# Softstarters

## Type PSS
## Type PST/PSTB - New range

New

Catalogue 1SFC132001C0201, Revised in April 2004


1SFC132016F0201

ABB


# Control$^{IT}$ Softstarters

## Automation Technologies

The Automation Technologies division 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 Industrial IT-based measurement, control, instrumentation, drives, motors, power electronics, robots, 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.

## Industrial $^{IT}$ for Softstarters

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

At the product level, ABB's Industrial$^{IT}$ enabled symbol ensures that all the products can operate together perfectly. All product information pertaining to these products is available in electronic format, based on Aspect Object™ technology. The Industrial$^{IT}$ commitment from ABB ensures that every product is equipped with the tools necessary to install, operate and maintain it efficiently throughout the product life cycle.

ABB's Softstarters are Industrial$^{IT}$ enabled products which bear the Industrial$^{IT}$ symbol. According to the softstarter function they are grouped into the product suite 'Control$^{IT}$'. Our customers can find all product related documentation such as brochures, catalogues, certificates and drawings, directly at **www.abb.com/lowvoltage**.

## 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.

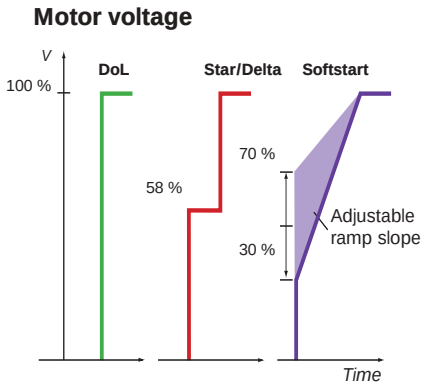
## The solution to both mechanical and electrical problems

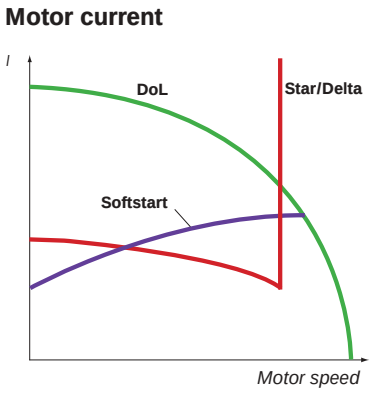
AC motors, "the workhorse of the industry", that are used to drive fans, crushers, agitators, pumps, conveyors etc., are unnecessarily causing unwanted load peaks day in and day out in production plants all over the world. These violent starts cause damage in several ways. Among them are:

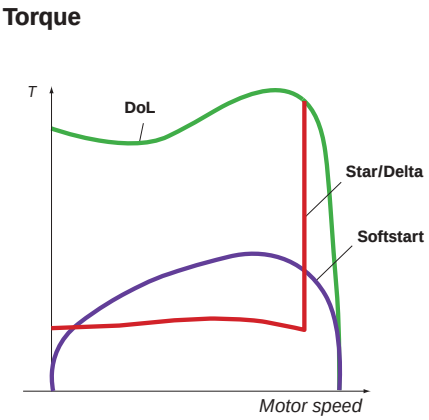
- Electrical problems due to voltage and current transients arising from Direct-on-Line or Star-Delta starts. Such transients may overload the local supply network and cause unacceptable voltage variations that interfere with other electrical equipment connected to the network.
- Mechanical problems 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 PSS or PST. With ABB Softstarters, it is possible to start and stop smoothly while keeping mechanical and electrical stresses to a minimum.




*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).*

# Softstarters – the complete range

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

**PSS03...25** The compact range covers motor currents from 3 to 25 A and has the following advantages:

- ***Compact***: As a result, there is room for more products on a given mounting surface.
- ***Easy to install***: The device is snapped onto a DIN mounting rail. Clear instructions are provided on the front.

**PSS18...300** The flexible range for motor currents from 18 to 515 A offers a solution possible to adapt to almost any application:

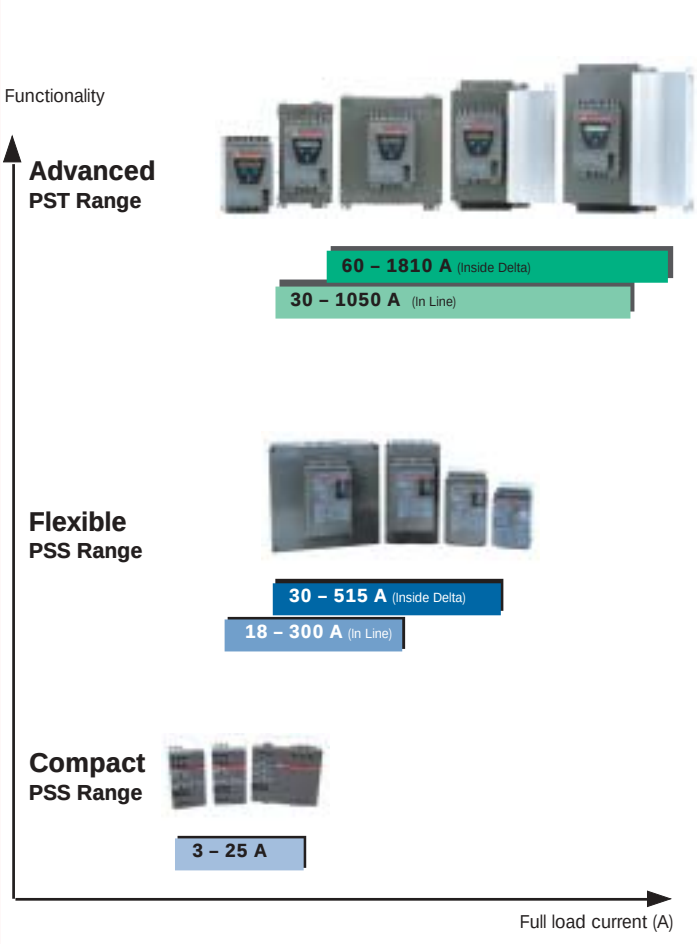
- ***Flexible***: With two connection possibilities, either in line with the motor or inside the motor delta. Can also be equipped with current limit.
- ***Easy to set up:*** With just three clearly labeled rotary switches on the front of the unit it is possible to adjust the PSS Softstarter for a wide 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.

