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Type PSR  
Type PSS  
Type PST/PSTB

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# ABB

# 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

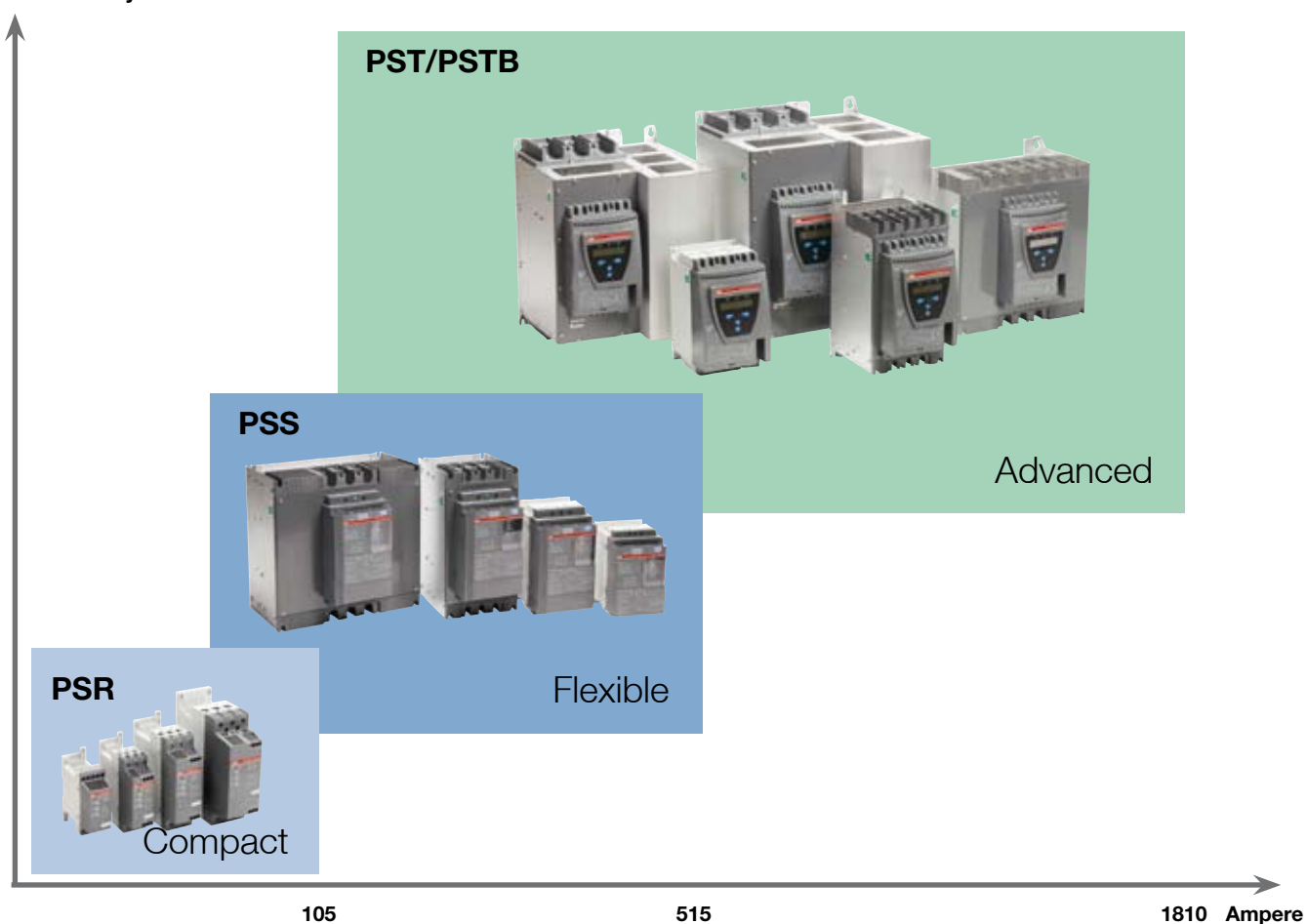
The latest addition to the ABB softstarter range is the compact PSR softstarter. This new softstarter has a compact, attractive design and is ideal for installation in places where space is limited and where there is a demand for easy installation.

### 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

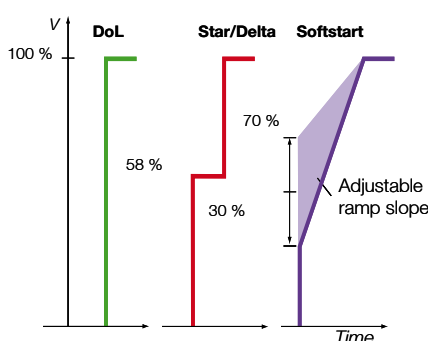
AC motors, "the workhorse of the industry", that are used to drive fans, crushers, agitators, pumps, conveyors etc., are unnecessarily causing unwanted load peaks day in and day out in production plants all over the world. These violent starts cause damage in several ways. Among them are:

- 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.

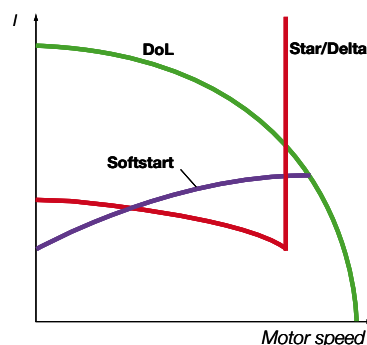
The financial consequences are considerable: every technical problem and every breakdown, costs money – in terms of repairs as well as lost production.

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.

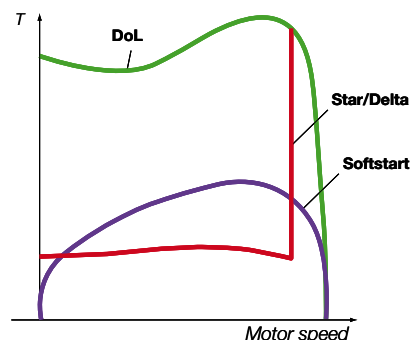
#### Motor voltage



#### 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 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|

#### 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 |
|----|----|----|-----|-----|-----|-----|-----|-----|

#### 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 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|

## Number of starts per hour using PSR softstarters

Motor-current  
 $I_e$

#### 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  | PSR105 |       |        | -     | -      | -     | -      | -      |
| 105 A | -      | -     | -      | -     | -      | -     | -      | -      |

#### Starts/hour with auxiliary fan

| 10     | 20    | 30     | 40    | 50     | 60    | 80     | 100   |
|--------|-------|--------|-------|--------|-------|--------|-------|
| PSR3   |       |        |       |        |       |        |       |
| PSR6   |       |        |       |        |       |        | PSR9  |
| PSR9   |       |        |       |        | PSR12 |        |       |
| PSR12  |       |        |       |        | PSR16 | PSR25  |       |
| PSR16  | PSR25 |        |       |        |       | PSR30  |       |
|        |       |        |       |        |       |        |       |
| PSR25  |       | PSR30  | PSR37 |        |       |        | PSR45 |
| PSR30  | PSR37 |        | PSR45 |        |       |        |       |
|        |       |        |       |        |       |        |       |
| PSR37  |       | PSR45  |       |        |       | PSR60  |       |
| PSR45  |       |        | PSR60 |        |       | PSR72  |       |
|        |       |        |       |        |       |        |       |
| PSR60  |       |        | PSR72 |        | PSR85 | PSR105 | -     |
| PSR72  |       |        | PSR85 | PSR105 |       | -      | -     |
| PSR85  |       | PSR105 |       | -      | -     | -      | -     |
| PSR105 |       | -      | -     | -      | -     | -      | -     |

Data based on an ambient temperature of 40°, starting current of  $4 \times I_e$  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 | — |
|-------|-------|-------|---|

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

|       |       |       |       |
|-------|-------|-------|-------|
| 125 A | 200 A | 200 A | 250 A |
|-------|-------|-------|-------|

##### Switch fuse, Type

|         |         |         |         |
|---------|---------|---------|---------|
| OS125GD | OS250GD | OS250GD | OS250GD |
|---------|---------|---------|---------|

##### Line contactor, Type

|     |     |     |      |
|-----|-----|-----|------|
| A63 | A75 | A95 | A110 |
|-----|-----|-----|------|

##### Thermal overload relay, Type

|        |        |         |         |
|--------|--------|---------|---------|
| TA75DU | TA75DU | TA110DU | TA110DU |
|--------|--------|---------|---------|

##### By-pass contacts

|          |          |          |          |
|----------|----------|----------|----------|
| Built-in | Built-in | Built-in | Built-in |
|----------|----------|----------|----------|

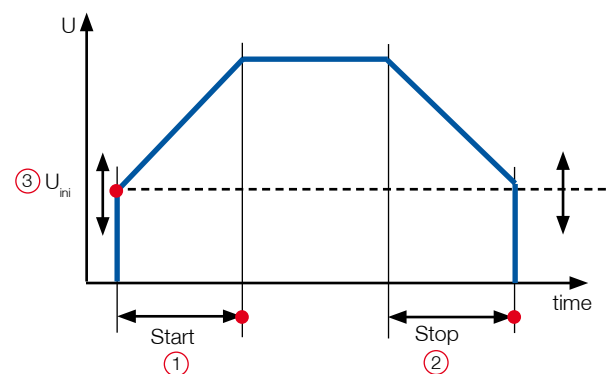
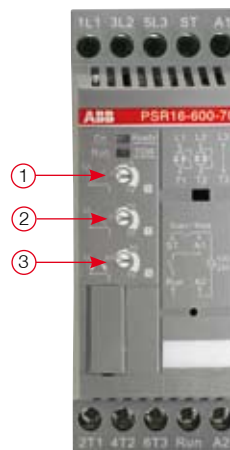
## Description

**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



- ① Ramp time START = 1 ... 20 sec
- ② Ramp time STOP = 0 ... 20 sec
- ③ Initial voltage  $U_{ini}$  = 40 ... 70 %  
(also set "end voltage")

# Softstarters

## Type PSR3 ... PSR105

### Ordering details



| Motor power                        |                      |                      | IEC                                    | Type          | Order code         | Weight<br>kg<br>1 piece |
|------------------------------------|----------------------|----------------------|----------------------------------------|---------------|--------------------|-------------------------|
| 230 V<br>$P_n$<br>kW               | 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | Max rated motor<br>current, $I_n$<br>A |               |                    |                         |
| 208 – 600 V AC                     |                      |                      |                                        |               |                    |                         |
| Supply voltage, $U_s$ 100-240 V AC |                      |                      |                                        |               |                    |                         |
| 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                    |
| Supply voltage, $U_s$ 24 V DC      |                      |                      |                                        |               |                    |                         |
| 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><br>piece | Weight<br>kg<br>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>                          | <b>PSR3</b>                                                                              | <b>PSR6</b> | <b>PSR9</b> | <b>PSR12</b> | <b>PSR16</b> | <b>PSR25</b>                   | <b>PSR30</b> | <b>PSR37</b> | <b>PSR45</b>               | <b>PSR60</b> | <b>PSR72</b>                | <b>PSR85</b> | <b>PSR105</b> |
| at 100-240 V AC                                    | 12 VA                                                                                    | 12 VA       | 12 VA       | 12 VA        | 12 VA        | 12 VA                          | 12 VA        | 10 VA        | 10 VA                      | 10 VA        | 10 VA                       | 10 VA        | 10 VA         |
| at 24 V DC                                         | 5 W                                                                                      | 5 W         | 5 W         | 5 W          | 5 W          | 5 W                            | 5 W          | 5 W          | 5 W                        | 5 W          | 5 W                         | 5 W          | 5 W           |
| <b>Rated operational current, <math>I_r</math></b> | <b>PSR3</b>                                                                              | <b>PSR6</b> | <b>PSR9</b> | <b>PSR12</b> | <b>PSR16</b> | <b>PSR25</b>                   | <b>PSR30</b> | <b>PSR37</b> | <b>PSR45</b>               | <b>PSR60</b> | <b>PSR72</b>                | <b>PSR85</b> | <b>PSR105</b> |
|                                                    | 3.9 A                                                                                    | 6.8 A       | 9 A         | 12 A         | 16 A         | 25 A                           | 30 A         | 37 A         | 45 A                       | 60 A         | 72 A                        | 85 A         | 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>                  | 10 (4 x $I_e$ during 6 s) See table on page 6 for details.<br>>20 (4 x $I_e$ during 6 s) |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| standard                                           |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| with aux. fan                                      |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| <b>Service factor</b>                              | 100 %                                                                                    |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| <b>Ambient temperature</b>                         |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| during operation <sup>1)</sup>                     | -25 °C to +60 °C                                                                         |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| during storage                                     | -40 °C to +70 °C                                                                         |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| <b>Maximum altitude <sup>2)</sup></b>              | 4000 m                                                                                   |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| <b>Degree of protection,</b>                       | <b>PSR3</b>                                                                              | <b>PSR6</b> | <b>PSR9</b> | <b>PSR12</b> | <b>PSR16</b> | <b>PSR25</b>                   | <b>PSR30</b> | <b>PSR37</b> | <b>PSR45</b>               | <b>PSR60</b> | <b>PSR72</b>                | <b>PSR85</b> | <b>PSR105</b> |
| main circuit                                       | IP20                                                                                     | IP20        | IP20        | IP20         | IP20         | IP20                           | IP20         | IP10         | IP10                       | IP10         | IP10                        | IP10         | IP10          |
| control circuit                                    | IP20                                                                                     | IP20        | IP20        | IP20         | IP20         | IP20                           | IP20         | IP20         | IP20                       | IP20         | IP20                        | IP20         | IP20          |
| <b>Connectable cable area,</b>                     | <b>PSR3 - PSR16</b>                                                                      |             |             |              |              | <b>PSR25 - PSR30</b>           |              |              | <b>PSR37 - PSR45</b>       |              | <b>PSR60 - PSR105</b>       |              |               |
| main circuit                                       | 1 x 0.75 - 2.5 mm <sup>2</sup>                                                           |             |             |              |              | 1 x 2.5 - 10 mm <sup>2</sup>   |              |              | 1 x 6 - 35 mm <sup>2</sup> |              | 1 x 10 - 95 mm <sup>2</sup> |              |               |
|                                                    | 2 x 0.75 - 2.5 mm <sup>2</sup>                                                           |             |             |              |              | 2 x 2.5 - 10 mm <sup>2</sup>   |              |              | 2 x 6 - 16 mm <sup>2</sup> |              | 2 x 6 - 35 mm <sup>2</sup>  |              |               |
|                                                    | <b>PSR3 - PSR16</b>                                                                      |             |             |              |              | <b>PSR25 - PSR105</b>          |              |              |                            |              |                             |              |               |
| control circuit                                    | 1 x 0.75 - 2.5 mm <sup>2</sup>                                                           |             |             |              |              | 1 x 0.75 - 2.5 mm <sup>2</sup> |              |              |                            |              |                             |              |               |
|                                                    | 2 x 0.75 - 2.5 mm <sup>2</sup>                                                           |             |             |              |              | 2 x 0.75 - 1.5 mm <sup>2</sup> |              |              |                            |              |                             |              |               |
| <b>Signal relays</b>                               | <b>PSR3 - PSR16</b>                                                                      |             |             |              |              | <b>PSR25 - PSR105</b>          |              |              |                            |              |                             |              |               |
| for Run signal                                     |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| Resistive load                                     | 240 V, 2 A                                                                               |             |             |              |              | 250 V, 5 A                     |              |              |                            |              |                             |              |               |
| AC-15 (Contactor)                                  | 240 V, 0.5 A                                                                             |             |             |              |              | 250 V, 0.5 A                   |              |              |                            |              |                             |              |               |
| for Top of Ramp signal                             |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| Resistive load                                     | -                                                                                        |             |             |              |              | 250 V, 2 A                     |              |              |                            |              |                             |              |               |
| AC-15 (Contactor)                                  | -                                                                                        |             |             |              |              | 250 V, 0.5 A                   |              |              |                            |              |                             |              |               |
| <b>LED</b>                                         |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| for On/Ready                                       | Green                                                                                    |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| for Run/Top Of Ramp                                | Green                                                                                    |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| <b>Settings</b>                                    |                                                                                          |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| Ramp time during start                             | 1-20 sec.                                                                                |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| Ramp time during stop                              | 0-20 sec.                                                                                |             |             |              |              |                                |              |              |                            |              |                             |              |               |
| Initial- and End Voltage                           | 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.

