

Freedom full voltage enclosed control



Non-combination full voltage non-reversing starters



Combination fused disconnect non-reversing starters

Features

- Single-phase or three-phase magnetic
- Standard interchangeable heater overload relay
- 600V maximum

Features

- Three-pole non-reversing
- 600V maximum
- 100,000 rms short-circuit rating with fuses
- Standard interchangeable heater overload relay
- Available solid-state overload relay—
Modifications Table 3

Table 1. Non-Combination Full Voltage and Combination Fused Disconnect Non-Reversing Starters

NEMA Size	Motor Voltage	Maximum hp Rating	Magnet Coil Voltage	Non-Combination Full Voltage Non-Reversing Starters			Combination Fused Disconnect Non-Reversing Starters			Component Starter (Open)
				Type 1 General Purpose	Type 3R Outdoor	Type 12 Outdoor	Type 1 General Purpose	Type 3R Outdoor	Type 12 Outdoor	
00	200	1-1/2	120	ECN05A1AAA	ECN05A2AAA	ECN05A8AAA	ECN16A1AAB	ECN16A2AAB	ECN16A8AAB	AN16ANDAC
	230	1-1/2	120	ECN05A1AAA	ECN05A2AAA	ECN05A8AAA	ECN16A1AAB	ECN16A2AAB	ECN16A8AAB	AN16ANDAC
	460	2	120	ECN05A1AAA	ECN05A2AAA	ECN05A8AAA	ECN16A1AAC	ECN16A2AAC	ECN16A8AAC	AN16ANDAC
	575	2	120	ECN05A1AAA	ECN05A2AAA	ECN05A8AAA	ECN16A1AAC	ECN16A2AAC	ECN16A8AAC	AN16ANDAC
0	200	3	120	ECN0501AAA	ECN0502AAA	ECN0508AAA	ECN1601AAB	ECN1602AAB	ECN1608AAB	AN16BNDAC
	230	3	120	ECN0501AAA	ECN0502AAA	ECN0508AAA	ECN1601AAB	ECN1602AAB	ECN1608AAB	AN16BNDAC
	460	5	120	ECN0501AAA	ECN0502AAA	ECN0508AAA	ECN1601AAC	ECN1602AAC	ECN1608AAC	AN16BNDAC
	575	5	120	ECN0501AAA	ECN0502AAA	ECN0508AAA	ECN1601AAC	ECN1602AAC	ECN1608AAC	AN16BNDAC
1	200	7-1/2	120	ECN0511AAA	ECN0512AAA	ECN0518AAA	ECN1611AAB	ECN1612AAB	ECN1618AAB	AN16DNDAC
	230	7-1/2	120	ECN0511AAA	ECN0512AAA	ECN0518AAA	ECN1611AAB	ECN1612AAB	ECN1618AAB	AN16DNDAC
	460	10	120	ECN0511AAA	ECN0512AAA	ECN0518AAA	ECN1611AAC	ECN1612AAC	ECN1618AAC	AN16DNDAC
	575	10	120	ECN0511AAA	ECN0512AAA	ECN0518AAA	ECN1611AAC	ECN1612AAC	ECN1618AAC	AN16DNDAC
2	200	10	120	ECN0521AAA	ECN0522AAA	ECN0528AAA	ECN1621AAD	ECN1622AAD	ECN1628AAD	AN16GNDAC
	230	15	120	ECN0521AAA	ECN0522AAA	ECN0528AAA	ECN1621AAD	ECN1622AAD	ECN1628AAD	AN16GNDAC
	460	25	120	ECN0521AAA	ECN0522AAA	ECN0528AAA	ECN1621AAE	ECN1622AAE	ECN1628AAE	AN16GNDAC
	575	25	120	ECN0521AAA	ECN0522AAA	ECN0528AAA	ECN1621AAE	ECN1622AAE	ECN1628AAE	AN16GNDAC

Note: Starters do not include heater packs. Select one carton of three heater packs. See **Table 2**.

Note: For starters with electronic overload, see Modification Codes in **Table 3**.



