

## NEMA Space-Savings Family of Contactors and Starters



## Contents

## Description

## Page

## Contactors and Starters

Catalog Number Selection .....	V5-T2-64
Product Selection .....	V5-T2-64
Accessories .....	V5-T2-66
Renewal Parts .....	V5-T2-70
Technical Data and Specifications .....	V5-T2-71
Dimensions .....	V5-T2-93



An Eaton  
Green Solution

## Contactors and Starters

## Product Description

The Eaton NEMA® Space-Savings line of contactors and starters includes non-reversing and reversing contactors, electronic overload relays and a variety of related accessories. Because the Space-Savings family meets IEC, UL®, CSA® and CE standards, it is the perfect product solution for applications all over the world. The compact and easy to install Space-Savings line of NEMA contactors and starters is the efficient and effective solution for customer applications from Size 0 through Size 5.

## Application Description

The Space-Savings line of NEMA power control was engineered to provide highly effective control and protection for a variety of loads, including motors, compressors, pumps, resistive, capacitor banks, isolation and others.

The Space-Savings contactors are perfectly suited for use in Motor Control Center applications where bucket space sizing is critical. With both AC and DC control and flexible communication options, the Space-Savings family can be easily integrated into various customer applications.

## Features and Benefits

- AC control from 120V to 600V 50/60 Hz
- 24 Vdc control
- Reversing or non-reversing contactors and starters
- XTOE self-powered electronic overload relay
- Non-reversing starters to NEMA Size 5
- Panel or DIN rail mounting to NEMA Size 2
- IP20 finger and back-of-hand proof
- Large ambient temperature range, -25 to 50°C [-13 to 122°F]
- AC and DC controlled contactors in the same compact frame
- Low power consumption AC and DC coils
- Built-in NO or NC auxiliary contacts to 32A
- Plug-in accessories for reduced installation time
- Coil replacement on NEMA Size 0–5
- Contact replacement on NEMA Size 1–5
- Integrated suppressor NEMA Size 0–4 DC operated contactors and NEMA Size 5 AC and DC operated contactors

