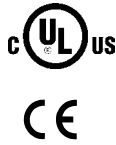


Duplex Pump Controllers

Sprecher + Schuh duplex pump control panels are specifically designed to meet multi-starter combination requirements as defined in demanding outdoor environmental conditions.

Duplex pump controllers are typically designed for two specific requirements: duplexing and alternation.



Duplexing provides capacity for above normal demand or system peaking by allowing both motors to run simultaneously. It also provides standby capacity if one unit fails. Typically multiple pressure or float switches are required to provide electrical signals to the controller.

Alternation provides for equal wear on the two machines being controlled by reversing the lead and lag role of the specific motors. Alternation occurs at any time the two motors come to rest.

Duplex Pump Controllers from Sprecher + Schuh offer through-the-door operators and rugged Type 3R rain-proof metal or Type 4X non-metallic enclosures.

Three models of Duplex Controllers

- **Thermal-magnetic circuit breakers (MCCB)** instead of a motor circuit protector (MCP) to comply with new short-circuit requirements from UL and NEC.
- **Heavy duty fusible or non-fusible L11 disconnect switches** providing improved short-circuit protection when used with J fuses.
- **Self-protected Combination Controllers (Type E)** KTA7 models which offers superior fuseless short-circuit protection in a smaller more economical package (See page F111).



contactors which comply with all requirements by UL and are labeled with the applicable NEMA (00, 0, 1, 2, or 3) size in our pump panels.

Our MCCB models and the L11 models utilize the CEP7 solid state overload relay providing state-of-the-art overload and single-phase protection. See Section B in this catalog for a full description of these excellent motor protection relays.

Our KTA7 model utilizes the high speed current limiting capabilities providing short-circuit protection, branch-circuit disconnect, and overload protection in one compact device. These Type E panels are smaller than classic models and therefore represent an economical solution to duplexing. See Section F in this catalog for application details for these Type E Combos.

Experience has shown us that duplex pump panels often require customization to accommodate unique components and unique control schematic diagrams. In the following pages you will find a catalog number structure showing standard models with standard options to help guide your selection. We have also provided a check list which can be utilized to request a similar model except customized to meet your application by contacting your Sprecher + Schuh representative.

Custom Control Panels

Sprecher + Schuh custom control facility manufactures custom panels for almost any need, including this duplex control panel in a custom Type 4 stainless steel enclosure.

Duplex pump panels feature our CA7 and CA9 line of contactors, which are UL Listed and sized to match all the available HP sizes of motors. Alternately, we can provide NEMA Sized (CAN7)



Duplex Pump Panel Checklist	
Customer Name: _____	Location: _____
Project Name: _____	_____
Contact Person: _____	Phone No.: _____
Email: _____	Date: _____

G
Simplex & Duplex Pump Panels

Standard catalog number selected from the following pages: _____

with the exceptions noted below

Application Data: Motor HP: _____ Voltage: _____ Phase: _____ FLA _____
 Disconnect? Yes No
 If yes, type of disconnect: J-Type Fusible Non-Fusible Circuit breaker Type E combination controller

Starting Method: Across-the-line
 Softstarter

Control Transformer: Yes No
 If Yes, is there any extra VA capacity required other than what is provided as standard? _____ Extra VA required

Options: H-O-A
 Pilot Light; Color _____ Function _____
 Terminal Points; Qty _____
 Phase Monitor
 Hour Meter
 Lightning Arrestor
 Alternator
 Number of float switches 1 2 3
 Alarm Circuit Horn Light Type _____ Alarm Silence Button
 Other _____ Custom Schematic (Must be attached)

Enclosure: Type 1 Type 12 Type 13 Type 3R Type 4
 Type 4X If Type 4X, non-metallic 304 stainless steel 316 stainless steel
 Door-in-door (dead front)

Special Features:

Series CADPT7 and CADPT9

Maximum Horsepower Three Phase			Type 3R Rainproof (Metal)		D I M	Type 4X Watertight Corrosion Resistant Non-metallic		D I M
230V	460V	575V	Catalog No.	Price		Catalog No.	Price	
			CADPT	R/F		CADPT	R/F	
2	5	7.5	7-9-*◆-R0	R/F	R/F	7-9-*◆-C0	R/F	R/F
3	7.5	10	7-12-*◆-R0	R/F	R/F	7-12-*◆-C0	R/F	R/F
5	10	15	7-16-*◆-R0	R/F	R/F	7-16-*◆-C0	R/F	R/F
7.5	15	15	7-23-*◆-R0	R/F	R/F	7-23-*◆-C0	R/F	R/F
10	20	25	7-30-*◆-R0	R/F	R/F	7-30-*◆-C0	R/F	R/F
10	25	30	7-37-*◆-R0	R/F	R/F	7-37-*◆-C0	R/F	R/F
15	30	30	7-43-*◆-R0	R/F	R/F	7-43-*◆-C0	R/F	R/F
20	40	40	7-55-*◆-R0	R/F	R/F	7-55-*◆-C0	R/F	R/F
20	40	50	7-60-*◆-R0	R/F	R/F	7-60-*◆-C0	R/F	R/F
25	50	60	7-72-*◆-R0	R/F	R/F	7-72-*◆-C0	R/F	R/F
30	60	60	7-85-*◆-R0	R/F	R/F	7-85-*◆-C0	R/F	R/F
30	75	75	7-97-*◆-R0	R/F	R/F	7-97-*◆-C0	R/F	R/F
40	75	100	9-116-*◆-R0 ①	R/F	R/F	9-116-*◆-C0 ①	R/F	R/F
50	100	125	9-146-*◆-R0 ①	R/F	R/F	9-146-*◆-C0 ①	R/F	R/F
60	125	150	9-190-*◆-R0 ①	R/F	R/F	9-190-*◆-C0 ①	R/F	R/F
75	150	200	9-205-*◆-R0 ①	R/F	R/F	9-205-*◆-C0 ①	R/F	R/F
100	200	250	9-265-*◆-R0 ①	R/F	R/F	9-265-*◆-C0 ①	R/F	R/F
125	250	300	9-305-*◆-R0 ①	R/F	R/F	9-305-*◆-C0 ①	R/F	R/F
150	300	350	9-370-*◆-R0 ①	R/F	R/F	9-370-*◆-C0 ①	R/F	R/F
150	350	400	9-400-EI-*◆-R0	R/F	R/F	9-400-EI-*◆-C0	R/F	R/F
200	400	500	9-460-EI-*◆-R0	R/F	R/F	9-460-EI-*◆-C0	R/F	R/F
250	500	600	9-580-EI-*◆-R0	R/F	R/F	9-580-EI-*◆-C0	R/F	R/F
300	600	700	9-750-EI-*◆-R0	R/F	R/F	9-750-EI-*◆-C0	R/F	R/F
400	800	1000	9-860-EI-*◆-R0	R/F	R/F	9-860-EI-*◆-C0	R/F	R/F
450	900	1150	9-1060-EI-*◆-R0	R/F	R/F	9-1060-EI-*◆-C0	R/F	R/F

Duplex Pump Controller includes:

- (2) Contactors (AC coil)
- (2) Overload relay protection
- (1) Electronic alternating relay
- (1) UL type rated enclosure
- Designed per alternation control diagram shown at bottom of page C119

R/F - Experience has shown that applications using non-metallic enclosures often require customized pump panels (i.e. Door-in-Door or unique control circuit). Contact your Sprecher + Schuh representative for a customized price.

Note: Catalog numbers, list prices and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C104 and follow the instructions for modifying Catalog Numbers.

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See page C104
Replace (◆) with O/L Relay	See pages C105-C106
Factory Modifications available	See pages C107-C111

- ① CAT9-116...CAT9-370 starters are available with "EI" option for PLC interface. Change catalog number to include "-EI". Example: CADPT9-116-*◆-R0 becomes CADPT9-116-EI-*◆-R0. See page C104 for price adder.

