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Type PSR  
Type PSS  
Type PST/PSTB

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# Softstarters

## News

### Torque control

The latest version of the PST(B) softstarter offers a new functionality called Torque control. With this function enabled the voltage of the motor is regulated so that the torque follows a predefined torque curve during start and stop. Torque control is especially useful in pump applications where a sudden stop can cause water hammering and pressure surges.



### Analog output

With the latest version of the PST(B) softstarter it is possible to have analog output signals from the softstarter. These signals can then be used as input to a PLC or an analog meter.

### Type PSR Softstarter

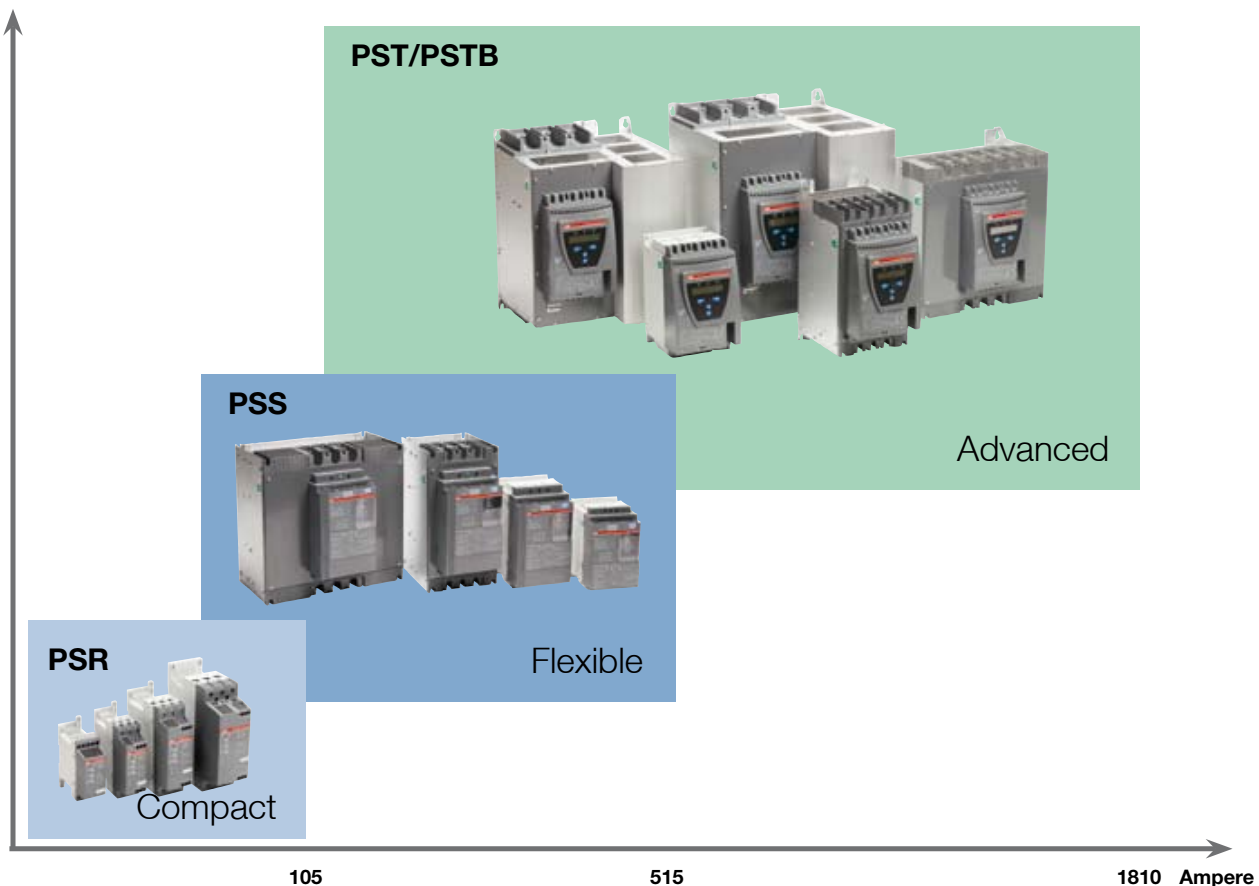
The latest addition to the ABB softstarter range is the compact PSR softstarter. This new softstarter has a compact, attractive design and is ideal for installation in places where space is limited and where there is a demand for easy installation.

### Complete range

With the new PSR softstarter, ABB offers a complete range of softstarters from 3 to 1810 A. This complete range consists of the three models PSR, PSS and PST(B).

## ABB Softstarters – the complete range

Functionality



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Some information about the catalogue:

**Ordering details:**

When placing an order please give either the "Type" or the "Order code". Please note that for some of the products you need to fill in some additional code letters/code numbers to define the complete Type/Order code.

**Packing:**

All softstarters and most of the accessories are delivered in an individual packing. Some of the accessories are packed together in batches of "n" pieces (see ordering "Pack<sup>ing</sup> pieces"). For these items, please order the total amount corresponding to a multiple of the number in the packing. Example: If two in the packing, then please order minimum two, four, six etc.

*Note: Each "Type" or "Order code" always corresponds to only one piece.*

The products described in this catalogue are subject to change (design, dimensions, technical data, etc.) without prior notice.



## Softstarters

From the moment the first electrical motors appeared, engineers have been searching a way to avoid electrical and mechanical problems that occur using Direct-on-Line and Star-Delta starters. ABB has been producing softstarters since the beginning of the 1980's. The valuable experience gained since the early 80's has been incorporated into the design of today's product ranges. With the latest series named PST, ABB has taken a significant step further in soft starting technology. Matching modern power electronics with smart circuitry and software, the new PST softstarter offers superior electronic control of the current and voltage during motor start-up, in addition to several new design features.

### The solution to both mechanical and electrical problems

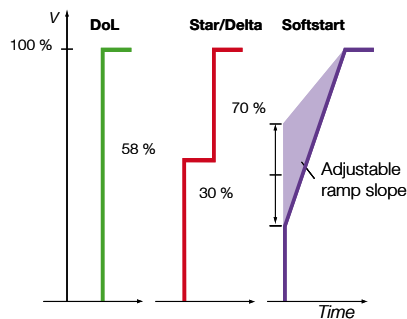
AC motors, "the workhorse of the industry", that are used to drive fans, crushers, agitators, pumps, conveyors etc., are unnecessarily causing unwanted load peaks day in and day out in production plants all over the world. These violent starts cause damage in several ways. Among them are:

- Electrical problems due to voltage and current transients arising from Direct-on-Line or Star-Delta starts. Such transients may overload the local supply network and cause unacceptable voltage variations that interfere with other electrical equipment connected to the network.
- Mechanical problems that address the entire drive chain, from motor to driven equipment, to severe stress.
- Operational problems, such as pressure surges in pipelines, damage to products on conveyor belts and uncomfortable escalator rides.

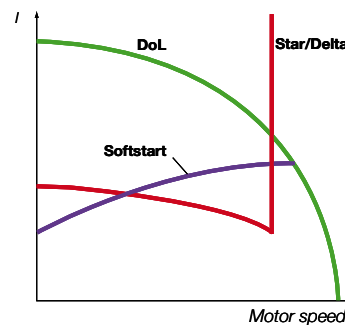
The financial consequences are considerable: every technical problem and every breakdown, costs money – in terms of repairs as well as lost production.

The easy solution to all of these problems is to install an ABB Softstarter type PSR, PSS or PST. With ABB Softstarters, it is possible to start and stop smoothly while keeping mechanical and electrical stresses to a minimum.

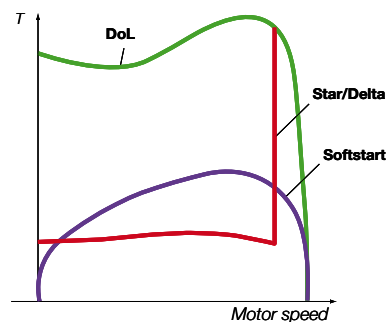
Motor voltage



Motor current



Torque



Graphs showing the basic differences between direct-on-line starting (DoL), star-delta starting and soft starting in terms of the motor voltage (V), motor current (I) and motor torque (T).



## ABB softstarters – The complete range

ABB offers three different ranges of softstarters to cover every customer need for solutions for small to medium-sized motor applications, from 3 A to 1810 A. The overview table at the bottom of this page shows the main characteristics of the different types. For more specific technical details and ordering data, see the following pages.

### Compact Range

**Type PSR**, covers motor currents from 3 to 105 A. It is the latest addition to the softstarter family and has an attractive, compact design. Further, the system concept includes MMS and the softstarters are available for remote control connection using the FieldBusPlug as an accessory. All sizes include a Run signal relay, while from sizes 25 A the PSR Softstarters are also provided with an output signal for TOR (Top Of Ramp), i.e. full voltage). With standard performance the PSR Softstarters handle ten starts per hour. When an auxiliary cooling fan is added, the starting capacity is increased to 20 starts per hour.

- Current ratings 3.9 – 105 A (1.5 - 55 kW), at 400 V
- Motor voltage 208 – 600 V
- Supply voltage 24 V DC or 100-240 V AC
- Easy to install and adjust
- DIN rail or screw mounting
- Integrated by-pass contacts

With their compact design, the PSR Softstarters are ideal for installation in places where space is limited and where there is a demand for easy installation.

### Flexible Range

**Type PSS**, covers motor currents from 18 to 300 A and offers a flexible solution with easy installation and setup.

- **Flexible:** With two connection possibilities, either in line with the motor or inside the motor delta. It can also be equipped with current limit.
- **Easy to set up:** With just three clearly labeled rotary switches on the front of the unit it is possible to adjust the PSS Softstarter for a wide range of applications.
- **Solid state electrical circuit:** This ensures the highest reliability and reduces maintenance to a minimum, even in applications with frequent starts and stops.

### Advanced Range

**Type PST(B)**, covers motor currents from 30 to 1050 A and provides advanced functionality, including integrated protections, programmable signal relays, a flexible communication

system and an LCD display. Sizes PSTB370 to 1050 A include a by-pass contactor.

- **Advanced integrated protections:** For the motor; integrated electronic overload relay, phase monitoring relays, high current and PTC protection. For the Softstarter; advanced thyristor protection.
- **Flexible bus communication system:** By using the ABB FieldBusPlug (FBP), you can decide at any time which bus system to select within the ABB FBP range. The interface between the PST Softstarter and the ABB FBP is always the same, independent of size and delivery date.
- **LCD display:** With 14 languages, a menu system similar to your mobile phone, preprogrammed application settings and automatic status and event logging, it couldn't be easier to set up and operate!
- **Programmable signal relays:** gives you several possibilities for signalling warnings, faults and other events.
- **Torque control:** allows you to start and stop motors with a more linear acceleration than when using voltage ramp.

PSR3 ...105	PSS18/30 ...300/515	PST30 ... PSTB1050	
○	–	●	Field bus communication enabled
–	–	●	Real time clock
–	–	●	Programmable fault supervision functions
–	–	●	Programmable warning functions
–	–	●	PTC input for motor protection
–	–	●	High current protection
–	–	●	Phase imbalance /phase reversal protection
–	–	●	Locked rotor protection
–	–	●	Thyristor overtemperature protection
–	–	●	Motor overload protection
–	–	●	Four button keypad (external keypad available)
–	–	○	External keypad
–	○	●	Current limit control
–	●	●	In Line and Inside Delta connection
●	●	●	LED indications
●	–	● <sup>1)</sup>	Built-in by-pass contactor ( <sup>1)</sup> On PSTB)
●	●	●	Ramp Start/Stop
–	–	●	Torque control
–	–	●	Analog output

- Standard
- Optional
- Not available

# Softstarters

## Type PSR Overview



### PSR3 ... PSR16

### PSR25 ... PSR30

### PSR37 ... PSR45

#### Softstarter, Type

Normal start:

In Line connected

(400 V) kW  
IEC, Max. A  
  
(440-480 V) hp  
UL, Max. A

PSR3	PSR6	PSR9	PSR12	PSR16	PSR25	PSR30	PSR37	PSR45
1.5	3	4	5.5	7.5	11	15	18.5	22
3.9	6.8	9	12	16	25	30	37	45
2	3	5	7.5	10	15	20	25	30
3.4	6.1	9	11	15.2	24.2	28	34	46.2

400V, 40 °C

#### Manual motor starter, Type

If using manual motor starters type 1 coordination will be achieved.

MS116	MS116	MS116	MS116	MS116	MS132	MS132	MS450	MS450
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#### Fuse protection 400 V, 50 kA, gG Fuse

Using gG fuses type 1 coordination will be achieved.

10 A	16 A	25 A	32 A	32 A	50 A	63 A	100 A	125 A
------	------	------	------	------	------	------	-------	-------

#### Switch fuse, Type

Suitable switch fuse for the above gG fuses.

OS32GD	OS32GD	OS32GD	OS32GD	OS32GD	OS32GD	OS32GD	OS63GD	OS125GD
--------	--------	--------	--------	--------	--------	--------	--------	---------

#### Line contactor, Type

The line contactor is not required for the softstarter itself but often used to open if OL trips.

A9	A9	A9	A12	A16	A26	A30	A40	A50
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#### Thermal overload relay, Type

The overload relay is always required to protect the motor.

TA25DU	TA25DU	TA25DU	TA25DU	TA25DU	TA25DU	TA25DU	TA42DU	TA75DU
--------	--------	--------	--------	--------	--------	--------	--------	--------

#### By-pass contacts

Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in
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## Number of starts per hour using PSR softstarters

Motor-current  $I_n$

#### Starts/hour without auxiliary fan

	10	20	30	40	50	60	80	100
3 A	PSR3							PSR6
6 A	PSR6			PSR9				
9 A	PSR9		PSR12			PSR16	PSR25	
12 A	PSR12		PSR16	PSR25		PSR30		
16 A	PSR16	PSR25		PSR30	PSR37			
25 A	PSR25	PSR30	PSR37		PSR45		PSR60	
30 A	PSR30	PSR37		PSR45	PSR60		PSR72	
37 A	PSR37	PSR45		PSR60	PSR72	PSR85	PSR105	
45 A	PSR45		PSR60	PSR72	PSR85	PSR105	-	
60 A	PSR60		PSR72	PSR85	PSR105	-	-	
72 A	PSR72	PSR85	PSR105		-	-	-	
85 A	PSR85	PSR105		-	-	-	-	
105 A	PSR105	-	-	-	-	-	-	

#### Starts/hour with auxiliary fan

	10	20	30	40	50	60	80	100
3 A	PSR3							PSR6
6 A	PSR6			PSR9				
9 A	PSR9		PSR12			PSR16	PSR25	
12 A	PSR12		PSR16	PSR25		PSR30		
16 A	PSR16	PSR25		PSR30	PSR37			
25 A	PSR25	PSR30	PSR37		PSR45		PSR60	
30 A	PSR30	PSR37		PSR45	PSR60		PSR72	
37 A	PSR37	PSR45		PSR60	PSR72	PSR85	PSR105	
45 A	PSR45		PSR60	PSR72	PSR85	PSR105	-	
60 A	PSR60		PSR72	PSR85	PSR105	-	-	
72 A	PSR72	PSR85	PSR105		-	-	-	
85 A	PSR85	PSR105		-	-	-	-	
105 A	PSR105	-	-	-	-	-	-	

Data based on an ambient temperature of 40°, starting current of  $4 \times I_n$  and ramp time 6 seconds.



# Softstarters

## Type PSR

### Overview and description



#### PSR60 ... PSR105

##### Softstarter, Type

PSR60	PSR72	PSR85	PSR105
30	37	45	55
60	72	85	105
40	50	60	75
59.4	68	80	104

400V, 40 °C

##### Manual motor starter, Type

MS495	MS495	MS495	—
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##### Fuse protection 400 V, 50 kA, gG Fuse

125 A	200 A	200 A	250 A
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##### Switch fuse, Type

OS125GD	OS250GD	OS250GD	OS250GD
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##### Line contactor, Type

A63	A75	A95	A110
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##### Thermal overload relay, Type

TA75DU	TA75DU	TA110DU	TA110DU
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##### By-pass contacts

Built-in	Built-in	Built-in	Built-in
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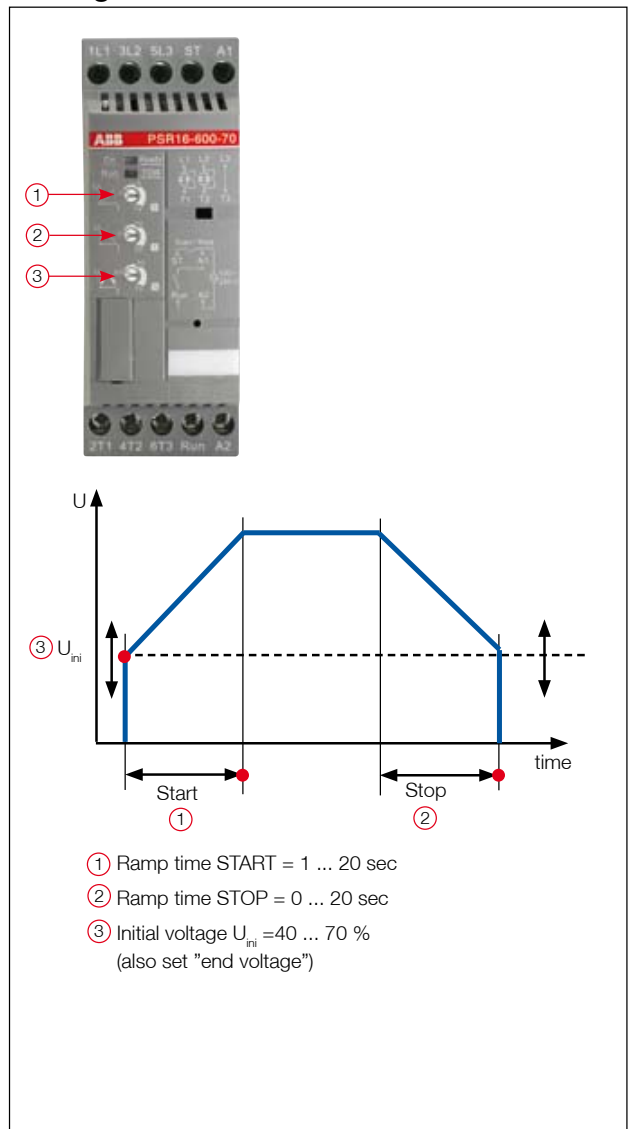
## Description

**PSR - Compact range**, covers motor currents from 3 to 105 A. It is the latest addition to the softstarter family and has an attractive, compact design. Further, the system concept includes MMS and the softstarters are available for remote control connection using the FieldBusPlug as an accessory. All sizes include a Run signal relay, while from sizes 25 A the PSR Softstarters are also provided with an output signal for TOR (Top Of Ramp), i.e. full voltage. With standard performance the PSR Softstarters handle ten starts per hour. When an auxiliary cooling fan is added, the starting capacity is increased to 20 starts per hour or more.

- Current ratings 3.9 – 105 A (1.5 - 55 kW), at 400 V
- Motor voltage 208 – 600 V
- Supply voltage 24 V DC or 100-240 V AC
- Easy to install and adjust
- DIN rail or screw mounting
- Integrated by-pass contacts

With their compact design, the PSR Softstarters are ideal for installation in places where space is limited and where there is a demand for easy installation.