Powering Business Worldwide

Heater pack selection

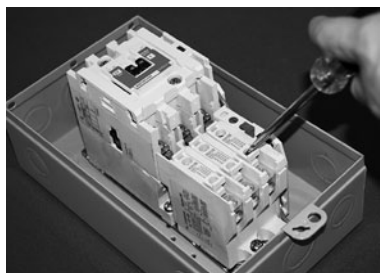


Table 2. Standard Trip—Class 20 Heater Selection

Overload Relay Size	Motor Full Load Ampere Rating				Catalog Number (Includes Three Heater Packs)
	Dial Position				
	A	B	C	D	
For Use with NEMA® Sizes 00–0 Series C,® NEMA Sizes 1–2 Series B					
32A or 75A	0.254	0.306	0.359	0.411	H2001B-3
	0.375	0.452	0.530	0.607	H2002B-3
	0.560	0.676	0.791	0.907	H2003B-3
	0.814	0.983	1.15	1.32	H2004B-3
	1.20	1.45	1.71	1.96	H2005B-3
	1.79	2.16	2.53	2.90	H2006B-3
	2.15	2.60	3.04	3.49	H2007B-3
	3.23	3.90	4.56	5.23	H2008B-3
	4.55	5.50	6.45	7.40	H2009B-3
	6.75	8.17	9.58	11.0	H2010B-3
9.14	10.8	12.4	14.0	H2011B-3	
14.0	16.9	19.9	22.8	H2012B-3	
18.7	22.7	26.7	30.7	H2013B-3	
23.5	28.5	33.5	38.5	H2014B-3	
For Use with NEMA Size 2 Series B					
75A	29.0	29.0	29.0	29.0	H2015B-3
	39.6	39.6	39.6	39.6	H2016B-3
	53.9	53.9	53.9	53.9	H2017B-3
For Use with NEMA Sizes 3–4 Series A					
105A	8.0	9.2	10.3	11.5	H2025-3
	11.4	12.8	14.3	15.7	H2026-3
	14.3	15.7	17.4	19.0	H2027-3
	18.0	20.2	22.3	24.5	H2018-3
	24.6	27.6	30.5	33.4	H2019-3
	33.5	37.5	41.5	45.6	H2020-3
	45.7	51.2	56.7	62.1	H2021-3
	62.2	69.7	77.1	84.6	H2022-3

Table 3. Modification Codes—Solid-State Overload for NEMA (Freedom) Starters

NEMA Size	Full Load Current Adjustment Range (A)	Selectable Class 10/20/30	
		Three-Phase without Ground Fault Auto/Manual Reset Overload	Three-Phase with Ground Fault Auto/Manual Reset Overload
00	1–5	R63/B	R64/B
	4–20	R63/C	R64/C
0 & 1	1–5	R63/B	R64/B
	4–20	R63/C	R64/C
	9–45	R63/D	R64/D
2	9–45	R63/D	R64/D
3	20–100	R63/E	R64/E
4	28–140	R63/F	R64/F
N/A	35–175	R63/F	R64/F
5	60–300	R63/G	R64/G
6	120–600	R63/H	R64/H

Modifications

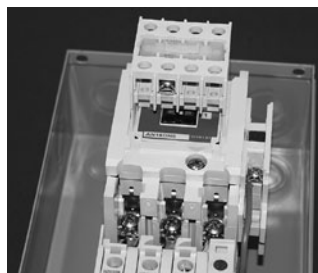


Table 4. Auxiliary Contacts

Description	Catalog Number
Side Mount	
1NO	C320KGS1
1NC	C320KGS2
1NO-1NC	C320KGS3
2NO	C320KGS4
2NC	C320KGS5
Top Mount	
1NO-1NC	C320KGT3
2NO	C320KGT4
2NC	C320KGT5
3NO-1NC	C320KGT9
2NO-2NC	C320KGT10
1NO-3NC	C320KGT11

Table 5. Cover Control Kits

These kits may be used on combination and non-combination starters. There are provisions in both the non-combination and combination enclosures to allow for the addition of cover controls. The kits come with the pilot devices, nameplate, pre-cut wires, and instructions for quick and easy installation. The kits are UL® Listed for field installation.

Description	Catalog Number
Non-Combination Cover Controls (NEMA 1 Only)	
START/STOP pushbuttons with Red RUN pilot light (120 Vac)	C400GK1
with Red RUN/Green OFF lights (120 Vac)	C400GK12A
HAND/OFF/AUTO selector switch with Red RUN pilot light (120 Vac)	C400GK3
with Red RUN/Green OFF lights (120 Vac)	C400GK32A
Red RUN pilot light (120 Vac)	C400GK42A
Green OFF pilot light (120 Vac)	C400GK41A
Combination Cover Controls (NEMA 1, 3R, 4X & 12) 30 mm Devices	
START/STOP pushbuttons	C400T1
ON/OFF selector switch	C400T14
HAND/OFF/AUTO selector switch	C400T12
START pushbutton	C400T3
OFF pushbutton	C400T5
Red RUN pilot light (120 Vac)	C400T9A
Green OFF pilot light (120 Vac)	C400T10A

Table 6. Replacement Coils for Starters

Coil Voltage	NEMA Starter Size		
	00	0	1, 2
120 Vac	9-2875-1	9-2876-1	9-3285-1
208 Vac	9-2875-5	9-2876-5	9-3285-9
240 Vac	9-2875-2	9-2876-2	9-3285-2
480 Vac	9-2875-3	9-2876-3	9-3285-3

Control power transformer kits



The transformer kit consists of:

- Control transformer
- Two primary and one secondary fuse
- Wires
- Mounting instruction publication
- Transformers can be installed in oversized enclosures for non-combination units or standard combination units

For non-combination starters

Control power transformers will only fit in non-combination starters mounted in oversized enclosures. An oversized enclosure has the modification code E3 in the catalog string. A part number example would be ECN0501AAA-E3. The standard non-combination enclosure will not allow the addition of a control power transformer.

