

Type PSR Softstarters

ABB Softstarters Type PSR



6

General information

Designed for motor currents from 3 to 45 A, PSR Softstarters complement the existing advanced PST Softstarters for 30 - 1050 A and the flexible PSS Softstarters for 30 - 1050 A. The PSR Softstarter is compact and easily accessible for installation in places where space is limited.

The PSR range comprises three physical sizes with widths from 45 to 54mm, covers rated currents from 3 to 45 A and is available for supply voltages of 24 VDC or 100-240 VAC. All sizes include a Run signal relay while sizes from 25 A also have an output signal for TOR (Top of Ramp, i.e., full voltage).

Cooling function

With standard performance, the PSR Softstarters handle ten starts per hour. When an auxiliary cooling fan is added, the starting capacity is increased to 20 starts per hour.

Installation

The PSR Softstarter is easy to set and operate thanks to the clearly marked settings. All terminals are distinctly marked and easily accessible for cable connection. Both screw and DIN rail mounting are possible.

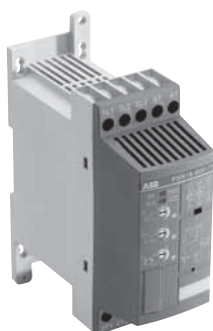
Flexible communication

PSR can also be remote controlled by bus communication using ABB's FieldBusPlug. The FieldBusPlug accessories are available for several protocols such as Profibus DP and Device Net.

The PSR Softstarter is ideal for the replacement of DOL starters and for installation in places with limited space.

Open

6



Type PSR16-600-70



Type PSR30-600-70



Type PSR45-600-70

PSR Open type

Connected In-Line Catalog number	Maximum motor current		Maximum horsepower			
	UL	IEC	208V	240V	480V	600V
PSR3-600-70 PSR3-600-81	3.4	3.9	0.5	0.75	2	2
PSR6-600-70 PSR6-600-81	6.1	6.8	1	1.5	3	5
PSR9-600-70 PSR9-600-81	9.0	9.0	2	2	5	7.5
PSR12-600-70 PSR12-600-81	11.0	12.0	3	3	7.5	10
PSR16-600-70 PSR16-600-81	15.2	16.0	3	5	10	10
PSR25-600-70 PSR25-600-81	24.2	25.0	7.5	7.5	15	20
PSR30-600-70 PSR30-600-81	28.0	30.0	7.5	10	20	25
PSR37-600-70 PSR37-600-81	34.0	37.0	10	10	25	30
PSR45-600-70 PSR45-600-81	46.2	45.0	15	15	30	40

PSR Open type

PSR3 - 600 - 70

Maximum motor current
when connected in-line

Line voltage
208V - 600 VAC

Control voltage
70 = 100 - 240 VAC
81 = 24 VDC

Type PSS Softstarters

ABB Softstarters
Type PSS



6

General information

ABB low voltage softstarters now cover the whole range from 3A to 1250A. The new PSS line brings a wide array of benefits for smaller motors in a flexible, compact form.

Flexible line

PSS18/30 to PSS300/515 softstarters provide a flexible solution for motor starting. Rated motor currents are covered from 18A to 300A when connected in line like a traditional full voltage starter. These units can also be wired inside the motor-delta, like a wye-delta starter, covering motors up to 515A. This flexibility makes it easier than ever before to replace wye-delta starters.

The total solid state solution — with no moving contacts in the power circuit — is an attractive solution for applications with many starts per hour. Adjustable parameters include acceleration time, initial voltage and optional current limit for starting and deceleration time for stopping.

Class 10 overload protection is standard for Type PSS enclosed softstarters.

UL File # E161428

General information

Catalog number explanation

PSS Open type

PSS - 18/30 - 500 - F ^③

Maximum motor current
when connected in-line

Maximum motor current
when connected inside delta

Control voltage

F - 100V – 120V, 50/60Hz
L - 220V – 240V, 50/60Hz

Line voltage

500: 208V – 500V
690: 575V – 690V

6

PSS Enclosed type

P 18 D F 1 - 48 A A

Soft starter
PSS enclosed

Softstarter amps
18 60 175
30 72 250
37 85 300
44 105
50 142

Connection type
L: Inline
D: Inside delta

Combination type
No digit – non-combination
F – fusible disconnect
B – thermal magnetic circuit breaker
M – magnetic only breaker
N – non-fusible disconnect

Enclosure
1 – NEMA 1
2 – NEMA 12 ^②
3 – NEMA 3R ^②
4 – NEMA 4 ^②
X – NEMA 4x stainless steel ^②

Options ^①

A – Start-stop pushbutton
B – Across the line rated (AC3) contactor with emergency bypass control
C – 2 position selector switch
D – 3 position selector switch
E – Pilot light
F – Start-stop pushbutton and pilot light
H – 2 position selector switch and pilot light
J – 3 position selector switch and pilot light
M – Shunt rated (AC1) bypass contactor
W – Isolation contactor

Fuse clip

A – 30A, 600V, Class J
B – 60A, 600V, Class J
C – 100A, 600V, Class J
D – 200A, 600V, Class J
E – 400A, 600V, Class J
F – 600A, 600V, Class J
G – 800A, 600V, Class L

Circuit breaker amp ratings

D – 15	M – 70	W – 225	E – 700
E – 20	N – 80	X – 250	
F – 25	P – 90	Y – 300	
G – 30	R – 100	Z – 350	
H – 35	S – 125	A – 400	
J – 40	T – 150	B – 450	
K – 50	U – 175	C – 500	
L – 60	V – 200	D – 600	

MCP/MAG only rating

A – 3	E – 50	J – 400
B – 5	F – 100	K – 600
C – 10	G – 150	L – 800
D – 25	H – 225	

Line voltage

20: 208V 120V control voltage
23: 230V 120V control voltage
38: 380V 220V control voltage
41: 415V 220V control voltage
48: 480V 120V control voltage
60: 600V 120V control voltage

^① For more options, see page 6.8
^② Bypass contactor required.
^③ See page 6.3 for the PSS03, PSS12 & PSS25 softstarters.

Open

Softstarters
Type PSS



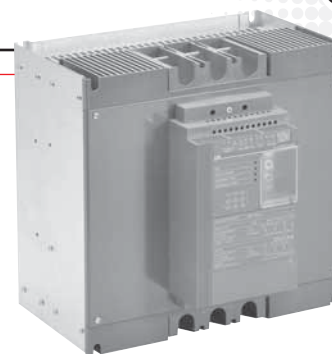
PSS18/30



PSS50/85



PSS85/147



PSS300/515

6

Connected inline ①②③

Maximum motor current		Maximum horsepower					Weight (lbs.)	Catalog number	List price
UL	IEC	208V	240V	380V	480V	600V			
18	18	5	5	10	10	15	5	PSS18/30-500F PSS18/30-690F	\$ 620 744
28	30	7.5	10	15	20	25	5	PSS30/52-500F PSS30/52-690F	680 820
34	37	10	10	20	25	30	5	PSS37/64-500F PSS37/64-690F	750 900
40	44	10	10	25	30	30	5	PSS44/76-500F PSS44/76-690F	900 1080
47	50	15	15	25	30	40	8	PSS50/85-500F PSS50/85-690F	1120 1345
56	60	15	20	30	40	50	8.4	PSS60/105-500F PSS60/105-690F	1325 1590
67	72	20	20	40	50	60	8.4	PSS72/124-500F PSS72/124-690F	1460 1750
85	85	25	30	50	60	75	19	PSS85/147-500F PSS85/147-690F	1650 1980
105	105	30	40	60	75	100	23	PSS105/181-500F PSS105/181-690F	1700 2040
125	142	40	40	75	100	125	23	PSS142/245-500F PSS142/245-690F	2250 2700
156	175	50	60	100	125	150	45	PSS175/300-500F PSS175/300-690F	2900 3395
225	250	75	75	150	150	200	48.4	PSS250/430-500F PSS250/430-690F	3400 3965
248	300	75	100	150	200	250	48.4	PSS300/515-500F PSS300/515-690F	3950 4530

Connected inside delta ①②③

30	30	7.5	10	15	20	25	5	PSS18/30-500F PSS18/30-690F	\$ 620 744
48	52	15	15	30	30	40	5	PSS30/52-500F PSS30/52-690F	680 820
58	64	20	20	30	40	50	5	PSS37/64-500F PSS37/64-690F	750 900
69	76	20	25	40	50	60	5	PSS44/76-500F PSS44/76-690F	900 1080
81	85	25	30	50	60	75	8	PSS50/85-500F PSS50/85-690F	1120 1345
96	105	30	30	60	75	75	8.4	PSS60/105-500F PSS60/105-690F	1325 1590
116	124	40	40	60	75	100	8.4	PSS72/124-500F PSS72/124-690F	1460 1750
147	147	50	50	75	100	150	19	PSS85/147-500F PSS85/147-690F	1650 1980
181	181	60	60	100	150	150	23	PSS105/181-500F PSS105/181-690F	1700 2040
215	245	75	75	150	150	200	23	PSS142/245-500F PSS142/245-690F	2250 2700
270	300	75	100	150	200	250	45	PSS175/300-500F PSS175/300-690F	2900 3395
389	430	125	150	250	300	400	48.4	PSS250/430-500F PSS250/430-690F	3400 3965
429	515	150	150	300	350	400	48.4	PSS300/515-500F PSS300/515-690F	3950 4530

NOTE: Open softstarters are converted from connected inline to connected inside delta by means of a DIP switch. See circuit diagram on pages 6.13 - 6.15 for information.

① Catalog numbers are shown with 120V control. For 240V control, replace "F" with "L" in catalog number.

② Overload protection not included; external overload relay must be in power circuit. Use ABB TA series overload.

③ Current transformer not included. See page 6.8 for current transformers.



Enclosed ① NEMA 1, 12

Connected inline



Maximum motor current		Maximum horsepower					NEMA 1, 480V		NEMA 1, 600V		NEMA 12, 480V ②		NEMA 12, 600V ②	
UL	IEC	208V	240V	380V	480V	600V	Catalog number	List price	Catalog number	List price	Catalog number	List price	Catalog number	List price
18	18	5	5	10	10	—	P18L1-48	\$ 1095	—	—	P18L2-48M	\$ 1395	—	—
		—	—	—	—	15	—	—	P18L1-60	\$ 1219	—	—	P18L2-60M	\$ 1519
25	—	—	7.5	—	15	—	P22L1-48	1155	—	—	P22L2-48M	1480	—	—
		—	—	—	—	20	—	—	P22L1-60	1295	—	—	P22L2-60M	1620
28	30	7.5	10	15	20	—	P30L1-48	1155	—	—	P30L2-48M	1480	—	—
		—	—	—	—	25	—	—	P30L1-60	1295	—	—	P30L2-60M	1620
34	37	10	10	20	25	—	P37L1-48	1325	—	—	P37L2-48M	1725	—	—
		—	—	—	—	30	—	—	P37L1-60	1475	—	—	P37L2-60M	1875
40	44	10	10	25	30	—	P44L1-48	1475	—	—	P44L2-48M	1925	—	—
		—	—	—	—	30	—	—	P44L1-60	1755	—	—	P44L2-60M	2205
47	50	15	15	25	30	—	P50L1-48	1595	—	—	P50L2-48M	2045	—	—
		—	—	—	—	40	—	—	P50L1-60	1820	—	—	P50L2-60M	2270
56	60	15	20	30	40	—	P60L1-48	1860	—	—	P60L2-48M	2360	—	—
		—	—	—	—	50	—	—	P60L1-60	2135	—	—	P60L2-60M	2635
67	72	20	20	40	50	—	P72L1-48	1935	—	—	P72L2-48M	2485	—	—
		—	—	—	—	60	—	—	P72L1-60	2225	—	—	P72L2-60M	2775
85	85	25	30	50	60	—	P85L1-48	2475	—	—	P85L2-48M	3250	—	—
		—	—	—	—	75	—	—	P85L1-60	2805	—	—	P85L2-60M	3580
105	105	30	40	60	75	—	P105L1-48	2600	—	—	P105L2-48M	3375	—	—
		—	—	—	—	100	—	—	P105L1-60	2940	—	—	P105L2-60M	3715
125	142	40	40	75	100	—	P142L1-48	3350	—	—	P142L2-48M	4225	—	—
		—	—	—	—	125	—	—	P142L1-60	3800	—	—	P142L2-60M	4675
156	175	50	60	100	125	—	P175L1-48	3780	—	—	P175L2-48M	5180	—	—
		—	—	—	—	150	—	—	P175L1-60	4150	—	—	P175L2-60M	5550
225	250	75	75	150	150	—	P250L1-48	4300	—	—	P250L2-48M	5700	—	—
		—	—	—	—	200	—	—	P250L1-60	4750	—	—	P250L2-60M	6140
248	300	75	100	150	200	—	P300L1-48	4760	—	—	P300L2-48M	6460	—	—
		—	—	—	—	250	—	—	P300L1-60	5215	—	—	P300L2-60M	6915

Connected inside delta



30	30	7.5	10	15	20	—	P18D1-48	\$ 1095	—	—	P18D2-48M	\$ 1395	—	—
		—	—	—	—	25	—	—	P18D1-60	\$ 1219	—	—	P18D2-60M	\$ 1519
37	—	10	—	—	25	—	P22D1-48	1155	—	—	P22D2-48M	1480	—	—
		—	—	—	—	30	—	—	P22D1-60	1295	—	—	P22D2-60M	1620
48	52	15	15	30	30	—	P30D1-48	1155	—	—	P30D2-48M	1480	—	—
		—	—	—	—	40	—	—	P30D1-60	1295	—	—	P30D2-60M	1620
58	64	20	20	30	40	—	P37D1-48	1325	—	—	P37D2-48M	1725	—	—
		—	—	—	—	50	—	—	P37D1-60	1475	—	—	P37D2-60M	1875
69	76	20	25	40	50	—	P44D1-48	1475	—	—	P44D2-48M	1925	—	—
		—	—	—	—	60	—	—	P44D1-60	1755	—	—	P44D2-60M	2205
81	85	25	30	50	60	—	P50D1-48	1595	—	—	P50D2-48M	2045	—	—
		—	—	—	—	75	—	—	P50D1-60	1820	—	—	P50D2-60M	2270
96	105	30	30	60	75	—	P60D1-48	1860	—	—	P60D2-48M	2360	—	—
		—	—	—	—	75	—	—	P60D1-60	2135	—	—	P60D2-60M	2635
116	124	40	40	60	75	—	P72D1-48	1935	—	—	P72D2-48M	2485	—	—
		—	—	—	—	100	—	—	P72D1-60	2225	—	—	P72D2-60M	2775
147	147	50	50	75	100	—	P85D1-48	2475	—	—	P85D2-48M	3250	—	—
		—	—	—	—	150	—	—	P85D1-60	2805	—	—	P85D2-60M	3580
181	181	60	60	100	150	—	P105D1-48	2600	—	—	P105D2-48M	3375	—	—
		—	—	—	—	150	—	—	P105D1-60	2940	—	—	P105D2-60M	3715
215	245	75	75	150	150	—	P142D1-48	3350	—	—	P142D2-48M	4225	—	—
		—	—	—	—	200	—	—	P142D1-60	3800	—	—	P142D2-60M	4675
270	300	75	100	150	200	—	P175D1-48	3780	—	—	P175D2-48M	5180	—	—
		—	—	—	—	250	—	—	P175D1-60	4150	—	—	P175D2-60M	5550
389	430	125	150	250	300	—	P250D1-48	4300	—	—	P250D2-48M	5700	—	—
		—	—	—	—	400	—	—	P250D1-60	4750	—	—	P250D2-60M	6140
429	515	150	150	300	350	—	P300D1-48	4760	—	—	P300D2-48M	6460	—	—
		—	—	—	—	400	—	—	P300D1-60	5215	—	—	P300D2-60M	6915

① All enclosed softstarters include a control power transformer and Class 10 overload.

② Includes shunt rated (AC1) bypass contactor.

Enclosed ① NEMA 1 Combination

Softstarters
Type PSS

Connected inline

Maximum motor current		Maximum horsepower					480V with fusible disconnect switch NEMA 1		600V with fusible disconnect switch NEMA 1		480V with circuit breaker NEMA 1		600V with circuit breaker NEMA 1	
UL	IEC	208V	240V	380V	480V	600V	Catalog number	List price	Catalog number	List price	Catalog number	List price	Catalog number	List price
18	18	5	5	10	10	15	P18LF1-48A	\$ 1370	—	—	P18LB1-48E	\$ 1370	—	—
							—	—	P18LF1-60A	\$ 1709	—	—	P18LB1-60E	\$ 1709
25	—	—	7.5	—	15	20	P22LF1-48B	1580	—	—	P22LB1-48G	1580	—	—
							—	—	P22LF1-60B	1835	—	—	P22LB1-60G	1835
28	30	7.5	10	15	20	25	P30LF1-48B	1580	—	—	P30LB1-48J	1580	—	—
							—	—	P30LF1-60B	1835	—	—	P30LB1-60J	1835
34	37	10	10	20	25	30	P37LF1-48B	1750	—	—	P37LB1-48K	1750	—	—
							—	—	P37LF1-60B	2040	—	—	P37LB1-60K	2040
40	44	10	10	25	30	30	P44LF1-48C	2075	—	—	P44LB1-48L	2075	—	—
							—	—	P44LF1-60B	2400	—	—	P44LB1-60L	2400
47	50	15	15	25	30	40	P50LF1-48C	2195	—	—	P50LB1-48N	2195	—	—
							—	—	P50LF1-60C	2565	—	—	P50LB1-60N	2565
56	60	15	20	30	40	50	P60LF1-48C	2460	—	—	P60LB1-48N	2460	—	—
							—	—	P60LF1-60C	2905	—	—	P60LB1-60N	2905
67	72	20	20	40	50	60	P72LF1-48C	2535	—	—	P72LB1-48R	2535	—	—
							—	—	P72LF1-60C	3010	—	—	P72LB1-60R	3010
85	85	25	30	50	60	75	P85LF1-48D	3475	—	—	P85LB1-48S	3475	—	—
							—	—	P85LF1-60D	4060	—	—	P85LB1-60S	4060
105	105	30	40	60	75	100	P105LF1-48D	3600	—	—	P105LB1-48T	3600	—	—
							—	—	P105LF1-60D	4195	—	—	P105LB1-60T	4195
125	142	40	40	75	100	125	P142LF1-48D	4550	—	—	P142LB1-48V	4550	—	—
							—	—	P142LF1-60D	5365	—	—	P142LB1-60V	5365
156	175	50	60	100	125	150	P175LF1-48E	5580	—	—	P175LB1-48X	5580	—	—
							—	—	P175LF1-60E	5950	—	—	P175LB1-60X	5950
225	250	75	75	150	150	200	P250LF1-48E	6100	—	—	P250LB1-48Y	6100	—	—
							—	—	P250LF1-60E	7900	—	—	P250LB1-60Y	7900
248	300	75	100	150	200	250	P300LF1-48E	6560	—	—	P300LB1-48A	6560	—	—
							—	—	P300LF1-60E	8360	—	—	P300LB1-60Z	8360

Connected inside delta

30	30	7.5	10	15	20	25	P18DF1-48B	\$ 1370	—	—	P18DB1-48J	\$ 1370	—	—
							—	—	P18DF1-60B	\$ 1709	—	—	P18DB1-60J	\$ 1709
37	—	10	—	—	25	30	P22DF1-48B	1580	—	—	P22DB1-48K	1580	—	—
							—	—	P22DF1-60B	1835	—	—	P22DB1-60K	1835
48	52	15	15	30	30	40	P30DF1-48C	1580	—	—	P30DB1-48L	1580	—	—
							—	—	P30DF1-60C	1835	—	—	P30DB1-60N	1835
58	64	20	20	30	40	50	P37DF1-48C	1750	—	—	P37DB1-48N	1750	—	—
							—	—	P37DF1-60C	2040	—	—	P37DB1-60N	2440
69	76	20	25	40	50	60	P44DF1-48C	2075	—	—	P44DB1-48R	2075	—	—
							—	—	P44DF1-60C	2400	—	—	P44DB1-60R	2400
81	85	25	30	50	60	75	P50DF1-48D	2195	—	—	P50DB1-48S	2195	—	—
							—	—	P50DF1-60D	2565	—	—	P50DB1-60S	2565
96	105	30	30	60	75	75	P60DF1-48D	2460	—	—	P60DB1-48T	2460	—	—
							—	—	P60DF1-60D	2905	—	—	P60DB1-60S	2905
116	124	40	40	60	75	100	P72DF1-48D	2535	—	—	P72DB1-48T	2535	—	—
							—	—	P72DF1-60D	3010	—	—	P72DB1-60T	3010
147	147	50	50	75	100	150	P85DF1-48D	3475	—	—	P85DB1-48V	3475	—	—
							—	—	P85DF1-60E	4060	—	—	P85DB1-60X	4060
181	181	60	60	100	150	150	P105DF1-48E	3600	—	—	P105DB1-48Y	3600	—	—
							—	—	P105DF1-60E	4195	—	—	P105DB1-60X	4195
215	245	75	75	150	150	200	P142DF1-48E	4550	—	—	P142DB1-48Y	4550	—	—
							—	—	P142DF1-60E	5365	—	—	P142DB1-60Y	5365
270	300	75	100	150	200	250	P175DF1-48E	5580	—	—	P175DB1-48A	5580	—	—
							—	—	P175DF1-60E	5950	—	—	P175DB1-60Z	5950
389	430	125	150	250	300	400	P250DF1-48F	6100	—	—	P250DB1-48D	6100	—	—
							—	—	P250DF1-60F	7900	—	—	P250DB1-60D	7900
429	515	150	150	300	350	400	P300DF1-48F	6560	—	—	P300DB1-48E	6560	—	—
							—	—	P300DF1-60F	8360	—	—	P300DB1-60D	8360

① All enclosed softstarters include control power transformer and Class 10 overload.



