



# SN4

## Combination Starters

**EATON**

BY **SPiKE**  
ELECTRIC CONTROLS



### Applications:

- Damp, wet, dirty, dusty areas where ultimate corrosion and ingress protection is required
- Harsh motor control environments, including: refineries, chemical and petrochemical plants, corrosive process facilities, food and beverage, marine and mining
- Across-the-line starting, stopping, speed changing and reversing of polyphased AC induction motors

### Design Features:

- Available with solid-state electronic overload providing reliable, accurate and value-driven protection, including communication capabilities, while reducing inventory carrying costs with wide FLA adjustment (5:1) and selectable trip class. And Bi Metallic Thermal overloads.
- Adjustable bimetallic ambient compensated overload relays with interchangeable heater packs – available in three basic sizes, covering applications up to 600 HP
- Fixed heater overloads optional
- A full line of snap-on accessories – top and side mounted auxiliary contacts, solid-state and pneumatic timers
- Straight through wiring – line lugs at top, load lugs at bottom
- Horizontal or vertical mounting on upright panel for application freedom
- Screw type power terminals have captive, backed-out self-lifting pressure plates with  $\pm$  screws for reduced wiring time

- Accessible terminals for easy wiring; optional fingerproof shields available to prevent electrical shock
- Top located coil terminals convenient and readily accessible.
- 45 mm contactor magnet coils have three terminals, permitting either top or diagonal wiring – easy to replace European or U.S. style starters or contactors without changing wiring layout
- Encapsulated dual voltage/frequency magnet coils – permanently marked with voltage, frequency and part number
- Designed to meet or exceed UL, CSA, IEC, VDE, BS and other international standards and listings

### Certifications

- Type Nema 1, 12, 3R, 4,
- 4X, 4X non-metallic
- ABS Type Approved
- OSHPD Certified (OSP-0015-10)
- Certified Type 2 ordination
- NEMA starters are UL Certified to achieve IEC 947 Type 2 coordination against 100,000A short circuit fault currents

### Standard Materials:

- Enclosure, external hardware – 316 stainless steel & Painted Steel
- External latching hardware – chrome-plated steel
- Internal mounting plate – powder-coated steel
- Internal hardware – zinc-plated steel

### Electrical Ratings:

- Motor starters
  - Single, three-phase
  - 3-pole, non-reversing, full voltage
  - NEMA sizes 0-8
  - Up to 600 HP
- Circuit breakers
  - 3-pole, 600 VAC
  - 3A through 1200A
- Disconnect switches
  - 3-pole, 600VAC
  - 15A through 1200A
  - Fusible and non-fusible
- 100,000 rms short circuit rating (480V breakers, fused disconnects)

### Construction:

- Made in the USA
- Robotically applied seamless foam-in-place gasket helps assure high performance in environmental conditions.
- Enclosure and door are fabricated from (14) gauge steel
- All continuous welded seams are finished smooth
- Ground provisions provided on all doors, bodies and back panels.
- Door secured to body with robust continuous hinge for performance in all environments
- High strength powder coated, zinc die cast handle provides corrosion resistance Standard pad lockable handle trigger provides secondary security.





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## Example Part Number

**SN4 3 FTSP200 MCB WT 34 S780 A**

### Wiring System

3 - 3 Phase  
1 - Single Phase

### Breaker voltage

2 - 240V  
4 - 480V  
6 - 600V

### Motor Starter Accessories

	SUFFIX
Less overload relays (lighting contactor)	CL
Less overload relays (motor contactor)	CM
Starter w/ electronic ground fault overload relay	GF
Additional control contacts, N.O. or N.C	S780
Auxiliary contacts on starter 1 N.O. & 1 N.C	S781
Auxiliary contacts on starter 2 N.O. & 2 N.C	S782
Auxiliary contacts on starter 3 N.O. & 3 N.C	S783
Solid state overload relay	SSOL
BI Metallic overload relay	BI
Electronic thermal overload relay	ETOR

### Enclosure Modifications & Accessories

Cat #

Control Circuit Transformer, 100VA for NEMA/EEMAC sizes 0-2, 600/480/240-120, 50 / 60 Hertz, with provision for fusing both primary leads and one secondary lead (fuses not provided)

FTPS100

Control Circuit Transformer, 200VA for NEMA/EEMAC size 3, 600/480/240-120, 50 / 60 Hertz, with provision for fusing both primary leads and one secondary lead (fuses not provided).