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

x = actual altitude for the softstarter

## UL ratings

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

# Softstarters

## Type PSS Overview



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

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

#### 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, Bussmann, 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<br>1 turn | PSCT-40<br>1 turn | PSCT-50<br>1 turn | PSCT-60<br>1 turn | PSCT-75<br>1 turn | PSCT-75<br>1 turn | PSCT-100<br>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



1SFT98889-008



1SFT98800-004

### 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
- Centrifugal pump
- Compressor
- Conveyor belt (short)
- Elevator
- Escalator

##### Heavy duty start Class 30

Ordering – See page 16 –17

##### Typical applications

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

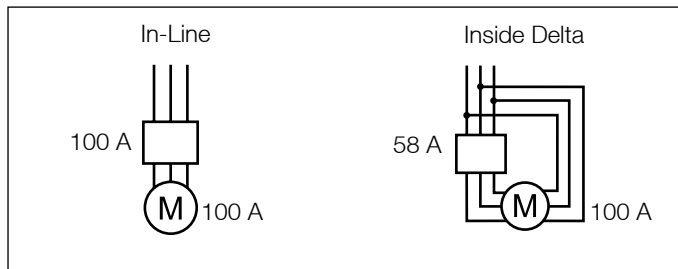
**!** If more than 10 starts /h  
Select **one** size larger than the standard selection.

# 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.



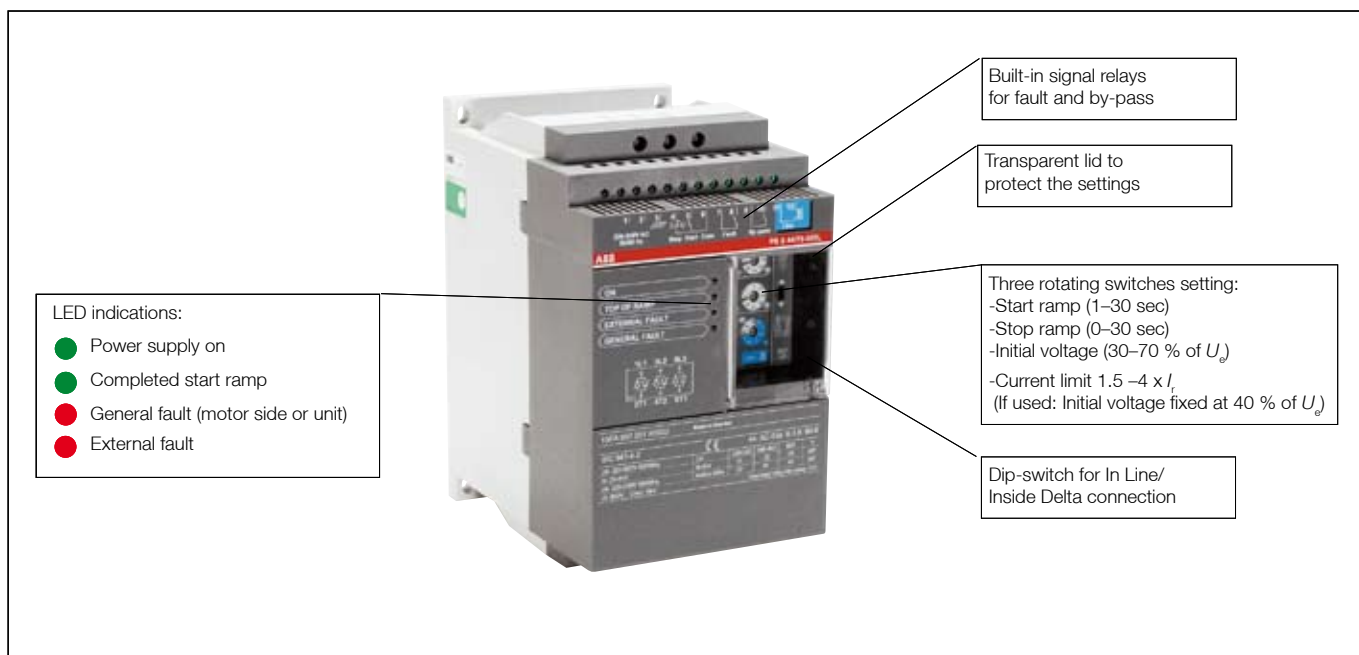
*In-Line and Inside Delta connection of PSS18/30 ... PSS300/515*

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

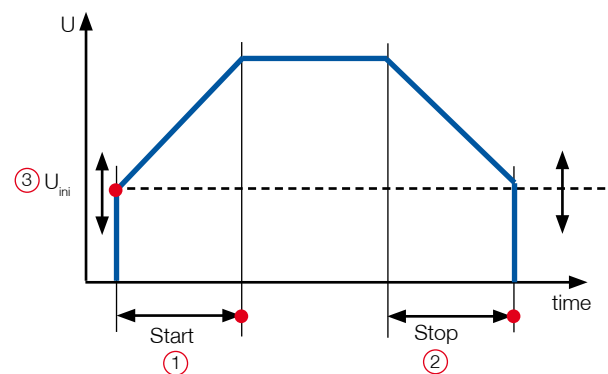
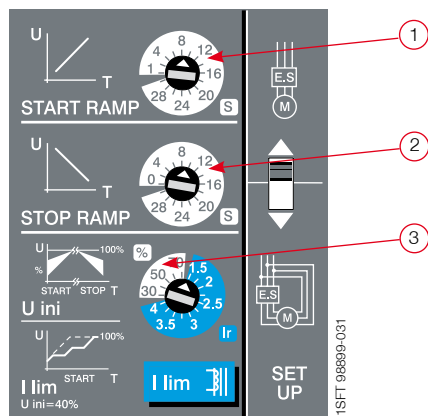
Type PSS18/30 ... PSS300/515



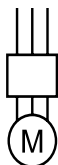
Different sizes of PSS, from left PSS175/300-500L, PSS85/147-500L, PSS50/85-500L and in the front PSS18/30-500L.

## 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



1SFT089893-036

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



1SFT089893-037

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



1SFT089893-038

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



1SFT089893-034

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

## PSS18/30 ... PSS300/515

### 230 – 500 V

#### Motor power

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

### 400 – 690 V

#### Motor power

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

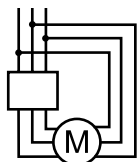
■ no code letter = NO  
C = NC

<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 PSS18/30 ... PSS300/515

Normal starts, class 10 – Inside Delta, Ordering details



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

1SFT198889-036



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

1SFT198889-037



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

1SFT198889-038



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

1SFT198900-004

## PSS18/30 ... PSS300/515

### 230 – 500 V

#### Motor power

| 400 V<br>$P_e$<br>kW | 500 V<br>$P_e$<br>kW | 690 V<br>$P_e$<br>kW | Rated motor<br>current, $I_e$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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<br>$P_e$<br>kW | 500 V<br>$P_e$<br>kW | 690 V<br>$P_e$<br>kW | Rated motor<br>current, $I_e$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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

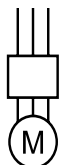
■ no code letter = NO  
C = NC

<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 ... PSS300/515

### 230 – 500 V

#### Motor power

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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,  $U_s$

□ 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



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

1SFT08899-036



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

1SFT08899-037



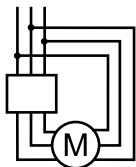
PSS85/147-500 ... 142/245-500  
PSS85/147-690 ... 142/245-690

1SFT08899-038



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

1SFT08899-004



## Softstarters

Type PSS30/52 ... PSS300/515

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



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

1SFT98899-036



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

1SFT98899-037



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

1SFT98899-038



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

1SFT98900-004

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

230 – 500 V

Motor power

| 400 V<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup>                      | Order code <sup>2)</sup>                | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|-----------------------------------------|-----------------------------------------|--------------|
| 15                   | 18,5                 | -                    | 30                                 | PSS30/52-500 <input type="checkbox"/>   | 1SFA 892 002 R <input type="checkbox"/> | 2.30         |
| 25                   | 30                   | -                    | 52                                 | PSS37/64-500 <input type="checkbox"/>   | 1SFA 892 003 R <input type="checkbox"/> | 2.30         |
| 30                   | 37                   | -                    | 64                                 | PSS44/76-500 <input type="checkbox"/>   | 1SFA 892 004 R <input type="checkbox"/> | 2.30         |
| 37                   | 45                   | -                    | 76                                 | PSS50/85-500 <input type="checkbox"/>   | 1SFA 892 005 R <input type="checkbox"/> | 3.60         |
| 45                   | 55                   | -                    | 85                                 | PSS60/105-500 <input type="checkbox"/>  | 1SFA 892 006 R <input type="checkbox"/> | 3.80         |
| 55                   | 75                   | -                    | 105                                | PSS72/124-500 <input type="checkbox"/>  | 1SFA 892 007 R <input type="checkbox"/> | 3.80         |
| 59                   | 80                   | -                    | 124                                | PSS85/147-500 <input type="checkbox"/>  | 1SFA 892 008 R <input type="checkbox"/> | 8.60         |
| 75                   | 90                   | -                    | 147                                | PSS105/181-500 <input type="checkbox"/> | 1SFA 892 009 R <input type="checkbox"/> | 10.40        |
| 90                   | 110                  | -                    | 181                                | PSS142/245-500 <input type="checkbox"/> | 1SFA 892 010 R <input type="checkbox"/> | 10.40        |
| 132                  | 160                  | -                    | 245                                | PSS175/300-500 <input type="checkbox"/> | 1SFA 892 011 R <input type="checkbox"/> | 20.50        |
| 160                  | 200                  | -                    | 300                                | PSS250/430-500 <input type="checkbox"/> | 1SFA 892 013 R <input type="checkbox"/> | 22.00        |
| 220                  | 295                  | -                    | 430                                | PSS300/515-500 <input type="checkbox"/> | 1SFA 892 014 R <input type="checkbox"/> | 22.00        |

