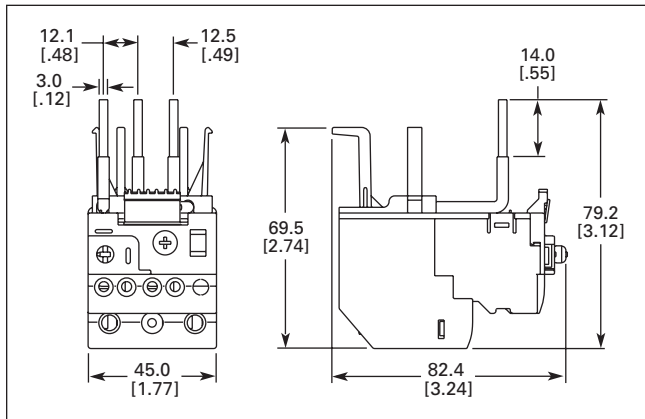


Figure 7. 45 mm C396 (6.4 – 32A) Direct Connect to XT Frame C Contactor — Approximate Dimensions in mm [in]

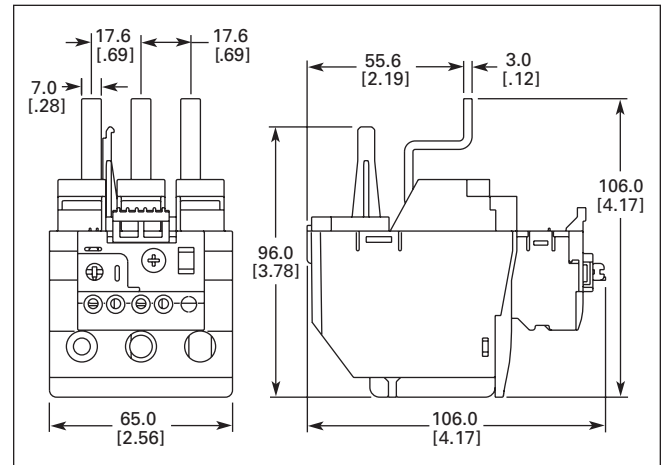


Figure 9. 65 mm C396 (15 – 75A) Direct Connect to XT Frame D Contactor — Approximate Dimensions in mm [in]

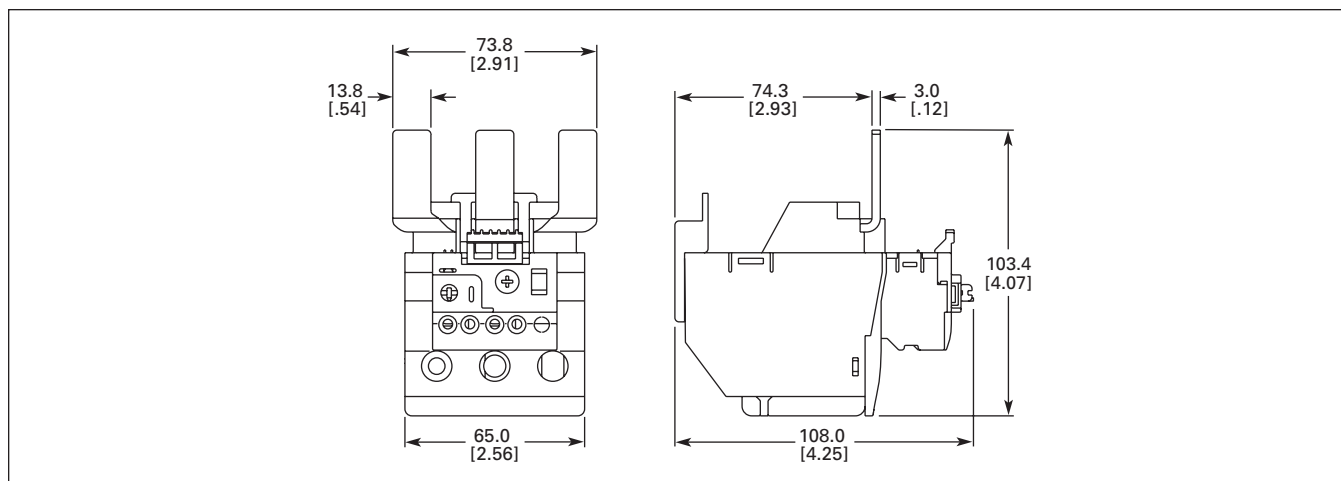


Figure 10. 65 mm C396 (22 – 110A) Direct Connect to XT Frame F – G Contactor — Approximate Dimensions in mm [in]

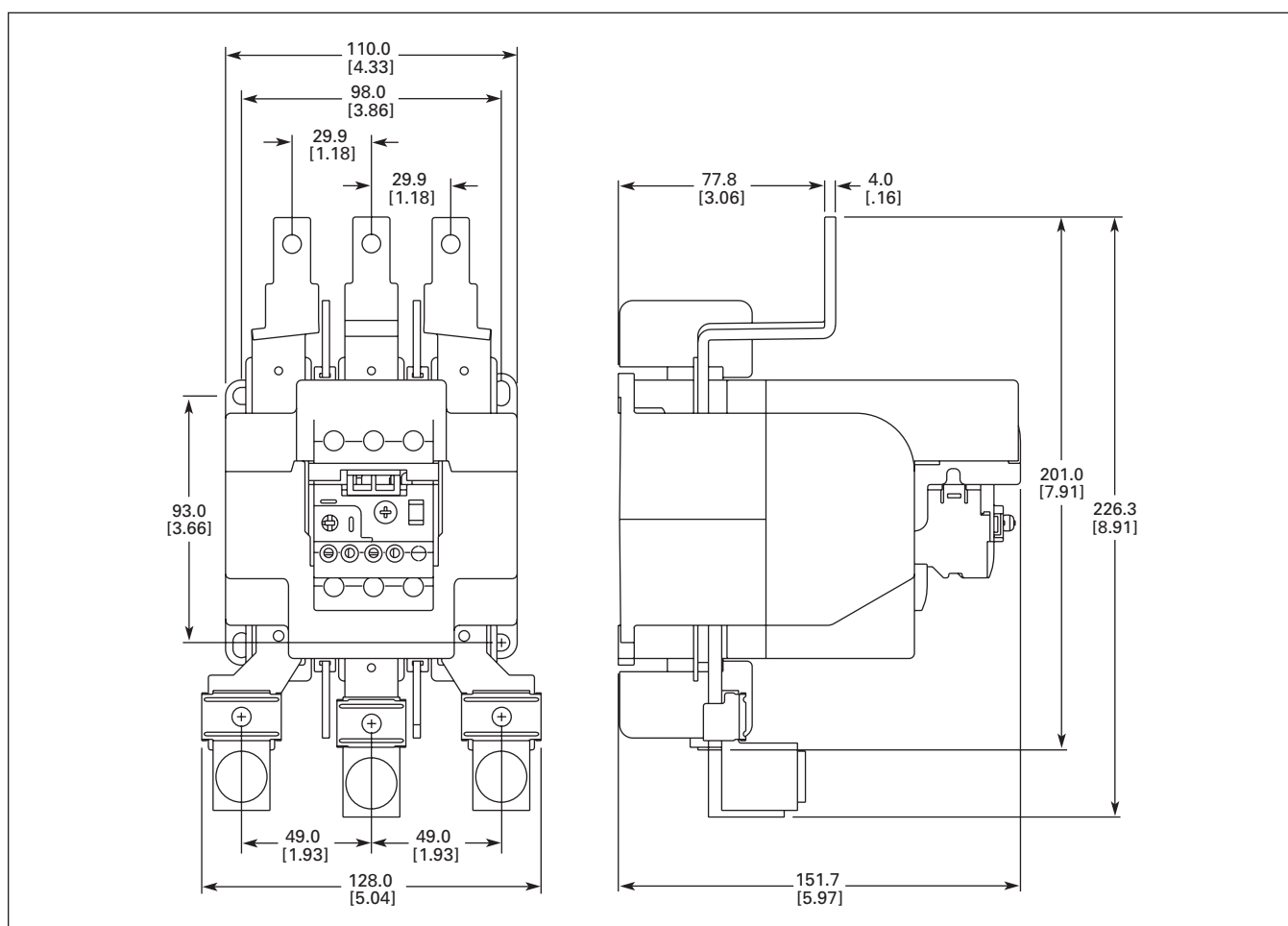


Figure 11. 110 mm C396 (30 – 150A) + C396CBARXT Direct Connect to XT Frame G Contactor — Approximate Dimensions in mm [in]