FTPS200

Control Circuit Transformer, 300VA for NEMA/EEMAC size 4, 5 600/480/240-120, 50 / 60 Hertz, with provision for fusing both primary leads and one secondary lead (fuses not provided)

FTPS300

Control Circuit Transformer, 500VA for NEMA/EEMAC 600/480/240-120, 50 / 60 Hertz, with provision for fusing both primary leads and one secondary lead (fuses not provided)

FTPS500

**SN4 3 FTSP200 MCB WT 34 S780 A**

### NEMA SZ

1 5  
2 6  
3 7  
4 8

### Standard Disconnect Is Thermal Mag Breaker

ADDER FOR OTHER DISCONNECTS:

MCP - motor circuit protector  
FD - fused disconnect  
NF - non fused disconnect

### AC Coil Suffix Symbol

\* PLACE A DASH (-) BETWEEN EACH

120/60 or 110/50	A
240/60 or 220/50	B
480/60 or 440/50	C
600/60 or 550/50	D

### DC Coil Suffix Symbol

12VDC	F
24VDC	G
48VDC	M
120VDC	P

### Legend Plates

\* SEE PAGE 4

### Combination & Non-Combination Starters

DESCRIPTION	CAT #
Combo Starter N4X 316 SS Rotary	SN4X6SSC
Combo Starter N4X 316 SS Flanged	SN4X6SSCF
Combo Starter N4X Non-Metallic Rotary	SN4XNMC
Combo Starter N4X Non-Metallic Flanged	SN4XNMCF
Combo Starter N4 Carbon Rotary	SN4C
Combo Starter N4 Carbon Flanged	SN4CF
Reversing Combo Starter N4X 316 SS Rotary	SN4RX6SSC
Reversing Combo Starter N4X 316 SS Flanged	SN4RX6SSCF
Reversing Combo Starter N4X Non-Metallic Rotary	SN4RXNMC
Reversing Combo Starter N4X Non-Metallic Flanged	SN4RXNMCF
Reversing Combo Starter N4 Carbon Rotary	SN4RC
Reversing Combo Starter N4 Carbon Flanged	SN4RCF

### Additions to the circuit breaker or Fused/nonfused disconnect

Ambient compensated circuit breaker trip setting	AC
Auxiliary switch on Circuit Breaker 1A and 1B contacts	S784
Auxiliary switch on Circuit Breaker 2A and 2B contacts	S785
Shunt trip on Circuit Breaker	S87
Bell Alarm on Circuit Breaker	S88
100kAIC rated Circuit Breaker in lieu of 65kAIC rated Circuit Breaker	S19

\* PLACE A DASH (-) BETWEEN EACH OPTION IN THE ORDER LISTED ABOVE

Pilot light, 120VAC, red jewel, w/blank indicating plate	J1
Pilot light, 120VAC, green jewel, w/blank indicating plate	J3
Pilot light, 120VAC, blue jewel, w/blank indicating plate	J11
Pilot light, 120VAC, amber jewel, w/blank indicating plate	J6
LED pilot lights (in place of standard incandescent lamps)	LED
Pilot light push to test, 120VAC, Red or Green *R or G	J3PT
Pilot light push to test, 120VAC, Amber Run Wired to coil	J4PT
Start-Stop pushbuttons	PB23
On-Off selector switch	RR2
Hand-Off-Auto selector switch	RR3
E-Stop Mushroom head	RR4
Space heater, 120 Volt, 25 Watts	R11
Space heater, 240 Volt, 25 Watts	R22
Space heater, 480 Volt, 25 Watts	R44
Automatic reset overload relay	S1
Insulated neutral w/2 connectors	S146
Std. breather & drain, Class 1, B, C & D; Class 11, E, F & G; Class 111	S756V
12 Point term. block - 30 Amp, 300V	S786
12 Point term. block - 30 Amp, 300V Unwired	S786U
Interposing relay, 2 pole 2 NO 4 NC., coil 120VAC	IR
General purpose control relay, 4 pole N.O., contacts rated 10A/600V, coil 120VAC	GCR
General purpose control relay, 8 pole 4 NO 4 NC., coil 120VAC	GCR8
Solid State- ON Delay Timer (1-30 secs)	ST4
Solid State- ON Delay Timer (1-300 secs)	ST5
Time delay Relay 2 min maximum ON Delay	TD1
Time delay Relay 2 min maximum OFF Delay	TD2
Time delay low voltage release relay	TDR
Viewing Window	VW
Transperant clear door (Non Metallic only)	CD
Photo Cell	PC
Ground Fault Protection Relay	GF

