Main catalog

HVAC Products

ABB

HVAC products
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HVAC

General information

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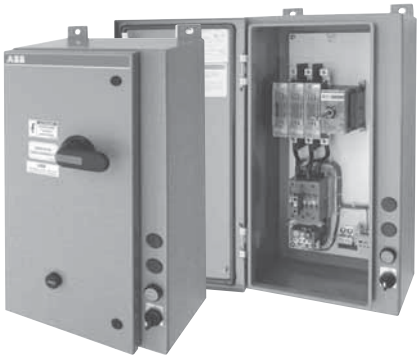
Combination starters
Enclosed
A9 – A260



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Description
A9 – A260

- Maximum UL/CSA horsepower ratings
- Available with ABB non-fusible or fusible disconnect switches and MCP, thermal magnetic or electronic trip type circuit breakers
- Compact space saving design
- Standard auxiliary contact configurations:
  A9 – A40 1 N.O. or 1 N.C.
  A50 – A260 1 N.O. & 1 N.C.
- Double break contact design
- Lowest possible contact bounce
- Early make & late break auxiliary contacts available
- Operates over an extended voltage range of 85% to 110% of rated control voltage
- UL Listed

Overload relay protection

Starters, sizes A9–A260, have Class 10 adjustable thermal bimetallic overload relay protection as standard.

Electronic overload relay protection is available for other starter sizes.

Combination Starters

General information
Catalog number explanation

1 1 F 1 - 2 C 1 J

Starter size
1 = A9
2 = A12
3 = A16
4 = A26
5 = A30
6 = A40
7 = A50
8 = A63
9 = A75
A = A110
B = A145
C = A185
D = A210
E = A260
J = A9N00 (NEMA size 00)
K = A16N0 (NEMA size 0)
L = A26N1 (NEMA size 1)
M = A50N2 (NEMA size 2)
N = A75N3 (NEMA size 3)
P = A145N4 (NEMA size 4)
Q = A260N5 (NEMA size 5)

Starter type
1 - Non-reversing
2 - Reversing
3 - 2 speed, 2 winding or 1 winding

Combination type
N - Non-fusible disconnect
F - Fusible disconnect
B - Thermal magnetic or electronic trip type circuit breaker
M - Motor Circuit Protection (MCP)
J - Fusible disconnect (with fuses, size based on HP or FLA x 1.75 ①②)
R - Non-fusible disconnect with trailing Class R fuse block with fuses
G - Non-fusible disconnect with trailing Class R fuse block

Enclosure ③
1 - NEMA/UL Type 1
2 - NEMA/UL Type 12
3 - NEMA/UL Type 3R
4 - NEMA/UL Type 4

Coil voltage/CCT

Overload range
See Overload Relay Selection chart, see page 1.4.

Accessories
See Factory modifications, page 1.3.

Fuse clip
1 - 30A, 600V, Class J
2 - 60A, 600V, Class J
3 - 100A, 600V, Class J
4 - 200A, 600V, Class J
5 - 400A, 600V, Class J

Circuit breaker amp rating (200V – 480V)

1 - 15	9 - 70	H - 225
2 - 20	A - 80	J - 250
3 - 25	B - 90	K - 300
4 - 30	C - 100	
5 - 35	D - 125	
6 - 40	E - 150	
7 - 50	F - 175	
8 - 60	G - 200	

MCP amp rating (200V - 480V)

1 - 3	4 - 25	7 - 150
2 - 5	5 - 50	8 - 250
3 - 10	6 - 100	9 - 400

① Must add fuse list price on page 1.3 to total starter price.
② NEC maximum of 2.25 x FLA to next largest size fuse.
③ Consult factory for other types of enclosures.

Control cover accessories, A9-A260

Description	Control suffix ①	List price adder NEMA 1 3R 4, 12
Start-stop pushbutton	A	**$ 72**
Fwd-rev-stop pushbutton	B	**360**
2 position selector switch (Std. ON-OFF)	C	**72**
3 position selector switch (Std. HAND-OFF-AUTO)	D	**72**
LED Pilot light, Red, RUN (Std.)	E ②	**135**
LED Pilot light, Green, OFF	R	**135**
Start-stop pushbutton & pilot light	F	**207**
Fwd-rev-stop pushbutton & pilot light	G	**496**
2 position selector switch & pilot light	H	**207**
3 position selector switch (HOA) & pilot light	J	**207**
Fast-slow-stop pushbuttons	K	**360**
Fast-slow-stop pushbuttons & pilot light	L	**495**
Fast-slow-off-auto selector switch	M	**150**
Emergency stop	P	**100**
F suffix + 1NO & 1NC auxiliary contact	T	**237**
J suffix + 1NO & 1NC auxiliary contact	U	**237**
Pushbutton (standard START)	Z	**36**

Special modifications

Description	Suffix code ①	List price adder
Contactor		
Coil surge suppressor	S	**$ 75**
Auxiliary relays		
Type N control relay (4 pole) N.O.	1	**225**
Phase failure phase reversal with over and undervoltage relays	2	**300**
For multi-speed controllers		
Decelerating timer	3	**300**
Meters & metering		
Elapsed time meter	4	**375**

Additional auxiliary contact blocks — A9 – A260

Contact configuration	Suffix code ①	A9 – A110 list price adder	A145 – A260 list price adder
1 N.O. & 1 N.C.	8	**$ 30**	**$ 30**
2 N.O. & 2 N.C.	9	**60**	**60**

Fuses — set of three

Fuse switch size	list price adder
30A	**$ 80**
60A	**100**
100A	**250**
200A	**375**
400A	**900**

Two-speed starters — price adders

Starter size	Non-fusible switch price adder	Fusible switch price adder	MCCB or MCP price adder
A9 (A9N00)	**$ 990**	**$ 1008**	**$ 1287**
A12	**990**	**1008**	**1287**
A16 (A16N0)	**990**	**1008**	**1287**
A26 (A26N1)	**990**	**1008**	**1287**
A30	**990**	**1224**	**1350**
A40	**990**	**1224**	**1350**
A50 (A50N2)	**1152**	**1224**	**1350**
A63	**1230**	**1350**	**1785**
A75 (A75N3)	**1494**	**1602**	**1809**
A110	**2310**	**2565**	**2982**
A145 (A145N4)	**3042**	**3366**	**4158**
A185	**3300**	**3735**	**4533**
A210	**3450**	**3825**	**6000**
A260 (A260N5)	**3744**	**4068**	**6849**

Control circuit transformer, A9 - A260

Standard size with fused secondary			Coil suffix	Starter size	STD. CCT VA	List price	Extra VA CCT	Suffix code ①	Unit price
Primary	Secondary	Hz							
208	120	50/60	A	A9 – A40	50	**$ 360**	50VA	V	**$ 150**
240	120	50/60	B	A50 – A75	75	**435**	75VA	W	**200**
480	120	50/60	C	A110	100	**560**	100VA	X	**250**
600	120	50/60	D	A145 – A185	150	**720**	200VA	Z	**400**
208	24	50/60	E	A260	250	**795**			
240	24	50/60	F						
480	24	50/60	G						
600	24	50/60	H						

Control circuit transformers do include two primary fuses and one secondary fuse.

① Add this suffix to the last digit of the catalog number.
② For extra pilot light add additional "E", ex: 11F1-2C1E (alarm pilot light), E (OFF pilot light), & J (HOA & pilot light).

General information
Standard thermal overload relays

A9 Starter

A50 Starter

Standard – Thermal, Type TA, Class 10

For contactor	Setting range (Amps)	Suffix code for all other starters	Catalog number
A9 – A40	0.1–0.16	A	TA25DU0.16
	0.16–0.25	B	TA25DU0.25
	0.25–0.4	C	TA25DU0.4
	0.4–0.63	D	TA25DU0.63
	0.63–1.0	E	TA25DU1.0
	1.0–1.4	F	TA25DU1.4
	1.3–1.8	G	TA25DU1.8
	1.7–2.4	H	TA25DU2.4
	2.2–3.1	J	TA25DU3.1
	2.8–4.0	K	TA25DU4.0
	3.5–5.0	L	TA25DU5.0
	4.5–6.5	M	TA25DU6.5
	6.0–8.5	N	TA25DU8.5
	7.5–11	P	TA25DU11
	10–14	Q	TA25DU14
	13–19	R	TA25DU19
	18–25	S	TA25DU25
	24–32	T	TA25DU32
A30 – A40	18–25	A	TA42DU25
	22–32	B	TA42DU32
	29–42	C	TA42DU42
A50 – A75	18–25	A	TA75DU25
	22–32	B	TA75DU32
	29–42	C	TA75DU42
	36–52	D	TA75DU52
	45–63	E	TA75DU63
	60–80	F	TA75DU80
A110	29–42	C	TA80DU42
	36–52	D	TA80DU52
	45–63	E	TA80DU63
	60–80	F	TA80DU80
	65–90	A	TA110DU90
	80–110	B	TA110DU110
A145 – A185	65–90	A	TA200DU90
	80–110	B	TA200DU110
	100–135	C	TA200DU135
	110–150	D	TA200DU150
	130–175	E	TA200DU175
	150–200	F	TA200DU200
A210 – A260	130–185	A	TA450DU185 ①
	165–235	B	TA450DU235
	220–310	C	TA450DU310

① TA450 overloads require mounting kits for installation.

E16DU – E320DU
for contactors and mini contactors


E16DU


E45DU


E80DU


E140DU


E200DU


E320DU

Catalog number	Setting range	Trip class	List price adder	Contactor	Suffix code
Trip Class 10, 20, 30 Selectable					
E16DU0.32-10	0.1-0.32A	10, 20, 30		A...9...A...16...	A1
E16DU1.0-10	0.3-1.0A	10, 20, 30		A...9...A...16...	B1
E16DU2.7-10	0.9-2.7A	10, 20, 30	**$ 33**	A...9...A...16...	C1
E16DU6.3-10	2.0-6.3A	10, 20, 30		A...9...A...16...	D1
E16DU18.9-10	5.7-18.9A	10, 20, 30		A...9...A...16...	E1
E45DU30	9-30A	10, 20, 30	**42**	A...26 ... A...40	E1
E45DU45	15-45A	10, 20, 30	**49**	A...26 ... A...40	E2
E80DU80	27-80A	10, 20, 30	**86**	A...50 ... A...75	E1
E140DU140	50-140A	10, 20, 30	**96**	A...95 ... A...110	E1
E200DU200	60-200A	10, 20, 30	**100**	A...145 ... A...185	E3
E320DU320	100-320A	10, 20, 30	**287**	A...210 ... A...300	E3

Non-fusible disconnect switch type
Non-reversing, three phase

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings 200/208V	230/240V	460/480V	575/600V	UL Type 1 (Indoor metal) Catalog number	List price	UL Type 3R (Outdoor metal) Catalog number	List price
UL rated									
9	A9	2	2	5	7.5	11N1-2★	**$ 825**	11N3-2★	**$ 1005**
11	A12	3	3	7.5	10	21N1-2★	**855**	21N3-2★	**1035**
17	A16	5	5	10	15	31N1-2★	**885**	31N3-2★	**1065**
28	A26	7.5	10	20	25	41N1-2★	**968**	41N3-2★	**1148**
34	A30	10	10	25	30	51N1-2★	**1050**	51N3-2★	**1230**
42	A40	10	15	30	40	61N1-2★	**1155**	61N3-2★	**1335**
54	A50	15	20	40	50	71N1-2★	**1650**	71N3-2★	**1830**
65	A63	20	25	50	50	81N1-2★	**1875**	81N3-2★	**2055**
80	A75	25	30	60	75	91N1-2★	**2295**	91N3-2★	**2775**
110	A110	30	40	75	100	A1N1-2★	**2865**	A1N3-2★	**3765**
130	A145	40	50	100	125	B1N1-2★	**3675**	B1N3-2★	**4890**
156	A185	50	60	125	150	C1N1-2★	**4050**	C1N3-2★	**5250**
192	A210	60	75	150	200	D1N1-2★	**5685**	D1N3-2★	**7650**
248	A260	75	100	200	250	E1N1-2★	**6090**	E1N3-2★	**8085**

NEMA size	Contactor size	Continuous current	200V	230V	460/575V				
NEMA rated									
00	A9	9	1.5	1.5	2	J1N1-2★	**$ 825**	J1N3-2★	**$ 1005**
0	A16	18	3	3	5	K1N1-2★	**885**	K1N3-2★	**1065**
1	A26	27	7.5	7.5	10	L1N1-2★	**968**	L1N3-2★	**1148**
2	A50	45	10	15	25	M1N1-2★	**1650**	M1N3-2★	**1830**
3	A75	90	25	30	50	N1N1-2★	**2295**	N1N3-2★	**2775**
4	A145	135	40	50	100	P1N1-2★	**3675**	P1N3-2★	**4890**
5	A260	270	75	100	200	Q1N1-2★	**6090**	Q1N3-2★	**8085**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Example: 11N1-2X

$ 825	List
- 63	- OLR
$ 762	Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 91N1-4F

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: 91N1-CF

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Factory modifications

See page 1.3

Non-fusible disconnect switch type
Non-reversing, three phase

UL Type 12 (Metal dusttight)		UL Type 4 (Watertight)	
Catalog number	List price	Catalog number	List price
UL rated			
11N2-2★	**$ 1005**	11N4-2★	**$ 1290**
21N2-2★	**1035**	21N4-2★	**1320**
31N2-2★	**1065**	31N4-2★	**1365**
41N2-2★	**1148**	41N4-2★	**1448**
51N2-2★	**1230**	51N4-2★	**1613**
61N2-2★	**1335**	61N4-2★	**1800**
71N2-2★	**1830**	71N4-2★	**2190**
81N2-2★	**2055**	81N4-2★	**2535**
91N2-2★	**2775**	91N4-2★	**3015**
A1N2-2★	**3765**	A1N4-2★	**4163**
B1N2-2★	**4890**	B1N4-2★	**5175**
C1N2-2★	**5250**	C1N4-2★	**5775**
D1N2-2★	**7650**	D1N4-2★	**9150**
E1N2-2★	**8085**	E1N4-2★	**9600**
NEMA rated			
J1N2-2★	**$ 1005**	J1N4-2★	**$ 1290**
K1N2-2★	**1065**	K1N4-2★	**1365**
L1N2-2★	**1148**	L1N4-2★	**1448**
M1N2-2★	**1830**	M1N4-2★	**2190**
N1N2-2★	**2775**	N1N4-2★	**3015**
P1N2-2★	**4890**	P1N4-2★	**5175**
Q1N2-2★	**8085**	Q1N4-2★	**9600**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Fusible disconnect switch type ①
Non-reversing, three phase

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings® 200V/208V	230/240V	460/480V	575/600V	Fuse clip rating amp/volts	UL Type 1 (Indoor metal) Catalog number	List price	UL Type 3R (Outdoor metal) Catalog number	List price
UL rated										
9	A9	2	2	5	7.5	30/600	11F1-2★1	**$ 885**	11F3-2★1	**$ 1065**
11	A12	3	3	7.5	10	30/600	21F1-2★1	**915**	21F3-2★1	**1095**
17	A16	5	5	10	15	30/600	31F1-2★1	**945**	31F3-2★1	**1125**
28	A26	7.5	10	20	25	60/600	41F1-2★2	**1020**	41F3-2★2	**1230**
34	A30	10	10	25	30	60/600	51F1-2★2	**1095**	51F3-2★2	**1313**
42	A40	10	15	30	40	60/600	61F1-2★2	**1185**	61F3-2★2	**1418**
54	A50	15	20	40	50	100/600	71F1-2★3	**1725**	71F3-2★3	**1913**
65	A63	20	25	50	50	100/600	81F1-2★3	**1980**	81F3-2★3	**2138**
80	A75	25	30	60	75	200/600	91F1-2★4	**2445**	91F3-2★4	**2858**
110	A110	30	40	75	100	200/600	A1F1-2★4	**2925**	A1F3-2★4	**3818**
130	A145	40	50	100	125	200/600	B1F1-2★4	**3735**	B1F3-2★4	**5183**
156	A185	50	60	125	150	400/600	C1F1-2★5	**4650**	C1F3-2★5	**5400**
192	A210	60	75	150	200	400/600	D1F1-2★5	**6870**	D1F3-2★5	**8850**
248	A260	75	100	200	250	400/600	E1F1-2★5	**7680**	E1F3-2★5	**9930**
NEMA rated										
NEMA size	Contactor size	Continuous current	200V	230V	460/575V					
00	A9	9	1.5	1.5	2	30/600	J1F1-2★1	**$ 885**	J1F3-2★1	**$ 1065**
0	A16	18	3	3	5	30/600	K1F1-2★1	**945**	K1F3-2★1	**1125**
1	A26	27	–	7.5	10	30/600	L1F1-2★1	**1020**	L1F3-2★1	**1230**
1	A26	27	7.5	–	–	60/600	L1F1-2★2	**1020**	L1F3-2★2	**1230**
2	A50	45	10	15	25	60/600	M1F1-2★2	**1725**	M1F3-2★2	**1913**
3	A75	90	–	–	50	100/600	N1F1-2★3	**2021**	N1F3-2★3	**2434**
3	A75	90	25	30	–	200/600	N1F1-2★4	**2445**	N1F3-2★4	**2858**
4	A145	135	40	50	100	200/600	P1F1-2★4	**3735**	P1F3-2★4	**5183**
5	A260	270	75	100	200	400/600	Q1F1-2★5	**7680**	Q1F3-2★5	**9930**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Example: 11F1-2X1 $ 885 List
- 63 - OLR
$ 823 Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 fused starter: 91F1-4F4

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: 91F1-CF

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Factory modifications

See page 1.3

① Power fuses are not included as standard, replace suffix "F" with "J" for fuses to be included, add fuse list price on page 1.3.

Fusible disconnect switch type ①
Non-reversing, three phase

UL Type 12 (Metal Dusttight)		UL Type 4 (Watertight)	
Catalog number	List price	Catalog number	List price
UL rated			
11F2-2★1	**$ 1065**	11F4-2★1	**$ 1350**
21F2-2★1	**1095**	21F4-2★1	**1380**
31F2-2★1	**1125**	31F4-2★1	**1425**
41F2-2★2	**1230**	41F4-2★2	**1530**
51F2-2★2	**1313**	51F4-2★2	**1688**
61F2-2★2	**1418**	61F4-2★2	**1898**
71F2-2★3	**1913**	71F4-2★3	**2400**
81F2-2★3	**2138**	81F4-2★3	**2640**
91F2-2★4	**2858**	91F4-2★4	**3300**
A1F2-2★4	**3818**	A1F4-2★4	**4275**
B1F2-2★4	**5183**	B1F4-2★4	**5685**
C1F2-2★5	**5400**	C1F4-2★5	**6200**
D1F2-2★5	**8850**	D1F4-2★5	**9600**
E1F2-2★5	**9930**	E1F4-2★5	**10,950**
NEMA rated			
J1F2-2★1	**$ 1065**	J1F4-2★1	**$ 1350**
K1F2-2★1	**1125**	K1F4-2★1	**1425**
L1F2-2★1	**1230**	L1F4-2★1	**1530**
L1F2-2★2	**1230**	L1F4-2★2	**1530**
M1F2-2★2	**1913**	M1F4-2★2	**2400**
N1F2-2★3	**2434**	N1F4-2★3	**2876**
N1F2-2★4	**2858**	N1F4-2★4	**3300**
P1F2-2★4	**5183**	P1F4-2★5	**5685**
Q1F2-2★5	**9930**	Q1F4-2★5	**10,950**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Maximum short circuit ratings for UL listed combination starters

Contactor size	Switch/fuse at 600VAC	KA at 600VAC
A9	CF30/30J	
A12	CF30/30J	
A16	CF30/30J	
A26	F60/60J	
A30	F60/60J	
A40	F100/100J	
A50	F100/100J	200
A63	OES200/200J	
A75	OES200/200J	
A110	OES200/200J	
A145	OES400/400J	
A185	OES400/400J	
A210	OES400/400J	
A260	OES400/400J	

① Power fuses are not included as standard, replace suffix "F" with "J" for fuses to be included, add fuse list price on page 1.3.

Fusible disconnect switch type ①
Reversing, three phase

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings Ⓡ 200/208V	230/240V	460/480V	575/600V	Fuse clip rating amp/volts	UL Type 1 (Indoor metal) Catalog number	List price	UL Type 3R (Outdoor metal) Catalog number	List price
UL rated										
9	A9	2	2	5	7.5	30/600	12F1-2★1	**$ 1140**	12F3-2★1	**$ 1320**
11	A12	3	3	7.5	10	30/600	22F1-2★1	**1230**	22F3-2★1	**1410**
17	A16	5	5	10	15	30/600	32F1-2★1	**1290**	32F3-2★1	**1470**
28	A26	7.5	10	20	25	60/600	42F1-2★2	**1425**	42F3-2★2	**1635**
34	A30	10	10	25	30	60/600	52F1-2★2	**1643**	52F3-2★2	**1860**
42	A40	10	15	30	40	60/600	62F1-2★2	**1860**	62F3-2★2	**2093**
54	A50	15	20	40	50	100/600	72F1-2★3	**2438**	72F3-2★3	**2625**
65	A63	20	25	50	50	100/600	82F1-2★3	**2850**	82F3-2★3	**3008**
80	A75	25	30	60	75	200/600	92F1-2★4	**3600**	92F3-2★4	**4013**
110	A110	30	40	75	100	200/600	A2F1-2★4	**4290**	A2F3-2★4	**5183**
130	A145	40	50	100	125	200/600	B2F1-2★4	**5970**	B2F3-2★4	**7418**
156	A185	50	60	125	150	400/600	C2F1-2★5	**8010**	C2F3-2★5	**8760**
192	A210	60	75	150	200	400/600	D2F1-2★5	**10,905**	D2F3-2★5	**12,885**
248	A260	75	100	200	250	400/600	E3F1-2★5	**12,165**	E2F3-2★5	**14,415**
NEMA rated										
NEMA size	Contactor size	Continuous current	200V	230V	460/575V					
00	A9	9	1.5	1.5	2	30/600	J2F1-2★1	**$ 1140**	J2F3-2★1	**$ 1320**
0	A16	18	3	3	5	30/600	K2F1-2★1	**1290**	K2F3-2★1	**1470**
1	A26	27	—	7.5	10	30/600	L2F1-2★1	**1425**	L2F3-2★1	**1635**
1	A26	27	7.5	—	—	60/600	L2F1-2★2	**1425**	L2F3-2★2	**1635**
2	A50	45	10	15	25	60/600	M2F1-2★2	**2438**	M2F3-2★2	**2625**
3	A75	90	—	—	50	100/600	N2F1-2★3	**3176**	N2F3-2★3	**3589**
3	A75	90	25	30	—	200/600	N2F1-2★4	**3600**	N2F3-2★4	**4013**
4	A145	135	40	50	100	200/600	P2F1-2★4	**5970**	P2F3-2★4	**7418**
5	A260	270	75	100	200	400/600	Q2F1-2★5	**12,165**	Q2F3-2★5	**14,415**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Example: 12F1-2X1 $ 1140 List
- 63 - OLR
$ 1077 Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 92F1-4F4

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: 92F1-CF4

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Factory modifications

See page 1.3

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

① Power fuses are not included as standard, replace suffix "F" with "J" for fuses to be included, add fuse list price on page 1.3.

Fusible disconnect switch type ①
Reversing, three phase

UL Type 12 (Metal dusttight)		UL Type 4 (Watertight)	
Catalog number	List price	Catalog number	List price
UL rated			
12F2-2★1	**$ 1320**	12F4-2★1	**$ 1425**
22F2-2★1	**1410**	22F4-2★1	**1515**
32F2-2★1	**1470**	32F4-2★1	**1575**
42F2-2★2	**1635**	42F4-2★2	**1763**
52F2-2★2	**1860**	52F4-2★2	**1988**
62F2-2★2	**2093**	62F4-2★2	**2213**
72F2-2★3	**2625**	72F4-2★3	**2850**
82F2-2★3	**3008**	82F4-2★3	**3225**
92F2-2★4	**4013**	92F4-2★4	**4200**
A2F2-2★4	**5183**	A2F4-2★4	**5550**
B2F2-2★4	**7418**	B2F4-2★4	**7800**
C2F2-2★5	**8760**	C2F4-2★5	**9225**
D2F2-2★5	**12,885**	D2F4-2★5	**13,238**
E2F2-2★5	**14,415**	E2F4-2★5	**15,150**
NEMA rated			
J2F2-2★1	**$ 1320**	J2F4-2★1	**$ 1425**
K2F2-2★1	**1470**	K2F4-2★1	**1575**
L2F2-2★1	**1635**	L2F4-2★1	**1763**
L2F2-2★2	**1635**	L2F4-2★2	**1763**
M2F2-2★2	**2625**	M2F4-2★2	**2850**
N2F2-2★3	**3589**	N2F4-2★3	**3776**
N2F2-2★4	**4013**	N2F4-2★4	**4200**
P2F2-2★4	**7418**	P2F4-2★4	**7800**
Q2F2-2★5	**14,415**	Q2F4-2★5	**15,150**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

Maximum short circuit ratings for UL listed combination starters

Contactor size	Switch/fuse at 600VAC	KA at 600VAC
A9	CF30/30J	
A12	CF30/30J	
A16	CF30/30J	
A26	F60/60J	
A30	F60/60J	
A40	F100/100J	
A50	F100/100J	200
A63	OES200/200J	
A75	OES200/200J	
A110	OES200/200J	
A145	OES400/400J	
A185	OES400/400J	
A210	OES400/400J	
A260	OES400/400J	

① Power fuses are not included as standard, replace suffix "F" with "J" for fuses to be included, add fuse list price on page 1.3.

Circuit breaker type ①
Non-reversing, three phase

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings Ⓤ 200/208V	230/240V	460/480V	575/600V	UL Listed 1 (Indoor metal): Catalog number	List price	UL Listed 3R (Outdoor metal): Catalog number	List price
		UL rated							
9	A9	2	2	5	7.5	11M1-2★◆	**$ 930**	11M3-2★◆	**$ 1110**
11	A12	3	3	7.5	10	21M1-2★◆	**960**	21M3-2★◆	**1140**
17	A16	5	5	10	15	31M1-2★◆	**990**	31M3-2★◆	**1170**
28	A26	7.5	10	20	25	41M1-2★◆	**1073**	41M3-2★◆	**1253**
34	A30	10	10	25	30	51M1-2★◆	**1155**	51M3-2★◆	**1335**
42	A40	10	15	30	40	61M1-2★◆	**1260**	61M3-2★◆	**1440**
54	A50	15	20	40	50	71M1-2★◆	**1755**	71M3-2★◆	**1935**
65	A63	20	25	50	50	81M1-2★◆	**2070**	81M3-2★◆	**2160**
80	A75	25	30	60	75	91M1-2★◆	**2550**	91M3-2★◆	**2880**
110	A110	30	40	75	100	A1M1-2★◆	**2970**	A1M3-2★◆	**3870**
130	A145	40	50	100	125	B1M1-2★◆	**4020**	B1M3-2★◆	**5235**
156	A185	50	60	125	150	C1M1-2★◆	**4950**	C1M3-2★◆	**5610**
192	A210	60	75	150	200	D1M1-2★◆	**7080**	D1M3-2★◆	**9045**
248	A260	75	100	200	250	E1M1-2★◆	**8160**	E1M3-2★◆	**10,155**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See codes on page 1.13.

Example: 11M1-2X◆

$ 930	List
- 63	- OLR
$ 867	Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 combination starter: 91M1-4★◆

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: 91M1-CF◆

Coil voltage selection – A9 - A260

Hz	Cntr type	Volts 24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

Hz	Type	Volts 200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Maximum short circuit rating for UL listed combination starters

Contactor	Maximum MCP 480VAC	KA at 480VAC
A9	S3L050MW	35
A12	S3L050MW	35
A16	S3L050MW	35
A26	S3L100MW	35
A30	S3L150MW	65
A40	S3L150MW	65
A50	S3L150MW	85
A63	S4L250MW	85
A75	S4L250MW	85
A110	S4L250MW	85
A145	S5L400MW	65
A185	S5L400MW	85
A210	S6L800MW	85
A260	S6L800MW	85

For thermal magnetic molded case breakers, consult factory.

Factory modifications

See page 3.1

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	795

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: 11B-2★◆, $ 1110.00.

Circuit breaker type ①
Non-reversing, three phase

UL Listed 12 (Metal dustight)		UL Listed 4 (Watertight)	
Catalog number	List price	Catalog number	List price
UL rated			
11M2-2★◆	**$ 1110**	11M4-2★◆	**$ 1260**
21M2-2★◆	**1140**	21M4-2★◆	**1290**
31M2-2★◆	**1170**	31M4-2★◆	**1320**
41M2-2★◆	**1253**	41M4-2★◆	**1410**
51M2-2★◆	**1335**	51M4-2★◆	**1500**
61M2-2★◆	**1440**	61M4-2★◆	**1635**
71M2-2★◆	**1935**	71M4-2★◆	**2115**
81M2-2★◆	**2160**	81M4-2★◆	**2438**
91M2-2★◆	**2880**	91M4-2★◆	**3225**
A1M2-2★◆	**3870**	A1M4-2★◆	**4200**
B1M2-2★◆	**5235**	B1M4-2★◆	**5588**
C1M2-2★◆	**5610**	C1M4-2★◆	**6300**
D1M2-2★◆	**9045**	D1M4-2★◆	**9713**
E1M2-2★◆	**10,155**	E1M4-2★◆	**10,950**

★ Overload relay suffix code. Select from the overload relay selection chart on page 4.1. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes below.

