

Product Family Overview

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Catalog Number ECN2208AAC

Product Description

Cutler-Hammer® “Freedom Series” Starters and Contactors from Eaton’s electrical business feature a compact, space-saving design, high strength, impact and temperature resistant insulating materials.

Features

- Adjustable Bimetallic Ambient Compensated Overload Relays with interchangeable heater packs — available in three basic sizes, covering applications up to 900 hp — reducing the number of different contactor/overload relay combinations that have to be stocked.
- Fixed heater overloads optional.
- Electronic/Solid-State Overload optional.
- A full line of snap-on accessories — top and side mounted auxiliary contacts, solid-state and pneumatic timers, etc.
- Straight-through wiring — line lugs at top, load lugs at bottom.
- Horizontal or vertical mounting on upright panel for application freedom.
- Screw type power terminals have captive, backed-out self-lifting pressure plates with ± screws — reduced wiring time.
- Accessible terminals for easy wiring. Optional fingerproof shields available to prevent electrical shock.
- Top located coil terminals convenient and readily accessible. 45 mm contactor magnet coils have three terminals, permitting either top or diagonal wiring — easy to replace European or U.S. style starters or contactors without changing wiring layout.
- Encapsulated dual voltage/frequency magnet coils — permanently marked with voltage, frequency and part number.
- Designed to meet or exceed UL, CSA, IEC, VDE, BS and other international standards and listings.

Standards and Certifications

- UL Listed
- cUL Listed (indicates appropriate CSA Standard investigation)
- ABS Type Approved

Certified Type 2 Coordination

Cutler-Hammer Freedom Series IEC starters and NEMA starters are UL Certified to achieve IEC 947 Type 2 coordination against 100,000A short circuit fault currents. Any brand of properly selected fuse can be used. Type 2 coordination means that the starter will be suitable for further use following a short circuit fault.

ISO 9001 Certification

When you turn to Cutler-Hammer Products from Eaton, you turn to quality. The International Standards Organization (ISO) has established a series of standards acknowledged by 91 industrialized nations to bring harmony to the international quest for quality. The ISO certification process covers 20 quality system elements in design, production and installation that must conform to achieve registration. The Enclosed Control is manufactured in our Fayetteville, NC plant, and this facility is registered ISO 9001. This commitment to quality results in increased product reliability and total customer satisfaction.

Freedom NEMA contactors and starters are extremely rugged products built for any application. Their long electrical/mechanical life is extended through easy maintainability.

- Meets and exceeds all UL and CSA standards.
- Sized based on standard NEMA size classifications.
- Designed and built for a variety of demanding applications.
- Easy coil change and inspectable/replaceable contacts.
- Available Open and in Type 1, 3R, 4, 4X, 7/9 and 12 enclosures.

Short Circuit Protection

Fuses and Inverse-Time Circuit Breakers may be selected per Article 430, Part D of the National Electrical Code to protect motor branch circuits from fault conditions. If higher ratings or settings are required to start the motor, do **not** exceed the maximum as listed in Exception No. 2, Article 430-52.

Cover Control

Non-reversing

Flange Control Kits

For on-the-job conversion of Type 1, 3R, 4X and 12 enclosed starters. Knockouts are provided on the Type 1 flange. Type 3R, 4X and 12 have prepunched holes with removable hole plugs.



Figure 33-50.

Figure 33-51.

Factory Installed Pilot Devices

To order factory installed pilot devices, change the 9th character of the Catalog Number to the alpha shown in the table below. Example: to order an **ECN0514CAA** with START/STOP pushbuttons and a red pilot light, change the **A** to a **C**, i.e. **ECN0514CCA**.

Table 33-185. Non-reversing Pilot Devices

Description	Factory Installed Flange Control			Field Installation Kits			
	Position 9 Alpha	Non-combination ① See Figure 33-50	Combination (NEMA only) ②③ See Figure 33-51	Non-combination ① See Figure 33-50		Combination (NEMA only) ②③ See Figure 33-51	
	Code	Adder U.S. \$	Adder U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
No Cover Mounted Pilot Devices	A			C400GK0		—	
START/STOP Pushbuttons	B			C400GK1		C400T1	
with Red RUN Pilot Light	C			C400GK12 ④		—	
with Red RUN/Green OFF Lights	D			C400GK16 ④		—	
ON/OFF Pushbuttons	E			—		C400T2	
with Red RUN Pilot Light	F			—		—	
with Red RUN/Green OFF Lights	G			—		—	
HAND/OFF/AUTO Selector Switch	H			C400GK3		C400T12	
with Red RUN Pilot Light	J			C400GK32 ④		—	
with Red RUN/Green OFF Lights	K			C400GK36 ④		—	
START Pushbutton	L			—		C400T3	
ON Pushbutton	M			—		C400T4	
OFF Pushbutton	N			—		C400T5	
Red RUN Pilot Light	P			C400GK42 ④		C400T9 ④	
Green OFF	Q			C400GK41 ④		C400T10 ④	
Red RUN/Green OFF Pilot Lights	R			C400GK46 ④		C400T11 ④	
START/STOP Selector Switch	S			—		C400T13	
with Red RUN Pilot Light	T			—		—	
with Red RUN/Green OFF Lights	U			—		—	
ON/OFF Selector Switch	V			—		C400T14	
with Red RUN Pilot Light	W			—		—	
with Red RUN/Green OFF Lights	X			—		—	

