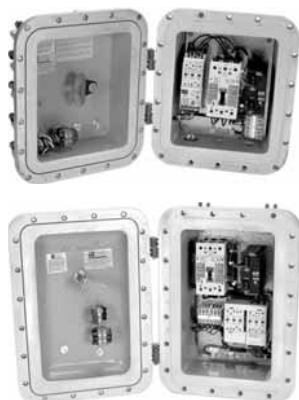


# Type 7/9 Hazardous Location Starters

**Type 7/9 Explosion Proof Enclosed Control**



**Other Hazardous Location Controls**



## 9.1 NEMA Cast Aluminum Enclosed Starters

Product Description .....	V10-T9-2
Features .....	V10-T9-2
Standards and Certifications .....	V10-T9-3
Code Definitions .....	V10-T9-3
Additional Reference .....	V10-T9-3
Catalog Number Selection .....	V10-T9-4
Cover Control .....	V10-T9-5
Product Selection	
Freedom Full Voltage Non-Combination .....	V10-T9-6
Freedom Full Voltage Combination .....	V10-T9-9
Other Hazardous Location Control .....	V10-T9-12
Wiring Diagrams .....	V10-T9-13
Dimensions .....	V10-T9-18

#### NEMA Cast Aluminum Enclosed Starters



9

#### Product Description

Eaton's combination and non-combination hazardous location cast aluminum motor starters are used in areas where hazardous materials are handled or stored. These units provide disconnecting means, under voltage protection, circuit protection and motor running protection.

#### Features

- 65,000 AI cUL classified—highest interrupt rated enclosure in the industry
- Copper-free cast aluminum
- Precision machine flame path between box and cover
- Bolt-on slotted mounting feet
- Stainless steel block hinges
- Stainless steel, captive quad-lead cover bolts (disengaged in 1-1/2 turns)
- External stainless steel breaker operating handle
- Breaker and operator shafts are stainless steel
- Ground lug package and installation instructions for termination of ground wire enclosed
- Four point control terminal block, NEMA 1B with wire markers
- Breaker operators can be locked in the ON or OFF position (combination starters only)
- Four plugged 3/4 in NPSM outlets drilled and tapped for control devices
- Standard outlets top and bottom
- Plugged 1/2 in outlets top and bottom for breather/drain
- Components are mounted on a galvanized steel removable pan
- O-ring gasket ensures watertight integrity

#### Standard Materials

- Bodies and covers: copper-free aluminum
- Cover bolts: stainless steel
- O-ring: neoprene
- Hinges: stainless steel

#### Finishes

- Bodies and covers: corrosion resistant grey epoxy power coat inside and outside standard to provide Type 4X

#### Contents

##### Description

##### Page

NEMA Cast Aluminum Enclosed Starters	
Standards and Certifications	V10-T9-3
Code Definitions	V10-T9-3
Additional Reference	V10-T9-3
Catalog Number Selection	V10-T9-4
Cover Control	V10-T9-5
Freedom Full Voltage Non-Combination	V10-T9-6
Freedom Full Voltage Combination	V10-T9-9
Other Hazardous Location Control	V10-T9-12
Wiring Diagrams	V10-T9-13
Dimensions	V10-T9-18

**Standards and Certifications**

**Note:** See **Tab 17** for additional information on standards and certifications that apply to all enclosed control products.

- UL Classified—Standard 886 File #104565
  - Class I, Groups B, C and D
  - Class II, Groups E, F and G
  - Class III
  - Type 4, 4X, 7 and 9
  - Zone 1, IIB + H2
- CSA Certified—Standard C22.2 File #28361
  - Class I, Groups B, C and D
  - Class II, Groups E, F and G
  - Class III
  - Type 4, 4X, 7 and 9
  - Zone 1, IIB + H2

**Code Definitions**

Class I locations require the type of explosion-proof electrical equipment where, in case of explosion, the hazardous flames would be contained. In Class II or III locations, dust, fibers and flyings are the combustible materials and it is only necessary to keep these materials out of the electrical equipment (where an arc may take place) and to maintain safe external temperatures.

A brief explanation of the three classifications covering hazardous locations follows:

**Class I Locations**—are those in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures.

**Class I, Div. 1**—are those where such hazardous concentrations of flammable liquids or vapors exist under normal operating conditions.

**Class I, Div. 2**—are those where such hazardous concentrations of flammable liquids or vapors are handled in closed containers or closed systems.

**Class II Locations**—are those where the presence of combustible dust presents a fire or explosion hazard.

**Class II, Div. 1**—are those where dust is suspended in the air under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures.

**Class II, Div. 2**—are those where such dust is not normally in the air, but where deposits of it accumulating on the electrical equipment will interfere with safe dissipation of heat, causing a fire hazard.

**Class III Locations**—are those where easily ignitable fibers or flyings are present but not likely to be suspended in the air in quantities sufficient to produce ignitable mixtures.

**Class III, Div. 1**—are those where ignitable fibers or materials producing combustible flyings are handled, manufactured or used.

**Class III, Div. 2**—are those where easily ignitable fibers are stored or handled (except in process or manufacture).

Further refinement created for the purpose of testing and approving electrical equipment divides Class I into four separate designations: A, B, C, D and Class II into three separate designations; E, F and G. Underwriters Laboratories test and approve electrical equipment for the following specific groups:

**Class I, Group A**—atmospheres containing acetylene.

**Class I, Group B**—atmospheres containing hydrogen, gases and vapors of equivalent hazard such as manufactured gas.

**Class I, Group C**—atmospheres containing ethyl-ether vapors, ethylene or cyclopropane.

**Class I, Group D**—atmospheres containing gasoline, hexane, naphtha, benzene, butane, propane, alcohol, acetone, benzol, lacquer solvent vapors or natural gas.

**Class II, Group E**—atmospheres containing metal dust, including aluminum, magnesium and their commercial alloys, and other metals of similarly hazardous characteristics.