Motor circuit protector data

Motor full load amperes	MCP continous rating	Suffix code ◆	Catalog number	Starter size	1.5X	2X	4X	5X	6X	7X	8X	9X	10X	11X	12X
.92 – 2.76	3	1	S3L003MW	0	—	—	12	15	18	21	24	27	30	33	36
1.53 – 4.61	5	2	S3L005MW	0	—	—	20	25	30	35	40	45	50	55	60
3.07 – 9.23	10	3	S3L010MW	0	—	—	40	50	60	70	80	90	100	110	120
7.69 – 23.08	25	4	S3L025MW	1	—	—	100	125	150	175	200	225	250	275	300
15.38 – 46.15	50	5	S3L050MW	2	—	—	200	250	300	350	400	450	500	550	600
30.77 – 92.31	100	6	S3L100MW	3	—	—	400	500	600	700	800	900	1000	1100	1200
46.15 – 138.46	150	7	S3L150MW	4	—	—	600	750	900	1050	1200	1350	1500	1650	1800
28.85 – 230.77	250	8	S4L250MW	4	375	500	1000	—	1500	—	2000	—	2500	—	3000
46.15 – 369.23	400	9	S5L400MW	5	600	800	1600	—	2400	—	3200	—	4000	—	4800

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: 11B-2★◆, $ 1110.00.

Circuit breaker type ①
Non-reversing, three phase

UL motor switching current			Maximum ratings – UL Listed Maximum motor horsepower ratings Ⓤ			UL Type 1 (Indoor metal)		UL Type 3R (Outdoor metal)	
			200V	230V	460/575V	Catalog number	List price	Catalog number	List price
			NEMA rated						
NEMA size	Contactor size	Continuous current							
00	A9	9	1.5	1.5	2	J1M1-2★◆	**$ 930**	J1M3-2★◆	**$ 1110**
0	A16	18	3	3	5	K1M1-2★◆	**990**	K1M3-2★◆	**1170**
1	A26	27	7.5	7.5	10	L1M1-2★◆	**1073**	L1M3-2★◆	**1253**
2	A50	45	10	15	25	M1M1-2★◆	**1755**	M1M3-2★◆	**1935**
3	A75	90	25	30	50	N1M1-2★◆	**2550**	N1M3-2★◆	**2880**
4	A145	135	40	50	100	P1M1-2★◆	**4020**	P1M3-2★◆	**5235**
5	A260	270	75	100	200	Q1M1-2★◆	**8160**	Q1M3-2★◆	**10,155**

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★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes on page 1.15.

Example: J1M1-2X◆ $ 930 List
- 63 - OLR
$ 867 Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: N1M1-4★◆

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: N1M1-CF◆

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Factory modifications

See page 1.3

Maximum short circuit rating for UL listed combination starters

Contactor	Maximum MCP 480VAC	KA at 480VAC
A9	S3L050MW	35
A12	S3L050MW	35
A16	S3L050MW	35
A26	S3L100MW	35
A30	S3L150MW	65
A40	S3L150MW	65
A50	S3L150MW	85
A63	S4L250MW	85
A75	S4L250MW	85
A110	S4L250MW	85
A145	S5L400MW	65
A185	S5L400MW	85
A210	S6L800MW	85
A260	S6L800MW	85

For thermal magnetic molded case breakers, consult factory.

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

① MCPs are supplied as standard. Thermal magnetic breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: J1B3-2★◆, $ 1110.00.

Circuit breaker type ①
Non-reversing, three phase

UL Type 12 (Metal dustight)		UL Type 4 (Watertight)	
Catalog number	List price	Catalog number	List price
NEMA rated			
J1M2-2★◆	**$ 1110**	J1M4-2★◆	**$ 126**
K1M2-2★◆	**1170**	K1M4-2★◆	**1320**
L1M2-2★◆	**1253**	L1M4-2★◆	**1410**
M1M2-2★◆	**1935**	M1M4-2★◆	**2115**
N1M2-2★◆	**2880**	N1M4-2★◆	**3225**
P1M2-2★◆	**5235**	P1M4-2★◆	**5588**
Q1M2-2★◆	**10,155**	Q1M4-2★◆	**10,950**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes below.

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Motor circuit protector data

Motor full load amperes	MCP continous rating	Suffix code ◆	Catalog number	Starter size	1.5X	2X	4X	5X	6X	7X	8X	9X	10X	11X	12X
.92 – 2.76	3	1	S3L003MW	0	—	—	12	15	18	21	24	27	30	33	36
1.53 – 4.61	5	2	S3L005MW	0	—	—	20	25	30	35	40	45	50	55	60
3.07 – 9.23	10	3	S3L010MW	0	—	—	40	50	60	70	80	90	100	110	120
7.69 – 23.08	25	4	S3L025MW	1	—	—	100	125	150	175	200	225	250	275	300
15.38 – 46.15	50	5	S3L050MW	2	—	—	200	250	300	350	400	450	500	550	600
30.77 – 92.31	100	6	S3L100MW	3	—	—	400	500	600	700	800	900	1000	1100	1200
46.15 – 138.46	150	7	S3L150MW	4	—	—	600	750	900	1050	1200	1350	1500	1650	1800
28.85 – 230.77	250	8	S4L250MW	4	375	500	1000	—	1500	—	2000	—	2500	—	3000
46.15 – 369.23	400	9	S5L400MW	5	600	800	1600	—	2400	—	3200	—	4000	—	4800

Circuit breaker type ①
Reversing, three phase

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings (UL) 200/208V	230/240V	460/480V	575/600V	UL Type 1 (Indoor metal) Catalog number	List price	UL Type 3R (Outdoor metal) Catalog number	List price
		UL rated							
9	A9	2	2	5	7.5	12M1-2★◆	**$ 1185**	12M3-2★◆	**$ 1365**
11	A12	3	3	7.5	10	22M1-2★◆	**1275**	22M3-2★◆	**1455**
17	A16	5	5	10	15	32M1-2★◆	**1335**	32M3-2★◆	**1515**
28	A26	7.5	10	20	25	42M1-2★◆	**1478**	42M3-2★◆	**1658**
34	A30	10	10	25	30	52M1-2★◆	**1703**	52M3-2★◆	**1883**
42	A40	10	15	30	40	62M1-2★◆	**1935**	62M3-2★◆	**2115**
54	A50	15	20	40	50	72M1-2★◆	**2468**	72M3-2★◆	**2648**
65	A63	20	25	50	50	82M1-2★◆	**2070**	82M3-2★◆	**3030**
80	A75	25	30	60	75	92M1-2★◆	**2940**	92M3-2★◆	**4035**
110	A110	30	40	75	100	A2M1-2★◆	**4200**	A2M3-2★◆	**5235**
130	A145	40	50	100	125	B2M1-2★◆	**4335**	B2M3-2★◆	**7470**
156	A185	50	60	125	150	C2M1-2★◆	**6285**	C2M3-2★◆	**8970**
192	A210	60	75	150	200	D2M1-2★◆	**8310**	D2M3-2★◆	**13,080**
248	A260	75	100	200	250	E2M1-2★◆	**8160**	E2M3-2★◆	**14,640**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes on page 1.17.

Example: 12M1-2X★◆ $ 1185 List
- 63 - OLR
$ 1122 Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 92M1-4★◆

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: 92M1-CF◆

Maximum short circuit rating for UL listed combination starters

Contactor	Maximum MCP 480VAC	KA at 480VAC
A9	S3L050MW	35
A12	S3L050MW	35
A16	S3L050MW	35
A26	S3L100MW	35
A30	S3L150MW	65
A40	S3L150MW	65
A50	S3L150MW	85
A63	S4L250MW	85
A75	S4L250MW	85
A110	S4L250MW	85
A145	S5L400MW	65
A185	S5L400MW	85
A210	S6L800MW	85
A260	S6L800MW	85

For thermal magnetic molded case breakers, consult factory.

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Factory modifications

See page 1.3

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: 12B1-2★◆, $ 1185.

Circuit breaker type ①
Reversing, three phase

UL Type 12 (Metal dustight)		UL Type 4 (Watertight)	
Catalog number	List price	Catalog number	List price
UL rated			
12M2-2★◆	**$ 1365**	12M4-2★◆	**$ 1515**
22M2-2★◆	**1455**	22M4-2★◆	**1605**
32M2-2★◆	**1515**	32M4-2★◆	**1688**
42M2-2★◆	**1658**	42M4-2★◆	**1800**
52M2-2★◆	**1883**	52M4-2★◆	**2100**
62M2-2★◆	**2115**	62M4-2★◆	**2438**
72M2-2★◆	**2648**	72M4-2★◆	**2963**
82M2-2★◆	**3030**	82M4-2★◆	**3338**
92M2-2★◆	**4035**	92M4-2★◆	**4200**
A2M2-2★◆	**5235**	A2M4-2★◆	**5663**
B2M2-2★◆	**7470**	B2M4-2★◆	**7950**
C2M2-2★◆	**8970**	C2M4-2★◆	**9638**
D2M2-2★◆	**13,080**	D2M4-2★◆	**13,650**
E2M2-2★◆	**14,640**	E2M4-2★◆	**15,450**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes below.

Motor circuit protector data

Motor full load amperes	MCP continous rating	Suffix code ◆	Catalog number	Starter size	1.5X	2X	4X	5X	6X	7X	8X	9X	10X	11X	12X
.92 – 2.76	3	1	S3L003MW	0	—	—	12	15	18	21	24	27	30	33	36
1.53 – 4.61	5	2	S3L005MW	0	—	—	20	25	30	35	40	45	50	55	60
3.07 – 9.23	10	3	S3L010MW	0	—	—	40	50	60	70	80	90	100	110	120
7.69 – 23.08	25	4	S3L025MW	1	—	—	100	125	150	175	200	225	250	275	300
15.38 – 46.15	50	5	S3L050MW	2	—	—	200	250	300	350	400	450	500	550	600
30.77 – 92.31	100	6	S3L100MW	3	—	—	400	500	600	700	800	900	1000	1100	1200
46.15 – 138.46	150	7	S3L150MW	4	—	—	600	750	900	1050	1200	1350	1500	1650	1800
28.85 – 230.77	250	8	S4L250MW	4	375	500	1000	—	1500	—	2000	—	2500	—	3000
46.15 – 369.23	400	9	S5L400MW	5	600	800	1600	—	2400	—	3200	—	4000	—	4800

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: 12B1-2★◆, $ 1185.

Circuit breaker type ①
Reversing, three phase

UL motor switching current			Maximum ratings – UL Listed Maximum motor horsepower ratings Ⓤ			UL Type 1 (Indoor metal)		UL Type 3R (Outdoor metal)	
			200V	230V	460/575V	Catalog number	List price	Catalog number	List price
			NEMA rated						
NEMA size	Contactor size	Continuous current							
00	A9	9	1.5	1.5	2	J2M1-2★◆	**$ 1185**	J2M3-2★◆	**$ 1365**
0	A16	18	3	3	5	K2M1-2★◆	**1335**	K2M3-2★◆	**1515**
1	A26	27	7.5	7.5	10	L2M1-2★◆	**1478**	L2M3-2★◆	**1658**
2	A50	45	10	15	25	M2M1-2★◆	**2468**	M2M3-2★◆	**2648**
3	A75	90	25	30	50	N2M1-2★◆	**3705**	N2M3-2★◆	**4035**
4	A145	135	40	50	100	P2M1-2★◆	**6285**	P2M3-2★◆	**7470**
5	A260	270	75	100	200	Q2M1-2★◆	**12,645**	Q2M3-2★◆	**14,640**

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★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the ★ and then substract list price of overload relay from combination starter's list price.

◆ MCP or breaker rating. See MCP codes on page 1.19.

Example: J2M1-2X◆ $ 1185 List
- 63 - OLR
$ 1122 Net price

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: N2M1-4★◆

To select starter with control transformer, substitute the code from the Control transformer voltage selector chart for the one digit after the last dash in the catalog number.

Ex.: A 480V primary voltage with a 120V secondary voltage is required for an A75 starter: N2M1-CF◆

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

Factory modifications

See page 1.3

Maximum short circuit rating for UL listed combination starters

Contactor	Maximum MCP 480VAC	KA at 480VAC
A9	S3L050MW	35
A12	S3L050MW	35
A16	S3L050MW	35
A26	S3L100MW	35
A30	S3L150MW	65
A40	S3L150MW	65
A50	S3L150MW	85
A63	S4L250MW	85
A75	S4L250MW	85
A110	S4L250MW	85
A145	S5L400MW	65
A185	S5L400MW	85
A210	S6L800MW	85
A260	S6L800MW	85

For thermal magnetic molded case breakers, consult factory.

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: J2B1-2★◆, $ 1185.

Circuit breaker type ①
Reversing, three phase

UL Listed 12 (Metal dustight)		UL Listed 4 (Watertight)	
Catalog number	List price	Catalog number	List price
NEMA rated			
J2M2-2★◆	**$ 1365**	J2M4-2★◆	**$ 1515**
K2M2-2★◆	**1515**	K2M4-2★◆	**1688**
L2M2-2★◆	**1658**	L2M4-2★◆	**1800**
M2M2-2★◆	**2648**	M2M4-2★◆	**2963**
N2M2-2★◆	**4035**	N2M4-2★◆	**4200**
P2M2-2★◆	**7470**	P2M4-2★◆	**7950**
Q2M2-2★◆	**14,640**	Q2M4-2★◆	**15,450**

★ Overload relay suffix code. Select from the overload relay selection chart on page 1.4. Overload relays are required for all combination starters. If overload relay is provided by customer, substitute an "X" in place of the★ and then substract list price of overload relay from combination starter's list price.

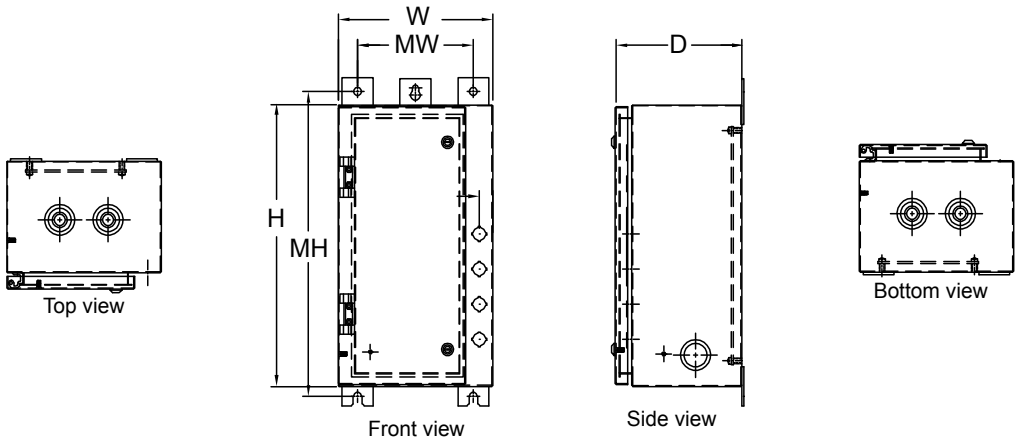
◆ MCP or circuit breaker rating. See MCP codes below.

Motor circuit protector data

Motor full load amperes	MCP continous rating	Suffix code ◆	Catalog number	Starter size	1.5X	2X	4X	5X	6X	7X	8X	9X	10X	11X	12X
.92 – 2.76	3	1	S3L003MW	0	—	—	12	15	18	21	24	27	30	33	36
1.53 – 4.61	5	2	S3L005MW	0	—	—	20	25	30	35	40	45	50	55	60
3.07 – 9.23	10	3	S3L010MW	0	—	—	40	50	60	70	80	90	100	110	120
7.69 – 23.08	25	4	S3L025MW	1	—	—	100	125	150	175	200	225	250	275	300
15.38 – 46.15	50	5	S3L050MW	2	—	—	200	250	300	350	400	450	500	550	600
30.77 – 92.31	100	6	S3L100MW	3	—	—	400	500	600	700	800	900	1000	1100	1200
46.15 – 138.46	150	7	S3L150MW	4	—	—	600	750	900	1050	1200	1350	1500	1650	1800
28.85 – 230.77	250	8	S4L250MW	4	375	500	1000	—	1500	—	2000	—	2500	—	3000
46.15 – 369.23	400	9	S5L400MW	5	600	800	1600	—	2400	—	3200	—	4000	—	4800

① MCPs are supplied as standard. Thermal magnetic/electronic trip type breakers can be supplied by substituting the letter "B" in place of the "M". List price is the same. Example: J2B1-2★◆, $ 1185.

Approximate dimensions ①
Non-fused, across the line
Fused and circuit breaker across the line

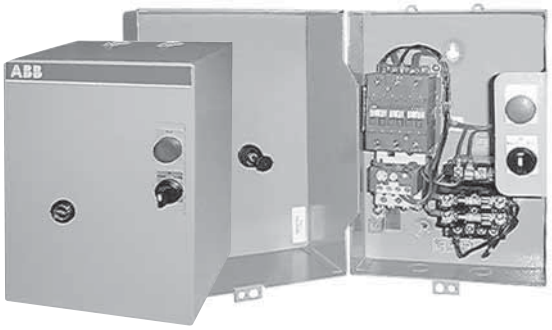


Combination non-fused, fused and circuit breaker across the line with CCT

Starter size	Enclosure type	H	W	D	MH Mtg. Height	MW Mtg. Height	Weight
A9 - A40	1	18	10	8	19.5	7.5	33
	3R ②						
	4, 12 3						
A50 - A110	1	24	12.5	8	24.5	10	51
	3R ②						
	4, 12 ③						
A145 - A185	1	36	24	12	37.5	21.5	54
	3R ②						
	4, 12 ③						
A210 - A260	1	48	24	13	49.5	21.5	54
	3R ②						
	4, 12 ③						

① Dimensions subject to change; please consult factory for construction dimensions.
② Same as C except KO's only on bottom of enclosure
③ Same as C except no KO's in enclosure.

Across the line starters
Enclosed
A9 – A260



2

Description
A9 – A260

- Maximum UL/CSA horsepower ratings
- UL508A Panel Program, #E105450
- NEMA sizes 00 – 5 available
- Compact space-saving design
- Standard auxiliary contact configurations:
  A9 – A40 1 NO or 1 NC
  A50 – A260 1 NO & 1 NC
- Additional auxiliary contact blocks are available
- DC ratings & DC control operation available
- Fast, snap-on DIN rail mounting (A9 - A110)
- Double break contact design
- Snap-on front and side mounted accessories include mechanical latch, pneumatic timer and 1 & 4 pole auxiliary contact blocks (A9 – A110)
- Easy coil change
- Captive terminal screws
- NEMA, UL, CSA, and most other international standards
- cUL marked
- Operates over an extended voltage range of 85% to 110% of rated control voltage
- Screwdriver guide holes

Enclosure types

- NEMA 1 (Indoor metal)
- NEMA 3R (Outdoor metal)
- NEMA 12 (Metal dust tight)
- NEMA 4 (Metal water tight)

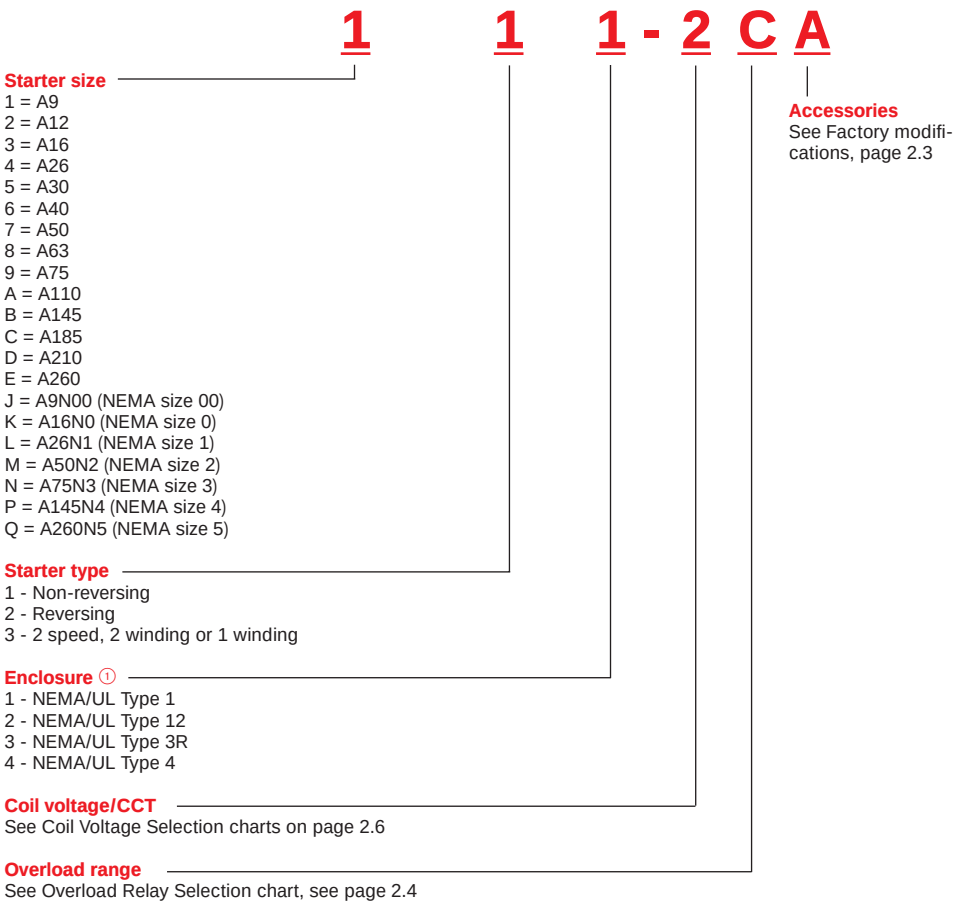
Overload relay protection

Starters, sizes A9 – A260, have Class 10 adjustable thermal bimetallic overload relay protection as standard.

Electronic overload relay protection is available for other starter sizes.

Across the line **Starters**

General information
Catalog number explanation



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① Consult factory for other types of enclosures.

Control cover accessories, A9-A260

Description	Control suffix ①	List price adder NEMA 1 3R 4, 12
Start-stop pushbutton	A	**$ 72**
Fwd-rev-stop pushbutton	B	**360**
2 position selector switch (Std. ON-OFF)	C	**72**
3 position selector switch (Std. HAND-OFF-AUTO)	D	**72**
LED Pilot light, Red, RUN (Std.)	E	**135**
LED Pilot light, Green, OFF	R	**135**
Start-stop pushbutton & pilot light	F	**207**
Fwd-rev-stop pushbutton & pilot light	G	**496**
2 position selector switch & pilot light	H	**207**
3 position selector switch & pilot light	J	**207**
Fast-slow-stop pushbuttons	K	**360**
Fast-slow-stop pushbuttons & pilot light	L	**495**
Fast-slow-off-auto selector switch	M	**150**
Emergency stop	P	**100**
F suffix + 1NO & 1NC auxiliary contact	T	**237**
J suffix + 1NO & 1NC auxiliary contact	U	**237**
Pushbutton (standard START)	Y	**36**

Special modifications

Contact configuration	Suffix code ①	List price adder
Contactor		
Coil surge suppressor	S	**$ 75**
Auxiliary relays		
Type N control relay (4 pole) N.O.	1	**225**
Phase failure phase reversal with over and undervoltage relays	2	**300**
For multi-speed controllers		
Decelerating timer	3	**300**
Meters & metering		
Elapsed time meter	4	**375**

Additional auxiliary contact blocks — A9 – A260

Contact configuration	Suffix code ①	A9 – A110 list price adder	A145 – A260 list price adder
1 N.O. & 1 N.C.	8	**$ 30**	**$ 30**
2 N.O. & 2 N.C.	9	**60**	**60**

Two-speed starters — price adders

Starter size	Non-fusible switch price adder	Fusible switch price adder	MCCB or MCP price adder
A9 (A9N00)	**$ 990**	**$ 1008**	**$ 1287**
A12	**990**	**1008**	**1287**
A16 (A16N0)	**990**	**1008**	**1287**
A26 (A26N1)	**990**	**1008**	**1287**
A30	**990**	**1224**	**1350**
A40	**990**	**1224**	**1350**
A50 (A50N2)	**1152**	**1224**	**1350**
A63	**1230**	**1350**	**1785**
A75 (A75N3)	**1494**	**1602**	**1809**
A110	**2310**	**2565**	**2982**
A145 (A145N4)	**3042**	**3366**	**4158**
A185	**3300**	**3735**	**4533**
A210	**3450**	**3825**	**6000**
A260 (A260N5)	**3744**	**4068**	**6849**

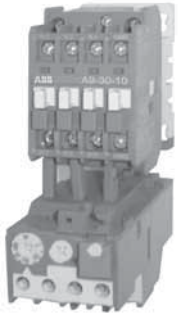
Control circuit transformer, A9 - A260

Standard size with fused secondary			Coil suffix	Starter size	STD. CCT VA	List price	Extra VA CCT	Suffix code	Unit price
Primary	Secondary	Hz							
208	120	50/60	A	A9 – A40	50	**$ 360**	50VA	V	**$ 150**
240	120	50/60	B	A50 – A75	75	**435**	75VA	W	**200**
480	120	50/60	C	A110	100	**560**	100VA	X	**250**
600	120	50/60	D	A145 – A185	150	**720**	200VA	Z	**400**
208	24	50/60	E	A260	250	**795**			
240	24	50/60	F						
480	24	50/60	G						
600	24	50/60	H						

Control circuit transformers do include two primary fuses and one secondary fuse.

① Add this suffix to the last digit of the catalog number.

General information
Standard thermal overload relays



A9 Starter

A50 Starter

Standard – Thermal, Type TA, Class 10

For contactor	Setting range (Amps)	Suffix code for all other starters	Catalog number
A9 – A40	0.1–0.16	A	TA25DU0.16
	0.16–0.25	B	TA25DU0.25
	0.25–0.4	C	TA25DU0.4
	0.4–0.63	D	TA25DU0.63
	0.63–1.0	E	TA25DU1.0
	1.0–1.4	F	TA25DU1.4
	1.3–1.8	G	TA25DU1.8
	1.7–2.4	H	TA25DU2.4
	2.2–3.1	J	TA25DU3.1
	2.8–4.0	K	TA25DU4.0
	3.5–5.0	L	TA25DU5.0
	4.5–6.5	M	TA25DU6.5
	6.0–8.5	N	TA25DU8.5
	7.5–11	P	TA25DU11
	10–14	Q	TA25DU14
	13–19	R	TA25DU19
	18–25	S	TA25DU25
	24–32	T	TA25DU32
A30 – A40	18–25	A	TA42DU25
	22–32	B	TA42DU32
	29–42	C	TA42DU42
A50 – A75	18–25	A	TA75DU25
	22–32	B	TA75DU32
	29–42	C	TA75DU42
	36–52	D	TA75DU52
	45–63	E	TA75DU63
	60–80	F	TA75DU80
A110	29–42	C	TA80DU42
	36–52	D	TA80DU52
	45–63	E	TA80DU63
	60–80	F	TA80DU80
	65–90	A	TA110DU90
	80–110	B	TA110DU110
A145 – A185	65–90	A	TA200DU90
	80–110	B	TA200DU110
	100–135	C	TA200DU135
	110–150	D	TA200DU150
	130–175	E	TA200DU175
	150–200	F	TA200DU200
A210 – A260	130–185	A	TA450DU185 ①
	165–235	B	TA450DU235
	220–310	C	TA450DU310

① TA450 overloads require mounting kits for installation.

Notes

Non-reversing
Three phase

Open & enclosed

UL motor switching current	Contactor Size	Maximum ratings – UL Listed: Maximum motor horsepower ratings (UL) 200/208V	230/240V	460/480V	575/600V	UL Type1 (Indoor metal) ① Catalog number	List price	UL Type 3R (Outdoor metal) Catalog number	List price
					UL rated				
9	A9	2	2	5	7.5	111-2★	**$ 255**	113-2★	**$ 330**
11	A12	3	3	7.5	10	211-2★	**285**	213-2★	**360**
17	A16	5	5	10	15	311-2★	**300**	313-2★	**383**
28	A26	7.5	10	20	25	411-2★	**405**	413-2★	**465**
34	A30	10	10	25	30	511-2★	**473**	513-2★	**533**
42	A40	10	15	30	40	611-2★	**525**	613-2★	**578**
54	A50	15	20	40	50	711-2★	**600**	713-2★	**719**
65	A63	20	25	50	50	811-2★	**713**	813-2★	**795**
80	A75	25	30	60	75	911-2★	**975**	913-2★	**1058**
110	A110	30	40	75	100	A11-2★	**1170**	A13-2★	**1515**
130	A145	40	50	100	125	B11-2★	**1765**	B13-2★	**2130**
156	A185	50	60	125	150	C11-2★	**2400**	C13-2★	**2805**
192	A210	60	75	150	200	D11-2★	**2650**	D13-2★	**3375**
248	A260	75	100	200	250	E11-2★	**3825**	E13-2★	**4650**
					NEMA rated				
NEMA size	Contactor size	Continuous current	200V	230V	460/575V				
00	A9	9	1.5	1.5	2	J11-2★	**$ 255**	J13-2★	**$ 330**
0	A16	18	3	3	5	K11-2★	**300**	K13-2★	**383**
1	A26	27	7.5	7.5	10	L11-2★	**405**	L13-2★	**465**
2	A50	45	10	15	25	M11-2★	**600**	M13-2★	**719**
3	A75	90	25	30	50	N11-2★	**975**	N13-2★	**1058**
4	A145	135	40	50	100	P11-2★	**1765**	P13-2★	**2130**
5	A260	270	75	100	200	Q11-2★	**3825**	Q13-2★	**4650**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil or CCT voltages, substitute the code from the Coil Voltage Selection Chart or Transformer chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 911-4F

D.C. operated starters

If DC operation is required, consult factory.

Factory modifications

See page 2.3

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

① A9 – A75 starters are mounted in a UL Type 1 lift-off cover enclosure.