### 400 – 690 V

Motor power

| 400 V<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup>                      | Order code <sup>2)</sup>                | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|-----------------------------------------|-----------------------------------------|--------------|
| 15                   | 18,5                 | 25                   | 30                                 | PSS30/52-690 <input type="checkbox"/>   | 1SFA 893 002 R <input type="checkbox"/> | 2.30         |
| 25                   | 30                   | 45                   | 52                                 | PSS37/64-690 <input type="checkbox"/>   | 1SFA 893 003 R <input type="checkbox"/> | 2.30         |
| 30                   | 37                   | 55                   | 64                                 | PSS44/76-690 <input type="checkbox"/>   | 1SFA 893 004 R <input type="checkbox"/> | 2.30         |
| 37                   | 45                   | 59                   | 76                                 | PSS50/85-690 <input type="checkbox"/>   | 1SFA 893 005 R <input type="checkbox"/> | 3.60         |
| 45                   | 55                   | 75                   | 85                                 | PSS60/105-690 <input type="checkbox"/>  | 1SFA 893 006 R <input type="checkbox"/> | 3.80         |
| 55                   | 75                   | 90                   | 105                                | PSS72/124-690 <input type="checkbox"/>  | 1SFA 893 007 R <input type="checkbox"/> | 3.80         |
| 59                   | 80                   | 110                  | 124                                | PSS85/147-690 <input type="checkbox"/>  | 1SFA 893 008 R <input type="checkbox"/> | 8.60         |
| 75                   | 90                   | 132                  | 147                                | PSS105/181-690 <input type="checkbox"/> | 1SFA 893 009 R <input type="checkbox"/> | 10.40        |
| 90                   | 110                  | 160                  | 181                                | PSS142/245-690 <input type="checkbox"/> | 1SFA 893 010 R <input type="checkbox"/> | 10.40        |
| 132                  | 160                  | 220                  | 245                                | PSS175/300-690 <input type="checkbox"/> | 1SFA 893 011 R <input type="checkbox"/> | 20.50        |
| 160                  | 200                  | 257                  | 300                                | PSS250/430-690 <input type="checkbox"/> | 1SFA 893 013 R <input type="checkbox"/> | 22.00        |
| 220                  | 295                  | 400                  | 430                                | PSS300/515-690 <input type="checkbox"/> | 1SFA 893 014 R <input type="checkbox"/> | 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         | Pack <sup>ing</sup> piece | Weight kg 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 mm² | Tightening torque max. Nm | Type         | Order code         | Pack <sup>ing</sup> piece | Weight kg 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 mm² | Tightening torque max. Nm | Type | Order code         | Pack <sup>ing</sup> piece | Weight kg 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 mm²         | Type    | Order code         | Pack <sup>ing</sup> piece | Weight kg 1 piece |
|-----------------------------|------------------------|---------|--------------------|---------------------------|-------------------|
| PSS18/30-500 ...44/76-500   | 1x6...35<br>2x6...16   | PSLW-44 | 1SFA 899 002 R1044 | 1                         | 0.10              |
| PSS50/85-500...72/124-500   |                        |         |                    |                           |                   |
| PSS18/30-690 ... 72/124-690 | 1x10...50<br>2x10...25 | PSLW-72 | 1SFA 899 002 R1072 | 1                         | 0.15              |
| PSS85/147...142/245         |                        | LW185   | 1SFN 074 707 R1000 | 1                         | 0.25              |
| PSS175/300...300/515        |                        | LW300   | 1SFN 075 107 R1000 | 1                         | 0.40              |



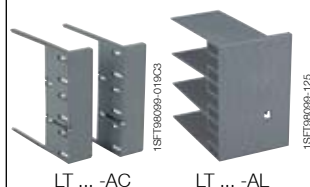
## Terminal nut washer

| For softstarter type | Type  | Order code         | Pack <sup>ing</sup> piece | Weight kg 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         | Pack <sup>ing</sup> piece | Weight kg 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><br>115 %                   | <b>PSS300/515</b><br>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>                                 |                                                        |                                               |
| Main circuit                                                | <b>PSS18/30-500 ... 44/76-500</b><br>IP 20             | <b>PSS50/85-500 ... 72/124-500</b><br>IP 10   |
|                                                             | <b>PSS18/30-690 ... 72/124-690</b><br>IP 10            | <b>PSS85/147-690 ... 300/515-690</b><br>IP 00 |
| Supply and control circuit                                  | <b>PSS18/30...PSS300/515</b><br>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, $I_e$<br>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 x  $I_e$  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.

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

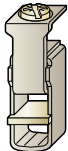
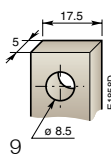
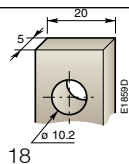
x = actual altitude for the softstarter

# Softstarters

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

### Technical data

#### Cross section of connection cables

|                                   |                     | Type of softstarter                                                                                                                                                 |                                                                |                                                                                    |                                                                                     |
|-----------------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |                     | PSS 18/30-500 ...<br>44/76-500                                                                                                                                      | PSS50/85-500 ...<br>72/124-500,<br>18/30-690 ...<br>72/124-690 | PSS85/147-500 ...<br>142/245-500,<br>85/147-690 ...<br>142/245-690                 | PSS175/300 ...<br>300/515-500,<br>175/300 ...<br>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                                                                     |
| <b>Connection bar</b>             |                     |                                                                                                                                                                     |                                                                |                                                                                    |                                                                                     |
| 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 |                    | Max power loss at rated I <sub>e</sub> |                            | Max fuse rating - main circuit <sup>1)</sup> |          |          | Power requirements of supply |                        |
|-----------------|-------------------------------------|--------------------|----------------------------------------|----------------------------|----------------------------------------------|----------|----------|------------------------------|------------------------|
|                 | Type                                | Current range<br>A | without by-pass<br>W <sup>2)</sup>     | with external by-pass<br>W | 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 |
| PSS30/52        | TA 25 DU                            | 10–30              | 100                                    | 14.6                       | 80                                           | 170M1366 | 170H1007 | 100                          | 6.6 URB 000 D08 V 0100 |
| PSS37/64        | TA 42 DU                            | 22–37              | 120                                    | 17.5                       | 125                                          | 170M1368 | 170H1007 | 160                          | 6.6 URB 000 D08 V 0160 |
| PSS44/76        | TA 75 DU                            | 29–44              | 142                                    | 17.5                       | 160                                          | 170M1369 | 170H1007 | 200                          | 6.6 URD 30 D08 A 0200  |
| PSS50/85        | TA 75 DU                            | 29–50              | 160                                    | 20.5                       | 160                                          | 170M1369 | 170H1007 | 200                          | 6.6 URD 30 D08 A 0200  |
| PSS60/105       | TA 75 DU                            | 29–60              | 190                                    | 22                         | 200                                          | 170M1370 | 170H1007 | 250                          | 6.6 URD 30 D08 A 0250  |
| PSS72/124       | TA 75 DU                            | 45–72              | 226                                    | 30.5                       | 250                                          | 170M1371 | 170H1007 | 315                          | 6.6 URD 30 D08 A 0315  |
| PSS85/147       | TA 110 DU                           | 65–85              | 291                                    | 56.5                       | 315                                          | 170M1372 | 170H1007 | 400                          | 6.6 URD 30 D08 A 0400  |
| PSS105/181      | TA 110 DU                           | 65–105             | 351                                    | 61                         | 400                                          | 170M3019 | 170H3004 | 400                          | 6.6 URD 30 D08 A 0400  |
| PSS142/245      | TA 200 DU                           | 100–142            | 462                                    | 63                         | 450                                          | 170M3020 | 170H3004 | 500                          | 6.6 URD 30 D08 A 0500  |
| PSS175/300      | TA 200 DU                           | 100–175            | 590                                    | 117                        | 500                                          | 170M3021 | 170H3004 | 530                          | 6.6 URD 30 D08 A 0550  |
| PSS250/430      | TA 450 DU                           | 130–250            | 815                                    | 117                        | 700                                          | 170M5013 | 170H3004 | 630                          | 6.6 URD 31 D08 A 0630  |
| PSS300/515      | TA 450 DU                           | 130–300            | 965                                    | 140                        | 900                                          | 170M5015 | 170H3004 | 900                          | 6.6 URD 32 D11 A 0900  |

<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><br>200V / 208V                     |     | U <sub>e</sub><br>220V / 240V |     | U <sub>e</sub><br>440V / 480V |     | U <sub>e</sub><br>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><br>200V / 208V                     |     | U <sub>e</sub><br>220V / 240V |     | U <sub>e</sub><br>440V / 480V |     | U <sub>e</sub><br>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



1SFC132173F0001

## PST30 ... PST72

## 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 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|

### 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 |
|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|

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

|          |          |          |          |          |          |          |          |          |                        |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------------------|
| 170M3021 | 170M5012 | 170M5013 | 170M5015 | 170M5013 | 170M5015 | 170M5015 | 170M5018 | 170M6018 | 170M6020 <sup>2)</sup> |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------------------|

### Switch fuse, Type

|               |               |               |               |               |               |
|---------------|---------------|---------------|---------------|---------------|---------------|
| OESA250R03D80 | 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
- Centrifugal pump
- Compressor
- Conveyor belt (short)
- Elevator
- Escalator

#### Heavy duty start Class 30

Ordering – See page 28 –29

#### Typical applications

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

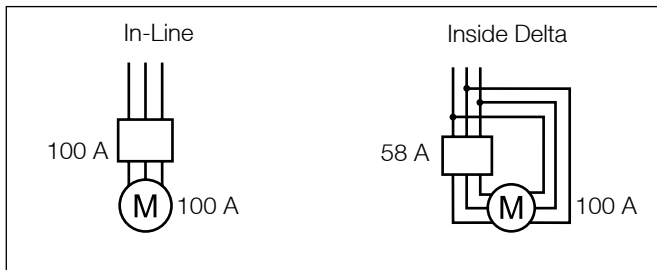
The PST Softstarter can be used with or without a by-pass contactor except for the larger sizes PSTB370 ... PSTB1050 where the by-pass contactor is already built-in.

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

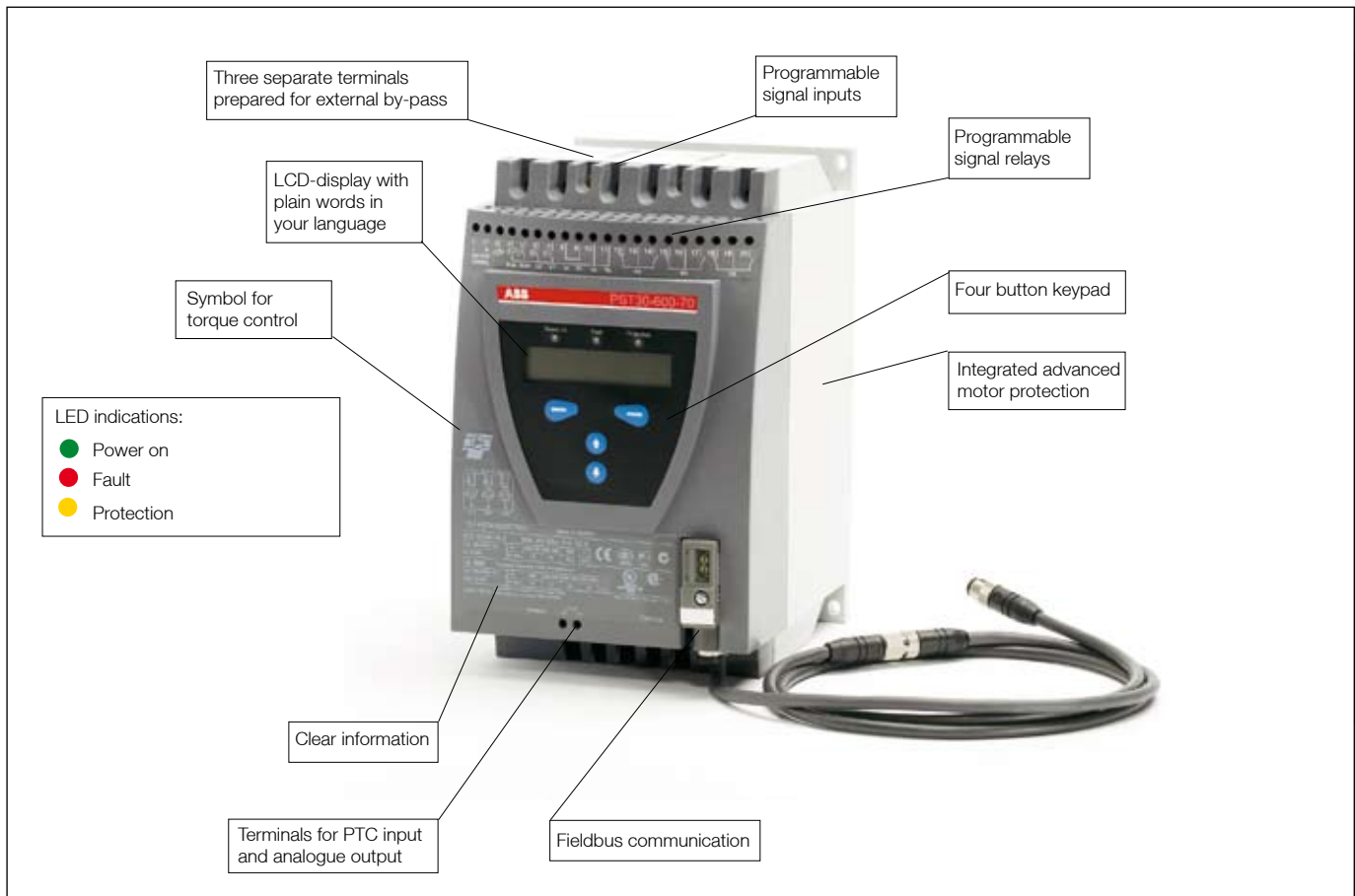
For **heavy duty** applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 28-29.

#### 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 lifespan 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

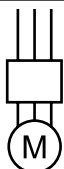
With the torque limit function enabled, the torque can never exceed a set value during start. This will minimize stress and wear on the equipment driven by the motor.