**PST30...PSTB1050** The new PST Softstarter range covers motor currents from 30 to 1810 A and offers you many advanced Softstarter functionalities:

- ***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 11 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.

## From 3 A to 1810 A

● Standard
O Optional
– Not available




| PSS03...25 | PSS18/30...300/515 | PST30...1050 | |
|---|---|---|---|
| – | – | ● | 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 from 2004) |
| – | O | ● | Current limit control |
| – | ● | ● | In Line and Inside Delta connection |
| ● | ● | ● | LED indications |
| ● | – | ●[1)] | Built-in by-pass contactor |
| ● | ● | ● | Ramp Start/Stop |

[1)] On PSTB

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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 "**Packing 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, type PSS


PSS03, PSS12


PSS25


PSS18/30...PSS44/76

| | | PSS03 ... PSS25 | | | PSS18/30 ... PSS44/76 | | | |
|---|---|---|---|---|---|---|---|---|
| **Normal start, 400 V** | | | | | | | | |
| **In Line connected** | **kW** | **1.1 kW** | **5.5 kW** | **11 kW** | **7.5 kW** | **15 kW** | **18.5 kW** | **22 kW** |
| **Inside Delta connected** | **kW** | **-** | **-** | **-** | **15 kW** | **25 kW** | **30 kW** | **37 kW** |
| | **Type** | **PSS03** | **PSS12** | **PSS25** | **PSS18/30** | **PSS30/52** | **PSS37/64** | **PSS44/76** |
| | **400 V** | ● | ● | ● | ● | ● | ● | ● |
| | **480 V** | ● | ● | ● | ● | ● | ● | ● |
| | **690 V** | – | – | – | ● | ● | ● | ● |
| | **Rated current $I_e$, A** | **3.5** | **12** | **25** | **18** | **30** | **37** | **44** |
| **Fuse protection 400 V, 65 kA, 40 °C** | | | | | | | | |
| | **Bussmann Type** | 170M1359 | 170M1363 | 170M1364 | 170M1364 | 170M1366 | 170M1368 | 170M1369 |
| **Switch fuse** | | | | | | | | |
| | **Type** | OS160RD0380 | | | | | | |
| **Line contactor** | | | | | | | | |
| | **Type** | A9 | A12 | A26 | A26 | A30 | A40 | A50 |
| **Thermal overload relay** | | | | | | | | |
| | **Type** | TA25DU | | | | | TA42DU | TA75DU |
| **Current transformers** | | | | | | | | |
| | **Type** | – | – | – | PSCT-60<br>2 turns | PSCT-40<br>1 turn | PSCT-50<br>1 turn | PSCT-60<br>1 turn |
| **By-pass contactor** | | | | | | | | |
| | **Type** | – | – | – | A9 | A16 | A26 | A26 |

### How to select correct size

By using the guide below, 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.**

## Quick guide for selection

| **Normal start Class 10** | **Heavy duty start Class 30** |
|---|---|
| Ordering – See page 10 –11 | Ordering – See page 12 –13 |
| **Typical applications** | **Typical applications** |
| ● Bow thruster ● Centrifugal pump | ● Centrifugal fan ● Conveyor belt (long) |
| ● Compressor ● Conveyor belt (short) | ● Crusher ● Mill |
| ● Elevator ● Escalator | ● Mixer ● Stirrer |

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


PSS50/85...PSS72/124


PSS85/147... PSS142/245


PSS175/300...PSS300/515

| PSS50/85 ... PSS72/124 | | | PSS85/147... PSS142/245 | | | PSS175/300 ... PSS300/515 | | |
|---|---|---|---|---|---|---|---|---|
| **25 kW** | **30 kW** | **37 kW** | **45 kW** | **55 kW** | **75 kW** | **90 kW** | **132 kW** | **160 kW** |
| **45 kW** | **55 kW** | **59 kW** | **75 kW** | **90 kW** | **132 kW** | **160 kW** | **220 kW** | **257 kW** |
| **PSS50/85** | **PSS60/105** | **PSS72/124** | **PSS85/147** | **PSS105/181** | **PSS142/245** | **PSS175/300** | **PSS250/430** | **PSS300/515** |
| ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **50** | **60** | **72** | **85** | **105** | **142** | **175** | **250** | **300** |
| **Fuse protection 400 V, 65 kA, 40 °C** | | | | | | | | |
| 170M1369 | 170M1370 | 170M1371 | 170M1372 | 170M3019 | 170M3020 | 170M3021 | 170M5013 | 170M5015 |
| **Switch fuse** | | | | | | | | |
| OS160RD0380 | | | | OESA250R03D80 | | | OESA400R03D80 | |
| **Line contactor** | | | | | | | | |
| A50 | A63 | A75 | A95 | A110 | A145 | A185 | A260 | A300 |
| **Thermal overload relay** | | | | | | | | |
| TA75DU | | | TA110DU | | TA200DU | | TA450DU | |
| **Current transformers** | | | | | | | | |
| PSCT-75<br>1 turn | | PSCT-100<br>1 turn | PSCT-125<br>1 turn | PSCT-150<br>1 turn | PSCT-200<br>1 turn | PSCT-250<br>1 turn | PSCT-400<br>1 turn | |
| **By-pass contactor** | | | | | | | | |
| A30 | A40 | A50 | A50 | A63 | A95 | A145 | A145 | A210 |