Enclosed Options

Connected inline

Maximum motor current		Maximum horsepower					Shunt rated (AC1) bypass or isolation contactor	Across the line rated (AC3) bypass contactor ②③	Electronic brake std. duty	Electronic brake hvy. duty	Start/Stop pushbuttons	HOA selector switch	Run pilot light	NEMA 12 adder ①	NEMA 3R adder ①	NEMA 4 adder ①	NEMA 4X adder ①
UL	IEC	208V	240V	380V	480V	600V	List price	List price	List price	List price	List price	List price	List price	List price	List price	List price	List price
18	30	5	5	10	10	— 15	\$ 150	\$ 775	\$ 1445	\$ 1445	\$ 72	\$ 72	\$ 135	\$ 150	\$ 150	\$ 225	\$ 675
25	—	—	7.5	—	15	— 20	175	850	1445	2175	72	72	135	150	150	225	675
28	30	7.5	10	15	20	— 25	175	850	1445	2175	72	72	135	150	150	225	675
34	37	10	10	20	25	— 30	250	900	2175	2175	72	72	135	150	150	225	675
40	44	10	10	25	30	— 30	300	950	2175	2975	72	72	135	150	150	225	675
47	50	15	15	25	30	— 40	300	950	2175	2975	72	72	135	150	150	225	675
56	60	15	20	30	40	— 50	350	1000	2175	2975	72	72	135	150	150	225	675
67	72	20	20	40	50	— 60	400	1100	2975	2975	72	72	135	150	150	225	675
85	85	25	30	50	60	— 75	500	1150	2975	5800	72	72	135	275	275	350	1150
105	105	30	40	60	75	— 100	500	1150	2975	5800	72	72	135	275	275	350	1150
125	142	40	40	75	100	— 125	600	1550	5800	5800	72	72	135	275	275	350	1150
156	175	50	60	100	125	— 150	950	1850	5800	6500	72	72	135	450	450	525	1575
225	250	75	75	150	150	— 200	950	2100	5800	6500	72	72	135	450	450	525	1575
248	300	75	100	150	200	— 250	1250	2700	6500	7000	72	72	135	450	450	525	1575

Connected inside delta

Maximum motor current		Maximum horsepower					Shunt rated (AC1) bypass or isolation contactor	Across the line rated (AC3) bypass contactor	Electronic brake std. duty	Electronic brake hvy. duty	Start/Stop pushbuttons	HOA selector switch	Run pilot light	NEMA 12 adder ①	NEMA 3R adder ①	NEMA 4 adder ①	NEMA 4X adder ①
UL	IEC	208V	240V	380V	480V	600V	List price	List price	List price	List price	List price	List price	List price	List price	List price	List price	List price
30	30	7.5	10	15	20	— 25	\$ 150	\$ 775	\$ 1445	\$ 1445	\$ 72	\$ 72	\$ 135	\$ 150	\$ 150	\$ 225	\$ 675
37	—	10	—	—	25	— 30	175	850	1445	2175	72	72	135	150	150	225	675
48	52	15	15	30	30	— 40	175	850	1445	2175	72	72	135	150	150	225	675
58	64	20	20	30	40	— 50	250	900	2175	2175	72	72	135	150	150	225	675
69	76	20	25	40	50	— 60	300	950	2175	2975	72	72	135	150	150	225	675
81	85	25	30	50	60	— 75	300	950	2175	2975	72	72	135	150	150	225	675
96	105	30	30	60	75	— 75	350	1000	2175	2975	72	72	135	150	150	225	675
116	124	40	40	60	75	— 100	400	1100	2975	2975	72	72	135	150	150	225	675
147	147	50	50	75	100	— 155	500	1150	2975	5800	72	72	135	275	275	350	1150
181	181	60	60	100	150	— 150	500	1150	2975	5800	72	72	135	275	275	350	1150
215	245	75	75	150	150	— 200	600	1550	5800	5800	72	72	135	275	275	350	1150
270	300	75	100	150	200	— 250	950	1850	5800	6500	72	72	135	450	450	525	1575
389	430	125	150	250	300	— 400	950	2100	5800	6500	72	72	135	450	450	525	1575
429	515	150	150	300	350	— 400	1250	2700	6500	7000	72	72	135	450	450	525	1575

① Bypass contactor required.

② Includes emergency bypass control.

③ Subtract AC1 List price when AC1 rating ("M" suffix) is included in the catalog numbers shown on page 6.5.

Discount schedule PSSE

Low Voltage Products & Systems

ABB Inc. • 888-385-1221 • www.abb-control.com

Accessories

Softstarters
Type PSS

Accessories

Item	Suffix code ①	List price adder
Softstarters		
Door mounted reset	K	\$ 72
E-Stop	T	72
Start-stop pushbutton	A	72
2 position selector switch	C	72
3 position selector switch	D	72
Pilot light run	E	135
Start-stop pushbutton & pilot light	F	207
2 position selector switch & pilot light	H	207
3 position selector switch & pilot light	J	207
Shunt rated (AC1) bypass contactor	M	see pg 6.7
Across the line rated (AC3) contactor with emergency bypass control ⑦	B	see pg 6.7
Isolation contactor	W	see pg 6.7
Electronic brake (standard duty)	Y	see pg 6.7
Electronic brake (heavy duty)	Z	see pg 6.7
Service entrance, 3-wire	SE3	100
Service entrance, 4-wire	SE4	300
Lightning arrester	LA	320
Space heater, 100W with thermostat	SH	600
Auxiliary relays		
Type N control relay (4 pole)	CR	150
Electronic timer		
1.5 – 30s On Delay	TN30	125
5 –100s On Delay	TN100	125
1.5 – 30s Off Delay	TF30	125
5 –100s Off Delay	TF100	125
Phase failure phase reversal	PFPR	375
Undervoltage relay	UV	150
Overvoltage relay	OV	180
Ground fault protection	GFP	1500
Meters & metering		
Current transformer	CT	250
Ammeter (including C.T.)	AM	470
Ammeter & ammeter switch	AMS	1800
Voltmeter	VM	1200
Voltmeter & voltmeter switch	VMS	1800
Elapsed time meter	ETM	350
Operation counter	OC	375
Wattmeter	WM	2450

Control transformers

Size	Standard VA	Price adder for extra VA	
		100VA	250VA
PSS18/30 – PSS 142/245	75	\$ 175	—
PSS175/300 – PSS300/515	150	225	\$ 300

Current transformers for current limit function ②

Technical data	For softstarter	Catalog number	List price
60/1 – 2 turns	PSS18/30	PSCT-60	\$ 70
40/1 – 1 turn	PSS30/52	PSCT-40	
50/1 – 1 turn	PSS37/64	PSCT-50	
60/1 – 1 turn	PSS44/76	PSCT-60	
75/1 – 1 turn	PSS50/85	PSCT-75	130
75/1 – 1 turn	PSS60/105	PSCT-75	
100/1 – 1 turn	PSS72/124	PSCT-100	
125/1 – 1 turn	PSS85/147	PSCT-125	
150/1 – 1 turn	PSS105/181	PSCT-150	
200/1 – 1 turn	PSS142/245	PSCT-200	
250/1 – 1 turn	PSS175/300	PSCT-250	
400/1 – 1 turn	PSS250/430	PSCT-400	
400/1 – 1 turn	PSS300/515	PSCT-400	

Additional auxiliary contact blocks for bypass or isolation contactors

Contact configuration	Suffix code	List Price adder
1 N.O. & 1 N.C.	11	\$ 54
2 N.O. & 2 N.C.	22	98
3 N.O. & 3 N.C.	33	142

Terminal block to increase connection capacity ③

Wire range	For softstarter	Catalog number	List price
#8 - #1 (1 per phase)	PSS18 – PSS44	PSLW-44	\$ 65
#6 - 2/0 (1 per phase) or #4 - 1/0 (2 per phase)	PSS50 – PSS72	PSLW-72	70

Terminal lug kits ④

Wire range	For softstarter ⑤	Catalog number	List price
#6 - 250 MCM (1 per phase)	PSS85 – PSS142	PSLK-185	\$ 150
#4 - 400 MCM (1 per phase)	PSS175 – PSS300	PSLK-300	195
#4 - 500 MCM (2 per phase)	PSS175 – PSS300	PSLK-300/2	280

Terminal covers (Includes line & load covers)

For softstarter	Catalog ⑥	List price
PSS85 – PSS142	K4LCH	\$ 16
PSS175 – PSS300	K5LCH	24

① Add the suffix code after the last digit of the catalog number.

② 1 VA minimum.

③ Stranded conductors.

④ Includes line/load lugs and hardware.

⑤ Softstarters listed are provided with terminating bus tabs as standard.

⑥ Discount schedule SA.

⑦ Control includes panel mounted Norm/E-Bypass switch, START/STOP pushbutton & Class 10 external overload unless otherwise specified.

Technical data

PSS03 – PSS25 and PSS18/30 – PSS300/515

		PSS03 – PSS12	PSS25	PSS18/30 – PSS300/515
Rated insulation voltage U_z	V	630	630	690
Rated operational Voltage U_e	V	220 – 600	220 – 600	200 – 690
SCR PIV ratings				
up to 500V		1200	1200	1600
up to 600V		1600	1600	1800
Starting capacity at max. rated current I_e		5 x I_e for 5 sec	5 x I_e for 5 sec	500% for 30 sec
Number of starts per hour ①		6	6	30 ⑥
Overload class	A	10	10	10
Service factor	%	100	100	115
				110 (PSS300/515)
Ambient temperature				
During operation	°C	-20 to +50	-20 to +50	-20 to +60 ②
During storage	°C	-40 to +70	-40 to +70	-40 to +70
Degree of protection				
Main circuit		IP20	IP20	IP20 (PSS18/30-500 – PSS44/76-500) IP10 (PSS50/85-500 – PSS72/124/-500) IP10 (PSS18/30-690 – PSS72/124-690) IP00 (PSS85/147 – PSS300/515)
Supply and control circuit		IP20	IP20	IP20
Settings				
Ramp time during start	s	0.5 – 6.5	0.5 – 10	1 – 30
Ramp time during stop	s	0.5 – 8	0.5 – 20	0 – 30
Initial voltage during start	%	0 – 85	5 – 50	30 – 70
Current limit function	x I_e	No	No	1.5 – 4 ③
Switch for				
Inside delta connection ON/OFF		No	No	Yes
Signal relay				
Bypass signal		No ④	No ④	Yes
Fault signal		No	No	Yes
Rated operational voltage U_e	V	—	—	250
Rated thermal current I_{th}	A	—	—	5
Rated operational current I_e				
at AC 15 ($U_e=250V$)	A	—	—	1.5
Signal indication LED				
Ready to start/stand by	ON	Green	Green	Green
Ramping up/down		Yellow	Yellow (flashing)	No
Completed start ramp	T.O.R.	Yellow	Yellow	Green
General fault (internal)	F1	—	Red	Red
External fault (phase loss)	F2	—	—	Red

Size related data

Size	Type	A	Max. power loss at max I_e W	Max. SCR fuse rating (optional)	Bussman fuses	Power requirements of supply circuit VA
PSS03	TA25DU	2.2 – 3.1	—	16A	170M1359	2
PSS12	TA25DU	10 – 14	—	40A	170M1363	2
PSS25	TA25DU	18 – 25	—	50A	170M1364	5
PSS18/30	TA25DU	6 – 18	⑤	50A	170M1364	9
PSS30/52	TA25DU	10 – 30	⑤	80A	170M1366	9
PSS37/64	TA42DU	22 – 37	⑤	125A	170M1368	9
PSS44/76	TA75DU	29 – 44	⑤	160A	170M1369	9
PSS50/85	TA75DU	29 – 50	⑤	160A	170M1369	10
PSS60/105	TA75DU	29 – 60	⑤	200A	170M1370	10
PSS72/124	TA75DU	45 – 72	⑤	250A	170M1371	10
PSS85/147	TA110DU	65 – 85	⑤	315A	170M1372	36
PSS105/181	TA110DU	65 – 105	⑤	400A	170M3019	36
PSS142/245	TA200DU	100 – 142	⑤	450A	170M3020	36
PSS175/300	TA200DU	100 – 175	⑤	500A	170M3021	65
PSS250/430	TA450DU	130 – 250	⑤	700A	170M4017	65
PSS300/515	TA450DU	130 – 300	⑤	900A	170M5015	65

① When more than six starts per hour are required, contact your sales office.

② Above 40°C, up to max 60°C, reduce the rated current with 0.8% per °C.

③ Only if current transformer is connected (accessory).

④ The unit has built-in bypass contacts (AC-53b).

⑤ Total power loss: $P_{Ltot} = [3 \times I_e \times 1.0] + 50$ (W), reduced to 50W only when using by-pass.

⑥ 50% on and 50% off, 3.5 times rated current and 7 second starting time.

Technical data

Softstarters
Type PSS

Cross section of connection cables PSS03 – PSS25 and PSS18/30 – PSS300/515

Type PSS		PSS03 – PSS12	PSS25	PSS18/30-500 – PSS44/76-500	PSS50/85-500 – PSS72/124-500 & PSS18/30-690 – PSS72/124-690	PSS85/147-500 – PSS142/245-500 & PSS85/147-690 – PSS142/245-690	PSS175/300-500 – PSS300/515-500 & PSS175/300-690 – PSS300/515-690
Main circuit							
Connection clamp							
Rigid solid/rigid stranded	1x	AWG 12	AWG 6	AWG 4 - 8	AWG 1 - 8	—	—
Rigid solid/rigid stranded	2x	AWG 12	AWG 8	AWG 4 - 8	AWG 4 - 8	—	—
Tightening torque (for guidance only) max. lb./in		4.3	17.5	23	40	—	—
Terminal lugs ①							
Rigid solid / rigid stranded	1x	—	—	—	—	#6 - 250 MCM	#4 - 400 MCM
Rigid solid / rigid stranded	2x	—	—	—	—	—	#4 - 500 MCM
Tightening torque (for guidance only) max. lb./in		—	—	—	—	300	375
Connection bar							
Width and thickness	mm	—	—	—	—	17.5 x 5	20 x 5
Hole diameter	mm	—	—	—	—	8.5	10.2
Tightening torque (for guidance only) max. lb./in		—	—	—	—	79	155
Supply and control circuit							
Connection clamp							
Rigid solid/rigid stranded	1x	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12	AWG 12
Rigid solid/rigid stranded	2x	AWG 12	—	—	—	—	—
Tightening torque (for guidance only) max. lb./in		4.3	4.3	4.3	4.3	4.3	4.3

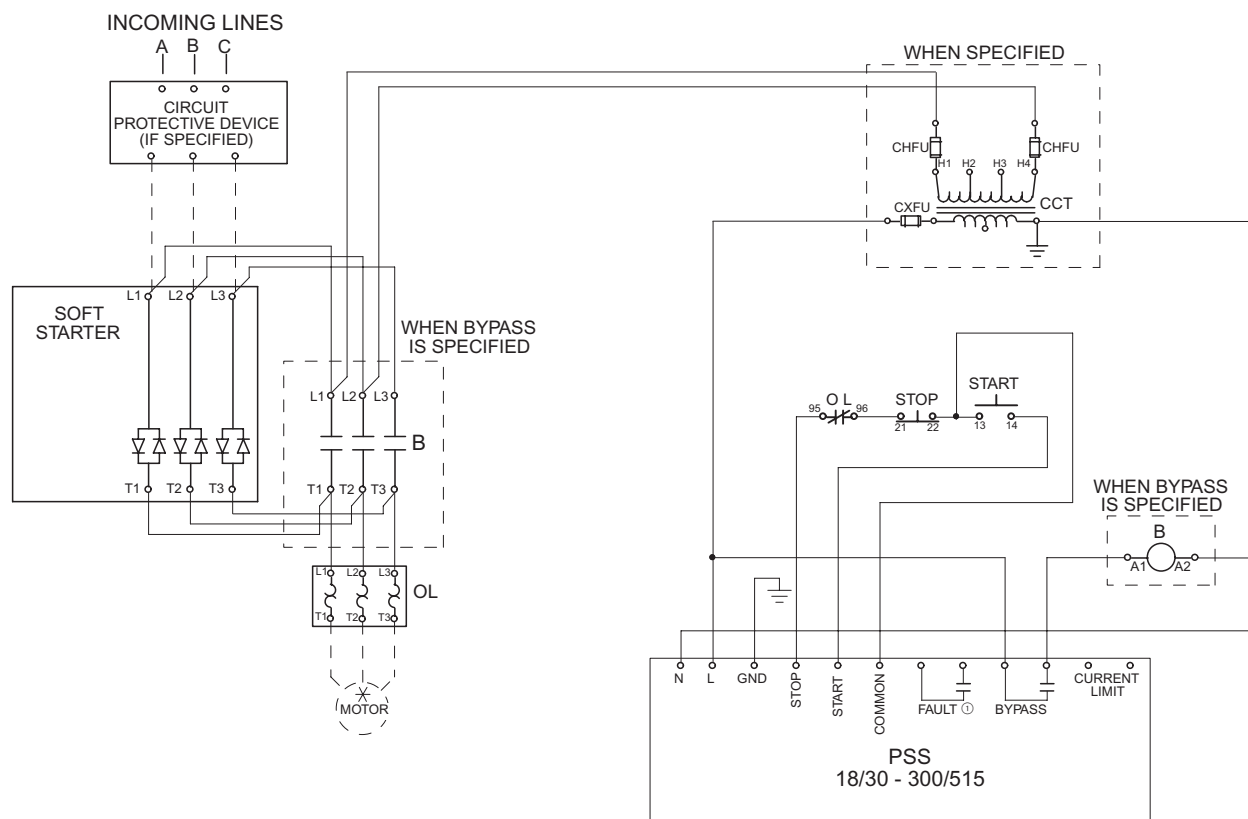
6

① See accessories on page 6.8.

Circuit diagrams

PSS18/30 – PSS300/515, In-line motor configuration

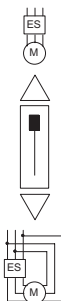
6



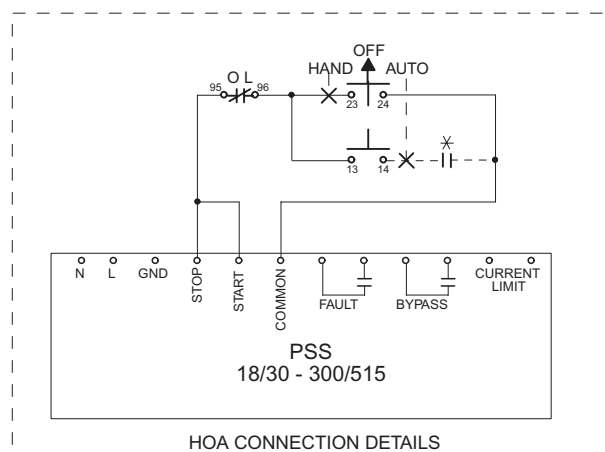
NOTES

1. ALL CONTROL WIRING TO BE 18GA.
COLOR OF CONTROL WIRE SHALL BE
PER VOLTAGE OF CONTACTOR COILS:
RED - ALL AC VOLTAGES
WHITE MAY BE USED ON THE
GROUNDED SIDE OF THE AC
CIRCUIT IF SPECIFIED.
BLUE - ALL DC VOLTAGES
2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH
AUTO-RESET OVERLOAD RELAYS.

LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHF1	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
o ₁₃	CONN POINT ON DEVICE WITH NUMBER
X	REMOTE DEVICE
Ø	CONN POINT AT TERMINAL BLOCK



SET DIP SWITCH S1
AS SHOWN

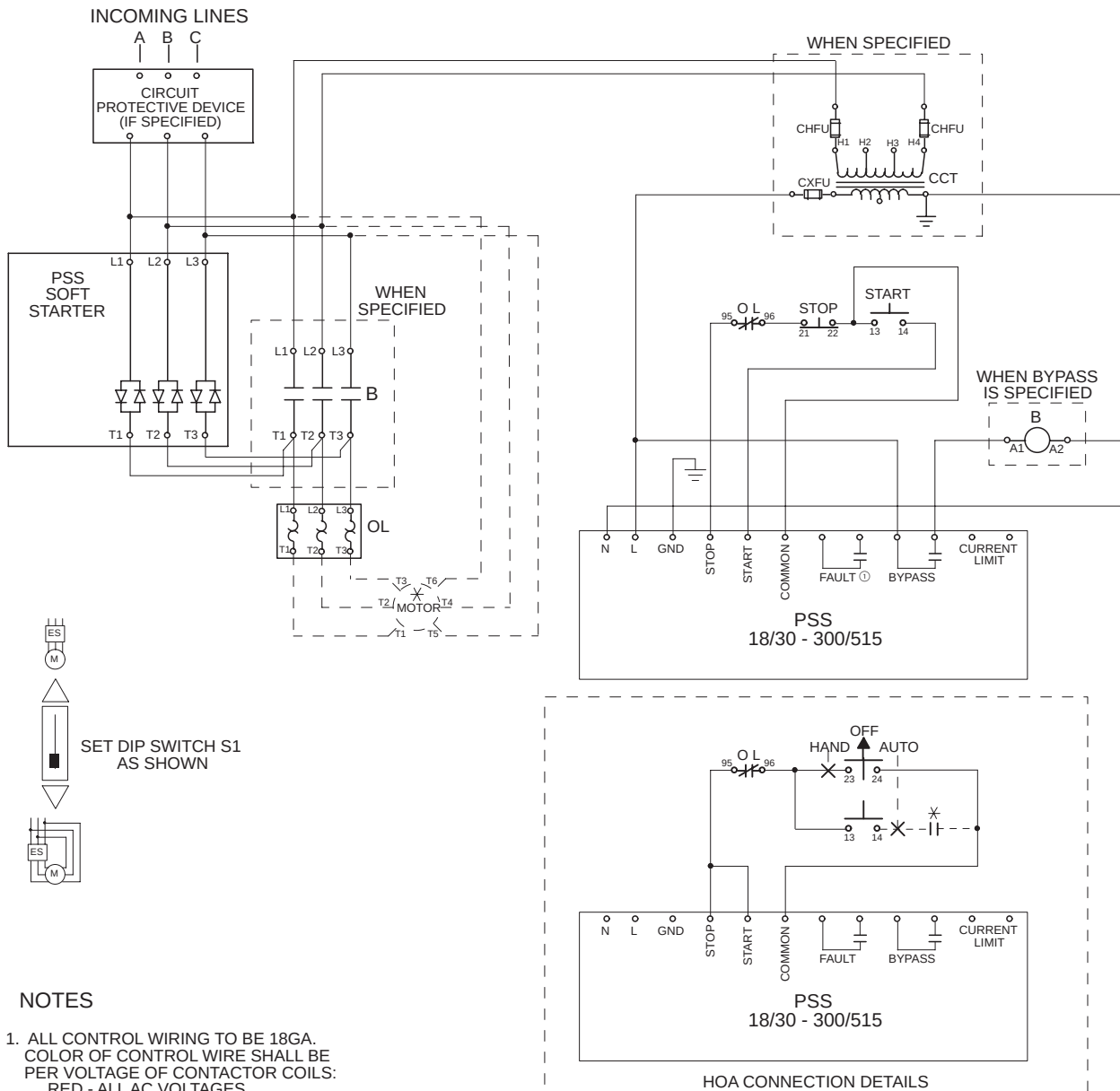


Circuit diagrams

PSS18/30 – PSS300/515, Delta motor configuration

Softstarters
Type PSS

6

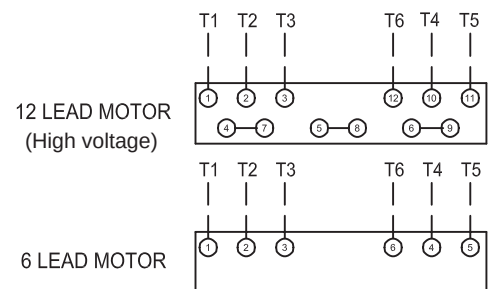


NOTES

- ALL CONTROL WIRING TO BE 18GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE OF CONTACTOR COILS:
RED - ALL AC VOLTAGES
WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.
BLUE - ALL DC VOLTAGES
- ALL DEVICES ARE SHOWN DE-ENERGIZED.
- DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

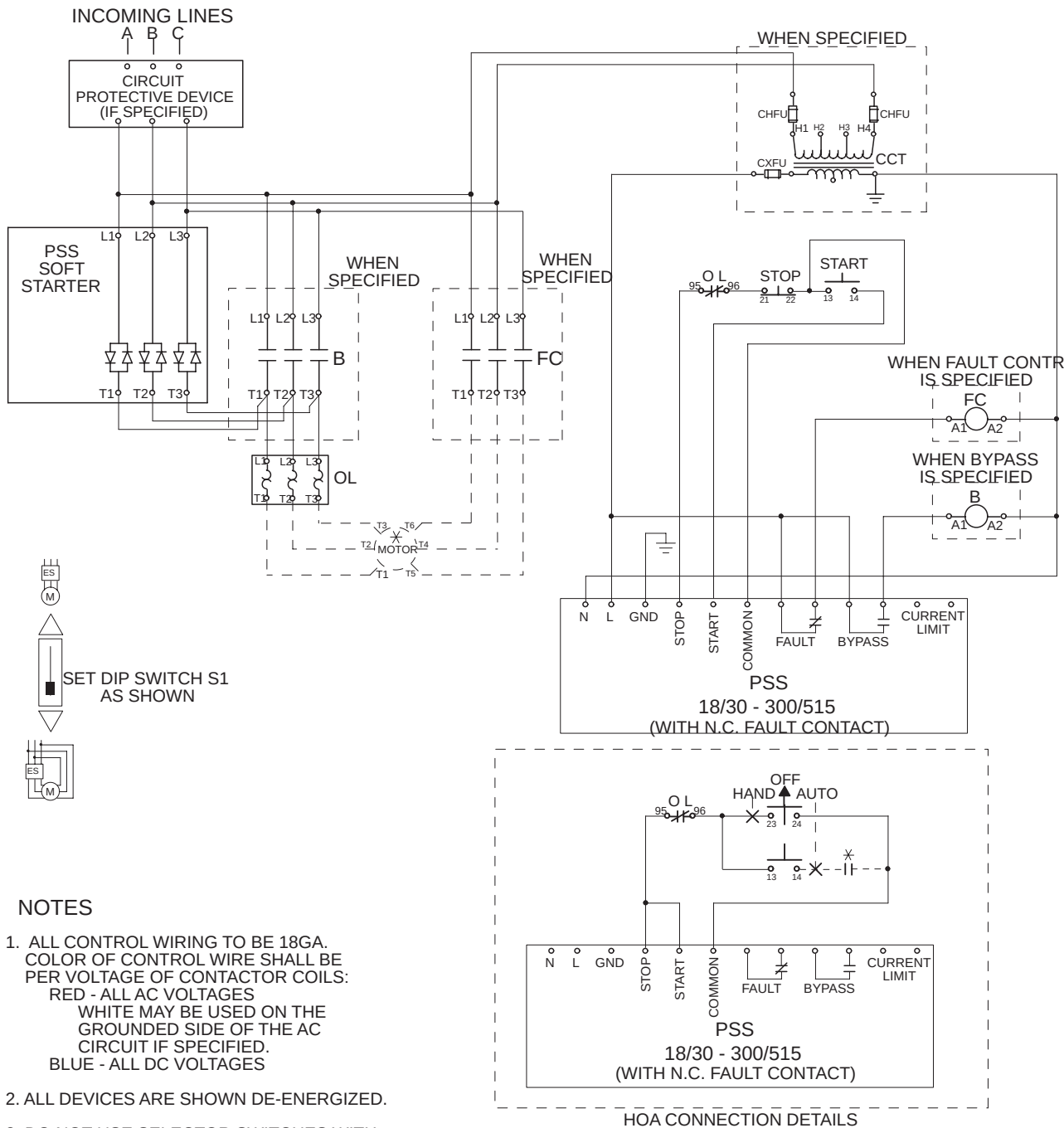
LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFUS	CCT PRIMARY FUSE
CXFUS	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
Ø	CONN POINT AT TERMINAL BLOCK

MOTOR MARKINGS ARE AS DEFINED BY NEMA MG1-2.62 FOR 12 LEAD WYE START, DELTA RUN MOTOR CONNECTIONS. ALWAYS CONFIRM CORRECT LEAD MARKINGS WITH NAMEPLATE DIAGRAMS.



