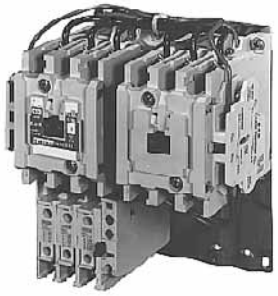
Contents

NEMA Size 1 — Cat. No. AN16DN0AB

Product Description

Non-reversing

Three-phase, full voltage magnetic starters are most commonly used to switch AC motor loads. Starters consist of a magnetically actuated switch (contactor) and an overload relay assembled together.



NEMA Size 1 — Cat. No. AN56DN0AB

Reversing

Three-phase, full voltage magnetic starters are used primarily for reversing of 3-phase squirrel cage motors. They consist of two contactors and a single overload relay assembled together. The contactors are mechanically and electrically interlocked to prevent line shorts and energization of both contactors simultaneously.

Features

- Bimetallic Ambient Compensated Overload relays — available in three basic sizes covering applications up to 900 hp — reducing number of different contactor/overload relay combinations that have to be stocked.

  These overload relays feature:
  - Selectable Manual or Automatic Reset operation.
  - Interchangeable heater packs adjustable ±24% to match motor FLA and calibrated for 1.0 and 1.15 service factors. Heater packs for smaller overload relay will mount in larger overload relay — useful in derating applications such as jogging.
  - Load lugs built into relay base.
  - Single-phase protection, Class 20 or Class 10 trip time.
  - Overload trip indication.
  - Electrically isolated NO-NC contacts (pull RESET button to test).
- The C396 is a self-powered, robust electronic overload designed for integrate use with Freedom NEMA contactors.
  - Tiered feature set to provide coverage specific to your application.
  - Broad 5:1 FLA range for maximum flexibility.
  - Coverage from 0.05 – 1500 Amps to meet all your needs.
- Long life twin break, silver cadmium oxide contacts — provide excellent conductivity and superior resistance to welding and arc erosion. Generously sized for low resistance and cool operation.
- Designed to 3,000,000 electrical operations at maximum hp ratings up through 25 hp at 600V.
- Steel mounting plate standard on all open type starters.
- Wired for separate or common control.

Non-reversing

- Holding circuit contact(s) supplied as standard:
  - Sizes 00 – 3 have a NO auxiliary contact block mounted on right-hand side (on Size 00, contact occupies 4th power pole position — no increase in width).
  - Sizes 4 – 5 have a NO contact block mounted on left side.
  - Sizes 6 – 7 have a 2NO/2NC contact block on top left.
  - Size 8 has a NO/NC contact block on top left back and a NO on top right back.

Reversing

- Each contactor (Size 00 – 8) supplied with one NO-NC side mounted contact block as standard. NC contacts are wired as electrical interlocks.

Technical Data

Table 33-98. Wire (75°C) Sizes — AWG or kcmil — NEMA Sizes 00 – 2 — Open and Enclosed

NEMA Size	Wire Size ② Cu Only
Power Terminals — Line	
00 0 1 2	12 – 16 AWG stranded, 12 – 14 AWG solid 8 – 16 AWG stranded, 10 – 14 AWG solid 8 – 14 AWG stranded or solid 3 – 14 AWG (upper) and/or 6 – 14 AWG (lower) stranded or solid ①
Power Terminals — Load — Cu Only (stranded or solid)	
00 – 0 1 – 2	14 – 6 AWG stranded or solid 14 – 2 AWG stranded or solid
Control Terminals — Cu Only	
12 – 16 AWG stranded, 12 – 14 AWG solid	

① Two compartment box lug.

② Minimum per NEC. Maximum wire size: Sizes 00 and 0 to 8 AWG and Sizes 1 – 2 to 2 AWG.