### 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

## PST30 ... PST300

230 – 600 V

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

Motor power

| 400 V<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 15                   | 18,5                 | -                    | 30                                 | PST30-600-70□      | 1SFA 894 002 R70▽0       | 4.8          |
| 18,5                 | 22                   | -                    | 37                                 | PST37-600-70□      | 1SFA 894 003 R70▽0       | 4.8          |
| 22                   | 25                   | -                    | 44                                 | PST44-600-70□      | 1SFA 894 004 R70▽0       | 4.8          |
| 25                   | 30                   | -                    | 50                                 | PST50-600-70□      | 1SFA 894 005 R70▽0       | 4.8          |
| 30                   | 37                   | -                    | 60                                 | PST60-600-70□      | 1SFA 894 006 R70▽0       | 5.0          |
| 37                   | 45                   | -                    | 72                                 | PST72-600-70□      | 1SFA 894 007 R70▽0       | 5.0          |
| 45                   | 55                   | -                    | 85                                 | PST85-600-70□      | 1SFA 894 008 R70▽0       | 11.2         |
| 55                   | 75                   | -                    | 105                                | PST105-600-70□     | 1SFA 894 009 R70▽0       | 13.0         |
| 75                   | 90                   | -                    | 142                                | PST142-600-70□     | 1SFA 894 010 R70▽0       | 13.0         |
| 90                   | 110                  | -                    | 175                                | PST175-600-70□     | 1SFA 894 011 R70▽0       | 21.5         |
| 110                  | 132                  | -                    | 210                                | PST210-600-70□     | 1SFA 894 012 R70▽0       | 21.5         |
| 132                  | 160                  | -                    | 250                                | PST250-600-70□     | 1SFA 894 013 R70▽0       | 23.0         |
| 160                  | 200                  | -                    | 300                                | 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<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 15                   | 18,5                 | 25                   | 30                                 | PST30-690-70□      | 1SFA 895 002 R70▽0       | 4.8          |
| 18,5                 | 22                   | 30                   | 37                                 | PST37-690-70□      | 1SFA 895 003 R70▽0       | 4.8          |
| 22                   | 25                   | 37                   | 44                                 | PST44-690-70□      | 1SFA 895 004 R70▽0       | 4.8          |
| 25                   | 30                   | 45                   | 50                                 | PST50-690-70□      | 1SFA 895 005 R70▽0       | 4.8          |
| 30                   | 37                   | 55                   | 60                                 | PST60-690-70□      | 1SFA 895 006 R70▽0       | 5.0          |
| 37                   | 45                   | 59                   | 72                                 | PST72-690-70□      | 1SFA 895 007 R70▽0       | 5.0          |
| 45                   | 55                   | 75                   | 85                                 | PST85-690-70□      | 1SFA 895 008 R70▽0       | 11.2         |
| 55                   | 75                   | 90                   | 105                                | PST105-690-70□     | 1SFA 895 009 R70▽0       | 13.0         |
| 75                   | 90                   | 132                  | 142                                | PST142-690-70□     | 1SFA 895 010 R70▽0       | 13.0         |
| 90                   | 110                  | 160                  | 175                                | PST175-690-70□     | 1SFA 895 011 R70▽0       | 21.5         |
| 110                  | 132                  | 184                  | 210                                | PST210-690-70□     | 1SFA 895 012 R70▽0       | 21.5         |
| 132                  | 160                  | 220                  | 250                                | PST250-690-70□     | 1SFA 895 013 R70▽0       | 23.0         |
| 160                  | 200                  | 257                  | 300                                | 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<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 200                  | 257                  | -                    | 370                                | PSTB370-600-70□    | 1SFA 894 015 R70▽0       | 31.0         |
| 250                  | 315                  | -                    | 470                                | PSTB470-600-70□    | 1SFA 894 016 R70▽0       | 31.0         |
| 315                  | 400                  | -                    | 570                                | PSTB570-600-70□    | 1SFA 894 017 R70▽0       | 52.0         |
| 400                  | 500                  | -                    | 720                                | PSTB720-600-70□    | 1SFA 894 018 R70▽0       | 55.0         |
| 450                  | 600                  | -                    | 840                                | PSTB840-600-70□    | 1SFA 894 019 R70▽0       | 60.0         |
| 560                  | 730                  | -                    | 1050                               | PSTB1050-600-70□   | 1SFA 894 020 R70▽0       | 60.0         |

400 – 690 V

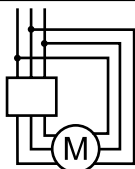
Supply voltage,  $U_s$  100...250 V, 50/60 Hz

Motor power

| 400 V<br>$P_o$<br>kW | 500 V<br>$P_o$<br>kW | 690 V<br>$P_o$<br>kW | Rated motor<br>current, $I_o$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 200                  | 257                  | 355                  | 370                                | PSTB370-690-70□    | 1SFA 895 015 R70▽0       | 31.0         |
| 250                  | 315                  | 450                  | 470                                | PSTB470-690-70□    | 1SFA 895 016 R70▽0       | 31.0         |
| 315                  | 400                  | 560                  | 570                                | PSTB570-690-70□    | 1SFA 895 017 R70▽0       | 52.0         |
| 400                  | 500                  | 710                  | 720                                | PSTB720-690-70□    | 1SFA 895 018 R70▽0       | 55.0         |
| 450                  | 600                  | 800                  | 840                                | PSTB840-690-70□    | 1SFA 895 019 R70▽0       | 60.0         |
| 560                  | 730                  | 1000                 | 1050                               | 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

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

Normal starts, class 10 – Inside Delta, Ordering details



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



PSTB370 ... PSTB470



PSTB570 ... PSTB1050

### PST30 ... PST300

#### 230 – 600 V

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

##### Motor power

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 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

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 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

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 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

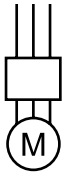
| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 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         |

<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 – In-Line, Ordering details



PST30 ... PST72

1SFC132172F0001



PST85 ... PST142

1SFC132173F0001



PST175 ... PST300

1SFC132174F0001



PSTB370 ... PSTB470

1SFC132175F0001



PSTB570...PSTB1050

1SFC132176F0001

### PST37 ... PST300

230 – 600 V

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

Motor power

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 15                   | 18,5                 | -                    | 30                                 | PST37-600-70□      | 1SFA 894 003 R70▽0       | 4.8          |
| 18,5                 | 22                   | -                    | 37                                 | PST44-600-70□      | 1SFA 894 004 R70▽0       | 4.8          |
| 22                   | 25                   | -                    | 44                                 | PST50-600-70□      | 1SFA 894 005 R70▽0       | 4.8          |
| 25                   | 30                   | -                    | 50                                 | PST60-600-70□      | 1SFA 894 006 R70▽0       | 5.0          |
| 30                   | 37                   | -                    | 60                                 | PST72-600-70□      | 1SFA 894 007 R70▽0       | 5.0          |
| 37                   | 45                   | -                    | 72                                 | PST85-600-70□      | 1SFA 894 008 R70▽0       | 11.2         |
| 45                   | 55                   | -                    | 85                                 | PST105-600-70□     | 1SFA 894 009 R70▽0       | 13.0         |
| 55                   | 75                   | -                    | 105                                | PST142-600-70□     | 1SFA 894 010 R70▽0       | 13.0         |
| 75                   | 90                   | -                    | 142                                | PST175-600-70□     | 1SFA 894 011 R70▽0       | 21.5         |
| 90                   | 110                  | -                    | 175                                | PST210-600-70□     | 1SFA 894 012 R70▽0       | 21.5         |
| 110                  | 132                  | -                    | 210                                | PST250-600-70□     | 1SFA 894 013 R70▽0       | 23.0         |
| 132                  | 160                  | -                    | 250                                | 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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 15                   | 18,5                 | 25                   | 30                                 | PST37-690-70□      | 1SFA 895 003 R70▽0       | 4.8          |
| 18,5                 | 22                   | 30                   | 37                                 | PST44-690-70□      | 1SFA 895 004 R70▽0       | 4.8          |
| 22                   | 25                   | 37                   | 44                                 | PST50-690-70□      | 1SFA 895 005 R70▽0       | 4.8          |
| 25                   | 30                   | 45                   | 50                                 | PST60-690-70□      | 1SFA 895 006 R70▽0       | 5.0          |
| 30                   | 37                   | 55                   | 60                                 | PST72-690-70□      | 1SFA 895 007 R70▽0       | 5.0          |
| 37                   | 45                   | 59                   | 72                                 | PST85-690-70□      | 1SFA 895 008 R70▽0       | 11.2         |
| 45                   | 55                   | 75                   | 85                                 | PST105-690-70□     | 1SFA 895 009 R70▽0       | 13.0         |
| 55                   | 75                   | 90                   | 105                                | PST142-690-70□     | 1SFA 895 010 R70▽0       | 13.0         |
| 75                   | 90                   | 132                  | 142                                | PST175-690-70□     | 1SFA 895 011 R70▽0       | 21.5         |
| 90                   | 110                  | 160                  | 175                                | PST210-690-70□     | 1SFA 895 012 R70▽0       | 21.5         |
| 110                  | 132                  | 184                  | 210                                | PST250-690-70□     | 1SFA 895 013 R70▽0       | 23.0         |
| 132                  | 160                  | 220                  | 250                                | 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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 160                  | 200                  | -                    | 300                                | PSTB370-600-70□    | 1SFA 894 015 R70▽0       | 31.0         |
| 200                  | 257                  | -                    | 370                                | PSTB470-600-70□    | 1SFA 894 016 R70▽0       | 31.0         |
| 250                  | 315                  | -                    | 470                                | PSTB570-600-70□    | 1SFA 894 017 R70▽0       | 52.0         |
| 315                  | 400                  | -                    | 570                                | PSTB720-600-70□    | 1SFA 894 018 R70▽0       | 55.0         |
| 400                  | 500                  | -                    | 720                                | PSTB840-600-70□    | 1SFA 894 019 R70▽0       | 60.0         |
| 450                  | 600                  | -                    | 840                                | PSTB1050-600-70□   | 1SFA 894 020 R70▽0       | 60.0         |

400 – 690 V

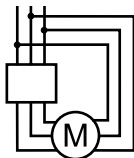
Supply voltage,  $U_s$ , 100...250 V, 50/60 Hz

Motor power

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>kg |
|----------------------|----------------------|----------------------|------------------------------------|--------------------|--------------------------|--------------|
| 160                  | 200                  | 257                  | 300                                | PSTB370-690-70□    | 1SFA 895 015 R70▽0       | 31.0         |
| 200                  | 257                  | 355                  | 370                                | PSTB470-690-70□    | 1SFA 895 016 R70▽0       | 31.0         |
| 250                  | 315                  | 450                  | 470                                | PSTB570-690-70□    | 1SFA 895 017 R70▽0       | 52.0         |
| 315                  | 400                  | 560                  | 570                                | PSTB720-690-70□    | 1SFA 895 018 R70▽0       | 55.0         |
| 400                  | 500                  | 710                  | 720                                | PSTB840-690-70□    | 1SFA 895 019 R70▽0       | 60.0         |
| 450                  | 600                  | 800                  | 840                                | 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

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

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



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



PSTB370 ... PSTB470



PSTB570 ... PSTB1050

### PST37 ... PST300

**230 – 600 V**

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

**Motor power**

| 400 V<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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<br>$P_n$<br>kW | 500 V<br>$P_n$<br>kW | 690 V<br>$P_n$<br>kW | Rated motor<br>current, $I_n$<br>A | Type <sup>1)</sup> | Order code <sup>2)</sup> | Weight<br>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                        | —                   | <b>1SDA 023 354 R0001</b> | 3                         | 0.200             |
| PST85 ...142         | 2 x (50-120)               | 16                        | <b>LZ185-2C/120</b> | <b>1SFN 074 709 R1000</b> | 3                         | 0.300             |
| PST175 ...PSTB470    | 16-240                     | 25                        | —                   | <b>1SDA 023 368 R0001</b> | 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                      | —    | <b>1SDA 023 356 R0001</b> | 3                         | 0.100             |
| PST85 ...142         | 25-150                     | 31                        | —    | <b>1SDA 023 357 R0001</b> | 3                         | 0.100             |
| PST175 ...300        | 120-240                    | 43                        | —    | <b>1SDA 023 370 R0001</b> | 3                         | 0.100             |
| PSTB370 ...1050      | 3 x (70-185)               | 43                        | —    | <b>1SDA 023 384 R0001</b> | 3                         | 0.265             |
| PSTB370 ...1050      | 2 x (120-240)              | 31                        | —    | <b>1SDA 023 380 R0001</b> | 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 | <b>LX185</b> | <b>1SFN 074 710 R1000</b> | 1                          | 0.250             |
| PST175...300 <sup>2)</sup> | 10.5                              | 20 x 5   | <b>LX300</b> | <b>1SFN 075 110 R1000</b> | 1                          | 0.350             |
| PSTB370...470              | 10.5                              | 25 x 5   | <b>LX460</b> | <b>1SFN 075 710 R1000</b> | 1                          | 0.500             |
| PSTB570...1050             | 13                                | 40 x 6   | <b>LX750</b> | <b>1SFN 076 110 R1000</b> | 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   | <b>LW110</b> | <b>1SFN 074 307 R1000</b> | 1                          | 0.100             |
| PST85...142 <sup>1)</sup> | 10.5                              | 17.5 x 5 | <b>LW185</b> | <b>1SFN 074 707 R1000</b> | 1                          | 0.250             |
| PST175...300              | 10.5                              | 20 x 5   | <b>LW300</b> | <b>1SFN 075 107 R1000</b> | 1                          | 0.450             |
| PSTB370...470             | 10.5                              | 25 x 5   | <b>LW460</b> | <b>1SFN 075 707 R1000</b> | 1                          | 0.730             |
| PSTB570...1050            | 13                                | 40 x 6   | <b>LW750</b> | <b>1SFN 076 107 R1000</b> | 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        | <b>LE185</b> | <b>1SFN 074 716 R1000</b> | 2                         | 0.200             |
| PST175...300 <sup>2)</sup> | 2        | <b>LE300</b> | <b>1SFN 075 116 R1000</b> | 2                         | 0.300             |
| PSTB370...470              | 6        | <b>LE460</b> | <b>1SFN 075 716 R1000</b> | 6                         | 0.600             |
| PSTB570...1050             | 6        | <b>LE750</b> | <b>1SFN 076 116 R1000</b> | 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 | <b>LT185-AC</b> | <b>1SFN 124 701 R1000</b> | 2                          | 0.050             |
|                            |                 | <b>LT460-AC</b> | <b>1SFN 125 701 R1000</b> | 2                          | 0.100             |
| PST85...142                | 1 pcs and 1 pcs | <b>LT185-AL</b> | <b>1SFN 124 703 R1000</b> | 2                          | 0.220             |
|                            |                 | <b>LT460-AL</b> | <b>1SFN 125 703 R1000</b> | 2                          | 0.800             |
| PST175...300 <sup>2)</sup> | 3 pcs           | <b>LT300-AC</b> | <b>1SFN 125 101 R1000</b> | 2                          | 0.070             |
| PST175...300 <sup>2)</sup> | 3 pcs           | <b>LT300-AL</b> | <b>1SFN 125 103 R1000</b> | 2                          | 0.280             |
| PSTB370...470              | 2 pcs           | <b>LT460-AC</b> | <b>1SFN 125 701 R1000</b> | 2                          | 0.100             |
| PSTB370...470              | 2 pcs           | <b>LT460-AL</b> | <b>1SFN 125 703 R1000</b> | 2                          | 0.800             |
| PSTB570...1050             | 2 pcs           | <b>LT750-AC</b> | <b>1SFN 126 101 R1000</b> | 2                          | 0.120             |
| PSTB570...1050             | 2 pcs           | <b>LT750-AL</b> | <b>1SFN 126 103 R1000</b> | 2                          | 0.825             |