## Settings



# Softstarters

Type PSR3 ... PSR105

Ordering details



Motor power				IEC	Type	Order code	Weight kg 1 piece
230 V $P_n$ kW	400 V $P_n$ kW	500 V $P_n$ kW	Max rated motor current, $I_n$ A				
<b>208 – 600 V AC</b>							
<b>Supply voltage, <math>U_s</math>, 100-240 V AC</b>							
0.75	1.5	2.2	3.9	PSR3-600-70	1SFA 896 103 R7000	0.45	
1.5	3	4	6.8	PSR6-600-70	1SFA 896 104 R7000	0.45	
2.2	4	4	9	PSR9-600-70	1SFA 896 105 R7000	0.45	
3	5.5	5.5	12	PSR12-600-70	1SFA 896 106 R7000	0.45	
4	7.5	7.5	16	PSR16-600-70	1SFA 896 107 R7000	0.45	
5.5	11	15	25	PSR25-600-70	1SFA 896 108 R7000	0.65	
7.5	15	18.5	30	PSR30-600-70	1SFA 896 109 R7000	0.65	
7.5	18.5	22	37	PSR37-600-70	1SFA 896 110 R7000	1.00	
11	22	30	45	PSR45-600-70	1SFA 896 111 R7000	1.00	
15	30	37	60	PSR60-600-70	1SFA 896 112 R7000	2.20	
22	37	45	72	PSR72-600-70	1SFA 896 113 R7000	2.27	
22	45	55	85	PSR85-600-70	1SFA 896 114 R7000	2.27	
30	55	55	105	PSR105-600-70	1SFA 896 115 R7000	2.27	
<b>Supply voltage, <math>U_s</math>, 24 V DC</b>							
0.75	1.5	2.2	3.9	PSR3-600-81	1SFA 896 103 R8100	0.45	
1.5	3	4	6.8	PSR6-600-81	1SFA 896 104 R8100	0.45	
2.2	4	4	9	PSR9-600-81	1SFA 896 105 R8100	0.45	
3	5.5	5.5	12	PSR12-600-81	1SFA 896 106 R8100	0.45	
4	7.5	7.5	16	PSR16-600-81	1SFA 896 107 R8100	0.45	
5.5	11	15	25	PSR25-600-81	1SFA 896 108 R8100	0.65	
7.5	15	18.5	30	PSR30-600-81	1SFA 896 109 R8100	0.65	
7.5	18.5	22	37	PSR37-600-81	1SFA 896 110 R8100	1.00	
11	22	30	45	PSR45-600-81	1SFA 896 111 R8100	1.00	
15	30	37	60	PSR60-600-81	1SFA 896 112 R8100	2.20	
22	37	45	72	PSR72-600-81	1SFA 896 113 R8100	2.27	
22	45	55	85	PSR85-600-81	1SFA 896 114 R8100	2.27	
30	55	55	105	PSR105-600-81	1SFA 896 115 R8100	2.27	

## Accessories

Description	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece	
<b>Fieldbus Plug Connection Accessory</b>					
The same accessory for all sizes	PSR-FBPA	1SFA 896 312 R1001	1	0.06	
<b>Connection kit for PSR3...16 with MS116 or MS132</b>	PSR16-MS116	1SFA 896 211 R1001	1	0.03	
<b>Connection kit for PSR25...30 and MS132-12 ... MS132-32</b>	PSR30-MS132	1SFA 896 212 R1001	1	0.03	
<b>Connection kit for PSR37...45 and MS450</b>	PSR45-MS450	1SFA 896 213 R1001	1	0.03	
<b>Connection kit for PSR60...105 and MS495</b>	PSR105-MS495	1SAM 501 903 R1001	1	0.05	
<b>Fan</b>	PSR-FAN3-45A	1SFA 896 311 R1001	1	0.01	
<b>Fan</b>	PSR-FAN60-105A	1SFA 896 313 R1001	1	0.013	
<b>Terminal enlargements for PSR60...105</b>					
Wire range mm <sup>2</sup>	1x10...50, 2x10...25	PSLW-72	1SFA 899 002 R1072	1	0.15

### ABB Field Bus Plug

Suitable for all sizes. See page 32 - 34.



# Softstarters

## Type PSR3 ... PSR105

### Technical data

<b>Rated insulation voltage, <math>U_i</math></b>	600 V												
<b>Rated operational voltage, <math>U_e</math></b>	208...600 V +10 %/-15 %, 50/60 Hz ±5%												
<b>Rated supply voltage, <math>U_s</math></b>	100...240 V AC or 24 V DC +10 %/-15 %, 50/60 Hz ±5%												
<b>Power consumption,</b> at 100-240 V AC at 24 V DC	<b>PSR3</b> 12 VA 5 W	<b>PSR6</b> 12 VA 5 W	<b>PSR9</b> 12 VA 5 W	<b>PSR12</b> 12 VA 5 W	<b>PSR16</b> 12 VA 5 W	<b>PSR25</b> 12 VA 5 W	<b>PSR30</b> 12 VA 5 W	<b>PSR37</b> 10 VA 5 W	<b>PSR45</b> 10 VA 5 W	<b>PSR60</b> 10 VA 5 W	<b>PSR72</b> 10 VA 5 W	<b>PSR85</b> 10 VA 5 W	<b>PSR105</b> 10 VA 5 W
<b>Rated operational current, <math>I_r</math></b>	<b>PSR3</b> 3.9 A	<b>PSR6</b> 6.8 A	<b>PSR9</b> 9 A	<b>PSR12</b> 12 A	<b>PSR16</b> 16 A	<b>PSR25</b> 25 A	<b>PSR30</b> 30 A	<b>PSR37</b> 37 A	<b>PSR45</b> 45 A	<b>PSR60</b> 60 A	<b>PSR72</b> 72 A	<b>PSR85</b> 85 A	<b>PSR105</b> 105 A
<b>Starting capacity at <math>I_r</math></b>	4 x $I_r$ for 6 sec.												
<b>Number of starts per hour,</b> standard with aux. fan	10 (4 x $I_r$ during 6 s) See table on page 6 for details. >20 (4 x $I_e$ during 6 s)												
<b>Service factor</b>	100 %												
<b>Ambient temperature</b> during operation <sup>1)</sup> during storage	-25 °C to +60 °C -40 °C to +70 °C												
<b>Maximum altitude <sup>2)</sup></b>	4000 m												
<b>Degree of protection,</b> main circuit control circuit	<b>PSR3</b> IP20 IP20	<b>PSR6</b> IP20 IP20	<b>PSR9</b> IP20 IP20	<b>PSR12</b> IP20 IP20	<b>PSR16</b> IP20 IP20	<b>PSR25</b> IP20 IP20	<b>PSR30</b> IP20 IP20	<b>PSR37</b> IP10 IP20	<b>PSR45</b> IP10 IP20	<b>PSR60</b> IP10 IP20	<b>PSR72</b> IP10 IP20	<b>PSR85</b> IP10 IP20	<b>PSR105</b> IP10 IP20
<b>Connectable cable area,</b> main circuit control circuit	<b>PSR3 - PSR16</b> 1 x 0.75 - 2.5 mm <sup>2</sup> 2 x 0.75 - 2.5 mm <sup>2</sup>					<b>PSR25 - PSR30</b> 1 x 2.5 - 10 mm <sup>2</sup> 2 x 2.5 - 10 mm <sup>2</sup>			<b>PSR37 - PSR45</b> 1 x 6 - 35 mm <sup>2</sup> 2 x 6 - 16 mm <sup>2</sup>		<b>PSR60 - PSR105</b> 1 x 10 - 95 mm <sup>2</sup> 2 x 6 - 35 mm <sup>2</sup>		
<b>Signal relays</b> for Run signal Resistive load AC-15 (Contactor) for Top of Ramp signal Resistive load AC-15 (Contactor)	<b>PSR3 - PSR16</b> 240 V, 2 A 240 V, 0.5 A					<b>PSR25 - PSR105</b> 250 V, 5 A 250 V, 0.5 A							
<b>LED</b> for On/Ready for Run/Top Of Ramp	Green Green												
<b>Settings</b> Ramp time during start Ramp time during stop Initial- and End Voltage	1-20 sec. 0-20 sec. 40-70%												

<sup>1)</sup> Above 40 °C up to max. 60 °C reduce the rated current with 0.8 % per °C.

<sup>2)</sup> When used at high altitudes above 1000 meters up to 4000 meters you need to derate the rated current using the following formula.

$$\left[ \% \text{ of } I_e = 100 - \frac{x - 1000}{150} \right]$$

x = actual altitude for the softstarter

## UL ratings

Softstarter Type	Motor power P (hp) and full load current FLA (A)				Max. fuse A, Type	
	FLA A	$U_e$ 200 V/208 V hp	$U_e$ 220 V/240 V hp	$U_e$ 440 V/480 V hp		$U_e$ 550 V/600V hp
<b>PSR3</b>	3.4	0.5	0.75	2	2	35 A J-Type
<b>PSR6</b>	6.1	1	1.5	3	5	35 A J-Type
<b>PSR9</b>	9	2	2	5	7.5	35 A J-Type
<b>PSR12</b>	11	3	3	7.5	10	35 A J-Type
<b>PSR16</b>	15.2	3	5	10	10	35 A J-Type
<b>PSR25</b>	24.2	7.5	7.5	15	20	60 A J-Type
<b>PSR30</b>	28	7.5	10	20	25	60 A J-Type
<b>PSR37</b>	34	10	10	25	30	90 A J-Type
<b>PSR45</b>	46.2	15	15	30	40	90 A J-Type
<b>PSR60</b>	59.4	20	20	40	50	110 A J-Type
<b>PSR72</b>	68	20	25	50	60	125 A J-Type
<b>PSR85</b>	80	25	30	60	75	150 A J-Type
<b>PSR105</b>	104	30	40	75	100	200 A J-Type



# Softstarters

## Type PSS

### Overview



#### PSS18/30 ... PSS44/76

#### PSS50/85 ... PSS72/124

#### Softstarter, Type

Normal start:

In Line connected

(400 V) kW  
IEC, Max. A  
  
(440-480 V) hp  
UL, Max. A

Softstarter, Type	PSS18/30	PSS30/52	PSS37/64	PSS44/76	PSS50/85	PSS60/105	PSS72/124
(400 V) kW	7.5	15	18.5	22	25	30	37
IEC, Max. A	18	30	37	44	50	60	72
(440-480 V) hp	10	20	25	30	30	40	50
UL, Max. A	18	28	34	40	47	56	67

#### 400V, 40 °C

#### MCCB (50 kA), Type

If using MCCB only, type 1 coordination will be achieved.

T2S160	T2S160	T2S160	T2S160	T2S160	T2S160	T2S160
--------	--------	--------	--------	--------	--------	--------

#### Fuse protection (65 kA) Semiconductor fuses, Busmann, Type

To achieve a type 2 coordination, semi-conductor fuses must be used.

170M1364	170M1366	170M1368	170M1369	170M1369	170M1370	170M1371
----------	----------	----------	----------	----------	----------	----------

#### Switch fuse, Type

Suitable switch fuse for recommended semi-conductor fuses.

OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380
-------------	-------------	-------------	-------------	-------------	-------------	-------------

#### Line contactor, Type

The line contactor is not required for the softstarter itself but often used to open if OL trips.

A26	A30	A40	A50	A50	A63	A75
-----	-----	-----	-----	-----	-----	-----

#### Thermal overload relay, Type

The overload relay is always required to protect the motor.

TA25DU	TA25DU	TA42DU	TA75DU	TA75DU	TA75DU	TA75DU
--------	--------	--------	--------	--------	--------	--------

#### By-pass contactor, Type

The by-pass contactor can be used to reduce the power loss of the softstarter but also to increase the number of starts/h. All softstarters can be operated without by-pass.

A9	A16	A26	A26	A30	A40	A50
----	-----	-----	-----	-----	-----	-----

#### Current transformers, Type

Must be used if current limit function is required.

PSCT-30 1 turn	PSCT-40 1 turn	PSCT-50 1 turn	PSCT-60 1 turn	PSCT-75 1 turn	PSCT-75 1 turn	PSCT-100 1 turn
-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	--------------------

The table above is an overview of possible combinations of devices.

Complete coordination tables are available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage).

# Softstarters

## Type PSS Overview



1SFT08890-038



1SFT08800-004

### PSS85/147... PSS142/245

### PSS175/300... PSS300/515

#### Softstarter, Type

PSS85/147	PSS105/181	PSS142/245	PSS175/300	PSS250/430	PSS300/515
45	55	75	90	132	160
85	105	142	175	250	300
60	75	100	125	150	200
85	105	125	156	225	248

#### 400V, 40 °C

#### MCCB (50 kA), Type

T2S160	T3S250	T3S250	T3S250	T4S320	T5S400
--------	--------	--------	--------	--------	--------

#### Fuse protection (65 kA) Semiconductor fuses, Bussmann, Type

170M1372	170M3019	170M3020	170M3021	170M5013	170M5015
----------	----------	----------	----------	----------	----------

#### Switch fuse, Type

OS160RD0380	OESA250R03D80	OESA250R03D80	OESA250R03D80	OESA400R03D80	OESA400R03D80
-------------	---------------	---------------	---------------	---------------	---------------

#### Line contactor, Type

A95	A110	A145	A185	A260	A300
-----	------	------	------	------	------

#### Thermal overload relay, Type

TA110DU	TA110DU	TA200DU	TA200DU	TA450DU	TA450DU
---------	---------	---------	---------	---------	---------

#### By-pass contactor, Type

A50	A63	A95	A145	A145	A210
-----	-----	-----	------	------	------

#### Current transformers, Type

PSCT-125	PSCT-150	PSCT-200	PSCT-250	PSCT-400	PSCT-400
1 turn	1 turn	1 turn	1 turn	1 turn	1 turn

#### How to select correct size

By using the guide beside, you can quickly select a suitable softstarter for the most common applications.

If a more precise selection is required, you can use Prosoft, a selection software available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage).

#### Quick guide for selection



##### Normal start Class 10

Ordering – See page 14 –15

##### Typical applications

- Bow thruster
- Compressor
- Elevator
- Centrifugal pump
- Conveyor belt (short)
- Escalator

##### Heavy duty start Class 30

Ordering – See page 16 –17

##### Typical applications

- Centrifugal fan
- Crusher
- Mixer
- Conveyor belt (long)
- Mill
- Stirrer

#### ! If more than 10 starts /h

Select **one** size larger than the standard selection.

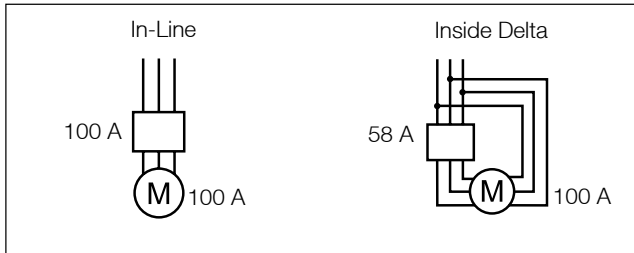
# Softstarters

## Type PSS18/30 ... PSS300/515

### Application and Description

## Application

The softstarter range PSS18/30 ... PSS300/515 is a very flexible solution suitable for most applications and for replacements of Star-Delta starters. Since the unit can be connected inside the motor delta (compare the connection for standard Star-Delta starters), the current through the softstarter is reduced by 42 %. It will then be possible, for example, to run a 100 A motor using a 58 A PSS Softstarter.



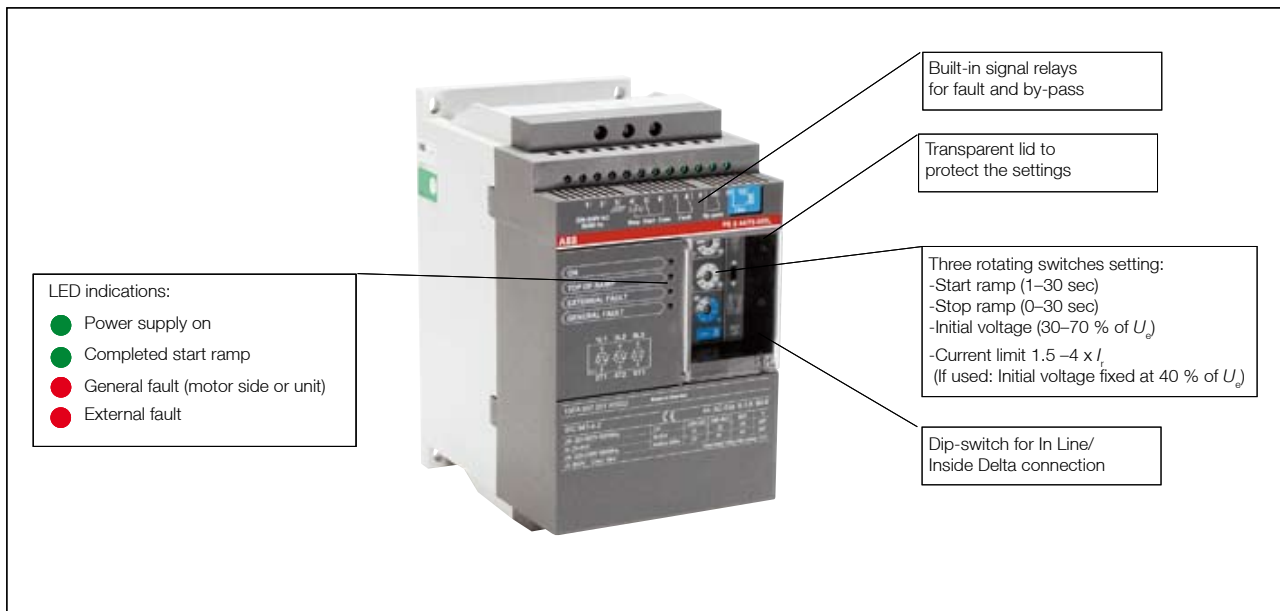
In-Line and Inside Delta connection of PSS18/30 ... PSS300/515

The PSS 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 – see page 14-15.

For **heavy duty** applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 16-17.

## Description

- Wide main voltage range 208 - 690 V AC
- Supply voltage range 110-120 V AC and 220-240 V AC
- Current ratings 18 ... 300 A (In Line) and 30 ... 515 A (Inside Delta)
- Same unit can be used for both In Line and Inside Delta connection
- Start ramp, Stop ramp and Initial voltage included
- Current limit function as option
- Solid state electrical circuit
- Designed for continuous operation without by-pass
- 15 % overcurrent capability during continuous run (10 % for PSS300/515)
- Accessories for connection and installation available: See the ordering pages



# Softstarters

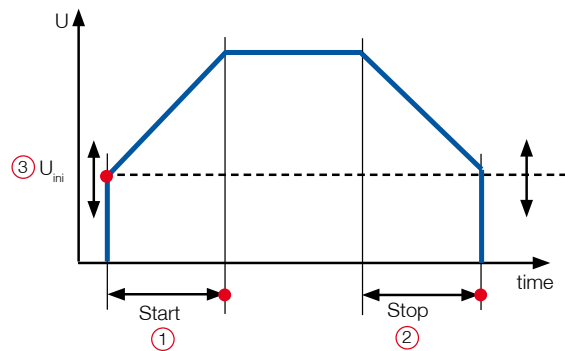
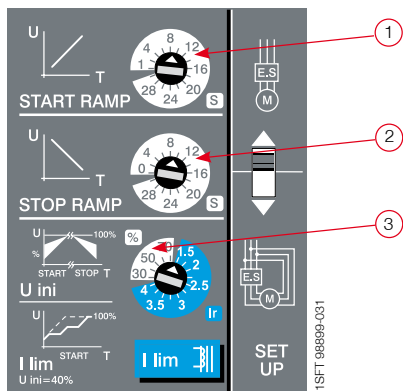
Type PSS18/30 ... PSS300/515



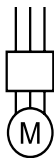
Different sizes of PSS, from left PSS175/300-500L, PSS85/147-500L, PSS50/85-500L and in the front PSS18/30-500L.