Non-reversing
Three phase

UL Type 12 (Metal dust tight)		UL Type 4 (Metal water tight)	
Catalog number	List price	Catalog number	List price
UL rated			
112-2★	**$ 330**	114-2★	**$ 495**
212-2★	**360**	214-2★	**540**
312-2★	**383**	314-2★	**570**
412-2★	**465**	414-2★	**630**
512-2★	**533**	514-2★	**690**
612-2★	**578**	614-2★	**1050**
712-2★	**719**	714-2★	**1103**
812-2★	**795**	814-2★	**1170**
912-2★	**1058**	914-2★	**1425**
A12-2★	**1515**	A14-2★	**2100**
B12-2★	**2130**	B14-2★	**2700**
C12-2★	**2805**	C14-2★	**3340**
D12-2★	**3375**	D14-2★	**3900**
E12-2★	**4650**	E14-2★	**5175**
NEMA rated			
J12-2★	**$ 330**	J14-2★	**$ 495**
K12-2★	**383**	K14-2★	**570**
L12-2★	**465**	L14-2★	**630**
M12-2★	**719**	M14-2★	**1103**
N12-2★	**1058**	N14-2★	**1425**
P12-2★	**2130**	P14-2★	**2700**
Q12-2★	**4650**	Q14-2★	**5175**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.

Reversing
Three phase

Open & enclosed

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings ① 200/208V	230/240V	460/480V	575/600V	UL Type 1 (Indoor metal) Catalog number	List price
		UL rated					
9	A9	2	2	5	7.5	121-2★	**$ 510**
11	A12	3	3	7.5	10	221-2★	**585**
17	A16	5	5	10	15	321-2★	**630**
28	A26	7.5	10	20	25	421-2★	**810**
34	A30	10	10	25	30	521-2★	**953**
42	A40	10	15	30	40	621-2★	**1080**
54	A50	15	20	40	50	721-2★	**1395**
65	A63	20	25	50	50	821-2★	**1780**
80	A75	25	30	60	75	921-2★	**1905**
110	A110	30	40	75	100	A21-2★	**2970**
130	A145	40	50	100	125	B21-2★	**3570**
156	A185	50	60	125	150	C21-2★	**4755**
192	A210	60	75	150	200	D21-2★	**5580**
248	A260	75	100	200	250	E21-2★	**7615**
		NEMA rated					
NEMA size	Contactor size	Continuous current	200V	230V	460/575V		
00	A9	9	1.5	1.5	2	J21-2★	**$ 510**
0	A16	18	3	3	5	K21-2★	**630**
1	A26	27	7.5	7.5	10	L21-2★	**810**
2	A50	45	10	15	25	M21-2★	**1395**
3	A75	90	25	30	50	N21-2★	**1905**
4	A145	135	40	50	100	P21-2★	**3570**
5	A260	270	75	100	200	Q21-2★	**7615**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil or CCT voltages, substitute the code from the Coil Voltage Selection Chart or Transformer chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 921-4F

D.C. operated starters

If DC operation is required, consult factory.

Factory modifications

See page 2.3

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

① A9 – A75 starters are mounted in a UL Type 1 lift-off cover enclosure.

Reversing
Three phase

UL Type 3R (Outdoor metal)		UL Type 12 (Metal dust tight)		UL Type 4 (Metal water tight)	
Catalog number	List price	Catalog number	List price	Catalog number	List price
123-2★	**$ 630**	122-2★	**$ 630**	124-2★	**$ 810**
223-2★	**705**	222-2★	**705**	224-2★	**915**
323-2★	**750**	322-2★	**750**	324-2★	**990**
423-2★	**900**	422-2★	**900**	424-2★	**1125**
523-2★	**1043**	522-2★	**1043**	524-2★	**1313**
623-2★	**1305**	622-2★	**1305**	624-2★	**1500**
723-2★	**1763**	722-2★	**1763**	724-2★	**1875**
823-2★	**2310**	822-2★	**2310**	824-2★	**2588**
923-2★	**2813**	922-2★	**2813**	924-2★	**3113**
A23-2★	**3630**	A22-2★	**3630**	A24-2★	**3900**
B23-2★	**4275**	B22-2★	**4275**	B24-2★	**4650**
C23-2★	**5215**	C22-2★	**5215**	C24-2★	**5550**
D23-2★	**6255**	E22-2★	**6255**	D24-2★	**6640**
E23-2★	**8355**	D22-2★	**8355**	E24-2★	**9340**
NEMA rated					
J23-2★	**$ 630**	J22-2★	**$ 630**	J24-2★	**$ 810**
K23-2★	**750**	K22-2★	**750**	K24-2★	**990**
L23-2★	**900**	L22-2★	**900**	L24-2★	**1125**
M23-2★	**1763**	M22-2★	**1763**	M24-2★	**1875**
N23-2★	**2813**	N22-2★	**2813**	N24-2★	**3113**
P23-2★	**4275**	P22-2★	**4275**	P24-2★	**4650**
Q23-2★	**8355**	Q22-2★	**8355**	Q24-2★	**9340**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.

2 Speed, 1 winding
Three phase

Open & enclosed

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings (UL) 200/208V	230/240V	460/480V	575/600V	UL Type 1 (Indoor metal) Catalog number	List price
		UL rated					
9	A9	2	2	5	7.5	131-2★1★	**$ 690**
11	A12	3	3	7.5	10	231-2★1★	**771**
17	A16	5	5	10	15	331-2★1★	**837**
28	A26	7.5	10	20	25	431-2★1★	**1097**
34	A30	10	10	25	30	531-2★1★	**1316**
42	A40	10	15	30	40	631-2★1★	**1577**
54	A50	15	20	40	50	731-2★1★	**1940**
65	A63	20	25	50	50	831-2★1★	**2195**
80	A75	25	30	60	75	931-2★1★	**2592**
110	A110	30	40	75	100	A31-2★1★	**3851**
130	A145	40	50	100	125	B31-2★1★	**5079**
156	A185	50	60	125	150	C31-2★1★	**6605**
192	A210	60	75	150	200	D31-2★1★	**7825**
248	A260	75	100	200	250	E31-2★1★	**10,710**
		NEMA rated					
NEMA size	Contactor size	Continuous current	200V	230V	460/575V		
00	A9	9	1.5	1.5	2	J31-2★1★	**$ 690**
0	A16	18	3	3	5	K31-2★1★	**837**
1	A26	27	7.5	7.5	10	L31-2★1★	**1097**
2	A50	45	10	15	25	M31-2★1★	**1940**
3	A75	90	25	30	50	N31-2★1★	**2589**
4	A145	135	40	50	100	P31-2★1★	**5079**
5	A260	270	75	100	200	Q31-2★1★	**10,710**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.
1st ★ low speed, 2nd ★ high speed

Description

Motors that have separate windings for each speed provide more combinations of speed variations. Multi-speed starters from ABB Control are available for constant horsepower, constant torque and variable torque motors.

Constant horsepower

Motors that maintain the same horsepower regardless of speed are called constant horsepower motors. These motors are used in applications like metal working.

Constant torque

Motors that maintain constant torque at all speeds are called constant torque motors. In applications like conveyors, horsepower varies directly with speed.

Variable torque motors

Motors that produce a torque characteristic which varies as the square of the speed are called variable torque motors and are used in applications like blowers and fans.

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil or CCT voltages, substitute the code from the Coil Voltage Selection Chart or Transformer chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 931-4C1F

D.C. operated starters

If DC operation is required, consult factory.

Factory modifications

See page 2.3

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

2 Speed, 1 winding
Three phase

UL Type 3R (Outdoor metal)		UL Type 12 (Metal dust tight)		UL Type 4 (Metal water tight)	
Catalog number	List price	Catalog number	List price	Catalog number	List price
UL rated					
133-2★1★	**$ 810**	132-2★1★	**$ 810**	134-2★1★	**$ 1020**
233-2★1★	**891**	232-2★1★	**891**	234-2★1★	**1095**
333-2★1★	**957**	332-2★1★	**957**	334-2★1★	**1215**
433-2★1★	**1187**	432-2★1★	**1187**	434-2★1★	**1515**
533-2★1★	**1406**	532-2★1★	**1406**	534-2★1★	**1688**
633-2★1★	**1802**	632-2★1★	**1802**	634-2★1★	**2100**
733-2★1★	**2307**	732-2★1★	**2307**	734-2★1★	**2528**
833-2★1★	**2945**	832-2★1★	**2945**	834-2★1★	**3285**
933-2★1★	**3500**	932-2★1★	**3500**	934-2★1★	**3788**
A33-2★1★	**4511**	A32-2★1★	**4511**	A34-2★1★	**4800**
B33-2★1★	**5784**	B32-2★1★	**5784**	B34-2★1★	**6265**
C33-2★1★	**7059**	C32-2★1★	**7059**	C34-2★1★	**7440**
D33-2★1★	**8500**	D32-2★1★	**8500**	D34-2★1★	**8890**
E33-2★1★	**11,455**	E32-2★1★	**11,455**	E34-2★1★	**12,940**
NEMA rated					
J33-2★1★	**$ 810**	J32-2★1★	**$ 810**	J34-2★1★	**$ 1020**
K33-2★1★	**957**	K32-2★1★	**957**	K34-2★1★	**1215**
L33-2★1★	**1187**	L32-2★1★	**1187**	L34-2★1★	**1515**
M33-2★1★	**2307**	M32-2★1★	**2307**	M34-2★1★	**2528**
N33-2★1★	**3500**	N32-2★1★	**3500**	N34-2★1★	**3788**
P33-2★1★	**5784**	P32-2★1★	**5784**	P34-2★1★	**6265**
Q33-2★1★	**11,455**	Q32-2★1★	**11,455**	Q34-2★1★	**12,940**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.
1st ★ low speed, 2nd ★ high speed

2 Speed, 2 winding
Three phase

Open & enclosed

UL motor switching current	Contactor size	Maximum ratings – UL Listed: Maximum motor horsepower ratings (UL) 200/208V	230/240V	460/480V	575/600V	UL Type 1 ① (Indoor metal) Catalog number	List price
AC3	**UL rated**						
9	A9	2	2	5	7.5	131-2★2★	**$ 582**
11	A12	3	3	7.5	10	231-2★2★	**657**
17	A16	5	5	10	15	331-2★2★	**702**
28	A26	7.5	10	20	25	431-2★2★	**882**
34	A30	10	10	25	30	531-2★2★	**1025**
42	A40	10	15	30	40	631-2★2★	**1152**
54	A50	15	20	40	50	731-2★2★	**1467**
65	A63	20	25	50	50	831-2★2★	**1632**
80	A75	25	30	60	75	931-2★2★	**1977**
110	A110	30	40	75	100	A31-2★2★	**3042**
130	A145	40	50	100	125	B31-2★2★	**3642**
156	A185	50	60	125	150	C31-2★2★	**4827**
192	A210	60	75	150	200	D31-2★2★	**5652**
248	A260	75	100	200	250	E31-2★2★	**7685**

NEMA size	Contactor size	Continuous current	200V	230V	460/575V		
		NEMA rated					
00	A9	9	1.5	1.5	2	J31-2★2★	**$ 582**
0	A16	18	3	3	5	K31-2★2★	**702**
1	A26	27	7.5	7.5	10	L31-2★2★	**882**
2	A50	45	10	15	25	M31-2★2★	**1467**
3	A75	90	25	30	50	N31-2★2★	**1977**
4	A145	135	40	50	100	P31-2★2★	**3642**
5	A260	270	75	100	200	Q31-2★2★	**7685**

★ Overload relay suffix code. Select from the overload relay selection chart on page 3.6.
1st ★ low speed, 2nd ★ high speed

Description

Motors that have separate windings for each speed provide more combinations of speed variations. Multi-speed starters from ABB Control are available for constant horsepower, constant torque and variable torque motors.

Constant horsepower

Motors that maintain the same horsepower regardless of speed are called constant horsepower motors. These motors are used in applications like metal working.

Constant torque

Motors that maintain constant torque at all speeds are called constant torque motors. In applications like conveyors, horsepower varies directly with speed.

Variable torque motors

Motors that produce a torque characteristic which varies as the square of the speed are called variable torque motors and are used in applications like blowers and fans.

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil or CCT voltages, substitute the code from the Coil Voltage Selection Chart or Transformer chart for the one digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 starter: 931-4C2F

D.C. operated starters

If DC operation is required, consult factory.

Factory modifications

See page 2.3

Control transformer option

Contactor size	VA rating	List price adder
A9 – A40	50	**$ 360**
A50 – A75	75	**435**
A110	100	**560**
A145 – A185	150	**720**
A210 – A260	250	**795**

Coil voltage selection – A9 - A260

	Cntr	Volts									
Hz	type	24	110	120	208	220	240	440	480	500	600
60	A	1		2	3		4	5	6		7
50	A	1	2			4				7	

Control transformer voltage selection chart

		Volts							
Hz	Type	200-208/120	240/120	460 – 480/120	575 – 600/120	200-208/24	240/24	460 – 480/24	575 – 600/24
50/60	A/AF	A	B	C	D	E	F	G	H

For other voltages, consult factory.

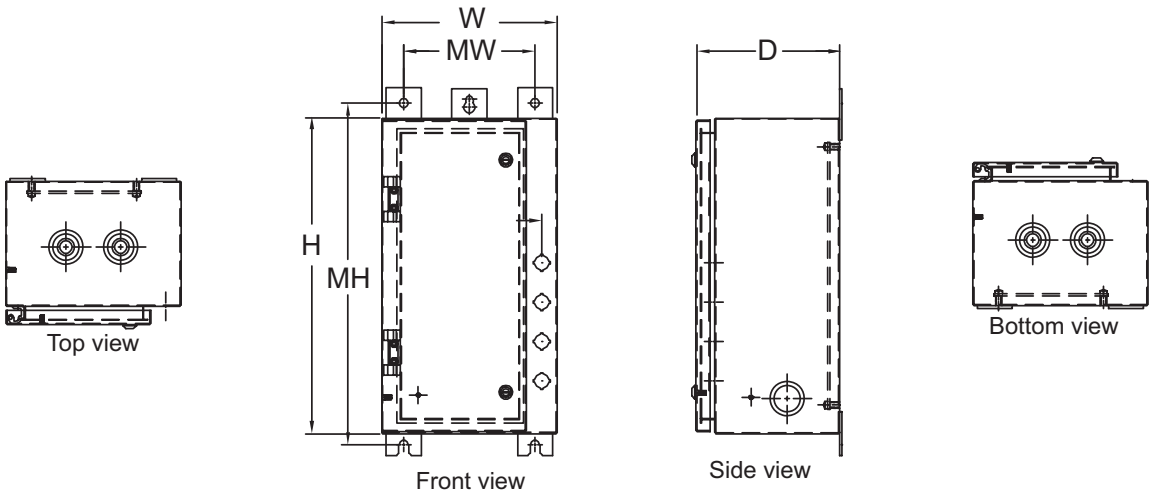
① A9 – A75 starters are mounted in a UL Type 1 lift-off cover enclosure.

2 Speed, 2 winding
Three phase

UL Type 3R (Outdoor metal)		UL Type 12 (Metal dust tight)		UL Type 4 (Metal water tight)	
Catalog Number	List Price	Catalog Number	List Price	Catalog Number	List Price
UL rated					
133-2★2★	**$ 702**	132-2★2★	**$ 702**	134-2★2★	**$ 915**
233-2★2★	**777**	232-2★2★	**777**	234-2★2★	**990**
333-2★2★	**822**	332-2★2★	**822**	334-2★2★	**1065**
433-2★2★	**972**	432-2★2★	**972**	434-2★2★	**1200**
533-2★2★	**1115**	532-2★2★	**1115**	534-2★2★	**1388**
633-2★2★	**1377**	632-2★2★	**1377**	634-2★2★	**1545**
733-2★2★	**1835**	732-2★2★	**1835**	734-2★2★	**1988**
833-2★2★	**2382**	832-2★2★	**2382**	834-2★2★	**2513**
933-2★2★	**2885**	932-2★2★	**2885**	934-2★2★	**3090**
A33-2★2★	**3702**	A32-2★2★	**3702**	A34-2★2★	**3863**
B33-2★2★	**4347**	B32-2★2★	**4347**	B34-2★2★	**4650**
C33-2★2★	**5285**	C32-2★2★	**5285**	C34-2★2★	**5740**
D33-2★2★	**6327**	D32-2★2★	**6327**	D34-2★2★	**6510**
E33-2★2★	**8427**	E32-2★2★	**8427**	E34-2★2★	**9150**
NEMA rated					
J33-2★2★	**$ 702**	J32-2★2★	**$ 702**	J34-2★2★	**$ 915**
K33-2★2★	**822**	K32-2★2★	**822**	K34-2★2★	**1065**
L33-2★2★	**972**	L32-2★2★	**972**	L34-2★2★	**1200**
M33-2★2★	**1835**	M32-2★2★	**1835**	M34-2★2★	**1988**
N33-2★2★	**2885**	N32-2★2★	**2885**	N34-2★2★	**3090**
P33-2★2★	**4347**	P32-2★2★	**4347**	P34-2★2★	**4650**
Q33-2★2★	**8427**	Q32-2★2★	**8427**	Q34-2★2★	**9150**

★ Overload relay suffix code. Select from the overload relay selection chart on page 2.4.
1st ★ low speed, 2nd ★ high speed

Approximate dimensions ①
2-Speed, 1 Winding w/CCT
2-Speed, 2-Winding w/CCT



Across the line and 2-speed, 2 winding with CCT

Starter size	Enclosure type	H	W	D	MH Mtg. Height	MW Mtg. Height	Weight
A9 - A75	1	18	10	8	19.5	7.5	29
	3R ②						
	4, 12 ③						
A110	1	24	12.5	8	24.5	10	51
	3R ②						
	4, 12 ③						
A145 - A185	1	24	12.5	8	24.5	10	56
	3R ②						
	4, 12 ③						
A210 - A260	1	48	24	13	49.5	21.5	181
	3R ②						
	4, 12 ③						

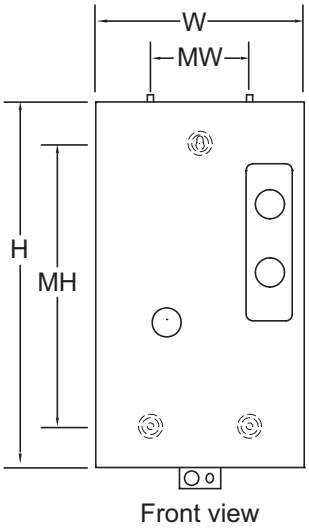
Across the line and 2-speed, 1 winding with CCT

Starter size	Enclosure type	H	W	D	MH Mtg. Height	MW Mtg. Height	Weight
A9 - A75	1	18	10	8	19.5	7.5	32
	3R ②						
	4, 12 ③						
A110	1	24	12.5	8	24.5	10	58
	3R ②						
	4, 12 ③						
A145 - A185	1	48	24	13	49.5	21.5	174
	3R ②						
	4, 12 ③						
A210 - A260	1	48	24	13	49.5	21.5	203
	3R ②						
	4, 12 ③						

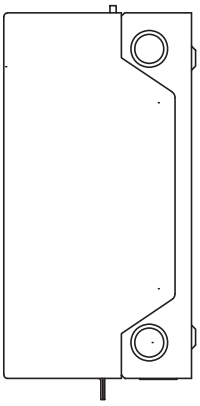
① Dimensions subject to change. Please consult factory for construction dimensions.
② Same as above except KO's only on bottom of enclosure
③ Same as above except no KO's in enclosure.

Approximate dimensions ①
Across the line w/CCT

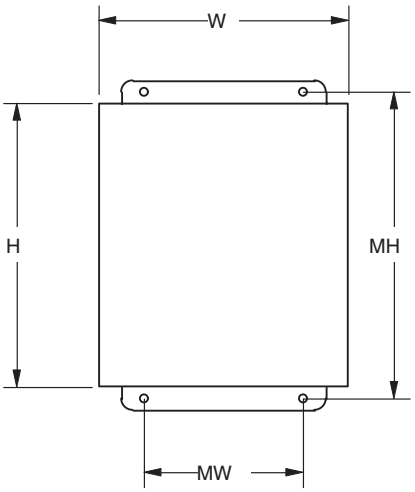
Enclosure A

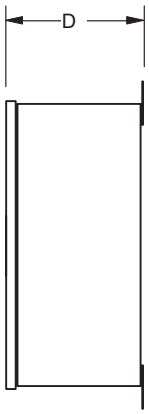


Front view

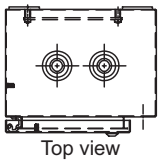

Side view

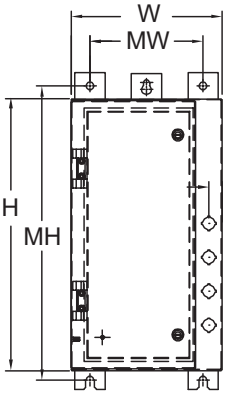
Enclosure B



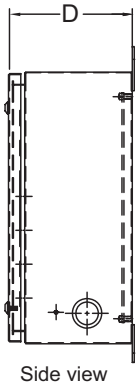


Enclosure C

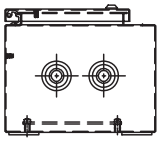

Top view



Front view



Side view


Bottom view

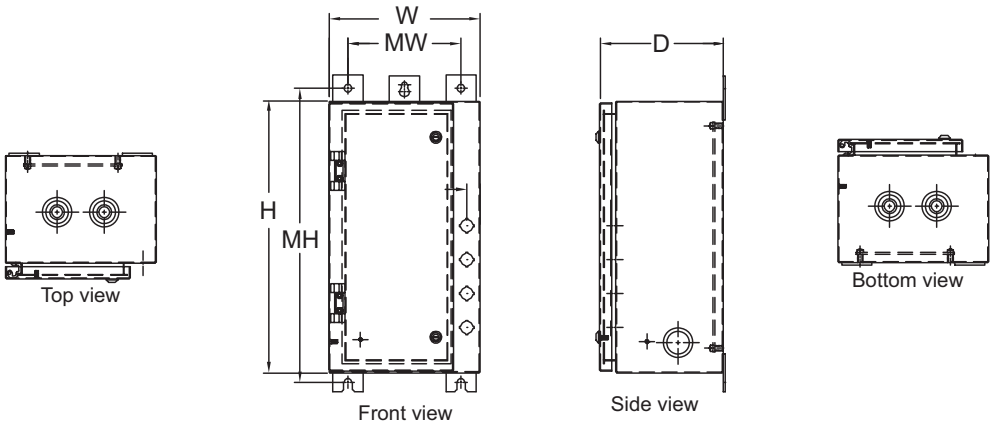
Across the line with CCT

Starter size	Enclosure type	Encl. Dwg.	H	W	D	MH Mtg. Height	MW Mtg. Height	Weight
A9 - A26	1	A	11	6	5	8.66	3.0	20
	3R	B	10	8	6	11.0	3.0	22
	4	B	10	8	6	10.75	6.0	22
	12							
A30 - A75	1	A	13	9	7	10.6	5.84	23
A50 - A75	3R ②	C	18	10	8	19.5	7.5	26
	4, 12 ③							
A110	1	C	18	10	8	19.5	7.5	30
	3R ②							
	4, 12 ③							
A145 - A185	1	C	24	12.5	8	24.5	10	46
	3R ②							
	4, 12 ③							
A210 - A260	1	C	48	24	13	49.5	21.5	163
	3R ②							
	4, 12 ③							

① Dimensions subject to change. Please consult factory for construction dimensions.
② Same as C except KO's only on bottom of enclosure
③ Same as C except no KO's in enclosure.

Approximate dimensions ①
Across the line, reversing w/CCT

Enclosure C



2

Across the line reversing with CCT

Starter size	Enclosure type	Encl. Dwg.	H	W	D	MH Mtg. Height	MW Mtg. Height	Weight
A9 - A75	1	C	18	10	8	19.5	7.5	29
	3R ②							
	4, 12 ③							
A110	1	C	24	12.5	8	24.5	10	51
	3R ②							
	4, 12 ③							
A145 - A185	1	C	24	12.5	8	24.5	10	56
	3R ②							
	4, 12 ③							
A210 - A260	1	C	48	24	13	49.5	21.5	181
	3R ②							
	4, 12 ③							

① Dimensions subject to change. Please consult factory for construction dimensions.
② Same as C except KO's only on bottom of enclosure
③ Same as C except no KO's in enclosure.

MSSP single phase
Manual Starters

MSSP
Starting and overload protection of small 1Ø AC/DC motors used on the following:

- Unit heater stokers
- Refrigeration compressors
- Fans
- Pumps

MSSP manual switches consist of a snap switch combined with a thermal overload device operating on the solder-ratchet principle. The switch is designed to prevent being held closed under a sustained motor overload. To reset the overload mechanism, the switch lever is moved to the OFF position. The motor can be restarted by pushing the switch lever to the ON position. Applications include compressors, fans and pumps.

Standards Compliance and Certifications
UL Listed — Enclosed Products (File No E137861; Guide No. NLRV)
UL – Open Style
Products (File No. E137861; Guide No. NLRV2)
CSA Certified LR 1234
American Bureau of Shipping
CE Marked (Per 60947)

Product Selection
Your order must include:
- Cat. No. of the switch
- Cat. No. of the heater element(s)
- If required, Cat. No. of any accessories.

MSSP Single phase
Manual Starters

MSSP1-T2P


MSSP-T2P


MSSP-PL


MSSP-LA

Ratings

Single pole — 1 HP 115...230V AC, 1 HP 277V AC, Open Type without Enclosure or Type 1 General Purpose Enclosure
Two pole — 1 Hp 115...230V AC, 1 HP 277 AC, Open Type without enclosure or Type 1 General Purpose Enclosure, 3/4 HP 115...230V DC

Description		Open type without enclosure - includes legend plate		Type 1 General purpose enclosure - surface mount		Type 1 General purpose enclosure - flush mounting includes flush plate but not switch box	
		Catalog number	List price	Catalog number	List price	Catalog number	List price
Switch only							
Toggle type	1 pole 2 pole	MSSP-T1 MSSP-T2	**$ 46** **55**	MSSP1-T1 MSSP1-T2	**$ 55** **64**	MSSP-T1S MSSP-T2S	**$ 55** **64**
Key type	2 pole	MSSP-K2	**72**	MSSP1-K2	**81**	MSSP-K2S	**81**
Lever type	1 pole	MSSP-L1	**64**	MSSP1-L1	**72**	—	—
Switch with neon pilot light (115 or 230V)							
Toggle type	1 pole 2 pole	MSSP-T1P MSSP-T2P	**72** **81**	MSSP1-T1P MSSP1-T2P	**81** **89**	MSSP-T1PS MSSP-T2PS	**81** **89**
Key type	2 pole	MSSP-K2P	**98**	MSSP1-K2P	**106**	MSSP-K2PS	**106**
Switch and "hand-off-auto" selector switch (for use on AC only)							
Toggle type	2 pole	—	**—**	MSSP1-T2H	**231**	MSSP-T2SH	**231**
Switch with neon pilot light and "hand-off-auto" selector switch (115 or 230V AC only)							
Toggle type	2 pole	—	**—**	MSSP1-T2HP	**255**	MSSP-T2SHP	**255**
Key type	2 pole	—	**—**	MSSP1-K2HP	**271**	—	**—**
Two switch units in one enclosure							
Toggle type	2 pole	—	**—**	MSSP1-T2T2	**154**	—	**—**
Two switch units in one enclosure neon pilot light on both units (115 or 230V)							
Toggle type	2 pole	—	**—**	MSSP1-T2PT2P	**247**	MSSP-T2PT2P	**247**
Two speed switch							
Toggle type	2 pole	—	**—**	MSSP1-22	**213**	—	**—**
Two speed switch with neon pilot lights (115 or 230V)							
Toggle type	2 pole	—	**—**	MSSP1-22P	**372**	MSSP-22P	**372**

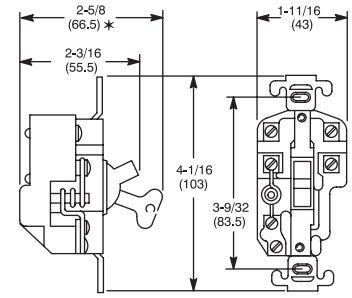
Accessories

Description	Catalog number	List price
Pilot light replacement bulb incandescent **Note:** Pilot lights as used on MSSP switches indicate whether the motor is running only if the switch is used to control the motor directly. If a thermostat, pressure switch, or some other pilot device controls the operation of the motor, the light on the MMSP switch merely indicates whether the power is ON or OFF.	MSSP-PL	**$ 10**
Locking attachment (for toggle operated only)	MSSP-LA	**9**

Approximate dimensions

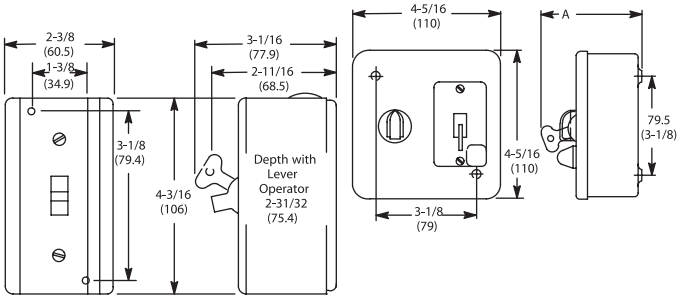
Dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Open type without enclosure



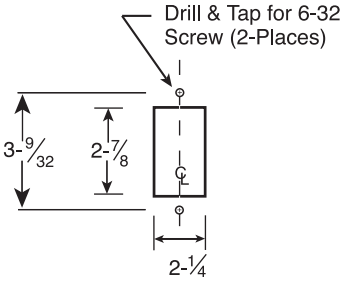
Catalog number		
MSSP-T1 MSSP-T2 MSSP-K2	MSSP-T2P MSSP-K2P MSSP-L2	MSSP-T1P

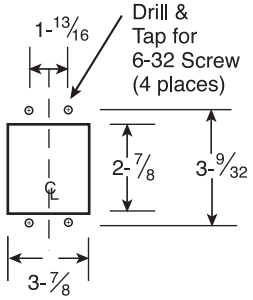
Type 1 general purpose enclosure surface mounting

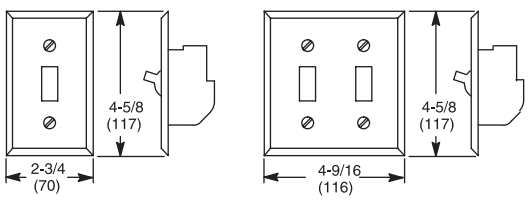


Catalog number		
MSSP1-T1 MSSP1-T2 MSSP1-K2 MSSP1-T2H MSSP1-T2T2	MSSP1-T2P MSSP1-K2P MSSP1-L1 MSSP1-T2HP MSSP1-T2PT2P	MSSP1-T1P MSSP1-K2HP
Dimension A in inches (millimeters)		
Key inserted		1-1/8 (79.5)
Selector switch		2-3/4 (70)
Toggle operator		2-9/16 (65)

Type 1 general purpose enclosure flush mounting







Catalog number	
MSSP-T1S MSSP-T2S MSSP-K2S MSSP-T2SH MSSP-T2SHP	MSSP-T2PS MSSP-K2PS MSSP-T1PS MSSP-T2PT2P

3

Heater element selection

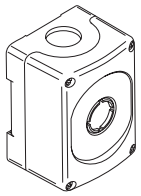
Full load amperes	Catalog number	List price
0.17	MSSP-P1	
0.21	MSSP-P2	
0.25	MSSP-P3	
0.32	MSSP-P4	
0,39	MSSP-P5	
0.46	MSSP-P6	
0.57	MSSP-P7	
0.71	MSSP-P8	
0.79	MSSP-P9	
0.87	MSSP-P10	
0.98	MSSP-P11	
1.08	MSSP-P12	
1.19	MSSP-P13	
1.30	MSSP-P14	
1.43	MSSP-P15	
1.58	MSSP-P16	
1.75	MSSP-P17	
1.88	MSSP-P18	
2.13	MSSP-P19	
2.40	MSSP-P20	**$ 13.80**
2.58	MSSP-P21	
2.92	MSSP-P22	
3.09	MSSP-P23	
3.32	MSSP-P24	
3.37	MSSP-P25	
4.16	MSSP-P26	
4.51	MSSP-P27	
4.93	MSSP-P28	
5.43	MSSP-P29	
6.03	MSSP-P30	
6.83	MSSP-P31	
7.72	MSSP-P32	
8.24	MSSP-P33	
8.90	MSSP-P34	
9.60	MSSP-P35	
10.8	MSSP-P36	
12.0	MSSP-P37	
13.5	MSSP-P38	
15.2	MSSP-P39	

Assembled stations and enclosures

Features

- Available for 1, 2, 3, 4 & 6 operators.
- Base mounted contacts allow for easy removal of operator cover. Wiring remains with base.
- Up to 4 contact blocks can be used per operator for some combinations.
- Environmental ratings: UL/CSA Type 1, 3R, 4, 4X, 12 & 13, IP66
- Available in high impact strength polycarbonate (plastic) material.
- Rated for outdoor use.
- Enclosures can withstand light acid solutions and other chemicals.
- Metallic enclosures available.