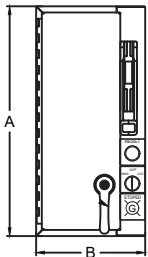
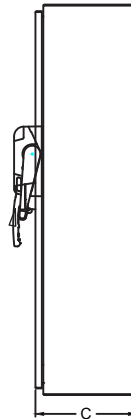
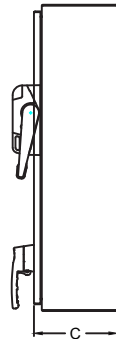
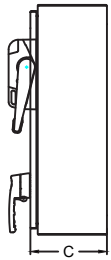
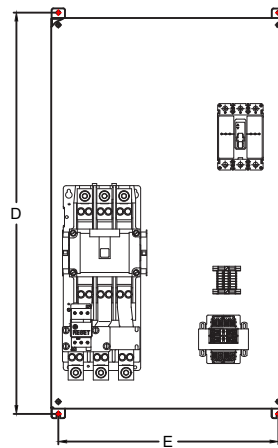
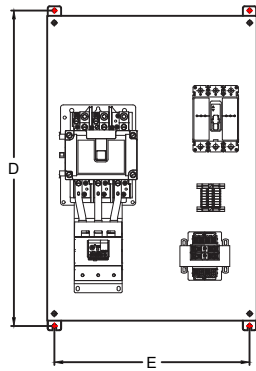
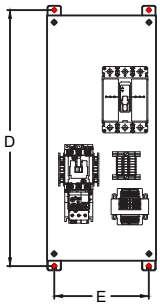


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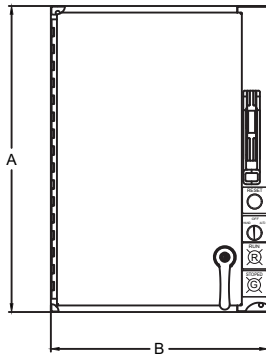
Combination  
Starters

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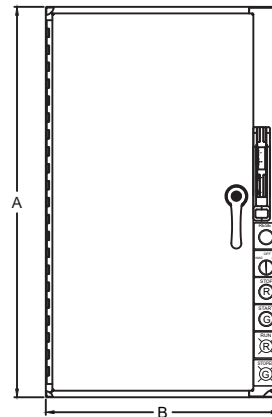
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A



B



C



## ENCLOSURE

## NOMINAL DIMENSIONS IN INCHES

Cat #	Figure	A	B	C	D	E
SIZE 0 COMBO	A	28.98	12.875	9	30.24	11.3
SIZE 1 COMBO	A	28.98	12.875	10	30.24	11.3
SIZE 2 COMBO	A	28.98	12.875	11	30.24	11.3
SIZE 3 COMBO	B	36	24.75	9	37.26	23.12
SIZE 4 COMBO	B	36	24.75	10	37.26	23.12
SIZE 5 COMBO	C	46	26	10.68	47.26	24.426



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## Combination Starters



### Legend Plates:

If desired markings on indicating plates may be added to catalog number after the coil voltage designation. Put a – after the coil voltage & any legend plates that are selected. Select from the list of standard markings below.

#### Single Function Legend Plates

MARKING	CAT. #
Automatic	DSL16
Blank	DSL01
Blank with single field	DSL02
Close	DSL21
Down	DSL23
Emerg. Stop	DSL17
Fast	DSL46
Forward	DSL18
Hand	DSL15
In	DSL24
Jog	DSL10
Lower	DSL27
On	DSL07
Off	DSL08
Open	DSL20
Out	DSL25
Power On	DSL14
Raise	DSL26
Reset	DSL12
Reverse	DSL19
Run	DSL09
Safe	DSL85
Slow	DSL47
Start	DSL05
Stop	DSL06
Test	DSL13
Trip	DSL11
Up	DSL22