**Class II, Group F**—atmospheres containing carbon black, coal or coke dust.

**Class II, Group G**—atmospheres containing flour, starch or grain dusts.

**Additional Reference**

Cover Control .....	<b>V10-T9-5</b>
Wiring Diagrams .....	<b>V10-T9-13</b>
Dimensions .....	<b>V10-T9-18</b>
Accessories and Modifications .....	<b>Tab 15</b>
Renewal Parts .....	<b>Tab 16</b>
Technical Data and Specifications .....	<b>Tab 17</b>

#### Catalog Number Selection

##### Type 7/9 Hazardous Location

EC N 22 1 6 B A C -

Design
N = Freedom NEMA
S = Soft starter ①

Modification Codes
See Tab 15

Class	Page
05= Type 7/9 non-combination non-reversing starter	V10-T9-6
06= Type 7/9 non-combination reversing starter	V10-T9-7
07= Type 7/9 non-combination starter with CPT	V10-T9-8
22= Type 7/9 combination non-reversing starter— circuit breaker	V10-T9-9
23= Type 7/9 combination reversing starter— circuit breaker	V10-T9-10
24= Type 7/9 combination starter with CPT— circuit breaker	V10-T9-11

Circuit Breaker Ratings		
A = None	W = 70A	5 = 3A ⑤
B = 3A	G = 100A/R3C	6 = 7A ⑤
C = 7A	X = 100A/T3C	7 = 15A ⑤
D = 15A	H = 150A	8 = 30A ⑤
E = 30A	J = 250A	9 = 50A ⑤
F = 50A	K = 400A	I = 100A ⑤

Cover Control
Non-rev. starters see Table
Rev. starters see Table

NEMA Size	
A = Size 00	3 = Size 3
0 = Size 0	4 = Size 4
1 = Size 1	5 = Size 5
2 = Size 2	

Motor Voltage/Power Supply ②③
A = 120/60 110/50
B = 240/60 220/50 Freedom; 230/60 <i>IT</i>
C = 480/60 440/50 Freedom; 460/60 <i>IT</i>
D = 600/60 550/50
E = 208/60 Freedom; 200/60 <i>IT</i>
Q = 24 Vdc ④
L = 380V/50 Hz

Enclosure Type
6 = Type 7/9—bolted

#### Notes

- ① For soft starter information see Tab 5.
- ② *IT*: If CPT is selected, power supply to be 120V–24 Vdc.
- ③ Freedom: When control power transformer modification codes (C1–C11) are used or when starter class includes CPT (that is, ECN07, 24) see table below for system voltage code.

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

- ④ Power supply omitted.
- ⑤ Use for Sizes 0–3, HMCP 600V applications only.

### Cover Control

To order factory installed pilot devices, change the ninth character of the catalog number to the alpha shown in the table below.

Example: to order an **ECN0516CAA** with START/STOP pushbuttons and a red pilot light, change the **A** to a **C**, that is, **ECN0516CCA**.

#### Cover Control



#### Non-Reversing and Reversing Cover Control

Description	Factory Installed Flange Control Position 9 Alpha
<b>Non-Reversing Cover Control</b>	
No cover mounted pilot devices	<b>A</b>
START/STOP pushbuttons	<b>B</b>
With red RUN pilot light	<b>C</b>
With red RUN/green OFF lights	<b>D</b>
ON/OFF pushbuttons	<b>E</b>
With red RUN pilot light	<b>F</b>
With red RUN/green OFF lights	<b>G</b>
HAND/OFF/AUTO selector switch	<b>H</b>
With red RUN pilot light	<b>J</b>
With red RUN/green OFF lights	<b>K</b>
START pushbutton	<b>L</b>
ON pushbutton	<b>M</b>
OFF pushbutton	<b>N</b>
Red RUN pilot light	<b>P</b>
Green OFF pilot light	<b>Q</b>
Red RUN/green OFF pilot lights	<b>R</b>
START/STOP selector switch	<b>S</b>
With red RUN pilot light	<b>T</b>
With red RUN/green OFF lights	<b>U</b>
ON/OFF selector switch	<b>V</b>
With red RUN Pilot Light	<b>W</b>
With red RUN/green OFF lights	<b>X</b>
<b>Reversing Cover Control</b>	
No cover mounted pilot devices	<b>A</b>
FOR/REV/STOP pushbuttons	<b>B</b>
With 2 red pilot lights	<b>C</b>
With 2 red/1 green pilot lights	<b>D</b>
UP/STOP/DOWN pushbuttons	<b>E</b>
With 2 red pilot lights	<b>F</b>
FOR/OFF/REV selector switch	<b>H</b>
With 2 red pilot lights	<b>J</b>
With 2 red/1 green pilot lights	<b>K</b>
Two red pilot lights	<b>P</b>
One green pilot light	<b>Q</b>
Two red/1 green pilot lights	<b>R</b>
OPEN/OFF/CLOSE selector switch	<b>V</b>
With 2 red pilot lights	<b>W</b>
With 2 red/1 green pilot lights	<b>X</b>

## Freedom Full Voltage Non-Combination

### Features

- Full voltage
- Standard interchangeable heater OLR
- Optional electronic overload
- 600V maximum

### Product Selection

#### Class ECN05—Type 7/9 Non-Combination Non-Reversing Starter

NEMA Size	Motor Voltage	Maximum hp Rating <sup>①</sup>	Magnet Coil Voltage	Three-Pole Type 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number
0	—	—	120	ECN0506AAA	AN16BN0AC
	200	3	208	ECN0506EAA	AN16BN0EC
	230		240	ECN0506BAA	AN16BN0BC
	460	5	480	ECN0506CAA	AN16BN0CC
	575		600	ECN0506DAA	AN16BN0DC
1	—	—	120	ECN0516AAA	AN16DN0AB
	200	7-1/2	208	ECN0516EAA	AN16DN0EB
	230		240	ECN0516BAA	AN16DN0BB
	460	10	480	ECN0516CAA	AN16DN0CB
	575		600	ECN0516DAA	AN16DN0DB
2	—	—	120	ECN0526AAA	AN16GN0AB
	200	10	208	ECN0526EAA	AN16GN0EB
	230	15	240	ECN0526BAA	AN16GN0BB
	460	25	480	ECN0526CAA	AN16GN0CB
	575		600	ECN0526DAA	AN16GN0DB
3	—	—	120	ECN0536AAA	AN16KN0A
	200	25	208	ECN0536EAA	AN16KN0E
	230	30	240	ECN0536BAA	AN16KN0B
	460	50	480	ECN0536CAA	AN16KN0C
	575		600	ECN0536DAA	AN16KN0D
4	—	—	120	ECN0546AAA	AN16NN0A
	200	40	208	ECN0546EAA	AN16NN0E
	230	50	240	ECN0546BAA	AN16NN0B
	460	100	480	ECN0546CAA	AN16NN0C
	575		600	ECN0546DAA	AN16NN0D
5	—	—	120	ECN0556AAA	AN16SN0AB
	200	75	208	ECN0556EAA	AN16SN0EB
	230	100	240	ECN0556BAA	AN16SN0BB
	460	200	480	ECN0556CAA	AN16SN0CB
	575		600	ECN0556DAA	AN16SN0DB

#### Notes

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

<sup>①</sup> Maximum horsepower rating of starters for 380V 50 Hz applications:

NEMA Size	00	0	1	2	3	4	5	6
Horsepower	1-1/2	5	10	25	50	75	150	300

### Class ECN06—Type 7/9 Non-Combination Reversing Starter

NEMA Size	Motor Voltage	Maximum hp Rating <sup>①</sup>	Magnet Coil Voltage	Three-Pole Type 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number
0	—	—	120	ECN0606AAA	AN56BN0AC
	200	3	208	ECN0606EAA	AN56BN0EC
	230		240	ECN0606BAA	AN56BN0BC
	460	5	480	ECN0606CAA	AN56BN0CC
	575		600	ECN0606DAA	AN56BN0DC
1	—	—	120	ECN0616AAA	AN56DN0AB
	200	7-1/2	208	ECN0616EAA	AN56DN0EB
	230		240	ECN0616BAA	AN56DN0BB
	460	10	480	ECN0616CAA	AN56DN0CB
	575		600	ECN0616DAA	AN56DN0DB
2	—	—	120	ECN0626AAA	AN56GN0AB
	200	10	208	ECN0626EAA	AN56GN0EB
	230	15	240	ECN0626BAA	AN56GN0BB
	460	25	480	ECN0626CAA	AN56GN0CB
	575		600	ECN0626DAA	AN56GN0DB
3	—	—	120	ECN0636AAA	AN56KN0A
	200	25	208	ECN0636EAA	AN56KN0E
	230	30	240	ECN0636BAA	AN56KN0B
	460	50	480	ECN0636CAA	AN56KN0C
	575		600	ECN0636DAA	AN56KN0D

#### Notes

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

<sup>①</sup> Maximum horsepower rating of starters for 380V 50 Hz applications:

NEMA Size	00	0	1	2	3	4	5	6
Horsepower	1-1/2	5	10	25	50	75	150	300

# 9.1

## Type 7/9 Hazardous Location Starters

### NEMA Cast Aluminum Enclosed Starters

#### Class ECN07—Type 7/9 Non-Combination Non-Reversing Starter with CPT

NEMA Size	Primary Voltage <sup>①</sup>	Maximum hp Rating <sup>②</sup>	Magnet Coil Voltage	Three-Pole Type 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number
0	208	3	120	ECN0706EAA	AN16BN0AC
	240			ECN0706BAA	
	480	ECN0706CAA			
	600	ECN0706DAA			
1	208	7-1/2	120	ECN0716EAA	AN16DN0AB
	240			ECN0716BAA	
	480	ECN0716CAA			
	600	ECN0716DAA			
2	208	10	120	ECN0726EAA	AN16GN0AB
	240	15		ECN0726BAA	
	480	25		ECN0726CAA	
	600	ECN0726DAA			
3	208	25	120	ECN0736EAA	AN16KN0A
	240	30		ECN0736BAA	
	480	50		ECN0736CAA	
	600	ECN0736DAA			
4	208	40	120	ECN0746EAA	AN16NN0A
	240	50		ECN0746BAA	
	480	100		ECN0746CAA	
	600	ECN0746DAA			
5	208	75	120	ECN0756EAA	AN16SN0AB
	240	100		ECN0756BAA	
	480	200		ECN0756CAA	
	600	ECN0756DAA			

#### Notes

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

<sup>①</sup> For other control power transformer primary and/or secondary voltage options, see **Tab 2**.

<sup>②</sup> Maximum horsepower rating of starters for 380V 50 Hz applications:

NEMA Size	00	0	1	2	3	4	5	6
Horsepower	1-1/2	5	10	25	50	75	150	300



## Freedom Full Voltage Combination

### Features

- Full voltage
- Standard interchangeable heater OLR
- Optional electronic overload
- 600V maximum

### Product Selection

#### ECN22—Type 7/9 Combination Non-Reversing Starter—Circuit Breaker

NEMA Size	Motor Voltage	Maximum hp Rating	Magnet Coil Voltage <sup>①</sup>	Circuit Breaker Size	Three-Pole Type 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number	
0	200	1	208	7A	ECN2206EAC	AN16BN0EC	
		3		15A	ECN2206EAD		
		5		30A	ECN2206EAE		
	230	1	240	7A	ECN2206BAC	AN16BN0BC	
		3		15A	ECN2206BAD		
		5		30A	ECN2206BAE		
	460	1	480	3A	ECN2206CAB	AN16BN0CC	
		3		7A	ECN2206CAC		
		5		15A	ECN2206CAD		
	575	1	600	3A	ECN2206DA5	AN16BN0DC	
		3		7A	ECN2206DA6		
		5		15A	ECN2206DA7		
1	200	1	208	7A	ECN2216EAC	AN16DN0EB	
		3		15A	ECN2216EAD		
		5		30A	ECN2216EAE		
		7-1/2		50A	ECN2216EAF		
	230	1	240	7A	ECN2216BAC	AN16DN0BB	
		3		15A	ECN2216BAD		
		5		30A	ECN2216BAE		
		7-1/2		50A	ECN2216BAF		
	460	1	480	3A	ECN2216CZB	AN16DN0CB	
		3		7A	ECN2216CAC		
		5		15A	ECN2216CAD		
		10		30A	ECN2216CAE		
	575	1	600	3A	ECN2216DA5	AN16DN0DB	
		3		7A	ECN2216DA6		
		5		15A	ECN2216DA7		
		10		30A	ECN2216DA8		
	2	200	10	208	50A	ECN2226EAF	AN16GN0EB
		230	10	240	50A	ECN2226BAF	AN16GN0BB
			15		70A	ECN2226BAW	
		460	25	480	50A	ECN2226CAF	AN16GN0CB
		575	15	600	30A	ECN2226DA8	AN16GN0DB
			25		50A	ECN2226DA9	
	3	200	20	208	100A	ECN2236EAG	AN16KN0E
			25		100A	ECN2236EAG	
230		25	240	100A	ECN2236BAG	AN16KN0B	
		30		100A	ECN2236BAG		
460		50	480	100A	ECN2236CAG	AN16KN0C	
575		30	600	50A	ECN2236DA9	AN16KN0D	
		50		100A	ECN2236DAI		
4		200	40	208	150A	ECN2246EAH	AN16NN0E
		230	50	240	150A	ECN2246BAH	AN16NN0B
	460	100	480	150A	ECN2246CAH	AN16NN0C	
	575	100	600	150A	ECN2246DAH	AN16NN0D	

#### Notes

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

① Starters with 120V coil (for separate control) are available. To order, substitute the letter **A** for the eighth character of the listed catalog number.