Catalog Number Selection

Table 12. XTIEC Contactors & Starters — Catalog Numbering System

XT		CE		C		007		B		01		AD		P16	
Designation															
XT = XT Line of IEC Control															
Type															
CE = 3-Pole FVNR IEC Contactor															
CS = 3-Pole FVNR S Series IEC Contactor															
CF = 4-Pole FVNR IEC Contactor															
CR = 3-Pole FVR IEC Contactor															
CC = IEC Capacitor Contactor															
AE = FVNR IEC Starter															
AS = FVNR S-Series IEC Starter															
AR = FVR IEC Starter															
Terminations															
Blank = Screw Terminals															
(6 – 65A); 5 mm (80 – 150A);															
No Lugs (185 – 2000A)															
C = Spring Cage Terminals															
(6 – 32A); Spring Cage Coil															
Terminals Only (185 – 500A)															
Current Ratings, AC-3		Frame Size Designation		Built-In Auxiliary Contact											
007 = 7A		B = 45 mm		01 = 1NC											
009 = 9A				10 = 1NO											
012 = 12A															
015 = 15A															
018 = 18A		C = 45 mm													
025 = 25A															
032 = 32A															
040 = 40A		D = 55 mm		00 = 0NO-0NC											
050 = 50A															
065 = 65A															
080 = 80A		F = 90 mm													
095 = 95A															
115 = 115A		G = 90 mm													
150 = 150A															
185 = 185A		L = 140 mm		22 = 2NO-2NC											
225 = 225A															
250 = 250A															
300 = 300A		M = 160 mm													
400 = 400A															
500 = 500A															
580 = 580A		N = 250 mm													
650 = 650A															
750 = 750A															
820 = 820A															
C10 = 1000A															
C14 = 1400A, AC-1		P = 260 mm													
C16 = 1600A, AC-3		R = 515 mm													
C20 = 2000A, AC-1															
XTAE, XTAS and XTAR Starters Only — Maximum Overload Relay															
XTOB Maximum Overload Rating															
Frame B					Frame D										
P16 = 0.1 – 0.16A					010 = 6 – 10A										
P24 = 0.16 – 0.24A					016 = 10 – 16A										
P40 = 0.24 – 0.4A					024 = 16 – 24A										
P60 = 0.4 – 0.6A					040 = 24 – 40A										
001 = 0.6 – 1A					057 = 40 – 57A										
1P6 = 1.0 – 1.6A					065 = 50 – 65A										
2P4 = 1.6 – 2.4A															
004 = 2.4 – 4A					Frame F										
006 = 4 – 6A					035 = 25 – 35A										
010 = 6 – 10A					050 = 35 – 50A										
012 = 9 – 12A					070 = 50 – 70A										
016 = 12 – 16A					100 = 70 – 100A										
Frame C					Frame G										
P16 = 0.1 – 0.16A					035 = 25 – 35A										
P24 = 0.16 – 0.24A					050 = 35 – 50A										
P40 = 0.24 – 0.4A					070 = 50 – 70A										
P60 = 0.4 – 0.6A					100 = 70 – 100A										
001 = 0.6 – 1A					125 = 95 – 125A										
1P6 = 1.0 – 1.6A					150 = 120 – 150A										
2P4 = 1.6 – 2.4A															
004 = 2.4 – 4A					Frame L										
006 = 4 – 6A					070 = 50 – 70A										
010 = 6 – 10A					100 = 70 – 100A										
016 = 10 – 16A					125 = 95 – 125A										
024 = 16 – 24A					160 = 120 – 160A										
032 = 24 – 32A					220 = 160 – 220A										
					250 = 200 – 250A										
C396 Maximum Overload Rating															
Suffix															
Std. Class 5/10/20/30															
Frame B															
0.1 – 0.5A =					3EP05										
0.4 – 2.0A =					3E002										
1 – 5A =					3E005										
1.6 – 8A =					3E008										
6.4 – 32 =					3E032										
Frame C															
0.1 – 0.5A =					3EP05										
0.4 – 2.0A =					3E002										
1 – 5A =					3E005										
1.6 – 8A =					3E008										
6.4 – 32A =					3E032										
Frame D															
6.4 – 32A =					3E032										
9 – 45A =					3E045										
15 – 75A =					3E075										
Frame F															
22 – 110A =					3E110										
Frame G															
30 – 150A =					3E150										
Coil Codes															
See Table 15.															

Non-reversing Starters, C396 Electronic Overload

Frame C XT Starter with
C396 Electronic Overload

Table 13. Full Voltage Non-reversing 3-Pole Starters with C396 Electronic Overload

I _e (A)		Maximum kW Ratings AC-3					Maximum 3-Phase Motor Rating						Auxiliary Contacts	Catalog Number ①②	Price U.S. \$	
AC-3	AC-1	3-Phase Motors 50 – 60 Hz					1-Phase hp Ratings		3-Phase hp Ratings						Standard	
		220/ 230V	380/ 400V	415V	660/ 690V	1000V	115V	230V	200V	230V	460V	575V			AC Coil	DC Coil
Frame B																
7	20	2.2	3	4	3.5	—	1/4	1	1-1/2	2	3	5	1NO	XTAE007B10_ _	217.	246.
7	20	2.2	3	4	3.5	—	1/4	1	1-1/2	2	3	5	1NC	XTAE007B01_ _	217.	246.
9	20	2.5	4	5.5	4.5	—	1/2	1-1/2	3	3	5	7-1/2	1NO	XTAE009B10_ _	225.	255.
9	20	2.5	4	5.5	4.5	—	1/2	1-1/2	3	3	5	7-1/2	1NC	XTAE009B01_ _	225.	255.
12	20	3.5	5.5	7	6.5	—	1	2	3	3	10 ③	10	1NO	XTAE012B10_ _	249.	285.
12	20	3.5	5.5	7	6.5	—	1	2	3	3	10 ③	10	1NC	XTAE012B01_ _	249.	285.
15.5	20	4	7.5	8	7	—	1	3	5	5	10 ③	10	1NO	XTAE015B10_ _	263.	292.
15.5	20	4	7.5	8	7	—	1	3	5	5	10 ③	10	1NC	XTAE015B01_ _	263.	292.
Frame C																
18	35	5	7.5	10	11	—	2	3	5	5	10 ③	15	1NO	XTAE018C10_ _	274.	305.
18	35	5	7.5	10	11	—	2	3	5	5	10 ③	15	1NC	XTAE018C01_ _	274.	305.
25	40	7.5	11	14.5	14	—	2	5	7-1/2	7-1/2	15	20	1NO	XTAE025C10_ _	304.	333.
25	40	7.5	11	14.5	14	—	2	5	7-1/2	7-1/2	15	20	1NC	XTAE025C01_ _	304.	333.
32	40	10	15	18	17	—	3	5	10	10	20	25	1NO	XTAE032C10_ _	348.	384.
32	40	10	15	18	17	—	3	5	10	10	20	25	1NC	XTAE032C01_ _	348.	384.
Frame D																
40	50	12.5	18.5	24	23	—	3	7-1/2	10	15	30	40	—	XTAE040D00_ _	449.	491.
50	60	15.5	22	30	30	—	3	10	15	20	40	50	—	XTAE050D00_ _	475.	547.
65	72	20	30	39	35	—	5	15	20	25	50	60	—	XTAE065D00_ _	492.	563.
Frame F																
80	110	25	37	48	63	—	7-1/2	15	25	30	60	75	—	XTAE080F00_ _	668.	765.
95	110	30	45	57	75	—	7-1/2	15	25	40	75	100	—	XTAE095F00_ _	748.	870.
Frame G																
115	160	37	55	70	105	—	10	25	40	50	100	125	—	XTAE115G00_ _	1,101.	1,230.
150	160	48	75	91	125	—	15	30	40	60	125	125	—	XTAE150G00_ _	1,434.	1,606.

① Underscore () indicates magnet coil suffix required. See Table 15.

② Underscore () indicates overload relay suffix required. See Table 17.

③ For electrical life contactor application data see Table 16.

Reversing Starters, C396 Electronic Overload

Table 14. Full Voltage Reversing Starters with Screw Terminals and C396 Electronic Overload

I _e (A)		Maximum kW Ratings AC-3				Maximum 3-Phase Motor Rating						Catalog Number ④⑤	Price U.S. \$	
AC-3	3-Phase Motors 50 – 60 Hz				1-Phase hp Ratings		3-Phase hp Ratings				Standard			
	220/ 230V	380/ 400V	415V	660/ 690V	115V	230V	200V	230V	460V	575V	AC Coil		DC Coil	
Frame B														
7	2.2	3	4	3.5	1/4	1	1-1/2	2	3	5	7-1/2	XTAR007B21_ _	463.	521.
9	2.5	4	5.5	4.5	1/2	1-1/2	3	3	5	5	7-1/2	XTAR009B21_ _	479.	539.
12	3.5	5.5	7	6.5	1	2	3	3	10	10		XTAR012B21_ _	534.	604.
Frame C														
18	5	7.5	8	11	2	3	5	5	10	15		XTAR018C21_ _	604.	670.
25	7.5	11	14.5	14	2	5	7-1/2	7-1/2	15	20		XTAR025C21_ _	675.	730.
32	10	15	18	17	3	5	10	10	20	25		XTAR032C21_ _	770.	840.
Frame D														
40	12.5	18.5	24	23	3	7-1/2	10	15	30	40		XTAR040D11_ _	980.	1,065.
50	15.5	22	30	30	3	10	15	20	40	50		XTAR050D11_ _	1,040.	1,185.
65	20	30	39	35	5	15	20	25	50	60		XTAR065D11_ _	1,155.	1,300.