# PSS03 ... PSS25
## For normal starts

## Application

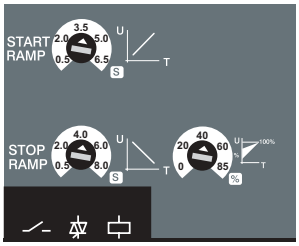
The softstarter types **PSS03 ... PSS25** are compact solutions for small motors. It is easy to install and to adjust as access for connections and adjustments is from the front. The unit is for DIN-rail mounting.

## Description

- Current ratings 3, 12 and 25 A
- Main voltage levels 230, 400, 480 - 500 and 600 V
- Control voltage range 24-110 V AC/DC and 110-480 V AC
- Settings for Start ramp, Stop ramp and Initial Voltage
- For mounting on 35 mm DIN-rail
- Built-in by-pass contacts

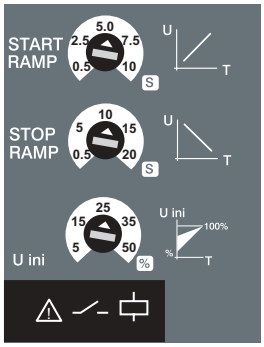
## Operator panels

PSS03 ... PSS12




1SFT 98899-030

PSS25




1SFT 98899-043

PSS03 ...PSS12

Three potentiometers for:
-Start ramp
-Stop ramp
-Initial voltage

Front access for connections

Clear markings

DIN-rail mounting

Integrated by-pass contacts

LED indications:
- Power supply on
- Running mode/by-pass
- Completed start ramp

PSS25

LED indications:
- Power supply on
- Ramping up/down *(flashing)*
- Completed start ramp
- General fault

1SFT98889-033

PSS03

1SFT98889-034

PSS12

1SFT98889-035

PSS25

## Ordering details

### 230 – 600 V

| Motor power 230 V $P_e$ kW | 400 V $P_e$ kW | 500 V $P_e$ kW | 600 V $P_e$ kW | Rated motor current, $I_e$ A | Type [1] | Order code | Weight kg |
|---|---|---|---|---|---|---|---|
| 0.75 | - | - | - | 3.5 | **PSS03-220B** | **1SFA 891 001 R2209** | 0.27 |
| 3.0 | - | - | - | 12 | **PSS12-220B** | **1SFA 891 002 R2209** | 0.27 |
| 6.5 | - | - | - | 25 | **PSS25-220B** | **1SFA 891 003 R2209** | 0.60 |
| - | 1.1 | - | - | 3.5 | **PSS03-400B** | **1SFA 891 001 R4009** | 0.27 |
| | 5.5 | - | - | 12 | **PSS12-400B** | **1SFA 891 002 R4009** | 0.27 |
| | 11.0 | - | - | 25 | **PSS25-400B** | **1SFA 891 003 R4009** | 0.60 |
| - | - | 1.5 | - | 3.5 | **PSS03-480B** | **1SFA 891 001 R4809** | 0.27 |
| - | - | 5.5 | - | 12 | **PSS12-480B** | **1SFA 891 002 R4809** | 0.27 |
| - | - | 15.0 | - | 25 | **PSS25-480B** | **1SFA 891 003 R4809** | 0.60 |
| - | - | - | 7.5 | 12 | **PSS12-600B** | **1SFA 891 002 R6009** | 0.27 |
| - | - | - | 18.5 | 25 | **PSS25-600B** | **1SFA 891 003 R6009** | 0.60 |

[1] **Control voltage, $U_c$**

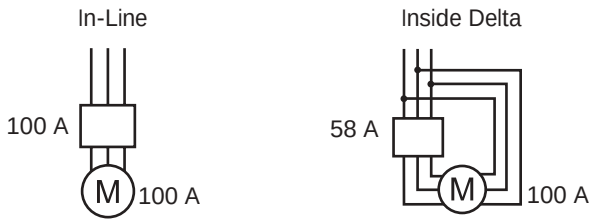
| Type | V, AC/DC | V, AC |
|---|---|---|
| 220B | 24-110 | 110-230 |
| 400B | 24-110 | 110-400 |
| 480B | 24-110 | 110-500 |
| 600B | 24-110 | 110-500 |

# PSS18/30 ... PSS300/515

## For normal starts

## 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.



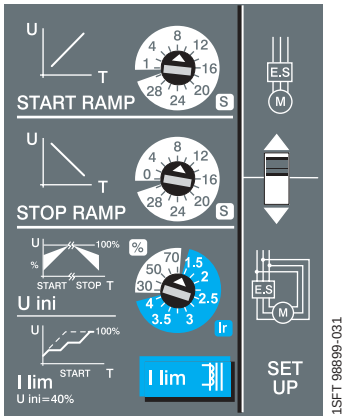

*In-Line and Inside Delta connection of PSS18/30 … PSS300/515*

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 10-11.

For ***heavy duty*** applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 12-13.