For combination starters

Most combination starters have space for standard size (and 100 VA extra capacity) control power transformers. The panels are predrilled for mounting.

Table 7. Standard Transformer Sizes ①

Size	VA Capacity—Freedom
0	50
1, 2	100
3	150

① Non-reversing, single contactor only.

Table 8. Control Transformer Kits

Both the C341 kit and standard CPT part number are shown. Products can be stocked either way; however, 14 AWG control wire and fuses will need to be added to that standard transformer for it to work.

Continuous VA	Catalog Number	Primary 208/277V	Primary 240/480V, 60 Hz 220/440V, 50 Hz	Primary 600V, 60 Hz 550V, 50 Hz
		Secondary 120V, 60 Hz	Secondary 120V, 60 Hz 110V, 50 Hz	Secondary 120V, 60 Hz 110V, 50 Hz
50	C341AE C0050E3AFB	C341AC C0050E2AFB	C341AD C0050E4CFB	
75	C341BE C0075E3AFB	C341BC C0075E2AFB	C341BD C0075E4CFB	
100	C341CE C0100E3AFB	C341CC C0100E2AFB	C341CD C0100E4CFB	
150	C341DE C0150E3AFB	C341DC C0150E2AFB	C341DD C0150E4CFB	
200	C341EE C0200E3AFB	C341EC C0200E2AFB	C341ED C0200E4CFB	

Note: Please see **Table 10** if you selected the open transformer for the control fuse sizes.

Table 9. CPT Fuse Selection

VA	Primary 480 Vac	Secondary 120 Vac
50	1/2	6/10
100	1	1-4/10
150	1-1/2	2

Table 10. Fuse Chart for Motor

This table is based on standard NEC® tables for motor full load ampere (FLA). It is assumed to be "R" or "J" class fuses.

Hp	Single-Phase		Three-Phase			
	120V	240V	208V	230V	460V	600V
1/6	8	4	—	—	—	—
1/4	10	5	—	—	—	—
1/3	12	6-1/4	—	—	—	—
1/2	15	8	4	4	2	1-4/10
3/4	20	12	5	4	2-1/2	2
1	25	15	8	6-1/4	3-2/10	2-1/2
1-1/2	30	15	10	8	4	4
2	35	20	12	10	5	4
3	—	25	15	15	8	7
5	—	40	25	25	15	10
7-1/2	—	60	35	35	20	15
10	—	—	45	40	20	20
15	—	—	—	60	30	25
20	—	—	—	—	40	30
25	—	—	—	—	50	40

Single-phase application

To convert to a single-phase motor application, an additional power wire of appropriate wire size (see **Table 11**) will need to be added to the starter. The wire will be installed from the load side of T1 to the line side of L2. Heater packs must still be installed in all three phases. Please see the photo below for an example of the additional wire.

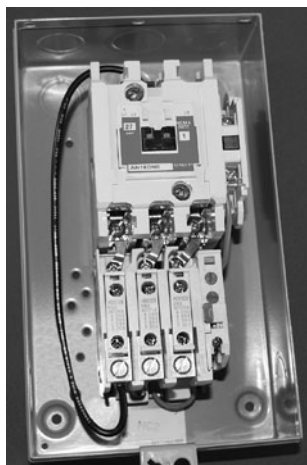


Table 11. Single-Phase Wire Sizing

NEMA Size	AWG
00.0	#12
1	#10
2	#8

Typical questions

- What is the motor voltage?
- Single-phase or three-phase? (For single-phase, see **Table 11**)
- What is the motor horsepower?
- What is the motor full load amps? (This is for heater pack selection.)
- What is the coil voltage? (For coil voltage other than 120 Vac, see **Table 6**)
- What is the enclosure rating?
- Is this a combination or non-combination starter? (Fuse sizes are shown on **Table 10**)
- Do you require a control power transformer? (See **Table 8**) (Primary and secondary fuse sizes shown on **Table 9**)
- Do you require any auxiliary contacts? (See **Table 4**)
- Do you require any indicating lights, selector switches, or pushbuttons? (See **Table 5**)

Don't forget to ask:

- Do you have all the conduit you need for the job?
- Do you need any additional wire?
- Do you need any additional fittings?

For more enclosed control offering and modifications, please see the *Enclosed Control catalog CA08100012E*, or visit the Web site www.eaton.com.

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