C30CNM Mechanically and Electrically Held



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C30CN Mechanically and Electrically Held

Product Description

The C30CNM 30A Mechanically Held Lighting Contactors from Eaton's Electrical Sector are designed for industrial, commercial and outdoor lighting applications where efficient control is required. The mechanically held operation ensures that the contactor will not switch to OFF during control power failure. It also ensures the removal of coil from the circuit for noise-free operation and the elimination of all coil losses after the contactor is latched. The control module microprocessor validates the control signal before operation, so it will not respond to momentary voltage spikes of noise. The operation command has a built-in 0.4 second delay to avoid multiple short-term commands that can cause contact fatigue or failure. Also, the feedback loop prevents the contactor from getting out of sequence with switches, even after power failures.

Application Description

The mechanically held lighting contactor provides effective control in applications such as office buildings, industrial plants, hospitals, stadiums, airports, and so on.

They are ideal for applications that require quiet, energy-efficient operation.

Designed to handle different load types:

- Tungsten (incandescent filament)
- Ballast (fluorescent and mercury arc)
- High intensity discharge (HID)
- Non-motor AC resistive
- Single- and three-phase motor ratings

Operation

Three-wire control is the choice for use with momentary devices allowing operation from multiple locations. A momentary pulse of energy operates the contactor while a second pulse on an alternate leg returns the contactor to its original state.

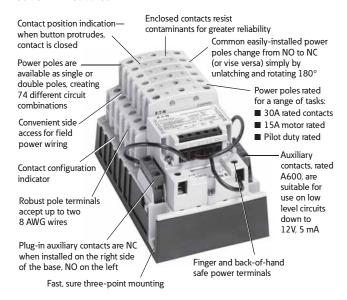
Two-wire control is the choice for single output automatic operation or for operation from single-pole devices. When voltage is applied to the input terminals the contactor is latched into position (coil is removed from the circuit while control voltage is continuously supplied). When control voltage is removed, the latch is disengaged and the contactor is returned to its original state.

Features

See figure below.

- 30A power pole rating
- Up to 12 poles maximum
- Power poles latch easily onto the base, and designating them as NO or NC is a simple matter of left or right positioning. Additional poles, either NO or NC, may be easily added at any time
- Low magnetic noise results in quiet operation
- Low input VA permits long wire runs
- Come in a wide range of input voltages and with coils from 24 Vac to 277 Vac and 12 Vac to 24 Vdc

C30CNM Features



Standards and Certifications

- UL listed File E1491, UL Category Code/ Guide NLDX/NLDX7
- cUL
- CE
- Designed and built to NEMA ICS-2 Standards







Instructional Leaflets

50765 C30CN Lighting Contactor Series

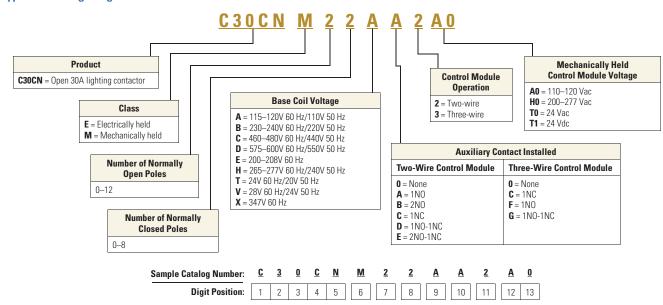
50766 Coil Kit for C30CN Lighting Contactors

50767 Power Pole Kit for C30CN Lighting Contactors

50768 Control Module Kit for C30CN Lighting Contactors

Catalog Number Selection

Type C30CN Lighting Contactors



Product Selection

Two-Wire Mechanically Held Lighting Contactors— Standard Assembled Forms

The Standard Assembled Forms in tables on **Pages V5-T6-6** and **V5-T6-7** are two-wire open mechanically held 30A lighting contactors with 120V 60 Hz/110V 50 Hz base coil voltage, 120V control module voltage, and no additional auxiliary contacts. To change the base coil voltage, auxiliary contact options or control module voltage, refer to tables on **Page V5-T6-7**.