- ① Type 1, NEMA Sizes 00 – 4/IEC Frames A – M Non-combination ONLY.
- ② Type 1, NEMA Sizes 5 – 9/IEC Frames N – V Non-combination PLUS all Type 3R, 4X, 12 Non-combination PLUS all Combination — NEMA Sizes only.
- ③ For IEC Combination Cover Control, see **Page 33-152**.
- ④ Add Code Letter from the table below to Catalog Number for voltage — Kits only. Example: **C400T9B**.

Rating	Code Letter	Rating	Code Letter	Rating	Code Letter
120V 60 Hz	A	240V 60 Hz	B	480V 60 Hz	C
208V 60 Hz	E	380V 50 Hz	L	600V 60 Hz	D

Product Family Overview

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Reversing

Flange Control Kits

For on-the-job conversion of Type 1, 3R, 4X and 12 enclosed starters. Knockouts are provided on the Type 1 flange. Type 3R, 4X and 12 have pre-punched holes with removable hole plugs.



Figure 33-52.



Figure 33-53.

Factory Installed Pilot Devices

To order factory installed pilot devices, change the 9th character of the Catalog Number to the alpha shown in the table below. Example: to order an **ECN0614CAA** with FOR/REV/STOP pushbuttons and 2 red pilot lights, change the **A** to a **C**, i.e. ECN0614CCA.

Table 33-186. Reversing Pilot Devices

Description	Factory Installed Flange Control			Field Installation Kits			
	Position 9 Alpha	Non-combination ^① See Figure 33-52	Combination (NEMA only) ^{②③} See Figure 33-53	Non-combination ^① See Figure 33-52		Combination (NEMA only) ^{②③} See Figure 33-53	
	Code	Adder U.S. \$	Adder U.S. \$	Catalog Number	Price U.S. \$	Catalog Number	Price U.S. \$
No Cover Mounted Pilot Devices FOR/REV/STOP Pushbuttons with 2 Red Pilot Lights with 2 Red/1 Green Pilot Lights	A B C D			C400GK0 C400GR1 C400GR14 ^④ —		— C400T6 — —	
UP/STOP/DOWN Pushbuttons with 2 Red Pilot Lights	E F			C400GR2 C400GR24 ^④		— —	
FOR/OFF/REV Selector Switch with 2 Red Pilot Lights with 2 Red/1 Green Pilot Lights	H J K			— — —		C400T15 — —	
Two Red Pilot Lights One Green Pilot Light Two Red/One Green Pilot Lights OPEN/OFF/CLOSE Selector Switch with 2 Red Pilot Lights with 2 Red/1 Green Pilot Lights	P Q R V W X			C400GK44 ^④ C400GK41 ^④ — — — —		^⑤ C400T10 ^④ — C400T16 — —	