④ Underscore () indicates magnet coil suffix required. See Table 15.

⑤ Underscore () indicates overload relay suffix required. See Table 17.

Coil Voltage Chart Page 13
Dimensions Page 14
Overload Relays Page 2
Discount Symbol 1CD7

Table 15. Magnet Coil Suffix

Coil Voltage	Suffix Code
Frame A – B	
110V 50 Hz, 120V 60 Hz	A
220V 50 Hz, 240V 60 Hz	B
230V 50 Hz	F
24V 50/60 Hz	T
24V DC	TD
415V 50 Hz, 480V 60 Hz	C ③
550V 50 Hz, 600V 60 Hz	D ③
208V 60 Hz	E ③
190V 50 Hz, 220V 60 Hz	G ③
240V 50 Hz, 277V 60 Hz	H ③
380V 50 Hz, 440V 60 Hz	L ③
400V 50 Hz	N ③
380V 60 Hz	P ③
12V 50/60 Hz	R ③
24V 50 Hz	U ③
42V 50 Hz, 48V 60 Hz	W ③
48V 50 Hz	Y ③
120V DC	AD ③
220V DC	BD ③
12V DC	RD ③
48V DC	WD ③

① Frame C – D only.

② Frame L – M only.

③ For indicated coils, price adder of 10% must be applied to the contactor list price.

Coil Voltage	Suffix Code
Frame C – F	
110V 50 Hz, 120V 60 Hz	A
220V 50 Hz, 240V 60 Hz	B
230V 50 Hz	F
24V 50/60 Hz	T
24 – 27V DC	TD
415V 50 Hz, 480V 60 Hz	C ③
550V 50 Hz, 600V 60 Hz	D ③
208V 60 Hz	E ③
190V 50 Hz, 220V 60 Hz	G ③
240V 50 Hz, 277V 60 Hz	H ③
380V 50 Hz, 440V 60 Hz	L ③
400V 50 Hz	N ③
380V 60 Hz	P ③
12V 50/60 Hz	R ③
24V 50 Hz	U ③
42V 50 Hz, 48V 60 Hz	W ③
48V 50 Hz	Y ③
110 – 130V DC	AD ③
200 – 240V DC	BD ③
12 – 14V DC	RD ①③
48 – 60V DC	WD ③

Coil Voltage	Suffix Code
Frame G	
100 – 120V 50/60 Hz	A
190 – 240V 50/60 Hz	B
24V 50/60 Hz	T
24 – 27V DC	TD
480 – 500V 50/60 Hz	C ③
380 – 440V 50/60 Hz	L ③
42 – 48V 50/60 Hz	W ③
110 – 130V DC	AD ③
200 – 240V DC	BD ③
48 – 60V DC	WD ③
Frame L – N, S-Series	
110 – 250V 40 – 60 Hz/DC	A
250 – 500V 40 – 60 Hz	C ③
48 – 110V 40 – 60 Hz/DC	Y ③
24 – 48V DC	TD ②
Frame P – R	
220 – 250V 50 – 60 Hz/DC	B

Table 16. Starter Application Data

Catalog Prefix	AC-3	Electrical Life (Operations)
XTAE012B	12A	1 million
XTAE015B	15A	1.2 million
XTAE018C	18A	2 million

Table 17. C396 Overload Relay Suffix ④

FLA Range (Amps)	Suffix	For Use with XTIEC Contactor Frame Size / Width	Catalog Number
	Std. Class 5/10/20/30		Standard Class 5/10/20/30

45 mm Overload Frame Size

0.1 – 0.5	3EP05	B / 45 mm	C396A2AP05SELXB
0.4 – 2.0	3E002	B / 45 mm	C396A2A002SELXB
1 – 5	3E005	B / 45 mm	C396A2A005SELXB
1.6 – 8	3E008	B / 45 mm	C396A2A008SELXB
6.4 – 32	3E032	B / 45 mm	C396A2A032SELXB
0.1 – 0.5	3EP05	C / 45 mm	C396A2AP05SELXC
0.4 – 2.0	3E002	C / 45 mm	C396A2A002SELXC
1 – 5	3E005	C / 45 mm	C396A2A005SELXC
1.6 – 8	3E008	C / 45 mm	C396A2A008SELXC
6.4 – 32	3E032	C / 45 mm	C396A2A032SELXC
6.4 – 32	3E032	D / 55 mm	C396A2A032SELXD
9 – 45	3E045	D / 55 mm	C396A2A045SELXD

65 mm Overload Frame Size

15 – 75	3E075	D / 55 mm	C396B2A075SELXD
22 – 110	3E110	F – G / 90 mm	C396B2A110SELXF

110 mm Overload Frame Size

30 – 150	3E150	G / 90 mm	C396C2A150SELAX ⑤
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④ Product available May 2007.

⑤ Catalog Number listed is for Stand-Alone Overload Relay. For direct connection of 110 mm C396 to Frame G XT Contactors use 110 mm XT Bus Bar Kit, C396CBARXT.

XTAE Starters with C396 Overload Relay

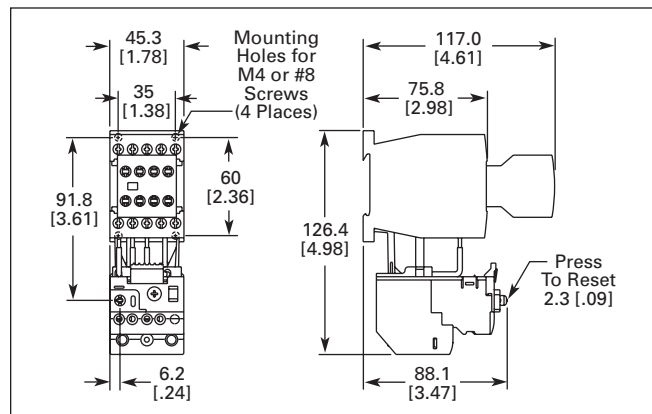


Figure 12. Frame B, XTAE007B – XTAE012B Starters with C396 (0.1 – 15A) — Approximate Dimensions in mm [in]

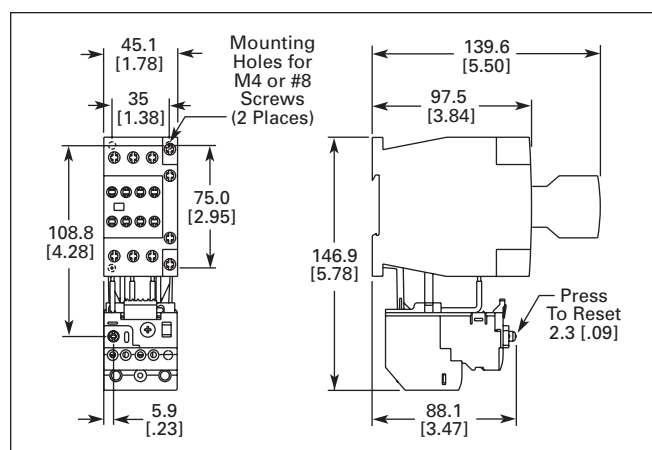


Figure 13. Frame C, XTAE018C – XTAE032C Starters with C396 (0.1 – 32A) — Approximate Dimensions in mm [in]

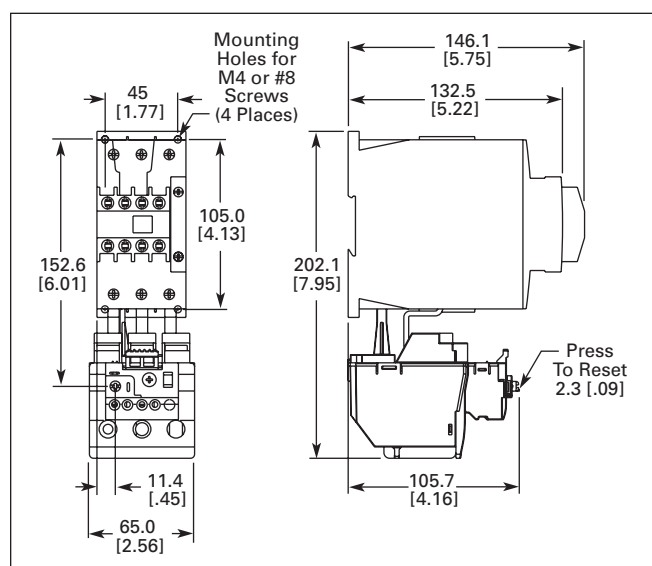


Figure 14. Frame D, XTAE040D – XTAE065D Starters with C396 (15 – 75A) — Approximate Dimensions in mm [in]