Series CADPT7 and CADPT9 with Thermal-Magnetic Circuit Breaker

Maximum Horsepower Three Phase			MCCB Amps	Type 3R Rainproof (Metal)	D I M	Type 4X Watertight Corrosion Resistant Non-metallic	D I M
230V	460V	575V		Catalog Number		Price	
				CADPT	R/F	CADPT	R/F
2	5	~	15	7-9-*◆-TB15RO	R/F	7-9-*◆-TB15CO	R/F
2	5	5	15	7-9-*◆-TBH15RO	R/F	7-9-*◆-TBH15CO	R/F
~	~	7.5	20	7-9-*◆-TBH20RO	R/F	7-9-*◆-TBH20CO	R/F
3	7.5	~	20	7-12-*◆-TB20RO	R/F	7-12-*◆-TB20CO	R/F
3	7.5	10	20	7-12-*◆-TBH20RO	R/F	7-12-*◆-TBH20CO	R/F
5	10	~	30	7-16-*◆-TB30RO	R/F	7-16-*◆-TB30CO	R/F
~	~	15	35	7-23-*◆-TBH35RO	R/F	7-23-*◆-TBH35CO	R/F
7.5	15	~	40	7-23-*◆-TB40RO	R/F	7-23-*◆-TB40CO	R/F
10	20	25	50	7-30-*◆-TB50RO	R/F	7-30-*◆-TB50CO	R/F
10	20	25	50	7-30-*◆-TBH50RO	R/F	7-30-*◆-TBH50CO	R/F
10	25	30	50	7-37-*◆-TB50RO	R/F	7-37-*◆-TB50CO	R/F
10	25	30	50	7-37-*◆-TBH50RO	R/F	7-37-*◆-TBH50CO	R/F
~	30	~	70	7-43-*◆-TB70RO	R/F	7-43-*◆-TB70CO	R/F
15	~	~	80	7-43-*◆-TB80RO	R/F	7-43-*◆-TB80CO	R/F
20	40	40	80	7-55-*◆-TB80RO	R/F	7-55-*◆-TB80CO	R/F
20	40	40	80	7-55-*◆-TBH80RO	R/F	7-55-*◆-TBH80CO	R/F
~	~	40	80	7-60-*◆-TB80RO	R/F	7-60-*◆-TB80CO	R/F
~	~	40	80	7-60-*◆-TBH80RO	R/F	7-60-*◆-TBH80CO	R/F
20	40	50	100	7-60-*◆-TB100RO	R/F	7-60-*◆-TB100CO	R/F
20	40	50	100	7-60-*◆-TBH100RO	R/F	7-60-*◆-TBH100CO	R/F
25	50	60	125	7-72-*◆-TB125RO	R/F	7-72-*◆-TB125CO	R/F
25	50	60	125	7-72-*◆-TBH125RO	R/F	7-72-*◆-TBH125CO	R/F
30	60	~	125	7-85-*◆-TB125RO	R/F	7-85-*◆-TB125CO	R/F
~	~	75	150	7-97-*◆-TB150RO	R/F	7-97-*◆-TB150CO	R/F
~	~	75	150	7-97-*◆-TBH150RO	R/F	7-97-*◆-TBH150CO	R/F
~	75	~	175	9-116-*◆-TB175RO	R/F	9-116-*◆-TB175CO	R/F
~	75	~	175	9-116-*◆-TB175RO	R/F	9-116-*◆-TB175CO	R/F
40	~	100	200	9-116-*◆-TB200RO	R/F	9-116-*◆-TB200CO	R/F
~	100	125	225	9-146-*◆-TB225RO	R/F	9-146-*◆-TB225CO	R/F
50	~	~	250	9-146-*◆-TB250RO	R/F	9-146-*◆-TB250CO	R/F
60	125	150	300	9-190-*◆-TB300RO	R/F	9-190-*◆-TB300CO	R/F
75	150	200	350	9-205-*◆-TB350RO	R/F	9-205-*◆-TB350CO	R/F
~	175	~	400	9-265-*◆-TB400RO	R/F	9-265-*◆-TB400CO	R/F
100	200	250	450	9-265-*◆-TB450RO	R/F	9-265-*◆-TB450CO	R/F
~	~	~	500	9-305-*◆-TB500RO	R/F	9-305-*◆-TB500CO	R/F
125	250	300	600	9-305-*◆-TB600RO	R/F	9-305-*◆-TB600CO	R/F
~	~	350	600	9-370-*◆-TB600RO	R/F	9-370-*◆-TB600CO	R/F
150	300	~	700	9-370-*◆-TB700RO	R/F	9-370-*◆-TB700CO	R/F
150	~	400	700	9-400-EI-*◆-TB700RO	R/F	9-400-EI-*◆-TB700CO	R/F
~	350	~	800	9-400-EI-*◆-TB800RO	R/F	9-400-EI-*◆-TB800CO	R/F
~	~	~	800	9-460-EI-*◆-TB800RO	R/F	9-460-EI-*◆-TB800CO	R/F
200	400	500	1000	9-460-EI-*◆-TB1000RO	R/F	9-460-EI-*◆-TB1000CO	R/F
~	~	600	1000	9-580-EI-*◆-TB1000RO	R/F	9-580-EI-*◆-TB1000CO	R/F
250	500	~	1200	9-580-EI-*◆-TB1200RO	R/F	9-580-EI-*◆-TB1200CO	R/F