## External keypad including a 3m cable

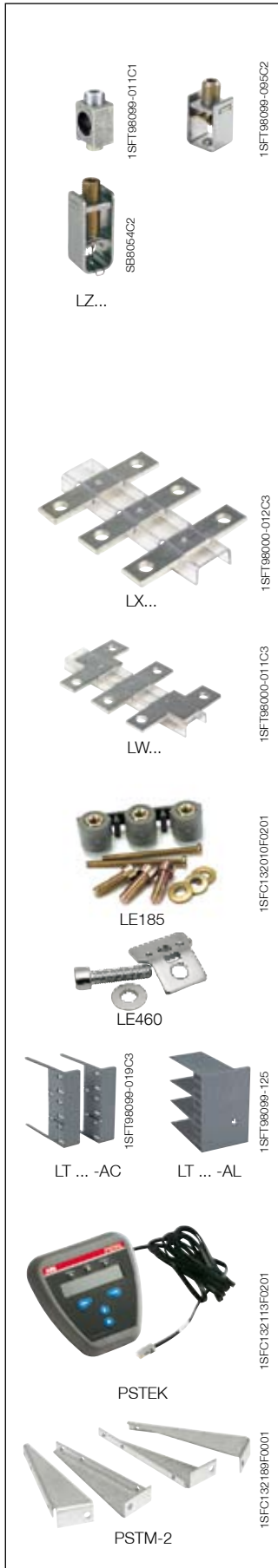
| For softstarter type | Type         | Order code                | Pack <sup>ing</sup> piece | Weight kg 1 piece |
|----------------------|--------------|---------------------------|---------------------------|-------------------|
| PST30...300          | <b>PSTEK</b> | <b>1SFA 899 003 R1000</b> | 1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

## Marine Kit

| For softstarter type | Type          | Order code                | Pack <sup>ing</sup> piece | Weight kg 1 piece |
|----------------------|---------------|---------------------------|---------------------------|-------------------|
| PST85...142          | <b>PSTM-2</b> | <b>1SFA 899 004 R1000</b> | 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<br>1 piece |
|---------------|--------------|---------------|--------------------|----------------------------|----------------------|
| DeviceNet-FBP | 0.25 m       | DNP21-FBP.025 | 1SAJ 230 000 R1003 | 1                          | 0.09                 |
| DeviceNet-FBP | 0.50 m       | DNP21-FBP.050 | 1SAJ 230 000 R1005 | 1                          | 0.10                 |
| DeviceNet-FBP | 1.00 m       | DNP21-FBP.100 | 1SAJ 230 000 R1010 | 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<br>1 piece |
|----------------|--------------|---------------|--------------------|----------------------------|----------------------|
| MODBUS-RTU-FBP | 0.25 m       | MRP21-FBP.025 | 1SAJ 250 000 R0003 | 1                          | 0.09                 |
| MODBUS-RTU-FBP | 0.50 m       | MRP21-FBP.050 | 1SAJ 250 000 R0005 | 1                          | 0.10                 |
| MODBUS-RTU-FBP | 1.00 m       | MRP21-FBP.100 | 1SAJ 250 000 R0010 | 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<br>1 piece |
|-------------|--------------|---------------|--------------------|----------------------------|----------------------|
| CANopen-FBP | 0.25 m       | COP21-FBP.025 | 1SAJ 230 100 R1003 | 1                          | 0.09                 |
| CANopen-FBP | 0.50 m       | COP21-FBP.050 | 1SAJ 230 100 R1005 | 1                          | 0.10                 |
| CANopen-FBP | 1.00 m       | COP21-FBP.100 | 1SAJ 230 100 R1010 | 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

Black cable



DNF11-FBP.050



DNM11-FBP.050



DNX11-FDP



DNM11-FBP.0

DNF11-FBP.0



DNR11-FBP.120

## 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<br>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<br>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

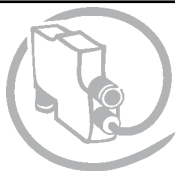
| Designation                             | Cable length | Type        | Order code         | Pack <sup>ing</sup> pieces | Weight kg<br>1 piece |
|-----------------------------------------|--------------|-------------|--------------------|----------------------------|----------------------|
| Round Cable 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<br>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



PDP22-FBP



PDQ22-FBP

2000 341 048 F0008

## 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<br>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<br>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<br>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<br>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

Purple cable

## 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<br>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<br>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<br>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<br>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><br>at max rated current $I_r$                                                                                                                                                                                                                                                                                                                    | 3 x $I_r$ for 15 sec.                                                                                    |                                             |
| <b>Number of starts per hour</b>                                                                                                                                                                                                                                                                                                                                          | <b>PST30 ... 300</b><br>30 <sup>1)</sup>                                                                 | <b>PSTB370 ... 1050</b><br>10 <sup>1)</sup> |
| <b>Overload capability</b> ,<br>Overload Class                                                                                                                                                                                                                                                                                                                            | 10                                                                                                       |                                             |
| <b>Service factor</b>                                                                                                                                                                                                                                                                                                                                                     | <b>PST(B)30...840</b><br>115 %                                                                           | <b>PSTB1050</b><br>100 %                    |
| <b>Ambient temperature</b><br>During operation<br>During storage                                                                                                                                                                                                                                                                                                          | $\pm 0 \dots +50 \text{ }^\circ\text{C}$ <sup>2)</sup><br>$-25 \dots +70 \text{ }^\circ\text{C}$         |                                             |
| <b>Altitude</b><br>Maximum altitude                                                                                                                                                                                                                                                                                                                                       | 4000 m <sup>3)</sup>                                                                                     |                                             |
| <b>Degree of protection</b><br>Main circuit<br>Supply and Control circuit                                                                                                                                                                                                                                                                                                 | <b>PST30 ... 72</b><br>IP10<br>IP20                                                                      | <b>PST85 ... PSTB1050</b><br>IP00           |
| <b>Main circuit</b><br>Built in By-pass contactor<br>Cooling system - Fan cooled<br>(thermostat controlled)                                                                                                                                                                                                                                                               | <b>PST30 ... 300</b><br>No<br>Yes                                                                        | <b>PSTB370 ... 1050</b><br>Yes              |
| <b>Supply circuit</b><br>Supply voltage $U_s$ - one range                                                                                                                                                                                                                                                                                                                 | 100 ... 250 V +10 %/-15 %, 50/60 Hz $\pm 5 \text{ }^\circ$                                               |                                             |
| <b>HMI for settings</b><br>(Human Machine Interface)<br>20 segment display<br>Keypad with two selection keys and two navigating keys<br>Plain text in 14 languages<br>(English, German, Italian, Dutch, Chinese, Finnish, Swedish, French, Spanish, Russian, Portuguese, Turkish, Polish and Czech)                                                                       | Yes<br>Yes<br>Yes<br>Yes                                                                                 |                                             |
| <b>Signal relays</b><br>Number of programmable signal relays (Each relay can be programmed to be Run, By-pass or Event signal)<br>K4 - Default as Run signal<br>K5 - Default as By-pass signal<br>K6 - Default as Event signal<br>Rated operational voltage $U_e$<br>Rated thermal current $I_{th}$<br>Rated operational current $I_e$ at AC-15 ( $U_e = 250 \text{ V}$ ) | 3<br>Yes<br>Yes<br>Yes<br>250 V<br>5 A<br>1.5 A                                                          |                                             |
| <b>Analog output</b><br>Output signal reference<br>Type of output signal                                                                                                                                                                                                                                                                                                  | 0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA<br>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><br>Internal 24 V DC (10 mA closed)<br>Start / Stop inputs<br>Two extra programmable inputs<br>(Each input can be programmed to be either; Non, Reset, Enable, Jog, DOL- On, Start motor 2 or Start motor 3, FB-Dis ).                                                                | Yes<br>Yes<br>Yes                                                                                      |
| <b>Signal indication LED's</b><br>Power on - Green<br>Fault - Red<br>Protection - Yellow                                                                                                                                                                                                                                     | Yes<br>Yes<br>Yes                                                                                      |
| <b>Protections</b><br>Electronic overload<br>Adjustable tripping classes - Class 10 A, 10, 20 and 30<br>Dual overload (separate overload function for start and run)<br>PTC connection<br>Locked rotor protection<br>Underload protection<br>Phase imbalance<br>High current ( $8 \times I_r$ )<br>Phase reversal protection | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes                                                   |
| <b>Warnings (pre-warning)</b><br>High current<br>Low current (underload)<br>Overload trip<br>Overtemp. thyristors (SCR)                                                                                                                                                                                                      | Yes<br>Yes<br>Yes<br>Yes                                                                               |
| <b>Start of several motors</b><br>Possible to set up and start three different motors                                                                                                                                                                                                                                        | Yes                                                                                                    |
| <b>Field bus connection</b><br>Connection for ABB FieldBusPlug                                                                                                                                                                                                                                                               | Yes                                                                                                    |
| <b>PTC input</b><br>Switch off resistance<br>Switch on resistance                                                                                                                                                                                                                                                            | 2825 ohm $\pm 20\%$<br>1200 ohm $\pm 20\%$                                                             |
| <b>External keypad</b><br>Display<br>Ambient temperature<br>During operation<br>During storage<br>Degree of protection                                                                                                                                                                                                       | LCD type<br>$\pm 0 \dots +50 \text{ }^\circ\text{C}$<br>$-25 \dots +70 \text{ }^\circ\text{C}$<br>IP66 |

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

<sup>2)</sup> Above  $40 \text{ }^\circ\text{C}$  up to max.  $50 \text{ }^\circ\text{C}$  reduce the rated current with 0.8 % per  $^\circ\text{C}$ .

<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.

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

x = actual altitude for the softstarter

### PSTB Integrated by-pass ratings

| Softstarter | Type | PSTB370 | PSTB470 | PSTB570 | PSTB720 | PSTB840 | PSTB1050 |
|-------------|------|---------|---------|---------|---------|---------|----------|
| Contactor   | 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 $I_o$         | 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 $I_o$                                             | 4.0 x $I_o$        |
| 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 $I_o$                                             | 4,0 x $I_o$        |
| 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 $I_o$                                             | 0.5 x $I_o$        |
| 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 $I_o$                                             | 1.2 x $I_o$        |
| <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 $I_o$                                             | 0.8 x $I_o$        |
| <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              |

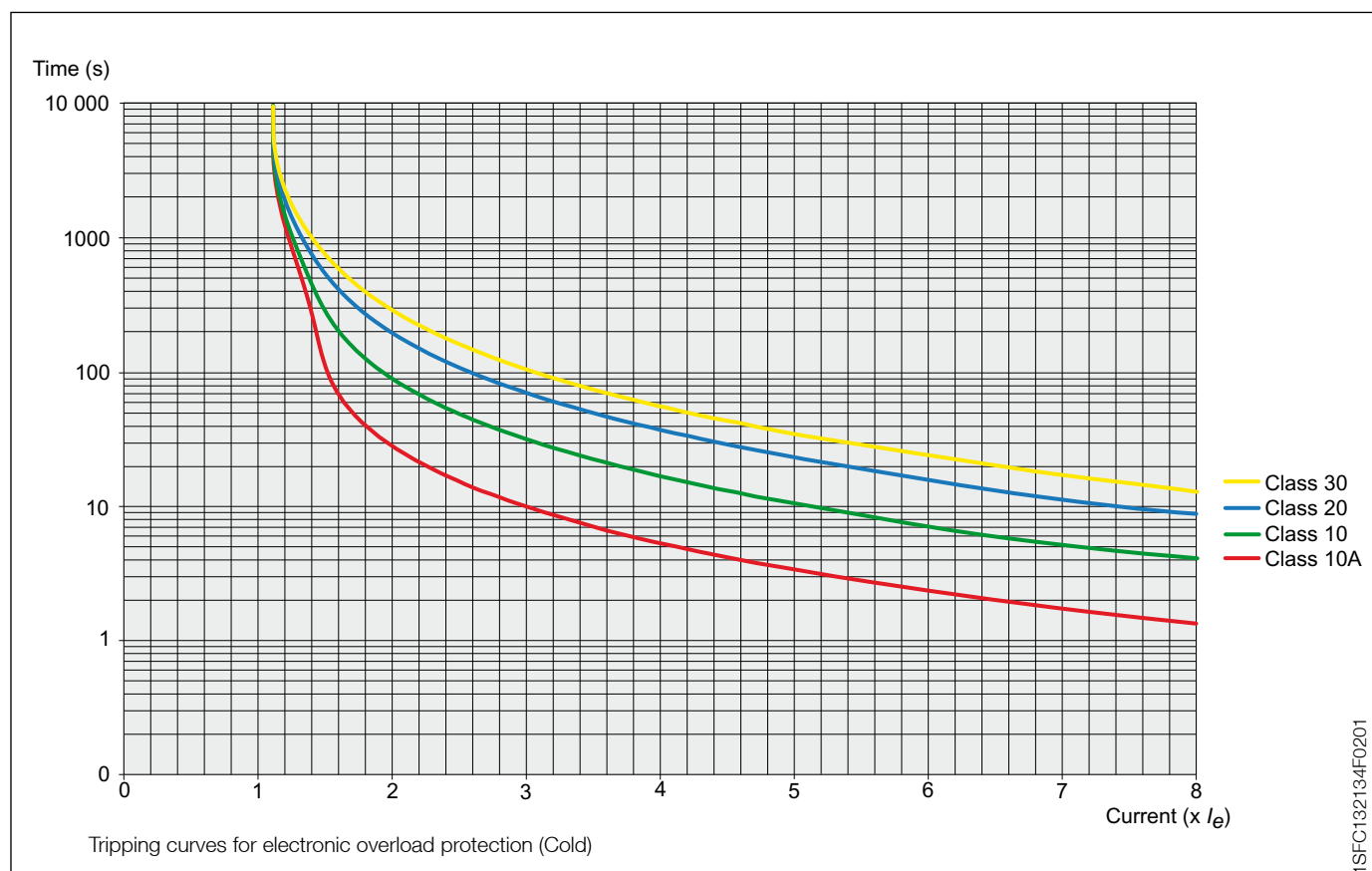
# Softstarters

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       |

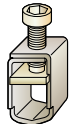
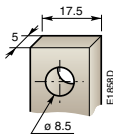
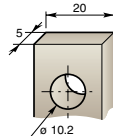
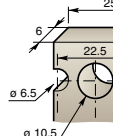
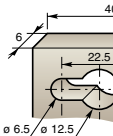
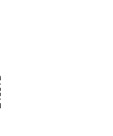
For more detailed information, please see separate Installation and Commissioning manuals available at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage) on the Softstarter pages.