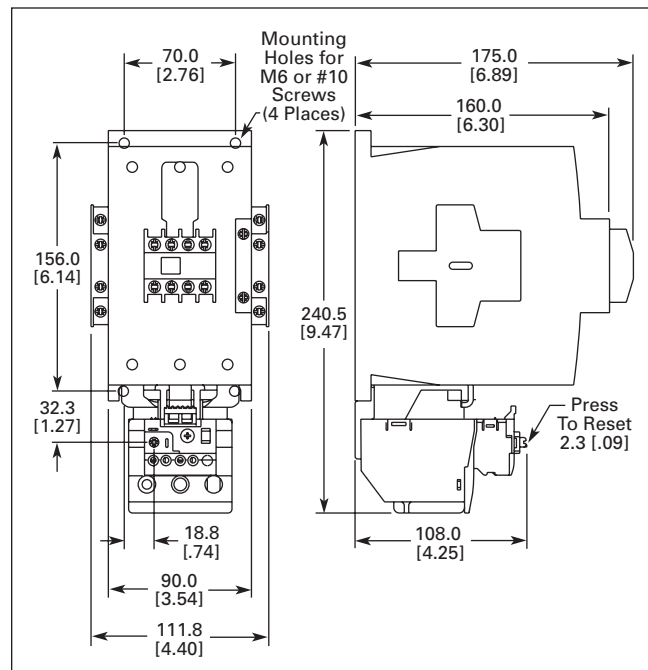


Figure 15. Frame F and G, XTAE080F – XTAE115G Starters with C396 (22 – 110A) — Approximate Dimensions in mm [in]

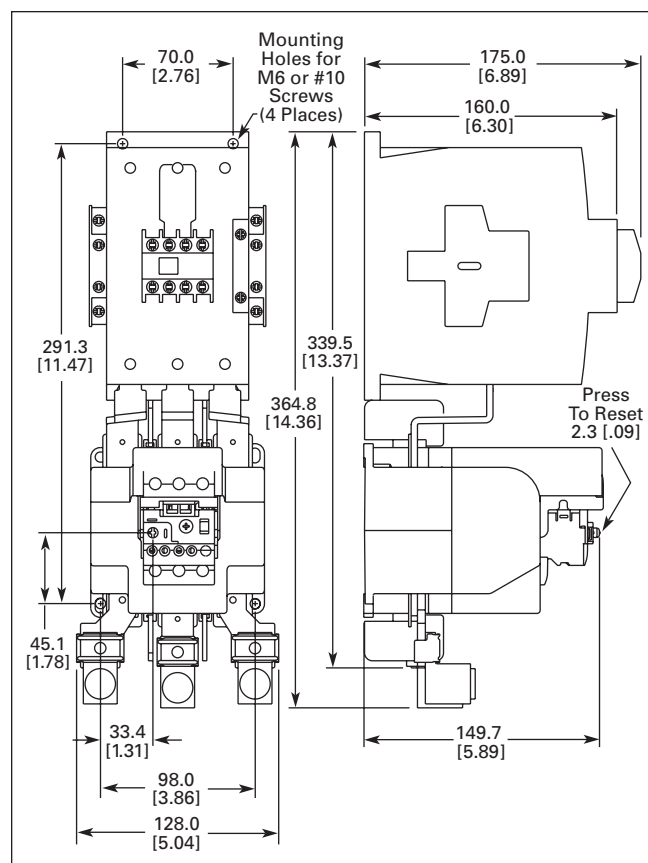


Figure 16. Frame G, XTAE115G – XTAE150G Starters with C396 (30 – 150A) — Approximate Dimensions in mm [in]

Catalog Number Selection

Table 18. Freedom Catalog Numbering System

A N 1 4 A N 0 A 3 E 0 0 5

Device Type

A = Starter
C = Contactor

Standard

E = IEC
N = NEMA

Device Assembly Configuration

70 = Multi-Speed
1 = Non-reversing
5 = Reversing

OLR Type

4 = Starter w/C396 Electronic Overload
5 = Contactor only — no overload relay
6 = Starter w/C306 Bi-Metal OLR
7 = Starter w/C316 Bi-Metal OLR
8 = Starter w/IT. SSOLR

Contactor Frame Size ①

NEMA Size	Continuous Amp Rating
A = 00	9
B = 0	18
D = 1	27
G = 2	45
K = 3	90
N = 4	135
S = 5	270
T = 6	540
U = 7	810
V = 8	1215

NEMA Enclosure

N = Open

For Starters

Starter Mounting Option

0 = Horizontal
V = Vertical

For Contactors Only

2 = 2-pole
3 = 3-pole
4 = 4-pole
5 = 5-pole

C396 Electronic Overload FLA Range (FNVR & FVR Only)

Frame A — NEMA Size 00	Frame G — NEMA Size 2
P05 = 0.1 – 0.5A	008 = 1.6 – 8.0A
002 = 0.4 – 2.0A	045 = 9.0 – 45A
005 = 1.0 – 5.0A	
008 = 1.6 – 8.0A	

Frame B — NEMA Size 0	Frame K — NEMA Size 3
P05 = 0.1 – 0.5A	110 = 22 – 110A
002 = 0.4 – 2.0A	
005 = 1.0 – 5.0A	Frame N — NEMA Size 4 ②
008 = 1.6 – 8.0A	150 = 30 – 150A
032 = 6.4 – 32A	Frame S — NEMA Size 5 ③
	300 = 60 – 300A

Frame D — NEMA Size 1	Frame T — NEMA Size 6 ③
P05 = 0.1 – 0.5A	600 = 120 – 600A
002 = 0.4 – 2.0A	
005 = 1.0 – 5.0A	Frame U — NEMA Size 7 ③
008 = 1.6 – 8.0A	10C = 200 – 1000A
032 = 6.4 – 32A	Frame V — NEMA Size 8 ③
	15C = 300 – 1500A

C396 Electronic OLR Designation (FVNR & FVR Only)

3E = Standard C396 OLR, SEL Reset, SEL Class

C306 Bi-Metallic OLR Designation

C = NEMA Size 00, 0
B = NEMA Size 1, 2
N/R = NEMA Size 3, 4 ④
B = NEMA Size 5
C = NEMA Size 6
B = NEMA Size 7, 8

AC Coil Suffix

Suffix	Coil Volts and Hertz
A =	120/60 or 110/50
B =	240/60 or 220/50
C =	480/60 or 440/50
D =	600/60 or 550/50
E =	208/60
H =	277/60
J =	208 – 240/60 ⑤
K =	240/50
L =	380 – 415/50
N =	550/50
T =	24/60, 24/50 ⑥
U =	24/50
V =	32/50
W =	48/60
Y =	48/50

① For Contactor Only orders, add B to end of Catalog Number if NEMA Size 00 – 2, 6.

② 3E, 4E feature set only.

③ Uses CT with C396 45 mm OLR, 3E, 4E feature set only.

④ Not required.

⑤ NEMA Sizes 00 and 0 only.

⑥ NEMA Sizes 00 and 0 only. Sizes 1 – 8 are 24/60 only.

Product Selection



Catalog Number AN14GN0_ _ _

Table 19. Type AN14/AN54 NEMA — C396 Selectable Reset Electronic Overload Relay — Non-reversing and Reversing ①

NEMA Size	Cont. Amp Rating	Service-Limit Current Rating ⑦ (Amps)	Maximum UL Horsepower ⑥						3-Pole Non-reversing ②③④		3-Pole Reversing ②③④	Vertical Reversing ②③④	
			1-Phase		3-Phase				Catalog Number	Price U.S. \$	Catalog Number	Catalog Number	Price U.S. \$
			115V	230V	208V	240V	480V	600V					
00	9	11	1/3	1	1-1/2	1-1/2	2	2	AN14AN0_ _ _	339.	AN54AN0_ _ _	—	749.
0	18	21	1	2	3	3	5	5	AN14BN0_ _ _	410.	AN54BN0_ _ _	AN54BNV_ _ _	875.
1	27	32	2	3	7-1/2	7-1/2	10	10	AN14DN0_ _ _	465.	AN54DN0_ _ _	AN54DNV_ _ _	996.
2	45	52	3	7-1/2	10	15	25	25	AN14GN0_ _ _	823.	AN54GN0_ _ _	AN54GNV_ _ _	1,799.
3	90	104	—	—	25	30	50	50	AN14KN0_ _ _	1,285.	AN54KN0_ _ _	AN54KNV_ _ _	2,928.
4 ⑤	135	156	—	—	40	50	100	100	AN14NN0_ _ _	2,735.	AN54NN0_ _ _	AN54NNV_ _ _	6,812.
5	270	311	—	—	75	100	200	200	AN14SN0_ _ _	6,630.	AN54SN0_ _ _	—	12,999.
6	540	621	—	—	150	200	400	400	AN14TN0_ _ _	15,129.	AN54TN0_ _ _	—	29,929.
7	810	932	—	—	200	300	600	600	AN14UN0_ _ _	21,545.	AN54UN0_ _ _	—	43,412.
8 ⑥	1215	1400	—	—	400	450	900	900	AN14VN0_ _ _	33,368.	AN54VN0_ _ _	—	63,798.