Two-Wire Mechanically Held Lighting Contactors—Standard Assembled Forms



Number of Poles	NO	NC	Catalog Number 123
2	0	2	C30CNM02A02A0
	1	1	C30CNM11A02A0
	2	0	C30CNM20A02A0
3	0	3	C30CNM03A02A0
	1	2	C30CNM12A02A0
	2	1	C30CNM21A02A0
	3	0	C30CNM30A02A0
4	0	4	C30CNM04A02A0
	1	3	C30CNM13A02A0
	2	2	C30CNM22A02A0
	3	1	C30CNM31A02A0
	4	0	C30CNM40A02A0
5	0	5	C30CNM05A02A0
	1	4	C30CNM14A02A0
	2	3	C30CNM23A02A0
	3	2	C30CNM32A02A0
	4	1	C30CNM41A02A0
	5	0	C30CNM50A02A0
6	0	6	C30CNM06A02A0
	1	5	C30CNM15A02A0
	2	4	C30CNM24A02A0
	3	3	C30CNM33A02A0
	4	2	C30CNM42A02A0
	5	1	C30CNM51A02A0
	6	0	C30CNM60A02A0
7	0	7	C30CNM07A02A0
	1	6	C30CNM16A02A0
	2	5	C30CNM25A02A0
	3	4	C30CNM34A02A0
	4	3	C30CNM43A02A0
	5	2	C30CNM52A02A0
	6	1	C30CNM61A02A0
	7	0	C30CNM70A02A0
8	0	8	C30CNM08A02A0
	1	7	C30CNM17A02A0
	2	6	C30CNM26A02A0
	3	5	C30CNM35A02A0
	4	4	C30CNM44A02A0
	5	3	C30CNM53A02A0
	6	2	C30CNM62A02A0
	7	1	C30CNM71A02A0
	8	0	C30CNM80A02A0

- ① To change the base coil voltage, replace the content of Position 9 with the appropriate code suffix from the table on Page V5-T6-7.
- ② To change auxiliary contact options, replace the content of Position 10 with the appropriate code suffix from the table on Page V5-T6-7.
- To change the control module voltage, replace the content of Positions 12-13 with the appropriate code suffix from the table on Page V5-T6-7.

Two-Wire Mechanically Held Lighting Contactors—Standard Assembled Forms, continued

Number of Poles	NO	NC	Catalog Number ①②③
9	1	8	C30CNM18A02A0
	2	7	C30CNM27A02A0
	3	6	C30CNM36A02A0
	4	5	C30CNM45A02A0
	5	4	C30CNM54A02A0
	6	3	C30CNM63A02A0
	7	2	C30CNM72A02A0
	8	1	C30CNM81A02A0
	9	0	C30CNM90A02A0
10	2	8	C30CNM28A02A0
	3	7	C30CNM37A02A0
	4	6	C30CNM46A02A0
	5	5	C30CNM55A02A0
	6	4	C30CNM64A02A0
	7	3	C30CNM73A02A0
8 9 10	8	2	C30CNM82A02A0
	9	1	C30CNM91A02A0
	10	0	C30CNM100A02A0
11	3	8	C30CNM38A02A0
	4	7	C30CNM47A02A0
	5	6	C30CNM56A02A0
6 7 8 9 10	6	5	C30CNM65A02A0
	7	4	C30CNM74A02A0
	8	3	C30CNM83A02A0
	9	2	C30CNM92A02A0
	10	1	C30CNM101A02A0
	11	0	C30CNM110A02A0
12	4	8	C30CNM48A02A0
	6	6	C30CNM66A02A0
	8	4	C30CNM84A02A0
	10	2	C30CNM102A02A0
	12	0	C30CNM120A02A0