## ECN23—Type 7/9 Combination Reversing Starter—Circuit Breaker

NEMA Size	Motor Voltage	Maximum hp Rating	Magnet Coil Voltage <sup>①</sup>	Circuit Breaker Size	Three-Pole Type 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number	
0	200	1	208	7A	ECN2306EAC	AN56BN0EC	
		3		15A	ECN2306EAD		
	230	1	240	7A	ECN2306BAC	AN56BN0BC	
		3		15A	ECN2306BAD		
	460	1	480	3A	ECN2306CAB	AN56BN0CC	
		3		7A	ECN2306CAC		
		5		15A	ECN2306CAD		
	575	1	600	3A	ECN2306DA5	AN56BN0DC	
		3		7A	ECN2306DA6		
		5		15A	ECN2306DA7		
	1	200	1	208	7A	ECN2316EAC	AN56DN0EB
			3		15A	ECN2316EAD	
5			30A		ECN2316EAE		
7-1/2			50A		ECN2316EAF		
230		1	240	7A	ECN2316BAC	AN56DN0BB	
		3		15A	ECN2316BAD		
		5		30A	ECN2316BAE		
		7-1/2		50A	ECN2316BAF		
460		1	480	3A	ECN2316CAB	AN56DN0CB	
		3		7A	ECN2316CAC		
		5		15A	ECN2316CAD		
		10		30A	ECN2316CAE		
575		1	600	3A	ECN2316DA5	AN56DN0DB	
		3		7A	ECN2316DA6		
		5		15A	ECN2316DA7		
		10		30A	ECN2316DA8		
2		200	10	208	50A	ECN2326EAF	AN56GN0EB
		230	10	240	50A	ECN2326BAF	AN56GN0BB
			15		70A	ECN2326BAW	
		460	25	480	50A	ECN2326CAF	AN56GN0CB
		575	15	600	30A	ECN2326DA8	AN56GN0DB
			25		50A	ECN2326DA9	
3		200	20	208	100A	ECN2336EAG	AN56KN0E
			25		100A	ECN2336EAG	
	230	25	240	100A	ECN2336BAG	AN56KN0B	
		30		100A	ECN2336BAG		
	460	50	480	100A	ECN2336CAG	AN56KN0C	
	575	30	600	50A	ECN2336DA9	AN56KN0D	
		50		100A	ECN2336DAI		

**Notes**

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

<sup>①</sup> Starters with 120V coil (for separate control) are available. To order, substitute the letter **A** for the eighth character of the listed catalog number.

## ECN24—Type 7/9 Combination Non-Reversing Starter with CPT—Circuit Breaker

NEMA Size	Primary Voltage <sup>①</sup>	Maximum hp Rating	Magnet Coil Voltage	Circuit Breaker Size	Three-Pole NEMA 7/9 Bolted Catalog Number	Component Starter (Open) Catalog Number	
0	200	1	120	7A	ECN2406EAC	AN16BN0AC	
		3		15A	ECN2406EAD		
	230	1	120	7A	ECN2406BAC	AN16BN0AC	
		3		15A	ECN2406BAD		
	460	1	120	3A	ECN2406CAB	AN16BN0AC	
		3		7A	ECN2406CAC		
		5		15A	ECN2406CAD		
	575	1	120	3A	ECN2406DA5	AN16BN0AC	
		3		7A	ECN2406DA6		
5		15A		ECN2406DA7			
1	200	1	120	7A	ECN2416EAC	AN16DN0AB	
		3		15A	ECN2416EAD		
		5		30A	ECN2416EAE		
		7-1/2		50A	ECN2416EAF		
	230	1	120	7A	ECN2416BAC	AN16DN0AB	
		3		15A	ECN2416BAD		
		5		30A	ECN2416BAE		
		7-1/2		50A	ECN2416BAF		
	460	1	120	3A	ECN2416CAB	AN16DN0AB	
		3		7A	ECN2416CAC		
		5		15A	ECN2416CAD		
		10		30A	ECN2416CAE		
	575	1	120	3A	ECN2416DA5	AN16DN0AB	
		3		7A	ECN2416DA6		
		5		15A	ECN2416DA7		
		10		30A	ECN2416DA8		
	2	200	10	120	50A	ECN2426EAF	AN16GN0AB
		230	10		50A	ECN2426BAF	AN16GN0AB
15			70A		ECN2426BAW		
460		25	120		50A	ECN2426CAF	AN16GN0AB
575		15	120		30A	ECN2426DA8	AN16GN0AB
		25	50A		ECN2426DA9		
3	200	20	120	100A	ECN2436EAG	AN16KN0A	
		25		ECN2436EAG			
	230	25	120	100A	ECN2436BAG	AN16KN0A	
		30		ECN2436BAG			
	460	50	120	100A	ECN2436CAG	AN16KN0A	
	575	30	120	50A	ECN2436DA9	AN16KN0A	
		50		100A	ECN2436DAI		
	4	200	40	120	150A	ECN2446EAH	AN16NN0A
230		50	ECN2446BAH				
460		100	ECN2446CAH				
575		ECN2446DAH					

**Notes**

**Starters do not include heater packs.** Select one carton of three heater packs. For heater pack selection, see **Tab 15**.

**Starters with electronic overload,** see modification codes in **Tab 15**.

<sup>①</sup> For other control power transformer primary and/or secondary voltage options, see **Tab 2**.

## Other Hazardous Location Control

### Product Description

Besides Freedom starters, Eaton offers Type 7/9 cast aluminum enclosures for solid-state reduced voltage starters and lighting contactors.

#### **Freedom Starters**

For information on hazardous location versions, please consult your Eaton representative.

#### **Solid-State Reduced Voltage Starters**

Type 7/9 versions are listed in **Tab 5**.

The **IT** soft starters are designed to be the smallest, most compact soft starters on the market today. The built-in overload (ranges from 0.25 to 1000A) and run bypass contactor (greatly reducing the amount of heat generated) make installation and setup quick and easy.

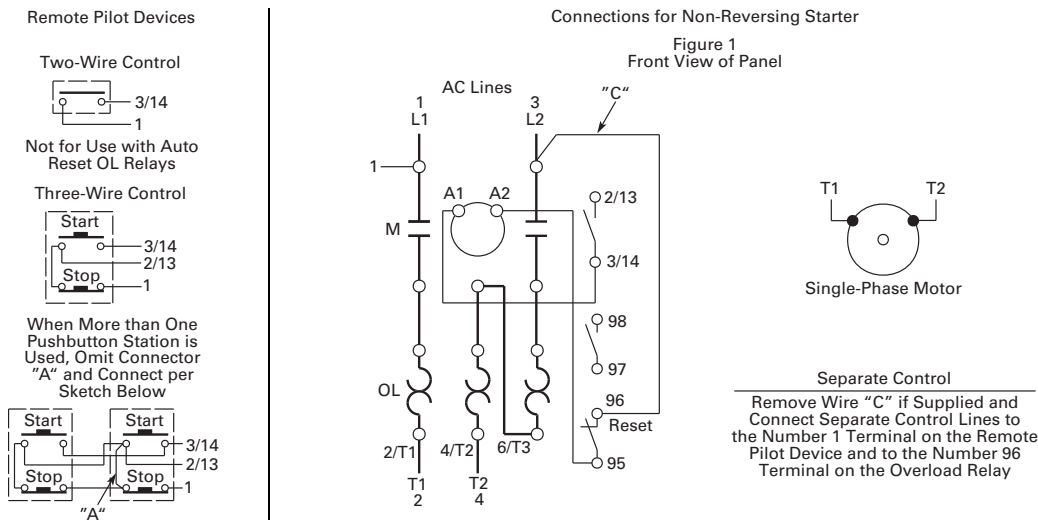
With this small size and low heat dissipation it can easily fit in the place of existing soft starters, Wye-Delta starters or across-the-line starters where others cannot. To make the retrofit more flexible, we also offer soft starters as open components or as a completed kit on a back panel for easy and quick installation into your existing enclosure.