## Operator panel

PSS18/30 … PSS300/515




## 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)
- Accessories for connection and installation available: See the ordering pages

# PSS18/30 ... PSS300/515

## Normal starts – In-Line


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


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

## Ordering details In-Line

### 230 – 500 V

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type *) | Order code **) | Weight 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

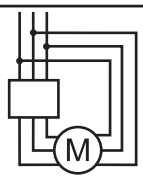
| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type *) | Order code **) | Weight kg |
|---|---|---|---|---|---|---|
| 7.5 | 11 | 15 | 18 | **PSS18/30-690□■** | **1SFA 893 001 R▽00▼** | 2.30 |
| 15 | 18.5 | 25 | 30 | **PSS30/52-690□■** | **1SFA 893 002 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 |

*) **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

**) **Add code number in Order code for:**
**Supply voltage, $U_s$**
▼ **1** = 110-120 V, 50/60 Hz
**2** = 220-240 V, 50/60 Hz

**Fault signal relay**
▽ **1** = NO
**2** = NC




# PSS18/30 ... PSS300/515

## Normal starts – Inside Delta


1SFT98889-036

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


1SFT98889-037

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


1SFT98889-038

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


1SFT98800-004

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

## Ordering details Inside Delta

### 230 – 500 V

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

### 400 – 690 V

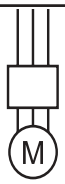
| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type *) | Order code **) | Weight kg |
|---|---|---|---|---|---|---|
| 15 | 18.5 | 25 | 30 | **PSS18/30-690□■** | **1SFA 893 001 R▽00▼** | 2.30 |
| 25 | 30 | 45 | 52 | **PSS30/52-690□■** | **1SFA 893 002 R▽00▼**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

*) **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

**) **Add code number in Order code for:**
**Supply voltage, $U_s$**
▼ **1** = 110-120 V, 50/60 Hz
**2** = 220-240 V, 50/60 Hz

**Fault signal relay**
▽ **1** = NO
**2** = NC



# PSS30/52 ... PSS300/515

## Heavy duty starts, class 30 – In-Line

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

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

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

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

## Ordering details In-Line

Heavy duty

### 230 – 500 V

**Motor power**

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

### 400 – 690 V

**Motor power**

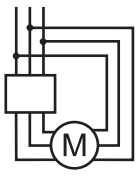
| 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type *) | Order code **) | Weight kg |
|---|---|---|---|---|---|---|
| 7.5 | 11 | 15 | 18 | **PSS30/52-690□■** | **1SFA 893 002 R▽00▼** | 2.30 |
| 15 | 18.5 | 25 | 30 | **PSS37/64-690□■** | **1SFA 893 003 R▽00▼** | 2.30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

*) **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

**) **Add code number in Order code for:**
**Supply voltage, $U_s$**
▼ **1** = 110-120 V, 50/60 Hz
**2** = 220-240 V, 50/60 Hz

**Fault signal relay**
▽ **1** = NO
**2** = NC




# PSS30/52 ... PSS300/515

## Heavy duty starts, class 30 – Inside Delta


1SFT98889-036

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


1SFT98889-037

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


1SFT98889-038

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


1SFT98800-004

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

## Ordering details Inside Delta

Heavy duty

### 230 – 500 V

**Motor power**

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

### 400 – 690 V

**Motor power**

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

*) **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

**) **Add code number in Order code for: Supply voltage, $U_s$**
▼ **1** = 110-120 V, 50/60 Hz
**2** = 220-240 V, 50/60 Hz

**Fault signal relay**
▽ **1** = NO
**2** = NC

# Accessories for PSS18/30 ... PSS300/515
## Ordering details

PSCT..

## 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 | Packing piece | Weight kg 1 piece |
|---|---|---|---|---|---|
| PSS18/30 | 60/1 – 2 turns | **PSCT-60** | **1SFA 899 001 R1060** | 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 |




LZ...

## Cable connectors for Cu cables

| For softstarter type | Wire range mm² | Tightening torque max. Nm | Type | Order code | Packing piece | Weight kg 1 piece |
|---|---|---|---|---|---|---|
| PSS85/147…142/245 | 6-120 | 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 | Packing 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 shrouds

| For softstarter type | Suitable for | Type | Order code | Packing 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 |


LT ... -AC


LT ... -AL

## Terminal nut washer

| For softstarter type | Type | Order code | Packing 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 |


LE185

## Terminal enlargements

| For softstarter type | Wire range mm² | Type | Order code | Packing 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<br>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 |


PSLW-44


LW...