Base Coil Voltage (Digit 9) @

Voltage	Code Suffix
115-120V 60 Hz/110V 50 Hz	Α
230-240V 60 Hz/220V 50 Hz	В
460–480V 60 Hz/440V 50 Hz	С
575–600V 60 Hz/550V 50 Hz	D
200–208V 60 Hz	E
265–277V 60 Hz/240V 50 Hz	н
24V 60 Hz/20V 50 Hz	Т
28V 60 Hz/24V 50 Hz	V
347V 60 Hz	х

Auxiliary Contact Installed (Digit 10)

Control Module	Circuit	Code Suffix
Two-wire	None	0
	1NO	A
	2N0	В
	1NC	С
	1NO-1NC	D
	2NO-1NC	E

Control Module Voltage (Digit 12-13)

Coil Module	Code Suffix
110-120 Vac	A0
200–277 Vac	НО
24 Vac	T0
12-24 Vdc	T1

- $^{\odot}$ To change the base coil voltage, replace the content of Position 9 with the appropriate code suffix from the table above.
- ② To change auxiliary contact options, replace the content of Position 10 with the appropriate code suffix from the table above.
- ® To change the control module voltage, replace the content of Positions 12-13 with the appropriate code suffix from the table above.
- 4 If coil supply is greater than 277V, use CPT.

Three-Wire Mechanically Held Lighting Contactors— Standard Assembled Forms

The Standard Assembled Forms in the table on **Page V5-T6-8** are three-wire open mechanically held 30A lighting contactors with 120V 60 Hz/110V 50 Hz base coil voltage, 120V control module voltage, and no additional auxiliary contacts. To change the base coil voltage, auxiliary contact options or control module voltage, refer to the tables on **Page V5-T6-9**.

Three-Wire Mechanically Held Lighting Contactors—Standard Assembled Forms

Number of Poles	NO	NC	Catalog Number ①②③
2	0	2	C30CNM02A03A0
	1	1	C30CNM11A03A0
	2	0	C30CNM20A03A0
3	0	3	C30CNM03A03A0
	1	2	C30CNM12A03A0
	2	1	C30CNM21A03A0
	3	0	C30CNM30A03A0
4	0	4	C30CNM04A03A0
	1	3	C30CNM13A03A0
	2	2	C30CNM22A03A0
	3	1	C30CNM31A03A0
	4	0	C30CNM40A03A0
5	0	5	C30CNM05A03A0
	1	4	C30CNM14A03A0
	2	3	C30CNM23A03A0
	3	2	C30CNM32A03A0
	4	1	C30CNM41A03A0
	5	0	C30CNM50A03A0
6	0	6	C30CNM06A03A0
	1	5	C30CNM15A03A0
	2	4	C30CNM24A03A0
	3	3	C30CNM33A03A0
	4	2	C30CNM42A03A0
	5	1	C30CNM51A03A0
	6	0	C30CNM60A03A0
7	0	7	C30CNM07A03A0
	1	6	C30CNM16A03A0
	2	5	C30CNM25A03A0
	3	4	C30CNM34A03A0
	4	3	C30CNM43A03A0
	5	2	C30CNM52A03A0
	6	1	C30CNM61A03A0
	7	0	C30CNM70A03A0
8	0	8	C30CNM08A03A0
	1	7	C30CNM17A03A0
	2	6	C30CNM26A03A0
	3	5	C30CNM35A03A0
	4	4	C30CNM44A03A0
	5	3	C30CNM53A03A0
	6	2	C30CNM62A03A0
	7	1	C30CNM71A03A0
	/ 8	0	C30CNM80A03A0
	0	0	COSSITITIONOGO

- ① To change the base coil voltage, replace the content of Position 9 with the appropriate code suffix from the table on Page V5-T6-9.
- ② To change auxiliary contact options, replace the content of Position 10 with the appropriate code suffix from the table on Page V5-T6-9.
- To change the control module voltage, replace the content of Positions 12-13 with the appropriate code suffix from the table on Page V5-T6-9.