Circuit diagrams

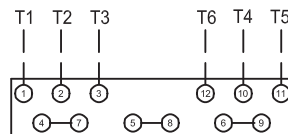
PSS18/30 – PSS300/515, Delta motor configuration Fault contactor



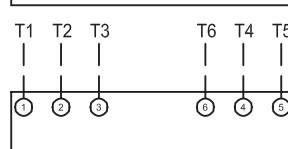
LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFUF	CCT PRIMARY FUSE
CXFUF	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
° ₁₃	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
Ø	CONN POINT AT TERMINAL BLOCK

MOTOR MARKINGS ARE AS DEFINED BY NEMA MG1-2.62 FOR 12 LEAD WYE START, DELTA RUN MOTOR CONNECTIONS. ALWAYS CONFIRM CORRECT LEAD MARKINGS WITH NAMEPLATE DIAGRAMS.

12 LEAD MOTOR
(High voltage)



6 LEAD MOTOR

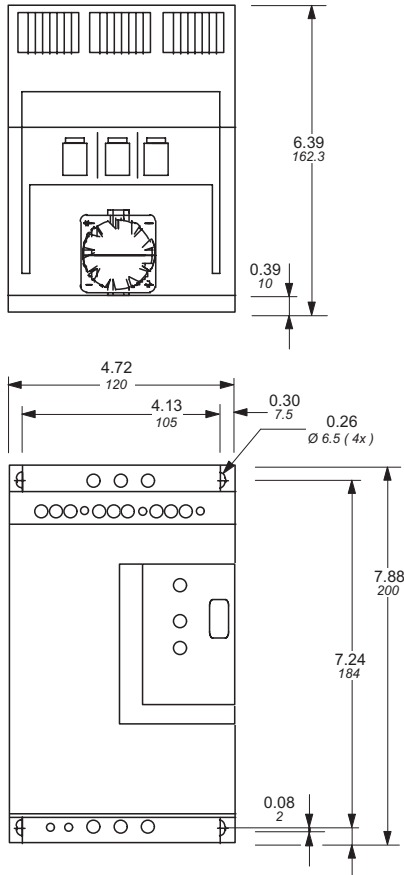


Approximate dimensions Open, PSS18 – PSS72

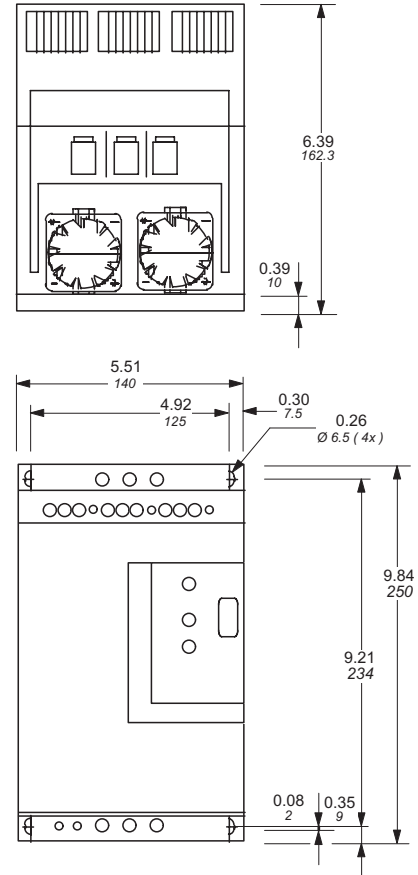
Softstarters
Type PSS

00.00 Inches
00.00 [Millimeters]

PSS18 to PSS44 (208V – 480V)



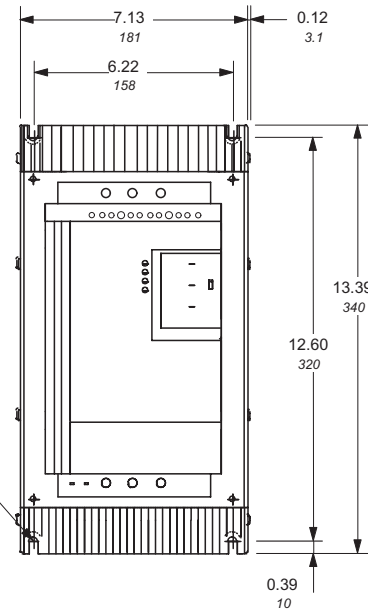
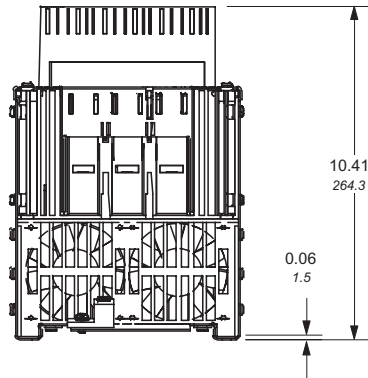
PSS18 to PSS72 (690V) PSS50 to PSS72 (208 – 480V)



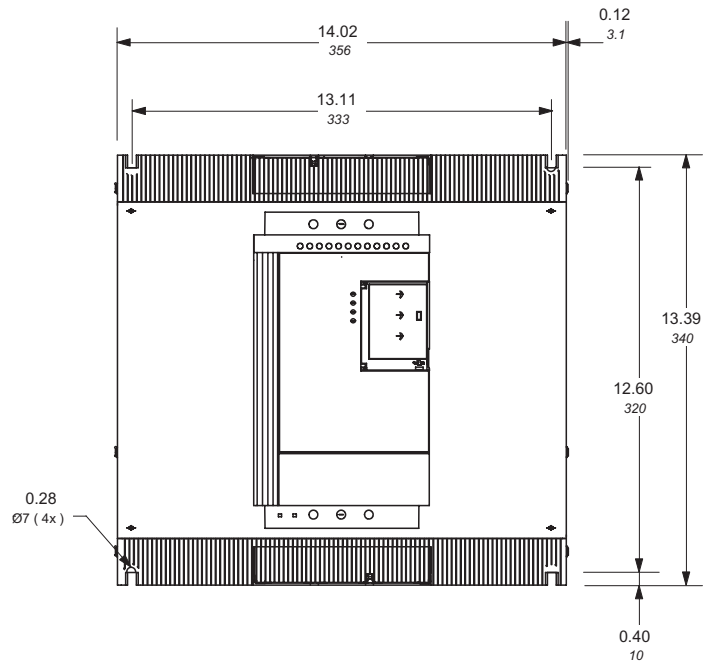
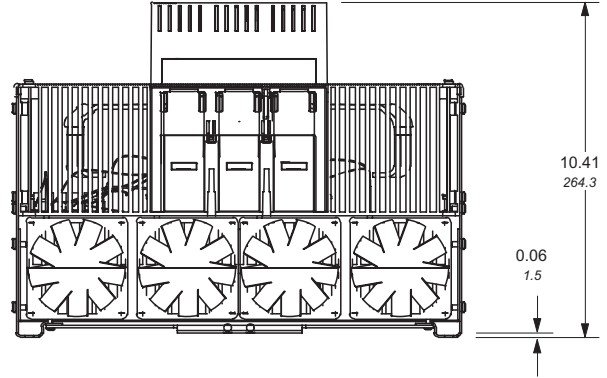
6

Approximate dimensions Open, PSS85 – PSS300

PSS85 to PSS142 (208V – 690V)

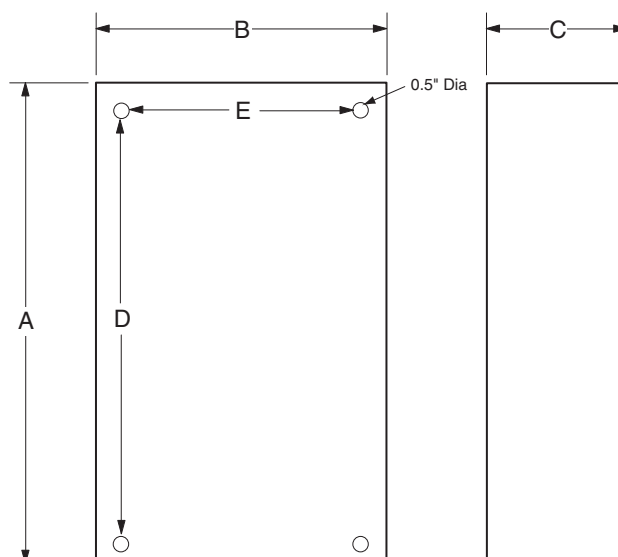


PSS175 to PSS300 (208V – 690V)



Approximate dimensions Enclosed

Softstarters
Type PSS



6

208V – 500V

Softstarter type	Softstarter combination	Dimensions In-line (in.)					Dimensions Inside delta (in.)				
		A	B	C	D	E	A	B	C	D	E
PSS18/30-500 thru PSS44/76-500	Softstarter only	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with bypass	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with fused disconnect ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with circuit breaker ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
PSS50/85-500 thru PSS72/124-500	Softstarter only	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with bypass	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with fused disconnect ①	20	20	12	18.50	18.50	24	20	12	22.50	18.50
	Softstarter with circuit breaker ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
PSS85/147-500 thru PSS142/245-500	Softstarter only	24	24	12	22.50	22.50	24	24	12	22.50	22.50
	Softstarter with bypass	24	24	12	22.50	22.50	24	24	12	22.50	22.50
	Softstarter with fused disconnect ①	36	30	12	34.50	28.50	36	30	12	34.50	28.50
	Softstarter with circuit breaker ①	30	24	12	28.50	22.50	30	24	12	28.50	22.50
PSS175/300-500 thru PSS300/515-500	Softstarter only	36	30	12	34.50	28.50	42	36	12	40.50	34.50
	Softstarter with bypass	36	30	12	34.50	28.50	42	36	12	40.50	34.50
	Softstarter with fused disconnect ①	48	36	16	46.50	34.50	48	36	16	46.50	34.50
	Softstarter with circuit breaker ①	42	36	12	40.50	34.50	48	36	16	46.50	34.50

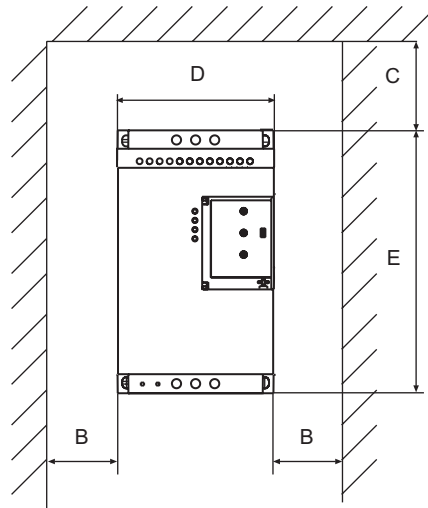
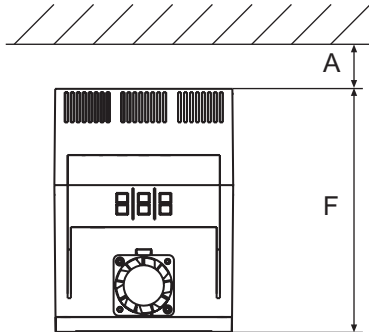
575V – 690V

PSS18/30-690 thru PSS72/124-690	Softstarter only	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with bypass	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with fused disconnect ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with circuit breaker ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
PSS85/147-690 thru PSS142/245-690	Softstarter only	24	24	12	22.50	22.50	24	24	12	22.50	22.50
	Softstarter with bypass	24	24	12	22.50	22.50	24	24	12	22.50	22.50
	Softstarter with fused disconnect ①	36	30	12	34.50	28.50	36	30	12	34.50	28.50
	Softstarter with circuit breaker ①	30	24	12	28.50	22.50	30	24	12	28.50	22.50
PSS175/300-690 thru PSS300/575-690	Softstarter only	36	30	12	34.50	28.50	42	36	12	40.50	34.50
	Softstarter with bypass	36	30	12	34.50	28.50	42	36	12	40.50	34.50
	Softstarter with fused disconnect ①	48	36	16	46.50	34.50	48	36	16	46.50	34.50
	Softstarter with circuit breaker ①	42	36	12	40.50	34.50	48	36	16	46.50	34.50

① Dimensions remain the same if bypass contactor is added.

Approximate dimensions Mounting information

Minimum distance to wall / front



Approximate dimensions (in./mm)

Catalog number	Dimensions		
	D	E	F
PSS18/30-500 – 44/76-500	4.7/120	7.9/200	6.4/163
PSS50/85-500 – 72/124-500 PSS18/30-690 – 72/124-690	5.5/140	9.8/250	6.4/163
PSS85/147-500 – 142/245-500 PSS85/147-690 – 142/245-690	7.1/181	13.4/340	10.4/265
PSS175/300-500 – 300/515-500 PSS175/300-690 – 300/515-690	14/356	13.4/340	10.4/265

Minimum distance to wall / front (in./mm)

A = .79/20

B = .39/10

C = 3.9/100 – both top and bottom

Type PST Softstarters

ABB Softstarters
Type PST



6

Description

- Wide main voltage range, 200 - 690 VAC
- Wide control voltage range, 100 - 250 V, 50/60 Hz
- Current ratings 30 to 1050 A (In Line) and 52 - 1800 A (Inside Delta)
- Same unit can be used for both In Line and Inside Delta connection
- Premium adjustable Softstarter functions like start/stop ramp, kick start, jog, step down voltage and sequential starts
- Current limit adjustable between 200% to 500% of motor FLA
- Thermistor (PTC) supervision of motor winding
- Real time clock
- Logging of last 20 events with time stamp
- Prepared for Field-bus communication
- Programmable electronic overloads: Classes 10A, 10, 20 & 30
- Locked rotor protection
- Motor underload protection
- Phase imbalance protection
- Phase reversal protection



General information

Catalog number explanation

Open & enclosed

Open

PST B 370 600 - 70

Softstarter
Type PST

Bypass
No digit – No integrated bypass
B – Integrated bypass

Current rating	
UL / IEC	UL / IEC
30 – 28/30	210 – 192/210
37 – 34/37	250 – 248/250
44 – 42/44	300 – 302/300
50 – 54/50	370 – 361/370
72 – 68/72	470 – 480/470
85 – 80/85	570 – 590/570
105 – 104/105	720 – 720/720
142 – 130/142	840 – 840/840
175 – 156/175	1050 – 1062/1050

Control voltage
70 – 100 - 250 V, 50/60 Hz

Line voltage
600 – 208/230/480/600 V
690 – 690 V ③

Enclosed

T 100 D F 1 - 48 D A

Soft starter settings
T – Type PST Enclosed

Horsepower		
010 – 10	125 – 125	800 – 800
015 – 15	150 – 150	900 – 900
020 – 20	200 – 200	1000 – 1000
025 – 25	250 – 250	1200 – 1200
030 – 30	300 – 300	1400 – 1400
040 – 40	350 – 350	1500 – 1500
050 – 50	400 – 400	1600 – 1600
060 – 60	450 – 450	1700 – 1700
075 – 75	500 – 500	1800 – 1800
100 – 100	600 – 600	

Connection type
L – Inline
D – Inside Delta

Combination type
No digit – non-combination
F – fusible disconnect
B – thermal magnetic circuit breaker
M – magnetic only breaker
N – non-fusible disconnect

Enclosure
1 – NEMA 1
2 – NEMA 12 ②
3 – NEMA 3R ②
4 – NEMA 4 ②
X – NEMA 4x stainless steel ②

Options ①

A – Start-stop pushbutton
B – Across the line rated (AC3) contactor with emergency bypass control
C – 2 position selector switch
D – 3 position selector switch
E – Pilot light
F – Start-stop pushbutton and pilot light
H – 2 position selector switch and pilot light
J – 3 position selector switch and pilot light
M – Shunt rated (AC1) bypass contactor
W – Isolation contactor

Fuse clip

A – 30A, 600V, Class J
B – 60A, 600V, Class J
C – 100A, 600V, Class J
D – 200A, 600V, Class J
E – 400A, 600V, Class J
F – 600A, 600V, Class J
G – 800A, 600V, Class L
H – 1200A, 600V, Class L
J – 1600A, 600V, Class L
K – 2000A, 600V, Class L
L – 2500A, 600V, Class L
M – 3000A, 600V, Class L
N – 4000A, 600V, Class L

Circuit Breaker Amp Ratings

D – 15 M – 70 W – 225 E – 700 N – 3000
E – 20 N – 80 X – 250 F – 800
F – 25 P – 90 Y – 300 G – 900
G – 30 R – 100 Z – 350 H – 1000
H – 35 S – 125 A – 400 J – 1200
J – 40 T – 150 B – 450 K – 1600
K – 50 U – 175 C – 500 L – 2000
L – 60 V – 200 D – 600 M – 2500

MCP/MAG Only Rating

A – 3 E – 50 J – 400
B – 5 F – 100 K – 600
C – 10 G – 150 L – 800
D – 25 H – 225 M – 1200

Line voltage

20: 208V 120V control voltage
23: 230V 120V control voltage
38: 380V 220V control voltage
41: 415V 220V control voltage
48: 480V 120V control voltage
60: 600V 120V control voltage

① For more options, see page 6.27

② Bypass contactor required when integrated bypass is not included.

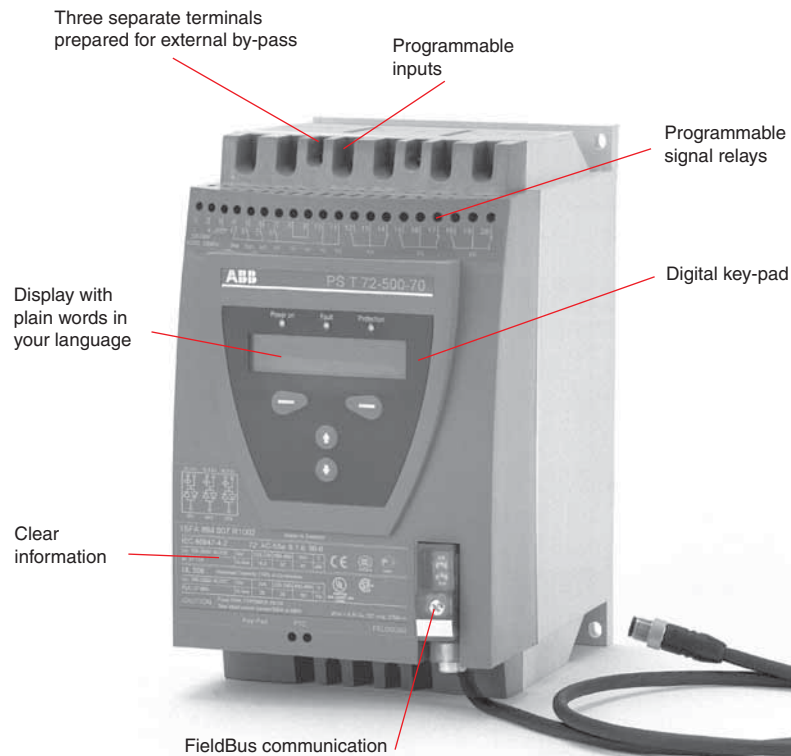
③ Add 30% to the list price.

General information

Application and description

Softstarters
Type PST

6



Application

The PST range is a microprocessor based softstarter designed with the latest technology for soft start and soft stop of motors. The PST Softstarter has several advanced motor protection features as standard. The four button key pad and the logic structure of the menu makes the installation, commissioning and operation easy. It is possible to choose between 12 different languages.

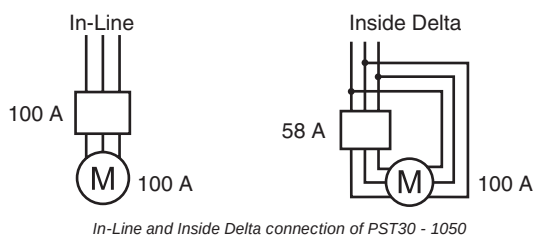
The PST Softstarter can be used with or without a by-pass contactor. The larger sizes, PSTB370 – PSTB1050, include a built-in by-pass contactor.

The PST Softstarter can be selected according to the rated motor power in normal duty applications like pumps, compressors, elevators, escalators, short conveyor belts and bow thrusters.

Digital display

Your business is going global. Shouldn't your motor control go global, too? The PST display gives you information presented in plain words — in your language. You can choose between almost a dozen languages including English, German, Italian, Chinese, Finnish, Swedish, French, Spanish, Dutch, Russian, Turkish and Portuguese. On the PST display, you get all the information you need to set up, adjust and trouble-shoot. This makes the PST extremely easy to handle and reduces the risk of misinterpretations.

At any time, you can read output current, output voltage, number of starts, total run time and motor temperature on the display. If a fault should occur, this is also indicated on the display. The fault messages are presented in clear text in the selected language.



General information

Application and description

Four button keypad

The PST employs the same basic user concept as today's advanced mobile telephones. Using the four buttons on the keypad, you can easily adjust your own start and stop profile and motor protection functions for any type of application. There are standard settings for many common applications including pumps, conveyors, fans, mixers and compressors for quick and easy set up.

You can also set the advanced warning parameters to allow potential problems to be identified before real problems occur. A password protection function is available to prevent unauthorized changes to the programming.

Remote four button keypad

6 This optional remote keypad is an extended HMI (human-machine interface) for all PST(B) softstarters. The remote keypad allows you to access all functions from the PST(B) on the outside of the enclosure door.