Table 33-99. Wire (75°C) Sizes — AWG or kcmil — NEMA Sizes 3 – 8 — Open and Enclosed

NEMA Size	Wire Size ③
Power Terminals — Line and Load	
3	1/0 – 14 AWG Cu/Al
4	Open — 3/0 – 8 AWG Cu; Enclosed — 250 kcmil — 6 AWG Cu/Al
5 6 7 8	750 kcmil — 2 AWG; or (2) 250 kcmil — 3/0 AWG Cu/Al (2) 750 kcmil — 3/0 AWG Cu/Al (3) 750 kcmil — 3/0 AWG Cu/Al (4) 750 kcmil — 1/0 AWG Cu/Al
Control Terminals — Cu Only	
12 – 16 AWG stranded, 12 – 14 AWG solid	

③ Minimum per NEC. Maximum wire size: Sizes 00 and 0 to 8 AWG and Sizes 1 – 2 to 2 AWG.

Wiring Diagrams

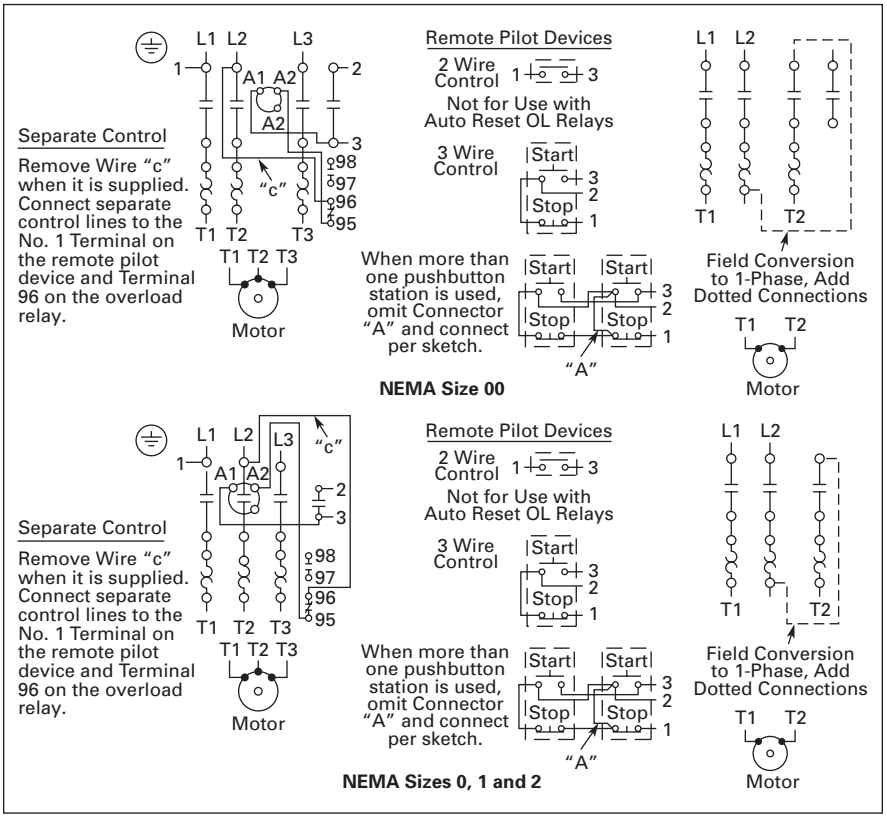


Figure 33-24. Typical Wiring Diagrams — Three-Phase and Single-Phase Applications

Table 33-100. Plugging and Jogging Service Horsepower Ratings ④

NEMA Size	200V	230V	460V	575V
00	—	1/2	1/2	1/2
0	1-1/2	1-1/2	2	2
1	3	3	5	5
2	7-1/2	10	15	15
3	15	20	30	30
4	25	30	60	60
5	60	75	150	150
6	125	150	300	300

④ Maximum horsepower where operation is interrupted more than 5 times per minute, or more than 10 times in a 10 minute period. NEMA Standard ICS2-1993 table 2-4-3.

Kits and Accessories

- Auxiliary Contacts, contactor mounted — **Pages 33-96** – **33-97**.
- Transient Suppressor, for magnet coil — **Pages 33-94.**
- Timers — Solid-State and Pneumatic, mount on contactor — **Page 33-93**.

Renewal Parts Publication Numbers

- See **Page 33-101.**