Three-Wire Mechanically Held Lighting Contactors— Standard Assembled Forms, continued

Number of Poles	NO	NC	Catalog Number ①②③
9	1	8	C30CNM18A03A0
	2	7	C30CNM27A03A0
	3	6	C30CNM36A03A0
	4	5	C30CNM45A03A0
	5	4	C30CNM54A03A0
	6	3	C30CNM63A03A0
	7	2	C30CNM72A03A0
	8	1	C30CNM81A03A0
	9	0	C30CNM90A03A0
10	2	8	C30CNM28A03A0
	3	7	C30CNM37A03A0
	4	6	C30CNM46A03A0
	5	5	C30CNM55A03A0
	6	4	C30CNM64A03A0
	7	3	C30CNM73A03A0
	8	2	C30CNM82A03A0
	9	1	C30CNM91A03A0
	10	0	C30CNM100A03A0
11	3	8	C30CNM38A03A0
	4	7	C30CNM47A03A0
	5	6	C30CNM56A03A0
	6	5	C30CNM65A03A0
	7	4	C30CNM74A03A0
	8	3	C30CNM83A03A0
	9	2	C30CNM92A03A0
10	10	1	C30CNM101A03A0
	11	0	C30CNM110A03A0
2	4	8	C30CNM48A03A0
	6	6	C30CNM66A03A0
	8	4	C30CNM84A03A0
	10	2	C30CNM102A03A0
	12	0	C30CNM120A03A0

Base Coil Voltage (Digit 9) @

Voltage	Code Suffix
115–120V 60 Hz/110V 50 Hz	А
230-240V 60 Hz/220V 50 Hz	В
460–480V 60 Hz/440V 50 Hz	С
575–600V 60 Hz/550V 50 Hz	D
200–208V 60 Hz	E
265–277V 60 Hz/240V 50 Hz	Н
24V 60 Hz/20V 50 Hz	Т
28V 60 Hz/24V 50 Hz	V
347V 60 Hz	Х

Auxiliary Contact Installed (Digit 10)

Control Module	Circuit	Code Suffix	
Three-wire	None	0	
	1NC	C	
	1NO	F	
	1NO-1NC	G	

Control Module Voltage (Digit 12-13)

Coil Module	Code Suffix
110-120 Vac	A0
200–277 Vac	Н0
24 Vac	T0
12–24 Vdc	T1

- $^{\odot}$ To change the base coil voltage, replace the content of Position 9 with the appropriate code suffix from the table above.
- ② To change auxiliary contact options, replace the content of Position 10 with the appropriate code suffix from the table above.
- To change the control module voltage, replace the content of Positions 12-13 with the appropriate code suffix from the table above.
- ④ If coil supply is greater than 277V, use CPT.

Components

Electrically Held Base Contactor

The C30CNE20_0 Electrically Held Base Contactor contains a 2NO power pole as standard and will allow the addition of power poles to build an electrically held contactor up to 12 poles maximum. A mechanically held module kit can also be added to convert the electrically held contactor into a mechanically held contactor in the field.

Electrically Held Base Contactor

Electrically Held Base Contactor

Power Poles	Catalog Number ①
2NO	C30CNE20_0



Electrically Held Lighting Contactors ②

Number of Poles	NO	NC	Catalog Number
2	2	0	C30CNE20_0
	1	1	C30CNE11_0
	0	2	C30CNE02_0
4	4	0	C30CNE40_0
	2	2	C30CNE22_0
	0	4	C30CNE04_0
ĵ	6	0	C30CNE60_0
8	8	0	C30CNE80_0
	4	4	C30CNE44_0
	0	8	C30CNE08_0

Coil Base Voltage (Digit 8)