| | | PSS03…PSS12 | PSS25 | PSS18/30…PSS300/515 |
|---|---|---|---|---|
| Rated insulation voltage, $U_i$ | V | 630 | 630 | 690 |
| Rated operational voltage, $U_e$ | V | 220 – 230<br>400 – 415<br>480 – 500<br>600 | 220 – 230<br>400 – 415<br>480 – 500<br>600 | 208 – 690 |
| Starting capacity at max. rated current, $I_e$ | | 5 x $I_e$ for 5 sec | 5 x $I_e$ for 5 sec | 4 x $I_e$ for 10 sec |
| Number of starts per hour | | 6 [2] | 6 [2] | 30 [5] |
| Overload capability Overload | class | 10 | 10 | 10 |
| Service factor | % | 100 | 100 | 115 (PSS18/30…250/430)<br>110 (PSS300/515 |
| **Ambient temperature** | | | | |
| During operation | °C | -20 – +50 | -20 – +50 | -25 – +60 [1] |
| During storage | °C | -40 – +70 | -40 – +70 | -40 – +70 |
| **Altitudes** | | | | |
| Maximum altitude | m | 4000 [6] | 4000 [6] | 4000 [6] |
| **Degree of protection** | | | | |
| Main circuit | | IP 20 | IP 20 | IP 20 (PSS18/30-500…44/76-500)<br>IP 10 (PSS50/85 500…72/124-500)<br>IP 10 (PSS18/30-690…72/124-690)<br>IP 00 (PSS85/147…300/515) |
| Supply and control circuit | | IP 20 | IP 20 | IP 20 |
| **Settings** | | | | |
| Ramp time during start | s | 0.5 – 6.5 ± 15% | 0.5 – 10 ±10% | 1 – 30 |
| Ramp time during stop | s | 0.5 – 8 ± 25% | 0.5 – 20 ±10% | 0 – 30 |
| Initial voltage during start | % | 0 – 85 ± 15% | 0.5 – 50 ± 5% | 30 – 70 |
| Current limit function | x CT-ratio | – | – | 1.5 ... 4 [3] |
| **Switch for** | | | | |
| Inside Delta connection | ON/OFF | No | No | Yes |
| **Signal relay** | | | | |
| By-pass signal | | No [4] | No [4] | Yes |
| Fault signal | | No | No | Yes (NO or NC) |
| Rated operational voltage, $U_e$ | V | – | – | 250 |
| Rated thermal current, $I_{th}$ | A | – | – | 5 |
| Rated operational current $I_e$ at AC-15 ($U_e$=250 V) | A | – | – | 1.5 |
| **Signal indication LED** | | | | |
| Ready to start/stand by | ON | Green | Green | Green |
| Ramping up/down | | Yellow | Yellow (flashing) | – |
| Completed start ramp | T.O.R. | Yellow | Yellow | Green |
| General fault | | – | Red | Red |
| External fault | | – | – | Red |

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

2) When more than 6 starts per hour are required, contact your sales office.

3) Only if current transformer is connected (accessory).

4) The unit has built in by-pass contacts (AC-53a).

5) 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.

6) 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

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

| Type PSS | | 03... 12 | 25 | 18/30-500 … 44/76-500 | 50/85-500 … 72/124-500 18/30-690 … 72/124-690 | 85/147-500 … 142/245-500 85/147-690 … 142/245-690 | 175/300 … 300/515-500 175/300 … 300/515-690 |
|---|---|---|---|---|---|---|---|
| **Main circuit** | | | | | | | |
| Connection clamp | | | | | | | |
| Solid/Stranded | 1 x mm$^2$ | 2.5 | 10 | 2.5 – 16 | 6 – 50 | See accessories | See accessories |
| Solid/Stranded | 2 x mm$^2$ | 2.5 | 6 | 2.5 – 16 | 6 – 25 | See accessories | See accessories |
| Tightening torque (recommended) | Nm | 0.5 | 2 | 2.6 | 4.5 | See accessories | See accessories |
| Connection bar | | | | | | | |
| Width and thickness | mm | – | – | – | – | 17.5 x 5 | 20 x 5 |
| Hole diameter | mm | – | – | – | – | 8.5 | 10.2 |
| Tightening torque (recommended) | Nm | – | – | – | – | 9 | 18 |
| **Supply and control circuit** | | | | | | | |
| Connection clamp | | | | | | | |
| Solid/Stranded | 1 x mm$^2$ | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Solid/Stranded | 2 x mm$^2$ | 2.5 | – | – | – | – | – |
| Tightening torque (recommended) | Nm | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

## Size related technical data PSS03 ... PSS25 and PSS18/30 ... PSS300/515

| For Softstarter | Recommended ABB Overload protection | | Max power loss at rated $I_e$ | Max fuse rating main circuit [1] | | | | | Power requirements of supply |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Bussman fuses | | | Ferraz fuses circuit | | |
| Size | Type | Current range A | W | A | Type | Holder | A | Type | VA |
| PSS03 | **TA 25 DU** | 2.2–3.1 | – | 16 | 170M1359 | 170H1007 | | | 2 |
| PSS12 | **TA 25 DU** | 10–14 | – | 40 | 170M1363 | 170H1007 | | | 2 |
| PSS25 | **TA 25 DU** | 18–25 | – | 50 | 170M1364 | 170H1007 | | | 5 |
| PSS18/30 | **TA 25 DU** | 6–18 | 65 | 50 | 170M1364 | 170H1007 | 63 | 6.6 URB 000 D08 V 0063 | 9 |
| PSS30/52 | **TA 25 DU** | 10–30 | 100 | 80 | 170M1366 | 170H1007 | 100 | 6.6 URB 000 D08 V 0100 | 9 |
| PSS37/64 | **TA 42 DU** | 22–37 | 120 | 125 | 170M1368 | 170H1007 | 160 | 6.6 URB 000 D08 V 0160 | 9 |
| PSS44/76 | **TA 75 DU** | 29–44 | 142 | 160 | 170M1369 | 170H1007 | 200 | 6.6 URD 30 D08 A 0200 | 9 |
| PSS50/85 | **TA 75 DU** | 29–50 | 160 | 160 | 170M1369 | 170H1007 | 200 | 6.6 URD 30 D08 A 0200 | 10 |
| PSS60/105 | **TA 75 DU** | 29–60 | 190 | 200 | 170M1370 | 170H1007 | 250 | 6.6 URD 30 D08 A 0250 | 10 |
| PSS72/124 | **TA 75 DU** | 45–72 | 226 | 250 | 170M1371 | 170H1007 | 315 | 6.6 URD 30 D08 A 0315 | 10 |
| PSS85/147 | **TA 110 DU** | 65–85 | 291 | 315 | 170M1372 | 170H1007 | 400 | 6.6 URD 30 D08 A 0400 | 36 |
| PSS105/181 | **TA 110 DU** | 65–105 | 351 | 400 | 170M3019 | 170H3004 | 400 | 6.6 URD 30 D08 A 0400 | 36 |
| PSS142/245 | **TA 200 DU** | 100–142 | 462 | 450 | 170M3020 | 170H3004 | 500 | 6.6 URD 30 D08 A 0500 | 36 |
| PSS175/300 | **TA 200 DU** | 100–175 | 590 | 500 | 170M3021 | 170H3004 | 530 | 6.6 URD 30 D08 A 0550 | 65 |
| PSS250/430 | **TA 450 DU** | 130–250 | 815 | 700 | 170M5013 | 170H3004 | 630 | 6.6 URD 31 D08 A 0630 | 65 |
| PSS300/515 | **TA 450 DU** | 130–300 | 965 | 900 | 170M5015 | 170H3004 | 900 | 6.6 URD 32 D11 A 0900 | 65 |