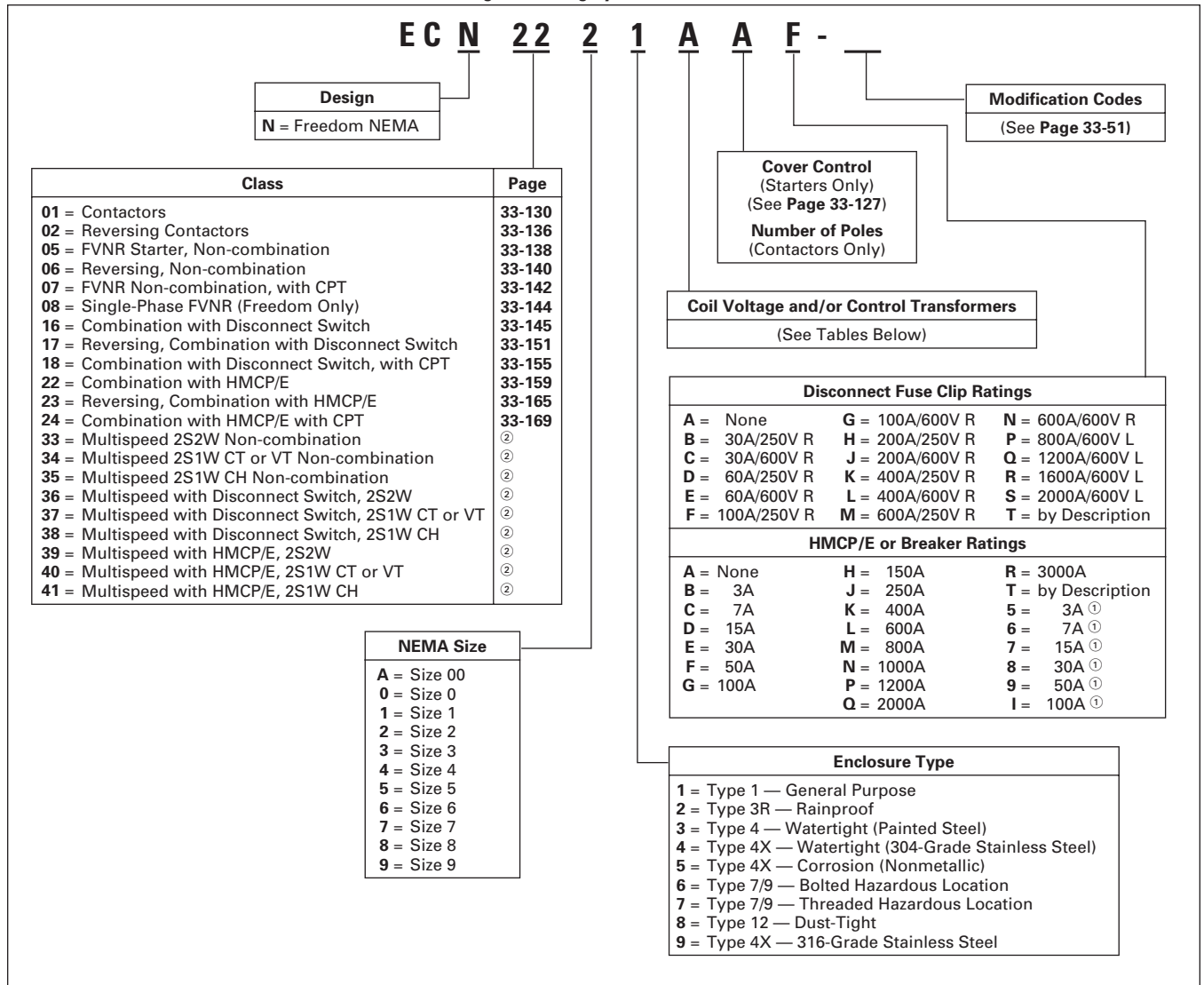
- ① Type 1, NEMA Sizes 00 – 4/IEC Frames A – M Non-combination ONLY.
- ② Type 1, NEMA Sizes 5 – 9/IEC Frames N – V Non-combination PLUS all Type 3R, 4X, 12 Non-combination PLUS all Combination — NEMA Sizes only.
- ③ For IEC Combination Cover Control, see **Page 33-152**.
- ④ Add Code Letter from the table below to Catalog Number for voltage — Kits only. Example: C400T10B.

Rating	Code Letter	Rating	Code Letter	Rating	Code Letter
120V 60 Hz	A	240V 60 Hz	B	480V 60 Hz	C
208V 60 Hz	E	380V 50 Hz	L	600V 60 Hz	D

⑤ Order Quantity (2) of **C400T10**.

Catalog Number Selection

Table 33-187. NEMA Freedom Line Enclosed Control Catalog Numbering System



① Use for Sizes 0 – 3, HMCP 600V applications only.

② See *Enclosed Control Catalog* for more information.

Table 33-188. Magnetic Coil Codes (System Voltage) ③

Code	Magnet Coil	Code	Magnet Coil	Code	Magnet Coil
A	120/60 110/50	K	240/50	U	24/50
B	240/60 220/50	L	380/50	V	32/50
C	460/60 440/50	M	415/50	W	48/60
D	575/60 550/50	P	12V DC	X	104 – 120/60
E	208/60	Q	24V DC	Y	48/50
G	550/50	R	48V DC	Z	By Description
H	277/60	S	125V DC		
J	208 – 240/60	T	24/60		

③ When control power transformer modification codes (C1 – C11) are used or when starter class includes CPT (i.e. ECN07, 18) see table to the right for system voltage code.

Table 33-189. Control Power Transformer Codes (System Voltage)

Code	Primary	Secondary
B	240/480 – 220/440 Wired for 240V	120/60 – 110/50
C	240/480 – 220/440 Wired for 480V	120/60 – 110/50
D	600/60 – 550/50	120/60 – 110/50
E	208/60	120/60
H	277/60	120/60
L	380/50	110/50
M	415/50	110/50
Q	208/60	24
R	240/480 – 220/440 Wired for 240V	24
S	240/480 – 220/440 Wired for 480V	24
T	600/60	24
U	277/60	24
V	380/50	24
W	415/50	24
X	240/480/600 Wired for 480V	120
Y	240/480/600 Wired for 480V	24
Z	By Description	