## Settings

PSS18/30 ... PSS300/515



- ① Ramp time START = 1 ... 30 sec
- ② Ramp time STOP = 0 ... 30 sec
- ③ Initial voltage  $U_{ini}$  = 40 ... 70 %, when current limit is used fixed at 40 % (also set "end voltage")



# Softstarters

Type PSS18/30 ... PSS300/515

Normal starts, class 10 – In-Line, Ordering details



PSS18/30-500 ... 44/76-500

1SFT08889-036



PSS50/85-500 ... 72/124-500  
PSS18/30-690 ... 72/124-690

1SFT08889-037



PSS85/147-500 ... 142/245-500  
PSS85/147-690 ... 142/245-690

1SFT08889-038



PSS175/300-500 ... 300/515-500  
PSS175/300-690 ... 300/515-690

1SFT08890-004

## PSS18/30 ... PSS300/515

### 230 – 500 V

#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_o$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
7.5	11	-	18	PSS18/30-500 <input type="checkbox"/>	1SFA 892 001 R $\nabla$ 00 $\nabla$	2.30
15	18.5	-	30	PSS30/52-500 <input type="checkbox"/>	1SFA 892 002 R $\nabla$ 00 $\nabla$	2.30
18.5	22	-	37	PSS37/64-500 <input type="checkbox"/>	1SFA 892 003 R $\nabla$ 00 $\nabla$	2.30
22	25	-	44	PSS44/76-500 <input type="checkbox"/>	1SFA 892 004 R $\nabla$ 00 $\nabla$	2.30
25	30	-	50	PSS50/85-500 <input type="checkbox"/>	1SFA 892 005 R $\nabla$ 00 $\nabla$	3.60
30	37	-	60	PSS60/105-500 <input type="checkbox"/>	1SFA 892 006 R $\nabla$ 00 $\nabla$	3.80
37	45	-	72	PSS72/124-500 <input type="checkbox"/>	1SFA 892 007 R $\nabla$ 00 $\nabla$	3.80
45	55	-	85	PSS85/147-500 <input type="checkbox"/>	1SFA 892 008 R $\nabla$ 00 $\nabla$	8.60
55	75	-	105	PSS105/181-500 <input type="checkbox"/>	1SFA 892 009 R $\nabla$ 00 $\nabla$	10.40
75	90	-	142	PSS142/245-500 <input type="checkbox"/>	1SFA 892 010 R $\nabla$ 00 $\nabla$	10.40
90	110	-	175	PSS175/300-500 <input type="checkbox"/>	1SFA 892 011 R $\nabla$ 00 $\nabla$	20.50
132	160	-	250	PSS250/430-500 <input type="checkbox"/>	1SFA 892 013 R $\nabla$ 00 $\nabla$	22.00
160	200	-	300	PSS300/515-500 <input type="checkbox"/>	1SFA 892 014 R $\nabla$ 00 $\nabla$	22.00

### 400 – 690 V

#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_o$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
7.5	11	15	18	PSS18/30-690 <input type="checkbox"/>	1SFA 893 001 R $\nabla$ 00 $\nabla$	2.30
15	18.5	25	30	PSS30/52-690 <input type="checkbox"/>	1SFA 893 002 R $\nabla$ 00 $\nabla$	2.30
18.5	22	30	37	PSS37/64-690 <input type="checkbox"/>	1SFA 893 003 R $\nabla$ 00 $\nabla$	2.30
22	25	37	44	PSS44/76-690 <input type="checkbox"/>	1SFA 893 004 R $\nabla$ 00 $\nabla$	2.30
25	30	45	50	PSS50/85-690 <input type="checkbox"/>	1SFA 893 005 R $\nabla$ 00 $\nabla$	3.60
30	37	55	60	PSS60/105-690 <input type="checkbox"/>	1SFA 893 006 R $\nabla$ 00 $\nabla$	3.80
37	45	59	72	PSS72/124-690 <input type="checkbox"/>	1SFA 893 007 R $\nabla$ 00 $\nabla$	3.80
45	55	75	85	PSS85/147-690 <input type="checkbox"/>	1SFA 893 008 R $\nabla$ 00 $\nabla$	8.60
55	75	90	105	PSS105/181-690 <input type="checkbox"/>	1SFA 893 009 R $\nabla$ 00 $\nabla$	10.40
75	90	132	142	PSS142/245-690 <input type="checkbox"/>	1SFA 893 010 R $\nabla$ 00 $\nabla$	10.40
90	110	160	175	PSS175/300-690 <input type="checkbox"/>	1SFA 893 011 R $\nabla$ 00 $\nabla$	20.50
132	160	220	250	PSS250/430-690 <input type="checkbox"/>	1SFA 893 013 R $\nabla$ 00 $\nabla$	22.00
160	200	257	300	PSS300/515-690 <input type="checkbox"/>	1SFA 893 014 R $\nabla$ 00 $\nabla$	22.00

<sup>1)</sup> Add code letter in Type for:  
Supply voltage,  $U_s$

- F = 110-120 V, 50/60 Hz  
 L = 220-240 V, 50/60 Hz

#### Fault signal relay

- no code letter = NO  
 C = NC

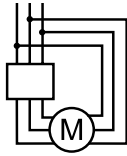
<sup>2)</sup> Add code number in Order code for:  
Fault signal relay

- $\nabla$  1 = NO  
2 = NC

#### Supply voltage, $U_s$

- $\nabla$  1 = 110-120 V, 50/60 Hz  
2 = 220-240 V, 50/60 Hz





# Softstarters

Type PSS18/30 ... PSS300/515

Normal starts, class 10 – Inside Delta, Ordering details



## PSS18/30 ... PSS300/515

### 230 – 500 V

#### Motor power

400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	-	30	PSS18/30-500	1SFA 892 001 R▽00	2.30
25	30	-	52	PSS30/52-500	1SFA 892 002 R▽00	2.30
30	37	-	64	PSS37/64-500	1SFA 892 003 R▽00	2.30
37	45	-	76	PSS44/76-500	1SFA 892 004 R▽00	2.30
45	55	-	85	PSS50/85-500	1SFA 892 005 R▽00	3.60
55	75	-	105	PSS60/105-500	1SFA 892 006 R▽00	3.80
59	80	-	124	PSS72/124-500	1SFA 892 007 R▽00	3.80
75	90	-	147	PSS85/147-500	1SFA 892 008 R▽00	8.60
90	110	-	181	PSS105/181-500	1SFA 892 009 R▽00	10.40
132	160	-	245	PSS142/245-500	1SFA 892 010 R▽00	10.40
160	200	-	300	PSS175/300-500	1SFA 892 011 R▽00	20.50
220	295	-	430	PSS250/430-500	1SFA 892 013 R▽00	22.00
257	355	-	515	PSS300/515-500	1SFA 892 014 R▽00	22.00

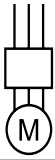
### 400 – 690 V

#### Motor power

400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	25	30	PSS18/30-690	1SFA 893 001 R▽00	2.30
25	30	45	52	PSS30/52-690	1SFA 893 002 R▽00	2.30
30	37	55	64	PSS37/64-690	1SFA 893 003 R▽00	2.30
37	45	59	76	PSS44/76-690	1SFA 893 004 R▽00	2.30
45	55	75	85	PSS50/85-690	1SFA 893 005 R▽00	3.60
55	75	90	105	PSS60/105-690	1SFA 893 006 R▽00	3.80
59	80	110	124	PSS72/124-690	1SFA 893 007 R▽00	3.80
75	90	132	147	PSS85/147-690	1SFA 893 008 R▽00	8.60
90	110	160	181	PSS105/181-690	1SFA 893 009 R▽00	10.40
132	160	220	245	PSS142/245-690	1SFA 893 010 R▽00	10.40
160	200	257	300	PSS175/300-690	1SFA 893 011 R▽00	20.50
220	295	400	430	PSS250/430-690	1SFA 893 013 R▽00	22.00
257	355	500	515	PSS300/515-690	1SFA 893 014 R▽00	22.00

<sup>1)</sup> Add code letter in Type for:  
Supply voltage,  $U_s$   
□ F = 110-120 V, 50/60 Hz  
L = 220-240 V, 50/60 Hz  
Fault signal relay  
■ no code letter = NO  
C = NC

<sup>2)</sup> Add code number in Order code for:  
Fault signal relay  
▽ 1 = NO  
2 = NC  
Supply voltage,  $U_s$   
▽ 1 = 110-120 V, 50/60 Hz  
2 = 220-240 V, 50/60 Hz



# Softstarters

Type PSS30/52 ... PSS300/515

Heavy duty starts, class 30 – In-Line, Ordering details



PSS30/52-500 ... 44/76-500

1SFT08899-038



PSS50/85-500 ... 72/124-500  
PSS18/30-690 ... 72/124-690

1SFT08899-037



PSS85/147-500 ... 142/245-500  
PSS85/147-690 ... 142/245-690

1SFT08899-038



PSS175/300-500 ... 300/515-500  
PSS175/300-690 ... 300/515-690

1SFT08899-004

## PSS30/52 ... PSS300/515

### 230 – 500 V

#### Motor power

400 V P <sub>e</sub> kW	500 V P <sub>e</sub> kW	690 V P <sub>e</sub> kW	Rated motor current, I <sub>e</sub> A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
7.5	11	-	18	PSS30/52-500	1SFA 892 002 R∇00	2.30
15	18.5	-	30	PSS37/64-500	1SFA 892 003 R∇00	2.30
18.5	22	-	37	PSS44/76-500	1SFA 892 004 R∇00	2.30
22	25	-	44	PSS50/85-500	1SFA 892 005 R∇00	3.60
25	30	-	50	PSS60/105-500	1SFA 892 006 R∇00	3.80
30	37	-	60	PSS72/124-500	1SFA 892 007 R∇00	3.80
37	45	-	72	PSS85/147-500	1SFA 892 008 R∇00	8.60
45	55	-	85	PSS105/181-500	1SFA 892 009 R∇00	10.40
55	75	-	105	PSS142/245-500	1SFA 892 010 R∇00	10.40
75	90	-	142	PSS175/300-500	1SFA 892 011 R∇00	20.50
90	110	-	175	PSS250/430-500	1SFA 892 013 R∇00	22.00
132	160	-	250	PSS300/515-500	1SFA 892 014 R∇00	22.00

### 400 – 690 V

#### Motor power

400 V P <sub>e</sub> kW	500 V P <sub>e</sub> kW	690 V P <sub>e</sub> kW	Rated motor current, I <sub>e</sub> A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
7.5	11	15	18	PSS30/52-690	1SFA 893 002 R∇00	2.30
15	18.5	25	30	PSS37/64-690	1SFA 893 003 R∇00	2.30
18.5	22	30	37	PSS44/76-690	1SFA 893 004 R∇00	2.30
22	25	37	44	PSS50/85-690	1SFA 893 005 R∇00	3.60
25	30	45	50	PSS60/105-690	1SFA 893 006 R∇00	3.80
30	37	55	60	PSS72/124-690	1SFA 893 007 R∇00	3.80
37	45	59	72	PSS85/147-690	1SFA 893 008 R∇00	8.60
45	55	75	85	PSS105/181-690	1SFA 893 009 R∇00	10.40
55	75	90	105	PSS142/245-690	1SFA 893 010 R∇00	10.40
75	90	132	142	PSS175/300-690	1SFA 893 011 R∇00	20.50
90	110	160	175	PSS250/430-690	1SFA 893 013 R∇00	22.00
132	160	220	250	PSS300/515-690	1SFA 893 014 R∇00	22.00

<sup>1)</sup> Add code letter in Type for:  
Supply voltage, U<sub>s</sub>

- F = 110-120 V, 50/60 Hz
- L = 220-240 V, 50/60 Hz

Fault signal relay

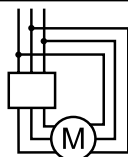
- no code letter = NO
- C = NC

<sup>2)</sup> Add code number in Order code for:  
Fault signal relay

- 1 = NO
- 2 = NC

Supply voltage, U<sub>s</sub>

- 1 = 110-120 V, 50/60 Hz
- 2 = 220-240 V, 50/60 Hz



## Softstarters

Type PSS30/52 ... PSS300/515

Heavy duty starts, class 30 – Inside Delta, Ordering details



PSS30/52-500 ... 44/76-500

PSS50/85-500 ... 72/124-500  
PSS18/30-690 ... 72/124-690

PSS85/147-500 ... 142/245-500  
PSS85/147-690 ... 142/245-690

PSS175/300-500 ... 300/515-500  
PSS175/300-690 ... 300/515-690

### PSS30/52 ... PSS300/515

#### 230 – 500 V

##### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_n$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	-	30	PSS30/52-500	1SFA 892 002 R▽00	2.30
25	30	-	52	PSS37/64-500	1SFA 892 003 R▽00	2.30
30	37	-	64	PSS44/76-500	1SFA 892 004 R▽00	2.30
37	45	-	76	PSS50/85-500	1SFA 892 005 R▽00	3.60
45	55	-	85	PSS60/105-500	1SFA 892 006 R▽00	3.80
55	75	-	105	PSS72/124-500	1SFA 892 007 R▽00	3.80
59	80	-	124	PSS85/147-500	1SFA 892 008 R▽00	8.60
75	90	-	147	PSS105/181-500	1SFA 892 009 R▽00	10.40
90	110	-	181	PSS142/245-500	1SFA 892 010 R▽00	10.40
132	160	-	245	PSS175/300-500	1SFA 892 011 R▽00	20.50
160	200	-	300	PSS250/430-500	1SFA 892 013 R▽00	22.00
220	295	-	430	PSS300/515-500	1SFA 892 014 R▽00	22.00

#### 400 – 690 V

##### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_n$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	25	30	PSS30/52-690	1SFA 893 002 R▽00	2.30
25	30	45	52	PSS37/64-690	1SFA 893 003 R▽00	2.30
30	37	55	64	PSS44/76-690	1SFA 893 004 R▽00	2.30
37	45	59	76	PSS50/85-690	1SFA 893 005 R▽00	3.60
45	55	75	85	PSS60/105-690	1SFA 893 006 R▽00	3.80
55	75	90	105	PSS72/124-690	1SFA 893 007 R▽00	3.80
59	80	110	124	PSS85/147-690	1SFA 893 008 R▽00	8.60
75	90	132	147	PSS105/181-690	1SFA 893 009 R▽00	10.40
90	110	160	181	PSS142/245-690	1SFA 893 010 R▽00	10.40
132	160	220	245	PSS175/300-690	1SFA 893 011 R▽00	20.50
160	200	257	300	PSS250/430-690	1SFA 893 013 R▽00	22.00
220	295	400	430	PSS300/515-690	1SFA 893 014 R▽00	22.00

<sup>1)</sup> Add code letter in Type for:  
Supply voltage,  $U_s$

- F = 110-120 V, 50/60 Hz
- L = 220-240 V, 50/60 Hz

##### Fault signal relay

- no code letter = NO
- C = NC

<sup>2)</sup> Add code number in Order code for:  
Fault signal relay

- 1 = NO
- 2 = NC

##### Supply voltage, $U_s$

- 1 = 110-120 V, 50/60 Hz
- 2 = 220-240 V, 50/60 Hz

# Softstarters

Accessories for type PSS18/30 ... PSS300/515

Ordering details

## Current transformer for current limit function

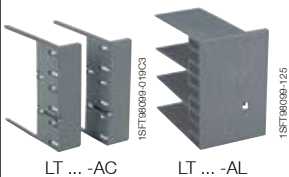
To be connected to terminals 11 and 12 on the softstarter.

The setting range (1.5 – 4) corresponds to a multiple of the transformer ratio.

Technical data below shows transformer ratio and number of turns for the primary winding.

You can also use your own current transformer with corresponding transformer ratio and with minimum 1 VA.

For softstarter type	Transformer ratio, Number of turns	Type	Order code	Weight	
				Pack <sup>ing</sup> piece	1 piece
PSS18/30	30/1 – 1 turn	PSCT-30	1SFA 899 001 R1030	1	0.30
PSS30/52	40/1 – 1 turn	PSCT-40	1SFA 899 001 R1040	1	0.30
PSS37/64	50/1 – 1 turn	PSCT-50	1SFA 899 001 R1050	1	0.30
PSS44/76	60/1 – 1 turn	PSCT-60	1SFA 899 001 R1060	1	0.30
PSS50/85	75/1 – 1 turn	PSCT-75	1SFA 899 001 R1075	1	0.30
PSS60/105	75/1 – 1 turn	PSCT-75	1SFA 899 001 R1075	1	0.30
PSS72/124	100/1 – 1 turn	PSCT-100	1SFA 899 001 R1100	1	0.25
PSS85/147	125/1 – 1 turn	PSCT-125	1SFA 899 001 R1125	1	0.25
PSS105/181	150/1 – 1 turn	PSCT-150	1SFA 899 001 R1150	1	0.25
PSS142/245	200/1 – 1 turn	PSCT-200	1SFA 899 001 R1200	1	0.25
PSS175/300	250/1 – 1 turn	PSCT-250	1SFA 899 001 R1250	1	0.25
PSS250/430	400/1 – 1 turn	PSCT-400	1SFA 899 001 R1400	1	0.25
PSS300/515	400/1 – 1 turn	PSCT-400	1SFA 899 001 R1400	1	0.25



## Cable connectors for Cu cables

For softstarter type	Wire range mm <sup>2</sup>	Tightening torque max. Nm	Type	Order code	Weight	
					Pack <sup>ing</sup> piece	1 piece
PSS85/147...142/245	6-185	16	–	1SDA 023 354 R0001	3	0.20
PSS85/147...142/245	2x(50-120)	16	LZ185-2C/120	1SFN 074 709 R1000	3	0.30
PSS175/300...300/515	16-240	25	–	1SDA 023 368 R0001	3	0.40

## Cable connectors for Al and Cu cables

For softstarter type	Wire range mm <sup>2</sup>	Tightening torque max. Nm	Type	Order code	Weight	
					Pack <sup>ing</sup> piece	1 piece
PSS85/147...142/245	35-95	13.5	–	1SDA 023 356 R0001	3	0.10
PSS85/147...142/245	25-150	31	–	1SDA 023 357 R0001	3	0.10
PSS175/300...300/515	120-240	43	–	1SDA 023 370 R0001	3	0.10

## Terminal enlargements

For softstarter type	Wire range mm <sup>2</sup>	Type	Order code	Weight	
				Pack <sup>ing</sup> piece	1 piece
PSS18/30-500 ...44/76-500	1x6...35 2x6...16	PSLW-44	1SFA 899 002 R1044	1	0.10
PSS50/85-500...72/124-500	1x10...50 2x10...25	PSLW-72	1SFA 899 002 R1072	1	0.15
PSS18/30-690 ... 72/124-690		LW185	1SFN 074 707 R1000	1	0.25
PSS85/147...142/245		LW300	1SFN 075 107 R1000	1	0.40

## Terminal nut washer

For softstarter type	Type	Order code	Weight	
			Pack <sup>ing</sup> piece	1 piece
PSS85/147...142/245	LE185	1SFN 074 716 R1000	2	0.20
PSS175/300...300/515	LE300	1SFN 075 116 R1000	2	0.30

## Terminal shrouds

For softstarter type	Suitable for	Type	Order code	Weight	
				Pack <sup>ing</sup> piece	1 piece
PSS85/147...142/245	Cable connectors	LT185-AC	1SFN 124 701 R1000	2	0.10
PSS85/147...142/245	Compression lugs	LT185-AL	1SFN 124 703 R1000	2	0.10
PSS175/300...300/515	Cable connectors	LT300-AC	1SFN 125 101 R1000	2	0.20
PSS175/300...300/515	Compression lugs	LT300-AL	1SFN 125 103 R1000	2	0.20

# Softstarters

## Type PSS18/30 ... PSS300/515

### Technical data

		PSS18/30 ... PSS300/515	
<b>Rated insulation voltage, <math>U_i</math></b>		690 V	
<b>Rated operational voltage, <math>U_e</math></b>		208 – 690 V +10 %/-15 %, 50/60 Hz $\pm$ 5 %	
<b>Starting capacity</b>		at max. rated current, $I_e$ 4 x $I_e$ for 10 sec	
<b>Number of starts per hour</b>		30 <sup>3)</sup>	
<b>Overload capability</b>		Overload class 10	
<b>Service factor</b>		<b>PSS18/30 ... 250/430</b> 115 %	<b>PSS300/515</b> 110 %
<b>Ambient temperature</b>		During operation -25 to +60 °C <sup>1)</sup> During storage -40 to +70 °C	
<b>Maximum altitud <sup>4)</sup></b>		4000 m	
<b>Degree of protection</b>		<b>PSS18/30-500 ... 44/76-500</b> IP 20	<b>PSS50/85-500 ... 72/124-500</b> IP 10
Main circuit		<b>PSS18/30-690 ... 72/124-690</b> IP 10	<b>PSS85/147-690 ... 300/515-690</b> IP 00
Supply and control circuit		<b>PSS18/30...PSS300/515</b> IP 20	
<b>Supply circuit</b>		Supply voltage, $U_s$ 110-120 V or 220-240 V +10 %/-15 %, 50/60 Hz $\pm$ 5 %	
<b>Settings</b>		Ramp time during start 1 – 30 sec Ramp time during stop 0 – 30 sec Initial voltage during start 30 – 70 % Current limit function x CT-ratio 1.5 ... 4 <sup>2)</sup>	
<b>Switch for</b>		Inside Delta connection ON/OFF Yes	
<b>Signal relays</b>		By-pass signal Yes Fault signal Yes (NO or NC) Rated operational voltage, $U_e$ 250V Rated thermal current, $I_{th}$ 5A Rated operational current, $I_e$ at AC-15 ( $U_e=250$ V) 1.5A	
<b>Signal indication LED</b>		Ready to start/stand by ON Green Ramping up/down – Completed start ramp T.O.R Green General fault Red External fault Red	

<sup>1)</sup> Above 40 °C, up to max 60 °C, reduce the rated current with 0.8 % per °C.

<sup>2)</sup> Only if current transformer is connected (accessory).

<sup>3)</sup> Valid for 50 % on time and 50 % off time.  $3.5 \times I_e$  for 7 sec., if other data is required, contact your sales office.