[1] For the supply circuit 6 A delayed, for MCB use C characteristics.

# Notes

# Softstarters, type PST/PSTB


PST30 ... PST72


PST85 ... PST142

| | | PST30 ... PST72 | | | | | | PST85 ... PST142 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Normal start, 400 V** | | | | | | | | | | |
| **In Line connected** | **kW** | **15 kW** | **18.5 kW** | **22 kW** | **25 kW** | **30 kW** | **37 kW** | **45 kW** | **55 kW** | **75 kW** |
| **Inside Delta connected** | **kW** | **25 kW** | **30 kW** | **37 kW** | **45 kW** | **55 kW** | **59 kW** | **75 kW** | **90 kW** | **132 kW** |
| | **Type** | **PST30** | **PST37** | **PST44** | **PST50** | **PST60** | **PST72** | **PST85** | **PST105** | **PST142** |
| | **400 V** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | **500 V** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | **690 V** | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | **Rated current $I_e$, A** | **30** | **37** | **44** | **50** | **60** | **72** | **85** | **105** | **142** |
| **Fuse protection 400 V, 65 kA, 40 °C** | | | | | | | | | | |
| | **Bussmann Type** | 170M1366 | 170M1368 | 170M1369 | 170M1369 | 170M1370 | 170M1371 | 170M1372 | 170M3019 | 170M3020 |
| **Switch fuse** | | | | | | | | | | |
| | **Type** | OS160RD0380 ——— | | | | | | | OESA250R03D80 —— | |
| **Line contactor** | | | | | | | | | | |
| | **Type** | A30 | A40 | A50 | A50 | A63 | A75 | A95 | A110 | A145 |
| **By-pass contactor** | | | | | | | | | | |
| | **Type** | A16 | A26 | A26 | A30 | A40 | A50 | A50 | A63 | A95 |

### How to select correct size

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

If a more precise selection is required, you can use Prosoft, a selection software available at **www.abb.com/lowvoltage.**

## Quick guide for selection

| Normal start Class 10 | Heavy duty start Class 30 |
|---|---|
| Ordering – See page 22 –23 | Ordering – See page 24 –25 |
| **Typical applications** | **Typical applications** |
| ● Bow thruster ● Centrifugal pump | ● Centrifugal fan ● Conveyor belt (long) |
| ● Compressor ● Conveyor belt (short) | ● Crusher ● Mill |
| ● Elevator ● Escalator | ● Mixer ● Stirrer |

**If more than 10 starts /h**

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


PST175 ... PST300


PSTB370 ... PSTB470


PSTB570 ... PSTB1050

| PST175 ... PST300 | | | | PSTB370 ... PSTB470 | | PSTB570 ... PSTB1050 | | | |
|---|---|---|---|---|---|---|---|---|---|
| **90 kW** | **110 kW** | **132 kW** | **160 kW** | **200 kW** | **250 kW** | **315 kW** | **400 kW** | **450 kW** | **560 kW** |
| **160 kW** | **184 kW** | **220 kW** | **257 kW** | **355 kW** | **450 kW** | **540 kW** | **710 kW** | **800 kW** | **1000 kW** |
| **PST175** | **PST210** | **PST250** | **PST300** | **PSTB370** | **PSTB470** | **PSTB570** | **PSTB720** | **PSTB840** | **PSTB1050** |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **175** | **210** | **250** | **300** | **370** | **470** | **570** | **720** | **840** | **1050** |
| **Fuse protection 400 V, 65 kA, 40 °C Bussmann type** | | | | | | | | | |
| 170M3021 | 170M5012 | 170M5013 | 170M5015 | 170M5013 | 170M5015 | 170M5015 | 170M5018 | 170M6018 | 170M6020 [2] |
| **Switch fuse** | | | | | | | | | |
| OESA250R03D80 | OESA400R03D80 | ——— | ——— | ——— | OESA630R03D80 | ——— | OESA800R03D80 [1] | | [1] |
| **Line contactor** | | | | | | | | | |
| A185 | A210 | A260 | A300 | AF400 | AF580 | AF580 | AF750 | – | – |
| **By-pass contactor** | | | | | | | | | |
| A145 | A145 | A145 | A210 | Built-in | Built-in | Built-in | Built-in | Built-in | Built-in |

[1] PSTB840 and PSTB1050: Switch fuse not available, use fuseholder, see page 33.
[2] PST1050-690-70 has 170M6019