# 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             | Yes              |
|                                     | T1, T2, T3          | Yes       | Yes                                                                                 | Yes             | Yes            | Yes             | Yes              |
| (For external by-pass):             | B1, B2, B3          | Yes       | 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                  | –         |    |                 |                |                 |                  |
| Tightening torque (recommended), Nm |                     | –         |  |                 |                |                 |                  |
|                                     |                     |           |  |                 |                |                 |                  |
|                                     |                     |           |  |                 |                |                 |                  |
|                                     |                     |           | 9                                                                                   | 18              | 40             | 49              |                  |
| <b>Supply and control circuit</b>   |                     |           |                                                                                     |                 |                |                 |                  |
| Connection clamp                    |                     | Yes       | Yes                                                                                 | Yes             | Yes            | Yes             | Yes              |
| Solid/Stranded                      | 1 x mm <sup>2</sup> | 2.5       | 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             | 1.5              |
| Tightening torque (recommended), Nm |                     | 0.5       | 0.5                                                                                 | 0.5             | 0.5            | 0.5             | 0.5              |

## Fuse ratings and power losses

| For<br>softstarter | Recommended<br>ABB Overload protection |                  | Max power loss<br>at rated I <sub>n</sub> |                      | Maximum fuse ratings - main circuit <sup>1)</sup> |          |          |              | Power<br>requirement<br>supply<br>circuit |               |
|--------------------|----------------------------------------|------------------|-------------------------------------------|----------------------|---------------------------------------------------|----------|----------|--------------|-------------------------------------------|---------------|
|                    | Type                                   | Current<br>range | without<br>by-pass<br><sup>2)</sup><br>W  | with<br>by-pass<br>W | Bussmann fuses                                    |          |          | Ferraz fuses |                                           | VA/VA pull in |
|                    |                                        |                  |                                           |                      | A                                                 | 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><br>200V / 208V                       |      | U <sub>e</sub><br>220V / 240V |      | U <sub>e</sub><br>440V / 480V |      | U <sub>e</sub><br>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

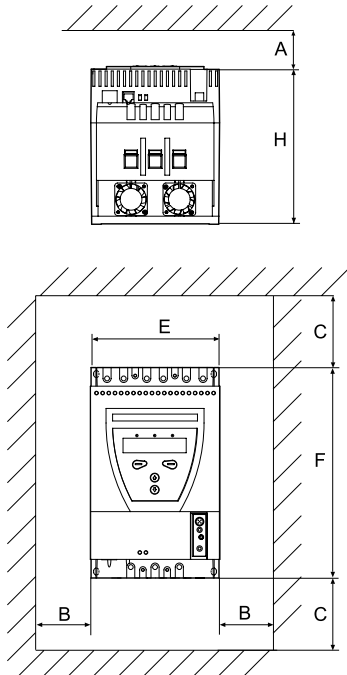
| Softstarters | Motor power, P (hp), and full load current FLA, (A) |      |                               |      |                               |      |                               |      |
|--------------|-----------------------------------------------------|------|-------------------------------|------|-------------------------------|------|-------------------------------|------|
|              | U <sub>e</sub><br>200V / 208V                       |      | U <sub>e</sub><br>220V / 240V |      | U <sub>e</sub><br>440V / 480V |      | U <sub>e</sub><br>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

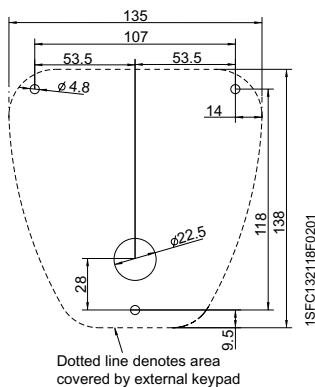
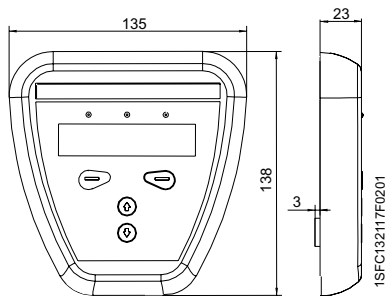
## Minimum distance to wall/front



| 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 |

\*) 5 mm for the 24 V DC version

## Dimensions PSTEK



Dotted line denotes area covered by external keypad

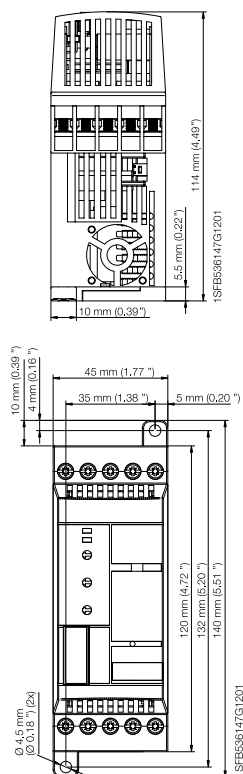
Dimensions in mm

# Softstarters

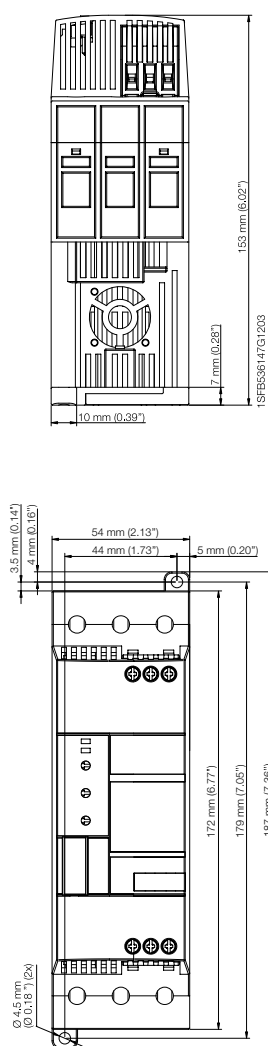
## Type PSR3 ... PSR105

### Dimensions

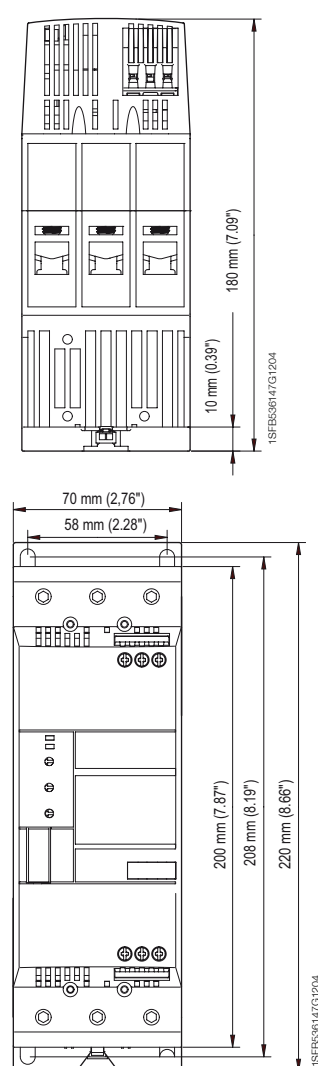
#### PSR3 ... 16



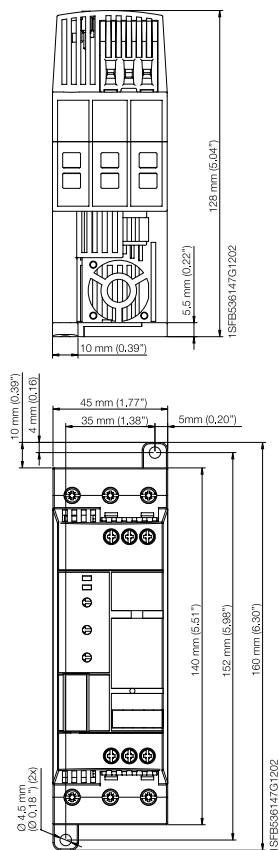
#### PSR37 ... 45



#### PSR60 ... 105



#### PSR25 ... 30

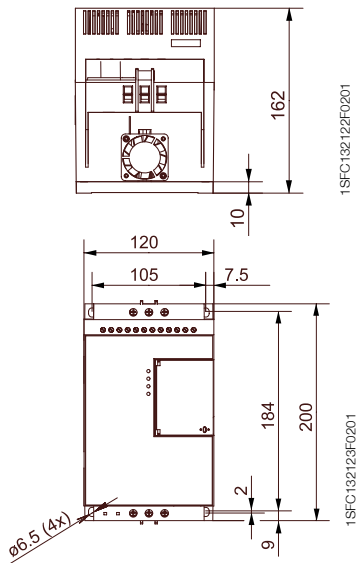


Dimensions in mm (and inches)

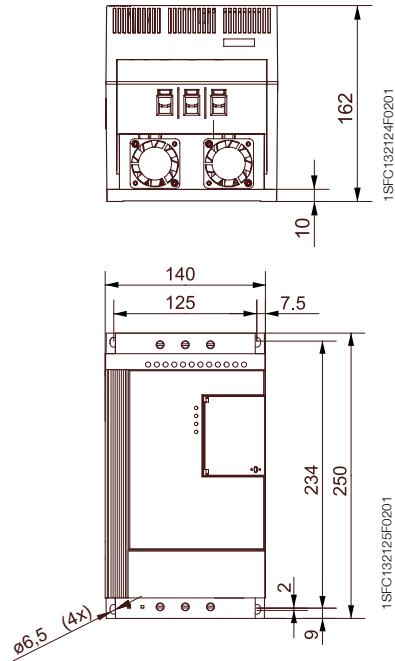
# Softstarters

Type PSS18/30 ... PSS300/515  
Dimensions

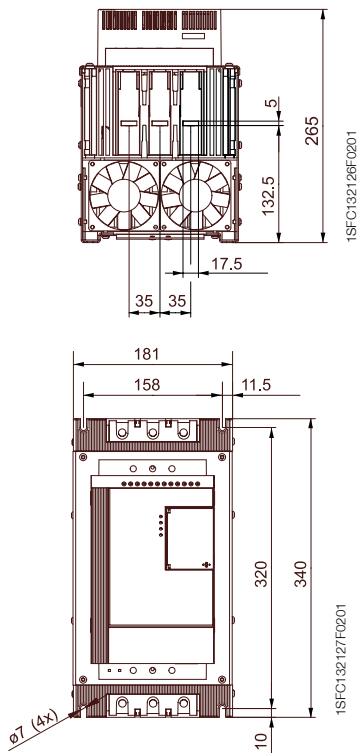
## PSS18/30-500 ... 44/76-500



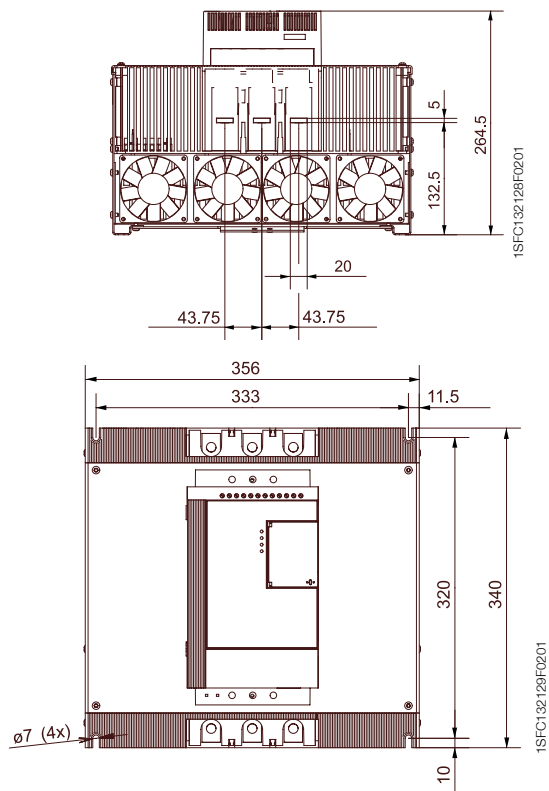
## PSS50/85-500 ... 72/124-500 PSS18/30-690 ... 72/124-690



## 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



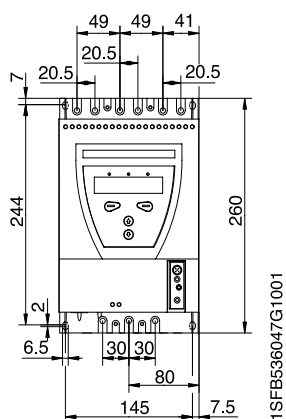
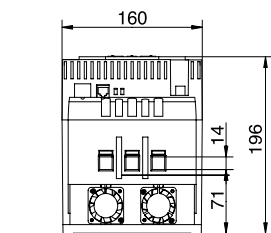
Dimensions in mm

