Duplex Pump Control

Circuit Breaker Combination Starter


Pump Control Panel

Starters & Enclosed Products · **C**

back pan. Outsourced components are industrial control quality from name brand manufacturers. Control wiring and device function is electrically tested before the panel leaves our facility.

ISO 9001 and ATEX Certified

Sprecher + Schuh is committed to a quality system, focused on customer solutions. This is achieved through superior products and services, excellent customer service, technical expertise, supplier partnerships, and industry leadership.
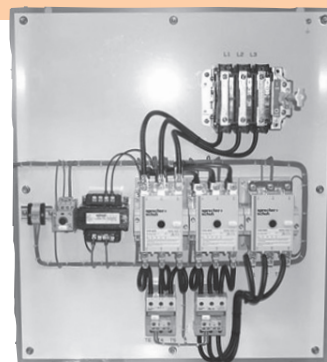
Our facility is ISO 9001 certified. That was the catalyst in allowing Sprecher + Schuh to obtain Atmospheres Explosives certification (ATEX). ATEX certification permits us to build explosion-proof equipment and panels to be supplied across the European Union, including Canada.
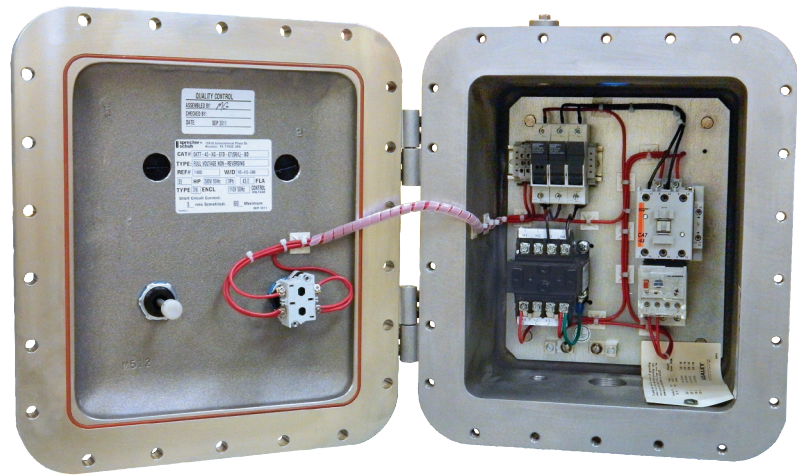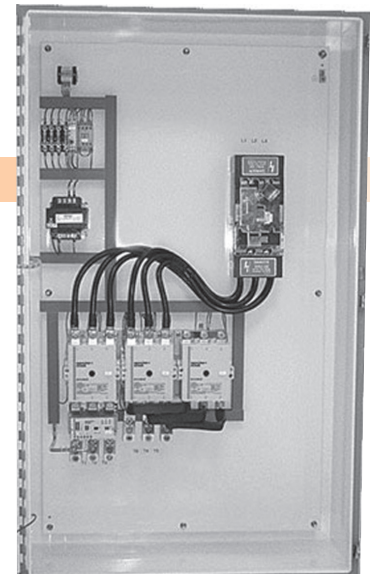

Explosion Proof Non-combination Starter
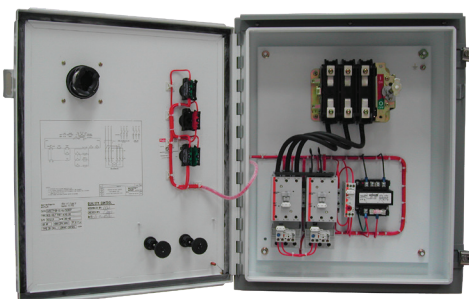
Part-Winding Starter

Multi-Speed Starter

Wye-Delta Starter

Catalog Number Coding
Standard Starters and Enclosed Contactors

FMS and KWIKstarters do not use these principles

CAT 7-30 – 480

Contactors or Starter Type

Contactor Size

Coil Code (or CPT)