#### **Lighting Contactors**

Type 7/9 versions are listed in **Tab 4**.

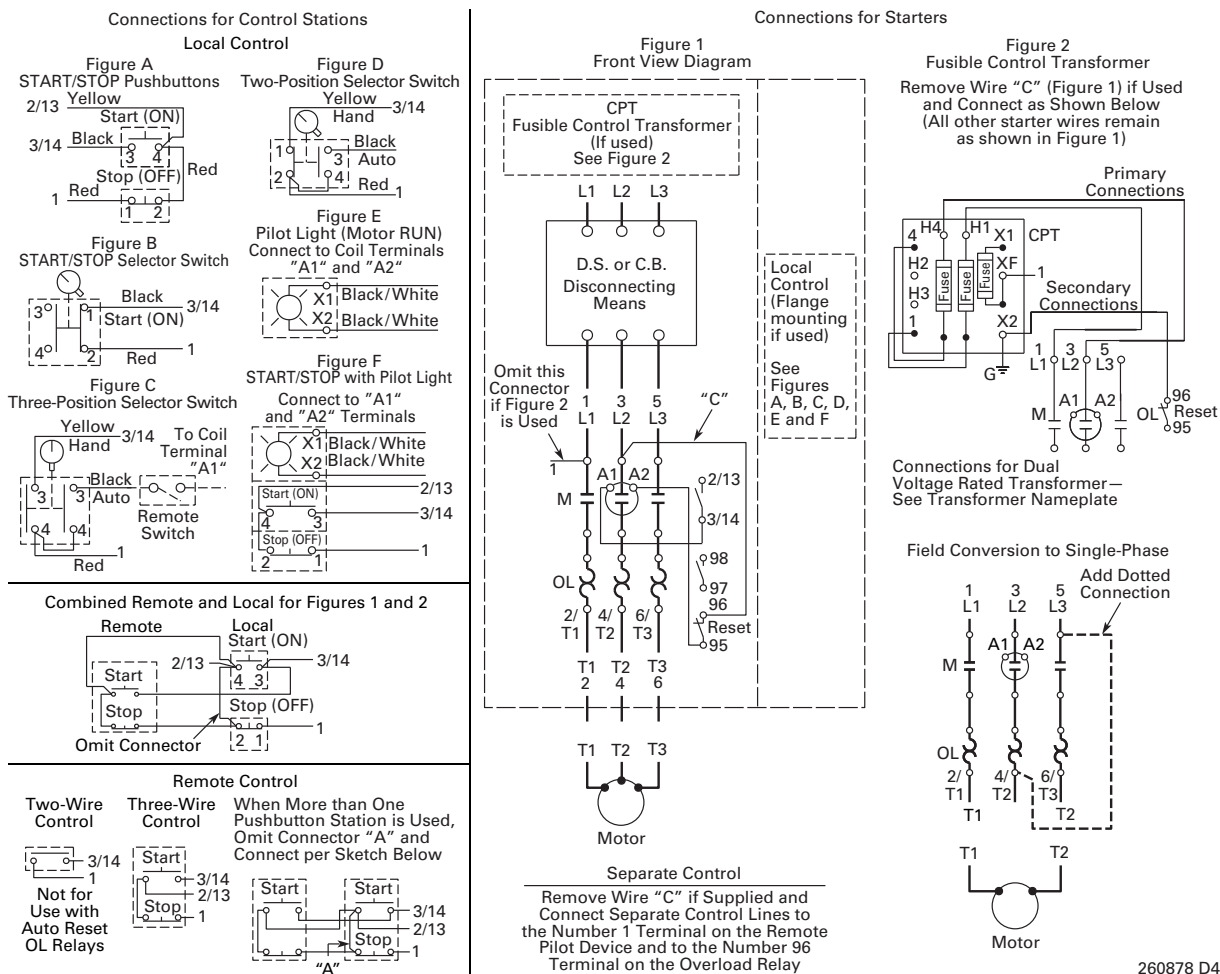
### Wiring Diagrams

#### Freedom Non-Reversing Starter—Single-Phase Non-Combination



9

#### Freedom Non-Reversing Starter—Combination

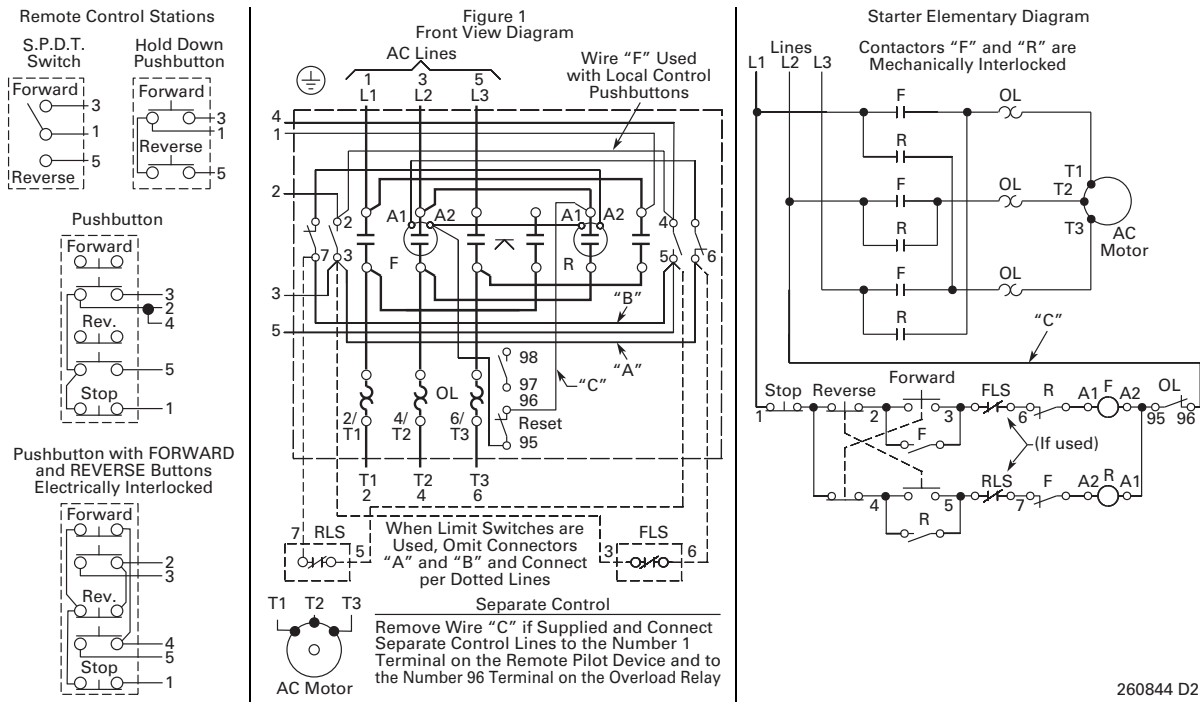


# 9.1

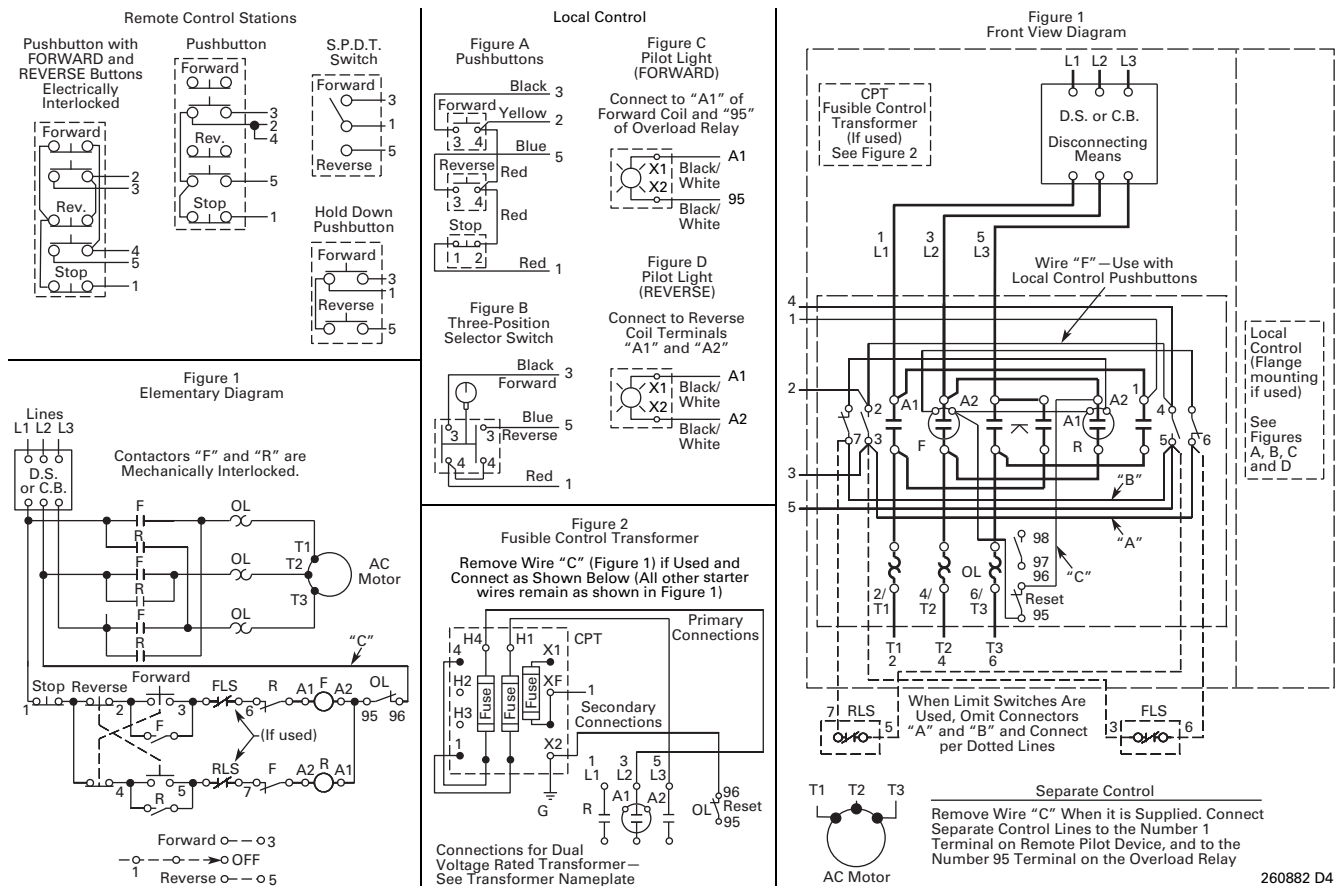
## Type 7/9 Hazardous Location Starters

### NEMA Cast Aluminum Enclosed Starters

#### Freedom Reversing Starter—Non-Combination

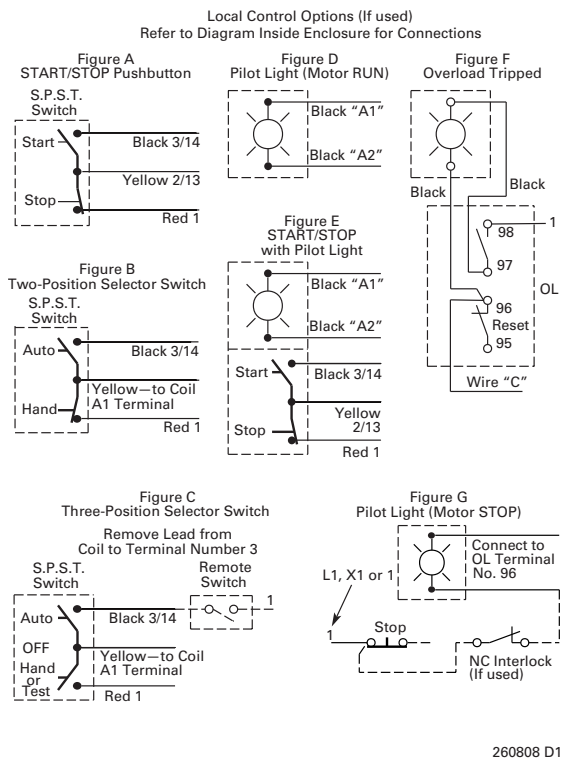


#### Freedom Reversing Starter—Combination

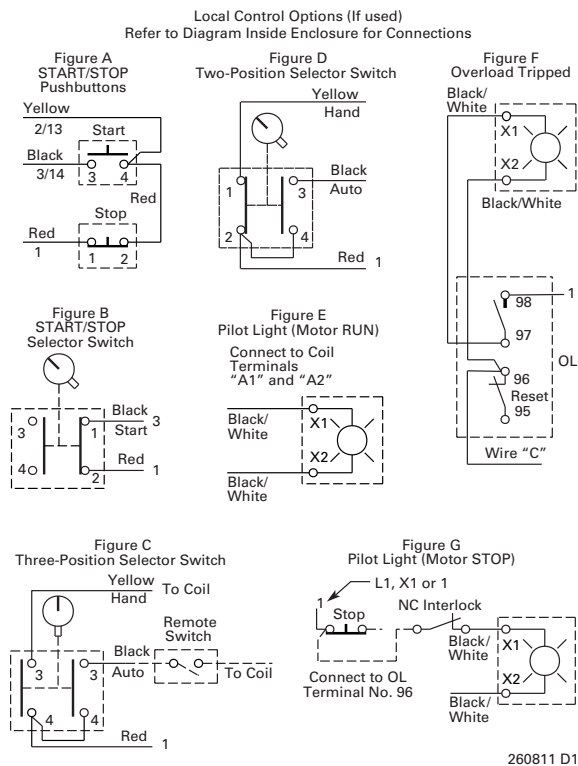