<sup>4)</sup> When used at high altitudes above 1000 meters up to 4000 meters you need to derate rated current using the following formula.

$$\left[ \% \text{ of } I_e = 100 - \frac{x - 1000}{150} \right]$$

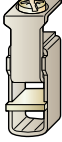
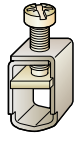
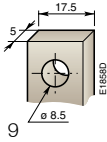
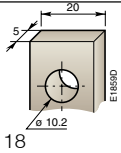
x = actual altitude for the softstarter

# Softstarters

## Type PSS18/30 ... PSS300/515

### Technical data

#### Cross section of connection cables

		Type of softstarter			
		PSS 18/30-500 ... 44/76-500	PSS50/85-500 ... 72/124-500, 18/30-690 ... 72/124-690	PSS85/147-500 ... 142/245-500, 85/147-690 ... 142/245-690	PSS175/300 ... 300/515-500, 175/300 ... 300/515-690
<b>Main circuit</b>					
Connection clamp					
					
Solid/Stranded	1 x mm <sup>2</sup>	2.5 – 16	6 – 50	See accessories	See accessories
Solid/Stranded	2 x mm <sup>2</sup>	2.5 – 16	6 – 25	See accessories	See accessories
Tightening torque (recommended)	Nm	2.6	4.5	See accessories	See accessories
Connection bar					
Width and thickness	mm	–	–		
Hole diameter	mm	–	–	9	18
Tightening torque (recommended)	Nm	–	–	–	–
<b>Supply and control circuit</b>					
Connection clamp					
Solid/Stranded	1 x mm <sup>2</sup>	2.5	2.5	2.5	2.5
Solid/Stranded	2 x mm <sup>2</sup>	–	–	–	–
Tightening torque (recommended)	Nm	0.5	0.5	0.5	0.5

#### Fuse ratings and power losses

For Softstarter	Recommended ABB Overload protection	Current range	Max power loss at rated I <sub>e</sub>		Max fuse rating - main circuit <sup>1)</sup>				Power requirements of supply	
			without by-pass <sup>2)</sup>	with external by-pass	Bussman fuses			Ferraz fuses/circuit		
					A	Type	Holder	A		Type
PSS18/30	TA 25 DU	6–18	65	13.5	50	170M1364	170H1007	63	6.6 URB 000 D08 V 0063	9
PSS30/52	TA 25 DU	10–30	100	14.6	80	170M1366	170H1007	100	6.6 URB 000 D08 V 0100	9
PSS37/64	TA 42 DU	22–37	120	17.5	125	170M1368	170H1007	160	6.6 URB 000 D08 V 0160	9
PSS44/76	TA 75 DU	29–44	142	17.5	160	170M1369	170H1007	200	6.6 URD 30 D08 A 0200	9
PSS50/85	TA 75 DU	29–50	160	20.5	160	170M1369	170H1007	200	6.6 URD 30 D08 A 0200	10
PSS60/105	TA 75 DU	29–60	190	22	200	170M1370	170H1007	250	6.6 URD 30 D08 A 0250	10
PSS72/124	TA 75 DU	45–72	226	30.5	250	170M1371	170H1007	315	6.6 URD 30 D08 A 0315	10
PSS85/147	TA 110 DU	65–85	291	56.5	315	170M1372	170H1007	400	6.6 URD 30 D08 A 0400	36
PSS105/181	TA 110 DU	65–105	351	61	400	170M3019	170H3004	400	6.6 URD 30 D08 A 0400	36
PSS142/245	TA 200 DU	100–142	462	63	450	170M3020	170H3004	500	6.6 URD 30 D08 A 0500	36
PSS175/300	TA 200 DU	100–175	590	117	500	170M3021	170H3004	530	6.6 URD 30 D08 A 0550	65
PSS250/430	TA 450 DU	130–250	815	117	700	170M5013	170H3004	630	6.6 URD 31 D08 A 0630	65
PSS300/515	TA 450 DU	130–300	965	140	900	170M5015	170H3004	900	6.6 URD 32 D11 A 0900	65

<sup>1)</sup> For the supply circuit 6 A delayed, for MCB use C characteristics.

<sup>2)</sup> Calculated power loss at operational current (I<sub>op</sub>) without by-pass.

P<sub>tot</sub> = 3 x I<sub>op</sub> + VA value

Example: PSS 60/105 running at 52A

P<sub>tot</sub> = 3 x 52 + 10 = 166W

When using bypass, the powerloss is reduced to the VA value only.



# Softstarters

Type PSS18/30 ... PSS300/515

UL ratings

## 3-phase motor rating - In Line

Softstarters	Motor power P (hp) and full load current FLA, (A)							
	U <sub>e</sub> 200V / 208V		U <sub>e</sub> 220V / 240V		U <sub>e</sub> 440V / 480V		U <sub>e</sub> 550V / 600V	
	hp	A	hp	A	hp	A	hp	A
PSS18/30	5	18	5	18	10	18	15	18
PSS30/52	7.5	28	10	28	20	28	25	28
PSS37/64	10	34	10	34	25	34	30	34
PSS44/76	10	40	10	40	30	40	30	40
PSS50/85	15	47	15	47	30	47	40	47
PSS60/105	15	56	20	56	40	56	50	56
PSS72/124	20	67	20	67	50	67	60	67
PSS85/147	25	85	30	85	60	85	75	85
PSS105/181	30	105	40	105	75	105	100	105
PSS142/245	40	125	40	125	100	125	125	125
PSS175/300	50	156	60	156	125	156	150	156
PSS250/430	75	225	75	225	150	225	200	225
PSS300/515	75	248	100	248	200	248	250	248

## 3-phase motor rating - Inside Delta

Softstarters	Motor power P (hp) and full load current FLA, (A)							
	U <sub>e</sub> 200V / 208V		U <sub>e</sub> 220V / 240V		U <sub>e</sub> 440V / 480V		U <sub>e</sub> 550V / 600V	
	hp	A	hp	A	hp	A	hp	A
PSS18/30	7.5	30	10	30	20	30	25	30
PSS30/52	15	48	15	48	30	48	40	48
PSS37/64	20	58	20	58	40	58	50	58
PSS44/76	20	69	25	69	50	69	60	69
PSS50/85	25	81	30	81	60	81	75	81
PSS60/105	30	96	30	96	75	96	75	96
PSS72/124	40	116	40	116	75	116	100	116
PSS85/147	50	147	50	147	100	147	150	147
PSS105/181	60	181	60	181	150	181	150	181
PSS142/245	75	215	75	215	150	215	200	215
PSS175/300	75	270	100	270	200	270	250	270
PSS250/430	125	389	150	389	300	389	400	389
PSS300/515	150	429	150	429	350	429	400	429

# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Overview



1SFC132172F0001

**PST30 ... PST72**



1SFC132173F0001

**PST85 ... PST142**

Normal start:

**In Line connected**

(400 V) kW  
IEC, Max. A  
  
(440-480 V) hp  
UL, Max. A

### Softstarter, Type

	PST30	PST37	PST44	PST50	PST60	PST72	PST85	PST105	PST142
(400 V) kW	15	18.5	22	25	30	37	45	55	75
IEC, Max. A	30	37	44	50	60	72	85	105	142
(440-480 V) hp	20	25	30	40	40	50	60	75	100
UL, Max. A	28	34	42	54	60	68	80	104	130

400V, 40 °C

### MCCB (50 kA), Type

If using MCCB only, type 1 coordination will be achieved.

T2S160	T2S160	T2S160	T2S160	T2S160	T2S160	T2S160	T3S250	T3S250
--------	--------	--------	--------	--------	--------	--------	--------	--------

### Fuse protection (65 kA) Semiconductor fuses, Bussmann, Type

To achieve a type 2 coordination, semi-conductor fuses must be used.

170M1366	170M1368	170M1369	170M1369	170M1370	170M1371	170M1372	170M3019	170M3020
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### Switch fuse, Type

Suitable switch fuse for recommended semi-conductor fuses.

OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OS160RD0380	OESA250R03D80	OESA250R03D80
-------------	-------------	-------------	-------------	-------------	-------------	-------------	---------------	---------------

### Line contactor, Type

The line contactor is not required for the softstarter itself but often used to open if OL trips.

A30	A40	A50	A50	A63	A75	A95	A110	A145
-----	-----	-----	-----	-----	-----	-----	------	------

### Electronic overload relay

The overload relay is always required to protect the motor.

Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in
----------	----------	----------	----------	----------	----------	----------	----------	----------

### By-pass contactor, Type

The by-pass contactor can be used to reduce the power loss of the softstarter but also to increase the number of starts/h. All softstarters can be operated without by-pass.

A16	A26	A26	A30	A40	A50	A50	A63	A95
-----	-----	-----	-----	-----	-----	-----	-----	-----

### Current transformers

Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
------------	------------	------------	------------	------------	------------	------------	------------	------------

The table above is an overview of possible combinations of devices.  
Complete coordination tables are available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage).

# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Overview



1SFC132174F0001



1SFC132175F0001



1SFC132176F0001

## PST175... PST300

## PSTB370 ... 470

## PSTB570 ... 1050

### Softstarter, Type

PST175	PST210	PST250	PST300	PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
90	110	132	160	200	250	315	400	450	560
175	210	250	300	370	470	570	720	840	1050
125	150	200	250	300	400	500	600	700	900
156	192	248	302	361	480	590	720	840	1062

400V, 40 °C

### MCCB (50 kA), Type

T4S250	T4S250	T5S400	T5S400	T5S630	T5S630	T6S630	T6S800	T7S1250	T7S1600
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### Fuse protection (65 kA) Semiconductor fuses, Bussmann, Type

170M3021	170M5012	170M5013	170M5015	170M5013	170M5015	170M5015	170M5018	170M6018	170M6020 <sup>2)</sup>
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### Switch fuse, Type

OESA250R03D80	OESA400R03D80	OESA400R03D80	OESA400R03D80	OESA630R03D80	<sup>1)</sup>	<sup>1)</sup>
	OESA400R03D80	OESA400R03D80	OESA630R03D80	OESA800R03D80		

### Line contactor, Type

A185	A210	A260	A300	AF400	AF580	AF580	AF750	AF1350	AF1650
------	------	------	------	-------	-------	-------	-------	--------	--------

### Electronic overload relay

Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in
----------	----------	----------	----------	----------	----------	----------	----------	----------	----------

### By-pass contactor, Type

A145	A145	A145	A210	Built-in	Built-in	Built-in	Built-in	Built-in	Built-in
------	------	------	------	----------	----------	----------	----------	----------	----------

### Current transformers

Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
------------	------------	------------	------------	------------	------------	------------	------------	------------	------------

<sup>1)</sup> PSTB840 and PSTB1050: Switch fuse not available, use fuseholder, see page 40.

<sup>2)</sup> PSTB1050-690-70 has 170M6019

### How to select correct size

By using the guide beside, you can quickly select a suitable softstarter for the most common applications.

If a more precise selection is required, you can use Prosoft, a selection software available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage).

### Quick guide for selection

#### Normal start Class 10

Ordering – See page 26 –27

#### Typical applications

- Bow thruster
- Compressor
- Elevator
- Centrifugal pump
- Conveyor belt (short)
- Escalator

#### Heavy duty start Class 30

Ordering – See page 28 –29

#### Typical applications

- Centrifugal fan
- Crusher
- Mixer
- Conveyor belt (long)
- Mill
- Stirrer

#### If more than 10 starts /h

! Select **one** size larger than the standard selection.

# Softstarters

## Type PST30 ... 300 and PSTB370 ... 1050 Application and description

### 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 keypad and the logic structure of the menu make the installation, commissioning and operation easy. It is possible to choose between 14 different languages.

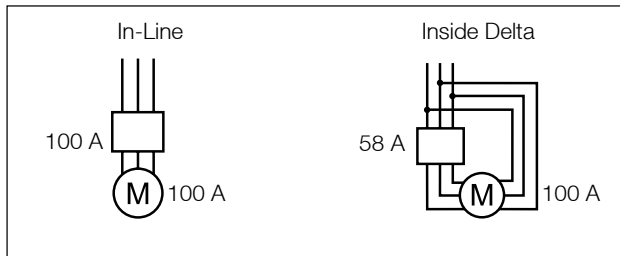
The PST Softstarter can be used with or without a by-pass contactor except for the larger sizes PSTB370 ... PSTB1050 where the by-pass contactor is already built-in.

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. See page 26-27

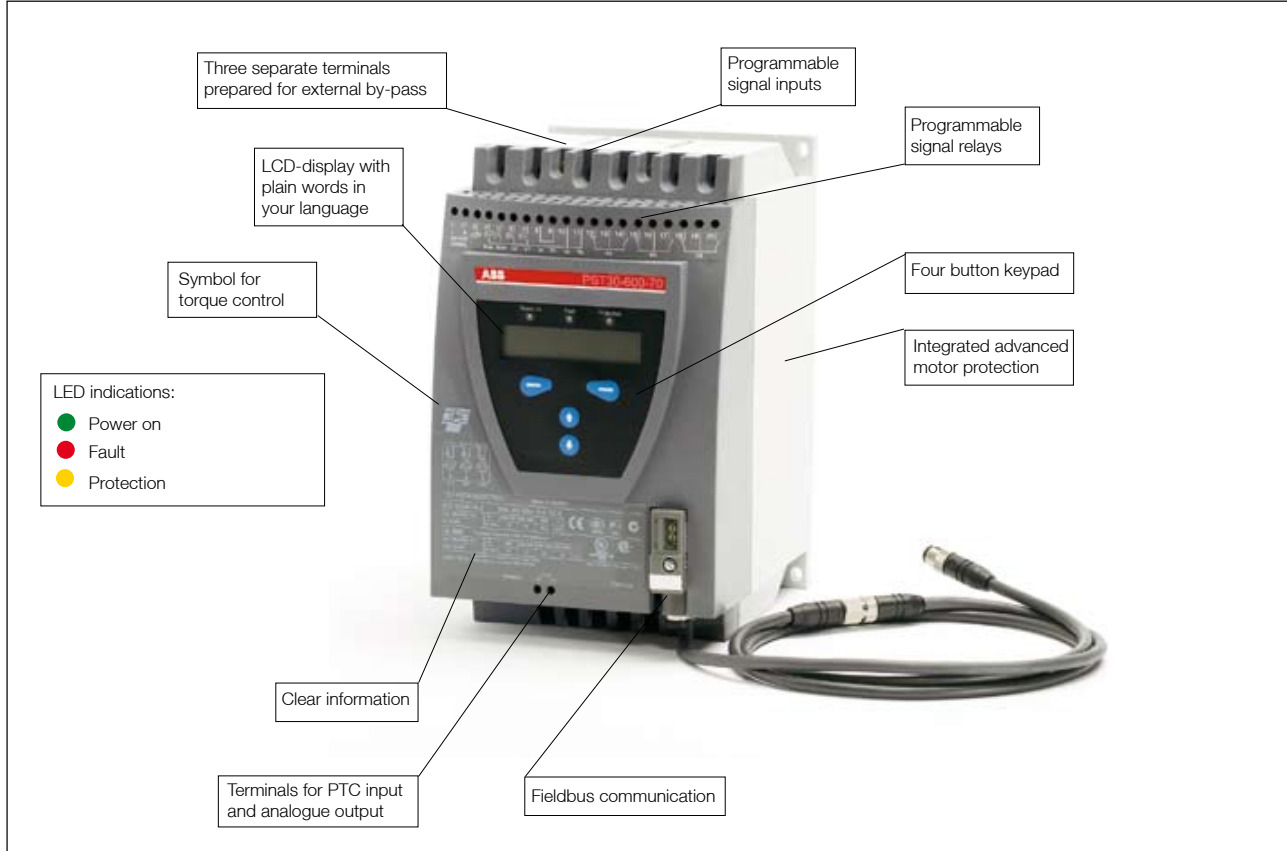
For **heavy duty** applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 28-29.

### Description

- Wide main voltage range 208 - 690 V AC
- Wide supply voltage range 100 – 250 V, 50/60 Hz
- Current ratings 30 to 1050 A (In Line) and 52 ... 1810 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  $2-7 \times I_e$
- Thermistor (PTC) supervision of motor winding
- Real time clock
- Logging of last 20 events with time marking
- Prepared for fieldbus communication
- Motor overload protection with simulated motor temperature from measured current. Select between 10A, 10, 20 and 30
- Locked rotor protection
- Motor underload protection
- Phase imbalance protection
- Phase reversal protection
- Torque control
- Analog output



In-Line and Inside Delta connection of PST30 ... PSTB1050



# Softstarters

## Type PST30 ... 300 and PSTB370 ... 1050 Functional description

### HMI (Human Machine Interface)

The display of the PST gives you information presented in plain words in required language. You can choose between 14 different languages, on the display you get all the information you need to set up, adjust and trouble-shoot.

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.

All of this makes the PST extremely easy to handle.

### 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.

### Coated PCBs

The PST(B) softstarter can be ordered as a version with coated PCBs. This coating can extend the lifelength of the PCBs in for instance waste water plants where corrosive acids and gases may exist.

### 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 protections, faults and 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 (PSTB 370 ... PSTB1050), there is an ABB AF contactor integrated. This gives you advantages in terms of cost-saving, space saving 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.

The smaller units, PST30 up to PST300, which are not equipped with a built-in by-pass contactor, have an extra set of three terminals on the line side. The terminals are marked B1, B2 and B3 and shall be used when connecting an external by-pass contactor. This will enable the integrated protection functions also when the softstarter is by-passed.

### External keypad (option)

An external keypad is available as option. The keypad can be mounted on a panel door for example to view/control the softstarter without opening the door. The keypad can also be used to copy parameters between different softstarters.



### 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, up- and down load of 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. Available protocols are DeviceNet, Profibus DP, Modbus-RTU and CANopen. To connect the PST Softstarter to a fieldbus system you need the accessories described on page 31 to 34 as well as specific software for PLC set-up, which is available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages.

### Torque control

The default setting is a normal voltage ramp but it is possible to select torque ramp. With the torque control function it is possible to start and stop motors with a more linear acceleration than when using the normal voltage ramps.



During start this can be used to reduce the wear on the equipment driven by the motor.

During stop, controlling the torque is especially useful for pump applications where voltage ramps can lead to a sudden torque drop which may result in water hammering and pressure surges. Torque control will keep these problems to an absolute minimum.

### Torque limit

With the torque limit function enabled, the torque can never exceed a set value during start. This will minimize stress and wear on the equipment driven by the motor.

### Analog output

With the PST(B) softstarter it is possible to have analog output signals to be used as input to a PLC or an analog meter. The output signals can be selected to be for instance the current of the motor, main voltage, active power or the temperature of the motor. The terminals used for analog output are also used for PTC protection, so only one of these functions can be used.



PSTB570 with integrated by-pass contactor.



# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Normal starts, class 10 – In-Line, Ordering details



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



PSTB370 ... PSTB470



PSTB570 ... PSTB1050

1SFC132172F0001

1SFC132173F0001

1SFC132174F0001

1SFC132175F0001

1SFC132176F0001

## PST30 ... PST300

### 230 – 600 V

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>*)</sup>	Order code <sup>**)</sup>	Weight kg
15	18,5	-	30	PST30-600-70□	1SFA 894 002 R70▽	4.8
18.5	22	-	37	PST37-600-70□	1SFA 894 003 R70▽	4.8
22	25	-	44	PST44-600-70□	1SFA 894 004 R70▽	4.8
25	30	-	50	PST50-600-70□	1SFA 894 005 R70▽	4.8
30	37	-	60	PST60-600-70□	1SFA 894 006 R70▽	5.0
37	45	-	72	PST72-600-70□	1SFA 894 007 R70▽	5.0
45	55	-	85	PST85-600-70□	1SFA 894 008 R70▽	11.2
55	75	-	105	PST105-600-70□	1SFA 894 009 R70▽	13.0
75	90	-	142	PST142-600-70□	1SFA 894 010 R70▽	13.0
90	110	-	175	PST175-600-70□	1SFA 894 011 R70▽	21.5
110	132	-	210	PST210-600-70□	1SFA 894 012 R70▽	21.5
132	160	-	250	PST250-600-70□	1SFA 894 013 R70▽	23.0
160	200	-	300	PST300-600-70□	1SFA 894 014 R70▽	23.0

### 400 – 690 V

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>*)</sup>	Order code <sup>**)</sup>	Weight kg
15	18,5	25	30	PST30-690-70□	1SFA 895 002 R70▽	4.8
18.5	22	30	37	PST37-690-70□	1SFA 895 003 R70▽	4.8
22	25	37	44	PST44-690-70□	1SFA 895 004 R70▽	4.8
25	30	45	50	PST50-690-70□	1SFA 895 005 R70▽	4.8
30	37	55	60	PST60-690-70□	1SFA 895 006 R70▽	5.0
37	45	59	72	PST72-690-70□	1SFA 895 007 R70▽	5.0
45	55	75	85	PST85-690-70□	1SFA 895 008 R70▽	11.2
55	75	90	105	PST105-690-70□	1SFA 895 009 R70▽	13.0
75	90	132	142	PST142-690-70□	1SFA 895 010 R70▽	13.0
90	110	160	175	PST175-690-70□	1SFA 895 011 R70▽	21.5
110	132	184	210	PST210-690-70□	1SFA 895 012 R70▽	21.5
132	160	220	250	PST250-690-70□	1SFA 895 013 R70▽	23.0
160	200	257	300	PST300-690-70□	1SFA 895 014 R70▽	23.0

## PSTB370 ... PSTB1050 with integrated by-pass

### 230 – 600 V

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>*)</sup>	Order code <sup>**)</sup>	Weight kg
200	257	-	370	PSTB370-600-70□	1SFA 894 015 R70▽	31.0
250	315	-	470	PSTB470-600-70□	1SFA 894 016 R70▽	31.0
315	400	-	570	PSTB570-600-70□	1SFA 894 017 R70▽	52.0
400	500	-	720	PSTB720-600-70□	1SFA 894 018 R70▽	55.0
450	600	-	840	PSTB840-600-70□	1SFA 894 019 R70▽	60.0
560	730	-	1050	PSTB1050-600-70□	1SFA 894 020 R70▽	60.0

### 400 – 690 V

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

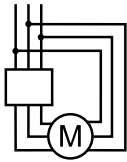
#### Motor power

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>*)</sup>	Order code <sup>**)</sup>	Weight kg
200	257	355	370	PSTB370-690-70□	1SFA 895 015 R70▽	31.0
250	315	450	470	PSTB470-690-70□	1SFA 895 016 R70▽	31.0
315	400	560	570	PSTB570-690-70□	1SFA 895 017 R70▽	52.0
400	500	710	720	PSTB720-690-70□	1SFA 895 018 R70▽	55.0
450	600	800	840	PSTB840-690-70□	1SFA 895 019 R70▽	60.0
560	730	1000	1050	PSTB1050-690-70□	1SFA 895 020 R70▽	60.0