## Standards and Certifications

- IEC EN 60947
- CE approved
- UL
- CSA
- ATEX
- RoHS



# 2.2

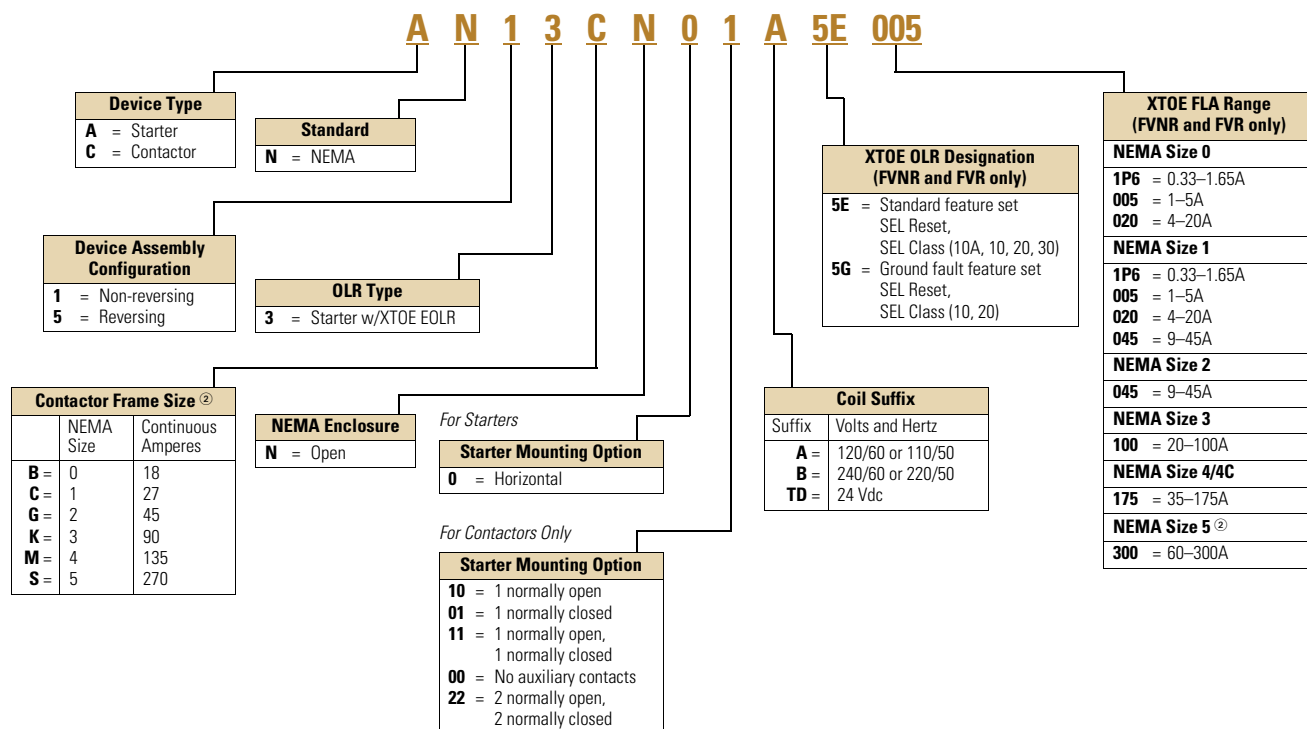
## NEMA Contactors and Starters

### Space-Savings Series

#### Catalog Number Selection

2

#### Space-Savings NEMA Starters with XTOE Electronic Overload Relays



#### Product Selection

#### Type CN13/53 Space-Savings NEMA Contactors

##### NEMA Contactor

##### Non-Reversing and Reversing



NEMA Size	Continuous Ampere Rating	Service Limit Current Rating (Amps)	Maximum UL Horsepower		Three-Phase 208V	Three-Phase 240V	480V	600V	Three-Pole Non-Reversing <sup>(1)</sup> Catalog Number	Three-Pole Reversing <sup>(1)</sup> Catalog Number
			Single-Phase 115V	Single-Phase 230V						
0	18	21	1	2	3	3	5	5	CN13BN010_	—
1	27	32	2	3	7-1/2	7-1/2	10	10	CN13CN010_	CN53CN011_
2	45	52	3	7-1/2	10	15	25	25	CN13GN000_	CN53GN011_
3	90	104	7.5	15	25	30	50	50	CN13KN000_	CN53KN011_
4	135	156	—	—	40	50	100	100	CN13MN000_	—
5	270	311	—	—	75	100	200	200	CN13SN022_	—

#### Notes

<sup>(1)</sup> Underscore ( ) indicates coils suffix required, see Coil Suffix table above.

<sup>(2)</sup> NEMA Size 5 starter components to be ordered separately: Contactor (CN13SN022\_), 60–300A CT kit, and 1–5A overload relay. See page V5-T2-82 for CT kit and overload part numbers.

## Space-Savings Contactors—NEMA Sizes 0–2

Description	Size 0 CN13BN010_	Size 1 CN13CN010_	Size 2 CN13GN000_
<b>General</b>			
Standards	IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS	IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS	IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS
Weights in kg [lb]			
AC operated	0.42 [0.93]	0.42 [0.93]	0.9 [2.0]
DC operated	0.48 [1.06]	0.48 [1.06]	1.1 [2.4]
Mechanical life—operations	10,000,000	10,000,000	10,000,000
Climatic proofing	①	①	①
Insulation voltage (U <sub>i</sub> ) Vac	690	690	690
Impulse withstand voltage (U <sub>imp</sub> ) Vac	8000	8000	8000
Operating voltage (U <sub>e</sub> ) Vac	690	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1			
Between coil and contacts (Vac)	440	440	440
Between contacts (Vac)	238	440	440
Making capacity (amps)	238	384	910
Breaking capacity (amps)			
220/230V	170	320	650
380/400V	170	320	650
500V	170	320	650
660/690V	120	180	370
Short-circuit protection rating maximum fuse (amps)			
Type 2 coordination ②			
400V; gG/gL 500V	25	63	125
690V; gG/gL 690V	25	35	80
Type 1 coordination ②			
400V; gG/gL 500V	63	125	250
690V; gG/gL 690V	50	63	100
Degree of protection	IP00	IP00	IP00
Protection against direct contact when actuated from front (IEC 536)	Finger and back-of-hand proof	Finger and back-of-hand proof	Finger and back-of-hand proof
Terminal capacity main cable—screw terminals			
Solid (mm <sup>2</sup> )	1 x (0.75–16) 2 x (0.75–10)	1 x (0.75–16) 2 x (0.75–10)	1 x (0.75–16) 2 x (0.75–10)
Flexible with ferrule (mm <sup>2</sup> )	1 x (0.75–16) 2 x (0.75–10)	1 x (0.75–16) 2 x (0.75–10)	1 x (2.5–35) 2 x (2.5–25)
Stranded (mm <sup>2</sup> )	1 x 16	1 x 16	1 x (16–50) 2 x (16–35)
Solid or stranded (AWG)	18–6	18–6	12–2
Flat conductor (number of segments x width x thickness) (mm)	—	—	2 x (6 x 9 x 0.8)

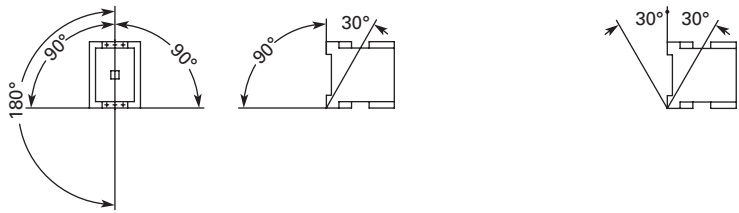
**Notes**

① Damp heat, constant, to IEC 60068-2-78; damp heat, cyclic, to IEC 60 068-2-30.

② IEC 60947 Standard.