Plastic enclosures
1, 2 & 3 seat

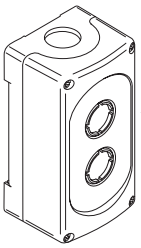


1-seat Plastic enclosures. Yellow top/light grey bottom

Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.	List Price
	Twist Release 40mm E	—	—	—		
Type	Stop	—	—	—		
Color	Red	—	—	—		
Contacts	2 NC	—	—	—		
Name plate	EMERGENCY STOP	—	—	—	**P1-ES**	**$ 84.00**
	Ill. Twist Release 40mm E	—	—	—		
Type	40mm E-Stop	—	—	—		
Color	Red, 120V	—	—	—		
Contacts	2 NC, 1 LB	—	—	—		
Name plate	EMERGENCY STOP	—	—	—	**P1-1ES**	**107.50**

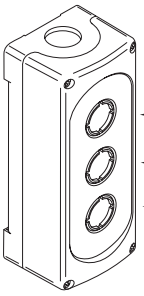
1-seat Plastic enclosure, dark grey top/light grey bottom

Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.	List Price
Type	3-pos sel. Main	—	—	—		
Color	Black	—	—	—		
Contacts	2 NO	—	—	—		
Name plate	HAND/OFF/AUTO	—	—	—	**P1-HOA**	**$ 55.00**



2-seat Plastic enclosure, dark grey top/light grey bottom

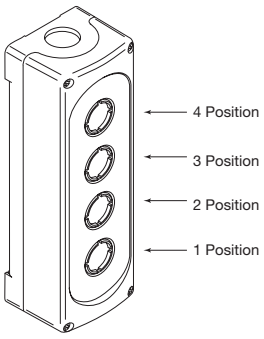
Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.	List Price
Type	Button mom, Ext.	Button mom, Flush	—	—		
Color	Red	Green	—	—		
Contacts	1 NC	1 NO	—	—		
Name plate	STOP	START	—	—	**P2-SS**	**$ 63.20**
Type	3-pos sel. Main	Pilot Light	—	—		
Color	Black	Red	—	—		
Contacts	2 NO	1 LB	—	—		
Name plate	HAND/OFF/AUTO	RUN	—	—	**P2-1HOARL**	**90.00**
Type	2-pos sel. Main	Pilot Light	—	—		
Color	Black	Red	—	—		
Contacts	1 NO	1 LB	—	—		
Name plate	ON/OFF	RUN	—	—	**P2-1OORL**	**82.00**



3-seat Plastic enclosure, dark grey top/light grey bottom

Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.	List Price
Type	Button mom, Ext.	Button mom, Flush	Pilot Light	—		
Color	Red	Green	Red	—		
Contacts	1 NC	1 NO	1 LB	—		
Name plate	STOP	START	RUN	—	**P3-1SSRL**	**$ 96.70**
Type	3-pos sel. Main	Pilot Light	Pilot Light	—		
Color	Black	Red	Green	—		
Contacts	2 NO	1 LB	1 LB	—		
Name plate	HAND/OFF/AUTO	RUN	OFF	—	**P3-1HOARLGL**	**123.50**
Type	2-pos sel. Main	Pilot Light	Pilot Light	—		
Color	Black	Red	Green	—		
Contacts	1 NO	1 LB	1 LB	—		
Name plate	ON/OFF	RUN	OFF	—	**P3-1OORLGL**	**115.50**
Type	3-pos sel. Main	Button mom, Flush	Pilot Light	—		
Color	Black	Green	Red	—		
Contacts	2 NO	1 NO	1 LB	—		
Name plate	HAND/OFF/AUTO	START	RUN	—	**P3-1HOASRL**	**109.60**
Type	Twist Release 40mm E Stop	3-pos sel. Main	Pilot Light	—		
Color	Red	Black	Red	—		
Contacts	2 NC	2 NO	1 LB	—		
Name plate	EMERGENCY STOP	HAND/OFF/AUTO	RUN	—	**P3-1ESHOARL**	**145.50**

Plastic enclosures
4 seat

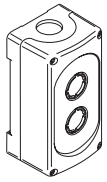
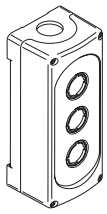
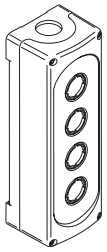
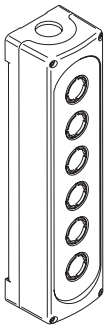


4-seat Plastic enclosure, dark grey top/light grey bottom

Description	Pos - 1	Pos - 2	Pos - 3	Pos - 4	Catalog No.	List Price
Type	Button mom., Ext.	Button mom., Flush	Pilot Light	Pilot Light		
Color	Red	Green	Green	Red		
Contacts	1 NC	1 NO	1 LB	1 LB		
Name plate	STOP	START	OFF	RUN	**P4-1SSRLGL**	**$ 134.20**
Type	3-pos sel. Main	Button mom, Flush	Pilot Light	Pilot Light		
Color	Black	Green	Green	RED		
Contacts	2 NO	1 NO	1 LB	1 LB		
Name plate	HAND/OFF/AUTO	START	OFF	RUN	**P4-1HOASRLGL**	**147.10**
Type	3-pos sel. Main	Pilot Light	Pilot Light	Pilot Light		
Color	Black	Green	Yellow	Red		
Contacts	2 NO	1 LB	1 LB	1 LB		
Name plate	HAND/OFF/AUTO	OFF	FAULT	RUN	**P4-1HOARLYLGL**	**161.00**
Type	2-pos. sel. Main	Pilot Light	Pilot Light	Pilot Light		
Color	Black	Green	Yellow	Red		
Contacts	1 NO	1 LB	1 LB	1 LB		
Name plate	ON/OFF	OFF	FAULT	RUN	**P4-1OORLYLGL**	**153.00**
Type	Twist Release 40mm E Stop	Button mom., Ext.	Button mom., Flush	Pilot Light		
Color	Red	Red	Green	Red		
Contacts	2 NC	1 NC	1 NO	1 LB		
Name plate	EMERGENCY STOP	STOP	START	RUN	**P4-1ESSSRL**	**156.20**
Type	Twist Release 40mm E Stop	3-pos. sel. Main	Pilot Light	Pilot Light		
Color	Red	Black	Green	Red		
Contacts	2 NC	2 NO	1 LB	1 LB		
Name plate	EMERGENCY STOP	HAND/OFF/AUTO	OFF	RUN	**P4-1ESHOARLGL**	**183.00**
Type	Twist Release 40mm E Stop	2-pos sel. Main	Pilot Light	Pilot Light		
Color	Red	Black	Green	Red		
Contacts	2 NC	1 NO	1 LB	1 LB		
Name plate	EMERGENCY STOP	ON/OFF	OFF	RUN	**P4-1ESOORLGL**	**175.00**

Degree of protection IP 66



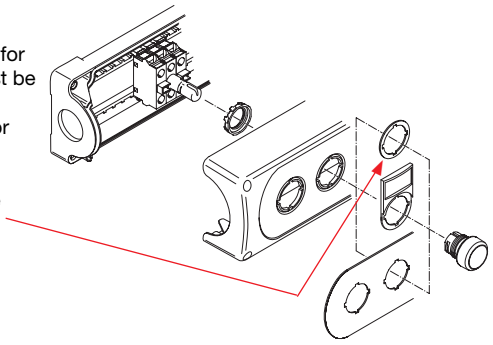





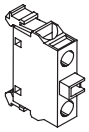
Empty plastic enclosures Now with stainless steel screws

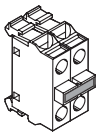
Size	Color top/bottom	Catalog No.	Ref. Code	List Price
1-seat	Dark grey/Light grey	**MEP1-0**	1SFA 611 811 R1000	**$ 28.00**
1-seat	Yellow/Light grey	**MEPY-0**	1SFA 611 821 R1000	**28.00**
2-seat	Dark grey/Light grey	**MEP2-0**	1SFA 611 812 R1000	**32.00**
3-seat	Dark grey/Light grey	**MEP3-0**	1SFA 611 813 R1000	**36.00**
4-seat	Dark grey/Light grey	**MEP4-0**	1SFA 611 814 R1000	**44.00**
6-seat	Dark grey/Light grey	**MEP6-0**	1SFA 611 816 R1000	**52.00**

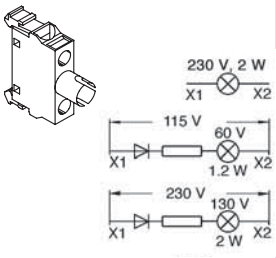
When Ordering

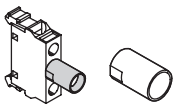
- Select operators from page 4.6 and 4.7.
  N.B. Selector switches with short handle for vertically mounted selector switches must be Ordered from page 4.6 - 4.7
- Select contact blocks and lamp blocks for **rear** mounting,see page 4.5.
- Accessories, see page 4.5
  N.B. **One spacer per operator** has to be Ref.ed if legend plate is not used.
  (for rear mounted pilot devices)











Contact blocks for rear mounting

Description	Catalog No.	Ref. Code	List Price
Contact block			
1NO	**MCB-10B**	1SFA 611 610 R2001	**$ 8.00**
1NC	**MCB-01B**	1SFA 611 610 R2010	
Double contact block			
2NO	**MCB-20B**	1SFA 611 610 R2002	
2NC	**MCB-02B**	1SFA 611 610 R2020	**16.00**
1NO+1NC	**MCB-11B**	1SFA 611 610 R2011	
Contact block with gold plated contacts			
1NO	**MCB-10BG**	1SFA 611 610 R2101	**16.00**
1NC	**MCB-01BG**	1SFA 611 610 R2110	
Lamp blocks			
For max. 2 W, 230 V AC and DC filament bulb or LED	**MLB-1B**	1SFA 611 620 R2001	**17.50**
115 V AC supply voltage. **For 60 V filament bulb max. 1.2 W**	**MLB-2B**	1SFA 611 620 R2002	**21.50**
230 V AC supply voltage. **For 130 V filament bulb max. 2 W**	**MLB-3B**	1SFA 611 620 R2003	**21.50**

Protective sleeve

Description	Catalog No.	Ref. Code	List Price
To make a rear mounted lamp block screen protected. IP20	**5396 0543-1**	5396 0543-1	**$ 2.00**

Earthing terminal

Description	Catalog No.	Ref. Code	List Price
For plastic enclosure.	**MA5-2005**	1SFA 611 925 R3005	**$ 2.00**

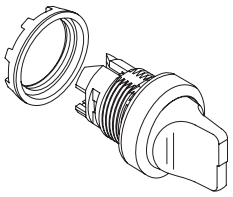
Spacer

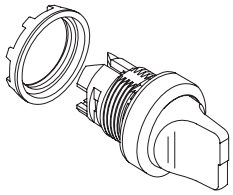
Description	Catalog No.	Ref. Code	List Price
1 mm thick. Needed when legend plates are not used in plastic enclosures. Spacer (Packing unit 10 pieces)	**SK 615 516-1**	SK 615 516-1	**$ 1.00**
Spacer for Modular emergency stop pushbutton, page ?? (Packing unit 10 pieces)	**KA1-8045**	1SFA 616 920 R 8045	**1.00**

Blanking plug (22mm)

Description	Catalog No.	Ref. Code	List Price
Black plastic	**SK 615 502-B**	SK 615 502-B	**$ 2.00**

Two position selector switches
for mounting in vertically mounted enclosures





Bezel in black plastic as standard
Bezel in metal:
Replace '**1**' in the:
Catalog No. M2SSX-1 0X
Ref. Code 1SFA611XXX R 1XXX
3 for metal bezel
4 for grey plastic bezel

Contact functions
Block positions as seen from operator front.

Handle position	Left block	Right block
A (B)	O	O
O	x	x

O = not actuated (normal state)
x = actuated (state changed)

Non-illuminated operator ... ①

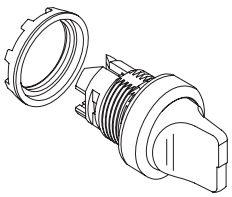
Symbol	Handle color	Catalog No.	Ref. Code	List Price
with short handle				
Maintained				
	Red	**M2SSV1-10R**	1SFA 611 220 R1001	**$ 11.00**
	Black	**M2SSV1-10B**	1SFA 611 220 R1006	
Maintained				
	Red	**M2SSV2-10R**	1SFA 611 221 R1001	**11.00**
	Black	**M2SSV2-10B**	1SFA 611 221 R1006	
Momentary, spring return from C to B				
	Red	**M2SSV3-10R**	1SFA 611 222 R1001	**14.00**
	Black	**M2SSV3-10B**	1SFA 611 222 R1006	

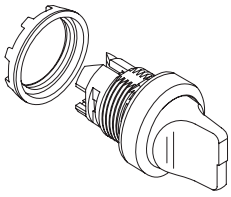
Illuminated operator ... ① ②

Symbol	Handle color	Catalog No.	Ref. Code	List Price
with short handle				
Maintained				
	Red	**M2SSV1-11R**	1SFA 611 220 R1101	**$ 17.00**
	Green	**M2SSV1-11G**	1SFA 611 220 R1102	
	Yellow	**M2SSV1-11Y**	1SFA 611 220 R1103	
Maintained				
	Red	**M2SSV2-11R**	1SFA 611 221 R1101	**17.00**
	Green	**M2SSV2-11G**	1SFA 611 221 R1102	
	Yellow	**M2SSV2-11Y**	1SFA 611 221 R1103	
Momentary, spring return from C to B				
	Red	**M2SSV3-11R**	1SFA 611 222 R1101	**26.00**
	Green	**M2SSV3-11G**	1SFA 611 222 R1102	
	Yellow	**M2SSV3-11Y**	1SFA 611 222 R1103	

① No contact in center position
② Lamp block for max 230 V AC/DC. Bulb not included. Other lamp block see Accessories

Three position selector switches
for mounting in vertically mounted enclosures





Bezel in black plastic as standard
Bezel in metal:
Replace '**1**' in the:
Catalog No. M3SSX-1 0X
Ref. Code 1SFA611XXX R 1XXX
3 for metal bezel
4 for grey plastic bezel

Contact functions
Block positions as seen from operator front.

Handle position	Left block	Right block
A	x	O
B	O	O
C	O	x

Non-illuminated operator ... ①

Symbol	Handle color	Catalog No.	Ref. Code	List Price
with short handle				
Maintained				
A B C	Red	**M3SSV1-10R**	1SFA 611 230 R1001	**$ 11.00**
	Black	**M3SSV1-10B**	1SFA 611 230 R1006	
Momentary, spring return from A to B and from C to B				
A B C	Red	**M3SSV2-10R**	1SFA 611 231 R1001	**14.00**
	Black	**M3SSV2-10B**	1SFA 611 231 R1006	
Momentary, spring return from C to B				
B C	Red	**M3SSV3-10R**	1SFA 611 232 R1001	**14.00**
	Black	**M3SSV3-10B**	1SFA 611 232 R1006	

Illuminated operator ... ① ②

Symbol	Handle color	Catalog No.	Ref. Code	List Price
with short handle				
Maintained				
A B C	Red	**M3SSV1-11R**	1SFA 611 230 R1101	**$ 17.00**
	Green	**M3SSV1-11G**	1SFA 611 230 R1102	
	Yellow	**M3SSV1-11Y**	1SFA 611 230 R1103	
Momentary, spring return from A to B and from C to B				
A B C	Red	**M3SSV2-11R**	1SFA 611 231 R1101	**26.00**
	Green	**M3SSV2-11G**	1SFA 611 231 R1102	
	Yellow	**M3SSV2-11Y**	1SFA 611 231 R1103	
Momentary, spring return from C to B				
B C	Red	**M3SSV3-11R**	1SFA 611 232 R1001	**26.00**
	Green	**M3SSV3-11G**	1SFA 611 232 R1002	
	Yellow	**M3SSV3-11Y**	1SFA 611 232 R1003	

Contact blocks, lamp block and holder See Page 4.5

① No contact in center position
② Lamp block for max 230 V AC/DC. Bulb not included. Other lamp block see Accessories

Notes

SafeLine Enclosed Disconnect switches

SafeLine
Compact, heavy duty
Enclosed disconnect switches
16A – 200A Non-fusible
30A – 200A Fusible

SafeLine enclosed disconnect switches are designed to meet customer requirements in terms of safety, ease of installation, space savings and operational convenience. They are available in a wide range of amperage ratings, are UL approved and NEMA rated to satisfy rugged industrial environments.

Suitable for use as:
- OSHA Lockout/Tagout disconnects
- Safety switches
- Load break switches
- Isolators

5

General information
Non-fusible

NF 16 1 - 3P BJ A 11

Disconnect switch type
NF = Non-fusible
FC = UL Fused Class CC, (30A)
FJ = UL Fused Class J, (30A – 200A)

Disconnect switch frame size
Non-Fusible switches
16 25 30 32 45 60
63 100 125 200

Fusible switches
30 60 100 200

Environmental rating ③
1 = NEMA/UL Type 1
2 = NEMA/UL Type 12
3 = NEMA/UL Type 3R
4 = NEMA/UL Type 4

Accessories
10 = 1 N.O. auxiliary contact
01 = 1 N.C. auxiliary contact
11 = 1 N.O. & 1 N.C. auxiliary contacts
22 = 2 N.O. & 2 N.C. auxiliary contacts
N = Neutral terminal
G = Ground terminal, isolated ①
U = Service entrance, 3-wire ②
V = Service entrance, 4-wire

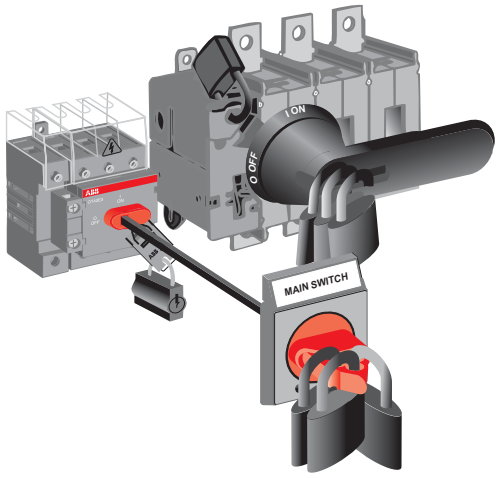
Series

Handle type
the appropiate handle is provided for each enclosure in accordance with the application.
B_ = black
Y_ = Red/Yel

Poles or conversion mechanisms
3P = 3 poles
6P = 6 poles
3T = 3 pole transfer
3B = 3 pole by-pass

OSHA

Suitable for use as OSHA Lockout/tagout disconnect when applied in accordance with part IV, Department of Labor Occupational Safety and Health Administrations, 29 CFR Part 1910, Control of Hazardous Energy Source (Lockout/Tagout): Final Rule.



Handle and mechanism padlocked OFF

Padlockable

Handles can be padlocked in the “OFF” position with up to three padlocks: Additionally, the switch mechanism can be directly padlocked in the “OFF” position when the door is open. NOTE: Some handles can be ordered with the ability to padlock in both the “ON” & “OFF” positions, please consult your ABB sales office. When the handle is padlocked, the enclosure cannot be opened.

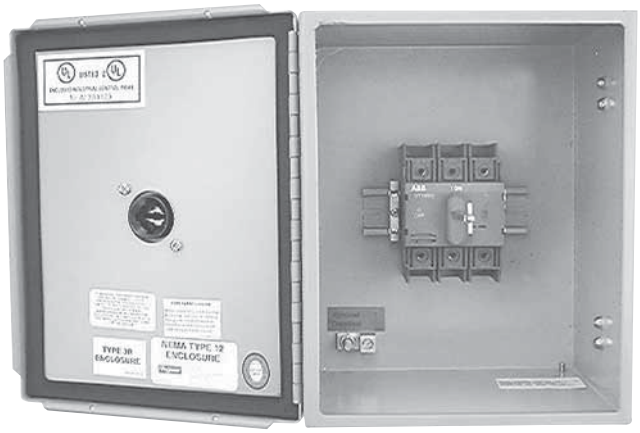
① All enclosed switches are provided with a ground lug. See page 3.9.
② Only for UL 98 switches
③ Consult factory for other types of enclosures.

Non-Fusible

UL Listed to UL 508 and UL 98.
CSA aproved
IEC rated
CE marked

Snap on accessories include additional poles, auxiliary contacts, etc.

Enclosures available in NEMA 1, 3R, 12 & 4 environmental categories ①



Modern appearance

Quick make, quick brake mechanism

Heavy duty disconnect, 600VAC

Extremely compact size

Finger-proof construction. No hazardous exposed parts

3/6 pole constructions; transfer switches and by-pass switches available

Fusible

UL Listed to UL 98 standards.
CSA aproved
IEC rated
CE marked

Snap on accessories include fuse monitors, auxiliary contacts, etc.

Enclosures available in NEMA 1, 3R, 12 & 4 environmental categories ①

Fuse carriers available for US standards, BS, DIN, NFC standard and for various high speed fuse patterns

Modern appearance

Quick make, quick brake mechanism

Heavy duty disconnect, 600VAC, 200kA, I_{sc}

Extreme compact size as fuse carriers are decked above contacts

Double contacts enabling feed from any direction and preventing back feed

Finger-proof construction. No hazardous exposed parts

3/6 pole constructions; transfer switches and by-pass switches available

Lockable

Clear position indications:
- I-ON
- O-OFF

Door interlocked when handle padlocked to OFF position

Handle padlockable with up to three padlocks

Door interlocked when handle is in ON position. Door interlock can be defeated by authorized personnel.

Pilot devices can be added

① All enclosed switches are provided with a ground lug. See page 5.8.

3 pole
16A – 200A

NF321-3PBJA

NF32P-3PY6A

3 Pole, 600V, 16A – 80A
Selector handle

	UL general purpose amp rating	NEMA Enclosure type 1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
UL 508	16	NF161-3PBJC	**$ 185**	NF163-3PBJC	**$ 259**			NF162-3PBJC	**$ 259**
	25	NF251-3PBJC	**190**	NF253-3PBJC	**264**	Not		NF252-3PBJC	**264**
	40	NF321-3PBJC	**205**	NF323-3PBJC	**279**	available with		NF322-3PBJC	**279**
	60	NF451-3PBJB	**245**	NF453-3PBJB	**320**	selector handle		NF452-3PBJB	**320**
	80	NF631-3PBJA	**280**	NF633-3PBJA	**354**			NF632-3PBJA	**354**

3 Pole, 600V, 16A – 200A
Pistol handle

	UL general purpose amp rating	NEMA Enclosure type 1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
UL 508	16	NF161-3PB6C	**$ 235**	NF163-3PB6C	**$ 309**	NF164-3PB6A	**$ 475**	NF162-3PB6C	**$ 309**
	25	NF251-3PB6C	**240**	NF253-3PB6C	**314**	NF254-3PB6A	**480**	NF252-3PB6C	**314**
	40	NF321-3PB6C	**255**	NF323-3PB6C	**329**	NF324-3PB6A	**495**	NF322-3PB6C	**329**
	60	NF451-3PB6B	**295**	NF453-3PB6B	**370**	NF454-3PB6B	**525**	NF452-3PB6B	**370**
	80	NF631-3PB6A	**330**	NF633-3PB6A	**404**	NF634-3PB6A	**550**	NF632-3PB6A	**400**
UL 98	30	NF301-3PB6B	**510**	NF303-3PB6B	**780**	NF304-3PB6B	**1090**	NF302-3PB6B	**780**
	60	NF601-3PB6B	**560**	NF603-3PB6B	**830**	NF604-3PB6B	**1140**	NF602-3PB6B	**830**
	100	NF1001-3PB6B	**610**	NF1003-3PB6B	**880**	NF1004-3PB6B	**1190**	NF1002-3PB6B	**880**
	125	NF1251-3PB6A	**1100**	NF1253-3PB6A	**1400**	NF1254-3PB8A	**2800**	NF1252-3PB6A	**1400**
	200	NF2001-3PB8A	**1300**	NF2003-3PB8A	**1650**	NF2004-3PB8A	**3520**	NF2002-3PB8A	**1600**

NOTE: All enclosed switches are provided with a black handle; however, most handles can be substituted with a red and yellow handle if desired. Please substitute the handle suffix code (2nd and 3rd from last characters) with the red/yellow handle catalog number suffix from page 3.2. There is no additional price adder for changing to a red/yellow handle of equal ratings and style.

EXAMPLE: A red/yellow selector handle for an NF161-3PBJA can be substituted for the black selector handle by using the "YJ" suffix instead of the "BJ" suffix, new catalog #NF161-3PYJA.