The interface/display is exactly the same as the one on the softstarter (working in parallel with the one on the product). Used as a handheld device, it is easy to set up parallel softstarter units as you can copy data from one softstarter unit and download to another.

The keypad kit includes all necessary details for assembling: 3 screws, 10 ft. communication cable, installation instructions and a drilling plan.

The keypad has the following approvals: UL Type 1, 12, Indoor 4/4X.

Starting several motors

You can store as many as three different starting parameter sets for optimal sequence start of three different motors. You can use this function for two or three speed motors as well.

Integrated advanced motor protection

Inside the PST Softstarter, you will find useful features for advanced motor and softstarter protection, including: programmable overload protection, high current, underload, phase imbalance, phase reversal, thyristor overload protection, and bypass monitoring to ensure proper by-pass operation.

Programmable signal relays

All PST units have three programmable signal relays where each relay can signal Run, Top of Ramp or Event. The Event setting can be used to signal fault protections or warnings. The supervisory functions monitor not only software and critical softstarter functionality but also phase loss and out of frequency range.

Integrated by-pass contactor

On the larger sizes (PSTB370 – PSTB1050), there is an integrated ABB AF contactor. This gives you advantages in terms of cost-saving, (less investment in fans, cables, time), space saving (more compact soft starter; no fan that takes up space), and last but not least, energy saving. With a by-pass contactor you can reduce the power losses during normal run by 90% or more.

For the smaller PST below 370A, which are not equipped with built-in contactors, the units have double connections for the main terminals on the line side. The extra terminals are used to connect an external by-pass contactor in order to enable the integrated protection functions.



PSTB1050 with integrated by-pass contactor.

Fieldbus communication

The PST Softstarter has a built-in interface on the front for connection of the ABB FieldBusPlug used for fieldbus communication. Through this interface, it is possible to control the softstarter, achieve status information, upload and download parameters. The interface between the softstarter and the FieldBusPlug is always the same. Independently of PST Softstarter size or delivery date, it is possible to connect to any fieldbus protocol later on since this is defined in the Field-BusPlug itself. The following protocols are currently available: AS-I, DeviceNet and Profibus DP. To connect the PST Softstarter to a fieldbus system, you need the accessories described on pages 6.33 to 6.34 as well as specific software for PLC set-up, which is available on the ABB web site; see the Resources section at the bottom of the Softstarter product page at www.abb-control.com/products/softstarters.htm.

Open In-Line, Inside Delta 7.5 – 1800 HP

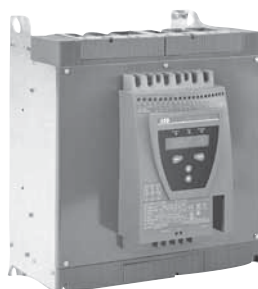
Softstarters
Type PST



PST72-600-70



PST142-600-70



PST175-600-70



PSTB370-600-70



PSTB570-600-70

Connected In-Line ①



Maximum motor current		Maximum horsepower					Weight (lbs.)	Catalog number	
UL	IEC	208V	240V	380V	480V	600V			
28	30	7.5	10	15	20	25	9	PST30-600-70	
34	37	10	10	20	25	30	9	PST37-600-70	
42	44	10	15	25	30	40	11	PST44-600-70	
54	50	15	20	30	40	50	11	PST50-600-70	
68	72	20	25	40	50	60	22	PST72-600-70	
80	85	25	30	50	60	75	22	PST85-600-70	
104	105	30	40	60	75	100	27	PST105-600-70	
130	142	40	50	75	100	125	33	PST142-600-70	
156	175	50	60	100	125	150	44	PST175-600-70	
192	210	60	75	125	150	200	49	PST210-600-70	
248	250	75	100	150	200	250	49	PST250-600-70	
302	300	100	100	150	250	300	53	PST300-600-70	
361	370	125	150	200	300	350	84	PSTB370-600-70	
480	470	150	200	300	400	500	93	PSTB470-600-70	
590	570	200	250	350	500	600	97	PSTB570-600-70	
720	720	250	300	450	600	700	119	PSTB720-600-70	
840	840	300	350	500	700	800	124	PSTB840-600-70	
1062	1050	400	450	600	900	1000	137	PSTB1050-600-70	

Connected Inside Delta ①



Maximum motor current		Maximum horsepower					Weight (lbs.)	Catalog number	
UL	IEC	208V	240V	380V	480V	600V			
42	51	10	15	30	30	40	9	PST30-600-70	
54	64	15	20	40	40	50	9	PST37-600-70	
72	76	20	25	50	50	60	11	PST44-600-70	
80	86	25	30	50	60	75	11	PST50-600-70	
104	124	30	40	75	75	100	22	PST72-600-70	
130	148	40	50	75	100	125	22	PST85-600-70	
156	181	50	60	100	125	150	27	PST105-600-70	
192	245	60	75	150	150	200	33	PST142-600-70	
248	303	75	100	200	200	250	44	PST175-600-70	
302	363	100	100	200	250	300	49	PST210-600-70	
361	433	125	150	250	300	350	49	PST250-600-70	
480	519	150	200	300	400	500	53	PST300-600-70	
590	640	200	250	400	500	600	84	PSTB370-600-70	
720	814	250	300	500	600	700	93	PSTB470-600-70	
840	987	300	350	600	700	800	97	PSTB570-600-70	
1247	1247	400	500	800	1000	1200	119	PSTB720-600-70	
1454	1454	500	600	900	1200	1500	124	PSTB840-600-70	
1839	1818	600	700	1000	1500	1800	137	PSTB1050-600-70	

① Different frame sizes are separated by rules.



Enclosed NEMA 1, 12 In-Line, 5 – 1000 HP

Connected In-Line



Max. motor current		Maximum horsepower					NEMA1, 480V	NEMA1, 600V	List Price	NEMA12, 480V	NEMA12, 600V	List Price
UL	IEC	208V	240V	380V	480V	600V	Catalog Number	Catalog Number		Catalog Number	Catalog Number	
18	18	5	5	10	10	—	T010L1-48	—	\$ 1655	T010L2-48M	—	\$ 1905
		—	—	—	—	15	—	T015L1-60		—	T015L2-60M	
28	30	7.5	10	15	20	—	T020L1-48	—	1655	T020L2-48M	—	1930
		—	—	—	—	25	—	T025L1-60		—	T025L2-60M	
34	37	10	10	20	25	—	T025L1-48	—	1685	T025L2-48M	—	2085
		—	—	—	—	30	—	T030L1-60		—	T030L2-60M	
42	44	10	15	25	30	—	T030L1-48	—	1715	T030L2-48M	—	2165
		—	—	—	—	40	—	T040L1-60		—	T040L2-60M	
54	50	15	20	30	40	—	T040L1-48	—	2055	T040L2-48M	—	2555
		—	—	—	—	50	—	T050L1-60		—	T050L2-60M	
68	72	20	25	40	50	—	T050L1-48	—	2080	T050L2-48M	—	2630
		—	—	—	—	60	—	T060L1-60		—	T060L2-60M	
80	85	25	30	50	60	—	T060L1-48	—	2705	T060L2-48M	—	3355
		—	—	—	—	75	—	T075L1-60		—	T075L2-60M	
104	105	30	40	60	75	—	T075L1-48	—	2735	T075L2-48M	—	3460
		—	—	—	—	100	—	T100L1-60		—	T100L2-60M	
130	142	40	50	75	100	—	T100L1-48	—	3875	T100L2-48M	—	4775
		—	—	—	—	125	—	T125L1-60		—	T125L2-60M	
156	175	50	60	100	125	—	T125L1-48	—	3920	T125L2-48M	—	5170
		—	—	—	—	150	—	T150L1-60		—	T150L2-60M	
192	210	60	75	125	150	—	T150L1-48	—	4370	T150L2-48M	—	5770
		—	—	—	—	200	—	T200L1-60		—	T200L2-60M	
248	250	75	100	150	200	—	T200L1-48	—	4850	T200L2-48M	—	6550
		—	—	—	—	250	—	T250L1-60		—	T250L2-60M	
302	300	100	100	150	250	—	T250L1-48	—	5080	T250L2-48M	—	7830
		—	—	—	—	300	—	T300L1-60		—	T300L2-60M	
361	370	125	150	200	300	—	T300L1-48M ^①	—	6260	T300L2-48M ^①	—	6910
		—	—	—	—	350	—	T350L1-60M ^①		—	T350L2-60M ^①	
414	400	—	—	250	350	—	T350L1-48M ^①	—	7700	T350L2-48M ^①	—	8450
		—	—	—	—	400	—	T400L1-60M ^①		—	T400L2-60M ^①	
480	470	150	200	300	400	—	T400L1-48M ^①	—	7700	T400L2-48M ^①	—	8550
		—	—	—	—	500	—	T500L1-60M ^①		—	T500L2-60M ^①	
590	570	200	250	350	500	—	T500L1-48M ^①	—	9350	T500L2-48M ^①	—	10,350
		—	—	—	—	600	—	T600L1-60M ^①		—	T600L2-60M ^①	
720	720	250	300	450	600	—	T600L1-48M ^①	—	10,830	T600L2-48M ^①	—	11,830
		—	—	—	—	700	—	T700L1-60M ^①		—	T700L2-60M ^①	
840	840	300	350	500	700	—	T700L1-48M ^①	—	12,900	T700L2-48M ^①	—	14,000
		—	—	—	—	800	—	T800L1-60M ^①		—	T800L2-60M ^①	
960	—	350	400	—	800	—	T800L1-48M ^①	—	21,000	T800L2-48M ^①	—	22,300
		—	—	—	—	900	—	T900L1-60M ^①		—	T900L2-60M ^①	
1062	1050	400	450	600	900	—	T900L1-48M ^①	—	21,000	T900L2-48M ^①	—	22,300
		—	—	—	—	1000	—	T1000L1-60M ^①		—	T1000L2-60M ^①	

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 6.30.

Enclosed NEMA 1, 12 Inside Delta, 7.5 – 1800 HP

Softstarters
Type PST

Connected Inside Delta

Max. motor current		Maximum horsepower					NEMA1, 480V	NEMA1, 600V		NEMA12, 480V	NEMA12, 600V	
UL	IEC	208V	240V	380V	480V	600V	Catalog Number	Catalog Number	List Price	Catalog Number	Catalog Number	List Price
28	30	7.5	10	15	20	—	T020D1-48	—	\$ 1655	T020D2-48M	—	\$ 1905
		—	—	—	—	25	—	T025D1-60		—	T025D2-60M	
34	37	10	10	20	25	—	T025D1-48	—	1655	T025D2-48M	—	1905
		—	—	—	—	30	—	T030D1-60		—	T030D2-60M	
42	44	10	15	25	30	—	T030D1-48	—	1655	T030D2-48M	—	1930
		—	—	—	—	40	—	T040D1-60		—	T040D2-60M	
54	50	15	20	30	40	—	T040D1-48	—	1685	T040D2-48M	—	2085
		—	—	—	—	50	—	T050D1-60		—	T050D2-60M	
68	72	20	25	40	50	—	T050D1-48	—	1715	T050D2-48M	—	2165
		—	—	—	—	60	—	T060D1-60		—	T060D2-60M	
80	85	25	30	50	60	—	T060D1-48	—	2055	T060D2-48M	—	2555
		—	—	—	—	75	—	T075D1-60		—	T075D2-60M	
104	105	30	40	60	75	—	T075D1-48	—	2080	T075D2-48M	—	2630
		—	—	—	—	100	—	T100D1-60		—	T100D2-60M	
130	142	40	50	75	100	—	T100D1-48	—	2705	T100D2-48M	—	3355
		—	—	—	—	125	—	T125D1-60		—	T125D2-60M	
156	175	50	60	100	125	—	T125D1-48	—	2735	T125D2-48M	—	3460
		—	—	—	—	150	—	T150D1-60		—	T150D2-60M	
192	210	60	75	125	150	—	T150D1-48	—	3875	T150D2-48M	—	4775
		—	—	—	—	200	—	T200D1-60		—	T200D2-60M	
248	250	75	100	150	200	—	T200D1-48	—	3920	T200D2-48M	—	5120
		—	—	—	—	250	—	T250D1-60		—	T250D2-60M	
302	300	100	100	150	250	—	T250D1-48	—	4370	T250D2-48M	—	5770
		—	—	—	—	300	—	T300D1-60		—	T300D2-60M	
361	370	125	150	200	300	—	T300D1-48	—	4850	T300D2-48M	—	6550
		—	—	—	—	350	—	T350D1-60		—	T350D2-60M	
414	400	—	—	250	350	—	T350D1-48	—	5080	T350D2-48M	—	7830
		—	—	—	—	400	—	T400D1-60		—	T400D2-60M	
480	470	150	200	300	400	—	T400D1-48	—	5080	T400D2-48M	—	7830
		—	—	—	—	500	—	T500D1-60		—	T500D2-60M	
590	570	200	250	350	500	—	T500D1-48M ^①	—	6260	T500D2-48M ^①	—	6910
		—	—	—	—	600	—	T600D1-60M ^①		—	T600D2-60M ^①	
720	720	250	300	450	600	—	T600D1-48M ^①	—	7700	T600D2-48M ^①	—	8550
		—	—	—	—	700	—	T700D1-60M ^①		—	T700D2-60M ^①	
840	840	300	350	500	700	—	T700D1-48M ^①	—	9350	T700D2-48M ^①	—	10,350
		—	—	—	—	800	—	T800D1-60M ^①		—	T800D2-60M ^①	
960	—	350	400	—	800	—	T800D1-48M ^①	—	10,830	T800D2-48M ^①	—	12,130
		—	—	—	—	900	—	T900D1-60M ^①		—	T900D2-60M ^①	
1062	1050	400	450	600	900	—	T900D1-48M ^①	—	10,830	T900D2-48M ^①	—	12,130
		—	—	—	—	1000	—	T1000D1-60M ^①		—	T1000D2-60M ^①	
1247	1215	400	500	800	1000	—	T1000D1-48M ^①	—	10,830	T1000D2-48M ^①	—	12,130
		—	—	—	—	1200	—	T1200D1-60M ^①		—	T1200D2-60M ^①	
1454	1370	500	600	900	1200	—	T1200D1-48M ^①	—	12,900	T1200D2-48M ^①	—	14,650
		—	—	—	—	1500	—	T1500D1-60M ^①		—	T1500D2-60M ^①	
1839	1823	600	700	1200	1500	—	T1500D1-48M ^①	—	21,000	T1500D2-48M ^①	—	22,750
		—	—	—	—	1800	—	T1800D1-60M ^①		—	T1800D2-60M ^①	

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 6.30.



Enclosed NEMA 1, Combination In-Line, 5 – 1000 HP

Connected In-Line



Max. motor current		Maximum horsepower					NEMA1, 480V Circuit breaker	NEMA1, 600V Circuit breaker		NEMA1, 480V Fused disconnect	NEMA 1, 600V Fused disconnect	
UL	IEC	208V	240V	380V	480V	600V	Catalog Number	Catalog Number	List Price	Catalog Number	Catalog Number	List Price
18	18	5	5	10	10	—	T010LB1-48E	—	\$ 2055	T010LF1-48A	—	\$ 2055
28	30	7.5	10	15	20	—	T020LB1-48J	—	2065	T020LF1-48B	—	2065
34	37	10	10	20	25	—	T025LB1-48K	—	2110	T025LF1-48B	—	2110
42	44	10	15	25	30	—	T030LB1-48L	—	2315	T030LF1-48C	—	2315
54	50	15	20	30	40	—	T040LB1-48N	—	2655	T040LF1-48C	—	2655
68	72	20	25	40	50	—	T050LB1-48R	—	2680	T050LF1-48C	—	2680
80	85	25	30	50	60	—	T060LB1-48S	—	3705	T060LF1-48D	—	3705
104	105	30	40	60	75	—	T075LB1-48T	—	3735	T075LF1-48D	—	3735
130	142	40	50	75	100	—	T100LB1-48V	—	5075	T100LF1-48D	—	5075
156	175	50	60	100	125	—	T125LB1-48X	—	5720	T125LF1-48E	—	5720
192	210	60	75	125	150	—	T150LB1-48Y	—	6170	T150LF1-48E	—	6170
248	250	75	100	150	200	—	T200LB1-48A	—	6650	T200LF1-48E	—	6650
302	300	100	100	150	250	—	T250LB1-48B	—	7580	T250LF1-48F	—	7580
361	370	125	150	200	300	—	T300LB1-48DM ^①	—	8860	T300LF1-48FM ^①	—	8860
414	400	—	—	250	350	—	T350LB1-48EM ^①	—	11,300	T350LF1-48FM ^①	—	11,300
480	470	150	200	300	400	—	T400LB1-48FM ^①	—	11,800	T400LF1-48GM ^①	—	11,800
590	570	200	250	350	500	—	T500LB1-48GM ^①	—	14,550	T500LF1-48HM ^①	—	14,550
720	720	250	300	450	600	—	T600LB1-48JM ^①	—	16,030	T600LF1-48HM ^①	—	16,030
840	840	300	350	500	700	—	T700LB1-48KM ^①	—	19,400	T700LF1-48JM ^①	—	19,400
960	—	350	400	—	800	—	T800LB1-48KM ^①	—	27,500	T800LF1-48JM ^①	—	27,500
1062	1050	400	450	600	900	—	T900LB1-48KM ^①	—	28,200	T900LF1-48KM ^①	—	28,200

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 6.30.

Enclosed NEMA 1, Combination Inside Delta, 7.5 – 1900 HP

Softstarters
Type PST

Connected Inside Delta

Max. motor current		Maximum horsepower					NEMA1, 480V Circuit breaker	NEMA1, 600V Circuit breaker		NEMA1, 480V Fused disconnect	NEMA 1, 600V Fused disconnect	
UL	IEC	208V	240V	380V	480V	600V	Catalog Number	Catalog Number	List Price	Catalog Number	Catalog Number	List Price
28	30	7.5 —	10 —	15 —	20 —	25	T020DB1-48J —	— T025DB1-60J	\$ 2065	T020DF1-48B —	— T025DF1-60B	\$ 2065
34	37	10 —	10 —	20 —	25 —	30	T025DB1-48K —	— T030DB1-60K	2080	T025DF1-48B —	— T030DF1-60B	2080
42	44	10 —	15 —	25 —	30 —	40	T030DB1-48L —	— T040DB1-60L	2255	T030DF1-48C —	— T040DF1-60C	2255
54	50	15 —	20 —	30 —	40 —	50	T040DB1-48N —	— T050DB1-60N	2285	T040DF1-48C —	— T050DF1-60C	2285
68	72	20 —	25 —	40 —	50 —	60	T050DB1-48R —	— T060DB1-60R	2315	T050DF1-48C —	— T060DF1-60C	2315
80	85	25 —	30 —	50 —	60 —	75	T060DB1-48S —	— T075DB1-60S	3055	T060DF1-48D —	— T075DF1-60D	3055
104	105	30 —	40 —	60 —	75 —	100	T075DB1-48T —	— T100DB1-60T	3080	T075DF1-48D —	— T100DF1-60D	3080
130	142	40 —	50 —	75 —	100 —	125	T100DB1-48V —	— T125DB1-60V	3905	T100DF1-48D —	— T125DF1-60D	3905
156	175	50 —	60 —	100 —	125 —	150	T125DB1-48X —	— T150DB1-60X	4535	T125DF1-48E —	— T150DF1-60E	4535
192	210	60 —	75 —	125 —	150 —	200	T150DB1-48Y —	— T200DB1-60Y	5675	T150DF1-48E —	— T200DF1-60E	5675
248	250	75 —	100 —	150 —	200 —	250	T200DB1-48A —	— T250DB1-60Z	5720	T200DF1-48E —	— T250DF1-60E	5720
302	300	100 —	100 —	150 —	250 —	300	T250DB1-48B —	— T300DB1-60B	6870	T250DF1-48F —	— T300DF1-60F	6870
361	370	125 —	150 —	200 —	300 —	350	T300DB1-48D —	— T350DB1-60C	7450	T300DF1-48F —	— T350DF1-60F	7450
414	400	— —	— —	250 —	350 —	400	T350DB1-48E —	— T400DB1-60D	8680	T350DF1-48F —	— T400DF1-60F	8680
480	470	150 —	200 —	300 —	400 —	500	T400DB1-48F —	— T500DB1-60E	9180	T400DF1-48G —	— T500DF1-60G	9180
590	570	200 —	250 —	350 —	500 —	600	T500DB1-48GM ^① —	— T600DB1-60GM ^①	11,460	T500DF1-48HM ^① —	— T600DF1-60HM ^①	11,460
720	720	250 —	300 —	450 —	600 —	700	T600DB1-48JM ^① —	— T700DB1-60JM ^①	12,900	T600DF1-48HM ^① —	— T700DF1-60HM ^①	12,900
840	840	300 —	350 —	500 —	700 —	800	T700DB1-48KM ^① —	— T800DB1-60JM ^①	15,850	T700DF1-48JM ^① —	— T800DF1-60JM ^①	15,850
960	—	350 —	400 —	— —	800 —	900	T800DB1-48KM ^① —	— T900DB1-60KM ^①	17,330	T800DF1-48JM ^① —	— T900DF1-60JM ^①	17,330
1062	1050	400 —	450 —	600 —	900 —	1000	T900DB1-48KM ^① —	— T1000DB1-60KM ^①	18,030	T900DF1-48KM ^① —	— T1000DF1-60KM ^①	18,030
1247	1215	400 —	500 —	800 —	1000 —	1200	T1000DB1-48LM ^① —	— T1200DB1-60LM ^①	20,830	T1000DF1-48KM ^① —	— T1200DF1-60KM ^①	20,830
1454	1370	500 —	600 —	900 —	1200 —	1500	T1200DB1-48MM ^① —	— T1500DB1-60MM ^①	22,900	T1200DF1-48LM ^① —	— T1500DF1-60LM ^①	22,900
1839	1823	600 —	700 —	1200 —	1500 —	1800	T1500DB1-48NM ^① —	— T1800DB1-60NM ^①	33,500	T1500DF1-48NM ^① —	— T1800DF1-60NM ^①	33,500

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 6.30.



Options

Max FLA		Shunt rated (AC1) bypass or isolation contactor	Across the line rated (AC3) ^④ bypass contactor	Start/Stop pushbuttons	HOA Selector Switch	Run pilot Light	NEMA 12 adder	NEMA 3R adder	NEMA 4 adder	NEMA 4X adder
UL	IEC	List price	List price ^③	List price	List price	List price	List price	List price	List price	List price
18	18	\$ 150	\$ 775	\$ 72	\$ 72	\$ 135	\$ 100 ^①	\$ 100 ^①	\$ 150 ^①	\$ 450 ^①
28	30	175	850	72	72	135	100 ^①	100 ^①	150 ^①	450 ^①
34	37	250	900	72	72	135	150 ^①	150 ^①	200 ^①	600 ^①
42	44	300	950	72	72	135	150 ^①	150 ^①	200 ^①	600 ^①
54	50	350	1000	72	72	135	150 ^①	150 ^①	200 ^①	600 ^①
68	72	400	1100	72	72	135	150 ^①	150 ^①	200 ^①	600 ^①
80	85	500	1150	72	72	135	150 ^①	150 ^①	225 ^①	775 ^①
104	105	550	1200	72	72	135	175 ^①	175 ^①	225 ^①	775 ^①
130	142	600	1550	72	72	135	300 ^①	300 ^①	350 ^①	1050 ^①
156	150	950	1850	72	72	135	300 ^①	300 ^①	350 ^①	1050 ^①
192	210	950	2100	72	72	135	450 ^①	450 ^①	525 ^①	1575 ^①
248	250	1250	2700	72	72	135	450 ^①	450 ^①	525 ^①	1575 ^①
302	300	2100	3500	72	72	135	650 ^①	650 ^①	775 ^①	2325 ^①
361	370	— ^②	4800	72	72	135	650	650	775	2325
414	400	— ^②	4800	72	72	135	750	750	950	2850
480	470	— ^②	4800	72	72	135	850	850	1025	3075
590	570	— ^②	6800	72	72	135	1000	1000	1300	3900
720	720	— ^②	7100	72	72	135	1000	1000	1300	3900
840	840	— ^②	10,100	72	72	135	1100	1100	1425	4275
960	—	— ^②	10,100	72	72	135	1300	1300	1700	5100
1062	1050	— ^②	14,600	72	72	135	1300	1300	1700	5100
1247	1215	— ^②	14,600	72	72	135	1300	1300	1700	5100
1454	1370	— ^②	14,600	72	72	135	1750	1750	2200	7000
1839	1823	— ^②	14,600	72	72	135	1750	1750	2200	7000

① Must add bypass contactor.