Voltage (Digit 8)	Code Suffix	
115-120V 60 Hz/110V 50 Hz	А	
230-240V 60 Hz/220V 50 Hz	В	
460–480V 60 Hz/440V 50 Hz	С	
575–600V 60 Hz/550V 50 Hz	D	
200–208V 60 Hz	E	
265–277V 60 Hz/240V 50 Hz	Н	
24V 60 Hz/20V 50 Hz	Т	
28V 60 Hz/24V 50 Hz	V	
347V 60 Hz	Х	

Power Poles

The C30CNM contactor accepts up to a maximum six single- or two-pole (or combinations) power poles. These can be used to form up to:

- 12 NO poles maximum when six two-poles are used in NO positions (1–6) or
- 8 NC poles maximum with four two-poles in the NC position (1–4) and 4 NO poles with two two-poles in the 2 NO positions (5–6)

Power Poles

Power Poles



Power Poles	Catalog Number	
Single-pole	C320PRP1	
Two-pole	C320PRP2	

Mechanically Held Module Kits

These kits are for converting electrically held contactors to mechanically held units. Kits include control module, latch, latch cover and auxiliary contacts plus installation instructions. Conversion kits are suitable for coil voltages of 277V and below.

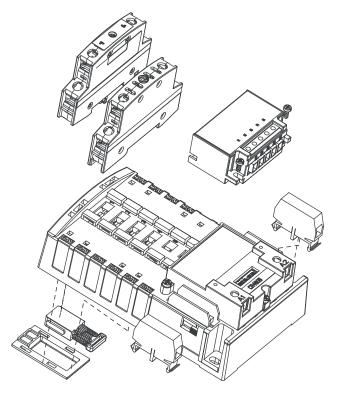
Conversion Kits

Mechanically Held Module Kits



Coil Volts	Control Volts	Catalog Number
Two-Wire		
24–277 Vac	110-120 Vac	C320MH2WA0
	200-277 Vac	C320MH2WH0
	24 Vac	C320MH2WT0
	12-24 Vdc	C320MH2WT1
Three-Wire		
24–277 Vac	110-120 Vac	C320MH3WA0
	200–277 Vac	C320MH3WH0
	24 Vac	C320MH3WT0
	12-24 Vdc	C320MH3WT1

C30CNM Components—Exploded View



- When ordering, select required contactor by catalog number and replace the magnet coil alpha designation in the catalog number (_) with the proper code suffix from the Coil Base Voltage table on this page.
- 2 A number of other power pole configurations are also available using the single-pole and two-pole power poles. Electrically held units can be purchased with up to 12-pole configurations with a maximum of 8NO and 4NC power poles.

Auxiliary Contacts

A mechanically held contactor with a two-wire control module uses 1NC auxiliary contact as standard for the control wiring circuit. The mechanically held contactor with a three-wire control module uses 1NO-1NC auxiliary contacts as standard for the control wiring circuit. See table below for possible additional auxiliary contact configurations.

Auxiliary Contacts

Auxiliary Contacts



Auxiliary Block	Catalog Number
Single-pole	C320AMH1
Two-pole	C320AMH2

Auxiliary Contact Configurations

Two-Wire	Three-Wire	
None	1NC (two-pole)	
1NO (single-pole)	1NO (two-pole)	
2N0 (two-pole)	1NO-1NC (two-pole)	
1NC (two-pole)	_	
1NO-1NC (NO single-pole, NC two-pole)	_	
2NO-1NC (two-pole)	_	

Replacement Parts

Magnetic Coils

Magnet Coils for Base Contactors



Coil Voltage	Catalog Number
115-120V 60 Hz/110V 50 Hz	9-3242-1
230–240V 60 Hz/220V 50 Hz	9-3242-2
460-480V 60 Hz/440V 50 Hz	9-3242-3
575–600V 60 Hz/550V 50 Hz	9-3242-4
200–208V 60 Hz	9-3242-5
265–277V 60 Hz/240V 50 Hz	9-3242-6
24V 60 Hz/20V 50 Hz	9-3242-7
28V 60 Hz/24V 50 Hz	9-3242-8
347V 60 Hz	9-3242-9