6 pole
16A – 200A

6 Pole, 600V, 16A – 200A

		NEMA Enclosure type							
		1		3R		4		12	
	UL general purpose amp rating	Catalog number	List price	Catalog number	List price	Catalog number	List price	Catalog number	List price
UL508	16	NF161-6PB6A	**$ 580**	NF163-6PB6A	**$ 728**	NF164-6PB6A	**$ 1080**	NF162-6PB6A	**$ 728**
	25	NF251-6PB6A	**590**	NF253-6PB6A	**738**	NF254-6PB6A	**1090**	NF252-6PB6A	**738**
	40	NF321-6PB6A	**610**	NF323-6PB6A	**758**	NF324-6PB6A	**1110**	NF322-6PB6A	**758**
	60	NF451-6PB6B	**690**	NF453-6PB6B	**838**	NF454-6PB6B	**1140**	NF452-6PB6B	**838**
	80	NF631-6PB6A	**770**	NF633-6PB6A	**918**	NF634-6PB6A	**1185**	NF632-6PB6A	**918**
UL98	30	NF301-6PB6B	**1230**	NF303-6PB6B	**1770**	NF304-6PB6B	**2110**	NF302-6PB6B	**1670**
	60	NF601-6PB6B	**1280**	NF603-6PB6B	**1820**	NF604-6PB6B	**2160**	NF602-6PB6B	**1720**
	100	NF1001-6PB6B	**1330**	NF1003-6PB6B	**1870**	NF1004-6PB6B	**2210**	NF1002-6PB6B	**1770**
	125	NF1251-6PB2A	**2200**	NF1253-6PB2A	**2800**	NF1254-6PB4A	**5600**	NF1252-6PB4A	**2800**
	200	NF2001-6PB4A	**2950**	NF2003-6PB4A	**3650**	NF2004-6PB4A	**7320**	NF2002-6PB4A	**3550**

① ⋔ = Three poles

3 pole transfer switches
16A – 200A

3 Pole, 600V, 16A – 200A

		NEMA Enclosure type							
		1		3R		4		12	
	UL general purpose amp rating	Catalog number	List price	Catalog number	List price	Catalog number	List price	Catalog number	List price
UL508	16	NF161-3TB8A	**$ 760**	NF163-3TB8A	**$ 908**	NF164-3TB8A	**$ 1200**	NF162-3TB8A	**$ 908**
	25	NF251-3TB8A	**770**	NF253-3TB8A	**918**	NF254-3TB8A	**1230**	NF252-3TB8A	**918**
	40	NF321-3TB8A	**790**	NF323-3TB8A	**954**	NF324-3TB8A	**1260**	NF322-3TB8A	**938**
	60	NF451-3TB8B	**870**	NF453-3TB8B	**1018**	NF454-3TB8B	**1340**	NF452-3TB8B	**1018**
	80	NF631-3TB8A	**950**	NF633-3TB8A	**1098**	NF634-3TB8A	**1420**	NF632-3TB8A	**1098**
UL98	30	NF301-3TB8B	**1410**	NF303-3TB8B	**1830**	NF304-3TB8B	**2400**	NF302-3TB8B	**1730**
	60	NF601-3TB8B	**1460**	NF603-3TB8B	**1880**	NF604-3TB8B	**2450**	NF602-3TB8B	**1830**
	100	NF1001-3TB8B	**1510**	NF1003-3TB8B	**1930**	NF1004-3TB8B	**2500**	NF1002-3TB8B	**1930**
	125	NF1251-3TB8A	**2380**	NF1253-3TB8A	**2980**	NF1254-3TB8A	**3500**	NF1252-3TB8A	**2980**
	200	NF2001-3TB4A	**3150**	NF2003-3TB4A	**3850**	NF2004-3TB4A	**7480**	NF2002-3TB4A	**3750**

① ⋕ = Three poles

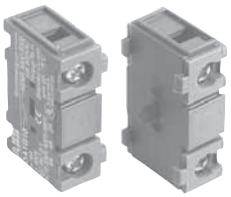
Discount Schedule H1E: NF, 16A – 100A
Discount Schedule H2E: NF, 125A – 200A

3 pole bypass switches
16A – 200A

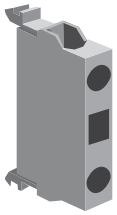
3 Pole, 600V, 16A – 200A

		NEMA Enclosure type							
		1		3R		4		12	
	UL general purpose amp rating	Catalog number	List price	Catalog number	List price	Catalog number	List price	Catalog number	List price
UL508	16	NF161-3BB8A	**$ 1045**	NF163-3BB8A	**$ 1267**	NF164-3BB8A	**$ 1480**	NF162-3BB8A	**$ 1267**
	25	NF251-3BB8A	**1060**	NF253-3BB8A	**1282**	NF254-3BB8A	**1540**	NF252-3BB8A	**1282**
	40	NF321-3BB8A	**1090**	NF323-3BB8A	**1297**	NF324-3BB8A	**1600**	NF322-3BB8A	**1297**
	60	NF451-3BB8B	**1215**	NF453-3BB8B	**1312**	NF454-3BB8B	**1750**	NF452-3BB8B	**1312**
	80	NF631-3BB8A	**1340**	NF633-3BB8A	**1432**	NF634-3BB8A	**1850**	NF632-3BB8A	**1432**
UL98	30	NF301-3BB8B	**1970**	NF303-3BB8B	**2300**	NF304-3BB8B	**2800**	NF302-3BB8B	**2300**
	60	NF601-3BB8B	**2070**	NF603-3BB8B	**2400**	NF604-3BB8B	**2900**	NF602-3BB8B	**2400**
	100	NF1001-3BB8B	**2170**	NF1003-3BB8B	**2500**	NF1004-3BB8B	**3000**	NF1002-3BB8B	**2500**
	125	—	—	—	—	—	—	—	—
	200	NF2001-3BB4A	**4520**	NF2003-3BB4A	**5570**	NF2004-3BB4A	**11,050**	NF2002-3BB4A	**5420**

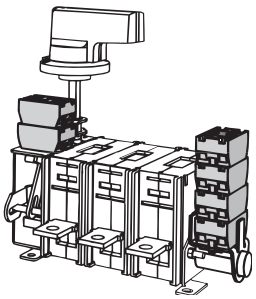
Accessories ①



OA1G_



OBEA_



OZXK_

3 Position selector switch

Pilot light

Auxiliary contacts

For use on:	Contact configuration	Catalog number	Installation suffix	Installed list price adder
16A – 100A	1 N.O. 1 N.C. 1 N.O. & 1 N.C.	OA1G10 OA1G01 OA2G11	add “10” suffix add “01” suffix add "11" suffix	**$ 30** **30** **60**
125A	1 N.O. 1 N.C.	OBEA10 OBEA01	add “10” suffix add “01” suffix	**50** **50**
200A	1 N.O. & 1 N.C. 2 N.O. & 2 N.C.	OZXK-12 OZXK-13	add “11” suffix add “22” suffix	**102** **160**

Accessories ①

For use on:	Description		Installation suffix	Installed list price adder
OT16, 25,32 OT45, 63 OT30, 60, 100 OT160 200A	Neutral or isolated ground block Neutral or isolated ground block Neutral or isolated ground block Neutral or isolated ground block Neutral block		N or G N or G N or G N or G N	**$ 30** **54** **75** **150** **210**
30A – 200A 30A – 200A	Service entrance, 3 wire Service entrance, 4 wire		U V	**100** **200**
16A – 200A	Start/stop pushbuttons 2 position selector switch 3 position selector switch Pilot light “red/run” Ammeter 1 phase ② Voltmeter		A C D E AM VM	**68** **68** **78** **110** **940** **2300**

Ground lugs

All enclosed switches are provided with a standard integral ground lug.

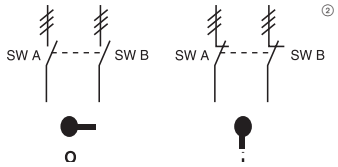
Switch size	Ground lug Wire size
16A – 100A	(2) #14
200A	#6 – 250 mcm

① Please consult factory for special customer requirements.
② Current transformer included.

Conversion mechanisms

6 or 8 pole

6 (8) pole mechanism allows two switches controlled by one handle to open or close simultaneously.

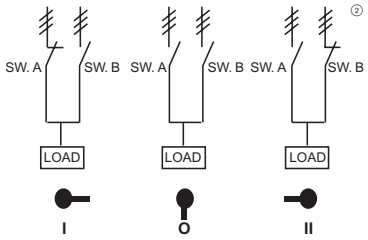


	POS. O	POS.I
SW. A	O	X
SW. B	O	X

X = Closed
O = Open

Transfer①

Transfer mechanism manually transfers between two power sources using two switches and a center "OFF" position.

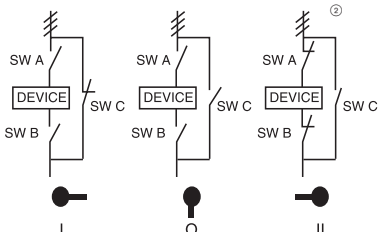


	POS. I	POS.O	POS.II
SW. A	X	O	O
SW. B	O	O	X

X = Closed
O = Open

Bypass①

Bypass mechanism operates three switches: Two switches in series and one changeover switch to allow power bypass.

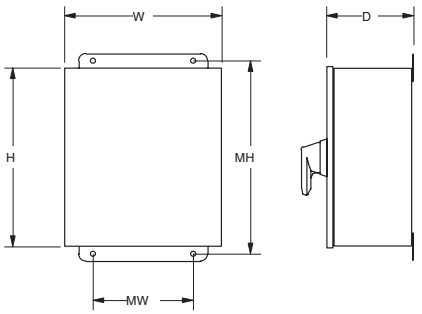


	POS. I	POS.O	POS.II
SW. A	O	O	X
SW. B	O	O	X
SW. C	X	O	O

X = Closed
O = Open

① Transfer and bypass enclosed switches include the load side bussed or cabled together, and all switches come standard with ground lugs.
② ⫽ = Three poles

Approximate dimensions ①
16A – 200A Non-fused



3-pole switch

Switch size	Enclosure type	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
NF16_ NF25_ NF32_	1	7	5	3	4.0	4.0	4
	3R, 4, 12				7.75	3.0	
NF45_ NF63_ NF30_ NF60_	1	8	6	4	7.0	5.0	6
	3R, 4, 12				8.75	4.0	
NF100	1	10	8	6	7.0	7.0	9
	3R, 4, 12				10.75	6.0	
NF125	1	14	12	8	11.0	9.0	20
	3R, 4, 12				14.75	10.0	
NF200	1, 3R, 4, 12	24	16	8	25.5	14.5	50

3-pole transfer switch

Switch size	Enclosure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
NF16 NF25 NF32	1	A	10	8	5	7.0	7.0	6
	3R					10.75	6.0	
	4							
	12							
NF45 NF63	1	A	14	12	8	14.75	10	20
	3R							
	4							
	12							23
NF30 NF60 NF100	1	A	16	16	6	14.5	14.5	19
	3R		14	12	8	12	10.25	17
	4		16			14.5	10.5	16
	12		14			14.75	10	23
NF125	1	A	14	12	8	11	9	20
	3R					14.75	10	
	4							
	12							
NF200	1	A	24	24	8	22.5	22.5	60
	3R							
	4							
	12							

6-pole switch

Switch size	Enclosure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
NF16 NF25 NF32	1	A	10	8	5	7.0	7.0	6
	3R					10.75	6.0	
	4							
	12							
NF45 NF63	1	A	10	8	5	7	7	6
	3R					10.75	6	
	4							
	12							
NF30 NF60 NF100	1	A	10	8	5	7	7	9
	3R					10.75	6	
	4							
	12							
NF125	1	A	14	12	8	11	9	20
	3R					14.75	10	
	4							
	12							
NF200	1	A	24	24	8	22.5	22.5	60
	3R							
	4							
	12							

3-pole by-pass switch

Switch size	Enclosure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
NF16 NF25 NF32	1	A	14	12	8	14.8	10.0	20
	3R							
	4							
	12							
NF45 NF63	1	A	14	12	8	14.8	10	20
	3R							
	4							
	12							
NF30 NF60 NF100	1	A	14	12	8	14.8	10	20
	3R							
	4							
	12							
NF200	1	A	36	30	8	34.5	28.5	77
	3R							
	4							
	12							

① Dimensions subject to change; please consult factory for construction dimensions.

3 Pole fusible
30A – 200A

FJ30X-3P02A

3 Pole[1], 600V, 30A – 200A

UL general purpose amp rating	Fuse type	NEMA Enclosure type 1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
30	J	FJ301-3PB6B	**$ 560**	FJ303-3PB6B	**$ 600**	FJ304-3PB6B	**$ 1100**	FJ302-3PB6B	**$ 600**
30	CC	FC301-3PB6B		FC303-3PB6B		FC304-3PB6B		FC302-3PB6B	
60	J	FJ601-3PB6B	**660**	FJ603-3PB6B	**860**	FJ604-3PB8B	**1300**	FJ602-3PB6B	**860**
100	J	FJ1001-3PB8B	**960**	FJ1003-3PB8B	**1140**	FJ1004-3PB8B	**2800**	FJ1002-3PB8B	**1140**
200	J	FJ2001-3PB4B	**2200**	FJ2003-3PB4B	**2400**	FJ2004-3PB4B	**3900**	FJ2002-3PB4B	**2400**

UL 98

NOTE: All enclosed switches are provided with a black handle; however, most handles can be substituted with a red / yellow handle if desired. Please substitute the handle suffix code (2nd and 3rd from last characters) with the red/yellow handle catalog number suffix from page 3.2. There is no additional price adder for changing to a red/yellow handle of equal ratings and style.

EXAMPLE: A red/yellow pistol handle for an FJ301-3PB6B can be substituted for the black pistol handle by using the "Y6" suffix instead of the "B6" suffix, new catalog number: FJ301-3PY6B.

[1] Fusible switches are UL listed to the UL98 standard.

6 Pole fusible switches
30 – 200A

6 Pole, 600V, 30A – 200A

NEMA Enclosure type

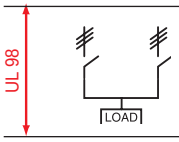
UL general purpose amp rating	Fuse type	1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
UL 98  30	J	FJ301-6PB6B	**$ 1300**	FJ303-6PB6B	**$ 1400**	FJ304-6PB6B	**$ 2150**	FJ302-6PB6B	**$ 1480**
30	CC	FC301-6PB6B		FC303-6PB6B		FC304-6PB6B		FC302-6PB6B	
60	J	FJ601-6PB4B	**1450**	FJ603-6PB4B	**1600**	FJ604-6PB4B	**2450**	FJ602-6PB4B	**1850**
100	J	FJ1001-6PB4B	**2000**	FJ1003-6PB4B	**2200**	FJ1004-6PB4B	**3375**	FJ1002-6PB4B	**2350**
200	J	FJ2001-6P8B	**4450**	FJ2003-6P8B	**4850**	FJ2004-6P8B	**7600**	FJ2002-6P8B	**4850**

Transfer and bypass fusible switches
30 – 200A

3 Pole Transfer switch, 600V, 30A – 200A

NEMA Enclosure type

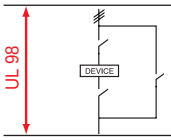
UL general purpose amp rating	Fuse type	1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
30	J	FJ301-3TB6B	**$ 1420**	FJ303-3TB6B	**$ 1560**	FJ304-3TB6B	**$ 2400**	FJ302-3TB6B	**$ 1650**
30	CC	FC301-3TB6B		FC303-3TB6B		FC304-3TB6B		FC302-3TB6B	
60	J	FJ601-3TB8B	**1620**	FJ603-3TB8B	**1780**	FJ604-3TB8B	**2750**	FJ602-3TB8B	**2020**
100	J	FJ1001-3TB8B	**2220**	FJ1003-3TB8B	**2440**	FJ1004-3TB8B	**3750**	FJ1002-3TB8B	**2580**
200	J	FJ2001-3TB4B	**4960**	FJ2003-3TB4B	**5360**	FJ2004-3TB4B	**8450**	FJ2002-3TB4B	**5360**



3 Pole Bypass switch, 600V, 30A & 200A

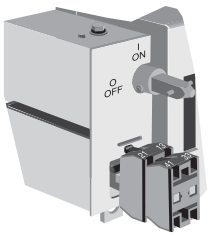
NEMA Enclosure type

UL general purpose amp rating	Fuse type	1 Catalog number	1 List price	3R Catalog number	3R List price	4 Catalog number	4 List price	12 Catalog number	12 List price
30	J	FJ301-3BB8B	**$ 1850**	FJ303-3BB8B	**$ 2050**	FJ304-3BB8B	**$ 3150**	FJ302-3BB6B	**$ 2150**
30	CC	FC301-3BB8B		FC303-3BB8B		FC304-3BB8B		FC302-3BB6B	
60	J	—	**—**	—	**—**	—	**—**	—	**—**
100	J	—	**—**	—	**—**	—	**—**	—	**—**
200	J	FJ2001-3B6B	**9000**	FJ2003-3B6B	**9800**	FJ2004-3B6B	**16,000**	FJ2002-3B6B	**9800**



Accessories ①

OA4B1C



OZXK-1
OZXK-2

3 Position selection switch

Pilot light

Auxiliary contacts

For use on:	Contact configuration	Catalog number	Installation suffix	Installed list price adder
30A	1 N.O. + 1 N. C. 2 N.O. + 2 N.C.	OA4B1C	add “11” suffix add “22” suffix	**$ 70** **110**
60A – 100A	1 N.O. 1 N.C.	OA1G10 OA3G01	add “10” suffix add “01” suffix	**30**
200A	1 N.O. & 1 N.C. 2 N.O. & 2 N.C.	OZXK-1 OZXK-2	add “11” suffix add “22” suffix	**130** **200**

Accessories ①

For use on:	Description	Installation suffix	Installed list price adder
30A 60A – 100A 200A	Neutral block Neutral block Neutral block	N N N	**$ 40** **50** **150**
30A – 200A	Service entrance, 3 wire Service entrance, 4 wire	U V	**75** **125**
30A – 200A	Start/stop pushbuttons 2 position selector switch 3 position selector switch Pilot light "red/run" Ammeter 1 phase ② Voltmeter	A C D E AM VM	**68** **68** **78** **110** **940** **2300**

Ground lugs

All enclosed switches are provided with a standard integral ground lug.

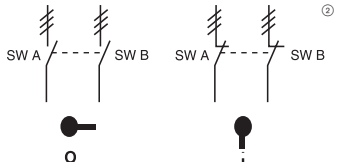
Switch size	Ground lug wire size
30 –100 200	#14 – 1 #6 – 250 MCM

① Please consult factory for special customer requirements.
② Current transformer included.

Conversion mechanisms

6 or 8 pole

6 (8) pole mechanism allows two switches controlled by one handle to open or close simultaneously.

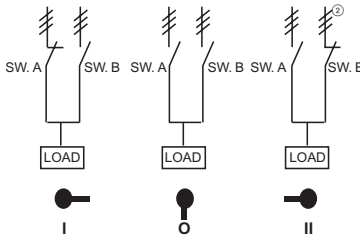


	POS. O	POS.I
SW. A	O	X
SW. B	O	X

X = Closed
O = Open

Transfer①

Transfer mechanism manually transfers between two power sources using two switches and a center "OFF" position.

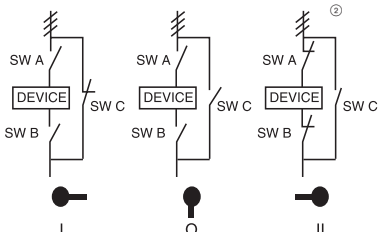


	POS. I	POS.O	POS.II
SW. A	X	O	O
SW. B	O	O	X

X = Closed
O = Open

Bypass①

Bypass mechanism operates three switches: Two switches in series and one changeover switch to allow power bypass.

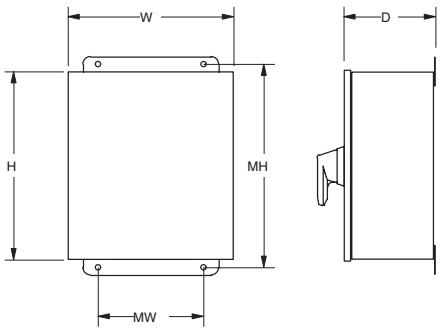


	POS. I	POS.O	POS.II
SW. A	O	O	X
SW. B	O	O	X
SW. C	X	O	O

X = Closed
O = Open

① Transfer and bypass enclosed switches include the load side bussed or cabled together; all switches come standard with ground lugs.
② ⋕ = Three poles.

Approximate dimensions ①
30A – 200A Fused



3-pole switch

Switch size	Enclosure type	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
30A	1	10	8	6	7.0	5	12
	3R				10.75	4	
	4						
	12						
60A	1	10	8	6	7	7	13
	3R				10.75	6	
	4						
	12						
100A	1	14	12	8	14.5	9	22
	3R				12	10	
	4				14.5		
	12				14.75		
200A	1	24	20	10	11	18.5	75
	3R				14.75		
	4						
	12					18.0	

3-pole transfer switch

Switch size	Enclo-sure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
30A	1	A	14	12	8	11.0	9	24
	3R					14.75	10	
	4							
	12							
60A	1	A	20	20	8	21.5	18.5	55
	3R							
	4							
	12							
100A	1	A	20	20	8	21.5	18.5	57
	3R							
	4							
	12							
200A	1	A	36	30	12	37.5	28.5	160
	3R							
	4							
	12							

6-pole switch

Switch size	Enclo-sure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
30A	1	A	14	12	8	11.0	9	24
	3R					14.75	10	
	4							
	12							
60A	1	A	20	20	8	21.5	18.5	55
	3R							
	4							
	12							
100A	1	A	20	20	8	21.5	18.5	57
	3R							
	4							
	12							
200A	1	A	36	30	12	37.5	28.5	160
	3R							
	4							
	12							

3-pole by-pass switch

Switch size	Enclo-sure type	Encl. Dwg.	H Height	W Width	D Depth	MH Mtg. Height	MW Mtg. Height	Weight
30A	1	A	20	20	8	21.5	18.5	60
	3R							
	4							
	12							
60A	1	A	24	24	8	25.5	22.5	73
	3R							
	4							
	12							
100A	1	A	36	30	12	37.5	28.5	135
	3R							
	4							
	12							
200A	1	A	48	36	12	49.5	34.5	240
	3R							
	4							
	12							

① Dimensions subject to change; please consult factory for construction dimensions.

Softstarters
Type PSS

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.

Compact line

PSS03 to PSS25 softstarters are a very compact solution for starting small motors with rated current from 3 to 25A. They are suitable for 230, 400, 500 and 600V and designed for DIN rail mounting.

The built-in bypass contacts allow you to build space-saving, compact designs.

Adjustable parameters include acceleration time and initial voltage for starting and deceleration time for stopping. In addition, these units cover a control voltage range of 24 – 110 VAC/DC and 100V – 277 VAC.

UL File # E161428

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

Line voltage
500: 208V – 500V
690: 575V – 690V

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

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
24: 240V 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 5.8
② Bypass contactor required.
③ See page 5.3 for the PSS03, PSS12 & PSS25 softstarters.

Open
3A – 25A

Type PSS03-480B

Type PSS25-480B

PSS Open type ①②

Operating voltage 50Hz – 60Hz	Maximum HP rating three phase	Maximum current amperes	Catalog number	List price
220 – 240V	0.5	3	PSS03-220B	**$ 270**
	3	12	PSS12-220B	**345**
	7.5	25	PSS25-220B	**405**
380 – 415V	1	3	PSS03-400B	**270**
	5	12	PSS12-400B	**345**
	10	25	PSS25-400B	**405**
440 – 480V	1.5	3	PSS03-480B	**270**
	7.5	12	PSS12-480B	**345**
	15	25	PSS25-480B	**405**
550 – 600V	10	12	PSS12-600B	**375**
	20	25	PSS25-600B	**445**

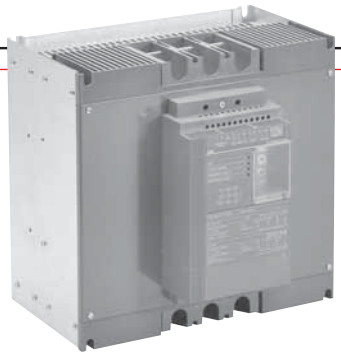
① Overload protection not included; external overload relay must be in power circuit. Use ABB TA series overload.
② See page 5.12 for single phase wiring schematic.

Open


PSS18/30


PSS50/85


PSS85/147


PSS300/515

Connected inline ①②③

Maximum motor current UL	Maximum motor current IEC	Maximum horsepower 208V	240V	380V	480V	600V	Weight (lbs.)		
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 4.13 - 4.15 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 5.8 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								
18	18	5 —	5 —	10 —	10 —	— 15	P18L1-48 —	**$ 1095** —	— P18L1-60	— **$ 1219**	P18L2-48M —	**$ 1395** —	— P18L2-60M	— **$ 1519**
25	—	— —	7.5 —	— —	15 —	— 20	P22L1-48 —	**1155** —	— P22L1-60	— **1295**	P22L2-48M —	**1480** —	— P22L2-60M	— **1620**
28	30	7.5 —	10 —	15 —	20 —	— 25	P30L1-48 —	**1155** —	— P30L1-60	— **1295**	P30L2-48M —	**1480** —	— P30L2-60M	— **1620**
34	37	10 —	10 —	20 —	25 —	— 30	P37L1-48 —	**1325** —	— P37L1-60	— **1475**	P37L2-48M —	**1725** —	— P37L2-60M	— **1875**
40	44	10 —	10 —	25 —	30 —	— 30	P44L1-48 —	**1475** —	— P44L1-60	— **1755**	P44L2-48M —	**1925** —	— P44L2-60M	— **2205**
47	50	15 —	15 —	25 —	30 —	— 40	P50L1-48 —	**1595** —	— P50L1-60	— **1820**	P50L2-48M —	**2045** —	— P50L2-60M	— **2270**
56	60	15 —	20 —	30 —	40 —	— 50	P60L1-48 —	**1860** —	— P60L1-60	— **2135**	P60L2-48M —	**2360** —	— P60L2-60M	— **2635**
67	72	20 —	20 —	40 —	50 —	— 60	P72L1-48 —	**1935** —	— P72L1-60	— **2225**	P72L2-48M —	**2485** —	— P72L2-60M	— **2775**
85	85	25 —	30 —	50 —	60 —	— 75	P85L1-48 —	**2475** —	— P85L1-60	— **2805**	P85L2-48M —	**3250** —	— P85L2-60M	— **3580**
105	105	30 —	40 —	60 —	75 —	— 100	P105L1-48 —	**2600** —	— P105L1-60	— **2940**	P105L2-48M —	**3375** —	— P105L2-60M	— **3715**
125	142	40 —	40 —	75 —	100 —	— 125	P142L1-48 —	**3350** —	— P142L1-60	— **3800**	P142L2-48M —	**4225** —	— P142L2-60M	— **4675**
156	175	50 —	60 —	100 —	125 —	— 150	P175L1-48 —	**3780** —	— P175L1-60	— **4150**	P175L2-48M —	**5180** —	— P175L2-60M	— **5550**
225	250	75 —	75 —	150 —	150 —	— 200	P250L1-48 —	**4300** —	— P250L1-60	— **4750**	P250L2-48M —	**5700** —	— P250L2-60M	— **6140**
248	300	75 —	100 —	150 —	200 —	— 250	P300L1-48 —	**4760** —	— P300L1-60	— **5215**	P300L2-48M —	**6460** —	— P300L2-60M	— **6915**

Connected inside delta

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

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** —	— P18LF1-60A	— **$ 1709**	P18LB1-48E —	**$ 1370** —	— P18LB1-60E	— **$ 1709**
25	—	— —	7.5 —	— —	15 —	— 20	P22LF1-48B —	**1580** —	— P22LF1-60B	— **1835**	P22LB1-48G —	**1580** —	— P22LB1-60G	— **1835**
28	30	7.5 —	10 —	15 —	20 —	— 25	P30LF1-48B —	**1580** —	— P30LF1-60B	— **1835**	P30LB1-48J —	**1580** —	— P30LB1-60J	— **1835**
34	37	10 —	10 —	20 —	25 —	— 30	P37LF1-48B —	**1750** —	— P37LF1-60B	— **2040**	P37LB1-48K —	**1750** —	— P37LB1-60K	— **2040**
40	44	10 —	10 —	25 —	30 —	— 30	P44LF1-48C —	**2075** —	— P44LF1-60B	— **2400**	P44LB1-48L —	**2075** —	— P44LB1-60L	— **2400**
47	50	15 —	15 —	25 —	30 —	— 40	P50LF1-48C —	**2195** —	— P50LF1-60C	— **2565**	P50LB1-48N —	**2195** —	— P50LB1-60N	— **2565**
56	60	15 —	20 —	30 —	40 —	— 50	P60LF1-48C —	**2460** —	— P60LF1-60C	— **2905**	P60LB1-48N —	**2460** —	— P60LB1-60N	— **2905**
67	72	20 —	20 —	40 —	50 —	— 60	P72LF1-48C —	**2535** —	— P72LF1-60C	— **3010**	P72LB1-48R —	**2535** —	— P72LB1-60R	— **3010**
85	85	25 —	30 —	50 —	60 —	— 75	P85LF1-48D —	**3475** —	— P85LF1-60D	— **4060**	P85LB1-48S —	**3475** —	— P85LB1-60S	— **4060**
105	105	30 —	40 —	60 —	75 —	— 100	P105LF1-48D —	**3600** —	— P105LF1-60D	— **4195**	P105LB1-48T —	**3600** —	— P105LB1-60T	— **4195**
125	142	40 —	40 —	75 —	100 —	— 125	P142LF1-48D —	**4550** —	— P142LF1-60D	— **5365**	P142LB1-48V —	**4550** —	— P142LB1-60V	— **5365**
156	175	50 —	60 —	100 —	125 —	— 150	P175LF1-48E —	**5580** —	— P175LF1-60E	— **5950**	P175LB1-48X —	**5580** —	— P175LB1-60X	— **5950**
225	250	75 —	75 —	150 —	150 —	— 200	P250LF1-48E —	**6100** —	— P250LF1-60E	— **7900**	P250LB1-48Y —	**6100** —	— P250LB1-60Y	— **7900**
248	300	75 —	100 —	150 —	200 —	— 250	P300LF1-48E —	**6560** —	— P300LF1-60E	— **8360**	P300LB1-48A —	**6560** —	— P300LB1-60Z	— **8360**

Connected inside delta

30	30	7.5 —	10 —	15 —	20 —	— 25	P18DF1-48B —	**$ 1370** —	— P18DF1-60B	— **$ 1709**	P18DB1-48J —	**$ 1370** —	— P18DB1-60J	— **$ 1709**
37	—	10 —	— —	— —	25 —	— 30	P22DF1-48B —	**1580** —	— P22DF1-60B	— **1835**	P22DB1-48K —	**1580** —	— P22DB1-60K	— **1835**
48	52	15 —	15 —	30 —	30 —	— 40	P30DF1-48C —	**1580** —	— P30DF1-60C	— **1835**	P30DB1-48L —	**1580** —	— P30DB1-60N	— **1835**
58	64	20 —	20 —	30 —	40 —	— 50	P37DF1-48C —	**1750** —	— P37DF1-60C	— **2040**	P37DB1-48N —	**1750** —	— P37DB1-60N	— **2440**
69	76	20 —	25 —	40 —	50 —	— 60	P44DF1-48C —	**2075** —	— P44DF1-60C	— **2400**	P44DB1-48R —	**2075** —	— P44DB1-60R	— **2400**
81	85	25 —	30 —	50 —	60 —	— 75	P50DF1-48D —	**2195** —	— P50DF1-60D	— **2565**	P50DB1-48S —	**2195** —	— P50DB1-60S	— **2565**
96	105	30 —	30 —	60 —	75 —	— 75	P60DF1-48D —	**2460** —	— P60DF1-60D	— **2905**	P60DB1-48T —	**2460** —	— P60DB1-60S	— **2905**
116	124	40 —	40 —	60 —	75 —	— 100	P72DF1-48D —	**2535** —	— P72DF1-60D	— **3010**	P72DB1-48T —	**2535** —	— P72DB1-60T	— **3010**
147	147	50 —	50 —	75 —	100 —	— 150	P85DF1-48D —	**3475** —	— P85DF1-60E	— **4060**	P85DB1-48V —	**3475** —	— P85DB1-60X	— **4060**
181	181	60 —	60 —	100 —	150 —	— 150	P105DF1-48E —	**3600** —	— P105DF1-60E	— **4195**	P105DB1-48Y —	**3600** —	— P105DB1-60X	— **4195**
215	245	75 —	75 —	150 —	150 —	— 200	P142DF1-48E —	**4550** —	— P142DF1-60E	— **5365**	P142DB1-48Y —	**4550** —	— P142DB1-60Y	— **5365**
270	300	75 —	100 —	150 —	200 —	— 250	P175DF1-48E —	**5580** —	— P175DF1-60E	— **5950**	P175DB1-48A —	**5580** —	— P175DB1-60Z	— **5950**
389	430	125 —	150 —	250 —	300 —	— 400	P250DF1-48F —	**6100** —	— P250DF1-60F	— **7900**	P250DB1-48D —	**6100** —	— P250DB1-60D	— **7900**
429	515	150 —	150 —	300 —	350 —	— 400	P300DF1-48F —	**6560** —	— P300DF1-60F	— **8360**	P300DB1-48E —	**6560** —	— 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 5.5.