## Space-Savings Contactors—NEMA Sizes 0–2, continued

2

Description	Size 0 CN13BN010_	Size 1 CN13CN010_	Size 2 CN13GN000_
<b>General, continued</b>			
Main cable connection screw/bolt	M5	M5	M6
Tightening torque			
Nm	3	3	3.3
Lb-in	26.6	26.6	29.2
Terminal capacity control circuit cable—screw terminals			
Solid (mm <sup>2</sup> )	1 x (0.75–4) 2 x (0.75–4)	1 x (0.75–4) 2 x (0.75–4)	1 x (0.75–4) 2 x (0.75–4)
Flexible with ferrule (mm <sup>2</sup> )	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)
Solid or stranded (AWG)	18–14	18–14	18–14
Control circuit cable connection screw/bolt	M3.5	M3.5	M3.5
Tightening torque			
Nm	1.2	1.2	1.2
Lb-in	10.6	10.6	10.6
Tools			
Main and control circuit cable—screw terminals	Size 2	Size 2	Size 2
Pozidriv screwdriver	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5
Standard screwdriver	1 x 6	1 x 6	1 x 6
Terminal capacity control circuit cable—spring cage terminals			
Solid (mm <sup>2</sup> )	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)
Flexible (mm <sup>2</sup> )	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)
Flexible with ferrule (mm <sup>2</sup> )	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)	1 x (0.75–2.5) 2 x (0.75–2.5)
Solid or stranded (AWG)	18–14	18–14	18–14
Tools			
Main and control circuit cable—spring cage terminals			
Stripping length (mm)	10	10	10
Screwdriver blade width (mm)	3.5	3.5	3.5
Mounting position, AC and DC operated			
Ambient temperature			
Open	–25 to 60°C [–13 to 140°F]	–25 to 60°C [–13 to 140°F]	–25 to 60°C [–13 to 140°F]
Enclosed	–25 to 40°C [–13 to 104°F]	–25 to 40°C [–13 to 104°F]	–25 to 40°C [–13 to 104°F]
Ambient storage temperature	–40 to 80°C [–40 to 176°F]	–40 to 80°C [–40 to 176°F]	–40 to 80°C [–40 to 176°F]
<b>Environmental</b>			
Mechanical shock resistance (IEC/EN 60068-2-27)			
Main contact—NO Contact	10	10	1
Auxiliary contact—NO Contact	7	7	7
Auxiliary contact—NC Contact	5	5	5
Overvoltage category/pollution degree	III/3	III/3	III/3

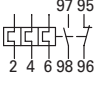
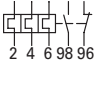
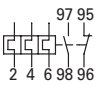
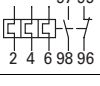
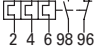
## Product Selection

## XT Electronic Overload Relays

## XTOE for Direct Mount to NEMA Size 1



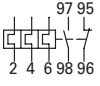
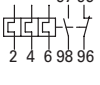
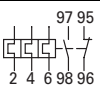
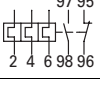
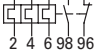
## XT Electronic Overload Relays for Direct Mount to NEMA Space-Savings Contactors

NEMA Space-Savings Size	For Use with Contactor	Overload Range (Amps)	Contact Sequence	Frame Size	Auxiliary Contact Configuration	Catalog Number
0	CN13BN010_	0.35–1.65		45 mm	NO-NC	<b>XTOE1P6CCS</b>
		1–5				<b>XTOE005CCS</b>
		4–20				<b>XTOE020CCS</b>
1	CN13CN010_	0.35–1.65		45 mm	NO-NC	<b>XTOE1P6CCS</b>
		1–5				<b>XTOE005CCS</b>
		4–20				<b>XTOE020CCS</b>
		9–45				<b>XTOE045CCS</b>
2	CN13GN000_	9–45		45 mm	NO-NC	<b>XTOE045DCS</b>
		20–100		55 mm	NO-NC	<b>XTOE100DCS</b>
3	CN13KN000_	20–100		55 mm	NO-NC	<b>XTOE100GCS</b>
4	CN13MN000_	35–175		110 mm	NO-NC	<b>XTOE175GCS</b>

## XTOE for Direct Mount to NEMA Size 4



## XT Electronic Overload Relays with Ground Fault for Direct Mount to NEMA Space-Savings Contactors

NEMA Space-Savings Size	For Use with Contactor	Overload Range (Amps)	Contact Sequence	Frame Size	Auxiliary Contact Configuration	Catalog Number
0	CN13BN010_	0.33–1.65		45 mm	NO-NC	<b>XTOE1P6CGS</b>
		1–5				<b>XTOE005CGS</b>
		4–20				<b>XTOE020CGS</b>
1	CN13CN010_	0.33–1.65		45 mm	NO-NC	<b>XTOE1P6CGS</b>
		1–5				<b>XTOE005CGS</b>
		4–20				<b>XTOE020CGS</b>
		9–45				<b>XTOE045CGS</b>
2	CN13GN000_	9–45		45 mm	NO-NC	<b>XTOE045DGS</b>
		20–100		55 mm	NO-NC	<b>XTOE100DGS</b>
3	CN13KN000_	20–100		55 mm	NO-NC	<b>XTOE100GGS</b>
4	CN13MN000_	35–175		110 mm	NO-NC	<b>XTOE175GGS</b>