Technical Data and Specifications

Main Power Poles

Maximum AC Voltage and Ampere Ratings

		Poles	
Load Type	Amps Continuous	Single-Phase	Three-Phase
Ballast	30	347 Vac	600 Vac
General use	30	600 Vac	600 Vac
Tungsten	20	277 Vac	480 Vac
AC resistive	30	600 Vac	600 Vac

Maximum Horsepower Rating

Normal Starting Duty

Volts	Horsepower	
Single-Pole, Single-Phase		
110-120V	1	
220-240V	2	
Three-Pole, Three-Phase		
200-208V	3	
220-240V	5	
440-480V	10	
550-600V	15	

Control Circuit Characteristics

Coil

Description	VA
Inrush	248 VA
Sealed	28 VA

Control Module

Input Voltage	Steady State Current at Rated Voltage (mA)	Maximum VA
12-24 Vdc	42	2
24 Vac	80	5
115–120 Vac	83	12
200–277 Vac	91	30

Other Control Module Characteristics

Description	Specification
Minimum pulse duration (three-wire control module)	250 ms
Maximum allowable leakage current	1.8 mA
EMI	35 V/m
Surge transient peak	6 kV
Frequency range	40-70 Hz

Auxiliary Contacts Rating

A600, 24 Vdc, 24 Vac

Ambient Temperature

-13 to 104°F (-25 to 40°C)

Mounting Position

Vertical 3-point mounting only

Wire Size

Wire Specifications

Component	Number of Cables	Wire Range (Solid or Stranded)	Wire Temperature
Power poles	1	14–8 AWG	75°C Cu
	2	14–8 AWG ①	75°C Cu
Coil	1 or 2	18–14 AWG	60°/75°C Cu
Control module	1	22–12 AWG	60°/75°C Cu
Auxiliary contacts	1 or 2	22-12 AWG	60°/75°C Cu

Note

① 8 AWG stranded only.

Non-Combination C30 Lighting Contactors SCCR Charts

Circuit Breakers

	Breaker	Circuit Breaker	Enclosure Type (Standard Size Enclosure)		Enclosure Type (Standard Size Enclosure)		Enclosure Type (Standard Size Enclosure)	
	Size	Design	Type 1	SCCR Value	Type 12	SCCR Value	Type 3R	SCCR Value
240 V	30 A		Eaton Box 5A or UL	14 kA				
	40 A	Eaton T-mag ①	— Listed equivalent ② — —	10 kA	Listed equivalent ② ——	10 kA	Listed equivalent ② ——	10 kA
277 V	30 A	Eaton T-mag ①		10 kA		10 kA		10 kA
480 V	40 A	Eaton T-mag ①		5 kA		5 kA		5 kA
600 V	40 A	Eaton T-mag ①	_	5 kA		5 kA	<u></u>	5 kA

Circuit Breakers

AC Service Breaker		Circuit Breaker	Enclosure Type (Oversized Enclosure)		Enclosure Type (Oversized Enclosure)		Enclosure Type (Oversized Enclosure)	
	Size	Design	Type 1	SCCR Value	Type 12	SCCR Value	Type 3R	SCCR Value
240 V	40 A	Eaton T-mag ①	Eaton Box F or UL	22 kA	Eaton Box I or UL	22 kA	Eaton Box L or UL	22 kA
277 V	40 A	Eaton T-mag ①	Listed equivalent ②	14 kA	Listed equivalent ②	14 kA	Listed equivalent ②	14 kA
480 V	40 A	Eaton T-mag ①	-	10 kA		10 kA		10 kA