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 6.7
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 arrestor	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**

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 number	List price
PSS85 – PSS142	K4LCH	**$ 16**
PSS175 – PSS300	K5LCH	**24**

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	

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.

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 for 30 sec			5 x I_e for 5 sec	5 x I_e for 5 sec 500%
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	xI_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.

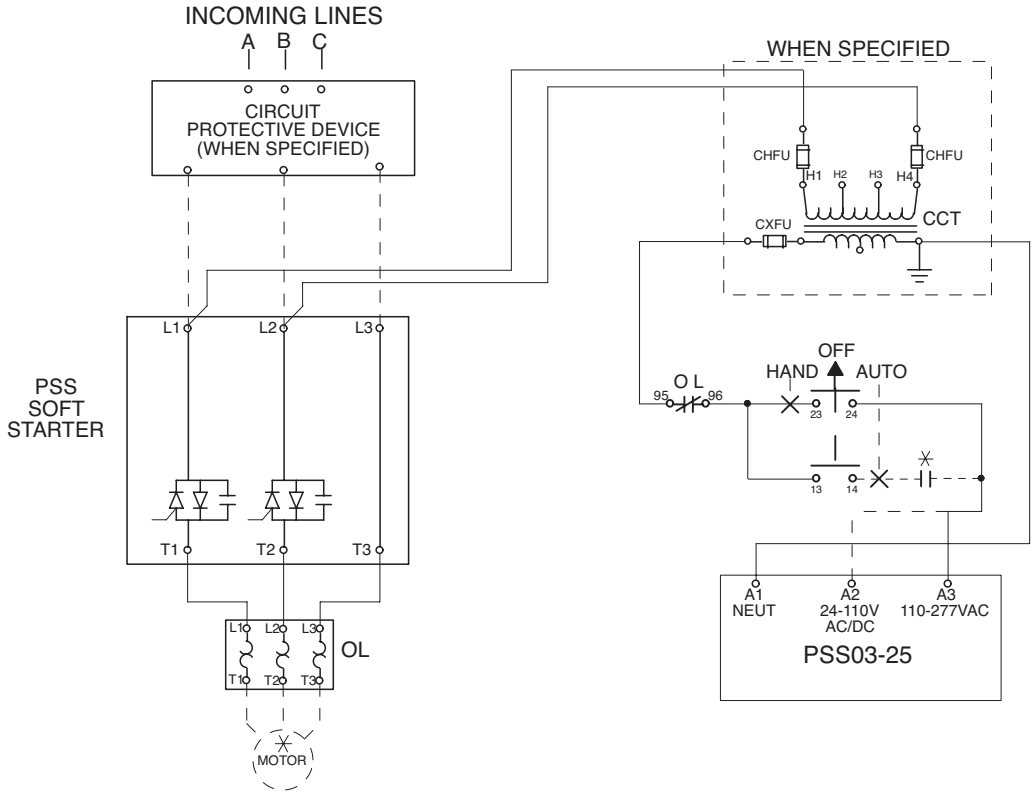
Technical data

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

① See accessories on page 5.8.

Circuit diagrams
PSS03 – PSS25

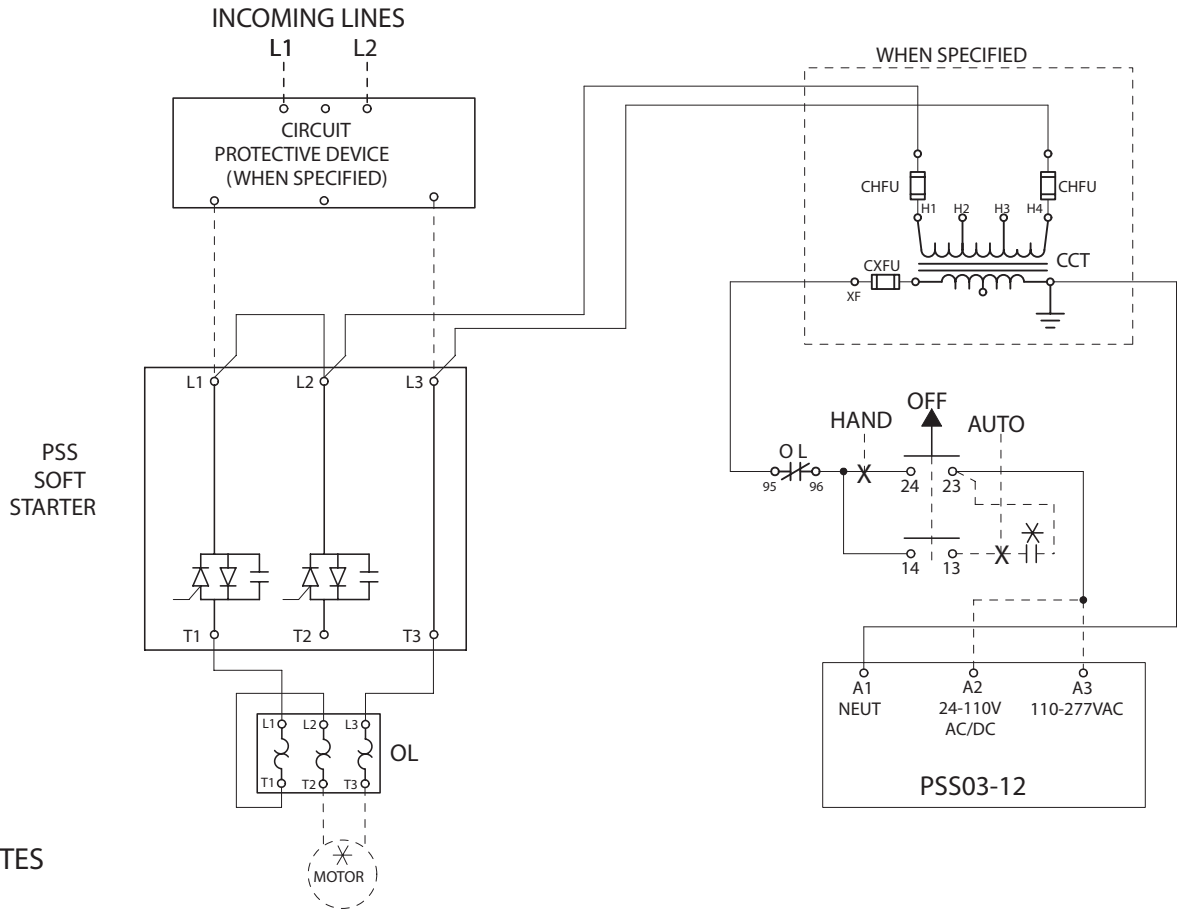


NOTES

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
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
$\circ_{13}$	CONN POINT ON DEVICE WITH NUMBER
⊁	REMOTE DEVICE
⌀	CONN POINT AT TERMINAL BLOCK

Circuit diagrams
Single-Phase ①②
PSS03 – PSS12



NOTES

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   BLUE - ALL DC VOLTAGES

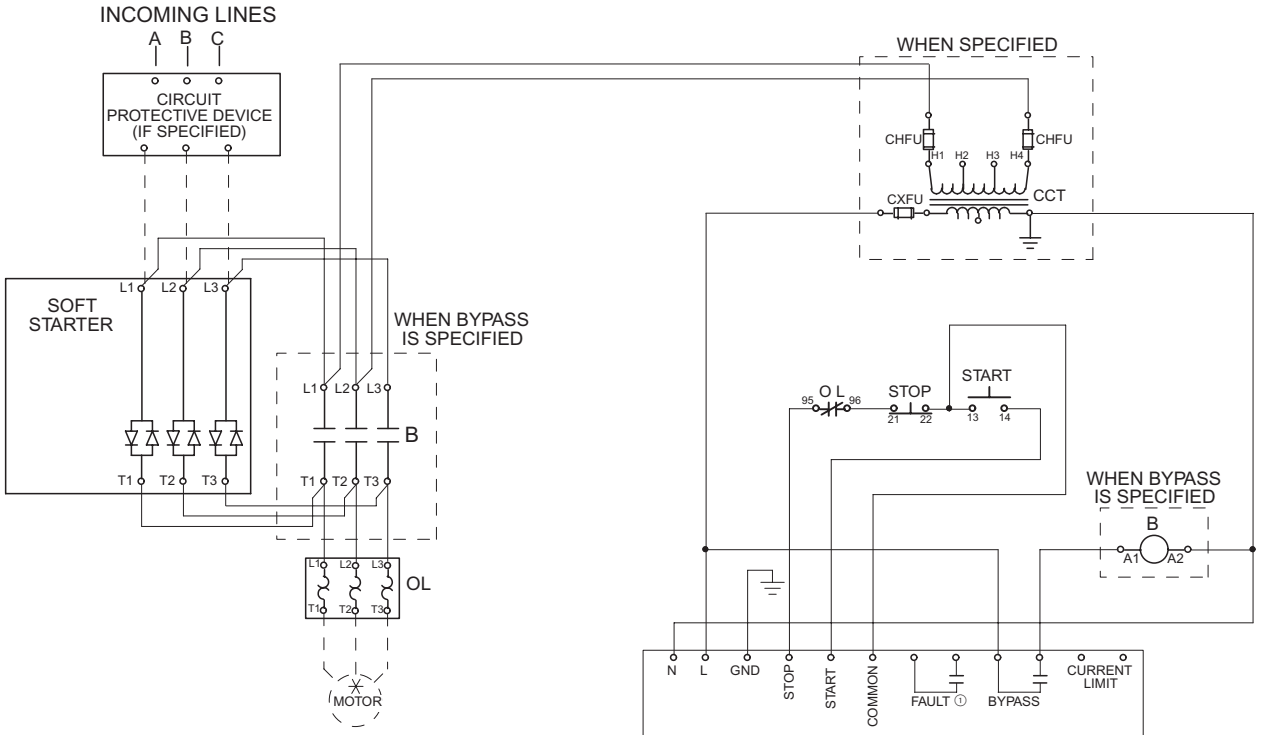
2. ALL DEVICES ARE SHOWN DE-ENERGIZED.

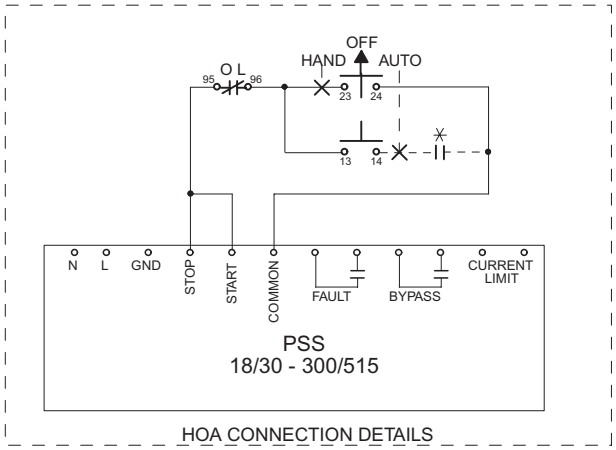
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

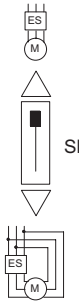
LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
OL	OVERLOAD RELAY
$\circ_{13}$	CONN POINT ON DEVICE WITH NUMBER
⊁	REMOTE DEVICE
∅	CONN POINT AT TERMINAL BLOCK

① Softstarter voltage rating must be the same as the network voltage.
② PSS25 cannot be used for single phase applications.

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







SET DIP SWITCH S1
AS SHOWN

NOTES

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3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

LEGEND	
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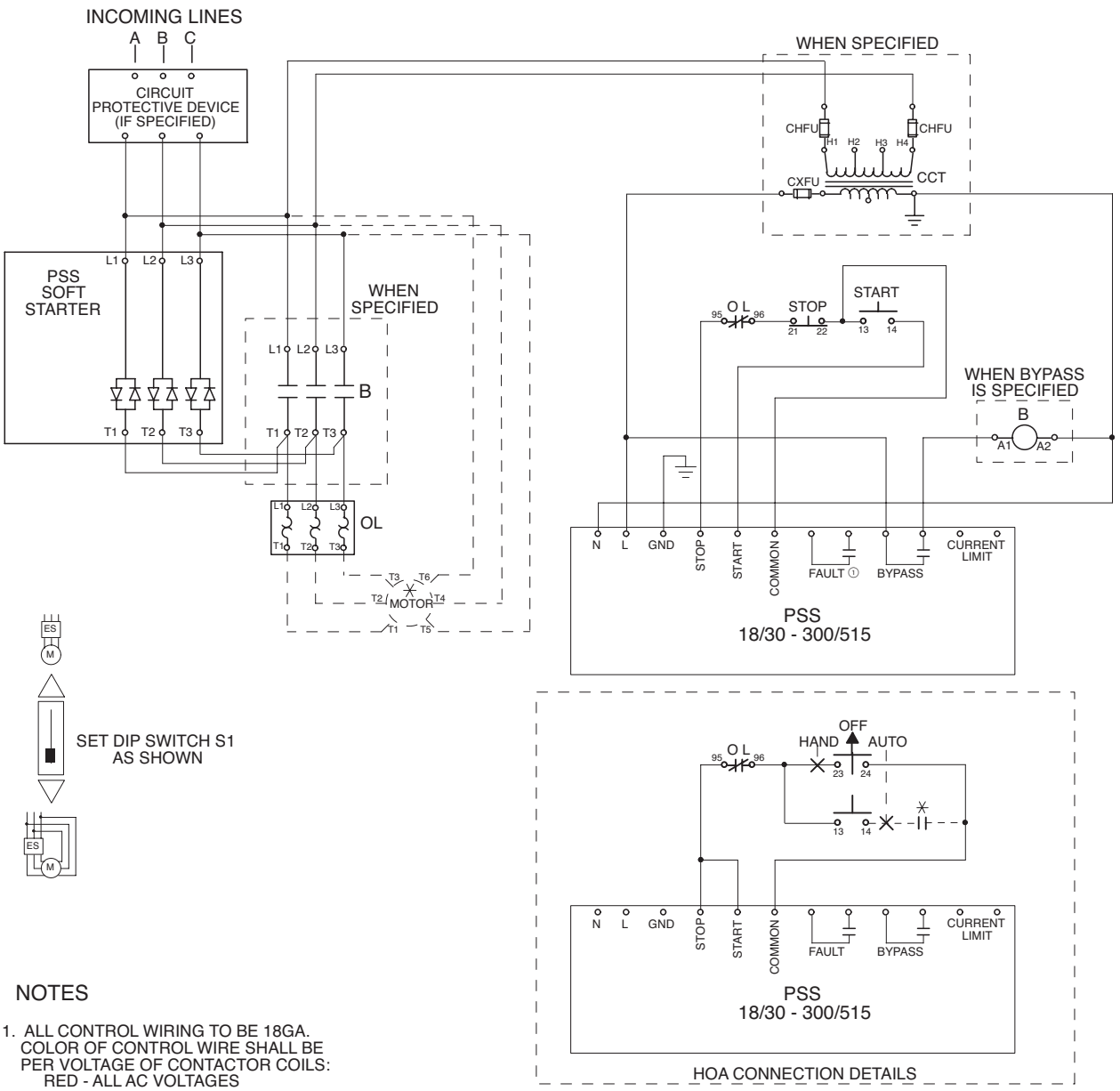
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
°13	CONN POINT ON DEVICE WITH NUMBER
⋇	REMOTE DEVICE
Ø	CONN POINT AT TERMINAL BLOCK

Circuit diagrams
PSS18/30 – PSS300/515, Delta motor configuration



NOTES

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   BLUE - ALL DC VOLTAGES
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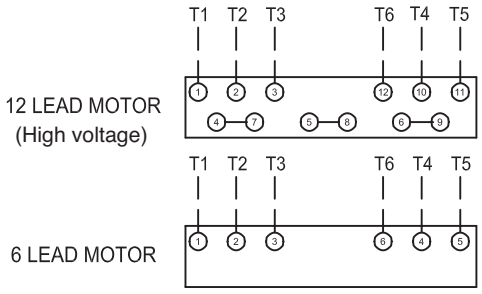
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

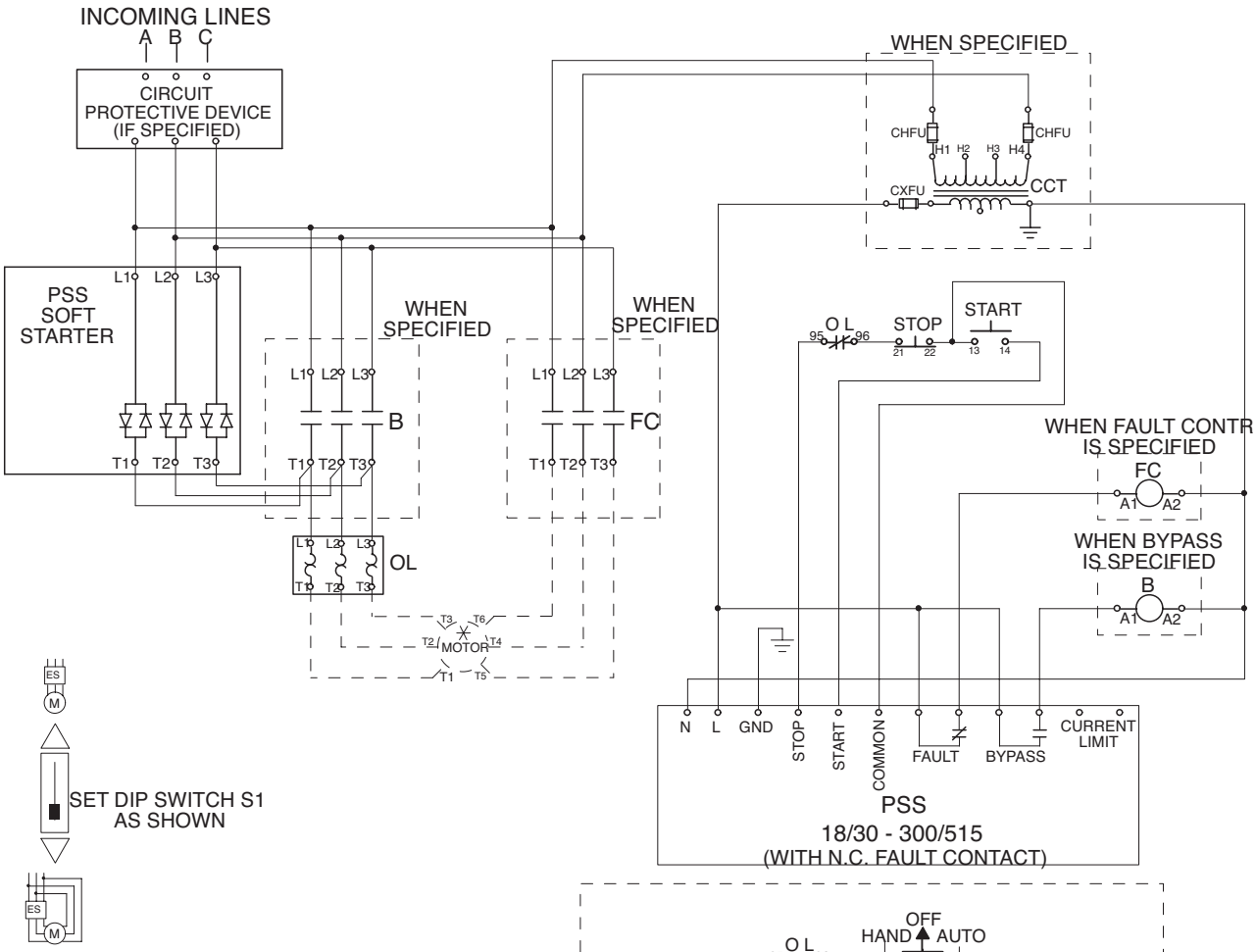
LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
°13	CONN POINT ON DEVICE WITH NUMBER
⚹	REMOTE DEVICE
Ø	CONN POINT AT TERMINAL BLOCK

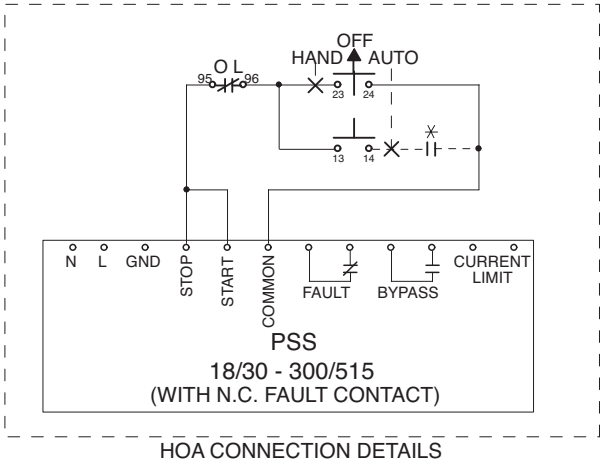
MOTOR MARKINGS ARE AS DEFINED BY NEMA MG1-2.62 FOR 12 LEAD WYE START, DELTA RUN MOTOR CONNECTIONS. ALWAYS CONFIRM CORRECT LEAD MARKINGS WITH NAMEPLATE DIAGRAMS.



Circuit diagrams

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





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LEGEND	
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CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
OL	OVERLOAD RELAY
°13	CONN POINT ON DEVICE WITH NUMBER
⚹	REMOTE DEVICE
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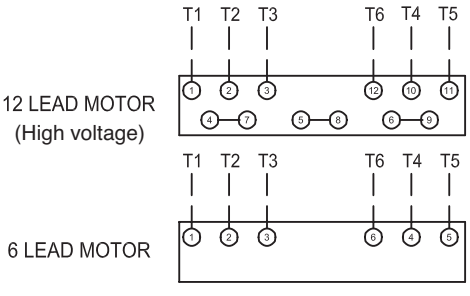
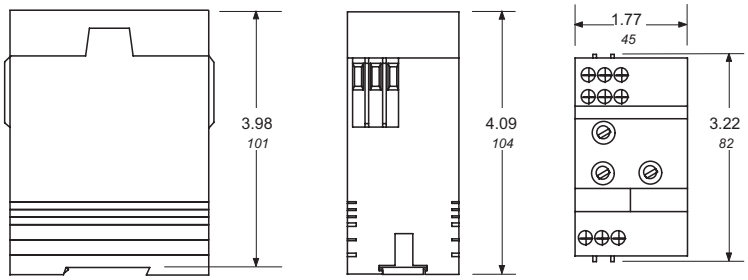


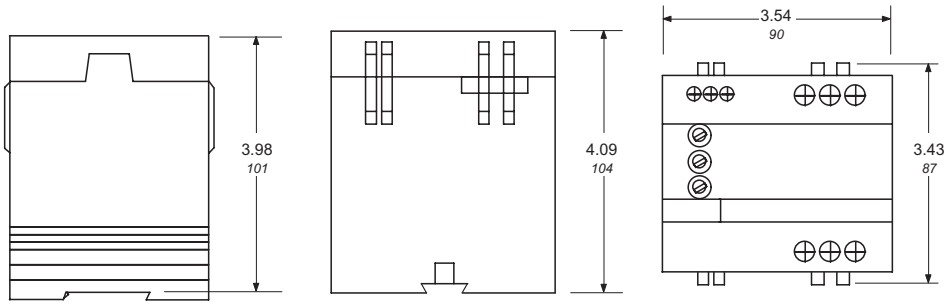
Approximate dimensions
Open, PSS03 – PSS18-72

00.00 / 00.00 Inches [Millimeters]

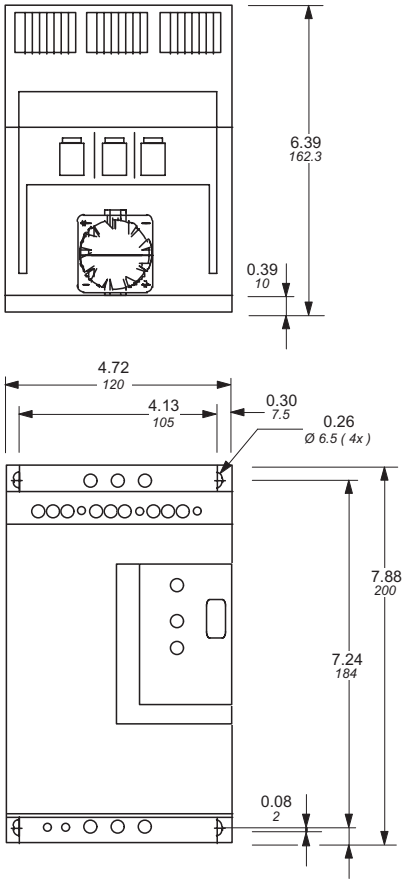
PSS03, PSS12



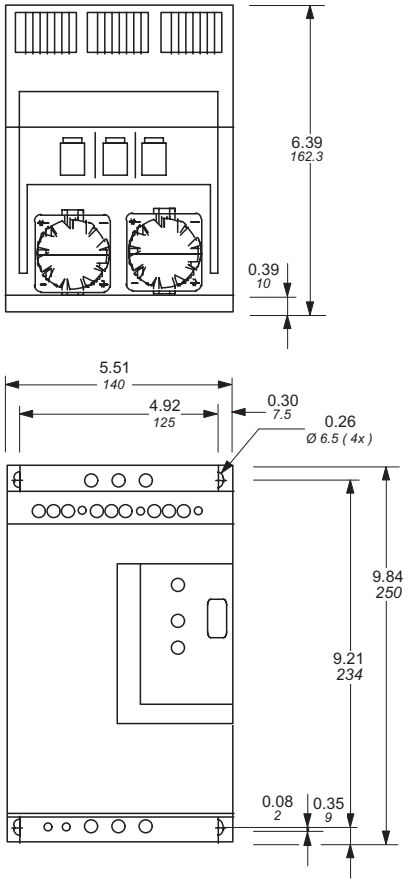
PSS25



PSS18 to PSS44 (208V – 480V)



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

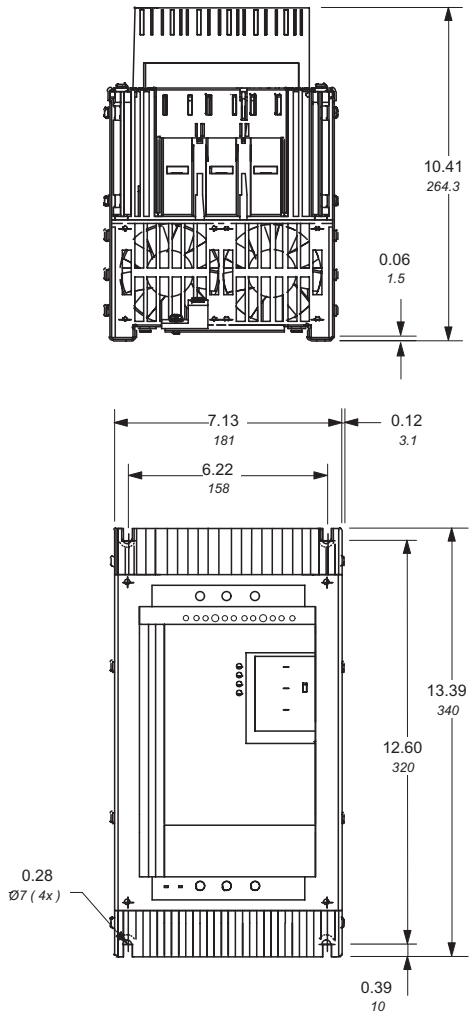


6

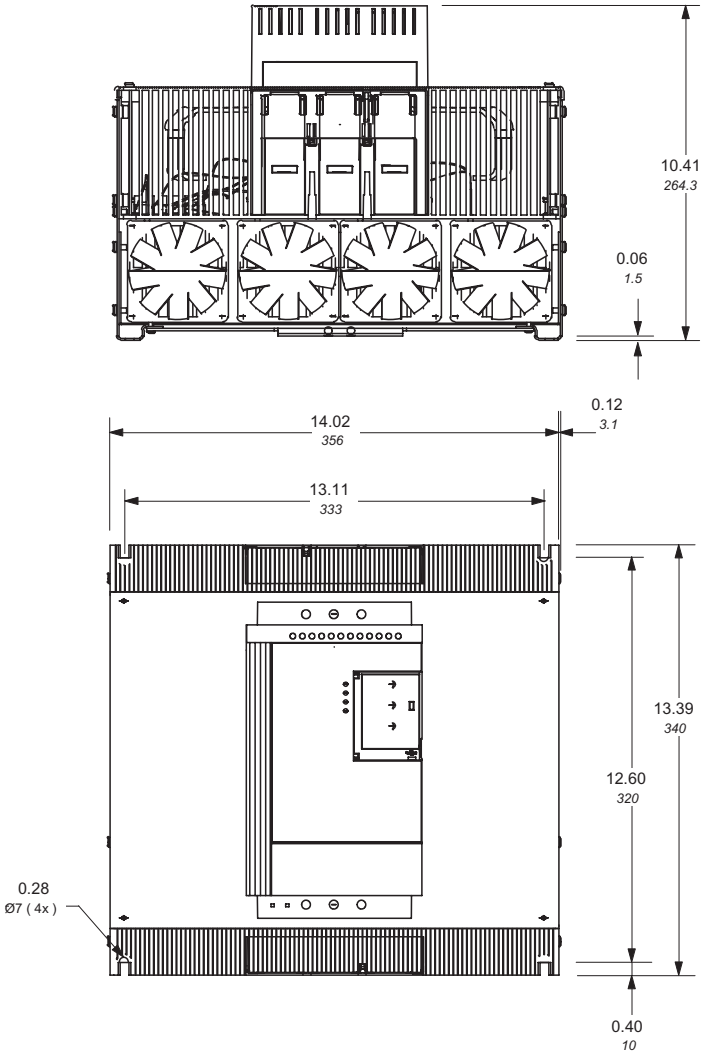
Approximate dimensions
Open, PSS85 – PSS300