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

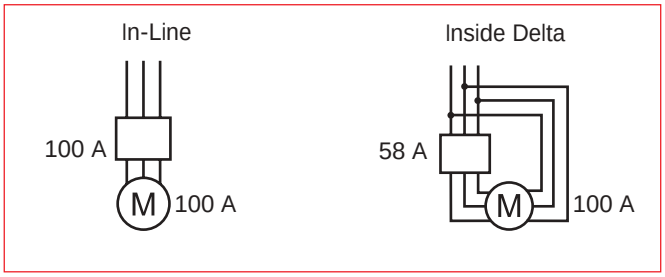
## Application

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 11 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 22-23

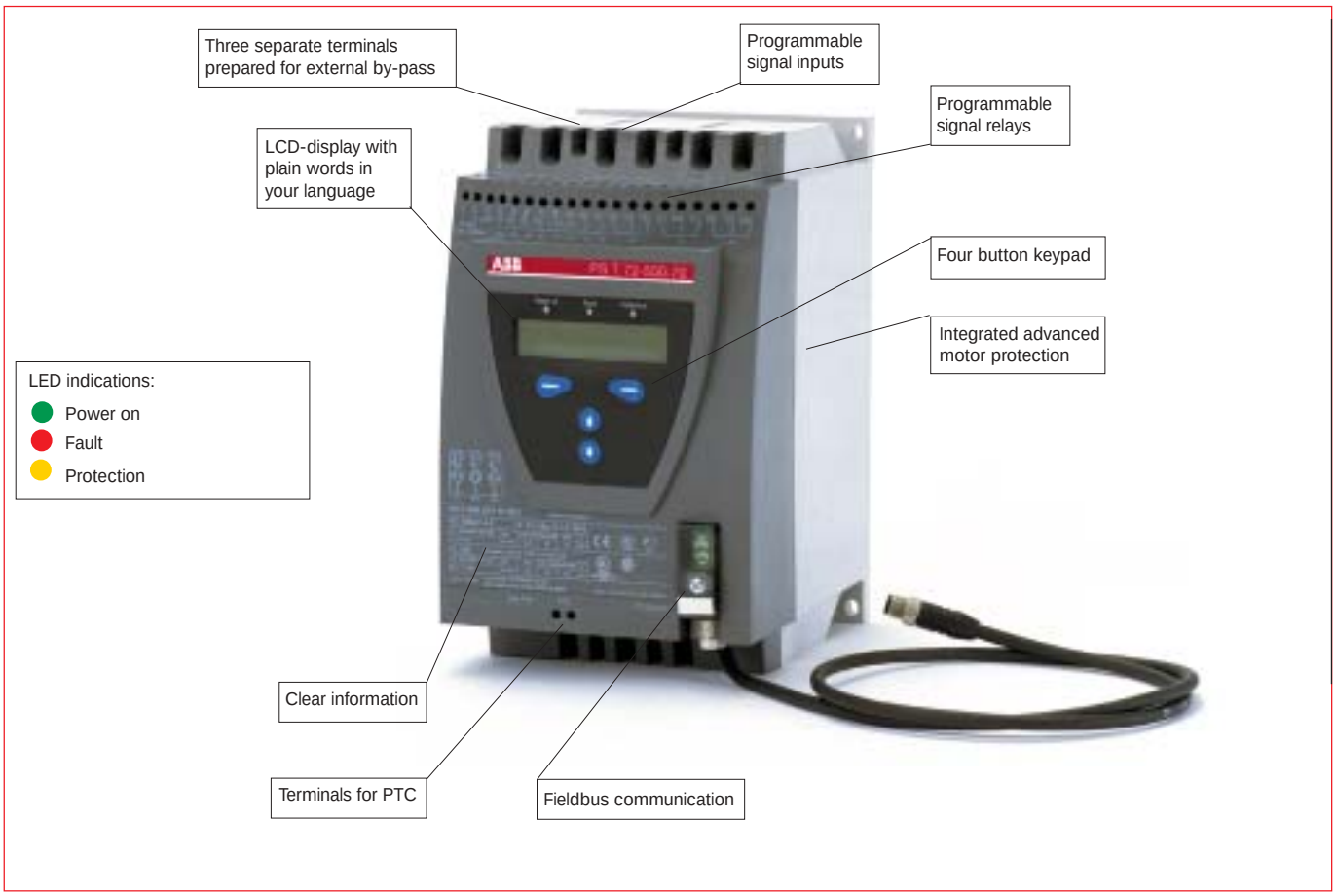
For ***heavy duty*** applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 24-25.




*In-Line and Inside Delta connection of PST 30 … 1050*

## 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 x $I_e$
- 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



## LCD display

The display of the PST gives you information presented in plain words - in required language. You can choose between 11 different languages including English, German, Italian, Chinese, Finnish, Swedish, French, Spanish, Dutch,Portuguese and Russian. On the PST display, you get all the information you need to set up, adjust and trouble-shoot. This makes the PST extremely easy to handle and reduces the risk of misinterpretations.

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

## Four button keypad

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

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

## Starting several motors

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

## Integrated advanced motor protection

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

## Programmable signal relays

All PST units have three programmable signal relays where each relay can signal Run, Top of Ramp or Event. The Event setting can be used to signal 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.


## 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. As a start, AS-Interface, DeviceNet and Profibus DP are available. To connect the PST Softstarter to a fieldbus system you need the accessories described on page 27 to 29 as well as specific software for PLC set-up, which is available at **www.abb.com/lowvoltage** on the Softstarter pages.

PSTB1050 with integrated by-pass contactor.