① Available May 2007.

② Underscore (_) indicates coil suffix required, see Table 20.

③ Underscore (_) indicates OLR designation required, see Table 21.

④ Underscore (_) indicates FLA range, see Table 22.

⑤ Starter is shipped unassembled. Catalog Number includes overload relay and contactor. Not a direct dimensional replacement for Size 4 Starter with C306 bi-metallic overload.

⑥ Maximum horsepower rating of starters for 380V 50 Hz applications:

NEMA Size	00	0	1	2	3	4	5	6	7	8
Horsepower	1-1/2	5	10	25	50	75	150	300	600	900

⑦ The service-limit current ratings represent the maximum rms current, in amperes, which the controller shall be permitted to carry for protracted periods in normal service. At service-limit current ratings, temperature rises shall be permitted to exceed those obtained by testing the controller at its continuous current rating. The current rating of overload relays or trip current of other motor protective devices used shall not exceed the service-limit current rating of the controller.

⑧ Common control. For separate 120V control, insert letter D in 7th position of listed Catalog Number. EXAMPLE: AN54VND_ _ _.

Table 20. AC Suffix Code

Coil Volts and Hertz	Code Suffix
120/60 or 110/50	A
240/60 or 220/50	B
480/60 or 440/50	C
600/60 or 550/50	D
208/60	E
277/60	H
208 – 240/60 ⑨	J
240/50	K
380 – 415/50	L
550/50	N
24/60, 24/50 ⑩	T
24/50	U
32/50	V
48/60	W
48/50	Y

⑨ NEMA Sizes 00 and 0 only.

⑩ NEMA Sizes 00 and 0 only. Sizes 1 – 8 are 24/60 only.

Table 22. C396 FLA Range (FNVR & FVR Only)

NEMA Size	FLA Range
00	P05 = 0.1 – 0.5A 005 = 1.0 – 5.0A 002 = 0.4 – 2.0A 008 = 1.6 – 8.0A
0	P05 = 0.1 – 0.5A 008 = 1.6 – 8.0A 002 = 0.4 – 2.0A 032 = 6.4 – 32A 005 = 1.0 – 5.0A
1	P05 = 0.1 – 0.5A 008 = 1.6 – 8.0A 002 = 0.4 – 2.0A 032 = 6.4 – 32A 005 = 1.0 – 5.0A
2	008 = 1.6 – 8.0A 045 = 9.0 – 45A
3	110 = 22 – 110A
4	150 = 30 – 150A
5 ⑪	300 = 60 – 300A
6 ⑪	600 = 120 – 600A
7 ⑪	10C = 200 – 1000A
8 ⑪	15C = 300 – 1500A

⑪ Uses CT with C396 45 mm OLR.

Table 21. OLR Designation

OLR
3E = Standard C396 OLR, SEL Reset, SEL Class

Technical Data –
 Overload Page 6
 Overload Relay Page 2
 Dimensions Page 18 – 20
 Discount Symbol 1CD1

DC Magnet Coils**When Ordering Specify****Conversion Kit for Field Assembly**

- Catalog Number

Factory Installed DC Coil

- For factory installed DC magnet coil on AC contactors or non-combination starters (open type only), substitute the Code Suffix from table below for the magnet coil identifier in the device Catalog Number.

EXAMPLE: For Size 0 AC contactor with a 24V DC coil, change AN16BN0AC to AN16BN0T1C.

Application

- Connect for separate control
- Not for use with cover control switch operators
- Use twin break, heavy-duty pilot devices.
- Designed for +10%, -20% rated voltage, continuous duty operation.

Non-reversing Kit Consists of:

- 1 Encapsulated DC magnet coil
- 1 NCI or NO/NCI side mounted auxiliary contact

Note: These kits are supplied with a NO/NCI side mounted auxiliary contact in place of the NCI contact.

- 2 Blue colored connection wires
- 1 Instruction publication

Operation

See next page for operation details.

Table 23. Product Selection

Contactors or Starter Size		Conversion Data				NCI Interlock	Complete Conversion Kit			Factory Installed	
		Volts	Magnet Coil				Catalog Number	Price U.S. \$	Ship Wt. Lbs. (kg)	Code Suffix	Adder U.S. \$ ⑤
NEMA	IEC		Coil Number	Amps P.U./Seal	Watts P.U./Seal						
Non-reversing — Kit includes NCI Side Mounted Auxiliary contact											
00 and 0 CN35 – A, B, D D15 Relays	A – F	12	9-2988-11	6.4/.28	76.8/3.36	C320KGD1	C335KD3R1	45.50	1.0 (.5)	R1	53.50
		24	9-2988-12	3.2/.14	76.8/3.36	C320KGD1	C335KD3T1	45.50		T1	53.50
		48	9-2988-13	1.6/.07	76.8/3.36	C320KGD1	C335KD3W1	45.50		W1	53.50
		120	9-2988-14	.64/.028	76.8/3.36	C320KGD1	C335KD3A1	45.50		A1	53.50
① 00 and 0 CN35 – A, B, D D15 Relays	A – F	12	9-2988-11	6.4/.28	76.8/3.36	C320KGD2 ①	C335KD3R4	75.50	1.0 (.5)	R4	89.00
		24	9-2988-12	3.2/.14	76.8/3.36	C320KGD2 ①	C335KD3T4	75.50		T4	89.00
		48	9-2988-13	1.6/.07	76.8/3.36	C320KGD2 ①	C335KD3W4	75.50		W4	89.00
		120	9-2988-14	.64/.028	76.8/3.36	C320KGD2 ①	C335KD3A4	75.50		A4	89.00
1 and 2 CN35 – G	G – K	12	9-2990-1	15.4/.42	185/4.98	C320KGD5	C335KD4R4	75.50	1.0 (.5)	R4	89.00
		24	9-2990-2	7.7/.21	185/4.96	C320KGD5	C335KD4T4	75.50		T4	89.00
		48	9-2990-3	3.9/.11	185/5.04	C320KGD5	C335KD4W4	75.50		W4	89.00
		120	9-2990-4	1.5/.041	185/4.87	C320KGD5	C335KD4A4	75.50		A4	89.00
3 CN35 – K	L – N	12	9-3002-1	24/.40	293/4.84	C320KGD3	C335KD5R1	113.00	2.0 (.9)	R1	133.00
		24	9-3002-2	12/.20	288/4.75	C320KGD3	C335KD5T1	113.00		T1	133.00
		48	9-3002-3	6.1/.097	295/4.67	C320KGD3	C335KD5W1	113.00		W1	133.00
		120	9-3002-4	2.5/.038	298/4.57	C320KGD3	C335KD5A1	113.00		A1	133.00
4 and 5 CN35 – N, S	P – S	24	9-2026-4	18/.22	400/5.3	C320KGD3	C335KA3T1	1,010.00	2.5 (1.1)	T1B	1,336.00
		48	9-2026-3	9/.11	400/5.2	C320KGD3	C335KA3W1	1,010.00		W1B	1,336.00
		120	9-2026-2	3.3/.05	450/5.4	C320KGD3	C335KA3A1	1,010.00		A1B	1,336.00
		240	9-2026-1	1.7/.02	440/4.9	C320KGD3	C335KA3B1	1,010.00		B1B	1,336.00
Reversing											
00 and 0 CN35 – A, B, D D15 Relays	A – F	12	(2) 9-2988-1	6.4/.28	76.8/3.36	(2) C320KGD1	C335RD3R1 ②	⑤	1.0 (.5)	R1 ③	160.00
		24	(2) 9-2988-2	3.2/.14	76.8/3.36	(2) C320KGD1	C335RD3T1 ②	⑤		T1 ③	160.00
		48	(2) 9-2988-3	1.6/.07	76.8/3.36	(2) C320KGD1	C335RD3W1 ②	⑤		W1 ③	160.00
		120	(2) 9-2988-4	.64/.028	76.8/3.36	(2) C320KGD1	C335RD3A1 ②	⑤		A1 ③	160.00
1 and 2 CN35 – G	G – K	12	(2) 9-2990-1	15.4/.42	185/4.98	(2) C320KGD3	④	—	—	R1 ③	280.00
		24	(2) 9-2990-2	7.7/.21	185/4.96	(2) C320KGD3	④	—		T1 ③	280.00
		48	(2) 9-2990-3	3.9/.11	185/5.04	(2) C320KGD3	④	—		W1 ③	280.00
		120	(2) 9-2990-4	1.5/.041	185/4.87	(2) C320KGD3	④	—		A1 ③	280.00

① These kits are supplied with a NO/NCI side mounted auxiliary contact in place of the NCI contact.

② Kit does not include mechanical interlock or crossover wiring. Two NO/NCI top mounted auxiliary contacts are supplied for electrical interlocking.

③ Factory installed DC coils on NEMA contactors and starters include a NO/NC top mounted auxiliary contact on each contactor for electrical interlocking. On IEC contactors and starters, a NC top mounted auxiliary contact is supplied on each contactor for electrical interlocking.

