

32A Overload—C306DN3B

2



Relays—Thermal Overload

Product Description

C306 Overload Relays are designed for use with CE or CN non-reversing and reversing contactors. Four sizes are available for overload protection up to 144A.

Features

- Selectable manual or automatic reset operation
- Interchangeable heater packs adjustable $\pm 24\%$ to match motor FLA and calibrated for use with 1.0 and 1.15 service factor motors. Heater packs for 32A overload relay will mount in 75A overload relay—useful in derating applications such as jogging
- Class 10 or 20 heater packs
- Load lugs built into relay base
- Bimetallic, ambient compensated operated. Trip free mechanism
- Electrically isolated NO-NC contacts (pull RESET button to test). (Electrical ratings see table on **Page V5-T2-46**)
- Overload trip indication
- Shrouded or fingerproof terminals to reduce possibility of electrical shock

Contents

<i>Description</i>	<i>Page</i>
Contactors—Non-Reversing and Reversing	V5-T2-4
Starters—Three-Phase Non-Reversing and Reversing, Full Voltage	V5-T2-10
Starters—Single-Phase Non-Reversing, Full Voltage, Bi-Metallic Overload	V5-T2-15
Accessories	V5-T2-21
Renewal Parts	V5-T2-30
Technical Data and Specifications	V5-T2-34
Relays—Thermal Overload	
Product Selection	V5-T2-39
Accessories	V5-T2-43
Modifications	V5-T2-43
Replacement Parts	V5-T2-44
Technical Data and Specifications	V5-T2-45
Dimensions	V5-T2-47
C440/ <i>XT</i> Electronic Overload Relay	V5-T2-48

Standards and Certifications

- Meets UL 508 single-phasing requirements
- UL listed, CSA certified and NEMA compliance



Product Selection

C306 Thermal Overload Relays

C306DN3B



Contactors

NEMA Size	Maximum Ampere Rating	Number of Poles	Open Type Catalog Number	NEMA 1 Enclosed Catalog Number
00, 0	32 ^②	3	C306DN3B	C306DG3B
1, 2	75 ^②	3	C306GN3B	C306GG3B
3	105 ^③	3	C306KN3	—
4	144 ^③	3	C306NN3	—
5-8 ^①	—	—	—	—

C306GN3B



C306DT3B



Standalone Applications

NEMA Size	Maximum Ampere Rating	Number of Poles	Open Type Catalog Number
00, 0, 1 ^④	32	3	C306DT3B
1 ^④	75	3	C306GT3B
3 ^⑤	105	3	C306KN3
4 ^⑤	144	3	C306NN3
5-8 ^⑥	—	—	—

C306GT3B



Notes

- ① NEMA Sizes 5-8 use the 32A overload in conjunction with CTs.
- ② Series B overload relays have load lugs built into relay base and will only accept Series B heater packs. These relays can be directly attached to contactor or they can be DIN rail or panel mounted using adapter on [Page V5-T2-44](#).
- ③ These relays can be panel mounted only.
- ④ Overload relay assembled with mounting adapter for DIN rail or panel mount.
- ⑤ Panel mount only.
- ⑥ NEMA Sizes 5-8 use the 32A overload in conjunction with CTs.

2.1

NEMA Contactors and Starters

Freedom Series

2

Wire (75°C) Sizes—AWG or kcmil—NEMA Sizes 00–2, IEC A–K—Open

Power Terminals—Line

IEC Size	NEMA Size	Cu Only
A, B, C	00	12–16 stranded, 12–14 solid
D, E, F	0	8–16 stranded, 10–14 solid
	1	8–14 stranded or solid
G, H, J, K	2	3–14 (upper) and/or 6–14 (lower) stranded or solid ①

Power Terminals—Load—Cu Only (Stranded or Solid)

Catalog Number	Terminal	Wire Size
C306DN3B	32A	14–6 AWG
C306GN3B	75A	14–2 AWG

Control Terminals—Cu Only

12–16 AWG stranded, 12–14 AWG solid

Wire (75°C) Sizes—AWG or kcmil—NEMA Sizes 3–8, IEC L–N—Open

Power Terminals—Line and Load

IEC Size	NEMA Size	Wire Size
L	3	1/0–14 Cu/Al
M	—	14–2/0 Cu/Al
N	—	3/0–8 Cu/Al
—	4	Open—3/0–8 Cu Enclosed—250 kcmil—6 Cu/Al
—	5	750 kcmil—2 or (2) 250 kcmil—3/0 Cu/Al
	6–7	(2) 750 kcmil—3/0 Cu/Al
	8	(2) 750 kcmil—1/0 Cu/Al

Control Terminals—Cu Only

12–16 AWG stranded, 12–14 AWG solid

Power Terminal Torque Line and Load Terminals

Catalog Number	Terminal	Torque in lb-in
C306DT3B	32A	20
C306GT3B	75A	35 (14–10 AWG) 40 (8 AWG) 45 (6–4 AWG) 50 (3–2 AWG)
C306KN3 (socket head screw)	105A	120 (3/16) 200 (1/4) 250 (5/16)
C306NN3 (socket head screw)	144A	120 (3/16) 200 (1/4) 250 (5/16)
C306NN3 (slotted head screw)		35 (14–10 AWG) 40 (8 AWG) 45 (6–4 AWG) 50 (3–1/0 AWG)

Plugging and Jogging Service Horsepower Ratings ②

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

Overload Relay UL/CSA Contact Ratings Control Circuit ③

AC Volts	120V	240V	480V	600V
NC Contact B600				
Make and break amperes	30	15	7.5	6
Break amperes	3	1.5	0.75	0.6
Continuous amperes	5	5	5	5
NO Contact C600				
Make and break amperes	15	7.5	3.375	3
Break amperes	1.5	0.75	0.375	0.3
Continuous amperes	2.5	2.5	2.5	2.5

Notes

- ① Two compartment box lug.
- ② Maximum horsepower where operation is interrupted more than 5 times per minute or more than 10 times in a 10 minute period. NEMA standard ICS 2-1993 table 2-4-3.
- ③ DC ratings cover Freedom Series coils only.