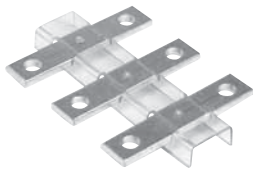
② PSTB includes an integrated shunt rated (AC1) bypass contactor.

③ Includes emergency bypass control.

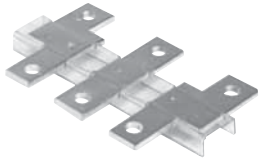
④ Subtract AC1 List price when AC1 rating ("M" code) is included in catalog numbers shown on page 6.26.

Accessories

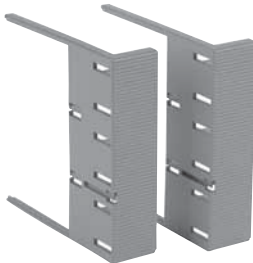
Softstarters
Type PST



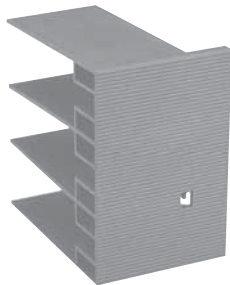
LX400



LW185



LT185-AC



LT460-AC



PSTEK

Terminal extension pieces (set of 3) ^③

Softstarter Type	Dimensions Hole (mm) Bar (mm)		Weight lbs.	Catalog number	List price
PST85 – 142	8.5	17.5 x 5	0.55	LX185	\$ 90
PST175 – 300	10.5	20 x 5	0.77	LX300	140
PST370 – 470	10.5	25 x 5	1.1	LX460	195
PST570 – 1050	13	40 x 6	1.9	LX750	225

Delivered with straps to prevent them from rotating.

Terminal enlargement pieces (set of 3) ^③

Softstarter Type	Dimensions Hole (mm) Bar (mm)		Weight lbs.	Catalog number	List price
PST30 – 72	6.5	15 x 3	0.22	LW110	\$ 15
PST85 – 142	10.5	17.5 x 5	0.55	LW185	120
PST175 – 300	10.5	20 x 5	0.99	LW300	130
PST370 – 470	10.5	25 x 5	1.6	LW460	295
PST570 – 1050	13	40 x 6	2.7	LW750	355

Delivered with straps to prevent them from rotating.

Terminal shrouds ^{③⑦}

Softstarter Type	Required quantity	Weight lbs.	Catalog number	List price
PST85 – 142	(1) - LT185-AC & (1) LT460-AC	0.11 0.22	LT185-AC LT460-AC	\$ 10 20
PST85 – 142	(1) - LT185-AL & (1) LT460-AL	0.48 1.8	LT185-AL LT460-AL	10 20
PST175 – 300	LT300-AC ^⑤	0.15	LT300-AC	10
	LT300-AL ^⑤	0.62	LT300-AL	10
PSTB370 – 470	LT460-AC	0.22	LT460-AC	20
	LT460-AL	1.8	LT460-AL	20
PSTB570 – 1050	LT750-AC	0.26	LT750-AC	20
	LT750-AL	1.8	LT750-AL	20

Control transformers

PST Amp ratings	Standard VA	Price adder for extra VA			
		100VA	250VA	500VA	750VA
9 – 68	50	\$ 175	—	—	—
69 – 130	75	225	\$ 300	—	—
131 – 480	250	360	400	\$ 500	\$ 625
481 – 1050	750	—	725	—	975

Terminal lug kits ^①

Wire range	For softstarter ^②	Catalog number	List price
#6 - 250 MCM (1 per phase)	PST85 – PST142	PSLK-185 ^{④⑥}	\$ 150
#4 - 400 MCM (1 per phase)	PST175 – PST300	PSLK-300 ^{④⑥}	195
#4 - 500 MCM (2 per phase)	PST175 – PST300	PSLK-300/2 ^{④⑥}	280
2/0 - 500 MCM (2 per phase)	PSTB370 – PSTB470	PSLK-580/2	350
2/0 - 500 MCM (3 per phase)	PSTB570 – PSTB1050	PSLK-750/3	525

Remote key pad (HMI) – 10 ft. cable included

Softstarter type	Dimensions H x W x D (inches)	Weight (lbs.)	Catalog number	List price
All PST(B)	5.43 x 5.3 x 0.9	1	PSTEK	\$ 385

- ^① Includes line/load lugs and hardware.
^② Softstarters listed are provided with terminating bus tabs as standard.
^③ Use Discount Schedule ABA.
^④ Must order two sets if using bypass contactor.
^⑤ Requires two sets.
^⑥ Discount schedule PSS
^⑦ All shrouds come in quantities of 2.



Accessories

Accessories

Item	Suffix code ①	List price adder
Softstarters		
Door mounted reset	K	\$ 72
E-Stop	T	72
Start-stop pushbutton	A	72
2 position selector switch	C	72
3 position selector switch	D	72
Pilot light run	E	135
Start-stop pushbutton & pilot light	F	207
2 position selector switch & pilot light	H	207
3 position selector switch & pilot light	J	207
Shunt rated (AC1) bypass contactor	M	see pg 6.30
Isolation contactor	W	see pg 6.30
Across the line rated (AC3) contactor with emergency bypass control ③	B	see pg 6.30
Remote keypad	R	485
Service entrance, 3-wire	SE3	100
Service entrance, 4-wire	SE4	300
Lightning arrestor	LA	320
Space heater, 100W with thermostat	SH	600
Emergency bypass control for PSTB ③	X	600
Auxiliary relays		
Type N control relay (4 pole)	CR	150
Electronic timer		
1.5 – 30s On Delay	TN30	125
5 – 100s On Delay	TN100	125
1.5 – 30s Off Delay	TF30	125
5 – 100s Off Delay	TF100	125
Phase failure phase reversal ②	PFPR	375
Undervoltage relay	UV	150
Overvoltage relay	OV	180
Ground fault protection	GFP	1000
Meters & metering		
Current transformer	CT	250
Ammeter (including C.T.)	AM	470
Ammeter & ammeter switch	AMS	1800
Voltmeter	VM	1200
Voltmeter & voltmeter switch	VMS	1800
Elapsed time meter	ETM	350
Operation counter	OC	375
Wattmeter	WM	2450

Additional auxiliary contact blocks for bypass or isolation contactors

Contact configuration	Suffix code	List price adder
1 N.O. & 1 N.C.	11	\$ 54
2 N.O. & 2 N.C.	22	98
3 N.O. & 3 N.C.	33	142

① Add the suffix code after the last digit of the catalog number.

② Included as standard in the PST.

③ Control includes panel mounted Norm/E-Bypass switch, START/STOP pushbutton & Class 10 external overload, unless otherwise specified.

Accessories

Communications

DeviceNet Fieldbus connectors & accessories

Softstarters
Type PST

6



DNP21-11FBP



DNF-11FBP.050



DNM-11FBP.050



DNX11-FBP



DNM11-FBP.0



DNF11-FBP.0

DeviceNet FieldBusPlug

Designation FieldBusPlug	Cable length	Weight lbs	Type	Catalog number	List price
DeviceNet	0.25 m	.20	DNP21-FBP.025	1SAJ230000R0003	\$ 286.47
DeviceNet	0.50 m	.22	DNP21-FBP.050	1SAJ230000R0005	286.47
DeviceNet	1.00 m	.29	DNP21-FBP.100	1SAJ230000R0010	286.47
DeviceNet	5.00 m	.79	DNP21-FBP.500	1SAJ230000R0050	304.83

Ready-made DeviceNet fieldbus interface with various cable lengths

- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

DeviceNet round cable for bus junctions

Designation	Cable length	Weight lbs	Type	Catalog number	List price
DeviceNet round cable with female connector	0.50 m	.09	DNF11-FBP.050	1SAJ923002R0005	\$ 48.21
DeviceNet round cable with male connector	0.50 m	.09	DNM11-FBP.050	1SAJ923003R0005	49.96

Ready made bus cable with an M12 connector and an open cable end.

- Applicable on all bus junctions such as DeviceNet couplers or devices with an integrated DeviceNet interface.

DeviceNet round cable for bus extension

Designation	Cable length	Weight lbs	Type	Catalog number	List price
DeviceNet extension cable	1 m	0.18	DNX11-FBP.100 ②	1SAJ923001R0010	\$ 70.93
	3 m	0.44	DNX11-FBP.300 ②	1SAJ923001R0030	114.96
	5 m	0.68	DNX11-FBP.500 ③	1SAJ923001R0050	148.74
	100 m	12.30	DNC11-FBP.999 ③	1SAJ923004R1000	1517.12

DeviceNet round cable and accessories for bus extension – Bus cable & coupling accessories

Designation	Weight lbs	Type	Catalog number	List price
DeviceNet round cable male connector	.33	DNM11-FBP.0 ①	1SAJ923005R0001	\$ 108.56
DeviceNet round cable female connector	.33	DNF11-FBP.0 ①	1SAJ923006R0001	

DeviceNet termination resistor

Designation	Weight lbs	Type	Catalog number	List price
DeviceNet termination resistor, 120 Ohm	.05	DNR11-FBP.120	1SAJ923007R0001	\$ 37.22

To connect the PST Softstarter to a fieldbus system

You need specific software for PLC setup which is available free from the ABB Inc. web site; see the Resources section at the bottom of the Softstarter product page at www.abb-control.com/products/softstarters.htm. If you need help or advice, please contact your local ABB office.

- ① Includes five connectors.
② Ready made bus cable with M12 male and female connectors.
③ Cable only. Connectors not provided.

Accessories

Communications

Profibus DP Fieldbus connectors & accessories

Profibus DP FieldBusPlug

Designation FieldBusPlug	Cable length	Weight lbs	Type	Catalog number	List price
Profibus DP-FBP	0.25 m	.20	PDP21-FBP.025	1SAJ240000R0003	\$ 390.39
Profibus DP-FBP	0.50 m	.22	PDP21-FBP.050	1SAJ240000R0005	390.39
Profibus DP-FBP	1.00 m	.29	PDP21-FBP.100	1SAJ240000R0010	390.39
Profibus DP-FBP	5.00 m	.79	PDP21-FBP.500	1SAJ240000R0050	409.43

Ready-made Profibus DP fieldbus interface with various cable lengths.

- Applicable on all FBP motor starters and other devices.
- Degree of protection IP65, diagnostic LED.

Profibus DP round cable for bus junctions

Designation	Cable length	Weight lbs	Type	Catalog number	List price
Profibus DP round cable with female connector	0.50 m	.09	PDF11-FBP.050	1SAJ924002R0005	\$ 45.70
Profibus DP round cable with male connector	0.50 m	.09	PDM11-FBP.050	1SAJ924003R0005	

Ready made bus cable with an M12 connector on an open cable end.

- Applicable on all bus junctions such as Profibus DB couplers or devices with an integrated Profibus DB interface.

Profibus DP round cable for bus extension

Designation	Cable length	Weight lbs	Type	Catalog number	List price
Profibus DP extension cable	1 m	0.18	PDX11-FBP.100 ①	1SAJ924001R0010	\$ 64.75
	3 m	0.44	PDX11-FBP.300 ①	1SAJ924001R0030	99.03
	5 m	0.68	PDX11-FBP.500 ①	1SAJ924001R0050	133.30
	100 m	12.30	PDC11-FBP.999 ②	1SAJ924004R1000	1416.82

Profibus DP accessories for bus extension

Designation	Weight lbs	Type	Catalog number	List price
Profibus DP male connector	.07	PDM11-FBP.0	1SAJ924005R0001	\$ 38.09
Profibus DP female connector	.07	PDF11-FBP.0	1SAJ924006R0001	

Profibus DP termination resistor

Designation	Weight lbs	Type	Catalog number	List price
Profibus DP termination resistor, 150 Ohm	.02	PDR11-FBP.150	1SAJ924007R0001	\$ 251.16

To connect the PST Softstarter to a fieldbus system

You need specific software for PLC setup which is available free from the ABB Inc. web site; see the Resources section at the bottom of the Softstarter product page at www.abb-control.com/products/softstarters.htm. If you need help or advice, please contact your local ABB office.

① Ready made bus cable with M12 male and female connectors.
② Cable only. Connectors not provided.

Accessories

Communications

Modbus RTU Fieldbus connectors & accessories

Softstarters
Type PST

6



DNP21-11FBP



DNF-11FBP.050



DNM-11FBP.050



DNX11-FBP



DNM11-FBP.0



DNF11-FBP.0

Modbus FieldBusPlug

Designation FieldBusPlug	Cable length	Weight lbs	Type	Catalog number	List price
Modbus RTU-FBP	0.25 m	.20	MPR21-FBP.025	1SAJ250000R0003	\$ 333.44
Modbus RTU-FBP	0.50 m	.22	MPR21-FBP.050	1SAJ250000R0005	338.25
Modbus RTU-FBP	1.00 m	.29	MPR21-FBP.100	1SAJ250000R0010	343.32
Modbus RTU-FBP	5.00 m	.79	MPR21-FBP.500	1SAJ250000R0050	355.11

Ready-made Modbus fieldbus interface with various cable lengths

- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Modbus round cable for bus junctions ②

Designation	Cable length	Weight lbs	Type	Catalog number	List price
Modbus round cable with female connector	0.50 m	.09	DNF11-FBP.050	1SAJ923002R0005	\$ 48.21
Modbus round cable with male connector	0.50 m	.09	DNM11-FBP.050	1SAJ923003R0005	49.96

Ready made bus cable with an M12 connector and an open cable end.

- Applicable on all bus junctions such as Modbus couplers or devices with an integrated Modbus interface.

Modbus round cable for bus extension ②

Designation	Cable length	Weight lbs	Type	Catalog number	List price
Modbus extension cable	1 m	0.18	DNX11-FBP.100 ③	1SAJ923001R0010	\$ 70.93
	3 m	0.44	DNX11-FBP.300 ③	1SAJ923001R0030	114.96
	5 m	0.68	DNX11-FBP.500 ③	1SAJ923001R0050	148.74
	100 m	12.30	DNC11-FBP.999 ④	1SAJ923004R1000	1517.12

Modbus round cable and accessories for bus extension ② – Bus cable & coupling accessories

Designation	Weight lbs	Type	Catalog number	List price
Modbus round cable male connector	.33	DNM11-FBP.0 ①	1SAJ923005R0001	\$ 108.56
Modbus round cable female connector	.33	DNF11-FBP.0 ①	1SAJ923006R0001	

Modbus termination resistor ②

Designation	Weight lbs	Type	Catalog number	List price
Modbus termination resistor, 120 Ohm	.05	DNR11-FBP.120	1SAJ923007R0001	\$ 37.22

To connect the PST Softstarter to a fieldbus system

You need specific software for PLC setup which is available free from the ABB Inc. web site; see the Resources section at the bottom of the Softstarter product page at www.abb-control.com/products/softstarters.htm. If you need help or advice, please contact your local ABB office.

① Includes five connectors.

② Modbus accessories are the same as DeviceNet accessories.

③ Ready made bus cable with M12 male and female connectors.

④ Cable only. Connectors not provided.

Technical data
PST30 – 300
PSTB370 – 1050

	PST30 – 300	PSTB370 – 1050
Rated insulation voltage U_i	690 V	690 V
Rated operational voltage U_e	208 – 690 V	208 – 690 V
Starting capacity at max rated current I _r	500% for 30 sec	500% for 30 sec
Number of starts per hour	30 ①	10 ①
Overload capability Overload Class	10 – 30	10 – 30
Service factor	115 %	115 % (PSTB370 – PSTB840) 100 % (PSTB1050)
Ambient temperature		
During operation	±0... +50 °C ②	±0... +50 °C ②
During storage	-25... +70 °C	-25... +70 °C
Altitudes		
Maximum altitude	4000 m ③	4000 m ③
Degree of protection		
Main circuit	IP10 (PST30 ... 72) IP00 (PST85 ... 300)	IP00 (all)
Supply and Control circuit	IP20	IP20
Main circuit		
Built in By-pass contactor	No	Yes
Cooling system - Fan cooled (thermostat controlled)	Yes	Yes
Supply circuit		
Control voltage – one range	100 ... 250 V +10% / -15% 50/60 Hz ± 5%	100 ... 250 V +10% / -15% 50/60 Hz ± 5%
HMI for settings (Human Machine Interface)		
20 segment display	Yes	Yes
Keypad with two selection keys and two navigating keys	Yes	Yes
Plain text in 12 languages (English, German, Italian, Chinese, Finnish, Swedish, French, Spanish, Dutch, Russian, Turkish & Portuguese)	Yes	Yes
Remote HMI for settings (PSTEK) (Human Machine Interface)		
20 segment display	Yes	Yes
Keypad with two selection keys and two navigating keys	Yes	Yes
Plain text in 12 languages (English, German, Italian, Chinese, Finnish, Swedish, French, Spanish, Dutch, Russian, Turkish & Portuguese)	Yes	Yes
Approvals: UL, Type 1, 12, 4/4X		
Upload Parameters	Yes	Yes
Download Parameters	Yes	Yes

	PST30 – 300	PSTB370 – 1050
Signal relays		
Number of programmable signal relays (Each relay can be programmed to be Run, By-pass or Event signal)	3	3
K4 – Default as Run signal	Yes	Yes
K5 – Default as By-pass signal	Yes	Yes
K6 – Default as Event signal	Yes	Yes
Rated operational voltage U_e	250 V	250 V
Rated thermal current I_{th}	5 A	5 A
Rated operational current I_e at AC-15 ($U_e = 250$ V)	1.5 A	1.5 A
Control circuit /Hardware inputs		
Internal 24 V DC (10 mA closed)	Yes	Yes
Start / Stop inputs	Yes	Yes
Two extra programmable inputs (Each input can be programmed to be None, Reset, Enable, Jog, DOL or Start motor 2 (or 3)).	Yes	Yes
Signal indication LED's		
Run power on – Green	Yes	Yes
Fault - Red	Yes	Yes
Protection - Yellow	Yes	Yes
Protections		
Electronic overload	Yes	Yes
Adjustable tripping classes - Class 10 A, 10, 20 and 30	Yes	Yes
Dual ramp (separate overload function for start and run)	Yes	Yes
PTC connection	Yes	Yes
Locked rotor protection	Yes	Yes
Underload protection	Yes	Yes
Phase imbalance	Yes	Yes
High current ($8 \times I_e$)	Yes	Yes
Phase reversal protection	Yes	Yes
Warnings (pre-warning)		
High current	Yes	Yes
Low current (underload)	Yes	Yes
Overload trip	Yes	Yes
Overtemp. thyristors (SCR)	Yes	Yes
Start of several motors		
Possible to set up and start three different motors	Yes	Yes
Field bus connection		
Connection for ABB FielBusPlug	Yes	Yes
AS-I (option cable)	Yes	Yes
DeviceNet (option cable)	Yes	Yes
Profibus DP (option cable)	Yes	Yes

PSTB Integrated bypass ratings

		PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
Contactor type		AF260	AF300	AF400	AF580	AF750	AF750
AC3 Rating @ 480V	HP	200	250	350	500	600	600
AC3 Rating	A	248	302	414	590	720	720

① Valid for 50 % on time and 50 % off time, with $3.5 \times I_p$ for 7 seconds. If other data is required, please contact your sales office

② Above 40 °C up to max. 50 °C reduce the rated current by 0.8 % per °C.

③ When used at high altitudes above 1000 meters, consult factory.

Technical data

Display settings

Major possible settings and the displayed text and the set default values

Description	Text on display (Eng)	Values on display	Default value
Motor FLA	Setting I _e	9.0 ... 1380 A divided into 19 overlapping ranges.	See table, page 6.38
Time for start ramp	Start Ramp	1 ... 30 s, 1 ... 120 s (Range depends on Start Range)	10 s
Time for stop ramp	Stop Ramp	0 ... 30 s, 0 ... 120 s (Range depends on Stop Range)	0 s
Initial voltage for start ramp	Init Volt	30 ... 70 %	30 %
End voltage for stop ramp	End Volt	30 ... 70 %	30 %
Step down voltage	Step Down	30 ... 100 %	100 %
Level of the current limit.	Current Lim	2.0 ... 5.0 x I _e	4.0 x I _e
Selection of Kick start	Kick Start	Yes, No	No
Level of Kick start if selected	Kick Level	50 ... 100 %	50 %
Time for Kick start if selected	Kick Time	0.1 ... 1.5 s	0.2
Selectable range for start ramp	Start Range	1 ... 30 s, 1...120 s	1 ... 30 s
Selectable range for stop ramp	Stop Range	0 ... 30 s, 0 ... 120 s	0 ... 30 s
Overload protection	Overload	No, Normal, Dual	Normal
Overload Class	OL Class	10A, 10, 20, 30	10
Overload Class, Dual type, Start Class	OL Class S	10A, 10, 20, 30	10
Overload Class, Dual type, Run Class	OL Class R	10A, 10, 20, 30	10
Type of operation for overload protection	OL Op	Stop-M, Stop-A, Ind	Stop-M
Locked rotor protection	Locked Rotor	Yes, No	No
Trip level for locked rotor protection	Lock R Lev	3.0 ... 8.0 x I _e	4.0 x I _e
Trip time for locked rotor protection	Lock R Time	0.2 ... 10 s	1.0 s
Type of operation for locked rotor protection	Lock R Op	Stop-M, Stop-A, Ind	Stop-M
Underload protection	Underload	Yes, No	No
Trip level for Underload protection	Underl Lev	0.4 ... 0.8 x I _e	0.8 x I _e
Trip time for Underload protection	Underl Time	1...30 s	10 s
Type of operation for Underload protection	Underl Op	Stop-M, Stop-A, Ind	Stop-M
Phase imbalance protection	Phase Imb	Yes, No	No
Trip level for phase imbalance protection	Ph Imb Lev	10...80 %	80 %
Type of operation for phase imbalance protection	Ph Imb Op	Stop-M, Stop-A, Ind	Stop-M
High current protection	High I	Yes, No	No
Type of operation for high current protection	High I Op	Stop-M, Stop-A, Ind	Stop-M
Phase reversal protection	Phase Rev	Yes, No	No
Type of operation for phase reversal protection	Ph Rev Op	Stop-M, Stop-A, Ind	Stop-M
PTC protection	PTC	Yes, No	No
Type of operation for PTC protection	PTC Op	Stop-M, Stop-A	Stop-M
An external Bypass contactor is used	Ext ByPass	Yes, No	No
High current warning	Warn I=High	Yes, No	No
Trip level for high current warning	Wa I=H Lev	0.5 ... 5.0 x I _e	1.2 x I _e
Low current warning	Warn I=Low	Yes, No	No
Trip level for low current warning	Wa I=L Lev	0.4 ... 1.0 x I _e	0.5 x I _e
Overload warning	Warn OL	Yes, No	No
Trip level for overload warning	Wa OL Lev	40...99 %	90 %
Thyristor overload warning	Warn SCR OL	Yes, No	Yes
Type of operation for phase loss fault	Ph Loss Op	Stop-M, Stop-A	Stop-M
Type of operation for by-pass fault	BP Fault Op	Stop-M, Stop-A, Ind	Stop-M
Type of operation for fieldbus fault	FB Fault Op	Stop-M, Stop-A	Stop-M
Type of operation for frequency fault	Freq F Op	Stop-M, Stop-A	Stop-M
Type of operation for heat sink over temperature fault	HS Temp Op	Stop-M, Stop-A	Stop-M
Type of operation for thyristor short circuit fault	SCR SC Op	Stop-M, Stop-A	Stop-M
Function of programmable input In_0	In0	None, Reset, Enable, Jog, DOL, Start 2	Reset
Function of programmable input In_1	In1	None, Reset, Enable, Jog, DOL, Start 3	Reset
Function of programmable relay output K4	Relay K4	Run, TOR, Event	Run
Function of programmable relay output K5	Relay K5	Run, TOR, Event	TOR
Function of programmable relay output K6	Relay K6	Run, TOR, Event	Event
Control of the softstarter with fieldbus	Fieldb Ctrl	Yes, No	No
Number of sequences for sequence start.	No of Seq	No, 2, 3	No
1 st sequence, time for start ramp	Start Ramp1	1...30 s, 1...120 s (Range depends on Start Range)	10 s
1 st sequence, initial voltage for start ramp	Init Volt1	30...70 %	30 %
1 st sequence, current limit	Curr Lim1	2.0 ... 5.0 x I _e	4.0 x I _e
1 st sequence, setting current	1st Set I _e	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 6.38
2 nd sequence, time for start ramp	Start Ramp2	1...30 s, 1...120 s (Range depends on Start Range)	10 s
2 nd sequence, initial voltage for start ramp	Init Volt2	30...70 %	30 %
2 nd sequence, current limit	Curr Lim2	2.0 ... 5.0 x I _e	4.0 x I _e
2 nd sequence, setting current	2nd Set I _e	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 6.38

Technical data

Display settings

Tripping curves

Major possible settings and the displayed text and the set default values

Description	Text on display (Eng)	Values on display	Default value
Time for start ramp	Start Ramp	1...30 s, 1...120 s (Range depends on Start Range)	10 s
Initial voltage for start ramp	Init Volt	30 ... 70 %	30 %
Current limit	Curr Lim	2.0 ... 5.0 x I _e	4.0 x I _e
Motor FLA	Set I _e	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 6.38
Language to use on display	Language	US/UK, FI, SE, PT, NL, IT, FR, ES, DE, CN	US/UK
Time for display automatic turn off	LCD Auto Off	1 ... 255 min	15 min
Password for display	Password	No, 1 ... 255	1
Type of date presentation	Date Type	ISO, CE, US	ISO
Year	Date Year	2001...2060	Individual
Month	Date Month	1 ... 12	Individual
Day	Date Day	1 ... 31	Individual
Hour	Time Hour	0 ... 23	Individual
Minutes	Time Min	0 ... 59	Individual

Tripping curves for the integrated electronic overload

All units have an integrated electronic overload possible to set on four different tripping classes. Below, you will find a curve for each tripping class in cold state.