④ Available factory assembled only.

⑤ Please contact your local Eaton sales office.

Non-reversing Starters, C396 Electronic Overload
Table 24. Approximate Dimensions and Shipping Weights — C396 Electronic Overload

NEMA Size	Dimensions in Inches (mm)			Mounting			
	Wide A	High B	Deep C	Wide D	High E	Wide D1	High E1
00-0	2.13 (54.0)	6.60 (167.6)	3.65 (92.8)	1.01 (25.7)	6.18 (157.0)	—	—
1	2.59 (65.9)	7.08 (179.7)	4.49 (114.0)	2.00 (50.8)	6.50 (165.1)	1.29 (32.8)	—
2	2.59 (65.9)	8.08 (205.1)	4.49 (114.0)	2.00 (50.8)	7.50 (190.5)	1.29 (32.8)	6.50 (165.1)
3	4.09 (103.9)	11.40 (289.6)	5.82 (147.9)	3.00 (76.2)	10.81 (274.6)	1.50 (38.1)	6.63 (168.3)

① Consult Eaton.

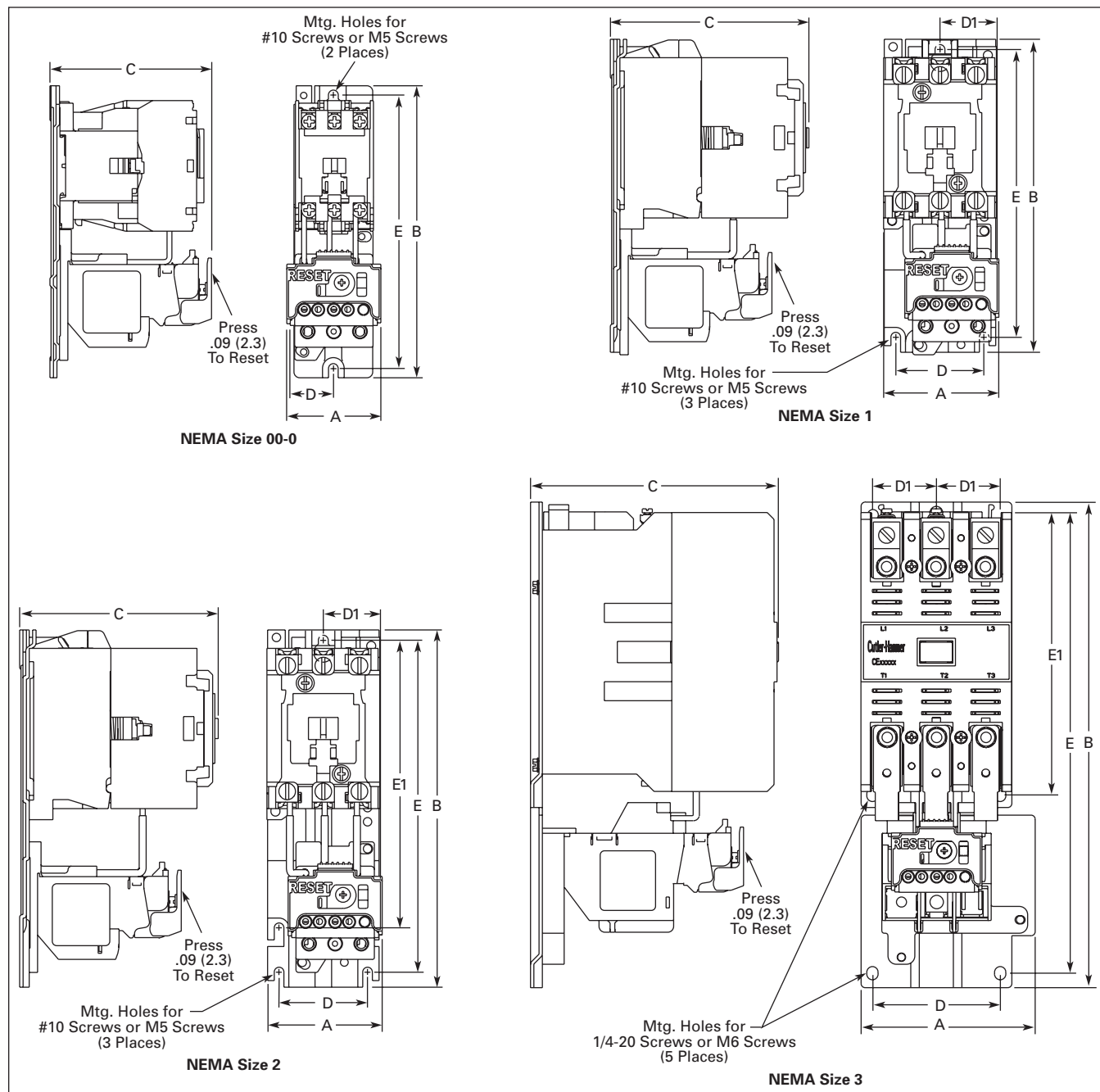

Figure 17. Approximate Dimensions

Table 25. Approximate Dimensions and Shipping Weights — C396 Electronic Overload

NEMA Size	Dimensions in Inches (mm)				Mounting			
	Wide A	High B	Deep C		Wide D	High E	Wide D1	High E1
4	7.00 (177.8)	9.11 (231.4)	7.17 (182.2)		6.00 (152.4)	8.50 (215.8)	—	—
5	7.64 (194.0)	17.86 (453.7)	7.57 (192.4)		6.00 (152.4)	16.01 (406.6)	—	.66 (16.7)
6	9.47 (240.5)	21.69 (551.0)	9.89 (251.2)		3.10 (79.7)	18.00 (457.2)	3.18 (80.9)	.89 (22.5)

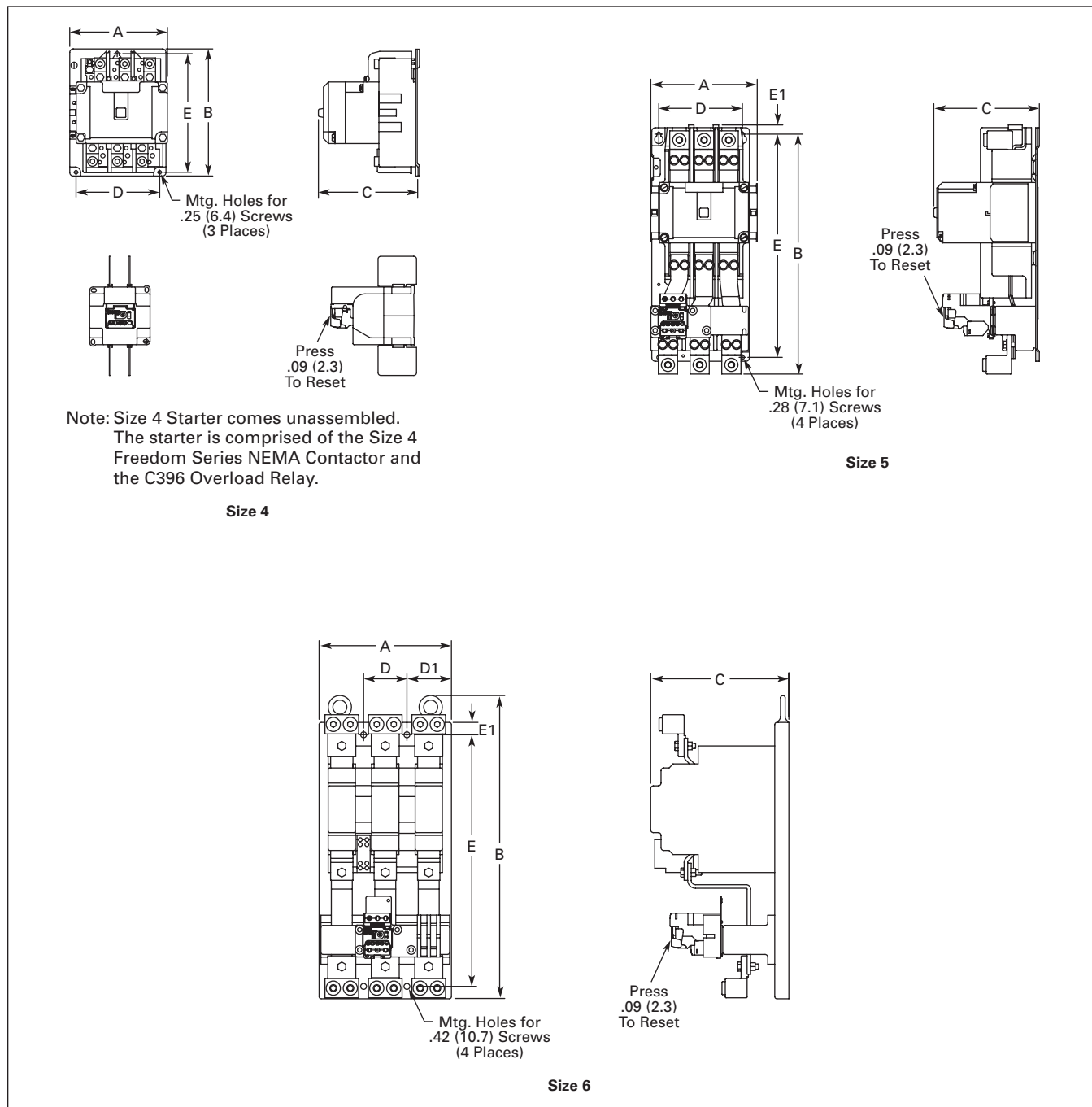


Figure 18. Approximate Dimensions

Table 26. Approximate Dimensions and Shipping Weights — C396 Electronic Overload

NEMA Size	Dimensions in Inches (mm)			Mounting			
	Wide A	High B	Deep C	Wide D	High E	Wide D1	High E1
7	15.11 (383.8)	29.04 (737.7)	12.63 (320.9)	13.25 (336.6)	21.25 (539.8)	.93 (23.7)	1.27 (32.4)
8	15.11 (383.8)	35.28 (895.1)	14.69 (373.0)	13.25 (336.6)	16.75 (425.5)	.93 (23.7)	—