<sup>\*)</sup> Add code letter in Type acc. to below:  
□ No code letter = Normal  
T = Coated PCBs

<sup>\*\*)</sup> Add code number in Order code acc. to below:  
▽ 0 = Normal  
2 = Coated PCBs





# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050

Normal starts, class 10 – Inside Delta, Ordering details



## PST30 ... PST300

**230 – 600 V**

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

Motor power			Rated motor current, $I_n$ A	Type *)	Order code **)	Weight kg
400 V $P_n$ kW	500 V $P_n$ kW	690 V $P_n$ kW				
25	30	-	52	PST30-600-70□	1SFA 894 002 R70∇0	4.8
30	37	-	64	PST37-600-70□	1SFA 894 003 R70∇0	4.8
37	45	-	76	PST44-600-70□	1SFA 894 004 R70∇0	4.8
45	55	-	85	PST50-600-70□	1SFA 894 005 R70∇0	4.8
55	75	-	105	PST60-600-70□	1SFA 894 006 R70∇0	5.0
59	80	-	124	PST72-600-70□	1SFA 894 007 R70∇0	5.0
75	90	-	147	PST85-600-70□	1SFA 894 008 R70∇0	11.2
90	110	-	181	PST105-600-70□	1SFA 894 009 R70∇0	13.0
132	160	-	245	PST142-600-70□	1SFA 894 010 R70∇0	13.0
160	200	-	300	PST175-600-70□	1SFA 894 011 R70∇0	21.5
184	250	-	360	PST210-600-70□	1SFA 894 012 R70∇0	21.5
220	295	-	430	PST250-600-70□	1SFA 894 013 R70∇0	23.0
257	355	-	515	PST300-600-70□	1SFA 894 014 R70∇0	23.0

**400 – 690 V**

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

Motor power			Rated motor current, $I_n$ A	Type *)	Order code **)	Weight kg
400 V $P_n$ kW	500 V $P_n$ kW	690 V $P_n$ kW				
25	30	45	52	PST30-690-70□	1SFA 895 002 R70∇0	4.8
30	37	55	64	PST37-690-70□	1SFA 895 003 R70∇0	4.8
37	45	59	76	PST44-690-70□	1SFA 895 004 R70∇0	4.8
45	55	75	85	PST50-690-70□	1SFA 895 005 R70∇0	4.8
55	75	90	105	PST60-690-70□	1SFA 895 006 R70∇0	5.0
59	80	110	124	PST72-690-70□	1SFA 895 007 R70∇0	5.0
75	90	132	147	PST85-690-70□	1SFA 895 008 R70∇0	11.2
90	110	160	181	PST105-690-70□	1SFA 895 009 R70∇0	13.0
132	160	220	245	PST142-690-70□	1SFA 895 010 R70∇0	13.0
160	200	257	300	PST175-690-70□	1SFA 895 011 R70∇0	21.5
184	250	315	360	PST210-690-70□	1SFA 895 012 R70∇0	21.5
220	295	400	430	PST250-690-70□	1SFA 895 013 R70∇0	23.0
257	355	500	515	PST300-690-70□	1SFA 895 014 R70∇0	23.0

## PSTB370...PSTB1050 with integrated by-pass

**230 – 600 V**

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

Motor power			Rated motor current, $I_n$ A	Type *)	Order code **)	Weight kg
400 V $P_n$ kW	500 V $P_n$ kW	690 V $P_n$ kW				
355	450	-	640	PSTB370-600-70□	1SFA 894 015 R70∇0	31.0
450	600	-	814	PSTB470-600-70□	1SFA 894 016 R70∇0	31.0
540	700	-	987	PSTB570-600-70□	1SFA 894 017 R70∇0	52.0
710	880	-	1247	PSTB720-600-70□	1SFA 894 018 R70∇0	55.0
800	1000	-	1455	PSTB840-600-70□	1SFA 894 019 R70∇0	60.0
1000	1250	-	1810	PSTB1050-600-70□	1SFA 894 020 R70∇0	60.0

**400 – 690 V**

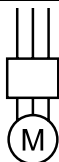
Supply voltage,  $U_s$  100...250 V, 50/60 Hz

Motor power			Rated motor current, $I_n$ A	Type *)	Order code **)	Weight kg
400 V $P_n$ kW	500 V $P_n$ kW	690 V $P_n$ kW				
355	450	600	640	PSTB370-690-70□	1SFA 895 015 R70∇0	31.0
450	600	800	814	PSTB470-690-70□	1SFA 895 016 R70∇0	31.0
540	700	960	987	PSTB570-690-70□	1SFA 895 017 R70∇0	52.0
710	880	1200	1247	PSTB720-690-70□	1SFA 895 018 R70∇0	55.0
800	1000	1400	1455	PSTB840-690-70□	1SFA 895 019 R70∇0	60.0
1000	1250	1700	1810	PSTB1050-690-70□	1SFA 895 020 R70∇0	60.0

\*) Add code letter in Type acc. to below:  
□ No code letter = Normal  
T = Coated PCBs

\*\*) Add code number in Order code acc. to below:  
∇ 0 = Normal  
2 = Coated PCBs





# Softstarters

Type PST37 ... 300 and PSTB370 ... 1050

Heavy duty starts, class 30 – In-Line, Ordering details



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



PSTB370 ... PSTB470



PSTB570...PSTB1050

1SFC132172F0001

1SFC132173F0001

1SFC132174F0001

1SFC132175F0001

1SFC132176F0001

## PST37 ... PST300

### 230 – 600 V

#### Motor power

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	-	30	PST37-600-70□	1SFA 894 003 R70∇	4.8
18.5	22	-	37	PST44-600-70□	1SFA 894 004 R70∇	4.8
22	25	-	44	PST50-600-70□	1SFA 894 005 R70∇	4.8
25	30	-	50	PST60-600-70□	1SFA 894 006 R70∇	5.0
30	37	-	60	PST72-600-70□	1SFA 894 007 R70∇	5.0
37	45	-	72	PST85-600-70□	1SFA 894 008 R70∇	11.2
45	55	-	85	PST105-600-70□	1SFA 894 009 R70∇	13.0
55	75	-	105	PST142-600-70□	1SFA 894 010 R70∇	13.0
75	90	-	142	PST175-600-70□	1SFA 894 011 R70∇	21.5
90	110	-	175	PST210-600-70□	1SFA 894 012 R70∇	21.5
110	132	-	210	PST250-600-70□	1SFA 894 013 R70∇	23.0
132	160	-	250	PST300-600-70□	1SFA 894 014 R70∇	23.0

### 400 – 690 V

#### Motor power

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
15	18.5	25	30	PST37-690-70□	1SFA 895 003 R70∇	4.8
18.5	22	30	37	PST44-690-70□	1SFA 895 004 R70∇	4.8
22	25	37	44	PST50-690-70□	1SFA 895 005 R70∇	4.8
25	30	45	50	PST60-690-70□	1SFA 895 006 R70∇	5.0
30	37	55	60	PST72-690-70□	1SFA 895 007 R70∇	5.0
37	45	59	72	PST85-690-70□	1SFA 895 008 R70∇	11.2
45	55	75	85	PST105-690-70□	1SFA 895 009 R70∇	13.0
55	75	90	105	PST142-690-70□	1SFA 895 010 R70∇	13.0
75	90	132	142	PST175-690-70□	1SFA 895 011 R70∇	21.5
90	110	160	175	PST210-690-70□	1SFA 895 012 R70∇	21.5
110	132	184	210	PST250-690-70□	1SFA 895 013 R70∇	23.0
132	160	220	250	PST300-690-70□	1SFA 895 014 R70∇	23.0

## PSTB370 ... PSTB1050 with integrated by-pass

### 230 – 600 V

#### Motor power

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
160	200	-	300	PSTB370-600-70□	1SFA 894 015 R70∇	31.0
200	257	-	370	PSTB470-600-70□	1SFA 894 016 R70∇	31.0
250	315	-	470	PSTB570-600-70□	1SFA 894 017 R70∇	52.0
315	400	-	570	PSTB720-600-70□	1SFA 894 018 R70∇	55.0
400	500	-	720	PSTB840-600-70□	1SFA 894 019 R70∇	60.0
450	600	-	840	PSTB1050-600-70□	1SFA 894 020 R70∇	60.0

### 400 – 690 V

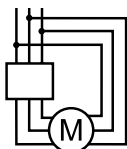
#### Motor power

Supply voltage,  $U_s$  100...250 V, 50/60 Hz

400 V $P_o$ kW	500 V $P_o$ kW	690 V $P_o$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
160	200	257	300	PSTB370-690-70□	1SFA 895 015 R70∇	31.0
200	257	355	370	PSTB470-690-70□	1SFA 895 016 R70∇	31.0
250	315	450	470	PSTB570-690-70□	1SFA 895 017 R70∇	52.0
315	400	560	570	PSTB720-690-70□	1SFA 895 018 R70∇	55.0
400	500	710	720	PSTB840-690-70□	1SFA 895 019 R70∇	60.0
450	600	800	840	PSTB1050-690-70□	1SFA 895 020 R70∇	60.0

<sup>1)</sup> Add code letter in Type acc. to below:  
□ No code letter = Normal  
T = Coated PCBs

<sup>2)</sup> Add code number in Order code acc. to below:  
∇ 0 = Normal  
2 = Coated PCBs



# Softstarters

Type PST37 ... 300 and PSTB370 ... 1050

Heavy duty starts, class 30 – Inside Delta, Ordering details



## PST37 ... PST300

**230 – 600 V**

Supply voltage,  $U_s$ , 100...250 V, 50/60 Hz

Motor power

400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
25	30	-	52	PST37-600-70□	1SFA 894 003 R70∇0	4.8
30	37	-	64	PST44-600-70□	1SFA 894 004 R70∇0	4.8
37	45	-	76	PST50-600-70□	1SFA 894 005 R70∇0	4.8
45	55	-	85	PST60-600-70□	1SFA 894 006 R70∇0	5.0
55	75	-	105	PST72-600-70□	1SFA 894 007 R70∇0	5.0
59	80	-	124	PST85-600-70□	1SFA 894 008 R70∇0	11.2
75	90	-	147	PST105-600-70□	1SFA 894 009 R70∇0	13.0
90	110	-	181	PST142-600-70□	1SFA 894 010 R70∇0	13.0
132	160	-	245	PST175-600-70□	1SFA 894 011 R70∇0	21.5
160	200	-	300	PST210-600-70□	1SFA 894 012 R70∇0	21.5
184	250	-	360	PST250-600-70□	1SFA 894 013 R70∇0	23.0
220	295	-	430	PST300-600-70□	1SFA 894 014 R70∇0	23.0

**400 – 690 V**

Supply voltage,  $U_s$ , 100...250 V, 50/60 Hz

Motor power

400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
25	30	45	52	PST37-690-70□	1SFA 895 003 R70∇0	4.8
30	37	55	64	PST44-690-70□	1SFA 895 004 R70∇0	4.8
37	45	59	76	PST50-690-70□	1SFA 895 005 R70∇0	4.8
45	55	75	90	PST60-690-70□	1SFA 895 006 R70∇0	5.0
55	75	90	105	PST72-690-70□	1SFA 895 007 R70∇0	5.0
59	80	110	124	PST85-690-70□	1SFA 895 008 R70∇0	11.2
75	90	132	147	PST105-690-70□	1SFA 895 009 R70∇0	13.0
90	110	160	181	PST142-690-70□	1SFA 895 010 R70∇0	13.0
132	160	220	245	PST175-690-70□	1SFA 895 011 R70∇0	21.5
160	200	257	300	PST210-690-70□	1SFA 895 012 R70∇0	21.5
184	250	315	360	PST250-690-70□	1SFA 895 013 R70∇0	23.0
220	295	400	430	PST300-690-70□	1SFA 895 014 R70∇0	23.0

## PSTB370...PSTB1050 with integrated by-pass

**230 – 600 V**

Supply voltage,  $U_s$ , 100...250 V, 50/60 Hz

Motor power

400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
257	355	-	515	PSTB370-600-70□	1SFA 894 015 R70∇0	31.0
355	450	-	640	PSTB470-600-70□	1SFA 894 016 R70∇0	31.0
450	600	-	814	PSTB570-600-70□	1SFA 894 017 R70∇0	52.0
540	700	-	987	PSTB720-600-70□	1SFA 894 018 R70∇0	55.0
710	880	-	1247	PSTB840-600-70□	1SFA 894 019 R70∇0	60.0
800	1000	-	1455	PSTB1050-600-70□	1SFA 894 020 R70∇0	60.0

**400 – 690 V**

Supply voltage,  $U_s$ , 100...250 V, 50/60 Hz

Motor power

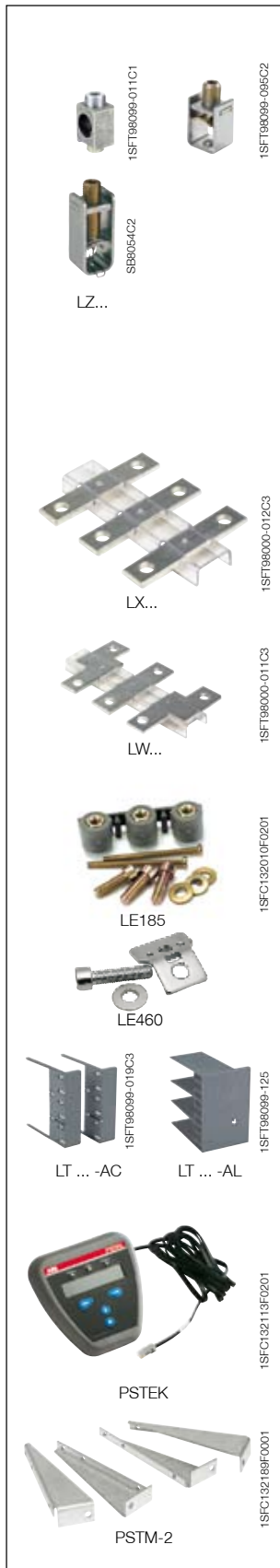
400 V $P_e$ kW	500 V $P_e$ kW	690 V $P_e$ kW	Rated motor current, $I_e$ A	Type <sup>1)</sup>	Order code <sup>2)</sup>	Weight kg
257	355	500	515	PSTB370-690-70□	1SFA 895 015 R70∇0	31.0
355	450	600	640	PSTB470-690-70□	1SFA 895 016 R70∇0	31.0
450	600	800	814	PSTB570-690-70□	1SFA 895 017 R70∇0	52.0
540	700	960	987	PSTB720-690-70□	1SFA 895 018 R70∇0	55.0
710	880	1200	1247	PSTB840-690-70□	1SFA 895 019 R70∇0	60.0
800	1000	1400	1455	PSTB1050-690-70□	1SFA 895 020 R70∇0	60.0

<sup>1)</sup> Add code letter in Type acc. to below:  
□ No code letter = Normal  
T = Coated PCBs

<sup>2)</sup> Add code number in Order code acc. to below:  
∇ 0 = Normal  
2 = Coated PCBs

# Softstarters

Accessories for type PST30 ... 300 and PSTB370 ... 1050  
Ordering details



## Cable connectors for Cu cables

For PST85...300 you need 9 pieces if also using the terminals B1, B2, B3 for external by-pass contactor.

For softstarter type	Wire range mm <sup>2</sup>	Tightening torque max. Nm	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece
PST85 ...142	6-185	16	-	1SDA 023 354 R0001	3	0.200
PST85 ...142	2 x (50-120)	16	LZ185-2C/120	1SFN 074 709 R1000	3	0.300
PST175 ...PSTB470	16-240	25	-	1SDA 023 368 R0001	3	0.400

## Cable connectors for Al and Cu cables

For PST85...300 you need 9 pieces if also using the terminals B1, B2, B3 for external by-pass contactor.

For softstarter type	Wire range mm <sup>2</sup>	Tightening torque max. Nm	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece
PST85 ...142	35-95	13,5	-	1SDA 023 356 R0001	3	0.100
PST85 ...142	25-150	31	-	1SDA 023 357 R0001	3	0.100
PST175 ...300	120-240	43	-	1SDA 023 370 R0001	3	0.100
PSTB370 ...1050	3 x (70-185)	43	-	1SDA 023 384 R0001	3	0.265
PSTB370 ...1050	2 x (120-240)	31	-	1SDA 023 380 R0001	3	0.110

## Terminal extensions

For softstarter type	Dimensions hole ø mm <sup>2</sup>	bar mm	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
PST85...142 <sup>1)</sup>	8,5	17,5 x 5	LX185	1SFN 074 710 R1000	1	0.250
PST175...300 <sup>2)</sup>	10,5	20 x 5	LX300	1SFN 075 110 R1000	1	0.350
PSTB370...470	10,5	25 x 5	LX460	1SFN 075 710 R1000	1	0.500
PSTB570...1050	13	40 x 6	LX750	1SFN 076 110 R1000	1	0.850

## Terminal enlargements

For softstarter type	Dimensions hole ø mm <sup>2</sup>	bar mm	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
PST30...72 <sup>1)</sup>	6,5	15 x 3	LW110	1SFN 074 307 R1000	1	0.100
PST85...142 <sup>1)</sup>	10,5	17,5 x 5	LW185	1SFN 074 707 R1000	1	0.250
PST175...300	10,5	20 x 5	LW300	1SFN 075 107 R1000	1	0.450
PSTB370...470	10,5	25 x 5	LW460	1SFN 075 707 R1000	1	0.730
PSTB570...1050	13	40 x 6	LW750	1SFN 076 107 R1000	1	1.230

## Terminal nut washer

For softstarter type	Req. qty	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece
PST85...142 <sup>1)</sup>	2	LE185	1SFN 074 716 R1000	2	0.200
PST175...300 <sup>2)</sup>	2	LE300	1SFN 075 116 R1000	2	0.300
PSTB370...470	6	LE460	1SFN 075 716 R1000	6	0.600
PSTB570...1050	6	LE750	1SFN 076 116 R1000	6	0.750

## Terminal shrouds

For softstarter type	Req. qty	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
PST85...142	1 pcs and 1 pcs	LT185-AC	1SFN 124 701 R1000	2	0.050
		LT460-AC	1SFN 125 701 R1000	2	0.100
PST85...142	1 pcs and 1 pcs	LT185-AL	1SFN 124 703 R1000	2	0.220
		LT460-AL	1SFN 125 703 R1000	2	0.800
PST175...300 <sup>2)</sup>	3 pcs	LT300-AC	1SFN 125 101 R1000	2	0.070
PST175...300 <sup>2)</sup>	3 pcs	LT300-AL	1SFN 125 103 R1000	2	0.280
PSTB370...470	2 pcs	LT460-AC	1SFN 125 701 R1000	2	0.100
PSTB370...470	2 pcs	LT460-AL	1SFN 125 703 R1000	2	0.800
PSTB570...1050	2 pcs	LT750-AC	1SFN 126 101 R1000	2	0.120
PSTB570...1050	2 pcs	LT750-AL	1SFN 126 103 R1000	2	0.825

## External keypad including a 3m cable

For softstarter type	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece
PST30...300 PSTB370...1050	PSTEK	1SFA 899 003 R1000	1	0.400

## Marine Kit

For softstarter type	Type	Order code	Pack <sup>ing</sup> piece	Weight kg 1 piece
PST85...142	PSTM-2	1SFA 899 004 R1000	1	0.240

<sup>1)</sup> Only fits on the motor side

<sup>2)</sup> Use two sets of the accessories on the line side and one set on the motor side.

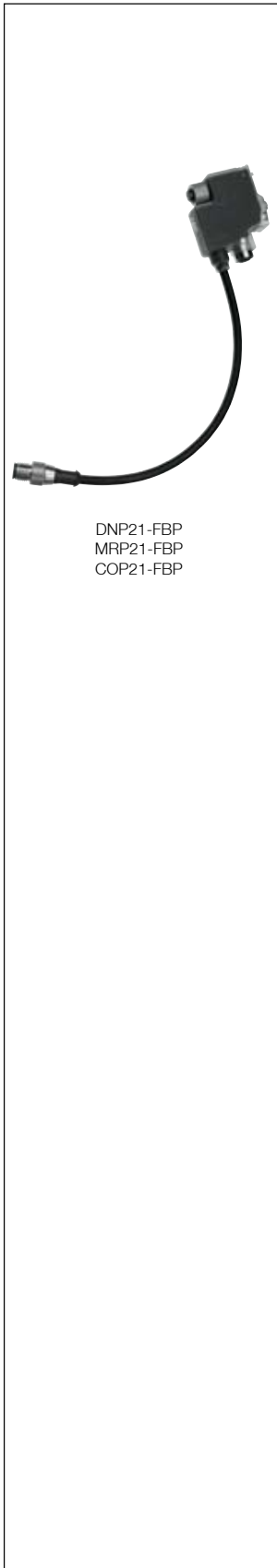


# Softstarters

## FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen fieldbus connectors

Black cable



DNP21-FBP  
MRP21-FBP  
COP21-FBP

### DeviceNet FieldBusPlug

Ready-made DeviceNet fieldbus interface with various cable lengths.