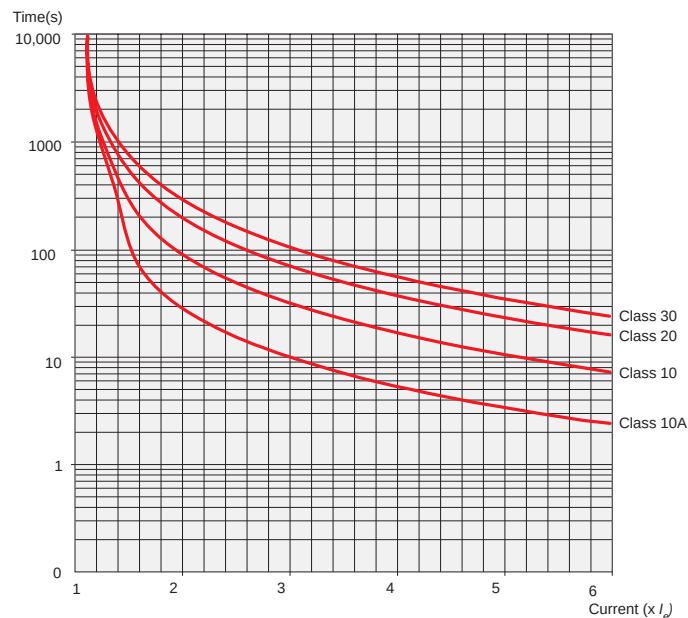


ABB FieldBusPlug

Controlling possibilities when using different field buses

Item	ASI	DeviceNet	Profibus DP
Simple control (start/stop etc)	X	X	X
Complete control	—	X	X
Simple status information	X	X	X
Detailed status information	—	X	X
Possibilities to write parameters	—	X	X
Possibilities to read parameters	—	X	—

For more detailed information, please refer to the LV021 (1SXU 132 021 M0201) Installation and Maintenance manual, available at ABB Inc. web site. See the Resources section at the bottom of the Softstarters product page at www.abb-control.com/products/softstarters.htm. Click on the Literature Library File Downloads link which will take you to the Softstarters section of the Literature Library. Right click on AC1006.9 to download the manual. If you need help or advice, please contact your local ABB office.

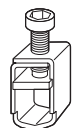
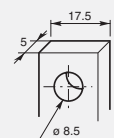
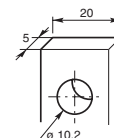
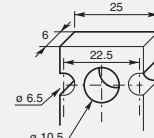
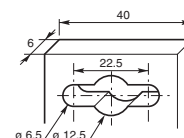
Technical data

PST30 – 300

PSTB370 – 1050

Softstarters
Type PST

Cross section of connectable cables

		Type of softstarter PST30 ... 72	PST85 ... 142	PST175 ... 300	PSTB370 ... 470	PSTB570 ... 1050
Main circuit						
Available terminals:	L1, L2, L3	Yes	Yes	Yes	Yes	Yes
	T1, T2, T3	Yes	Yes	Yes	Yes	Yes
(For external by-pass):	B1, B2, B3	Yes	Yes	Yes	No	No
Connection clamp						
Solid/Stranded	1 x mm ²	10 ... 95	See page 6.31	See page 6.31	See page 6.31	See page 6.31
Solid/Stranded	1 x mm ²	6 ... 35	See page 6.31	See page 6.31	See page 6.31	See page 6.31
Tightening torque (recommended), Nm		6.0	See page 6.31	See page 6.31	See page 6.31	See page 6.31
Connection bar		No				
Width and thickness	mm	–				
Hole diameter	mm	–				
Tightening torque (recommended), Nm		–	9	18	40	49
Supply and control circuit						
Connection clamp		Yes	Yes	Yes	Yes	Yes
Solid/Stranded	1 x mm ²	2.5	2.5	2.5	2.5	2.5
Solid/Stranded	1 x mm ²	1.5	1.5	1.5	1.5	1.5
Tightening torque (recommended), Nm		0.5	0.5	0.5	0.5	0.5

Fuse ratings and power losses

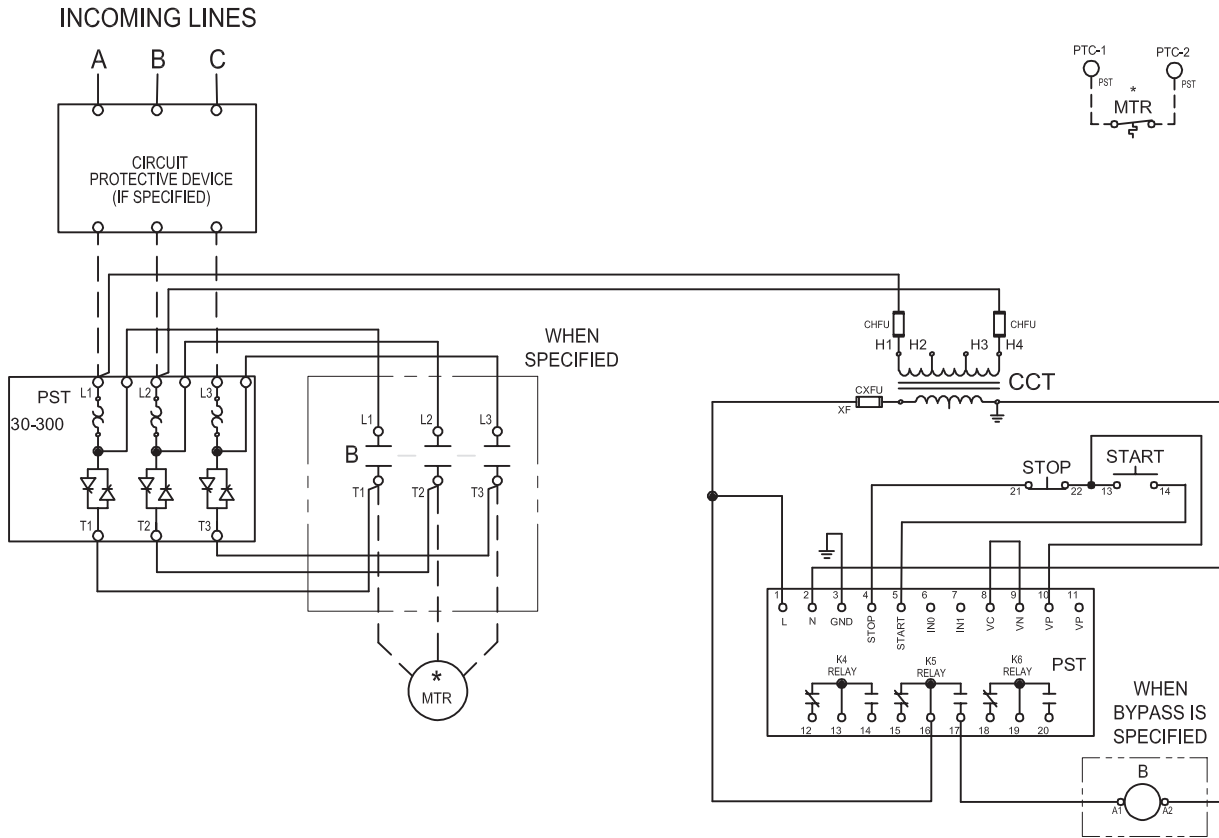
For softstarter	Recommended ABB Overload protection		Max power loss at rated I _e W	Maximum fuse ratings - main circuit			Ferraz fuses			Power requirements supply circuit VA/VA pull in
	Type	Current range A		Bussmann fuses			Type	Type		
				A	Type	Holder				
PST										
PST30	Integrated	9... 35	100	80	170M1366	170H1007	100	6.6 URB 000 D08V 0100	5	
PST37	Integrated	12...46	120	125	170M1368	170H1007	160	6.6 URB 000 D08V 0160	5	
PST44	Integrated	15...58	140	160	170M1369	170H1007	200	6.6 URD 30 D08A 0200	5	
PST50	Integrated	15...58	160	160	170M1369	170H1007	200	6.6 URD 30 D08A 0200	5	
PST72	Integrated	23...86	230	250	170M1371	170H1007	315	6.6 URD 30 D08A 0315	5	
PST85	Integrated	30...115	270	315	170M1372	170H1007	400	6.6 URD 30 D08A 0400	10	
PST105	Integrated	38...144	325	400	170M3019	170H3004	400	6.6 URD 30 D08A 0400	10	
PST142	Integrated	45...173	435	450	170M3020	170H3004	500	6.6 URD 30 D08A 0500	10	
PST175	Integrated	60...230	540	500	170M3021	170H3004	550	6.6 URD 30 D08A 0550	15	
PST210	Integrated	75...288	645	630	170M5012	170H3004	630	6.6 URD 31 D08A 0630	15	
PST250	Integrated	75...288	765	700	170M5013	170H3004	630	6.6 URD 31 D08A 0630	15	
PST300	Integrated	90...345	920	900	170M5015	170H3004	900	6.6 URD 31 D11A 0900	15	
PSTB – 600V										
PSTB370	Integrated	120...460	90	700	170M5013	170H3004	630	6.6 URD 31 D08A 0630	20/480	
PSTB470	Integrated	150...575	110	900	170M5015	170H3004	900	6.6 URD 31 D11A 0900	20/480	
PSTB570	Integrated	180...690	105	900	170M5015	170H3004	900	6.6 URD 31 D11A 0900	25/900	
PSTB720	Integrated	225...863	110	1250	170M5018	170H3004	1250	6.6 URD 33 D11A 1250	25/860	
PSTB840	Integrated	300...1160	170	1500	170M5018	170H3004	1600	6.6 URD 33 D11A 1250	25/860	
PSTB1050	Integrated	360...1380	170	1800	170M6020	170H3004	2000	6.6 URD 233 PLAF 2000	25/860	
PSTB – 690V										
PSTB370	Integrated	120...460	90	700	170M5013	170H3004	630	6.6 URD 31 D08A 0630	20/480	
PSTB470	Integrated	150...575	110	900	170M5015	170H3004	900	6.6 URD 31 D11A 0900	20/480	
PSTB570	Integrated	180...690	105	900	170M5015	170H3004	900	6.6 URD 31 D11A 0900	25/900	
PSTB720	Integrated	225...863	110	1250	170M6018	170H3004	1250	6.6 URD 33 D11A 1250	25/860	
PSTB840	Integrated	300...1150	170	1500	170M6018	170H3004	1600	6.6 URD 33 TTFA 1600	25/860	
PSTB1050	Integrated	360...1380	170	1600	170M6019	170H3004	1600	6.6 URD 33 TTFA 1600	25/860	

Circuit diagrams

PST30 – PST300

In-Line

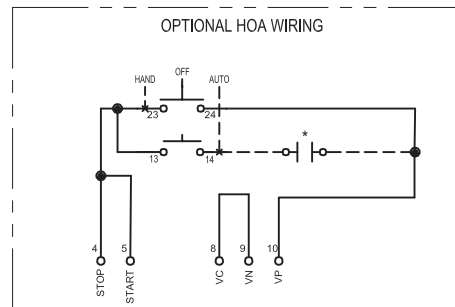
PST30 – PST300



CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

PST NOTES:

1. PROG. INPUT In0 FACTORY SET FOR RESET FAULT/OL.
2. PROG. RELAY K4 FACTORY SET FOR RUN.
3. PROG. RELAY K5 FACTORY SET FOR AT SPEED.
4. PROG. RELAY K6 FACTORY SET FOR EVENT.
5. FUNCTION MOT 1 Ie MUST BE SET TO MOTOR FLA.



NOTES

1. ALL CONTROL WIRING TO BE 14 GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE ON CONTACTOR COILS:

RED-ALL AC VOLTAGES
WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

BLUE-ALL DC VOLTAGES

2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFUF	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
Ø	CONNECTION POINT AT TERMINAL BLOCK

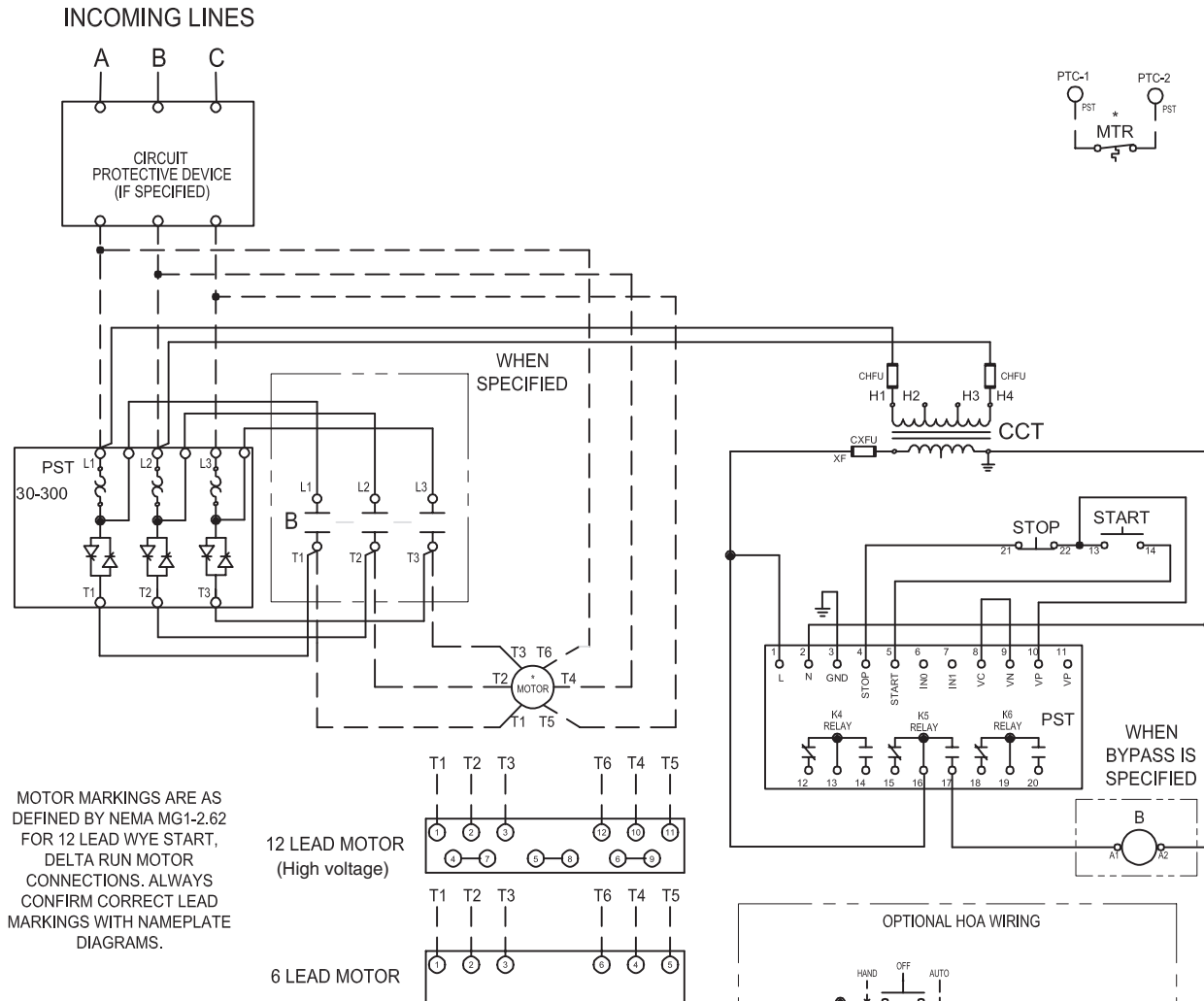
Circuit diagrams

PST30 – PST300

Inside Delta

Softstarters
Type PST

PST30 – PST300



CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

PST NOTES:

1. PROG. INPUT In0 FACTORY SET FOR RESET FAULT/OL.
2. PROG. RELAY K4 FACTORY SET FOR RUN.
3. PROG. RELAY K5 FACTORY SET FOR AT SPEED.
4. PROG. RELAY K6 FACTORY SET FOR EVENT.
5. FUNCTION MOT 1 Ie MUST BE SET TO MOTOR FLA.

NOTES

1. ALL CONTROL WIRING TO BE 14 GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE ON CONTACTOR COILS:

RED-ALL AC VOLTAGES
WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

BLUE-ALL DC VOLTAGES

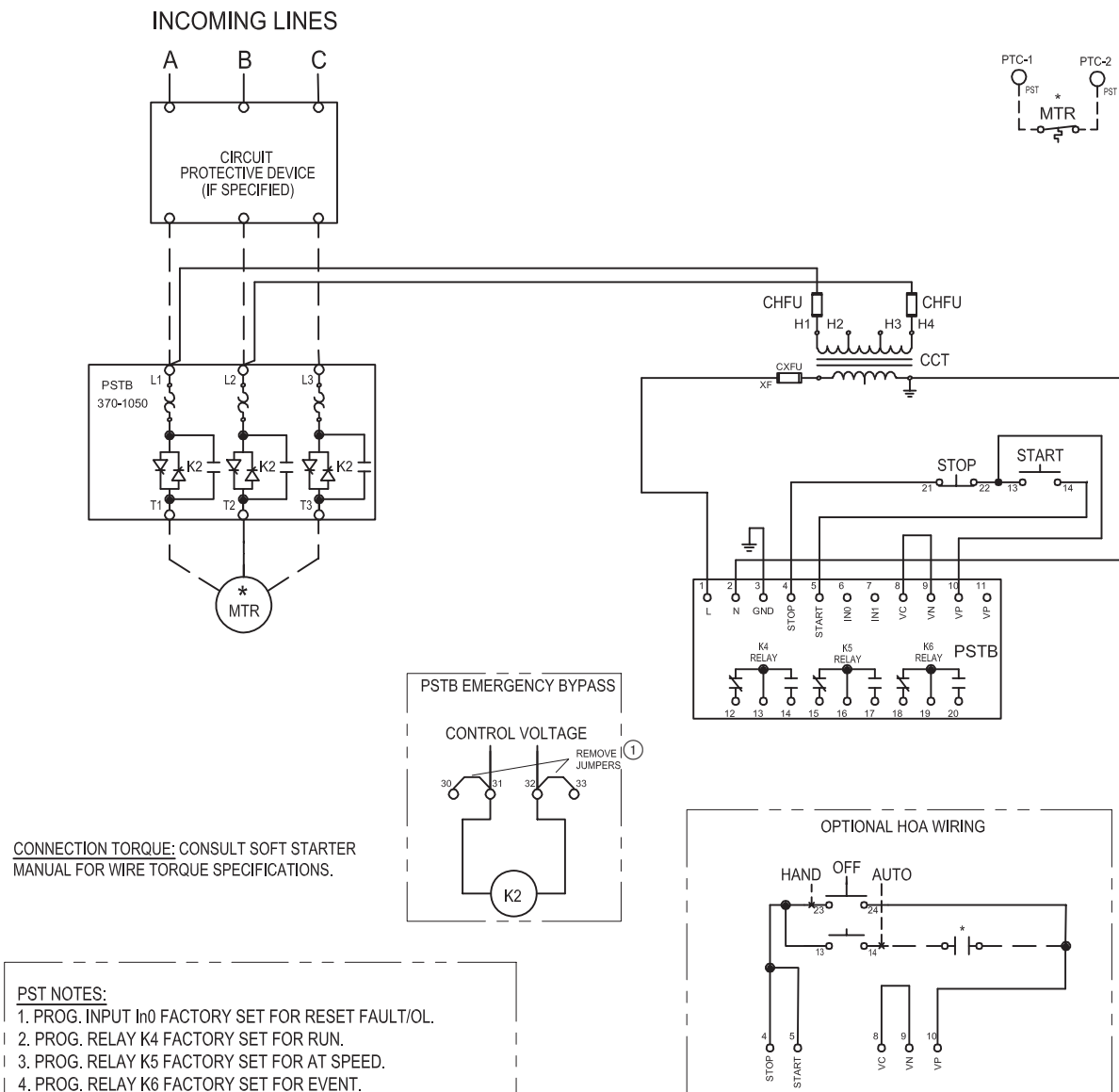
2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

Circuit diagrams

PSTB370 – PSTB1050

In-Line

6



CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

PST NOTES:

1. PROG. INPUT In0 FACTORY SET FOR RESET FAULT/OL.
2. PROG. RELAY K4 FACTORY SET FOR RUN.
3. PROG. RELAY K5 FACTORY SET FOR AT SPEED.
4. PROG. RELAY K6 FACTORY SET FOR EVENT.
5. FUNCTION MOT 1 Ie MUST BE SET TO MOTOR FLA.

LEGEND

CCT	CONTROL CIRCUIT TRANSFORMER
CHF1	CCT PRIMARY FUSE
CXF1	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
Ø	CONNECTION POINT AT TERMINAL BLOCK

NOTES

1. ALL CONTROL WIRING TO BE 14 GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE ON CONTACTOR COILS:

RED-ALL AC VOLTAGES
WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

BLUE-ALL DC VOLTAGES

2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

① See page 6.35 for across the line rated (AC3) contactor ratings.