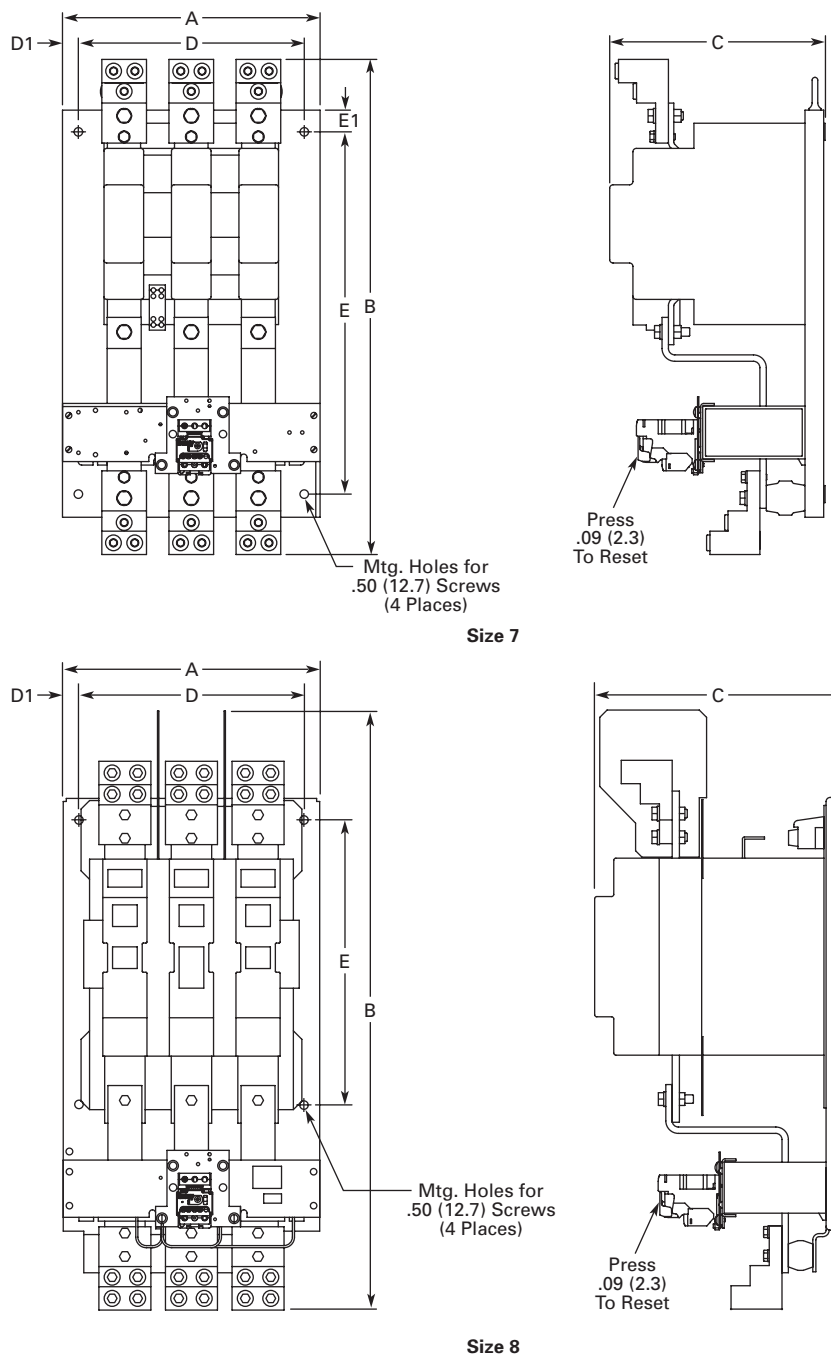


Figure 19. Approximate Dimensions



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Product Selection	23
Overload Relay Specifications	6



A29 Starter

Product Description

Cutler-Hammer® A29 and B29 Definite Purpose Starters from Eaton's electrical business combine the features and flexibility of the C25 Definite Purpose Contactors and C396 Electronic Overload Relays.

Features

- Standard Version: Selectable Trip Class (5, 10, 20, 30) with Selectable Manual or Auto Reset (45 and 65 mm Frames)
- Current Adjustment Range: 5:1
- Self-Powered Design — will accept AC voltages from 12 to 690V 50/60 Hz
- Ambient Temperature Compensation
- Low Heat Generation
- Phase Loss Protection
- Phase Unbalance Protection
- Electrically isolated 1NO-1NC Contacts (Push-to-Test)
- Trip Status Indicator

Standards and Certifications

- UL Listed Components
- CSA Certified Components
- IEC EN 60947-4-1, EN 60947-5-1
- CE Certified Components
- CCC Certified Components
- RoHS Certified Components