Contactors or Starter Type

Non-reversing
CA	Contactor
CAT	Starter
CBT	Starter (Single Phase)
CATN	Starter (NEMA- Three Phase)
CBTN	Starter (NEMA- Single Phase)

Reversing
CAU	Reversing Contactor
CBU	Reversing Contactor (Single Phase)
CAUT	Reversing Starter
CBUT	Reversing Starter (Single Phase)
CAUTN	Reversing Starter (NEMA)

Multi-speed
CAZTT	Multispeed-Two Wind. (Conts/VAR TQ)
CAZHT	Multispeed-Two Wind. (Const. HP)
CAETT	Multispeed-One Wind. (Conts/VAR TQ)
CAEHT	Multispeed-One Wind. (Const. HP)

Reduced Voltage
CAAT	Autotransformer Starter
CAYT	Wye-Delta Starter
CAPWT	Part Winding Starter

Pump Panels
CAPT	Simplex Pump Panel
CAPTN	Simplex Pump Panel (NEMA Size)
CADPT	Duplex Pump Panel

Contactor Size

Small - Series CA7 ❶
- 7-9(E)
- 7-12(E)
- 7-16(E)
- 7-23(E)
- 7-30(E)
- 7-37(E)
- 7-43(E)
- 7-55(E)
- 7-60(D)
- 7-72(D)
- 7-85(D)
- 7-97(D)

Medium - Series CA9
- 9-116(-EI)
- 9-146(-EI)
- 9-190(-EI)
- 9-205(-EI)
- 9-265(-EI)
- 9-305(-EI)
- 9-370(-EI)
- 9-400-EI
- 9-460-EI
- 9-580-EI
- 9-750-EI
- 9-860-EI
- 9-1060-EI

Coil Code (or CPT)

AC	DC
24Z	12E
120	24E, 24DD
220W	24W
277	36E
415	48E
480	110E, 110DD
600	220E

AC/DC
- 24W
- 48W
- 120W
- 480W

Control Transformer

Code	Primary	Secondary
XA	208	120
XB	240	120
XC	480	120
XD	575	120
XE	240	24
XF	480	24
XG	380	110

For additional **Control Transformer Codes**, refer to Modification pages in this section.

This illustration is for reference only. Turn to the appropriate page to determine specific catalog number.

❶ (D) & (E) suffix designates contactors with DC coils

— EED — TB20 — G 3

— EED — Overload Relay
TB20 Short-Circuit / Disconnect
G Enclosure
3 Enclosure Cover Control
Options

C

Starters & Enclosed Products

CEP7 Second Generation - Solid State
CA7-9 thru CA9-1060-EI

D1...	CEP7 O/L Relay, 3Ø, Class 10, man. reset
E...	CEP7S O/L Relay, 1Ø, (selectable)
E...	CEP7 O/L Relay, 3Ø, (selectable)
CT..	Current Transformers

CT7N - Bimetallic Thermal
CA7-9 thru CA7-97

...A-C	CT7N O/L Relay, Class 10, manual or automatic reset
...P	CT7N O/L Relay, Class 10, manual or automatic reset, separate mount

Enclosure

G	General Purpose - Type 1
D	Dusttight - Type 12
W	Watertight - Type 4
C	Watertight Corrosion Resistant - Type 4X
R	Raintight - Type 3R
E	Explosion proof - Type 7

Enclosure Cover Control

Non-Reversing
1	Pilot Light Only
2	Pilot Lights (2) Only
3	"Start-Stop" PB
4	"On-Off" PB
5	"Hand-Auto" S/S
6	"Off-On" S/S
7	"Hand-Off-Auto" S/S
9	"Emergency Stop" PB
0	None

Reversing
2	Pilot Lights (2) Only
3	"For-Stop-Rev" PB
4	"Up-Stop-Down" PB
5	"Open-Stop-Close" PB
6	"For-Off-Rev" S/S
7	"Up-Off-Close" S/S
8	"Open-Off-Close" S/S
0	None

Multi-speed
2	Pilot Lights (2) Only
3	"High-Stop-Low"
4	"Fast-Stop-Slow"
5	"High-Off-Low"
6	"Fast-Off-Slow" S/S

For additional **Cover Control Codes**, refer to Modifications page in this section.