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

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
DeviceNet-FBP	0.25 m	<b>DNP21-FBP.025</b>	<b>1SAJ 230 000 R1003</b>	1	0.09
DeviceNet-FBP	0.50 m	<b>DNP21-FBP.050</b>	<b>1SAJ 230 000 R1005</b>	1	0.10
DeviceNet-FBP	1.00 m	<b>DNP21-FBP.100</b>	<b>1SAJ 230 000 R1010</b>	1	0.13

### MODBUS-RTU FieldBusPlug

Ready-made MODBUS-RTU fieldbus interface with various cable lengths.

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

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
MODBUS-RTU-FBP	0.25 m	<b>MRP21-FBP.025</b>	<b>1SAJ 250 000 R0003</b>	1	0.09
MODBUS-RTU-FBP	0.50 m	<b>MRP21-FBP.050</b>	<b>1SAJ 250 000 R0005</b>	1	0.10
MODBUS-RTU-FBP	1.00 m	<b>MRP21-FBP.100</b>	<b>1SAJ 250 000 R0010</b>	1	0.13

### CANopen FieldBusPlug

Ready-made CANopen fieldbus interface with various cable lengths.

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

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
CANopen-FBP	0.25 m	<b>COP21-FBP.025</b>	<b>1SAJ 230 100 R1003</b>	1	0.09
CANopen-FBP	0.50 m	<b>COP21-FBP.050</b>	<b>1SAJ 230 100 R1005</b>	1	0.10
CANopen-FBP	1.00 m	<b>COP21-FBP.100</b>	<b>1SAJ 230 100 R1010</b>	1	0.13

#### To connect the PST Softstarter to a DeviceNet fieldbus system...

you need specific software for PLC set-up, (EDS file) which is available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

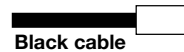




# Softstarters

FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen fieldbus accessories



## Accessories for the DeviceNet, MODBUS-RTU and CANopen Bus Connector

### DeviceNet, MODBUS-RTU and CANopen Round Cable for Bus Junctions

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

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Round Cable with female connector	0.50 m	DNF11-FBP.050	1SAJ 923 002 R0005	1	0.04
Round Cable with male connector	0.50 m	DNM11-FBP.050	1SAJ 923 003 R0005	1	0.04

### DeviceNet, MODBUS-RTU and CANopen Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Extension Cable	1.00 m	DNX11-FBP.100	1SAJ 923 001 R0010	1	0.08
Extension Cable	3.00 m	DNX11-FBP.300	1SAJ 923 001 R0030	1	0.20
Extension Cable	5.00 m	DNX11-FBP.500	1SAJ 923 001 R0050	1	0.31
Round Cable	100 m	DNC11-FBP.999	1SAJ 923 004 R0001	1	5.6

### DeviceNet, MODBUS-RTU and CANopen Round Cable and Accessories for Bus Extension Bus cable and coupling accessories

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Round Cable Male Connector		DNM11-FBP.0	1SAJ 923 005 R0001	5	0.15
Device Net Round Cable Female Connector		DNF11-FBP.0	1SAJ 923 006 R0001	5	0.15

### DeviceNet, MODBUS-RTU and CANopen Termination Resistor, Miscellaneous Accessories

Designation	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Termination Resistor, 120 Ohm	DNR11-FBP.120	1SAJ 923 007 R0001	1	0.02

#### To connect the PST Softstarter to a DeviceNet fieldbus system...

you need specific software for PLC set-up, (EDS file) which is available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.





# Softstarters

## FBP FieldBusPlug

### Profibus DP/V0 and DP/V1 fieldbus connectors

Purple cable



#### Profibus DP/V0 and DP/V1 FieldBusPlug

Ready-made Profibus DP/V1 fieldbus interface with various cable lengths.

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

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Profibus DP/V1-FBP	0.25 m	PDP22-FBP.025	1SAJ 240 100 R1003	1	0.09
Profibus DP/V1-FBP	0.50 m	PDP22-FBP.050	1SAJ 240 100 R1005	1	0.10
Profibus DP/V1-FBP	1.00 m	PDP22-FBP.100	1SAJ 240 100 R1010	1	0.13
Profibus DP/V1-FBP	2.00 m	PDP22-FBP.200	1SAJ 240 100 R1020	1	0.20
Profibus DP/V1-FBP	5.00 m	PDP22-FBP.500	1SAJ 240 100 R1050	1	0.36

PDP21 is replaced by PDP22.

#### 4 x Profibus DP/V0 and DP/V1 FieldBusPlug

PDQ22 is a member of the ABB FieldBusPlug family of bus connectors. It allows the connection of up to four devices to Profibus DP by just using one Profibus node access. This allows a cost efficient device integration for devices that are located physically nearby. PDQ22 supports DP-V0 and DP-V1. The degree of protection is IP66. There are separate diagnosis LEDs for bus and device status.

**Note that the accessories PDQ22-FBP only works with the PSR and not with the PST(B) softstarter.**

Designation	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
-	PDQ22-FBP	1SAJ 240 200 R0050	1	0.20

#### DINrail adapter for Profibus FieldBusPlug PDQ22-FBP

Designation	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
DINrail adapter for PDQ22-FBP	CDA11-FBP. 0	1SAJ 929 300 R0001	1	0.11

#### Extension cable

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Extension cable (female/male), shielded	1.5 m	CDP15-FBP.150	1SAJ 929 140 R0015	1	0.20
Extension cable (male/open), shielded	1.5 m	CDP16-FBP.150	1SAJ 929 150 R0015	1	0.20

#### To connect the PST Softstarter to a Profibus DP fieldbus system...

you need specific software for PLC set-up, (GSD file) which is available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

PDP21 is replaced by PDP22.

Use PDP22 with the GSD-file Abb\_082d.gsd regardless if the PLC is a DP/V0 or DP/V1.





# Softstarters

FBP FieldBusPlug

Profibus DP/V0, DP/V1 fieldbus accessories



## Accessories for the Profibus DP/V0 and DP/V1 Bus Connector

### Profibus DP/V0 and DP/V1 Round Cable for Bus Junctions

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

- Application on bus junctions such as e.g. Profibus DB couplers or devices with an integrated Profibus DB interface

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Round Cable with female connector	0.50 m	PDF11-FBP.050	1SAJ 924 002 R0005	1	0.04
Round Cable with male connector	0.50 m	PDM11-FBP.050	1SAJ 924 003 R0005	1	0.04

### Profibus DP/V0, DP/V1 Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

Designation	Cable length	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Extension Cable	1.00 m	PDX11-FBP.100	1SAJ 924 001 R0010	1	0.08
Extension Cable	3.00 m	PDX11-FBP.300	1SAJ 924 001 R0030	1	0.20
Extension Cable	5.00 m	PDX11-FBP.500	1SAJ 924 001 R0050	1	0.31
Round Cable	100 m	PDC11-FBP.999	1SAJ 924 004 R1000	1	5.60

### Profibus DP/V0, DP/V1 Accessories for Bus Extension

Designation	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Male Connector	PDM11-FBP.0	1SAJ 924 005 R0001	5	0.03
Female Connector	PDF11-FBP.0	1SAJ 924 006 R0001	5	0.03

### Profibus DP/V0, DP/V1 Termination Resistor, Miscellaneous Accessories

Designation	Type	Order code	Pack <sup>ing</sup> pieces	Weight kg 1 piece
Termination resistor, 150 ohm	PDR11-FBP.150	1SAJ 924 007 R0001	1	0.03
Feeding connector 24V DC Code B-A	PDV11-FBP.0	1SAJ 924 008 R0001	1	0.04
Feeding connector 24V DC Code A-A	PDV12-FBP.0	1SAJ 924 011 R0001	1	0.04
Adaptor M12-Dsub9-M12 Cable length 0.50m	PDA11-FBP.050	1SAJ 924 009 R0001	1	0.04
Adaptor M12-Dsub9-M12 Cable length 2 x 0.50m	PDA12-FBP.050	1SAJ 924 010 R0001	1	0.04

### To connect the PST Softstarter to a Profibus DP fieldbus system...

you need specific software for PLC set-up, (GSD file) which is available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

# Softstarters

## Type PST(B)30 ... 1050

### Technical data

	<b>PST(B)30 ... 1050</b>	
<b>Rated insulation voltage <math>U_i</math></b>	690 V	
<b>Rated operational voltage <math>U_e</math></b>	208 ... 690 V +10 %/-15 %	
<b>Starting capacity</b> at max rated current $I_r$	3 x $I_r$ for 15 sec.	
<b>Number of starts per hour</b>	<b>PST30 ... 300</b>	<b>PSTB370 ... 1050</b>
	30 <sup>1)</sup>	10 <sup>1)</sup>
<b>Overload capability</b> Overload Class	10	
<b>Service factor</b>	<b>PST(B)30...840</b>	<b>PSTB1050</b>
	115 %	100 %
<b>Ambient temperature</b>		
During operation	±0 ... +50 °C <sup>2)</sup>	
During storage	-25... +70 °C	
<b>Altitude</b>		
Maximum altitude	4000 m <sup>3)</sup>	
<b>Degree of protection</b>	<b>PST30 ... 72</b>	<b>PST85 ... PSTB1050</b>
	Main circuit IP10	IP00
Supply and Control circuit	IP20	
<b>Main circuit</b>	<b>PST30 ... 300</b>	<b>PSTB370 ... 1050</b>
	Built in By-pass contactor	No
Cooling system - Fan cooled (thermostat controlled)	Yes	
<b>Supply circuit</b>		
Supply voltage $U_s$ – one range	100 ... 250 V +10 %/-15 %, 50/60 Hz ±5 %	
<b>HMI for settings</b> (Human Machine Interface)		
20 segment display	Yes	
Keypad with two selection keys and two navigating keys	Yes	
Plain text in 14 languages (English, German, Italian, Dutch, Chinese, Finnish, Swedish, French, Spanish, Russian, Portuguese, Turkish, Polish and Czech)	Yes	
<b>Signal relays</b>		
Number of programmable signal relays (Each relay can be programmed to be Run, By-pass or Event signal)	3	
K4 – Default as Run signal	Yes	
K5 – Default as By-pass signal	Yes	
K6 – Default as Event signal	Yes	
Rated operational voltage $U_e$	250 V	
Rated thermal current $I_{th}$	5 A	
Rated operational current $I_e$ at AC-15 ( $U_e = 250$ V)	1.5 A	
<b>Analog output</b>		
Output signal reference	0 ... 10 V, 0 ...20 mA, 4 ... 20 mA	
Type of output signal	I Amp, U Volt, P kW, P hp, Q kVAR, S kVA, TmpMot, TmpSCR, cosPhi	

	<b>PST(B)30 ... 1050</b>
<b>Control circuit /Hardware inputs</b>	
Internal 24 V DC (10 mA closed)	Yes
Start / Stop inputs	Yes
Two extra programmable inputs (Each input can be programmed to be either; Non, Reset, Enable, Jog, DOL- On, Start motor 2 or Start motor 3, FB-Dis ).	Yes
<b>Signal indication LED's</b>	
Power on – Green	Yes
Fault - Red	Yes
Protection - Yellow	Yes
<b>Protections</b>	
Electronic overload	Yes
Adjustable tripping classes - Class 10 A, 10, 20 and 30	Yes
Dual overload (separate overload function for start and run)	Yes
PTC connection	Yes
Locked rotor protection	Yes
Underload protection	Yes
Phase imbalance	Yes
High current (8 x $I_e$ )	Yes
Phase reversal protection	Yes
<b>Warnings (pre-warning)</b>	
High current	Yes
Low current (underload)	Yes
Overload trip	Yes
Overtemp. thyristors (SCR)	Yes
<b>Start of several motors</b>	
Possible to set up and start three different motors	Yes
<b>Field bus connection</b>	
Connection for ABB FieldBusPlug	Yes
<b>PTC input</b>	
Switch off resistance	2825 ohm ± 20%
Switch on resistance	1200 ohm ± 20%
<b>External keypad</b>	
Display	LCD type
<b>Ambient temperature</b>	
During operation	± 0...+50 °C
During storage	-25...+70 °C
Degree of protection	IP66

<sup>1)</sup> 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

<sup>2)</sup> Above 40 °C up to max. 50 °C reduce the rated current with 0.8 % per °C.

<sup>3)</sup> When used at high altitudes above 1000 meters up to 4000 meters you need to derate rated current using the following formula.

$$[\% \text{ of } I_e = 100 - \frac{x - 1000}{150}]$$

x = actual altitude for the softstarter

### PSTB Integrated by-pass ratings

Softstarter	Type	PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
Contactors	Type	AF300	AF300	AF460	AF580	AF750	AF750
AC-3 rating	A	305	305	460	580	750	750

# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Technical data/Settings

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

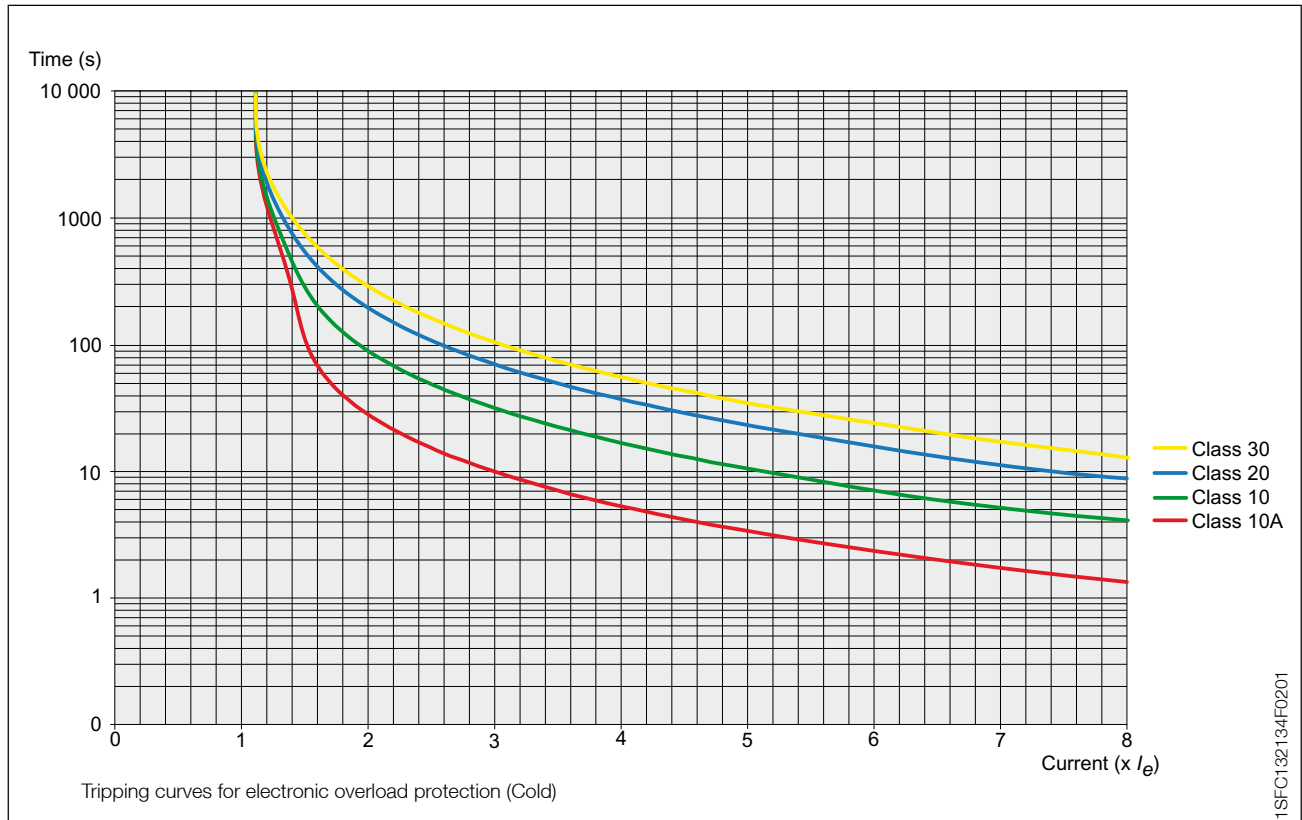
Description	Text on display (Eng)	Values on display	Default value
Setting current for overload, locked rotor etc.	Setting $I_e$	9,0 ... 1207 A divided into 19 overlapping ranges.	See table, page 40
Time for start ramp	Start Ramp	1 ... 30 s, 1 ... 120 s (Range depends on Start Range)	10 s
Time for stop 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	1.5 ... 7.0 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
<b>Overload protection</b>	Overload	No, Normal, Dual	Normal
Overload Class	OL Class	10 A, 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
<b>Locked rotor protection</b>	Locked Rotor	Yes, No	No
Trip level for locked rotor protection	Lock R Lev	0.5 ... 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
<b>Underload protection</b>	Underload	Yes, No	No
Trip level for Underload protection	Underl Lev	0.4 ... 0.8 x $I_e$	0.5 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
<b>Phase imbalance protection</b>	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
<b>High current protection</b>	High I	Yes, No	No
Type of operation for high current protection	High I Op	Stop-M, Stop-A, Ind	Stop-M
<b>Phase reversal protection</b>	Phase Rev	Yes, No	No
Type of operation for phase reversal protection	Ph Rev Op	Stop-M, Stop-A, Ind	Stop-M
<b>PTC protection</b>	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
<b>High current warning</b>	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 $I_e$
<b>Low current warning</b>	Warn I=Low	Yes, No	No
Trip level for low current warning	Wa I=L Lev	0.4 ... 1.0 x $I_e$	0.8 x $I_e$
<b>Overload warning</b>	Warn OL	Yes, No	No
Trip level for overload warning	Wa OL Lev	40 ... 99 %	90 %
<b>Thyristor overload warning</b>	Warn SCR OL	Yes, No	No
Type of operation for phase loss fault	Ph Loss Op	Stop-M, Stop-A	Stop-M
Type of operation for by-pass doesn't close	BP open Op	Stop-M, Stop-A	Stop-M
Type of operation for by-pass doesn't open	BP closed Op	Stop-M, Stop-A	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, FB-Dis	Reset
Function of programmable input In_1	In1	None, Reset, Enable, Jog, DOL, Start 3, FB-Dis	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
Language to use on display	Language	US/UK, FI, SE, PT, NL, IT, FR, ES, DE, CN, RU, TR, PL, CZ	US/UK
Password for display	Password	No, 1 ... 255	
Start mode	Start Mode	Volt, Torque	Volt
Stop mode	Stop Mode	Volt, Torque	Volt
Torque limit	Torque limit	20 ... 200 %	150 %
Analog output	Analogue Out	Yes, No	No
Analog output, reference	Anl Ref	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA	4 ... 20 mA
Analog output, type of value	Anl Type	I Amp, U Volt, P kW, P hp, Q kVA, S kVA, TmpMot, TmpSCR, cosPhi	I Amp

# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
 Technical data/Settings

## Tripping curves for the integrated electronic overload protection

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



## ABB FieldBusPlug

### Controlling possibilities when using different field buses

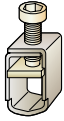
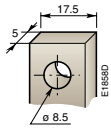
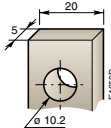
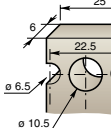
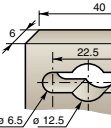
	DeviceNet	Profibus DP V0	Profibus DP V1	Modbus-RTU	CANopen
Simple control (start/stop etc)	X	X	X	X	X
Complete control	X	X	X	X	
Simple status information	X	X	X	X	X
Detailed status information	X	X	X	X	X
Possibilities to write parameters	X	X	X	X	X
Possibilities to read parameters	X	—	X	—	X

For more detailed information, please see separate Installation and Commissioning manuals available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages.

# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Technical data/Settings

## Cross section of connectable cables

		Type of softstarter				
		PST30 ... 72	PST85 ... 142	PST175 ... 300	PSTB370 ... 470	PSTB570 ... 1050
<b>Main circuit</b>						
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 <sup>2</sup>	10 ... 95	See accessories	See accessories	-	-
Solid/Stranded	2 x mm <sup>2</sup>	6 ... 35	See accessories	See accessories	-	-
Tightening torque (recommended), Nm		6.0	See accessories	See accessories	-	-
Connection bar						
		No				
Width and thickness	mm	-				
Hole diameter	mm	-	9	18	40	49
Tightening torque (recommended), Nm		-	9	18	40	49
<b>Supply and control circuit</b>						
Connection clamp		Yes	Yes	Yes	Yes	Yes
Solid/Stranded	1 x mm <sup>2</sup>	2.5	2.5	2.5	2.5	2.5
Solid/Stranded	2 x mm <sup>2</sup>	1.5	1.5	1.5	1.5	1.5
Tightening torque (recommended), Nm		0.5	0.5	0.5	0.5	0.5

## Fuse ratings and power losses

For softstarter	Recommended ABB Overload protection		Max power loss at rated I <sub>e</sub>		Maximum fuse ratings - main circuit <sup>1)</sup>			Power requirement supply circuit		
	Type	Current range A	without by-pass		Bussmann fuses		Ferraz fuses		VA/VA pull in	
			Current range A	W	Type	Holder	A	Type		
<b>PST</b>										
PST30	Integrated	9...35	100	9.5	80	170M1366	170H1007	100	6,6 URB 000 D08V 0100	5
PST37	Integrated	11...43	120	10.5	125	170M1368	170H1007	160	6,6 URB 000 D08V 0160	5
PST44	Integrated	13...51	140	13.5	160	170M1369	170H1007	200	6,6 URD 30 D08A 0200	5
PST50	Integrated	15...58	160	13.5	160	170M1369	170H1007	200	6,6 URD 30 D08A 0200	5
PST60	Integrated	18...69	190	15.5	200	170M1370	170H1007	250	6,6 URD 30 D08A 0250	5
PST72	Integrated	22...83	230	17	250	170M1371	170H1007	315	6,6 URD 30 D08A 0315	5
PST85	Integrated	25...98	270	30.5	315	170M1372	170H1007	400	6,6 URD 30 D08A 0400	10
PST105	Integrated	32...120	325	35	400	170M3019	170H3004	400	6,6 URD 30 D08A 0400	10
PST142	Integrated	43...163	435	37	450	170M3020	170H3004	500	6,6 URD 30 D08A 0500	10
PST175	Integrated	53...201	540	62	500	170M3021	170H3004	550	6,6 URD 30 D08A 0550	15
PST210	Integrated	63...241	645	67	630	170M5012	170H3004	630	6,6 URD 31 D08A 0630	15
PST250	Integrated	75...288	765	67	700	170M5013	170H3004	630	6,6 URD 31 D08A 0630	15
PST300	Integrated	90...345	920	90	900	170M5015	170H3004	900	6,6 URD 32 D11A 0900	15
<b>PSTB 600 V</b>										
PSTB370	Integrated	111...425	N/A	90	700	170M5013	170H3004	630	6,6 URD 31 D08A 0630	20/480
PSTB470	Integrated	141...540	N/A	110	900	170M5015	170H3004	900	6,6 URD 32 D11A 0900	20/480
PSTB570	Integrated	171...655	N/A	105	900	170M5015	170H3004	900	6,6 URD 32 D11A 0900	25/900
PSTB720	Integrated	216...828	N/A	110	1250	170M5018	170H3004	1250	6,6 URD 33 D11A 1250	25/860
PSTB840	Integrated	252...966	N/A	170	1500	170M6018	170H3004	1600	6,6 URD 33 D11A 1250	25/860
PSTB1050	Integrated	315...1207	N/A	170	1800	170M6020	170H3004	2000	6,6 URD 33 PLAF 2000	25/860
<b>PSTB 690 V</b>										
PSTB370	Integrated	111...425	N/A	90	700	170M5013	170H3004	630	6,6 URD 31 D08A 0630	20/480
PSTB470	Integrated	141...540	N/A	110	900	170M5015	170H3004	900	6,6 URD 31 D11A 0900	20/480
PSTB570	Integrated	171...655	N/A	105	900	170M5015	170H3004	900	6,6 URD 31 D11A 0900	25/900
PSTB720	Integrated	216...828	N/A	110	1250	170M5018	170H3004	1250	6,6 URD 33 D11A 1250	25/860
PSTB840	Integrated	252...966	N/A	170	1500	170M6018	170H3004	1600	6,6 URD 33 TTFA 1600	25/860
PSTB1050	Integrated	315...1207	N/A	170	1600	170M6019	170H3004	1600	6,6 URD 33 TTFA 1600	25/860

<sup>1)</sup> For the supply circuit 6A delayed, for MCB use C characteristics.

<sup>2)</sup> See PSS page 20



# Softstarters

Type PST30...300, PSTB370...1050  
UL ratings

## 3-phase motor rating - In Line

Softstarters	Motor power, P (hp), and full load current FLA, (A)							
	U <sub>e</sub> 200V / 208V		U <sub>e</sub> 220V / 240V		U <sub>e</sub> 440V / 480V		U <sub>e</sub> 550V / 600V	
	hp	A	hp	A	hp	A	hp	A
PST30	7.5	28	10	28	20	28	25	28
PST37	10	34	10	34	25	34	30	34
PST44	10	42	15	42	30	42	40	42
PST50	15	54	20	54	40	54	50	54
PST60	20	60	20	60	40	60	50	60
PST72	20	68	25	68	50	68	60	68
PST85	25	80	30	80	60	80	75	80
PST105	30	104	40	104	75	104	100	104
PST142	40	130	50	130	100	130	125	130
PST175	50	156	60	156	125	156	150	156
PST210	60	192	75	192	150	192	200	192
PST250	75	248	100	248	200	248	250	248
PST300	100	302	100	302	250	302	300	302
PSTB370	125	361	150	361	300	361	350	361
PSTB470	150	480	200	480	400	480	500	480
PSTB570	200	590	250	590	500	590	600	590
PSTB720	250	720	300	720	600	720	700	720
PSTB840	300	840	350	840	700	840	800	840
PSTB1050	400	1062	450	1062	900	1062	1000	1062

## 3-phase motor rating - Inside Delta

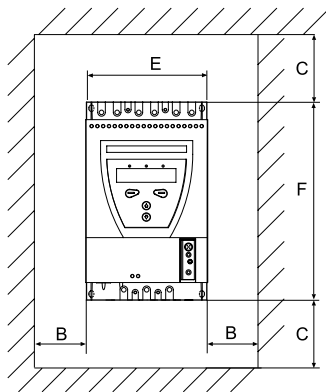
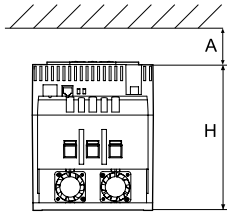
Softstarters	Motor power, P (hp), and full load current FLA, (A)							
	U <sub>e</sub> 200V / 208V		U <sub>e</sub> 220V / 240V		U <sub>e</sub> 440V / 480V		U <sub>e</sub> 550V / 600V	
	hp	A	hp	A	hp	A	hp	A
PST30	10	42	15	42	30	42	40	42
PST37	15	54	20	54	40	54	50	54
PST44	20	72	25	72	50	72	60	72
PST50	25	80	30	80	60	80	75	80
PST60	30	104	40	104	75	104	100	104
PST72	30	104	40	104	75	104	100	104
PST85	40	130	50	130	100	130	125	130
PST105	50	156	60	156	125	156	150	156
PST142	60	192	75	192	150	192	200	192
PST175	75	248	100	248	200	248	250	248
PST210	100	302	100	302	250	302	300	302
PST250	125	361	150	361	300	361	350	361
PST300	150	480	200	480	400	480	500	480
PSTB370	200	590	250	590	500	590	600	590
PSTB470	250	720	300	720	600	720	700	720
PSTB570	300	840	350	840	700	840	800	840
PSTB720	400	1247	500	1247	1000	1247	1200	1247
PSTB840	500	1454	600	1454	1200	1454	1500	1454
PSTB1050	600	1839	700	1839	1500	1839	1800	1839

# Softstarters

Type PSR, PSS, PST and PSTB

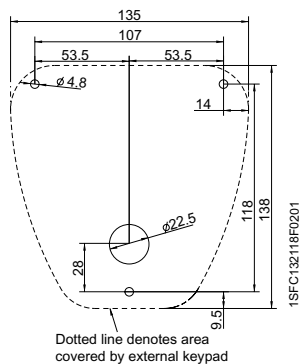
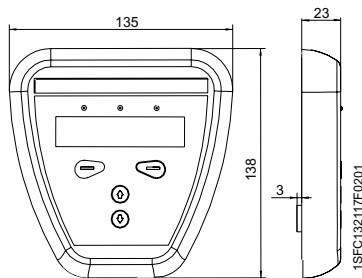
Wall mounting instruction, dimensions

## Minimum distance to wall/front



Softstarter, type	Dimensions					
	A	B	C	E	F	H
<b>PSR3 ... PSR105</b>						
PSR3 ... 16	25	0*	0	45	140	114
PSR25 ... 30	25	0*	0	45	160	128
PSR37 ... 45	25	0*	0	54	187	153
PSR60 ... 105	25	0*	0	70	220	180
<b>PSS ... -500 for 500 V</b>						
PSS18/30 ... 44/76	20	10	100	120	200	162
PSS50/85 ... 72/124	20	10	100	140	250	162
PSS85/147 ... 142/245	20	10	100	181	340	265
PSS175/300 ... 300/515	20	10	100	356	340	265
<b>PSS ... -690 for 690 V</b>						
PSS18/30 ... 72/124	20	10	100	140	250	163
PSS85/147 ... 142/245	20	10	100	181	340	265
PSS175/300 ... 300/515	20	10	100	356	340	265
<b>PST - all</b>						
PST30 ... 72	20	10	100	160	260	196
PST85 ... 142	20	10	100	186	390	270
PST175 ... 300	20	10	100	360	420	270
<b>PSTB - all</b>						
PSTB370 ... 470	20	15	150	365	460	361
PSTB570 ... 1050	20	15	150	435	515	381

## Dimensions PSTEK



\*) 5 mm for the 24 V DC version

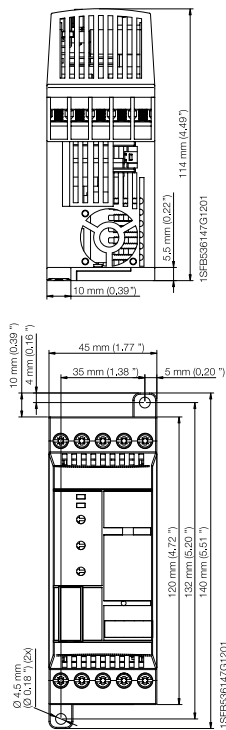
Dimensions in mm

# Softstarters

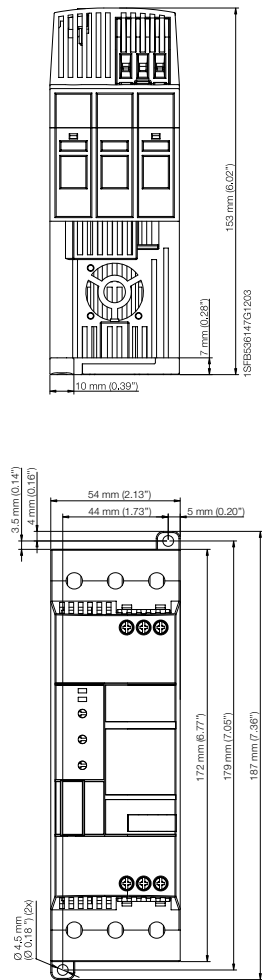
## Type PSR3 ... PSR105

### Dimensions

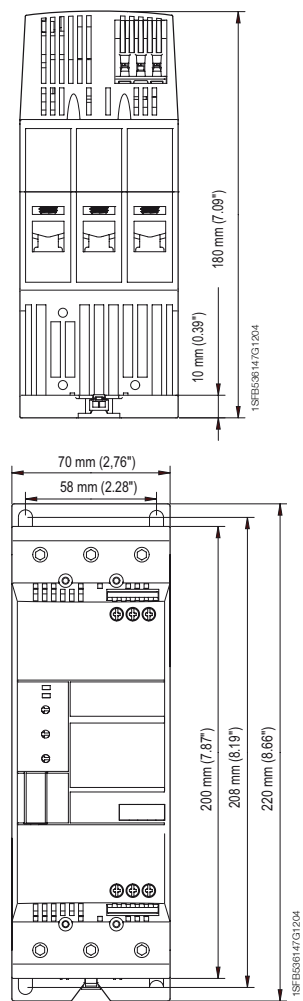
PSR3 ... 16



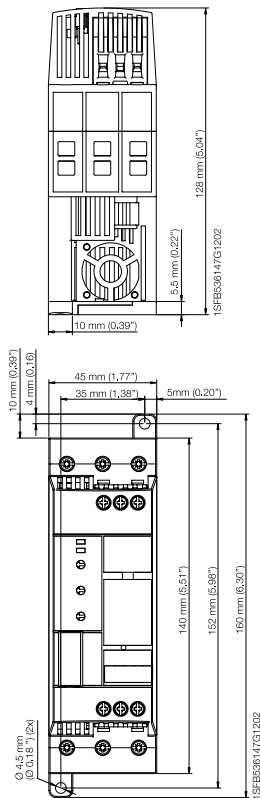
PSR37 ... 45



PSR60 ... 105



PSR25 ... 30

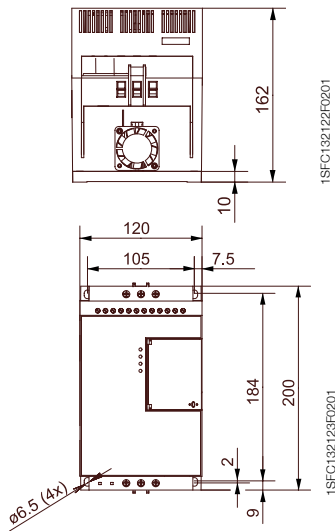


Dimensions in mm (and inches)

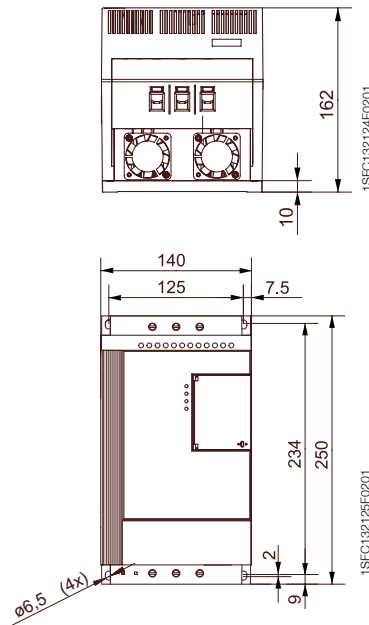
# Softstarters

Type PSS18/30 ... PSS300/515  
Dimensions

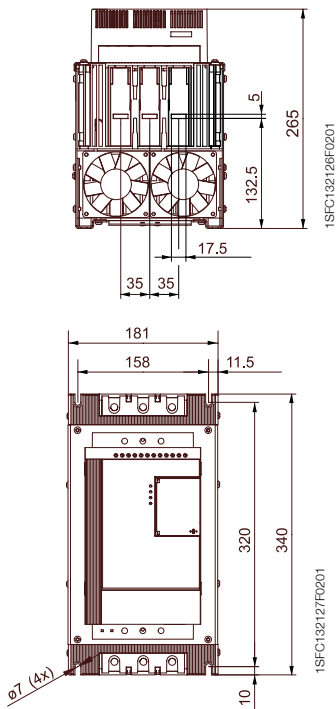
**PSS18/30-500 ... 44/76-500**



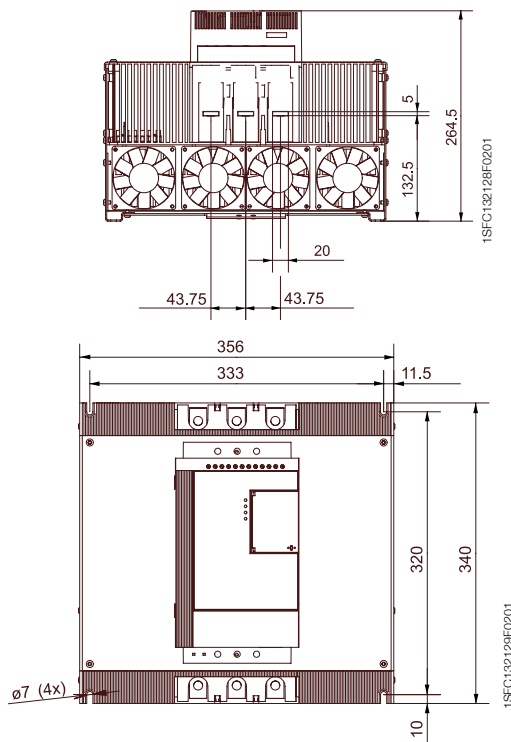
**PSS50/85-500 ... 72/124-500  
PSS18/30-690 ... 72/124-690**