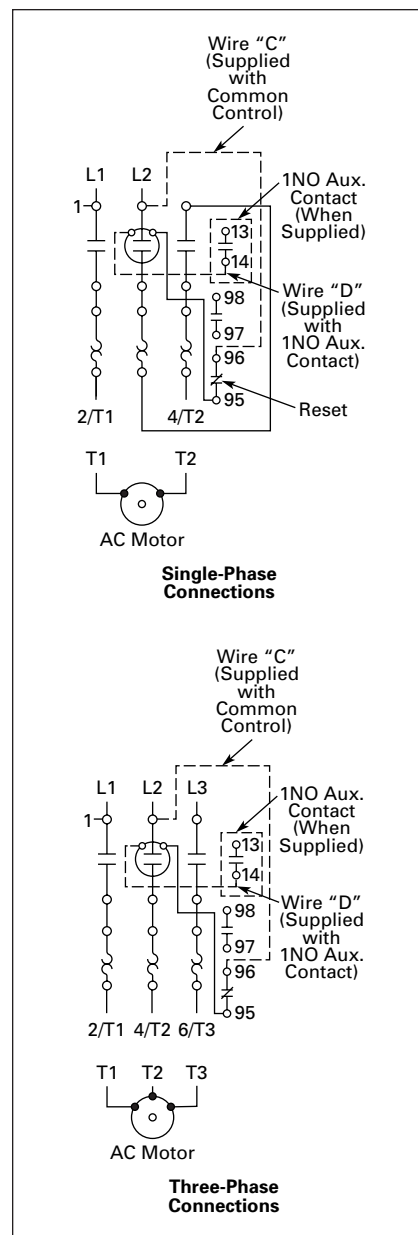


Figure 20. Starter Wiring Diagrams



Catalog Number Selection

Table 27. A29 and B29 DP Catalog Numbering System

A 29 C N C 25 A X 3E 005																			
Designation A = Three-Phase Starter B = Single-Phase Starter			Type 29 = Non-reversing 69 = Reversing			Control C = Common Control S = Separate Control			Overload Range DP Starters with C396 Electronic Overload 15A – 75A Contactor P50 = 0.1 – 0.5A 002 = 0.4 – 2.0A 005 = 1 – 5A 008 = 1.6 – 8.0A 032 = 6.4 – 32A 045 = 9 – 45A 075 = 15 – 75A										
Enclosure Type N = Open with Metal Mounting Plate R = Open with DIN Rail Mounting Adapter (2- and 3-Pole, 15 – 50A Contactors Only) G = NEMA Type 1 Enclosed			OLR Model Designation 3E = Standard C396 OLR SEL Reset, SEL Class			Auxiliary Contacts (Side Mount) A = 1NO Pressure Plate B = 1NC Pressure Plate C = 1NO-1NC Pressure Plate D = 2NO Pressure Plate E = 2NC Pressure Plate F = 1NO Pressure Plate and QC G = 1NC Pressure Plate and QC H = 1NO-1NC Pressure Plate and QC J = 2NO Pressure Plate and QC K = 2NC Pressure Plate and QC L = 1NO-1NC Snap Switch QC Only M = 2NO-2NC Snap Switch QC Only X = none													
Power Terminals 15 – 40A Contactor A = Binding Head Screws without Quick Connect Terminals B = Binding Head Screws with Quick Connect Terminals C = Pressure Plate without Quick Connect Terminals D = Pressure Plate with Quick Connect Terminals E = Lugs without Quick Connect Terminals F = Lugs with Quick Connect Terminals 50 – 75A Contactor E = Lugs without Quick Connect Terminals F = Lugs with Quick Connect Terminals			AC Coil Codes <table><tr><td>R = 12V</td><td>D = 550/600V</td></tr><tr><td>T = 24V</td><td>H = 277V</td></tr><tr><td>A = 110/120V</td><td>L = 380/415V</td></tr><tr><td>B = 208/240V</td><td>J = 240V/60 Hz; 220V/50 Hz (Available through 50A)</td></tr><tr><td>C = 440/480V</td><td></td></tr></table>							R = 12V	D = 550/600V	T = 24V	H = 277V	A = 110/120V	L = 380/415V	B = 208/240V	J = 240V/60 Hz; 220V/50 Hz (Available through 50A)	C = 440/480V	
R = 12V	D = 550/600V																		
T = 24V	H = 277V																		
A = 110/120V	L = 380/415V																		
B = 208/240V	J = 240V/60 Hz; 220V/50 Hz (Available through 50A)																		
C = 440/480V																			
Current Ratings <table><tr><td>15 = 15A</td><td>50 = 50A</td></tr><tr><td>25 = 25A</td><td>60 = 60A</td></tr><tr><td>30 = 30A</td><td>75 = 75A</td></tr><tr><td>40 = 40A</td><td></td></tr></table>			15 = 15A	50 = 50A	25 = 25A	60 = 60A	30 = 30A	75 = 75A	40 = 40A										
15 = 15A	50 = 50A																		
25 = 25A	60 = 60A																		
30 = 30A	75 = 75A																		
40 = 40A																			

Product Selection

When Ordering Specify

- Catalog Number plus AC Coil Code, Auxiliary Contact Code, OLR Model Designation and Overload Range Code (see **Table 28**).



Table 28. Catalog Numbering System

A29CNC15		A	X	3E	005
Incomplete Catalog Number					
AC Coil Codes R = 12V T = 24V A = 110/120V B = 208/240V C = 440/480V D = 550/600V H = 277V L = 380/415V J = 240V/60 Hz; 220V/50 Hz (Available through 50A)					
Auxiliary Contacts (Side Mount) A = 1NO Pressure Plate B = 1NC Pressure Plate C = 1NO-1NC Pressure Plate D = 2NO Pressure Plate E = 2NC Pressure Plate F = 1NO Pressure Plate and QC G = 1NC Pressure Plate and QC H = 1NO-1NC Pressure Plate and QC J = 2NO Pressure Plate and QC K = 2NC Pressure Plate and QC L = 1NO-1NC Snap Switch QC Only M = 2NO-2NC Snap Switch QC Only X = none					
		Overload Range DP Starters with C396 Electronic Overload 15A, 25A and 30A Contactor P50 = 0.1 – 0.5A 002 = 0.4 – 2.0A 005 = 1 – 5A 008 = 1.6 – 8.0A 032 = 6.4 – 32A 045 = 9 – 45A 075 = 15 – 75A			
		OLR Model Designation 3E = Standard C396 OLR SEL Reset, SEL Class			

Table 29. Three-Phase Starter Product Selection — Open Type

Ampere Rating			Max. Motor hp	Max. Motor kW	Common Control		Separate Control		Price U.S. \$ ②
Inductive Full Load	Line Voltage	Locked Rotor			Metal Mounting Plate Catalog Number ①	DIN Rail Adapter Catalog Number ①	Metal Mounting Plate Catalog Number ①	DIN Rail Adapter Catalog Number ①	
15	115 230 460 575	90 90 75 60	— 3 5 5	— 2.2 3.7 3.7	A29CNC15_	A29CRC15_	A29SNC15_	A29SRC15_	—
25	115 230 460 575	150 150 125 100	— 7-1/2 10 10	— 5.5 7.5 7.5	A29CNC25_	A29CRC25_	A29SNC25_	A29SRC25_	—
30	115 230 460 575	180 180 150 120	— 10 15 15	— 7.5 11 11	A29CNE30_	A29CRE30_	A29SNE30_	A29SRE30_	—
40	115 230 460 575	240 240 200 160	— 10 20 20	— 7.5 15 15	A29CNE40_	A29CRE40_	A29SNE40_	A29SRE40_	—
50	115 230 460 575	300 300 250 200	— 15 30 30	— 11 22 22	A29CNE50_	A29CRE50_	A29SNE50_	A29SRE50_	—
60	115 230 460 575	360 360 300 240	— 20 40 40	— 15 30 30	A29CNE60_	—	A29SNE60_	—	—
75	115 230 460 575	450 450 375 300	— 20 50 50	— 18.5 37 37	A29CNE75_	—	A29SNE75_	—	—

① Incomplete Catalog Number. Replace underscore (_) with Suffix (see **Table 28**).

② Consult factory for pricing.

Discount Symbol 1CD-5C

Product Selection

When Ordering Specify

- Catalog Number plus AC Coil Code, Auxiliary Contact Code, OLR Model Designation and Overload Range Code (see **Table 30**).

**Available
June 2007**

Table 30. Catalog Numbering System

B 29 C N C 15 A X 3 E 005									
Incomplete Catalog Number									
AC Coil Codes R = 12V T = 24V A = 110/120V B = 208/240V C = 440/480V D = 550/600V H = 277V L = 380/415V J = 240V/60 Hz; 220V/50 Hz (Available through 50A)									
Auxiliary Contacts (Side Mount) A = 1NO Pressure Plate B = 1NC Pressure Plate C = 1NO-1NC Pressure Plate D = 2NO Pressure Plate E = 2NC Pressure Plate F = 1NO Pressure Plate and QC G = 1NC Pressure Plate and QC H = 1NO-1NC Pressure Plate and QC J = 2NO Pressure Plate and QC K = 2NC Pressure Plate and QC L = 1NO-1NC Snap Switch QC Only M = 2NO-2NC Snap Switch QC Only X = none									
				Overload Range DP Starters with C396 Electronic Overload 15A, 25A and 30A Contactor P50 = 0.1 – 0.5A 002 = 0.4 – 2.0A 005 = 1 – 5A 008 = 1.6 – 8.0A 032 = 6.4 – 32A 045 = 9 – 45A 075 = 15 – 75A					
				OLR Model Designation 3E = Standard C396 OLR SEL Reset, SEL Class					

Table 31. Single-Phase Starter Product Selection — Open Type

Ampere Rating			Max. Motor hp	Max. Motor kW	Common Control		Separate Control		Price U.S. \$ ②
Inductive Full Load	Line Voltage	Locked Rotor			Metal Mounting Plate	DIN Rail Adapter	Metal Mounting Plate	DIN Rail Adapter	
					Catalog Number ①	Catalog Number ①	Catalog Number ①	Catalog Number ①	
15	115 230 460 575	90 90 75 60	3/4 2 — —	0.4 1.5 — —	B29CNC15_	B29CRC15_	B29SNC15_	B29SRC15_	—
25	115 230 460 575	150 150 125 100	2 3 — —	1.5 2.2 — —	B29CNC25_	B29CRC25_	B29SNC25_	B29SRC25_	—
30	115 230 460 575	180 180 150 120	2 5 — —	1.5 3.7 — —	B29CNE30_	B29CRE30_	B29SNE30_	B29SRE30_	—
40	115 230 460 575	240 240 200 160	3 7-1/2 — —	2.2 5.5 — —	B29CNE40_	B29CRE40_	B29SNE40_	B29SRE40_	—
50	115 230 460 575	300 300 250 200	3 10 — —	2.2 7.5 — —	B29CNE45_	B29CRE45_	B29SNE45_	B29SRE45_	—

① Incomplete Catalog Number. Replace underscore (_) with Suffix (see **Table 30**).

② Consult factory for pricing.

Discount Symbol **1CD-5C**



Table 32. C396 Replacement Overloads for Integrated Use with DP Contactors

FLA Range (Amps)	DP Contactor Rating	Standard Class 5/10/20/30	
		Catalog Number	Price U.S. \$
45 mm Overload Frame Size			
0.1 – 0.5	15, 25, 30	C396A2AP05SELDC	152.
0.4 – 2.0	15, 25, 30	C396A2A002SELDC	152.
1 – 5	15, 25, 30	C396A2A005SELDC	152.
1.6 – 8	15, 25, 30, 40	C396A2A008SELDE	152.
6.4 – 32	15, 25, 30, 40, 50	C396A2A032SELDF	152.
9 – 45	40, 50	C396A2A045SELDF	229.
65 mm Overload Frame Size			
15 – 75	60, 75	C396B2B075SELDG	265.

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Printed in USA
Publication No. CA03317001E/CPG
April 2007