For complete listing of **Option Codes**, refer to Modification pages in this section.

Through-the-Door Operated Combo

Thermal Magnetic Circuit Breaker		Fusible Disconnect		Non Fusible Disconnect	
TB(H)15	15 Amp	**JF61**	600V/30A	**JU61**	600V/30A
TB20	20 Amp	**JF62**	600V/60A	**JU62**	600V/60A
TB25	25 Amp	**JF63**	600V/100A	**JU63**	600V/100A
thru		**JF64**	600V/200A	**JU64**	600V/200A
		JF65	600V/400A	**JU65**	600V/400A
TB1200	1200 Amp	**JF66**	600V/600A		
		JF67	600V/800A		
Blank	None	**Blank**	None	**Blank**	None

* TBH represents high interrupt capacity breaker

NEMA / UL Enclosure Type Definitions
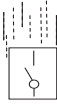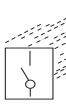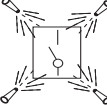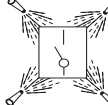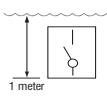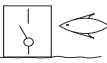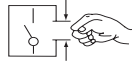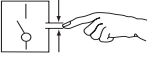
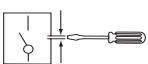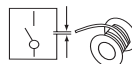| For a degree of protection against:	NEMA / UL Type (IP Equivalent ❶)								
	Indoor Use			Outdoor Use		Indoor or Outdoor Use			
	1 (IP23)	12 (IP55/65)	13 (IP65)	3R	3 (IP64)	4 (IP66)	4X (IP66)	6P	6 (IP67)
Incidental contact with enclosed equipment	✓	✓	✓	✓	✓	✓	✓	✓	✓
Falling dirt	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rust	✓	✓	✓	✓	✓	✓	✓	✓	✓
Circulating dust, lint, fibers and flyings		✓	✓		✓	✓	✓	✓	✓
Windblown dust					✓	✓	✓	✓	✓
Falling liquids and light splashing		✓	✓		✓	✓	✓	✓	✓
Rain (limited water allowed inside)				✓	✓	✓	✓	✓	✓
Rain (no water allowed inside)					✓	✓	✓	✓	✓
Snow and sleet				✓	✓	✓	✓	✓	✓
Hosedown and splashing water						✓	✓	✓	✓
Occasional prolonged submersion								✓	✓
Oil or coolant spraying or splashing			✓						
Corrosive agents							✓	✓	
Occasional temporary submersion								✓	✓

Explosion-Proof Enclosure Type Definitions

NEMA Classifications - Marked with Rated Class, Division, and Group	
NEMA 7	For use in indoor locations classified as Class I, Groups A, B, C or D, as defined in the National Electrical Code
NEMA 8	For use in indoor or outdoor locations classified as Class I, Groups A, B, C or D, as defined in the National Electrical Code - oil immersed
NEMA 9	For use in indoor locations classified as Class II, Groups E, F or G, as defined in the National Electrical Code

Summary of NEC Classes and Group Examples			
Group	**Class I** (Potentially explosive gas or vapor)	**Group**	**Class II** (Potentially explosive dusts)
A	Acetylene	E	Metallic Dusts (all metals)
B	Hydrogen, Ethylene Oxide, Propylene Oxide	F	Carbonaceous Dusts (coal, asphalt, etc.)
C	Ether, Hydrogen Sulfide, Hydrazine, Nitroethane	G	Nonconductive Dusts (grain, drugs, pesticides, plastics, dyes, etc.)
D	Methane, Acetone, Benzene, Gasoline, Naptha		

Summary of NEC Divisions	
Division 1	Potentially explosive substance present under normal operating conditions
Division 2	Potentially explosive substance present under abnormal operating conditions

❶ IP Equivalents are only approximate. It is the responsibility of the user to verify the enclosure rating necessary for the given application.