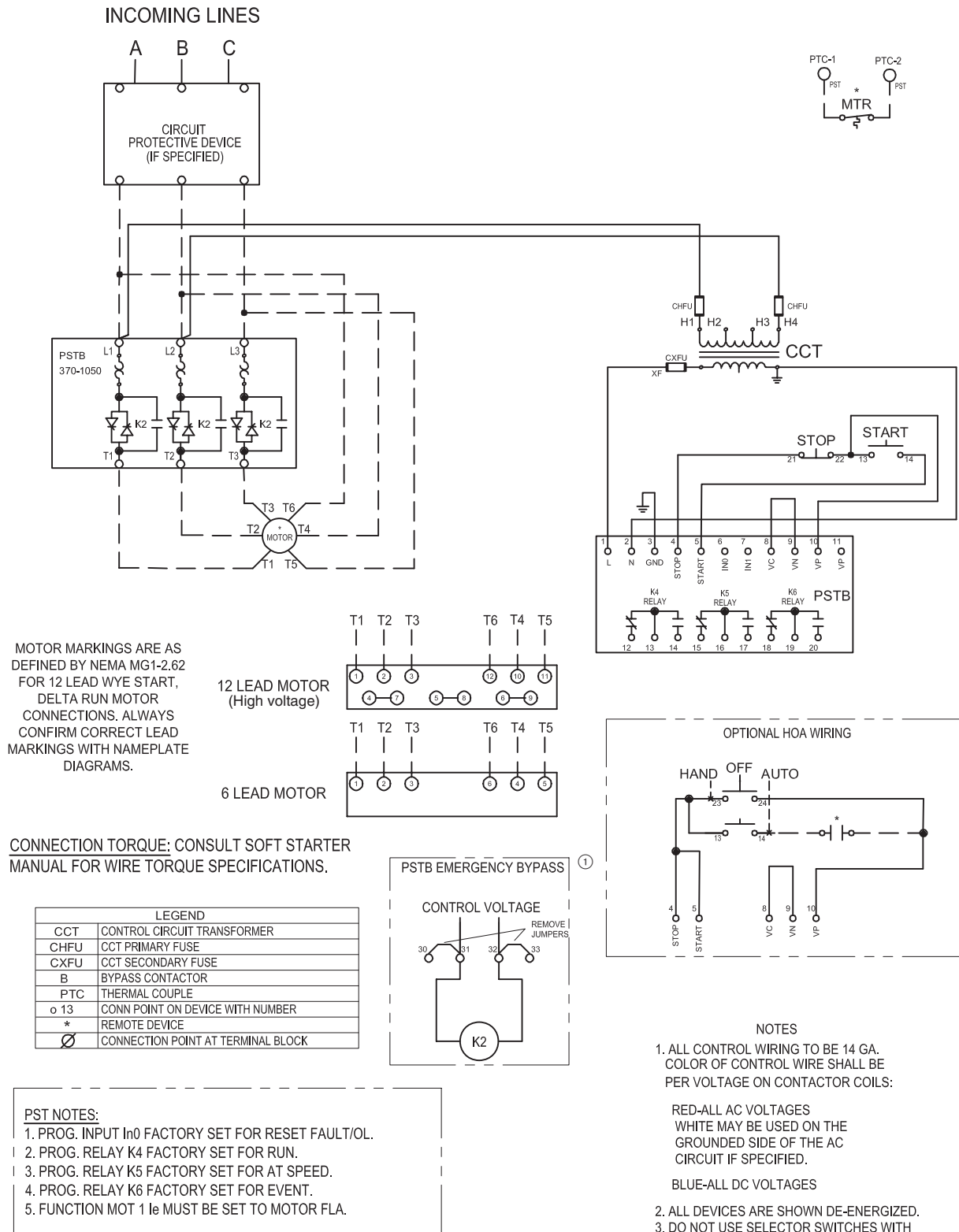
Circuit diagrams

PSTB370 – PSTB1050

Inside Delta

Softstarters
Type PST

6



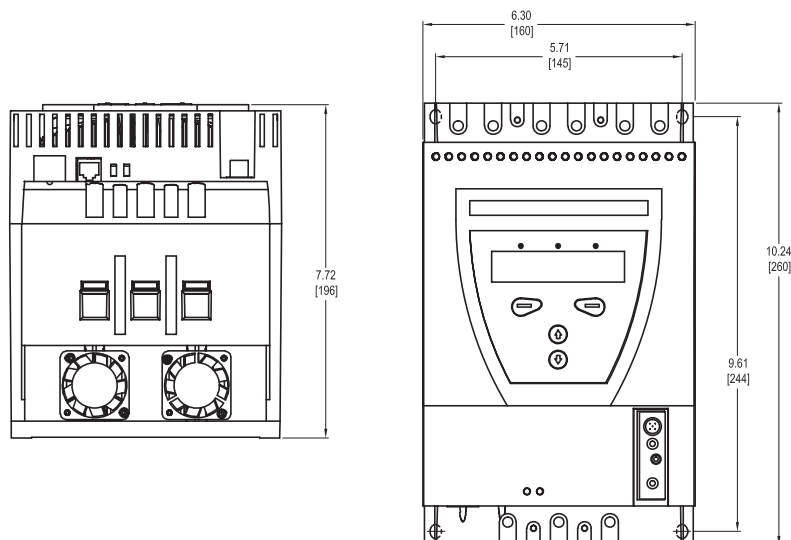
① See page 6.35 for across the line rated (AC3) contactor ratings.

Approximate dimensions Open PST30 – PST142

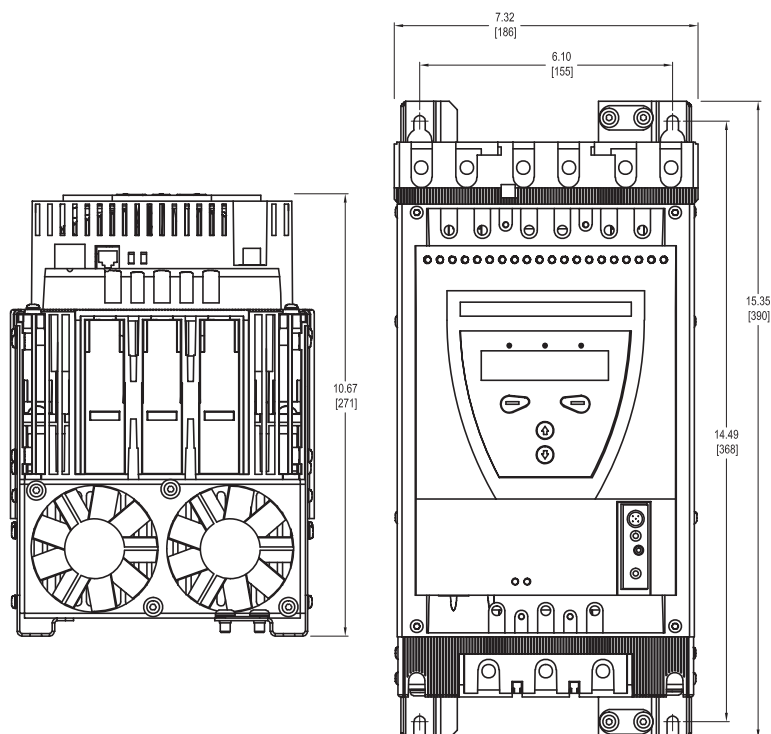
00.00 00.00 Inches
[Millimeters]

PST30 – PST72

6



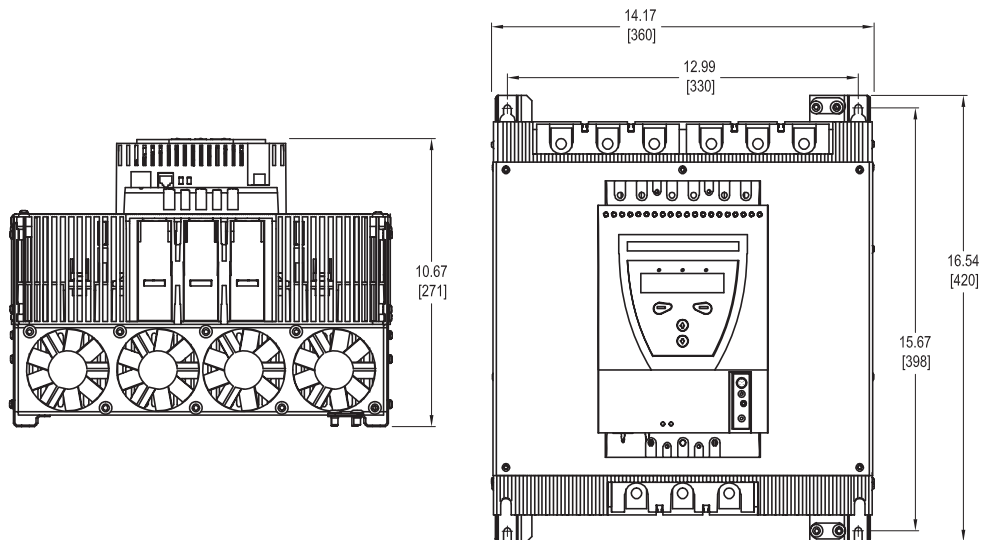
PST85 – PST142



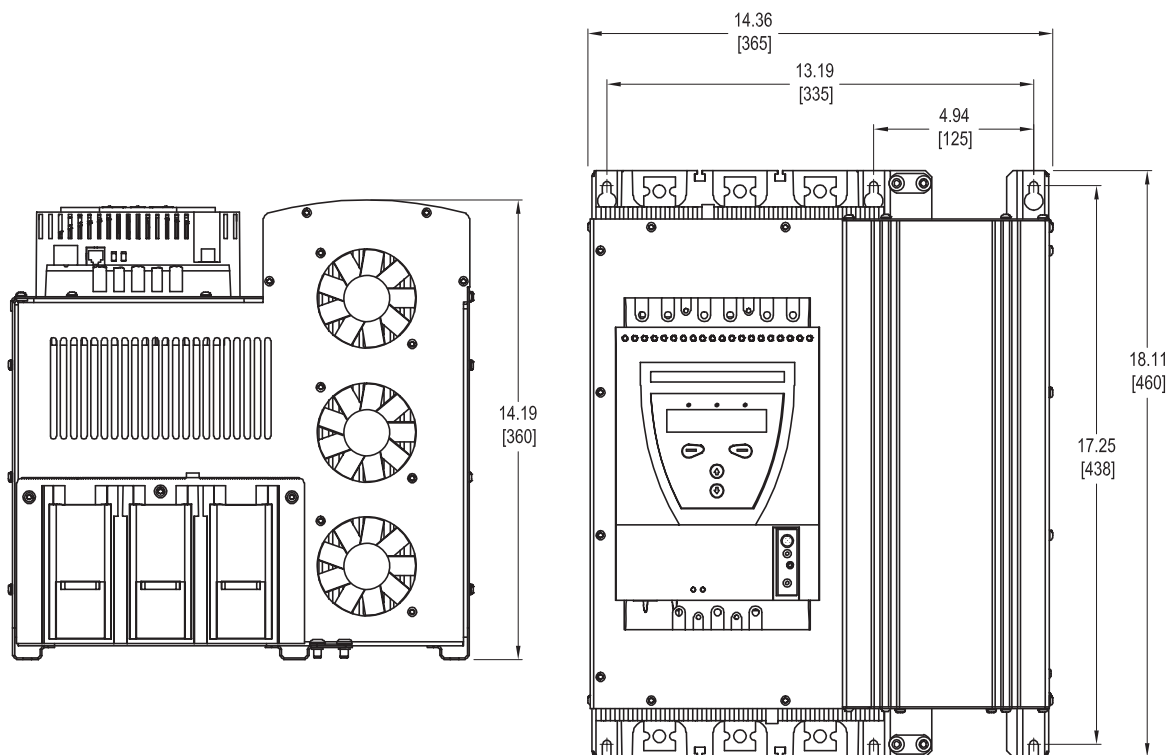
Approximate dimensions Open PST175 – PSTB470

00.00 Inches
00.00 [Millimeters]

PST175 – PST300



PSTB370 – PSTB470



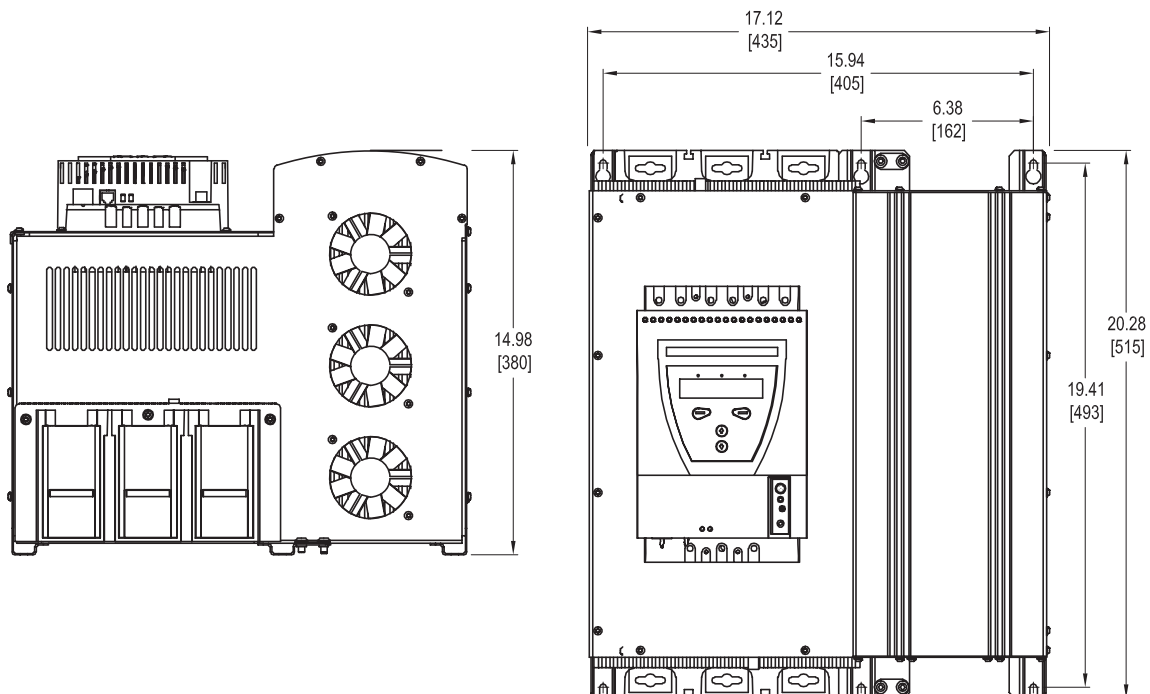
Approximate dimensions

Open

PSTB570 – PSTB1050

00.00 00.00 Inches
[Millimeters]

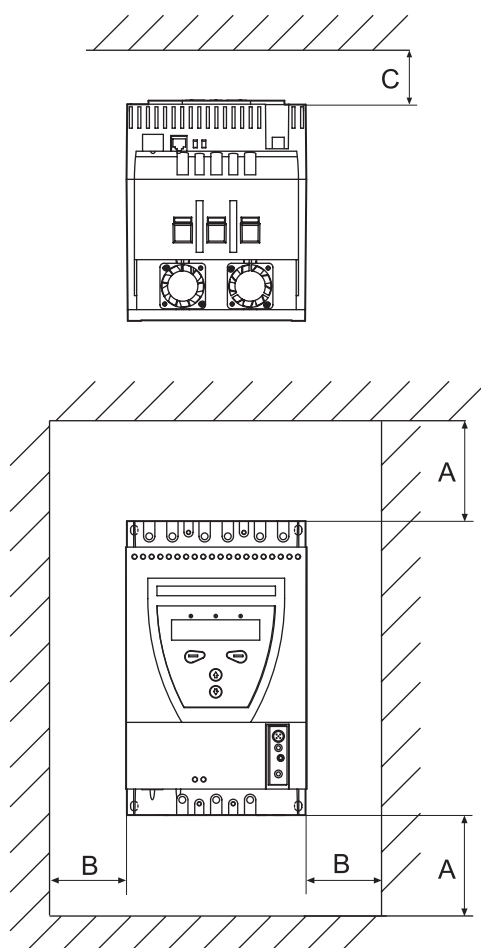
PSTB570 – PSTB1050



Approximate dimensions **Open** **Wall mounting**

Softstarters
Type PST

6



Softstarter type	A In. / mm	B In. / mm	C In. / mm
PST30 – 72	3.94 / 100	0.39 / 10	0.79 / 20
PST85 – 300	3.94 / 100	0.39 / 10	0.79 / 20
PST175 – 300	3.94 / 100	0.39 / 10	0.79 / 20
PSTB370 – 470	5.91 / 150	0.59 / 15	0.79 / 20
PSTB570 – 1050	5.91 / 150	0.59 / 15	0.79 / 20



Approximate dimensions

Enclosed

Horsepower to PST Softstarter type cross-reference

Maximum horsepower in-line

208V	240V	380V	480V	600V	PST Type
5	5	10	10	—	PST30
—	—	—	—	15	
7.5	10	15	20	—	PST30
—	—	—	—	25	
10	10	20	25	—	PST37
—	—	—	—	30	
10	15	25	30	—	PST44
—	—	—	—	40	
15	20	30	40	—	PST50
—	—	—	—	50	
20	25	40	50	—	PST72
—	—	—	—	60	
25	30	50	60	—	PST85
—	—	—	—	75	
30	40	60	75	—	PST105
—	—	—	—	100	
40	50	75	100	—	PST142
—	—	—	—	125	
50	60	100	125	—	PST175
—	—	—	—	150	
60	75	125	150	—	PST210
—	—	—	—	200	
75	100	150	200	—	PST250
—	—	—	—	250	
100	100	150	250	—	PST300
—	—	—	—	300	
125	150	200	300	—	PSTB370
—	—	—	—	350	
—	—	250	350	—	PSTB470
—	—	—	—	400	
150	200	300	400	—	PSTB470
—	—	—	—	500	
200	250	350	500	—	PSTB570
—	—	—	—	600	
250	300	450	600	—	PSTB720
—	—	—	—	700	
300	350	500	700	—	PSTB840
—	—	—	—	800	
350	400	—	800	—	PSTB1050
—	—	—	—	900	
400	450	600	900	—	PSTB1050
—	—	—	—	1000	

Maximum horsepower inside delta

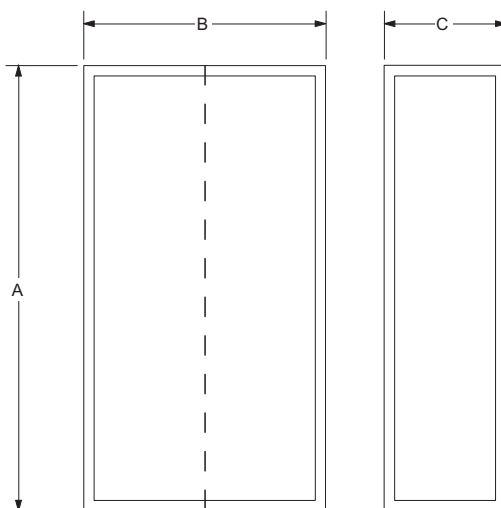
208V	240V	380V	480V	600V	PST Type
7.5	10	15	20	—	PST30
—	—	—	—	25	
10	10	20	25	—	PST30
—	—	—	—	30	
10	15	25	30	—	PST30
—	—	—	—	40	
15	20	30	40	—	PST37
—	—	—	—	50	
20	25	40	50	—	PST44
—	—	—	—	60	
25	30	50	60	—	PST50
—	—	—	—	75	
30	40	60	75	—	PST72
—	—	—	—	100	
40	50	75	100	—	PST85
—	—	—	—	125	
50	60	100	125	—	PST105
—	—	—	—	150	
60	75	125	150	—	PST142
—	—	—	—	200	
75	100	150	200	—	PST175
—	—	—	—	250	
100	100	150	250	—	PST210
—	—	—	—	300	
125	150	200	300	—	PST250
—	—	—	—	350	
—	—	250	350	—	PST300
—	—	—	—	400	
150	200	300	400	—	PST300
—	—	—	—	500	
200	250	350	500	—	PSTB370
—	—	—	—	600	
250	300	450	600	—	PSTB470
—	—	—	—	700	
300	350	500	700	—	PSTB570
—	—	—	—	800	
350	400	—	800	—	PSTB720
—	—	—	—	900	
400	450	600	900	—	PSTB720
—	—	—	—	1000	
400	500	800	1000	—	PSTB720
—	—	—	—	1200	
500	600	900	1200	—	PSTB840
—	—	—	—	1500	
600	700	1200	1500	—	PSTB1050
—	—	—	—	1800	

Approximate dimensions

Enclosed

208V – 600V

Softstarters
Type PST



6

Enclosed, 208V – 600V

Combination	In-Line			Inside Delta		
	A	B	C	A	B	C
PST30 – PST72						
Softstarter only	20 x 20 x 12			20 x 20 x 12		
Softstarter with bypass	20 x 20 x 12			20 x 20 x 12		
Softstarter with fused disconnect	20 x 20 x 12			24 x 20 x 12		
Softstarter with circuit breaker	20 x 20 x 12			24 x 20 x 12		
PST85 – PST142						
Softstarter only	24 x 20 x 12			36 x 24 x 12		
Softstarter with bypass	24 x 20 x 12			36 x 24 x 12		
Softstarter with fused disconnect	30 x 30 x 12			42 x 36 x 12		
Softstarter with circuit breaker	24 x 24 x 12			42 x 36 x 12		
PST175 – PST300						
Softstarter only	30 x 30 x 12			42 x 30 x 12		
Softstarter with bypass	30 x 30 x 12			42 x 30 x 12		
Softstarter with fused disconnect	36 x 36 x 12			36 x 36 x 12		
Softstarter with circuit breaker	36 x 36 x 12			36 x 36 x 12		

Combination	In-Line			Inside Delta		
	A	B	C	A	B	C
PSTB370 – PSTB470						
Softstarter with bypass, internal	48 x 36 x 16			48 x 36 x 16		
Softstarter with fused disconnect	48 x 36 x 16			87 x 36 x 24		
Softstarter with circuit breaker	48 x 36 x 16			48 x 36 x 16		
PSTB570 – PSTB720						
Softstarter with bypass, internal	48 x 36 x 16			48 x 36 x 16		
Softstarter with fused disconnect	87 x 36 x 24			87 x 36 x 24		
Softstarter with circuit breaker	48 x 36 x 16			48 x 36 x 16		
PSTB840 – PSTB1050						
Softstarter with bypass, internal	87 x 36 x 24			87 x 36 x 24		
Softstarter with fused disconnect	87 x 48 x 24			87 x 48 x 24		
Softstarter with circuit breaker	87 x 48 x 24			87 x 48 x 24		



Notes

Type SSM Softstarters



Softstarters
Type SSM
Medium voltage
2300 – 13,800V ①



6

Description

- Fused disconnect switch with blown fuse indicators and door safety interlocks rated for load break/fault make with automatic grounding arm
- Inline isolation vacuum contactor sized for across-the-line motor starting (optional on "soft start only" models)
- Bi-metallic thermal overload provides backup motor protection when operating in emergency bypass mode (optional on "soft start only" models)
- 120V fused control power transformer standard in line start section (optional on "soft start only" models)
- Digital controller provides solid state overload and numerous protective features for both the motor and the soft starter
- Fiber optic firing circuit for superior electrical noise isolation
- Programmable keypad with LCD and status LEDs for easy setup and operation
- Bypass vacuum contactor sized for across-the-line (emergency) motor starting is standard on all models to guarantee cool operation in all environments and extend unit life
- Heavy duty SCR stack assemblies with ring transformer isolated circuit for reliable, hard-firing gate pulse
- Isolated low voltage compartment provides maximum protection for operating personnel
- Mechanically interlocked medium voltage compartment
- UL File # E175732 ②

① Consult factory for higher voltages.