**PSS85/147-500 ... 142/245-500  
PSS85/147-690 ... 142/245-690**



**PSS 175/300-500 ... 300/515-500  
PSS 175/300-690 ... 300/515-690**

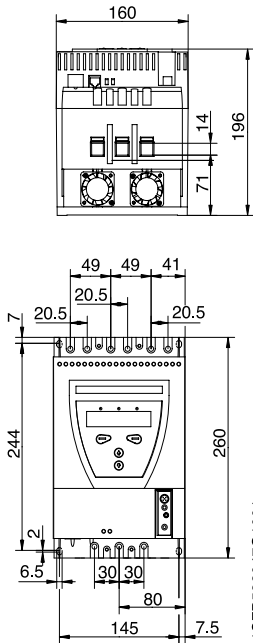


Dimensions in mm

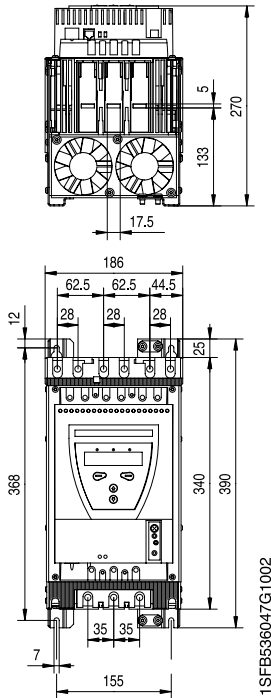
# Softstarters

Type PST30 ... 300 and PSTB370 ... 1050  
Dimensions

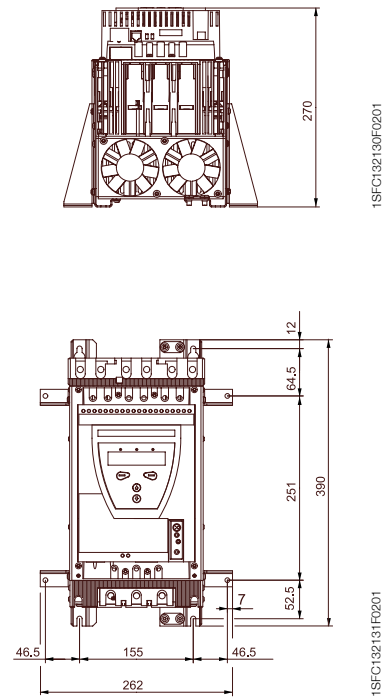
**PST30 ... 72**



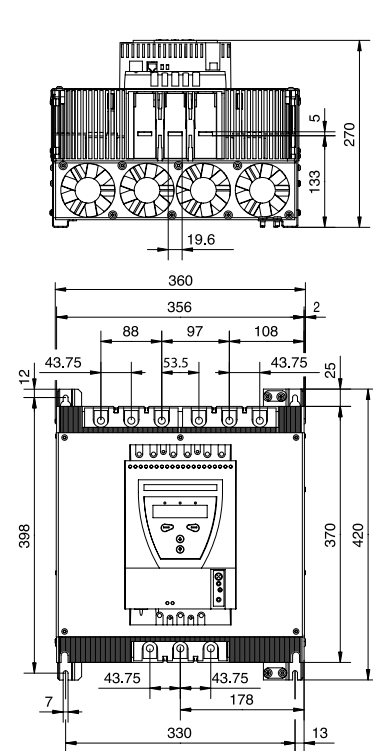
**PST85 ... 142**



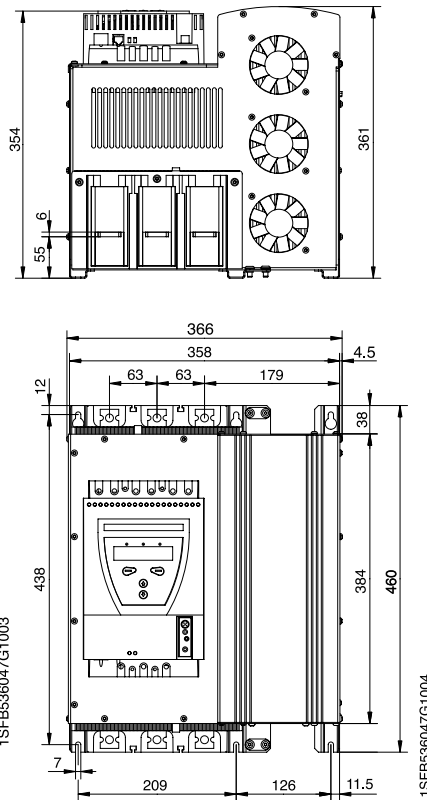
**PST85 ... 142 with marine kit**



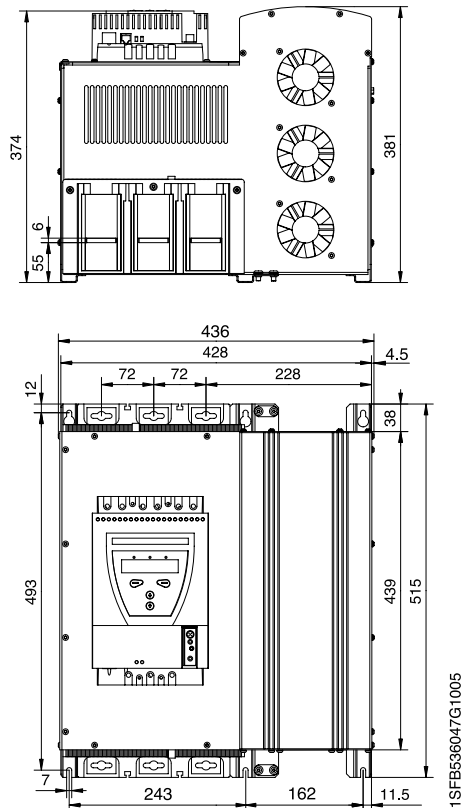
**PST175 ... 300**



**PSTB370 ... 470**



**PSTB570 ... 1050**



Dimensions in mm

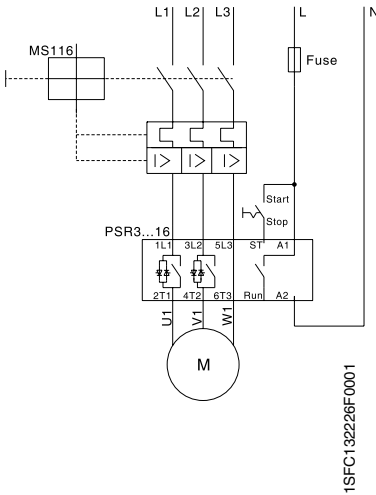


# Softstarters

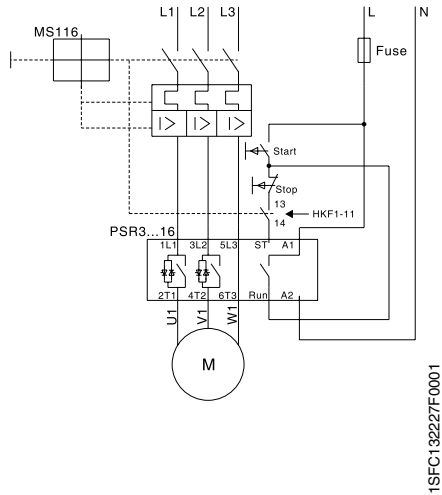
## Type PSR3 ... PSR105

### Diagrams

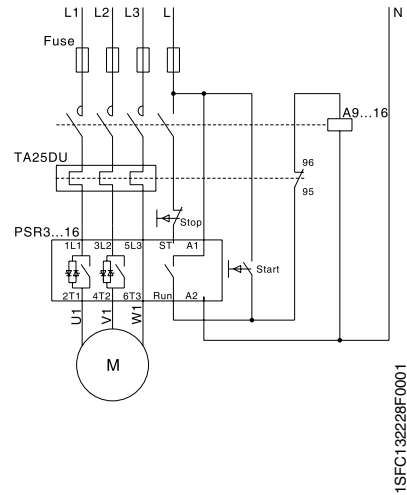
**PSR3 ...16**  
A) With MMS



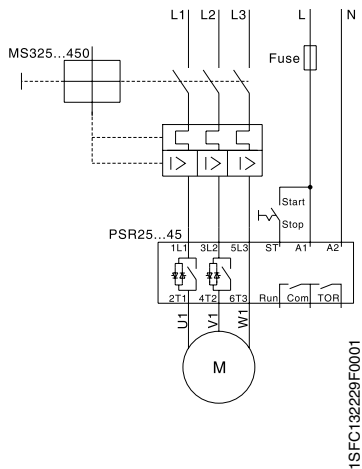
B) With MMS and auxiliary contact



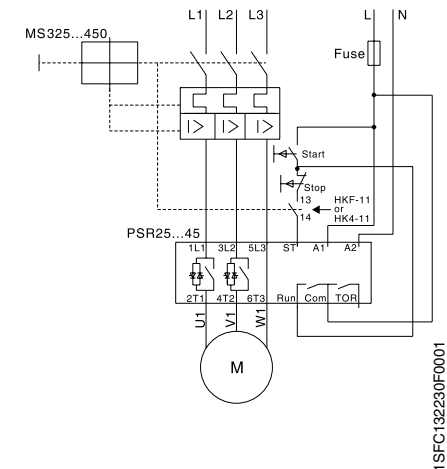
C) With fuses, contactor and O.L.



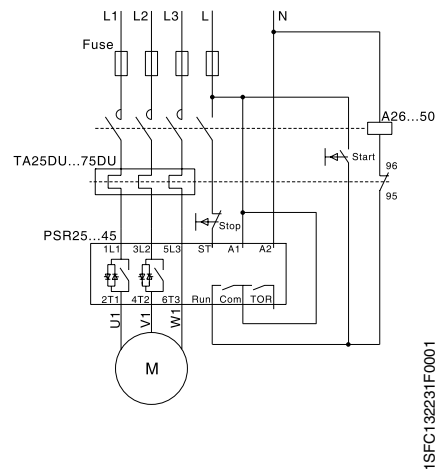
**PSR25 ... 45**  
D) With MMS



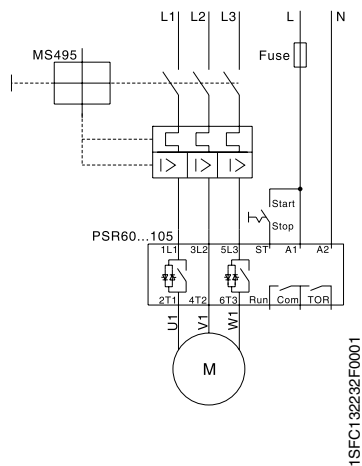
E) With MMS and auxiliary contact



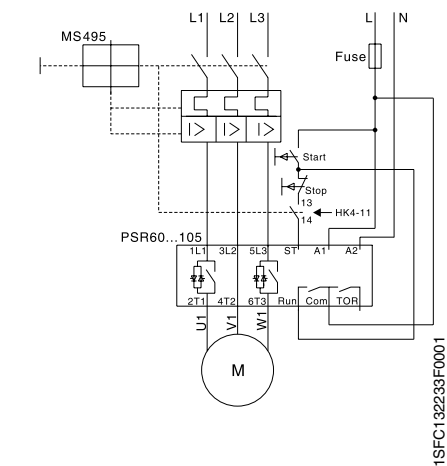
F) With fuses, contactor and O.L.



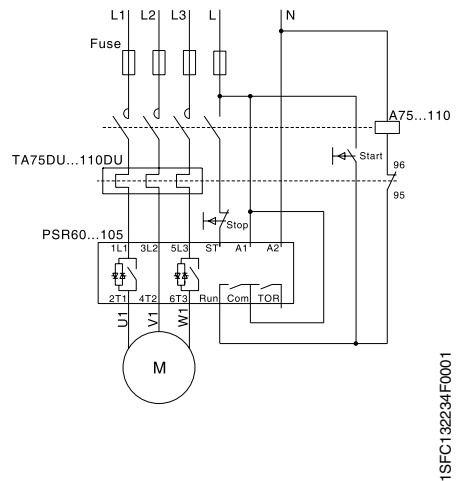
**PSR60 ... 105**  
G) With MMS



H) With MMS and auxiliary contact



I) With fuses, contactor and O.L.



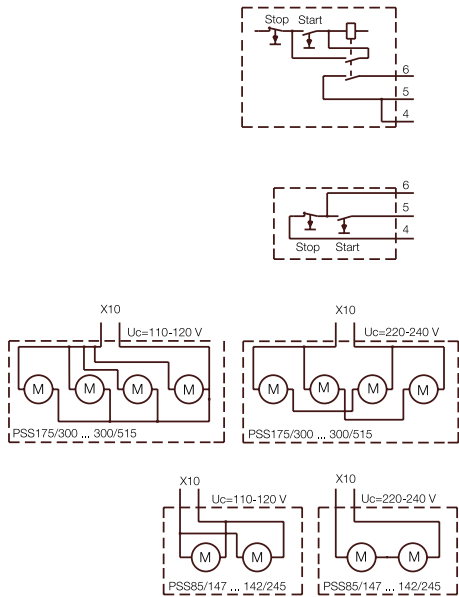
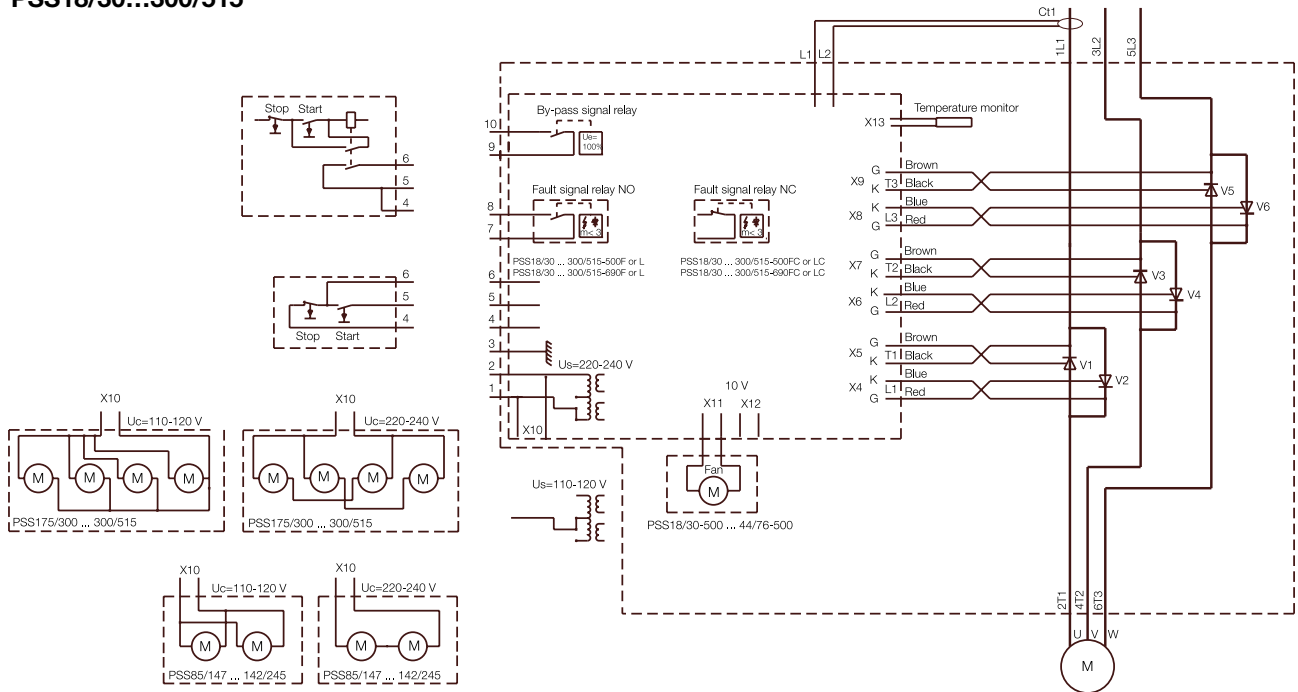


# Softstarters

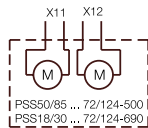
## Type PSS18/30 ... PSS300/515

### Diagrams

#### PSS18/30...300/515



- F6 Temperature monitor
- K5 Relay, actuated at full voltage ( $U_e = 100\%$ )
- K6 Relay, fault signal
- T1 Control transformer
- T2 Current transformer
- V1-V6 Thyristor

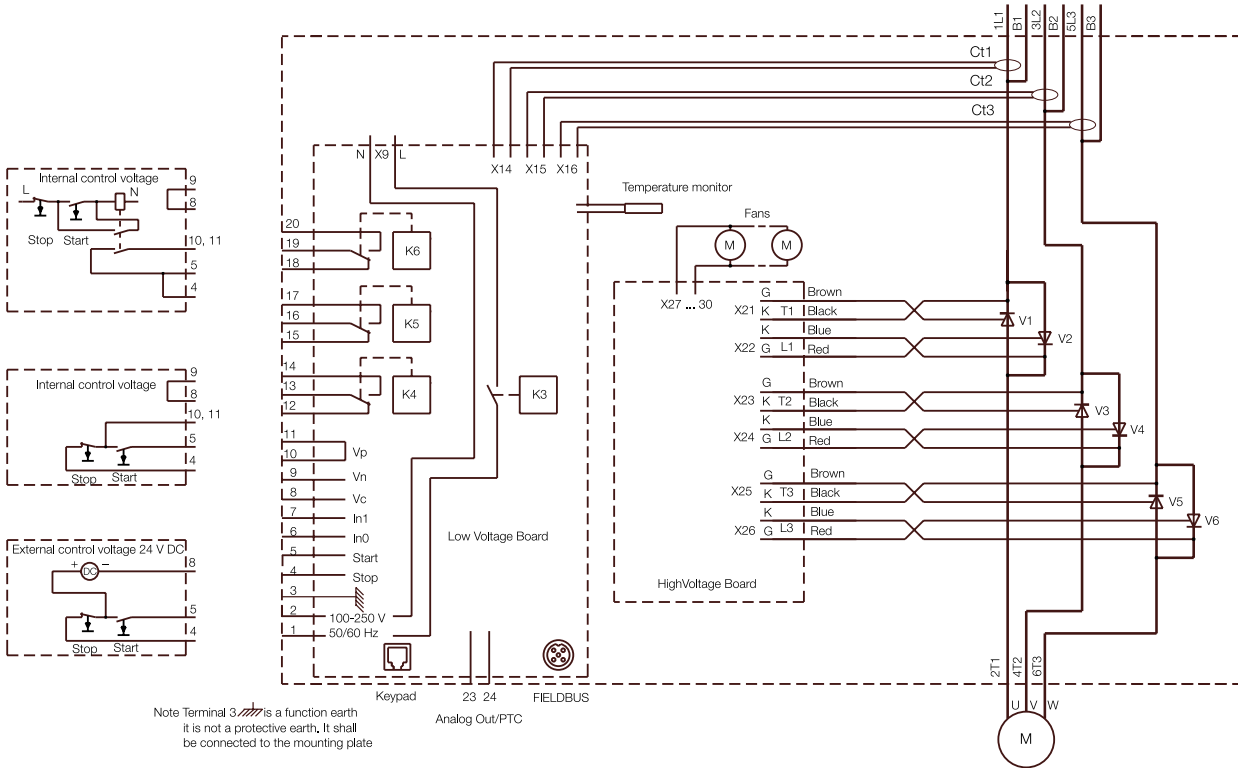


# Softstarters

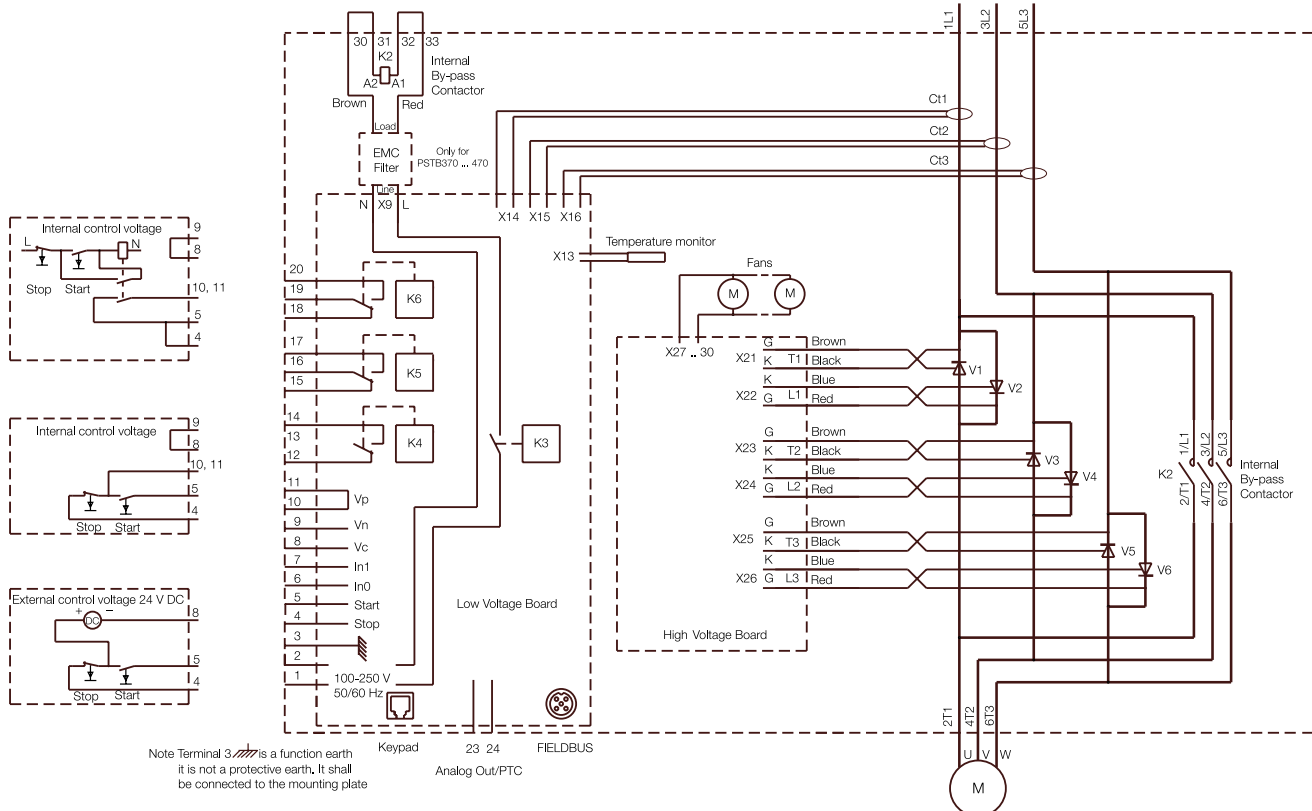
## Type PST30 ... 300 and PSTB370 ... 1050

### Diagrams

#### PST30...300



#### PSTB370...1050



# Softstarters












Type PSR, PSS, PST and PSTB

Certifications, Approvals, Directives and Standards

The table below shows the approvals and certifications for different softstarters.

For approvals and/or certificates not listed below, please contact your local ABB sales office.

## Certifications and approvals

Abbreviation Approved in	Certifications							Approvals: ship classification societies			
	 CE EU	 UL USA	 cULus Canada USA	 CSA Canada	 CCC China	 GOST Russia	 ANCE Mexico	 C-tick Australia	 ABS American Bureau of Shipping	 Lloyd's Register EMEA	 GL Germany
<b>PSR3 ... PSR105</b>											
PSR3 ...PSR105	•	(•)	•	(•)	•	•	-	•	-	-	-
<b>PSS18/30...300/215</b>											
PSS18/30 ... PSS72/124	•	•	-	•	•	•	•	•	-	•	-
PSS85/147 ... PSS300/515	•	•	-	•	•	•	•	•	-	-	-
<b>PST30...PSTB1050</b>											
PST30 ... PSTB1050	•	•	-	•	•	•	•	•	•	-	•

• **Standard design approved**, the company labels bear the certification mark when this is required.

## Directives and Standards

<b>No. 2006/95/EC</b>	Low voltage equipment
<b>No. 2004/108/EC</b>	Electromagnetic compatibility
<b>EN 60947-1</b>	Low-voltage switchgear and controlgear - Part 1: General rules
<b>EN 60947-4-2</b>	AC semiconductor motor controllers and starters
<b>UL 508</b>	Industrial Control Equipment
<b>CSA C22.2 No 14</b>	Industrial Control Equipment









## Leader in power and automation technologies

ABB ([www.abb.com](http://www.abb.com)) is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 112 000 people.

### Division Automation Products

The division Automation Products serves customers in the automotive, chemicals, consumer, electronics, life sciences, manufacturing, marine, metals, minerals, paper, petroleum, turbochargers and utility industries.

Besides strong domain knowledge of the industries we serve, our offer includes measurement, control, communication, instrumentation, drives, motors, power electronics, software and a broad range of low-voltage products. Much of this is sold through external channel partners such as distributors, system integrators, contractors and original equipment manufacturers.

### Low voltage products

Due to ABB's broad program of product standardization, components of today are the 'building blocks' of system solutions, incorporating functionalities that will allow seamless integration in real-time automation and information systems.

At the product level, all the low voltage products can operate together perfectly.

To create a system solution every product included has to be equipped with the tools necessary to install, operate and maintain it efficiently throughout the product life cycle.

The range of low voltage product is supported by technical documentation. This together with design and compact unit makes it easier than ever to incorporate our products in your system.

Our customers can find all product related documentation such as brochures, catalogues, selection program, certificates, drawings and other information directly at: [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage).





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**ABB AB**

Cewe-Control  
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