# Softstarters

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

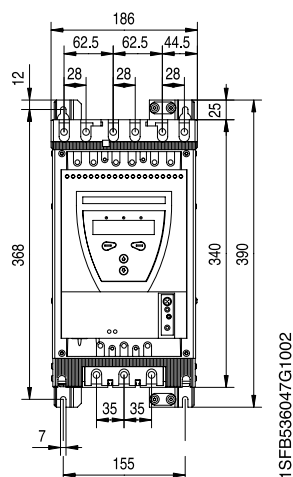
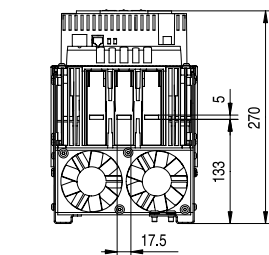
Dimensions

**PST30 ... 72**



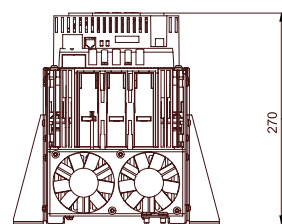
1SFB536047G1001

**PST85 ...142**

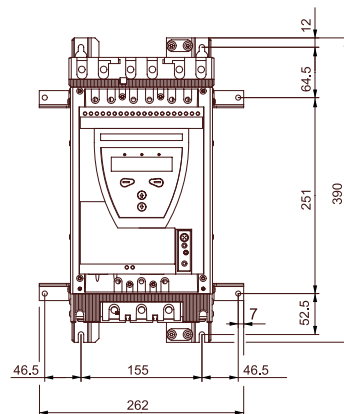


1SFB536047G1002

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

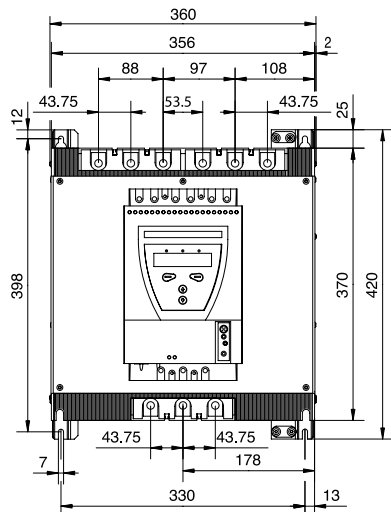
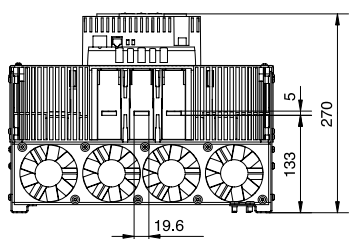


1SFC132130F0201



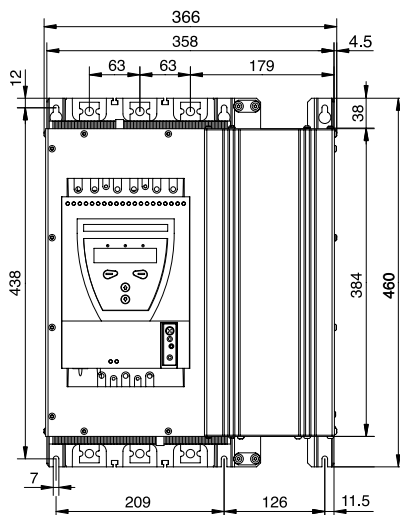
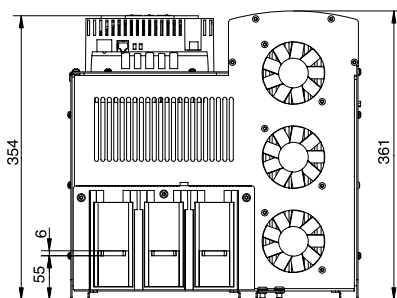
1SFC132131F0201

**PST175 ... 300**



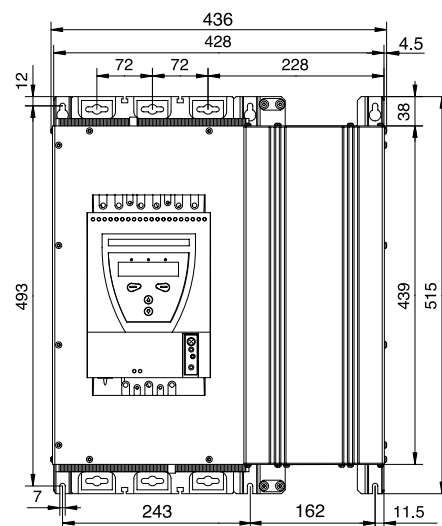
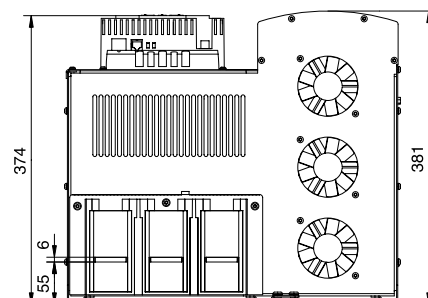
1SFB536047G1003