00.00
00.00
Inches
[Millimeters]

PSS85 to PSS142 (208V – 690V)

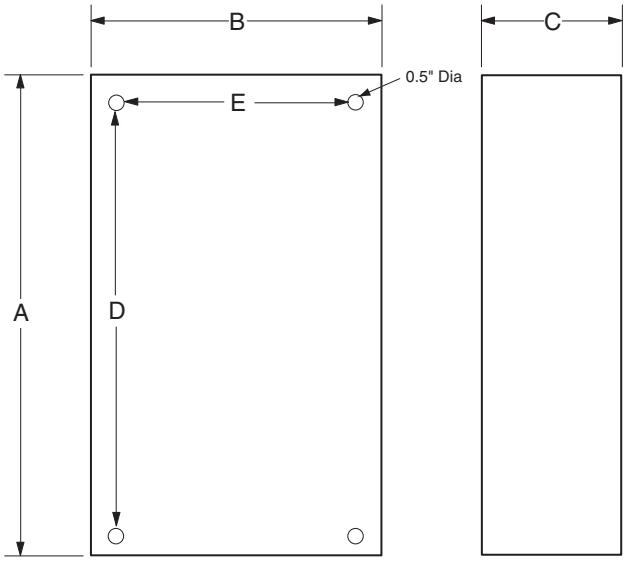


PSS175 to PSS300 (208V – 690V)



6

Approximate dimensions
Enclosed



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

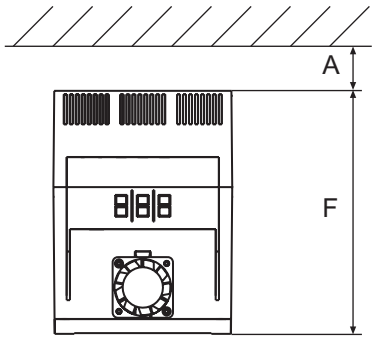
575V – 690V

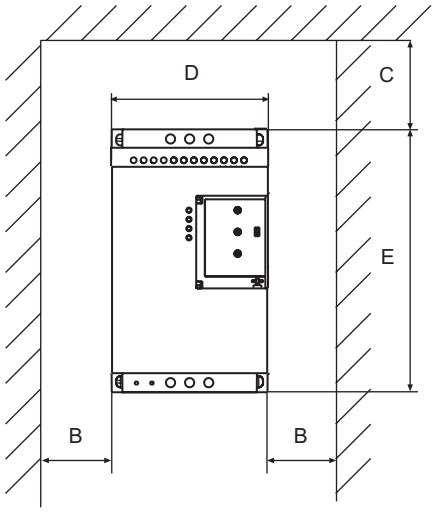
PSS18/30-690 thru PSS72/124-690	Softstarter only	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with bypass	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with fused disconnect ①	20	20	12	18.50	18.50	20	20	12	18.50	18.50
	Softstarter with circuit breaker ①	20	20	12	18.50	18.50	20	20	12	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

6

Notes

Softstarters
Type PST

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

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

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

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

Circuit Breaker Amp Ratings

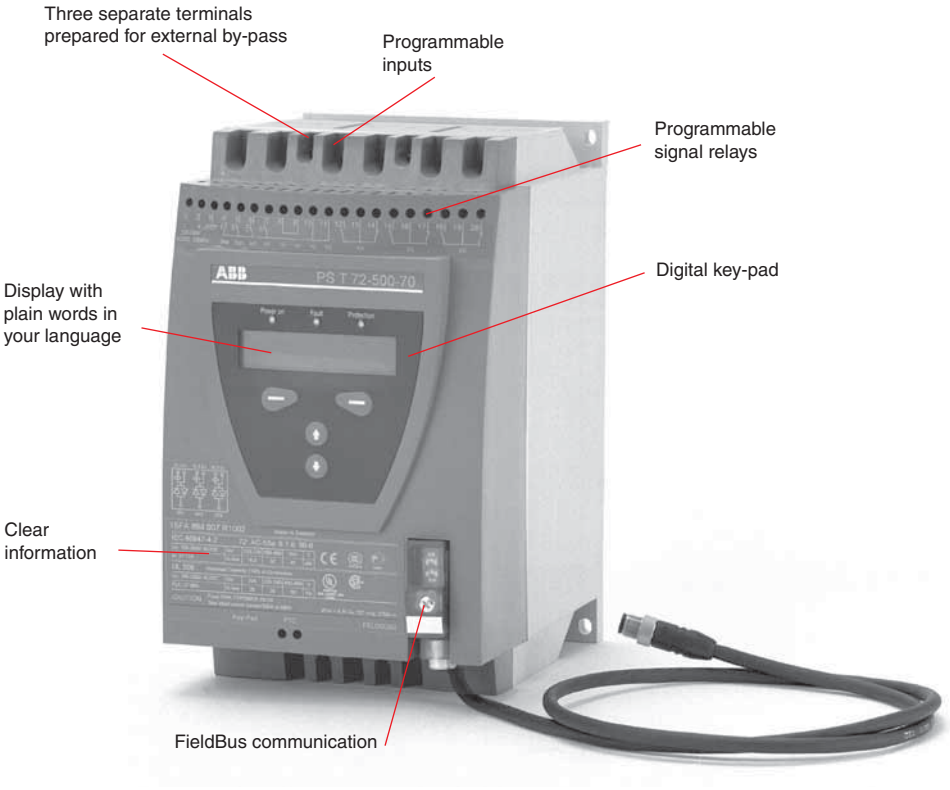
D – 15	M – 70	W – 225	E – 700	N – 3000
E – 20	N – 80	X – 250	F – 800	
F – 25	P – 60	Y – 300	G – 900	
G – 30	R – 100	Z – 350	H – 1000	
H – 35	S – 125	A – 400	J – 1200	
J – 40	T – 150	B – 450	K – 1600	
K – 50	U – 175	C – 500	L – 2000	
L – 60	V – 200	D – 600	M – 2500	

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
24: 240V 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 5.27
② Bypass contactor required when integrated bypass is not included.
③ Consult factory for pricing.

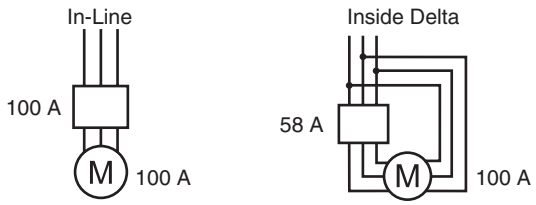


Application

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.



In-Line and Inside Delta connection of PST30 - 1050

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
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.

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 FieldBusPlug 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.

Type PST, Open
In-Line, Inside Delta
7.5 – 1800 HP


PST72-600-70


PST142-600-70


PST175-600-70


PSTB370-600-70


PSTB570-600-70

Connected In-Line

Maximum motor current		Maximum horsepower					Weight	Catalog	List
UL	IEC	208V	240V	380V	480V	600V	(lbs.)	number	price
28	30	7.5	10	15	20	25	9	PST30-600-70	**$ 1330**
34	37	10	10	20	25	30	9	PST37-600-70	**1360**
42	44	10	15	25	30	40	11	PST44-600-70	**1390**
54	50	15	20	30	40	50	11	PST50-600-70	**1730**
68	72	20	25	40	50	60	22	PST72-600-70	**1755**
80	85	25	30	50	60	75	22	PST85-600-70	**2380**
104	105	30	40	60	75	100	27	PST105-600-70	**2410**
130	142	40	50	75	100	125	33	PST142-600-70	**3375**
156	175	50	60	100	125	150	44	PST175-600-70	**3420**
192	210	60	75	125	150	200	49	PST210-600-70	**3870**
248	250	75	100	150	200	250	49	PST250-600-70	**4350**
302	300	100	100	150	250	300	53	PST300-600-70	**4480**
361	370	125	150	200	300	350	84	PSTB370-600-70	**5660**
480	470	150	200	300	400	500	93	PSTB470-600-70	**7000**
590	570	200	250	350	500	600	97	PSTB570-600-70	**8550**
720	720	250	300	450	600	700	119	PSTB720-600-70	**9630**
840	840	300	350	500	700	800	124	PSTB840-600-70	**10,900**
1062	1050	400	450	600	900	1000	137	PSTB1050-600-70	**18,000**

Connected Inside Delta

Maximum motor current		Maximum horsepower					Weight	Catalog	List
UL	IEC	208V	240V	380V	480V	600V	(lbs.)	number	price
42	51	10	15	30	30	40	9	PST30-600-70	**$ 1330**
54	64	15	20	40	40	50	9	PST37-600-70	**1360**
72	76	20	25	50	50	60	11	PST44-600-70	**1390**
80	86	25	30	50	60	75	11	PST50-600-70	**1730**
104	124	30	40	75	75	100	22	PST72-600-70	**1755**
130	148	40	50	75	100	125	22	PST85-600-70	**2380**
156	181	50	60	100	125	150	27	PST105-600-70	**2410**
192	245	60	75	150	150	200	33	PST142-600-70	**3375**
248	303	75	100	200	200	250	44	PST175-600-70	**3420**
302	363	100	100	200	250	300	49	PST210-600-70	**3870**
361	433	125	150	250	300	350	49	PST250-600-70	**4350**
480	519	150	200	300	400	500	53	PST300-600-70	**4480**
590	640	200	250	400	500	600	84	PSTB370-600-70	**5660**
720	814	250	300	500	600	700	93	PSTB470-600-70	**7000**
840	987	300	350	600	700	800	97	PSTB570-600-70	**8550**
1247	1247	400	500	800	1000	1200	119	PSTB720-600-70	**9630**
1454	1454	500	600	900	1200	1500	124	PSTB840-600-70	**10,900**
1839	1818	600	700	1000	1500	1800	137	PSTB1050-600-70	**18,000**

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

Connected In-Line

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
18	18	5 —	5 —	10 —	10 —	— 15	T010L1-48 —	— T015L1-60	**$ 1655**	T010L2-48M —	— T015L2-60M	**$ 1905**
28	30	7.5 —	10 —	15 —	20 —	— 25	T020L1-48 —	— T025L1-60	**1655**	T020L2-48M —	— T025L2-60M	**1930**
34	37	10 —	10 —	20 —	25 —	— 30	T025L1-48 —	— T030L1-60	**1685**	T025L2-48M —	— T030L2-60M	**2085**
42	44	10 —	15 —	25 —	30 —	— 40	T030L1-48 —	— T040L1-60	**1715**	T030L2-48M —	— T040L2-60M	**2165**
54	50	15 —	20 —	30 —	40 —	— 50	T040L1-48 —	— T050L1-60	**2055**	T040L2-48M —	— T050L2-60M	**2555**
68	72	20 —	25 —	40 —	50 —	— 60	T050L1-48 —	— T060L1-60	**2080**	T050L2-48M —	— T060L2-60M	**2630**
80	85	25 —	30 —	50 —	60 —	— 75	T060L1-48 —	— T075L1-60	**2705**	T060L2-48M —	— T075L2-60M	**3355**
104	105	30 —	40 —	60 —	75 —	— 100	T075L1-48 —	— T100L1-60	**2735**	T075L2-48M —	— T100L2-60M	**3460**
130	142	40 —	50 —	75 —	100 —	— 125	T100L1-48 —	— T125L1-60	**3875**	T100L2-48M —	— T125L2-60M	**4775**
156	175	50 —	60 —	100 —	125 —	— 150	T125L1-48 —	— T150L1-60	**3920**	T125L2-48M —	— T150L2-60M	**5170**
192	210	60 —	75 —	125 —	150 —	— 200	T150L1-48 —	— T200L1-60	**4370**	T150L2-48M —	— T200L2-60M	**5770**
248	250	75 —	100 —	150 —	200 —	— 250	T200L1-48 —	— T250L1-60	**4850**	T200L2-48M —	— T250L2-60M	**6550**
302	300	100 —	100 —	150 —	250 —	— 300	T250L1-48 —	— T300L1-60	**5080**	T250L2-48M —	— T300L2-60M	**7830**
361	370	125 —	150 —	200 —	300 —	— 350	T300L1-48M① —	— T350L1-60M①	**6260**	T300L2-48M① —	— T350L2-60M①	**6910**
414	400	— —	— —	250 —	350 —	— 400	T350L1-48M① —	— T400L1-60M①	**7700**	T350L2-48M① —	— T400L2-60M①	**8450**
480	470	150 —	200 —	300 —	400 —	— 500	T400L1-48M① —	— T500L1-60M①	**7700**	T400L2-48M① —	— T500L2-60M①	**8550**
590	570	200 —	250 —	350 —	500 —	— 600	T500L1-48M① —	— T600L1-60M①	**9350**	T500L2-48M① —	— T600L2-60M①	**10,350**
720	720	250 —	300 —	450 —	600 —	— 700	T600L1-48M① —	— T700L1-60M①	**10,830**	T600L2-48M① —	— T700L2-60M①	**11,830**
840	840	300 —	350 —	500 —	700 —	— 800	T700L1-48M① —	— T800L1-60M①	**12,900**	T700L2-48M① —	— T800L2-60M①	**14,000**
960	—	350 —	400 —	— —	800 —	— 900	T800L1-48M① —	— T900L1-60M①	**21,000**	T800L2-48M① —	— T900L2-60M①	**22,300**
1062	1050	400 —	450 —	600 —	900 —	— 1000	T900L1-48M① —	— T1000L1-60M①	**21,000**	T900L2-48M① —	— T1000L2-60M①	**22,300**

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.30.

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

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 —	— 25	T020D1-48 —	— T025D1-60	**$ 1655**	T020D2-48M —	— T025D2-60M	**$ 1905**
34	37	10 —	10 —	20 —	25 —	— 30	T025D1-48 —	— T030D1-60	**1655**	T025D2-48M —	— T030D2-60M	**1905**
42	44	10 —	15 —	25 —	30 —	— 40	T030D1-48 —	— T040D1-60	**1655**	T030D2-48M —	— T040D2-60M	**1930**
54	50	15 —	20 —	30 —	40 —	— 50	T040D1-48 —	— T050D1-60	**1685**	T040D2-48M —	— T050D2-60M	**2085**
68	72	20 —	25 —	40 —	50 —	— 60	T050D1-48 —	— T060D1-60	**1715**	T050D2-48M —	— T060D2-60M	**2165**
80	85	25 —	30 —	50 —	60 —	— 75	T060D1-48 —	— T075D1-60	**2055**	T060D2-48M —	— T075D2-60M	**2555**
104	105	30 —	40 —	60 —	75 —	— 100	T075D1-48 —	— T100D1-60	**2080**	T075D2-48M —	— T100D2-60M	**2630**
130	142	40 —	50 —	75 —	100 —	— 125	T100D1-48 —	— T125D1-60	**2705**	T100D2-48M —	— T125D2-60M	**3355**
156	175	50 —	60 —	100 —	125 —	— 150	T125D1-48 —	— T150D1-60	**2735**	T125D2-48M —	— T150D2-60M	**3460**
192	210	60 —	75 —	125 —	150 —	— 200	T150D1-48 —	— T200D1-60	**3875**	T150D2-48M —	— T200D2-60M	**4775**
248	250	75 —	100 —	150 —	200 —	— 250	T200D1-48 —	— T250D1-60	**3920**	T200D2-48M —	— T250D2-60M	**5120**
302	300	100 —	100 —	150 —	250 —	— 300	T250D1-48 —	— T300D1-60	**4370**	T250D2-48M —	— T300D2-60M	**5770**
361	370	125 —	150 —	200 —	300 —	— 350	T300D1-48 —	— T350D1-60	**4850**	T300D2-48M —	— T350D2-60M	**6550**
414	400	— —	— —	250 —	350 —	— 400	T350D1-48 —	— T400D1-60	**5080**	T350D2-48M —	— T400D2-60M	**7830**
480	470	150 —	200 —	300 —	400 —	— 500	T400D1-48 —	— T500D1-60	**5080**	T400D2-48M —	— T500D2-60M	**7830**
590	570	200 —	250 —	350 —	500 —	— 600	T500D1-48M① —	— T600D1-60M①	**6260**	T500D2-48M① —	— T600D2-60M①	**6910**
720	720	250 —	300 —	450 —	600 —	— 700	T600D1-48M① —	— T700D1-60M①	**7700**	T600D2-48M① —	— T700D2-60M①	**8550**
840	840	300 —	350 —	500 —	700 —	— 800	T700D1-48M① —	— T800D1-60M①	**9350**	T700D2-48M① —	— T800D2-60M①	**10,350**
960	—	350 —	400 —	— —	800 —	— 900	T800D1-48M① —	— T900D1-60M①	**10,830**	T800D2-48M① —	— T900D2-60M①	**12,130**
1062	1050	400 —	450 —	600 —	900 —	— 1000	T900D1-48M① —	— T1000D1-60M①	**10,830**	T900D2-48M① —	— T1000D2-60M①	**12,130**
1247	1215	400 —	500 —	800 —	1000 —	— 1200	T1000D1-48M① —	— T1200D1-60M①	**10,830**	T1000D2-48M① —	— T1200D2-60M①	**12,130**
1454	1370	500 —	600 —	900 —	1200 —	— 1500	T1200D1-48M① —	— T1500D1-60M①	**12,900**	T1200D2-48M① —	— T1500D2-60M①	**14,650**
1839	1823	600 —	700 —	1200 —	1500 —	— 1800	T1500D1-48M① —	— T1800D1-60M①	**21,000**	T1500D2-48M① —	— T1800D2-60M①	**22,750**

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.30.

Type PST, 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 —	— 15	T010LB1-48E —	— T015LB1-60E	**$ 2055**	T010LF1-48A —	— T015LF1-60A	**$ 2055**
28	30	7.5 —	10 —	15 —	20 —	— 25	T020LB1-48J —	— T025LB1-60J	**2065**	T020LF1-48B —	— T025LF1-60B	**2065**
34	37	10 —	10 —	20 —	25 —	— 30	T025LB1-48K —	— T030LB1-60K	**2110**	T025LF1-48B —	— T030LF1-60B	**2110**
42	44	10 —	15 —	25 —	30 —	— 40	T030LB1-48L —	— T040LB1-60L	**2315**	T030LF1-48C —	— T040LF1-60C	**2315**
54	50	15 —	20 —	30 —	40 —	— 50	T040LB1-48N —	— T050LB1-60N	**2655**	T040LF1-48C —	— T050LF1-60C	**2655**
68	72	20 —	25 —	40 —	50 —	— 60	T050LB1-48R —	— T060LB1-60R	**2680**	T050LF1-48C —	— T060LF1-60C	**2680**
80	85	25 —	30 —	50 —	60 —	— 75	T060LB1-48S —	— T075LB1-60S	**3705**	T060LF1-48D —	— T075LF1-60D	**3705**
104	105	30 —	40 —	60 —	75 —	— 100	T075LB1-48T —	— T100LB1-60T	**3735**	T075LF1-48D —	— T100LF1-60D	**3735**
130	142	40 —	50 —	75 —	100 —	— 125	T100LB1-48V —	— T125LB1-60V	**5075**	T100LF1-48D —	— T125LF1-60D	**5075**
156	175	50 —	60 —	100 —	125 —	— 150	T125LB1-48X —	— T150LB1-60X	**5720**	T125LF1-48E —	— T150LF1-60E	**5720**
192	210	60 —	75 —	125 —	150 —	— 200	T150LB1-48Y —	— T200LB1-60Y	**6170**	T150LF1-48E —	— T200LF1-60E	**6170**
248	250	75 —	100 —	150 —	200 —	— 250	T200LB1-48A —	— T250LB1-60Z	**6650**	T200LF1-48E —	— T250LF1-60E	**6650**
302	300	100 —	100 —	150 —	250 —	— 300	T250LB1-48B —	— T300LB1-60B	**7580**	T250LF1-48F —	— T300LF1-60F	**7580**
361	370	125 —	150 —	200 —	300 —	— 350	T300LB1-48DM① —	— T350LB1-60CM①	**8860**	T300LF1-48FM① —	— T350LF1-60FM①	**8860**
414	400	— —	— —	250 —	350 —	— 400	T350LB1-48EM① —	— T400LB1-60DM①	**11,300**	T350LF1-48FM① —	— T400LF1-60FM①	**11,300**
480	470	150 —	200 —	300 —	400 —	— 500	T400LB1-48FM① —	— T500LB1-60EM①	**11,800**	T400LF1-48GM① —	— T500LF1-60GM①	**11,800**
590	570	200 —	250 —	350 —	500 —	— 600	T500LB1-48GM① —	— T600LB1-60GM①	**14,550**	T500LF1-48HM① —	— T600LF1-60HB①	**14,550**
720	720	250 —	300 —	450 —	600 —	— 700	T600LB1-48JM① —	— T700LB1-60JM①	**16,030**	T600LF1-48HM① —	— T700LF1-60HB①	**16,030**
840	840	300 —	350 —	500 —	700 —	— 800	T700LB1-48KM① —	— T800LB1-60JM①	**19,400**	T700LF1-48JM① —	— T800LF1-60JB①	**19,400**
960	—	350 —	400 —	— —	800 —	— 900	T800LB1-48KM① —	— T900LB1-60KM①	**27,500**	T800LF1-48JM① —	— T900LF1-60JB①	**27,500**
1062	1050	400 —	450 —	600 —	900 —	— 1000	T900LB1-48KM① —	— T1000LB1-60KM①	**28,200**	T900LF1-48KM① —	— T1000LF1-60KB①	**28,200**

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.30.

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

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	T500DB1-48GM① —	— T600DB1-60GM①	**11,460**	T500DF1-48HM① —	— T600DF1-60HM①	**11,460**
720	720	250 —	300 —	450 —	600 —	— 700	T600DB1-48JM① —	— T700DB1-60JM①	**12,900**	T600DF1-48HM① —	— T700DF1-60HM①	**12,900**
840	840	300 —	350 —	500 —	700 —	— 800	T700DB1-48KM① —	— T800DB1-60JM①	**15,850**	T700DF1-48JM① —	— T800DF1-60JM①	**15,850**
960	—	350 —	400 —	— —	800 —	— 900	T800DB1-48KM① —	— T900DB1-60KM①	**17,330**	T800DF1-48JM① —	— T900DF1-60JM①	**17,330**
1062	1050	400 —	450 —	600 —	900 —	— 1000	T900DB1-48KM① —	— T1000DB1-60KM①	**18,030**	T900DF1-48KM① —	— T1000DF1-60KM①	**18,030**
1247	1215	400 —	500 —	800 —	1000 —	— 1200	T1000DB1-48LM① —	— T1200DB1-60LM①	**20,830**	T1000DF1-48KM① —	— T1200DF1-60KM①	**20,830**
1454	1370	500 —	600 —	900 —	1200 —	— 1500	T1200DB1-48MM① —	— T1500DB1-60MM①	**22,900**	T1200DF1-48LM① —	— T1500DF1-60LM①	**22,900**
1839	1823	600 —	700 —	1200 —	1500 —	— 1800	T1500DB1-48NM① —	— T1800DB1-60NM①	**33,500**	T1500DF1-48NM① —	— T1800DF1-60NM①	**33,500**

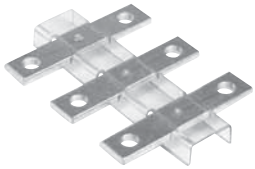
① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.30.

Type PST
Options

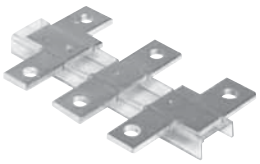
Max FLA		Shunt rated (AC1) bypass or isolation contactor	Across the line rated (AC3) ④ bypass contactor	Start/Stop pushbuttons	HOA Selector Switch	Run pilot Light	NEMA 12 adder	NEMA 3R adder	NEMA 4 adder	NEMA 4X adder
UL	IEC	List price	List price ③	List price	List price	List price	List price	List price	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 5.26.

Accessories

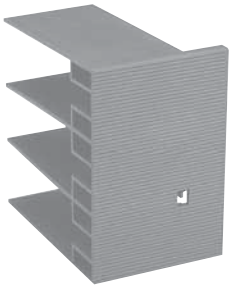


LX400



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 ③

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

Accessories

Accessories

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

Additional auxiliary contact blocks for bypass or isolation contactors

Contact configuration	Suffix code	
1 N.O. & 1 N.C.	11	
2 N.O. & 2 N.C.	22	
3 N.O. & 3 N.C.	33	

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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


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


PDP21-FBP


PDF11-FBP.050


PDM11-FBP.050


PDX11-FBP


PDM11-FBP.0


PDF11-FBP.0

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 an 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


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, 50/60 Hz +10 %/-15 %	100 ... 250 V 50/60 Hz +10 %/-15 %
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 x 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		AF300	AF300	AF460	AF580	AF750	AF750
AC3 Rating @ 480V	HP	250	250	400	500	600	600
AC3 Rating	A	302	302	480	590	720	720

① Valid for 50 % on time and 50 % off time, with 3.5 x I_e for 7 seconds. If other data is required, please contact your sales office
② Above 40 ºC up to max. 50 ºC reduce the rated current by 0.8 % per ºC.
③ When used at high altitudes above 1000 meters, consult factory.

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 5.38
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
1st sequence, time for start ramp	Start Ramp1	1...30 s, 1...120 s (Range depends on Start Range)	10 s
1st sequence, initial voltage for start ramp	Init Volt1	30...70 %	30 %
1st sequence, current limit	Curr Lim1	2.0 ... 5.0 x I_e	4.0 x I_e
1st sequence, setting current	1st Set Ie	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 5.38
2nd sequence, time for start ramp	Start Ramp2	1...30 s, 1...120 s (Range depends on Start Range)	10 s
2nd sequence, initial voltage for start ramp	Init Volt2	30...70 %	30 %
2nd sequence, current limit	Curr Lim2	2.0 ... 5.0 x I_e	4.0 x I_e
2nd sequence, setting current	2nd Set Ie	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 5.38

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 Ie	9.0 ... 1380 A divided into 19 overlapping ranges	See table, page 5.38
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.

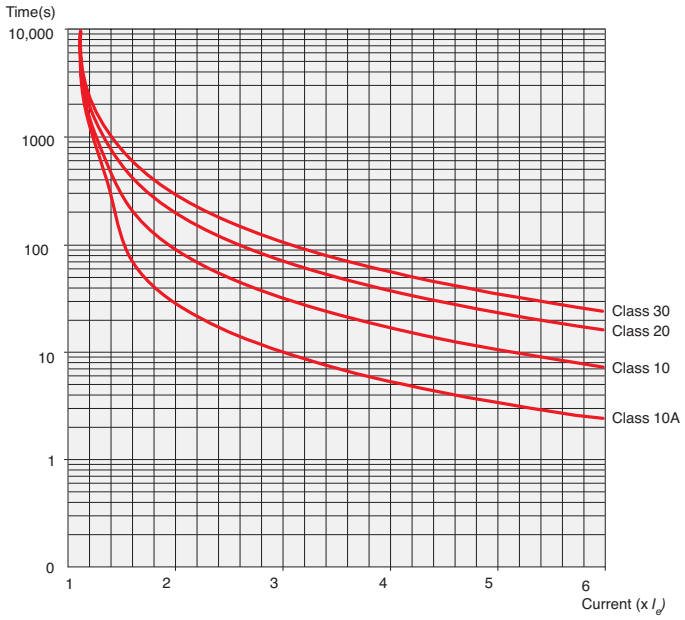


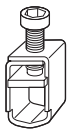
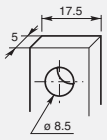
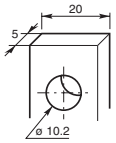
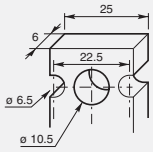
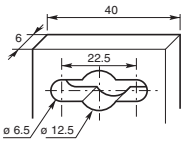
ABB FieldBusPlug
Controlling possibilities when using different field buses

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 LV021 (1SXU 132 021 M0201) to download the manual. If you need help or advice, please contact your local ABB office.