C Starters & Enclosed Products

IP Ratings Definitions

IP Ratings Definitions The first IP number (left side of chart) is protection against solid objects. The second IP number (across top) is protection against liquids. The chart itself shows degrees of protection according to IEC 529.	No protection **IP…0**	Protected against vertically falling drops of water (condensation) **IP…1**	Protected against dripping water with enclosure up to 15° from vertical **IP…2**	Protected against sprayed water up to 60° from vertical **IP…3**	Protected against sprayed water from all directions (limited ingress permitted) **IP…4**	Protected against low pressure water jets from all directions (limited ingress permitted) **IP…5**	Protected against strong jets of water from all directions **IP…6**	Protected against immersion up to one meter **IP…7**	Protected against long periods of immersion under pressure **IP…8**
IP0… No protection	**IP00**								
IP1… Protected against solid objects up to 50mm (accidental touch by hands)	**IP10**	**IP11**	**IP12**						
IP2… Protected against solid objects up to 12mm (fingers, knuckles)	**IP20**	**IP21**	**IP22**	**IP23**					
IP3… Protected against solid objects up to 2.5mm (tools, wires)	**IP30**	**IP31**	**IP32**	**IP33**	**IP34**				
IP4… Protected against solid objects up to 1mm (wires)	**IP40**	**IP41**	**IP42**	**IP43**	**IP44**				
IP5… Protected against dust (limited engress permitted)	**IP50**			**IP53**	**IP54**	**IP55**	**IP56**		
IP6… Totally protected against dust	**IP60**					**IP65**	**IP66**	**IP67**	

Orange Express

A program designed to meet the demand for shipment of enclosed contactors, starters and Type E Self-Protected Manual Motor Controllers in 3 days or less, from the time we enter your order until it is ready for shipment; GUARANTEED.

DISCONTINUED

Sprecher + Schuh has shipped stock components for years while the demands on our Custom Control Panel Shop business has steadily increased. Our panel facilities accommodate customer demand for quick turn around on standard enclosed contactors, manual motor starters, magnetic motor starters and combination starters. More stock, more manpower and streamlined logistics are all combined to make it possible for Sprecher + Schuh to guarantee three day shipment for a variety of enclosed products.

Check out the details of Orange Express; we are confident you won't be disappointed!

ORANGE EXPRESS

Getting started

- Orange Express orders received by Customer Service by noon on day one will ship by the end of day three.
- Orange Express orders must be complete with all details before the three day clock can be started.
- Orange Express orders must be clearly identified as an Orange Express order on the purchase order.
- Orange Express orders may be shipped standard freight or express. Express delivery must be clearly marked and will be pre-paid and charged.
- Orange Express orders are limited to the enclosed products detailed and marked with the OE logo in this catalog.
- Orange Express orders may include **up to five items**; that's five of the same item or five different line items.
- Orange Express orders must utilize established Sprecher + Schuh standard wiring diagrams.
- Orange Express orders cannot be combined with any other specialty programs.

C

Starters & Enclosed Products

Look for the Orange Express Icons

The OE icon is scattered throughout the catalog, indicating which products are available in the program. Orange Express includes the following products:

- KWIKstarters
- FVNR CA7 Contactors – Type 1 and 12 enclosed
- FVR CA7 Contactors – Type 1 and 12 enclosed
- FVNR CAT7 Magnetic Starters – Type 1, 12 and non-metallic 4X enclosed
- FVR CAUT7 Magnetic Starters – Type 1, 12 and non-metallic 4X enclosed
- FVNR CBT7 Magnetic Starters – Type 1, 12 and non-metallic 4X enclosed
- FVR CBUT7 Magnetic Starters – Type 1, 12 and non-metallic 4X enclosed.