#### Two Function Legend Plates

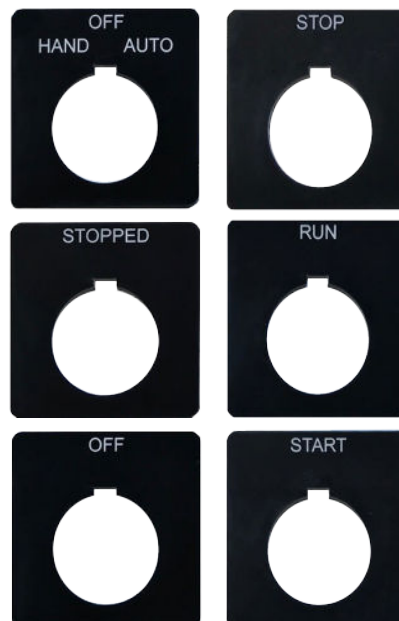
MARKING	CAT. #
Blank with 2 fields	DSL03
For –Rev	DSL30
Hand-Auto	DSL29
In-Out	DSL35
Off-On	DSL48
Open-Close	DSL32
Raise Lower	DSL36
Run-Jog	DSL28
Safe-Run	DSL86
Start-Stop	DSL37
Slow-Fast	DSL65
Up-Down	DSL33

#### Three Function Legend Plates

MARKING	CAT. #
Auto-Off-Hand	DSL49
Blank with 3 fields	DSL04
Fast-Off-Slow	DSL41
For-Off-Rev	DSL40
Hand-Off-Auto	DSL39
Run-Off-Jog	DSL38
Open-Off-Close	DSL43
Raise-Off-Lower	DSL87
Slow-Off-Fast	DSL88
Up-Off-Down	DSL44
1-Off-2	DSL42

Background color for all legend plates is black with the following exceptions:

MARKING	CAT. #
Start	Green
Stop	Red
Emerg. Stop	Red
For-Off-Rev	DSL40
Hand-Off-Auto	DSL39
Run-Off-Jog	DSL38





## RFQ Questionnaire

Customer: \_\_\_\_\_

End User: \_\_\_\_\_

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared By: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Quotation For: \_\_\_\_ Estimate/Budget \_\_\_\_ Immediate Buy

Quotation Date Required: \_\_\_\_/\_\_\_\_/\_\_\_\_

Material Date Required: \_\_\_\_/\_\_\_\_/\_\_\_\_

Notes: \_\_\_\_\_

### For Motor Starters:

System Voltage

☐ 480 V

☐ 240 V

☐ Other: \_\_\_\_\_

☐ Motor HP \_\_\_\_\_

☐ Three Phase

☐ Single Phase

Control Voltage

☐ 120

☐ Other: \_\_\_\_\_

### Main Disconnects:

Manufacturer: \_\_\_\_\_

☐ Disconnect Switch

☐ Circuit Breaker T/M

☐ Fused Disconnect Switch

☐ C/B Amp Rating \_\_\_\_AMP

☐ Motor Circuit Protector

### Starter(s):

Manufacturer: \_\_\_\_\_

Type: ☐ NEMA ☐ IEC

CPT for 120 volt Control Power \_\_\_\_\_VA

### Optional Controls:

☐ Start / Stop Push Button

☐ Hand - Off \_ Auto Selector Switch

☐ Pilot Light

☐ FVNR Full Voltage Non Reversing Starter

☐ Other: \_\_\_\_\_

☐ Soft Start: \_\_\_\_\_

☐ VFD: \_\_\_\_\_

☐ RVSS Reduced Voltage Solid State Starter

☐ FVR Full Voltage REVERSING Starter

☐ Two Speed Motor (2S2W/2S1W)

Manufacturer: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

### Enclosure Types:

☐ NEMA ☐ 1 ☐ 12 \_\_\_\_\_ Indoor

☐ NEMA 3/3R \_\_\_\_\_ Outdoor Rain Proof

☐ NEMA 4 \_\_\_\_\_ Outdoor Rain Proof

☐ NEMA 4x \_\_\_\_\_ Outdoor Rain Proof  
& Corrosion Ristant

☐ Stainless Steel 304SS

☐ Stainless Steel 316SS

☐ FRP Fiberglass Reinforced Plastic

☐ NEMA 2 Standard Firepumps

Optional:

☐ NEMA 3R ☐ NEMA 12 ☐ NEMA 4 ☐ NEMA 4X

### Standard Products:

☐ Manual Motor Starters

☐ Circuit Breaker Disconnects

☐ FVNR & FVR Motor Starters

☐ Custom Distribution Panels

☐ Motor Soft Starters

☐ Standard Distribution Panels

☐ Manual Disconnect Switches