Technical data
PST30 – 300
PSTB370 – 1050

Cross section of connectable cables

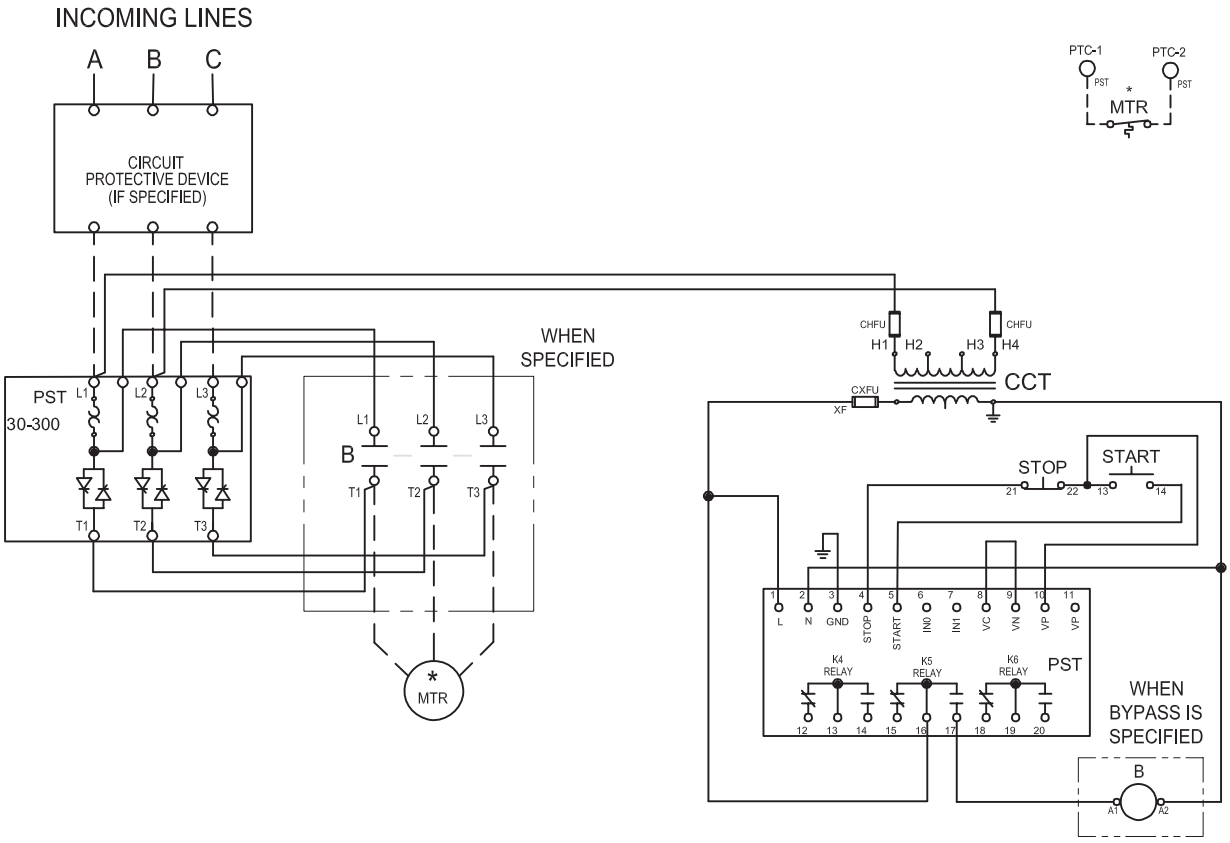
		Type of softstarter PST30 ... 72	PST85 ... 142	PST175 ... 300	PSTB370 ... 470	PSTB570 ... 1050
Main circuit						
Available terminals:	L1, L2, L3	Yes	Yes	Yes	Yes	Yes
	T1, T2, T3	Yes	Yes	Yes	Yes	Yes
(For external by-pass):	B1, B2, B3	Yes	Yes	Yes	No	No
Connection clamp						
Solid/Stranded	1 x mm^2	10 ... 95	See page 5.31	See page 5.31	See page 5.31	See page 5.31
Solid/Stranded	1 x mm^2	6 ... 35	See page 5.31	See page 5.31	See page 5.31	See page 5.31
Tightening torque (recommended), Nm		6.0	See page 5.31	See page 5.31	See page 5.31	See page 5.31
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

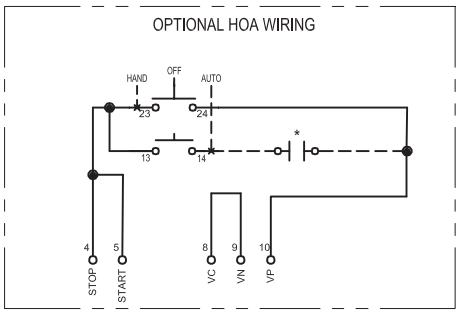
Fuse ratings and power losses

For softstarter	Recommended ABB Overload protection Type	Current range A	Max power loss at rated I_e W	Maximum fuse ratings - main circuit Bussmann fuses A	Type	Holder	Ferraz fuses A	Type	Power requirements supply circuit VA/VA pull in
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.
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LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
∅	CONNECTION POINT AT TERMINAL BLOCK

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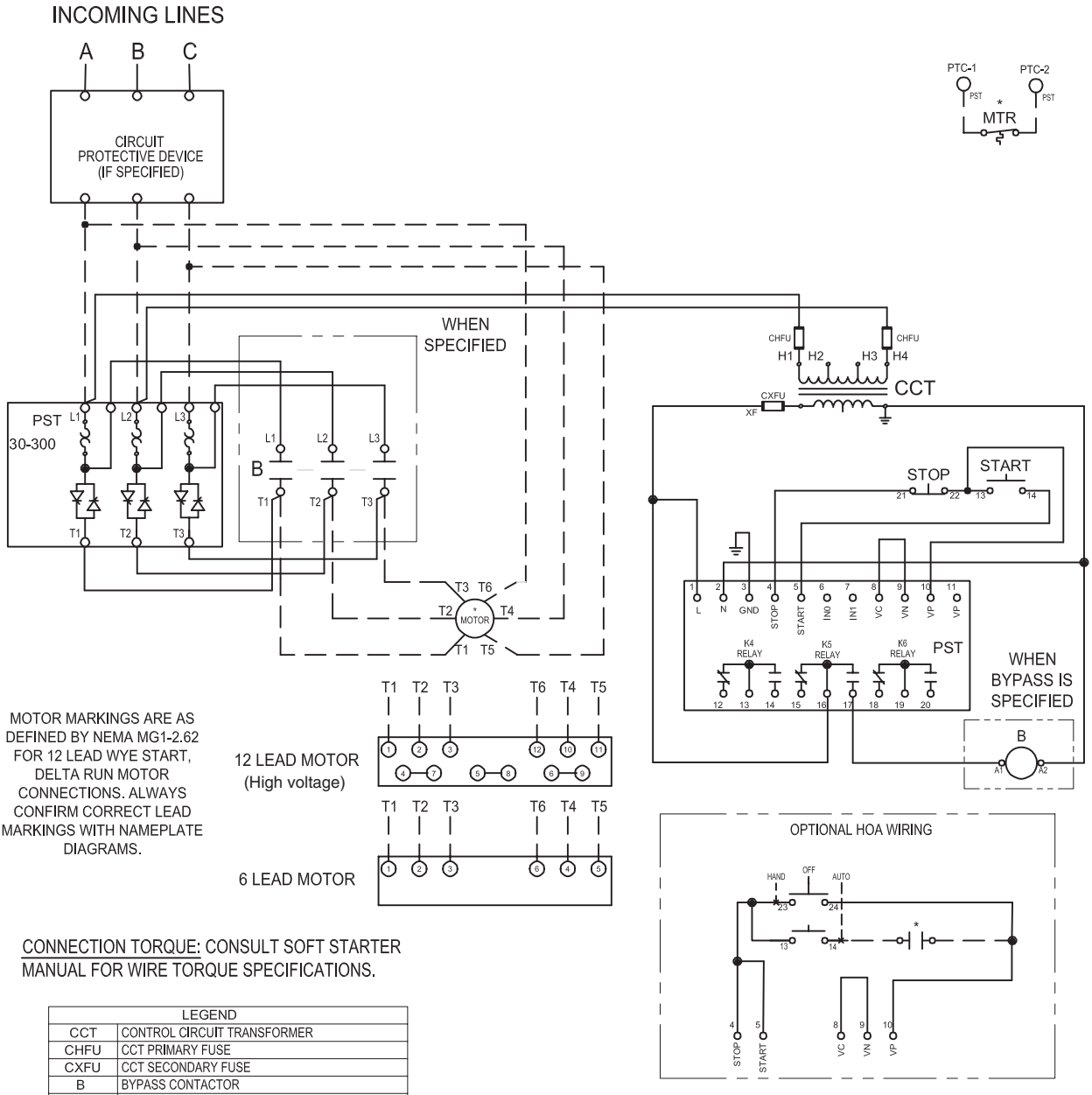
   RED-ALL AC VOLTAGES
   WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

   BLUE-ALL DC VOLTAGES

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

Circuit diagrams
PST30 – PST300
Inside Delta

PST30 – PST300



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.

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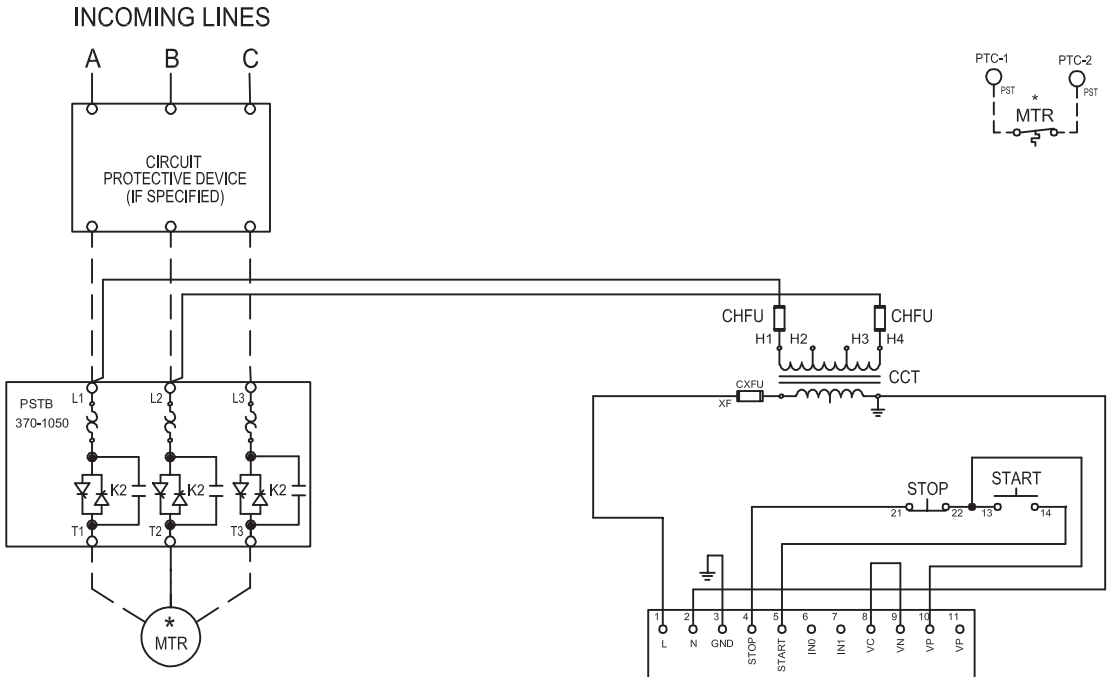
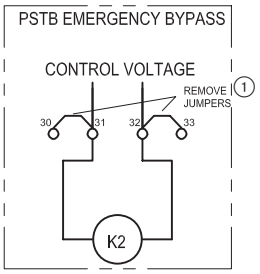
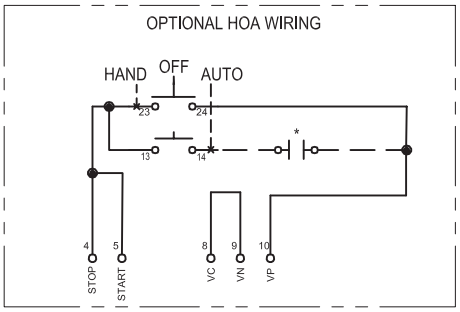
6

Circuit diagrams
PSTB370 – PSTB1050
In-Line







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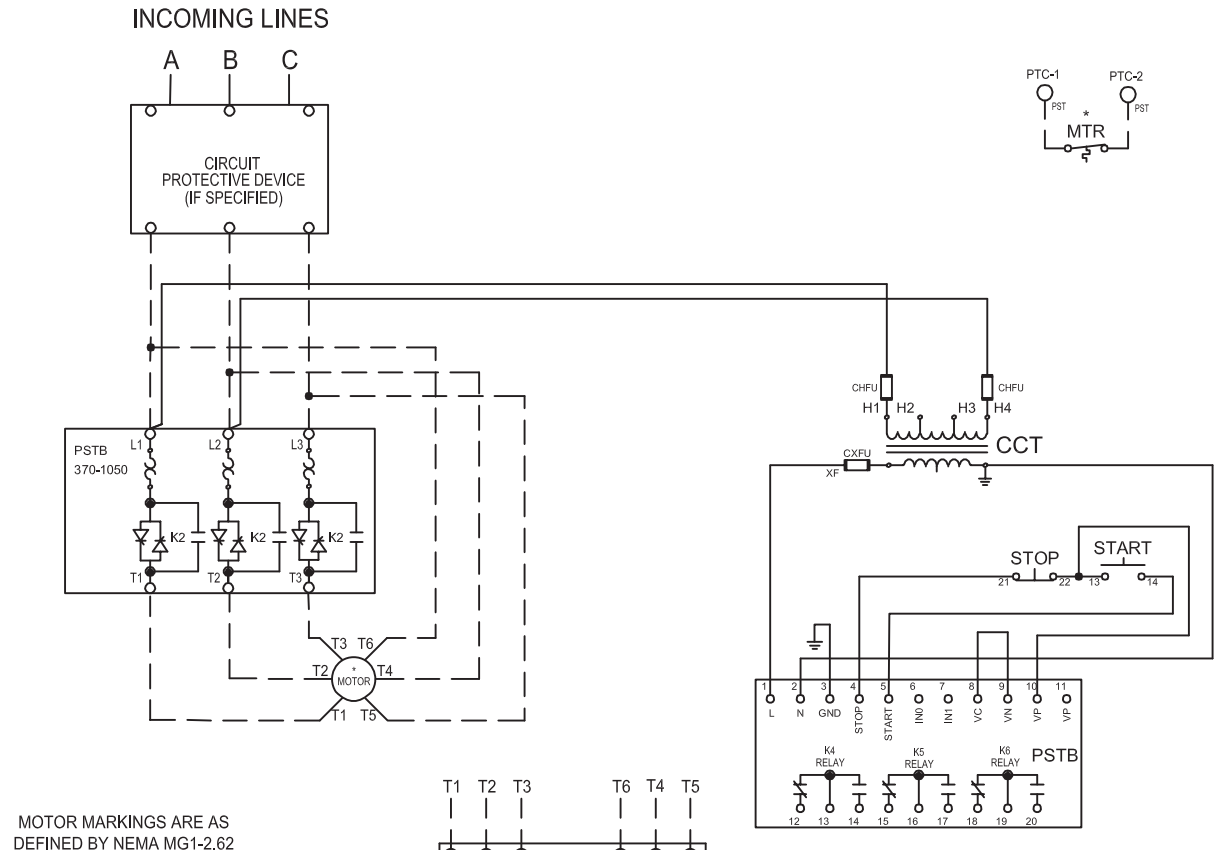
① See page 5.35 for across the line rated (AC3) contactor ratings.

Circuit diagrams
PSTB370 – PSTB1050
Inside Delta



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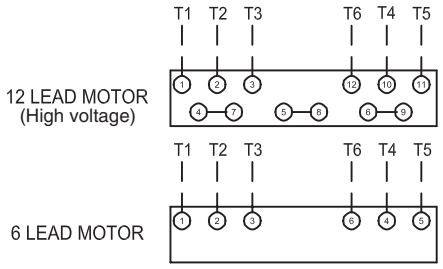

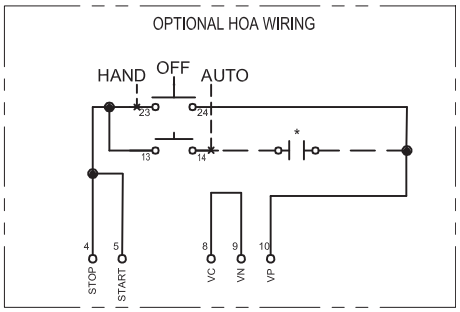

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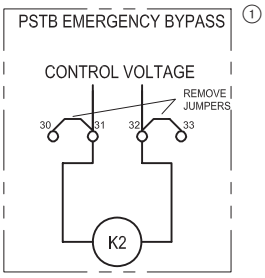

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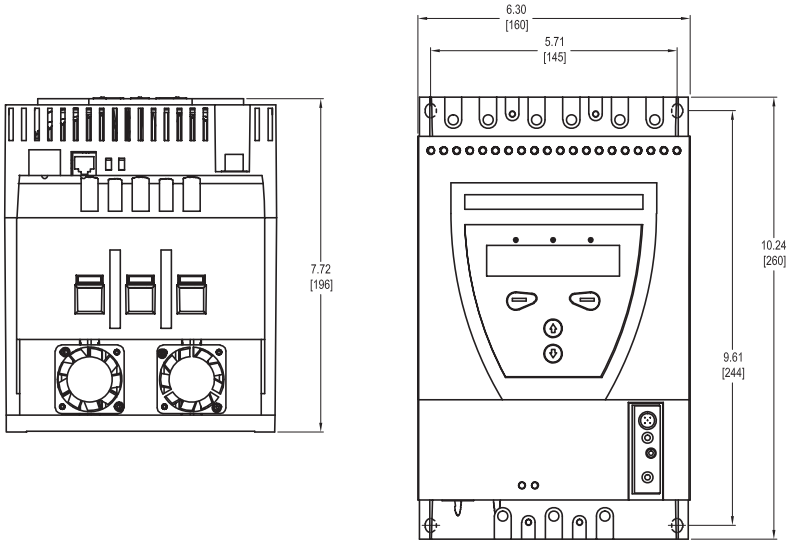
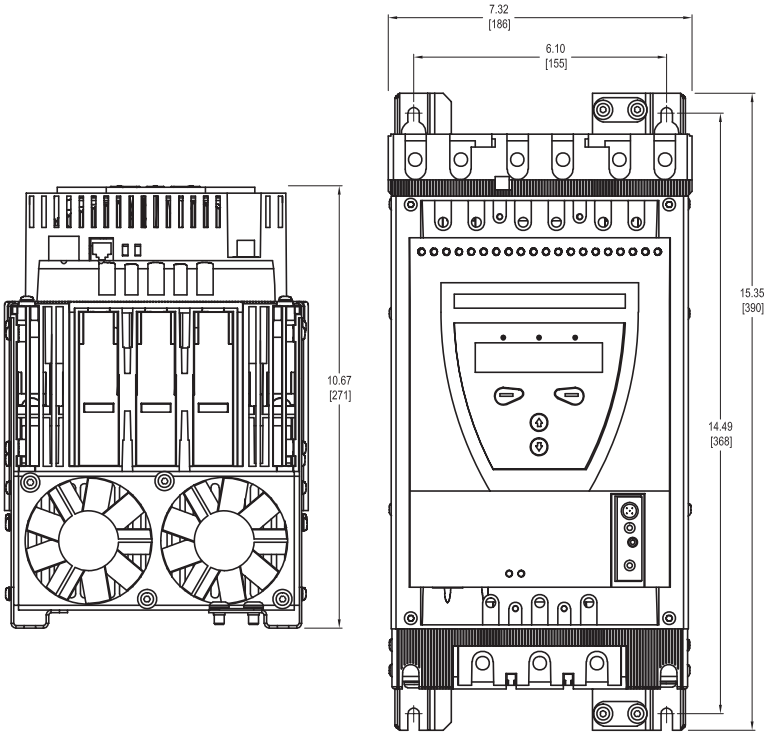
Approximate dimensions
Open
PST30 – PST142

00.00 Inches
00.00 [Millimeters]

PST30 – PST72



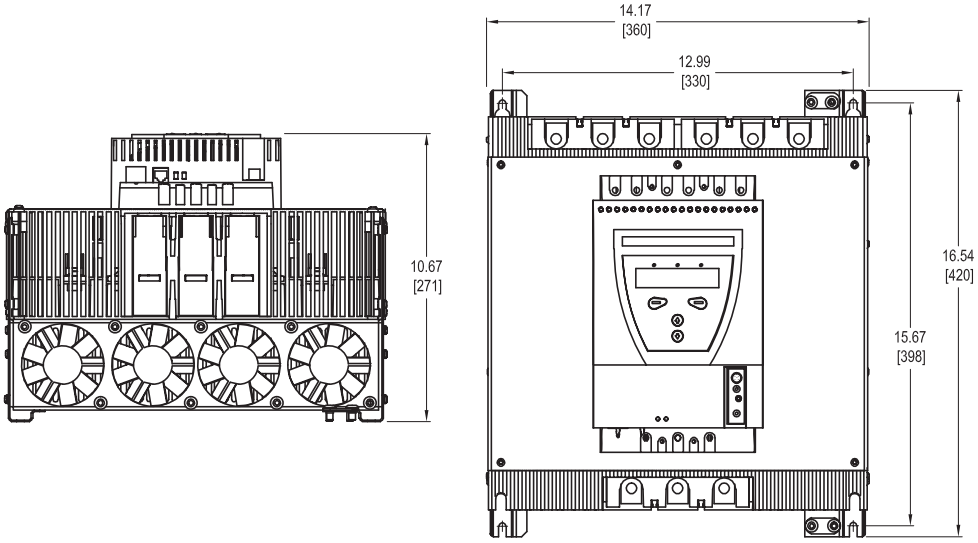
PST85 – PST142



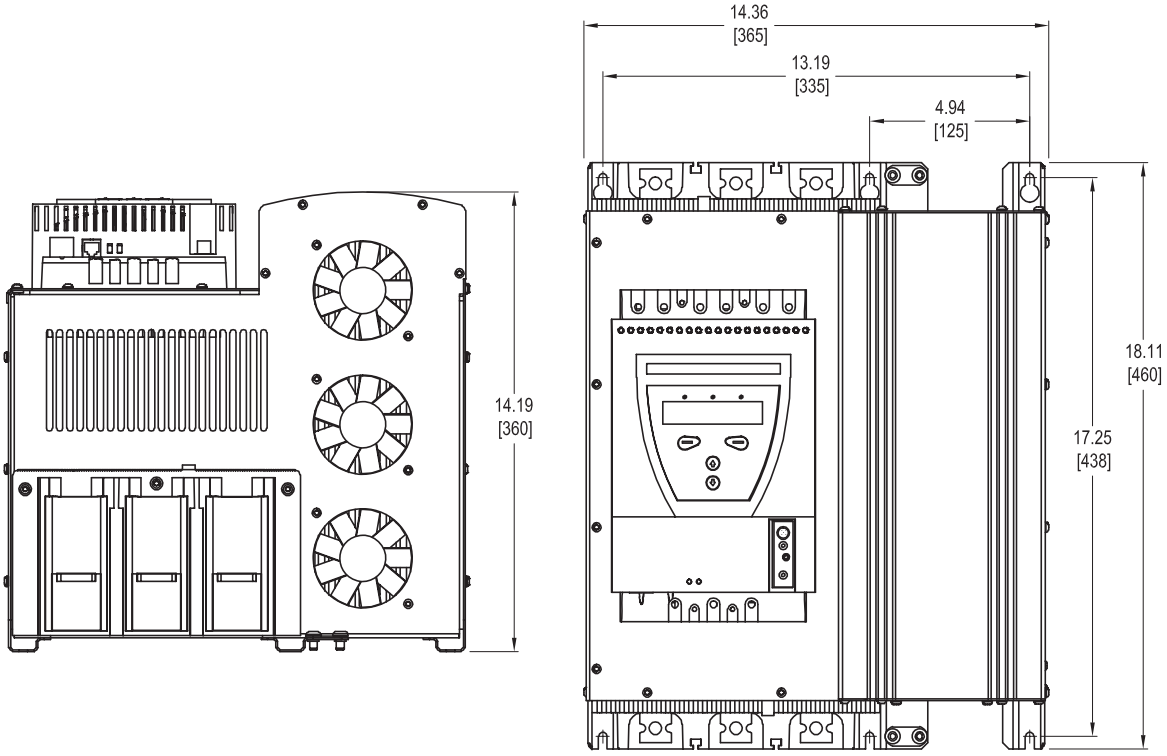
Approximate dimensions
Open
PST175 – PSTB470

00.00
00.00
Inches
[Millimeters]

PST175 – PST300



PSTB370 – PSTB470

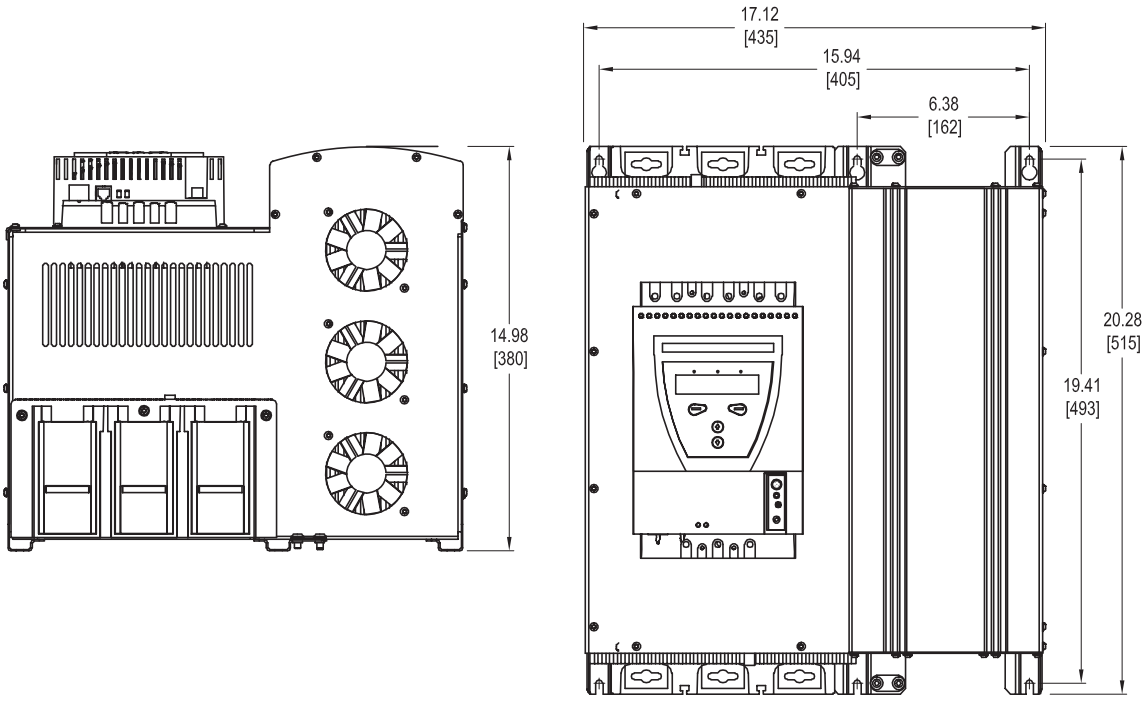


6

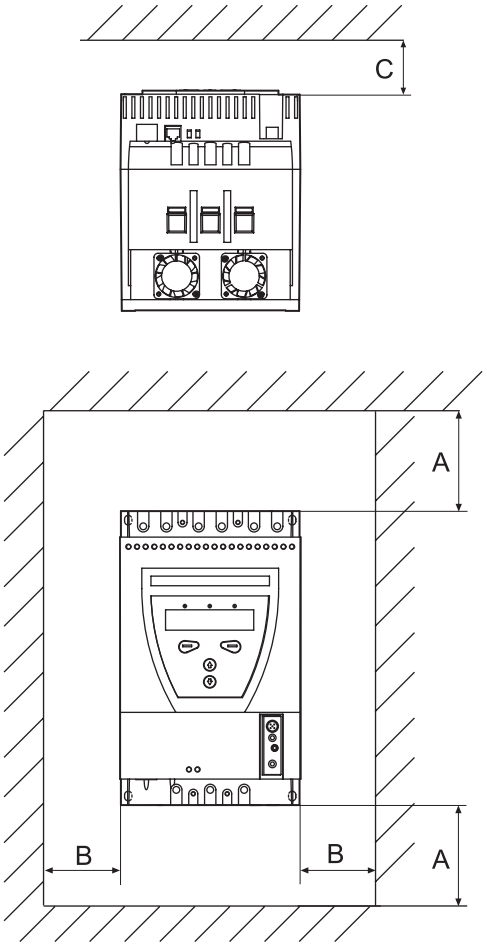
Approximate dimensions
Open
PSTB570 – PSTB1050

00.00 / 00.00 Inches [Millimeters]

PSTB570 – PSTB1050



Approximate dimensions
Open
Wall mounting



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

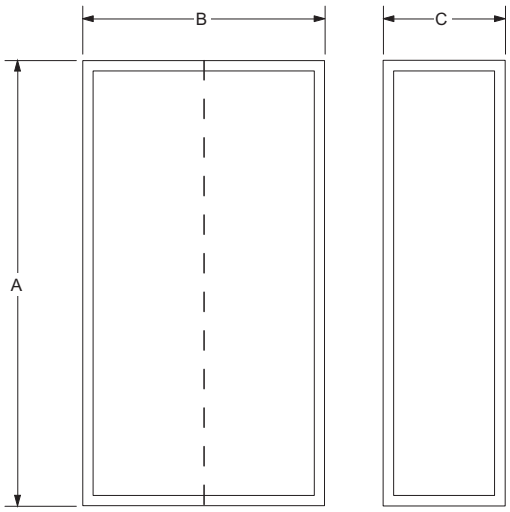
Maximum horsepower in-line

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

Maximum horsepower inside delta

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

Approximate dimensions
Enclosed
208V – 600V



Enclosed, 208V – 600V

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

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

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