② For softstarters rated 4160V, 400A and below.



Key construction features

- Fused disconnect switch with blown fuse indicators and door safety interlocks rated for load break/fault make with automatic grounding arm
- Inline isolation vacuum contactor^② sized for across-the-line motor starting (optional on "soft start only" models)
- Bi-metallic thermal overload provides backup motor protection when operating in emergency bypass mode (optional on "soft start only" models)
- 120V fused control power transformer standard in line start section (optional on "soft start only" models)
- Digital controller provides solid state overload and numerous protective features for both the motor and the soft starter
- Programmable keypad with LCD and status LEDs for easy setup and operation
- Bypass vacuum contactor^② standard on all models to guarantee cool operation in all environments and extend unit life
- Heavy duty SCR stack assemblies with ring transformer isolated circuit for reliable, hard-firing gate pulse
- Isolated low voltage compartment provides maximum protection for operating personnel
- Mechanically interlocked medium voltage compartment

Heavy duty SCR power assemblies

- Rated for 500 percent overload for 60 seconds
- Field-proven design in use since 1975
- Fiber optics gate-firing circuit using "ring transformer" isolation design for superior noise immunity

Industrial "real world" packaging

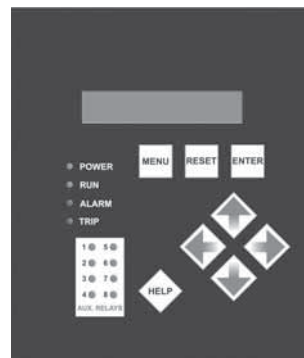
- Load break/fault make disconnect switch with door safety interlocking mechanism
- Isolated, noise-immune low voltage control compartment
- NEMA 12 enclosure with bypass vacuum contactor included as standard^{①②}
- Extra wiring space for MV cables for easy installation

Custom engineered systems

- Available in special enclosures and lineups
- Numerous control component options including:
 - Reversing contactors
 - Motor protection relays
 - Customer specified devices
- Horizontal and custom bus interconnects
- Various motor configurations including synchronous, wound rotor and two speed

Digital microprocessor control

- Full featured for flexibility, including dual ramp and programmable custom start curves
- LCD status/alarm display and built-in programming keypad
- Serial communications port standard: RS485 with Modbus RTU protocol or RS232 with Windows interface
- In-depth motor and system protection monitors
- Monitors 18 separate parameters and maintains a nonvolatile fault memory



^① 13.8 kV softstarters are rated NEMA 1.

^② 13.8 kV, 600A softstarters use circuit breakers for isolation and bypass functions.

Type SSM

Softstarters
Type SSM



Custom line-up



SSM-41200-E-S

Volts	Ratings ①		Soft start with line start section		Optional soft start only ②	
	Max. amps	Nominal max. HP	Catalog number	List price	Catalog number	List price
2300	200	800	SSM-23200-E-S	③	SSM-23200-E	③
	400	1500	SSM-23400-E-S		SSM-23400-E	
	600	2500	SSM-23600-E-S		SSM-23600-E	
3300	200	1000	SSM-33200-E-S	③	SSM-33200-E	③
	400	1800	SSM-33400-E-S		SSM-33400-E	
	600	3000	SSM-33600-E-S		SSM-33600-E	
4160	200	1250	SSM-41200-E-S	③	SSM-41200-E	③
	400	2500	SSM-41400-E-S		SSM-41400-E	
	600	5000	SSM-41600-E-S		SSM-41600-E	
6600/ 6900	200	2500	SSM-66200-E-S	③	SSM-66200-E	③
	400	5000	SSM-66400-E-S		SSM-66400-E	
	600	7500	SSM-66600-E-S		SSM-66600-E	
13,800	300	7500	SSM-138300-E-S	③	SSM-138300-E	③
	600	15,000	SSM-138600-E-S		SSM-138600-E	

6

Catalog number explanation

SSM - 23 200 - E - S

Softstarter

SSM — medium voltage

Voltage

23 = 2300V
33 = 3300V
41 = 4160V
66 = 6600/6900V
138 = 13,800V

Amperage

200 = 200A
400 = 400A
600 = 600A

S = Switchgear line start panel

E = NEMA 12 enclosure ④⑤

- ① Contact factory for higher horsepower and voltage requirements.
- ② Must be used with customer supplied line start panel.
- ③ Consult factory.
- ④ Consult factory for other enclosure types.
- ⑤ 13.8 kV softstarters are rated NEMA 1.



Technical data

Type of load

Three phase medium voltage AC induction motors

AC supply voltage

2300, 3300, 4160, 6600/6900, 13,800 VAC

+10% to -10%

50/60 Hz line voltages

HP ratings ^①

Up to 15,000 HP @ 13,800V (600 Amps max)

Overload rating

500% – 60 Seconds

Power circuit

Series strings of SCR power modules (2,4 or 6 matched pairs of SCRs per phase depending on voltage rating)

SCR peak inverse voltage

Amps	Line voltage	PIV rating
200 to 400	2300 V	6500
	3300 V	13,000
	4160 V	13,000
	6600/6900 V	19,500
	11-14 kV	39,000
600	2300 V	7000
	3300 V	14,000
	4160 V	14,000
	6600/6900 V	21,000
	11-14 kV	39,000

Transient voltage protection

dv/dt circuits (1 per SCR power module)

Vacuum bypass contactor ^③

Standard on all models, line start rated

Ambient operating temperature

0 to 50°C (32°F to 122°F)

(Optional -20° to 50°C with heaters)

Control

Digital microprocessor controller with read-out in English text

Alphanumeric LCD display

Non-volatile memory for programming and faults

Opto-isolated inputs

Communications

RS485 with modbus RTU protocol

RS232 with Windows interface

Auxiliary contacts

FORM C, 8 Amps @ 250V

Adjustments

Motor FLA

Dual adjustments — Two independent settings for:

Initial voltage 0 – 100% of nominal voltage

Current limit 0 – 600% of motor FLA

Acceleration time 1 – 120 seconds

Deceleration time 1 – 60 seconds

Kick start 0.1 – 2.0 seconds, 10 - 100% of line voltage

Under voltage trip 70 – 95% (adjustable trip delay)

Over voltage trip 105 – 130% (adjustable trip delay)

Under current trip 20 – 90% of motor FLA (adjustable trip delay)

Over current trip 100 – 300% of motor FLA (adjustable trip delay)

Allowable re-starts 0 – 10 (adjustable time inhibit)

Motor and starter protection

Electronic overload Inverse time, 75 – 150% of motor FLA

Electronic shear pin Trips within 1 cycle of setpoint

Phase loss One or more phases missing

Phase sequence Phase sequence incorrect

Over voltage Trips at high line setpoint

Under voltage Trips at low line setpoint

Stall protection Starting process is not complete

Shorted SCR Internal fault detected

Error connection Internal fault/motor connection

Starter over-temp Heatsink over temperature

Metering

Current Phase A, B, C & average current

Thermal data Thermal capacity of motor

Power KVA, KW, KVAR, power factor, KWH

Line start section

Load break/fault make disconnect switch with automatic grounding arm and viewing window

Fuses with blown fuse indicator

In-line vacuum contactor^③

Control power transformer with fused primary/secondary

Packaged in common enclosure with soft start

Optional "Soft Start" (requires customer supplied line start panel)

Statistical data

Total amount of run time since soft start was reset

Amount of time it took motor to start during last period

Maximum current during last start period

Total number of starts since soft start was reset

Event history for last 60 events

Elevation

1000 m / 3300 ft. without derating (contact factory for higher elevations)

Enclosure ^②

NEMA 12, top and bottom entrance plates

11 gauge steel

ASA #61 gray paint with lifting eyes

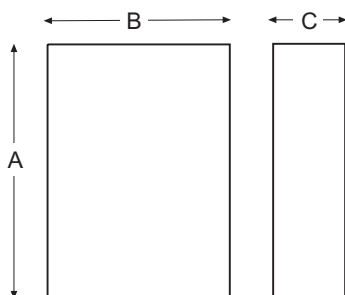
^① Consult factory for higher horsepower and voltage requirements.

^② 13.8 kV softstarters are rated NEMA 1.

^③ 13.8 kV, 600A softstarters use circuit breakers for isolation and bypass functions.

Approximate dimensions

Softstarters
Type SSM



6

Soft start with line start section (inches)				Optional softstart only (inches)			
Model number	A	B	C	Model number	A	B	C
SSM-23200-E-S	92	36	30	SSM-23200-E	92	36	30
SSM-23400-E-S	92	36	30	SSM-23400-E	92	36	30
SSM-23600-E-S	92	72	30	SSM-23600-E	92	36	30
SSM-33200-E-S	92	36	30	SSM-33200-E	92	36	30
SSM-33400-E-S	92	36	30	SSM-33400-E	92	36	30
SSM-33600-E-S	92	72	30	SSM-33600-E	92	36	30
SSM-41200-E-S	92	36	30	SSM-41200-E	92	36	30
SSM-41400-E-S	92	36	30	SSM-41400-E	92	36	30
SSM-41600-E-S	92	72	30	SSM-41600-E	92	36	30
SSM-66200-E-S	92	72	30	SSM-66200-E	92	36	30
SSM-66400-E-S	92	72	30	SSM-66400-E	92	36	30
SSM-66600-E-S	92	72	30	SSM-66600-E	92	72	30
SSM-138300-E-S	92	120	44	SSM-138300-E	Consult factory		
SSM-138600-E-S	92	84	96	SSM-138600-E			



Notes

Type PEB Power electronic brakes



Softstarters Power electronic brakes Type PEB



6

Description

Electronic braking stops the load by injecting a controlled amount of DC current into a three phase AC motor. The Power Electronic Brake (PEB) Series features full-wave DC braking which can be adjusted to stop your load quickly, repeatedly and reliably...even if load conditions change.

Unlike other brakes that only provide voltage control, the PEB Series is a current regulated brake. It automatically adjusts for resistance changes in the motor windings due to any input voltage fluctuations. What does this mean? Repeatable, reliable operation every time you stop your motor.

An exceptionally accurate method of micro-processor controlled sensing determines when

the motor shaft has come to a stop. Braking current is removed when the motor stops, eliminating excess braking current which means longer motor life.

Built-in jogging circuitry allows you to select the time you need for machine setup and positioning without applying DC current to the motor windings. DC current is only applied when system setup is complete... no excess current, no excess heating, no premature motor failure.

The PEB Series has a built-in feature to control a mechanical holding brake. Any fault indication automatically enables the mechanical brake for fail-safe operation.

The PEB Series has been designed and tested to meet the most stringent industry standards: UL & cUL.

UL File # E169883



General information

Catalog number explanation

PEB - 010 - 48 - 1

Maximum brake amps

010 – 10
024 – 24
050 – 50
100 – 100
200 – 200
300 – 300
400 – 400
550 – 550
800 – 800
1000 – 1000

Enclosure

No digit – Open chassis

1 – NEMA 1
2 – NEMA 12
3 – NEMA 3R
4 – NEMA 4
X – NEMA 4X

Voltage

24 – 208/240
48 – 480
60 – 600

Power electronic brakes

Open

Softstarters
Type PEB



PEB-100-48

PEB-10-48

6

Max amps ①	208V			240V			480V			600V			
	Horsepower		Catalog number	Horsepower		Catalog number	Horsepower		Catalog number	Horsepower		Catalog number	List price
	Std. duty	Hvy. duty		Std. duty	Hvy. duty		Std. duty	Hvy. duty		Std. duty	Hvy. duty		
10	3	1	PEB-010-24	3	1	PEB-010-24	7.5	3	PEB-010-48	10	5	PEB-010-60	\$ 755
24	7.5	3	PEB-024-24	10	5	PEB-024-24	20	10	PEB-024-48	25	15	PEB-024-60	1070
50	15	7.5	PEB-050-24	20	10	PEB-050-24	40	25	PEB-050-48	50	30	PEB-050-60	1450
100	30	20	PEB-100-24	40	15	PEB-100-24	75	50	PEB-100-48	100	60	PEB-100-60	2250
200	75	40	PEB-200-24	75	50	PEB-200-24	150	100	PEB-200-48	200	125	PEB-200-60	3900
300	100	60	PEB-300-24	125	75	PEB-300-24	250	150	PEB-300-48	300	200	PEB-300-60	4300
400	150	75	PEB-400-24	150	100	PEB-400-24	350	200	PEB-400-48	400	250	PEB-400-60	6500
550	250	125	PEB-550-24	200	150	PEB-550-24	500	300	PEB-550-48	600	350	PEB-550-60	8700
800	350	200	PEB-800-24	350	200	PEB-800-24	700	450	PEB-800-48	900	500	PEB-800-60	10,250
1000	400	250	PEB-1000-24	400	300	PEB-1000-24	900	500	PEB-1000-48	1000	600	PEB-1000-60	13,000

NOTE: If duty cycle is not known, it is recommended to use the heavy duty brake since braking current can be adjusted down to meet actual load requirements.

① Never exceed the motor FLA without checking the motor manufacturers data with regards to application duty cycle.



Power electronic brakes Enclosed, NEMA 1

Maximum Amps FLA	Maximum motor HP ratings								NEMA 1, 480V Catalog number	NEMA 1, 600V Catalog number	List price
	208V		240V		480V		600V				
	Standard Duty	Heavy Duty	Standard Duty	Heavy Duty	Standard Duty	Heavy Duty	Standard Duty	Heavy Duty			
10	3	1	3	1	7.5	3	10	5	PEB-010-48-1	PEB-010-60-1	\$ 805
24	7.5	3	10	5	20	10	25	15	PEB-024-48-1	PEB-024-60-1	1120
50	15	7.5	20	10	40	25	50	30	PEB-050-48-1	PEB-050-60-1	1650
100	30	20	40	15	75	50	100	60	PEB-100-48-1	PEB-100-60-1	2450
200	75	40	75	50	150	100	200	125	PEB-200-48-1	PEB-200-60-1	4320
300	100	60	125	75	250	150	300	200	PEB-300-48-1	PEB-300-60-1	4800
400	150	75	150	100	350	200	400	250	PEB-400-48-1	PEB-400-60-1	7000
550	250	125	200	150	500	300	600	350	PEB-550-48-1	PEB-550-60-1	9200
800	350	200	350	200	700	450	900	500	PEB-800-48-1	PEB-800-60-1	10,750
1000	400	250	400	300	900	500	1000	600	PEB-1000-48-1	PEB-1000-60-1	13,500

NOTE: See below for additional enclosure styles and price adders.

Options ⓘ

Model number	NEMA 12	NEMA 3R	NEMA 4	NEMA 4X
PEB-010	\$ 100	\$ 100	\$ 150	\$ 450
PEB-024	100	100	150	450
PEB-050	100	100	150	450
PEB-100	100	100	150	450
PEB-200	150	150	200	600
PEB-300	300	300	350	1050
PEB-400	300	300	350	1050
PEB-550	300	300	350	1050
PEB-800	300	300	350	1050
PEB-1000	300	300	350	1050

ⓘ Add to list price of NEMA 1 enclosed products and change part number appropriately.

Technical data

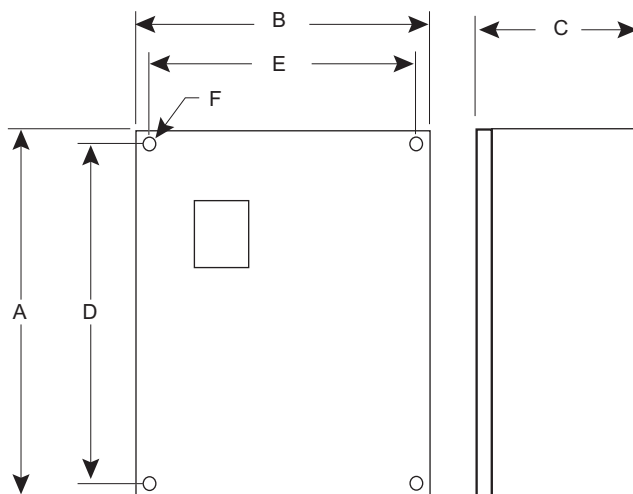


Item	Specification
Voltage rating	Models rated from 208 - 600V $\pm 10\%$ Selectable for 50/60Hz ± 2 Hz
Current ratings	10 - 1000A in 10 sizes: 10, 24, 50, 100, 200, 300, 400, 550, 800, 1000A
Output capacity	25% duty cycle at 100% unit rating
Power circuit	Full wave bridge, 4 SCRs, designed for use without isolation contactors
Transient protection	RC snubber dv/dt circuit on each SCR device
Fusing	Approved for use with existing motor starter fusing when unit is sized for motor FLA. Consult NEC for any other fusing requirements.
Control circuit	Self-powered directly from line terminals. No separate control voltage required
Control method	Microprocessor unit controls sequencing, I/O monitoring and status annunciation. Braking current is adjustable via true RMS regulated control using phase angle firing of SCRs.
Operator adjustments	Brake Time and Jog Time = 7 position binary dipswitch Brake Current = potentiometer
Adjustment ranges	Brake Jog Times = 0 - 127 seconds in 1 sec. increments Brake Current = Up to 100% unit rating
Inputs	Starter Monitor = Dry input for auxiliary contact from motor starter. Jumper selectable for N.O. or N.C. contact. Brake Disable = Dry input for N.O. contact to disable braking before or during operation. Can be wired to the starter thermal overload N.O. auxiliary contact to prevent braking of overloaded motor. Motor Power Sensor (T3) = voltage input used for sensing motor power presence in sequencing/status circuit and for zero speed sensing during braking
Outputs	Starter Coil Interlock = Two sets of FORM "C" relay contacts for use in interlocking the starter coil and/or other devices to prevent energizing as the braking power is applied. Mechanical Brake Release = N.O. relay contact for use in controlling electro-mechanical brake as a holding brake. When the PEB Series is "disabled," this circuit controls the mechanical brake normally as if it is the only brake in the system.
Auxilliary contact ratings	5 amps, 250VAC max
LED Status indicators	Large LEDs: Braking = green; Fault = red Small LEDs: Power On, Jog/Armed, Brake Off, Disabled, Over Temp, and Wiring Error
Operating design temperature	0 - 50 °C (32-122 °F) open 0 - 40 °C (32 - 104 °F) enclosed
Ambient conditions	0 - 95% relative humidity 0 - 3300ft (1000M) elevation
Approvals	UL, cUL Listed

Approximate dimensions & Circuit diagram

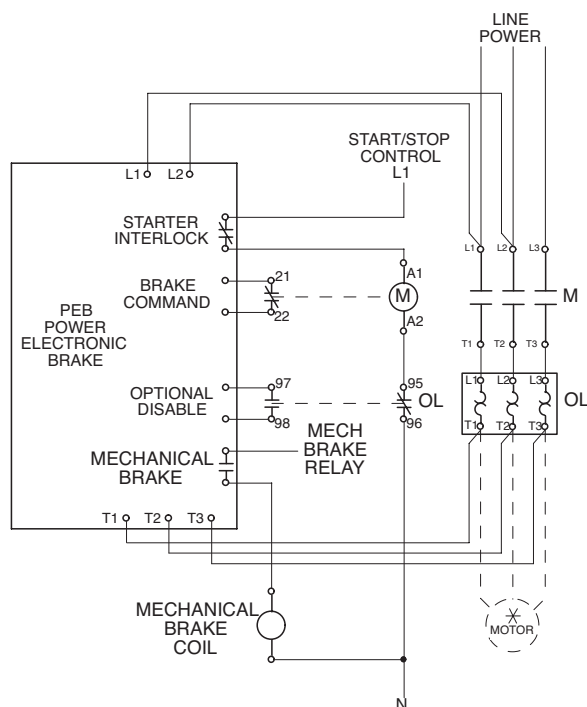
Open

Approximate dimensions (inches)



Model No.	A	B	C	D	E	F
PEB-10	8.5	7.3	6.2	8	6.9	0.21
PEB-24	8.5	7.3	6.2	8	6.9	0.21
PEB-50	10.5	7.9	7.2	10	6.8	0.22
PEB-100	10.5	7.9	7.2	10	6.8	0.22
PEB-200	16.5	10	10	15.9	9	0.28
PEB-300	16	16	10	15	15	0.5
PEB-400	16	16	10	15	15	0.5
PEB-550	16	16	10	15	15	0.5
PEB-800	16	16	10	15	15	0.5
PEB-1000	16	16	10	15	15	0.5

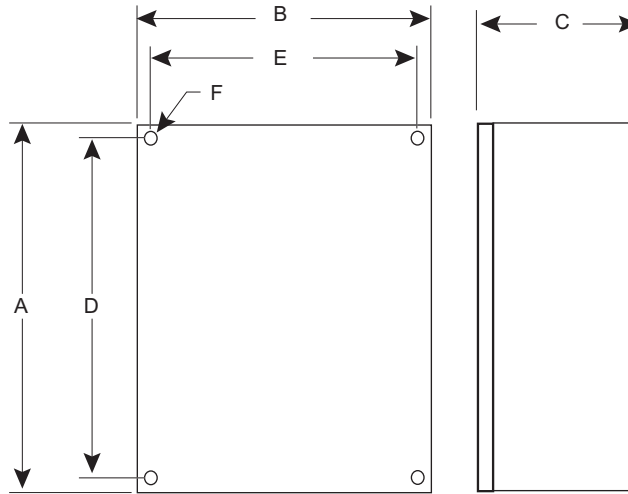
Circuit diagram



Approximate dimensions & Circuit diagram Enclosed

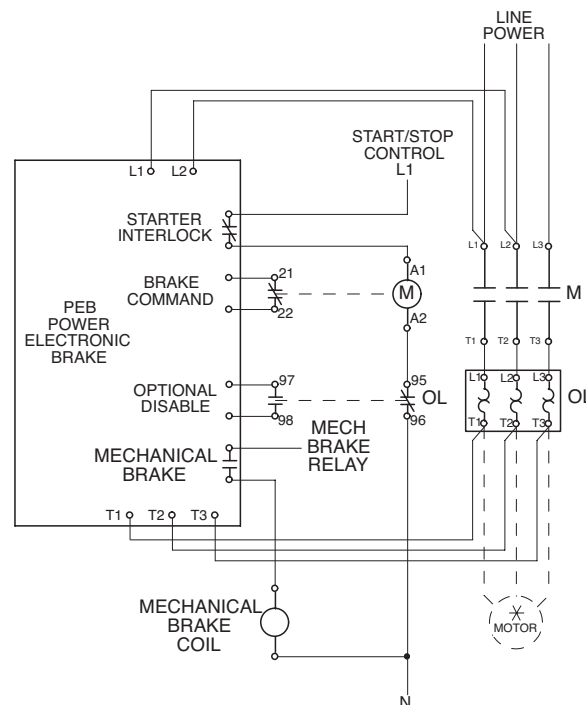
Softstarters
Type PEB

Approximate dimensions (inches) ①



Model No.	A	B	C	D	E	F
PEB-10	16	12	9	14.5	10.5	0.5
PEB-24	16	12	9	14.5	10.5	0.5
PEB-50	20	16	9	18.5	14.5	0.5
PEB-100	20	16	9	18.5	14.5	0.5
PEB-200	24	20	13	22.5	18.5	0.5
PEB-300	36	24	13	34.5	22.5	0.5
PEB-400	36	24	13	34.5	22.5	0.5
PEB-550	36	24	13	34.5	22.5	0.5
PEB-800	36	24	13	34.5	22.5	0.5
PEB-1000	36	24	13	34.5	22.5	0.5

Circuit diagram



① Dimensions apply to NEMA 1, NEMA 12, NEMA 3R and NEMA 4 enclosures. Consult factory for NEMA 4X dimensions.



Notes