Fuses

AC Service	Fuse Size		Enclosure Type (Standard Size Enclosure)		Enclosure Type (Standard Size Enclosure)		Enclosure Type (Standard Size Enclosure)	
Voltage ³	and Class	Fuse Vendor	Туре 1	SCCR Value	Type 12	SCCR Value	Type 3R	SCCR Value
600 V	30 A, Class J	Eaton (Bussmann)	Eaton Box 2 or UL	100 kA	Eaton Box 5 or UL	100 kA	Eaton Box 5A or UL	100 kA
600 V	30 A, Class RK1 or K	Eaton (Bussmann)	Listed equivalent ②	50 kA	Listed equivalent ②	50 kA	Listed equivalent ②	50 kA
600 V	30 A, Class H	Eaton (Bussmann)	_	10 kA		10 kA		10 kA

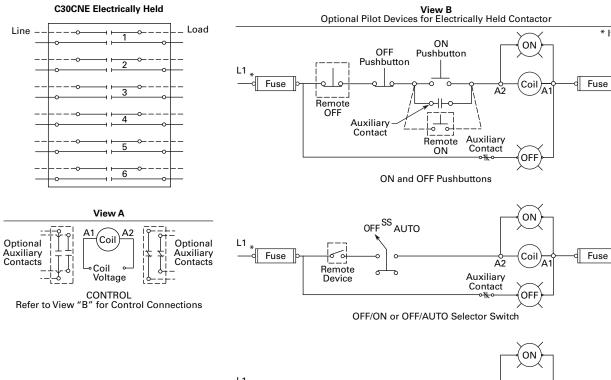
Fuses

AC Service	Fuse Size		Enclosure Type (Oversized Enclosure)		Enclosure Type (Oversized Enclosure)		Enclosure Type (Oversized Enclosure)	
Voltage ③	and Class	Fuse Vendor	Type 1	SCCR Value	Type 12	SCCR Value	Type 3R	SCCR Value
600 V	30 A, Class RK5 or K	Eaton (Bussmann)	Eaton Box F or UL	100 kA	Eaton Box I or UL	100 kA	Eaton Box L or UL	100 kA
600 V	30 A, Class H	Eaton (Bussmann)	Listed equivalent ②	10 kA	Listed equivalent ②	10 kA	Listed equivalent ②	10 kA
600 V	40 A, Class J or RK1	Eaton (Bussmann)	_	100 kA		100 kA	_	100 kA

- ① Any Eaton UL Listed thermal-magnetic circuit breaker may be used provided the breaker interrupting rating meets or exceeds the SCCR values shown above.
- ② Any UL Listed enclosure may be used that meets or exceeds the size of the specified Eaton enclosure.
- 3 600 V covers all lower voltage values (200 to 600 Vac). Fuse interrupting rating must meet or exceed SCCR value shown above.

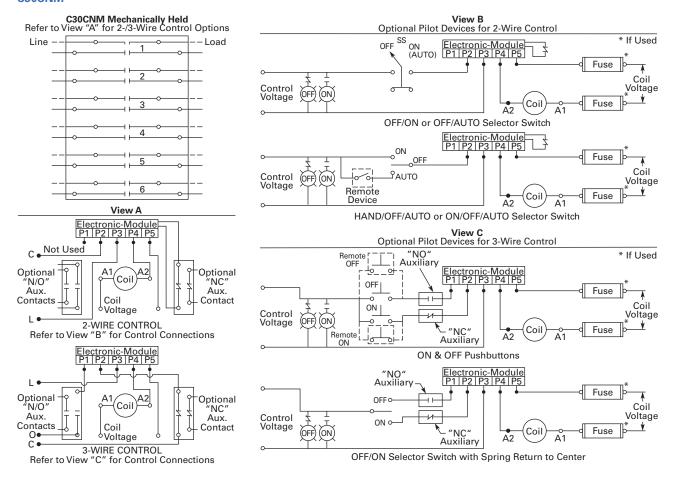
Wiring Diagrams

C30CNE



* If Used

C30CNM



Dimensions

Approximate Dimensions in Inches (mm)

C30CN