**Non-Reversing Cover Control**

**Type 1 C400GK Control Options**

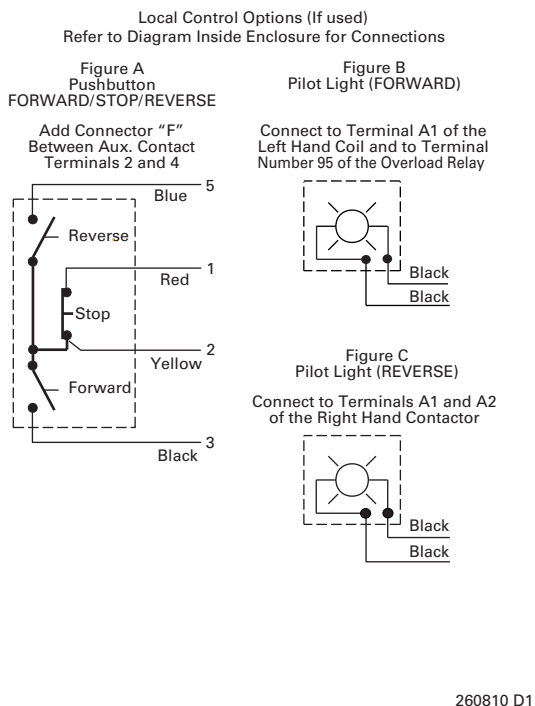


**C400T Control Options**

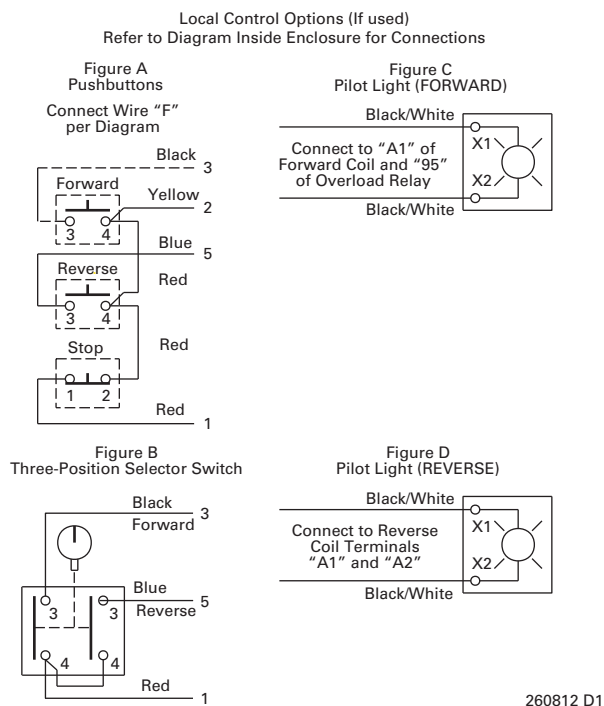


**Reversing Cover Control**

**Type 1 C400GR Control Options**



**C400T Control Options**

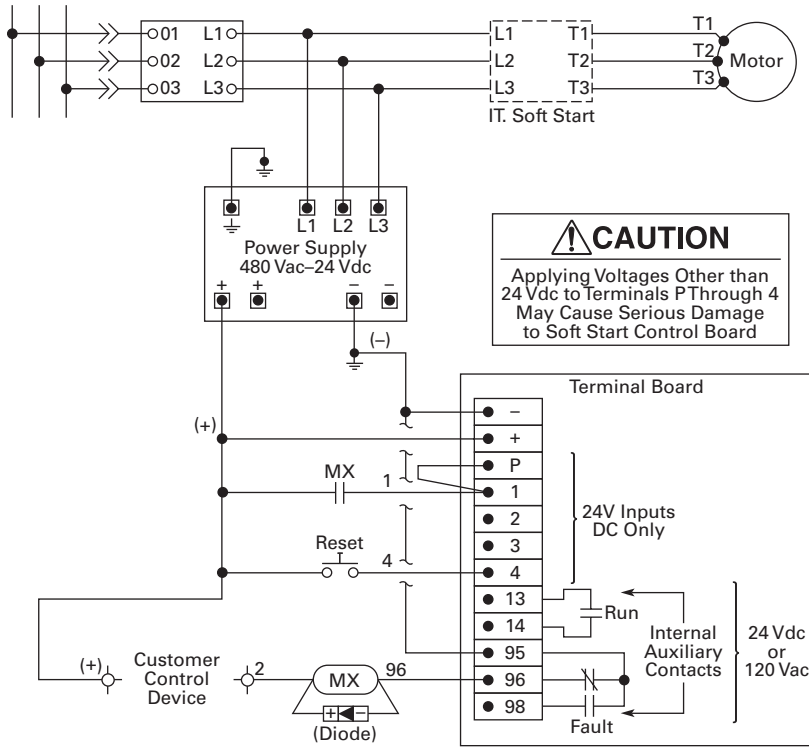


# 9.1

## Type 7/9 Hazardous Location Starters

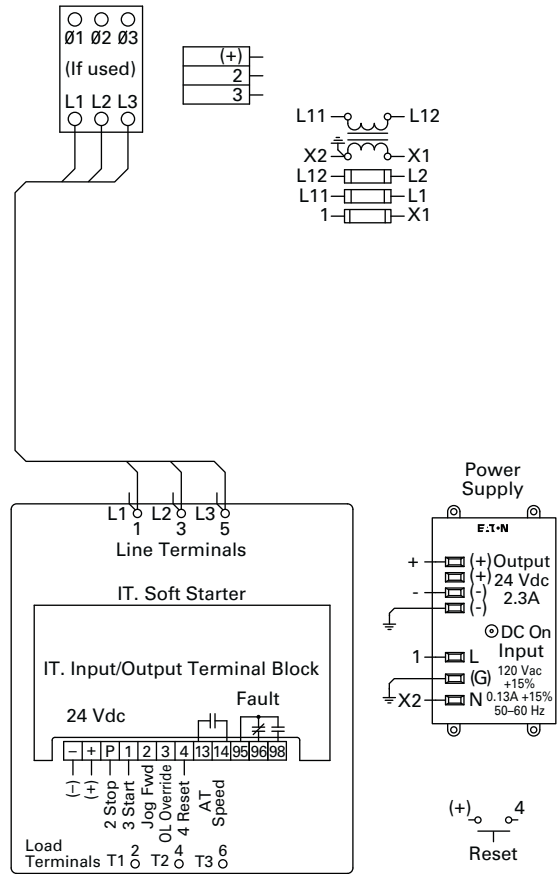
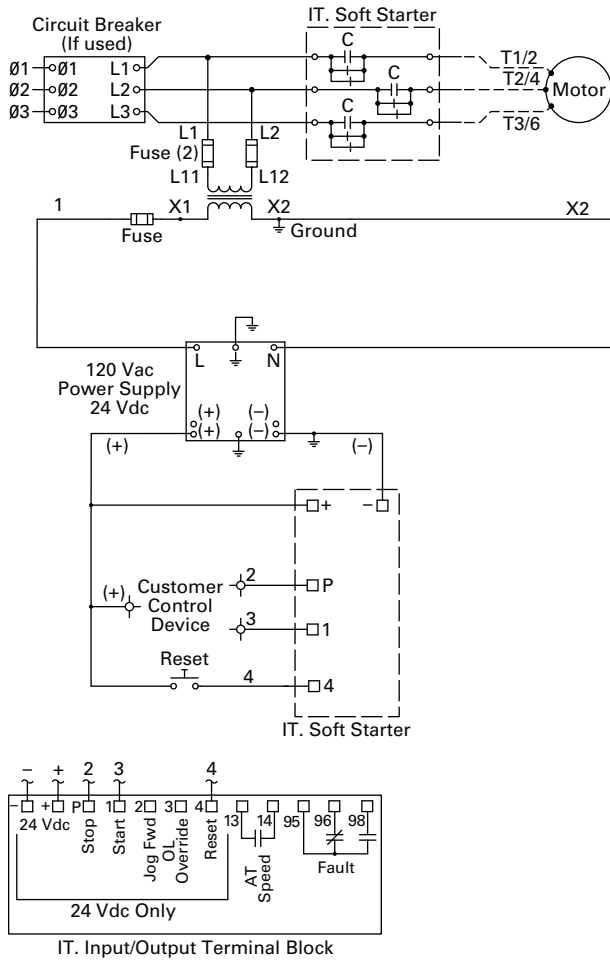
### NEMA Cast Aluminum Enclosed Starters

#### S801+/S811+ Wiring Diagram





S801+/S811+ with External 120 Vac Control



# 9.1

## Type 7/9 Hazardous Location Starters

### NEMA Cast Aluminum Enclosed Starters

#### Dimensions

Approximate Dimensions in Inches