Duplex Pump Controller with circuit breaker includes:

- (2) Contactors (AC coil)
- (2) Overload relay protection
- (2) Thermal magnetic circuit breakers
- (1) Electronic alternating relay
- (1) UL type rated enclosure
- Designed per alternation control diagram shown at bottom of page C119

R/F - Experience has shown that applications using non-metallic enclosures often require customized pump panels (i.e. Door-in-Door or unique control circuit). Contact your Sprecher + Schuh representative for a customized price.

Note: Catalog numbers, list prices and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C104 and follow the instructions for modifying Catalog Numbers.

Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See page C104
Replace ◆ with O/L Relay	See pages C105-C106
Factory Modifications available	See pages C107-C111

- ① Applicable to 600Y/347V only.
- ② The short circuit and kAIC is relegated to the contactor's 10kA. Contact your Sprecher + Schuh representative for a higher kAIC.
- ③ CAT9-116...CAT9-370 starters are available with "EI" option for PLC interface. Change catalog number to include "-EI". Example: CADPT9-116-*◆-TB175RO becomes CADPT9-116-EI-*◆-TB175RO. See page C104 for price adder.

Series CADPT7 and CADPT9 with Fusible Disconnect (J-Type) ①②

Maximum Horsepower Three Phase				Fuse clip Amps	Type 3R Rainproof (Metal)	D I M	Type 4X Watertight Corrosion Resistant Non-metallic	D I M
200V	230V	460V	575V		Catalog Number		Price	
					CADPT		CADPT	
2	2	5	7.5	30	7-9-*◆-JF61R0	R/F	7-9-*◆-JF61C0	R/F
3	3	7.5	10	30	7-12-*◆-JF61R0	R/F	7-12-*◆-JF61C0	R/F
5	5	10	15	30	7-16-*◆-JF61R0	R/F	7-16-*◆-JF61C0	R/F
5	~	~	~	30	7-23-*◆-JF61R0	R/F	7-23-*◆-JF61C0	R/F
~	7.5	15	15	60	7-23-*◆-JF62R0	R/F	7-23-*◆-JF62C0	R/F
7.5	10	20	25	60	7-30-*◆-JF62R0	R/F	7-30-*◆-JF62C0	R/F
10	10	25	30	60	7-37-*◆-JF62R0	R/F	7-37-*◆-JF62C0	R/F
10	~	30	30	60	7-43-*◆-JF62R0	R/F	7-43-*◆-JF62C0	R/F
~	15	~	~	100	7-43-*◆-JF63R0	R/F	7-43-*◆-JF63C0	R/F
~	~	~	40	60	7-55-*◆-JF62R0	R/F	7-55-*◆-JF62C0	R/F
15	20	40	~	100	7-55-*◆-JF63R0	R/F	7-55-*◆-JF63C0	R/F
~	~	~	40	60	7-60-*◆-JF62R0	R/F	7-60-*◆-JF62C0	R/F
15	20	40	50	100	7-60-*◆-JF63R0	R/F	7-60-*◆-JF63C0	R/F
20	25	50	60	100	7-72-*◆-JF63R0	R/F	7-72-*◆-JF63C0	R/F
~	~	~	60	100	7-85-*◆-JF63R0	R/F	7-85-*◆-JF63C0	R/F
25	30	60	~	200	7-85-*◆-JF64R0	R/F	7-85-*◆-JF64C0	R/F
30	30	75	75	200	7-97-*◆-JF64R0	R/F	7-97-*◆-JF64C0	R/F
30	40	75	100	200	9-116-*◆-JF64R0 ③	R/F	9-116-*◆-JF64C0 ③	R/F
40	50	100	125	200	9-146-*◆-JF64R0 ③	R/F	9-146-*◆-JF64C0 ③	R/F
50	60	125	150	400	9-190-*◆-JF65R0 ③	R/F	9-190-*◆-JF65C0 ③	R/F
60	75	150	200	400	9-205-*◆-JF65R0 ③	R/F	9-205-*◆-JF65C0 ③	R/F
75	100	200	250	400	9-265-*◆-JF65R0 ③	R/F	9-265-*◆-JF65C0 ③	R/F
100	125	250	300	600	9-305-*◆-JF66R0 ③	R/F	9-305-*◆-JF66C0 ③	R/F
125	150	300	350	600	9-370-*◆-JF66R0 ③	R/F	9-370-*◆-JF66C0 ③	R/F
125	150	~	400	600	9-400-EI-*◆-JF66R0	R/F	9-400-EI-*◆-JF66C0	R/F
~	~	350	~	800	9-400-EI-*◆-JF67R0	R/F	9-400-EI-*◆-JF67C0	R/F
150	200	400	500	800	9-460-EI-*◆-JF67R0	R/F	9-460-EI-*◆-JF67C0	R/F