**PSTB370 ... 470**



1SFB536047G1004

**PSTB570 ... 1050**



1SFB536047G1005

Dimensions in mm

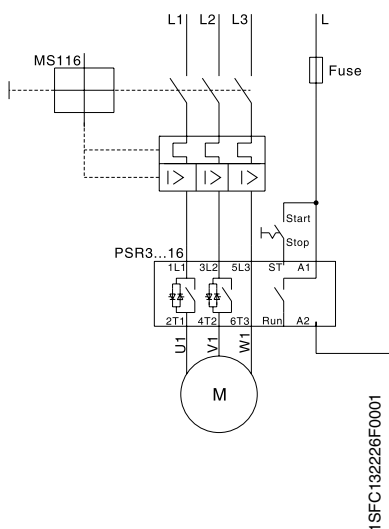


# Softstarters

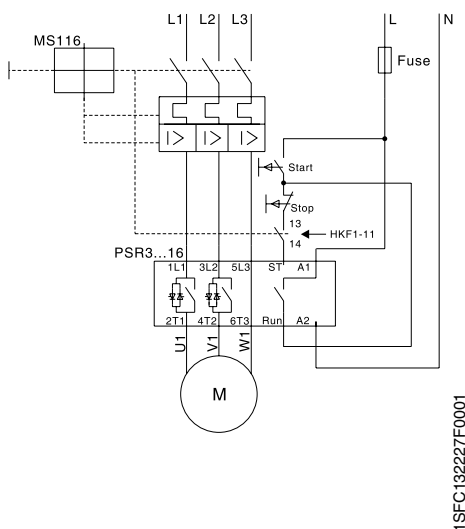
## Type PSR3 ... PSR105

### Diagrams

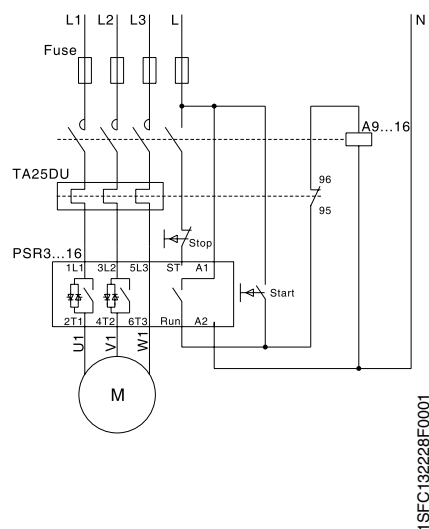
**PSR3 ... 16**  
**A) With MMS**



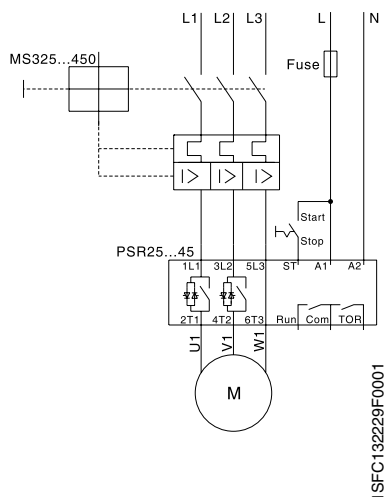
**B) With MMS and auxiliary contact**



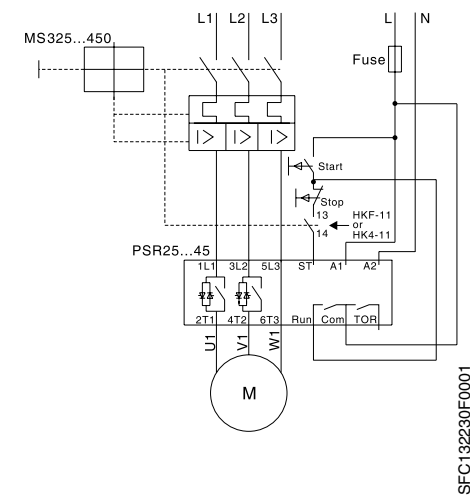
**C) With fuses, contactor and O.L.**



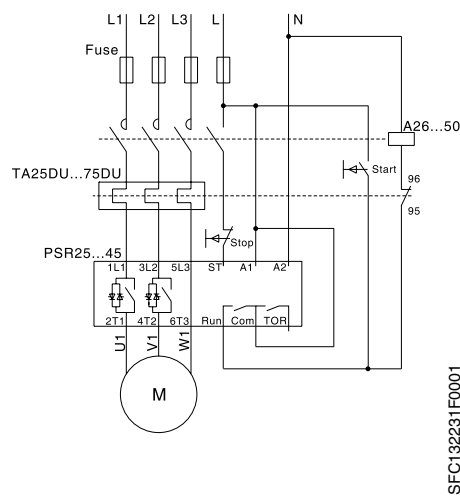
**PSR25 ... 45**  
**D) With MMS**



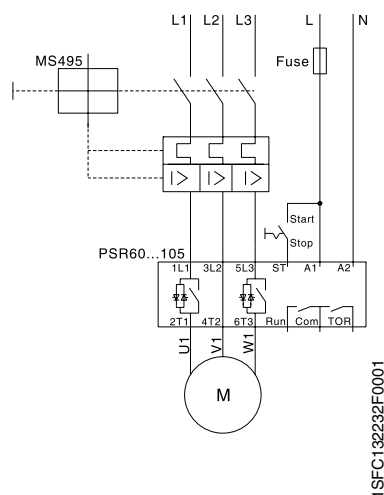
**E) With MMS and auxiliary contact**



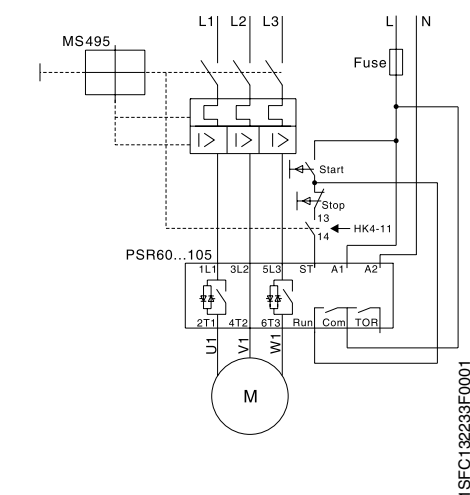
**F) With fuses, contactor and O.L.**



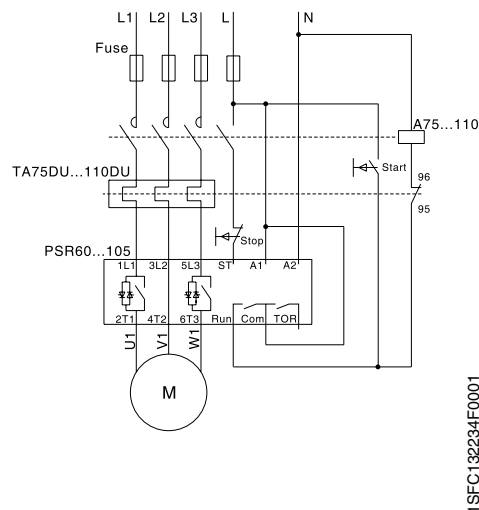
**PSR60 ... 105**  
**G) With MMS**



**H) With MMS and auxiliary contact**



**I) With fuses, contactor and O.L.**

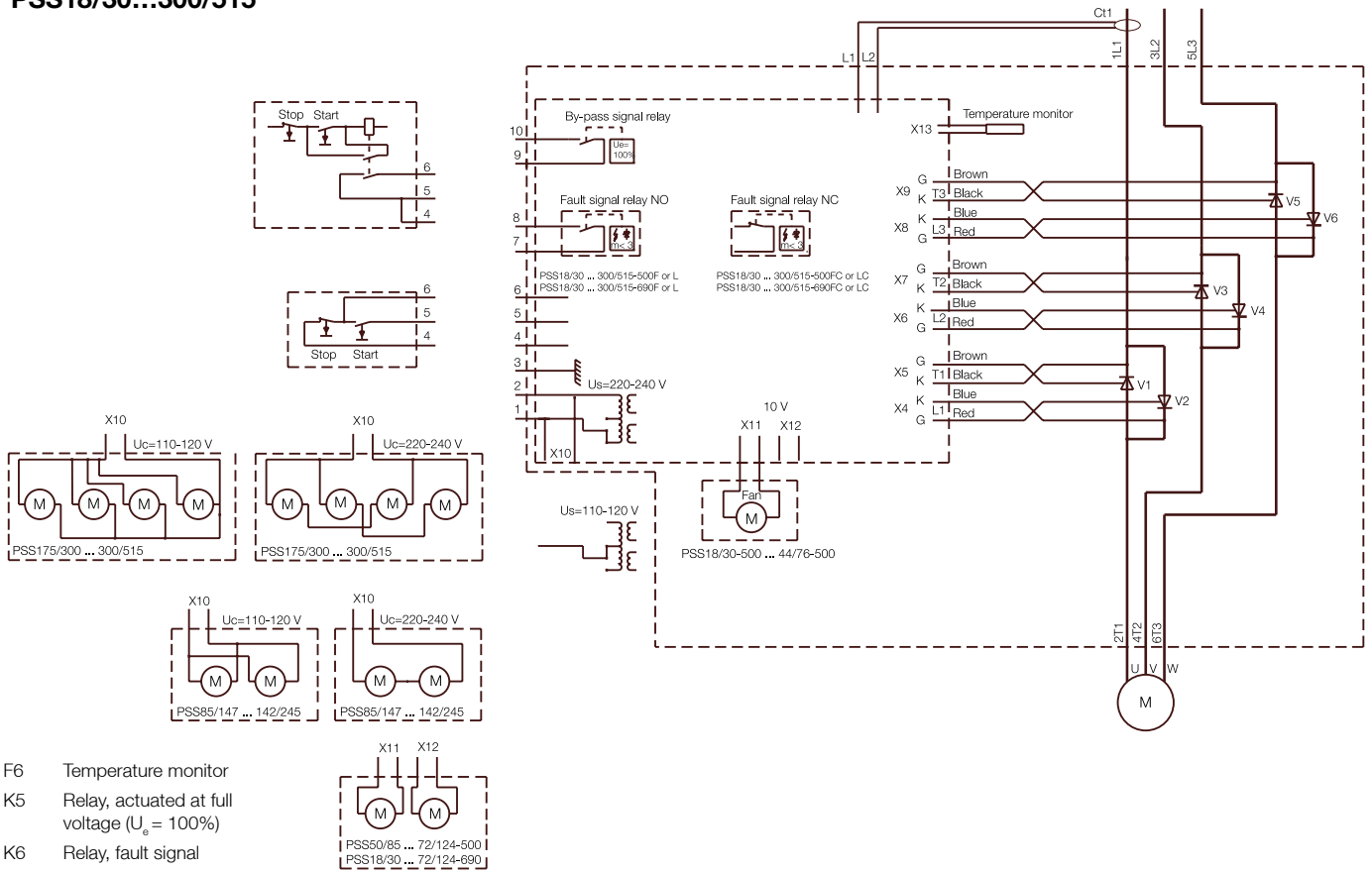


# Softstarters

Type PSS18/30 ... PSS300/515

## Diagrams

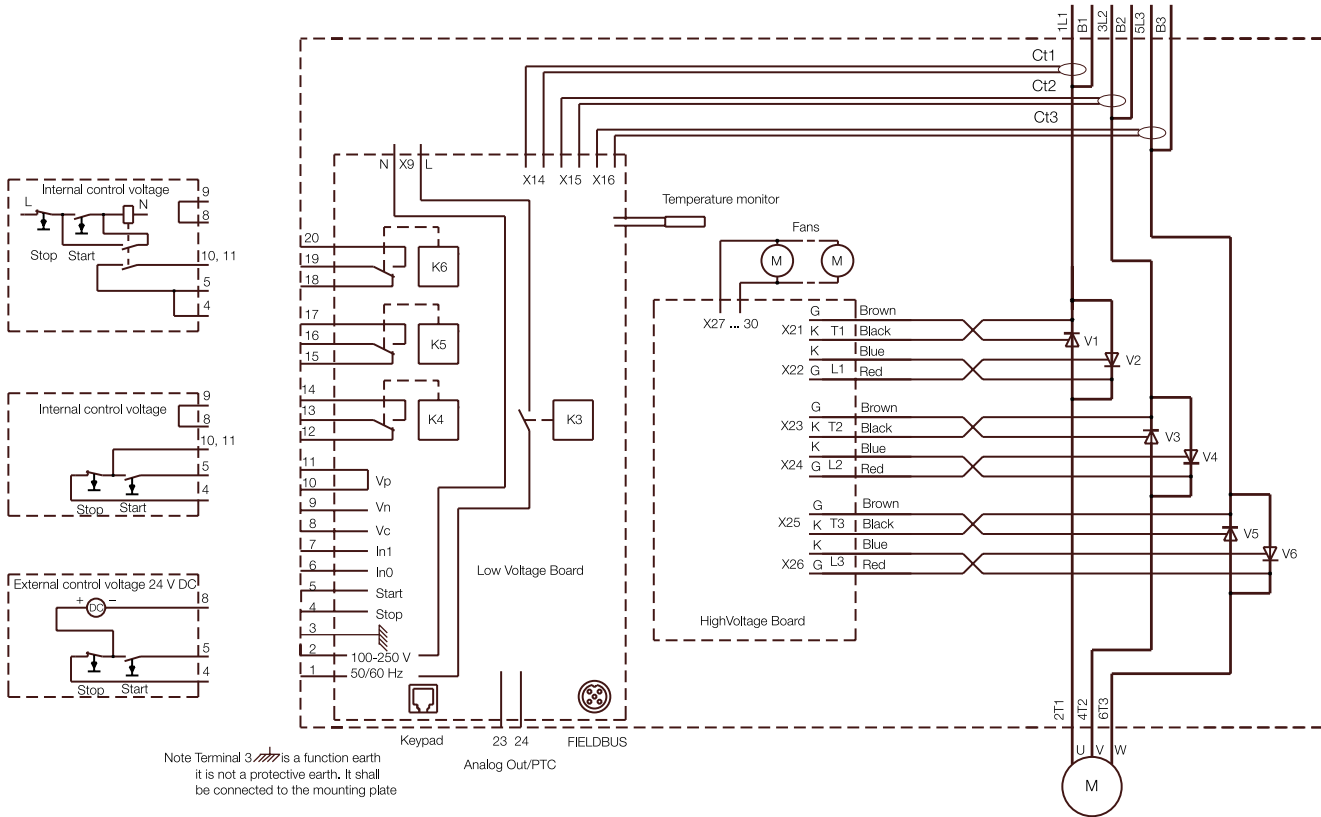
### PSS18/30...300/515



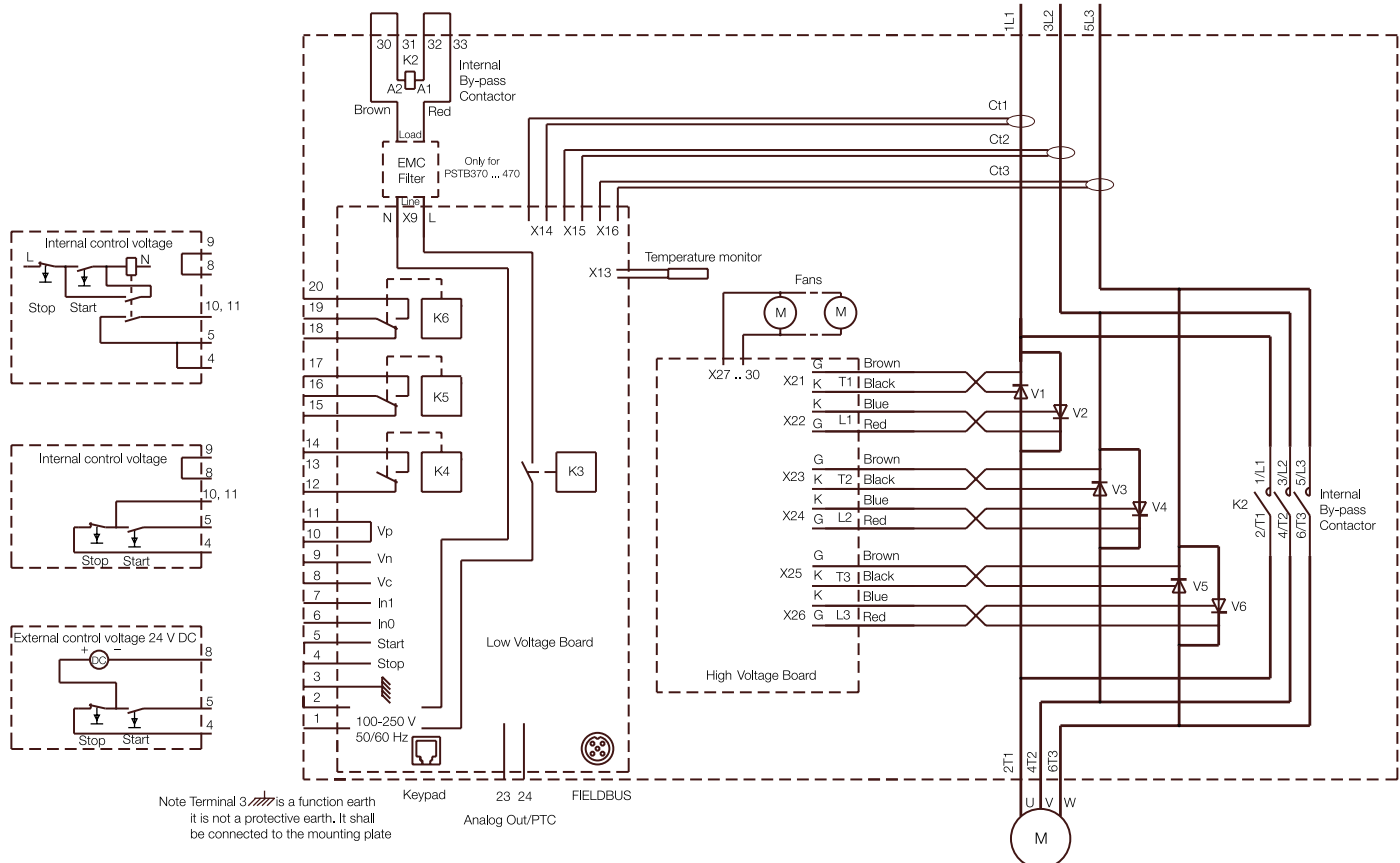
# Softstarters

## 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<br>Approved in | Certifications                                                                                |                                                                                                |                                                                                                             |                                                                                                    |                                                                                                   |                                                                                                      |                                                                                                       | Approvals:<br>ship classification societies                                                                |                                                                                                                                 |                                                                                                                    |                                                                                                      |
|-----------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|                             | <br>CE<br>EU | <br>UL<br>USA | <br>cULus<br>Canada<br>USA | <br>CSA<br>Canada | <br>CCC<br>China | <br>GOST<br>Russia | <br>ANCE<br>Mexico | <br>C-tick<br>Australia | <br>ABS<br>American<br>Bureau of<br>Shipping | <br>Lloyd's<br>Register<br>EMEA | <br>GL<br>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 compability                                    |
| <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                                   |

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## Notes

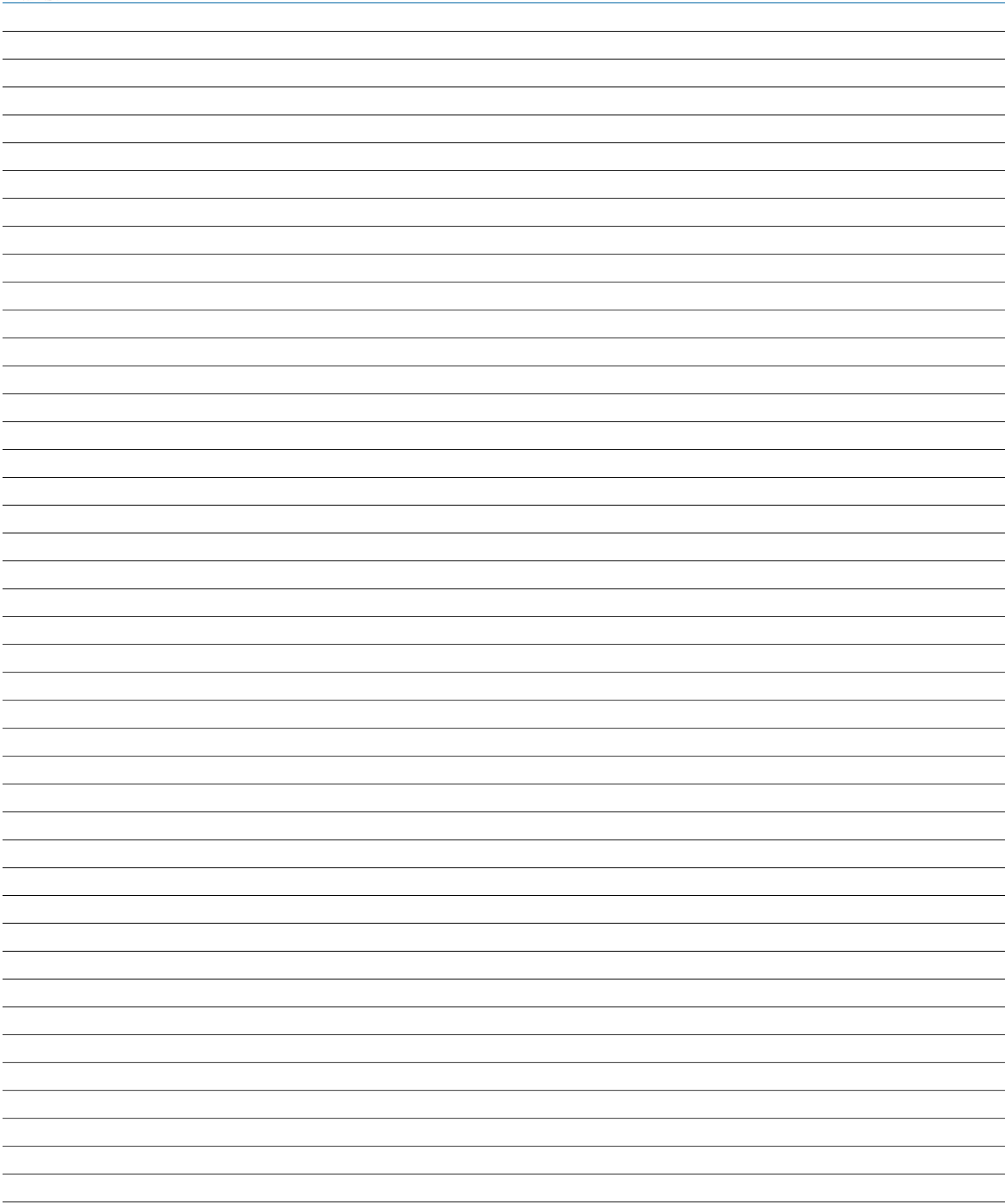
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# Notes



**Notes**



## 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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