#### NEMA Size Freedom

##### Freedom Full Voltage Non-Reversing Starters

Rough Outside Dimensions	Non-Combination Sizes	Standard Conduit	Combination Sizes	Standard Conduit
17 x 14	0, 1, 2	1-1/2	—	—
28 x 14	3	2	0, 1, 2	1-1/2
32 x 18	4	2-1/2	3	2
46 x 16	5	3	4, 5	3

#### Reduced Voltage Solid-State

##### 9 S801+/S811+ Intelligent Technologies Solid-State Soft Starters

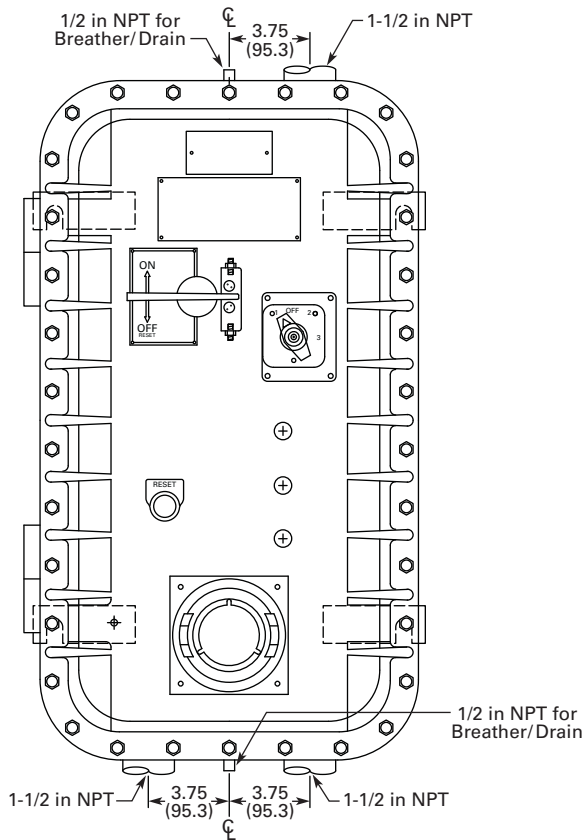
Rough Outside Dimensions	Non-Combination	Standard Conduit	Combination	Standard Conduit
17 x 14	66A	1-1/2	—	—
28 x 14	135A	2	66A	2
32 x 18	—	—	135A	2-1/2
46 x 16	304A	3	304A	3

##### S752 Intelligent Technologies Solid-State Soft Starters

Rough Outside Dimensions	Non-Combination	Standard Conduit	Combination	Standard Conduit
18 x 15	50A	1-1/2	—	—
28 x 14	—	—	50A	1-1/2

Approximate Dimensions in Inches (mm)

### Type 7/9 Freedom Starters



Dimensions	A	B	C	D	E
Height	27.63 (701.8)	31.63 (803.4)	46.00 (1168.4)	16.63 (422.4)	17.50 (444.5)
Width	14.13 (358.9)	18.13 (460.5)	26.19 (665.2)	14.13 (358.9)	15.10 (383.5)
Depth	11.38 (289.1)	12.19 (309.6)	14.94 (379.5)	9.50 (241.3)	10.50 (266.7)
Weight in Lbs (kg)	125 (57)	195 (89)	500 (227)	80 (36)	95 (43)
I.D. Height	24	28	37	11	12
I.D. Width	10	14	17	9	10