Duplex Pump Controller with disconnect switch includes:

- (2) Contactors (AC coil)
- (2) Overload relay protection
- (2) J-type fusible disconnect switch (excluding line fuses)
- (1) Electronic alternating relay
- (1) UL type rated enclosure
- Designed per alternation control diagram shown at bottom of page C119

Note: Catalog numbers, list prices and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C104 and follow the instructions for modifying Catalog Numbers.

R/F - Experience has shown that applications requiring duplex pump panels often require customization. (i.e.: unique components and control circuits). Contact your Sprecher + Schuh representative for a customized price.

Ordering Instructions

Specify Catalog Number	
Replace (□) with Coil Code	See page C104 See pages C105-C106 See pages C107-C111
Replace (◆) with O/L Relay	
Factory Modifications available	

- ① Fusible combo starters use the L11 Disconnect. Fuse clips accept "J" type fuses. Power fuses not supplied.
- ② A Red and Yellow Handle may be selected instead of the standard Gray and Black handle. Change "JF" to "LF" in catalog number.
- ③ CAT9-116...CAT9-370 starters are available with "EI" option for PLC interface. Change catalog number to include "-EI". Example: CADPT9-116-*◆-JF64R0 becomes CADPT9-116-EI-*◆-JF64R0. See page C104 for price adder.

Type E/F Combination Controllers

An alternative to the
Classic Combination
Starter



Classic Construction Type C
Thermal Magnetic MCCB
Combination Starter



Construction Type E/F
E-Combo Self-Protected
Motor Controller



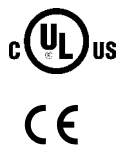
Classic Construction Type A
Fusible Combination Starter

The Classic Combo

Classic combination starters in Construction Type A use fusible L11 Disconnect switches. Construction Type C combos use UL489 Molded Case Circuit Breakers. Both are popular choices but Sprecher + Schuh's E-Combo line offers an alternative.

Advanced Alternative

Technology has advanced in the last two decades and UL, NEC, and CSA now recognize Self-Protected Combination Motor Controllers as providing a means of thru-the-door disconnect, short circuit protection, and overload protection in a single device (KTA7). Further, when KTA7 is combined with CA7 contactors for remote operation, the resulting assembly is a Construction Type E/F Combination Starter. Less components and a smaller enclosure means a functional equal to the Classic Combo at a reduced price.



The E-Combo Starter

Sprecher + Schuh's Ecombo and EcomboPlus starters are the compact alternative to larger and higher priced combination starters. E-Combos include:

- KTA7 "Type E/F" Self-protected Motor Controller with 1 N.O. front mount auxiliary contact
- CA7 or CAN7 Contactors (for remote operation)
- Terminal Adaptor for Type E Applications
- Power and Control Wiring
- Type 12/4 enclosure, dual rated - watertight, dusttight
- Gray/Black or Red/Yellow Type 4/4X/12; IP66 handle
- Factory installed pilot device options
- Higher SCCR ratings than MCCB combination versions
- All in a smaller NEMA Type 4/12 enclosure at a more economical price.

For details on these economical combination starter alternatives turn to Catalog Number Selection, page F105.

See page F105 for
Type E/F
Combination
Starter
Control Panels



Construction Type E/F
Reversing E-Combo Self-Protected
Motor Controller