- FVNR CATN7 NEMA Size 00, 0, 1 and 2 Magnetic Starters – Type 1, 12 and non-metallic 4X enclosed
- Combo CAT7 & CATN7 MCCB FVNR Magnetic Starters - Type 1, 12 and non-metallic 4X enclosed
- Combo CAT7 Fusible FVNR Magnetic Starters - Type 1, 12 and non-metallic 4X enclosed
- Combo CAT7 Non-Fusible FVNR Magnetic Starters - Type 1, 12 and non-metallic 4X enclosed
- KTA7 Type E Self-Protected Manual Motor Controller – Type IP65, 12, 4 and non-metallic 4X enclosed
- CX7 Type E KTA7 Self-Protected Combination FVNR Controller – Type 4/12 enclosed

- All contactors and starters listed are with AC coil only
- Options - factory installed modifications include:
  - Start – Stop Pushbutton
  - Hand – Off – Auto Selector Switch
  - Forward – Stop – Reverse Pushbutton for FVR starters/ contactors
  - Forward – Off – Reverse Selector Switch for FVR starters/contactors
  - Pilot Lights (Two Maximum)
  - Additional interlocks
  - Surge Suppressor
  - Control Power Transformer (with primary and secondary fusing as required)

Our Guarantee

Orange Express orders not shipped by day three, for some unforeseen reason, will be shipped via premium freight at our expense; that's Sprecher + Schuh's guarantee of quality service and performance.

Custom Control Panels

Designed and built to meet *Your* needs

ISO9001, UL508 &
UL1203 (NNNY)
Certified Panel Shop

Including ATEX Solutions

## Need Custom Control Panels? You Got It

Sprecher + Schuh is your go to builder for custom motor control panels. Our panel shops are UL508 and CSA approved. This means our knowledgeable team can design your panel for custom applications to meet UL/CSA, ATEX, UL1203, and CE standards. Our engineering and custom quotes staff work with the customer one-on-one in designing a motor control panel that best fits the customer's needs. No job is too small or too big for our staff to take on.

We continuously strive to develop innovative, new products and improve existing designs. We constantly strive to maintain a superior level of service including our ISO 9001 Certification.

Our large panel shop is designed to accommodate our customers' needs. We stock not only Sprecher + Schuh components but also MCCB and popular enclosures in a variety of sizes and types (metallic, non-metallic, and explosion-proof). This means we can design, assemble, wire, and quickly ship a variety of custom panels.

What Can We Build For You?

Regardless of your industry or custom control panel needs, we at Sprecher + Schuh have the engineering experience and manufacturing facilities to design and build your panels. Whether your need is to design an OEM panel that will be repeated, or a one-of-a-kind, we have an experienced engineering and quality control team dedicated to providing the best solution to your custom control panels. Our manufacturing facilities are staffed with experienced wiring and installation technicians, ensuring your custom panel meets safety and performance criteria. Through this commitment to service, and never-ending attention to detail, we continue to be the first and last words in motor protection.

SSNA2018
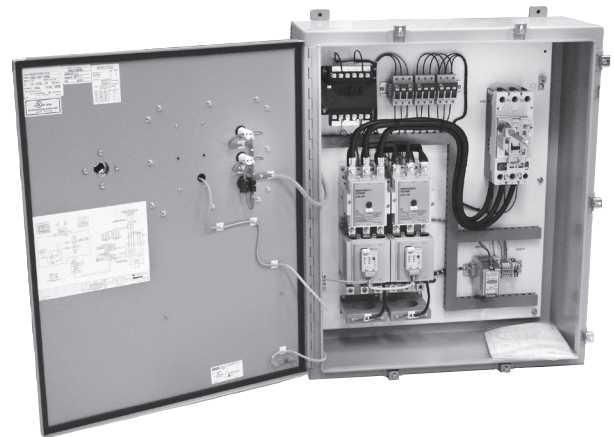
Custom Built Panels

Custom built to your specifications!

- Multi-Motor Starter Panels
- Combination & Non-Combination Motor Starters
- Reduced Voltage Starters
- Softstarter Panels (see Section D)
- Multi-plex Pump Panels
- Door-in-Door Panels
- Explosion-Proof Starters
- UL508/CSA Labeled Custom Panels
- ATEX Explosion Proof Panels
- Labeled Service Entrance Rated Panels
- and many more!

For your
Custom application
contact:
customquotes@sprecherschuh.com