1SFC132017F0201

PST30...PST72


1SFC132013F0201

PST85...PST142


1SFC132015F0201

PST175...PST300


1SFC132018F0201

PSTB370...PSTB470


1SFC132014F0201

PSTB570...PSTB1050

## Ordering details In-Line

### PST30 ... PST300

#### 230 – 600 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 15 | 18.5 | - | 30 | **PST30-600-70** | **1SFA 894 002 R7000** | 4.8 |
| 18.5 | 22 | - | 37 | **PST37-600-70** | **1SFA 894 003 R7000** | 4.8 |
| 22 | 25 | - | 44 | **PST44-600-70** | **1SFA 894 004 R7000** | 4.8 |
| 25 | 30 | - | 50 | **PST50-600-70** | **1SFA 894 005 R7000** | 4.8 |
| 30 | 37 | - | 60 | **PST60-600-70** | **1SFA 894 006 R7000** | 5.0 |
| 37 | 45 | - | 72 | **PST72-600-70** | **1SFA 894 007 R7000** | 5.0 |
| 45 | 55 | - | 85 | **PST85-600-70** | **1SFA 894 008 R7000** | 11.2 |
| 55 | 75 | - | 105 | **PST105-600-70** | **1SFA 894 009 R7000** | 13.0 |
| 75 | 90 | - | 142 | **PST142-600-70** | **1SFA 894 010 R7000** | 13.0 |
| 90 | 110 | - | 175 | **PST175-600-70** | **1SFA 894 011 R7000** | 21.5 |
| 110 | 132 | - | 210 | **PST210-600-70** | **1SFA 894 012 R7000** | 21.5 |
| 132 | 160 | - | 250 | **PST250-600-70** | **1SFA 894 013 R7000** | 23.0 |
| 160 | 200 | - | 300 | **PST300-600-70** | **1SFA 894 014 R7000** | 23.0 |

#### 400 – 690 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 15 | 18.5 | 25 | 30 | **PST30-690-70** | **1SFA 895 002 R7000** | 4.8 |
| 18.5 | 22 | 30 | 37 | **PST37-690-70** | **1SFA 895 003 R7000** | 4.8 |
| 22 | 25 | 37 | 44 | **PST44-690-70** | **1SFA 895 004 R7000** | 4.8 |
| 25 | 30 | 45 | 50 | **PST50-690-70** | **1SFA 895 005 R7000** | 4.8 |
| 30 | 37 | 55 | 60 | **PST60-690-70** | **1SFA 895 006 R7000** | 5.0 |
| 37 | 45 | 59 | 72 | **PST72-690-70** | **1SFA 895 007 R7000** | 5.0 |
| 45 | 55 | 75 | 85 | **PST85-690-70** | **1SFA 895 008 R7000** | 11.2 |
| 55 | 75 | 90 | 105 | **PST105-690-70** | **1SFA 895 009 R7000** | 13.0 |
| 75 | 90 | 132 | 142 | **PST142-690-70** | **1SFA 895 010 R7000** | 13.0 |
| 90 | 110 | 160 | 175 | **PST175-690-70** | **1SFA 895 011 R7000** | 21.5 |
| 110 | 132 | 184 | 210 | **PST210-690-70** | **1SFA 895 012 R7000** | 21.5 |
| 132 | 160 | 220 | 250 | **PST250-690-70** | **1SFA 895 013 R7000** | 23.0 |
| 160 | 200 | 257 | 300 | **PST300-690-70** | **1SFA 895 014 R7000** | 23.0 |

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

#### 230 – 600 V

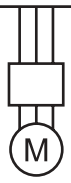
**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 200 | 257 | - | 370 | **PSTB370-600-70** | **1SFA 894 015 R7000** | 31.0 |
| 250 | 315 | - | 470 | **PSTB470-600-70** | **1SFA 894 016 R7000** | 31.0 |
| 315 | 400 | - | 570 | **PSTB570-600-70** | **1SFA 894 017 R7000** | 52.0 |
| 400 | 500 | - | 720 | **PSTB720-600-70** | **1SFA 894 018 R7000** | 55.0 |
| 450 | 600 | - | 840 | **PSTB840-600-70** | **1SFA 894 019 R7000** | 60.0 |
| 560 | 730 | - | 1050 | **PSTB1050-600-70** | **1SFA 894 020 R7000** | 60.0 |

#### 400 – 690 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 200 | 257 | 355 | 370 | **PSTB370-690-70** | **1SFA 895 015 R7000** | 31.0 |
| 250 | 315 | 450 | 470 | **PSTB470-690-70** | **1SFA 895 016 R7000** | 31.0 |
| 315 | 400 | 560 | 570 | **PSTB570-690-70** | **1SFA 895 017 R7000** | 52.0 |
| 400 | 500 | 710 | 720 | **PSTB720-690-70** | **1SFA 895 018 R7000** | 55.0 |
| 450 | 600 | 800 | 840 | **PSTB840-690-70** | **1SFA 895 019 R7000** | 60.0 |
| 560 | 730 | 1000 | 1050 | **PSTB1050-690-70** | **1SFA 895 020 R7000** | 60.0 |



# PST37 ... 300 and PSTB370 ... 1050

## Heavy duty starts, class 30 – In-Line

1SFC132017F0201

PST37...PST72

1SFC132013F0201

PST85...PST142

1SFC132015F0201

PST175...PST300

1SFC132018F0201

PSTB370...PSTB470

1SFC132014F0201

PSTB570...PSTB1050

## Ordering details In-Line


### PST37 ... PST300

#### 230 – 600 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 15 | 18.5 | - | 30 | **PST37-600-70** | **1SFA 894 003 R7000** | 4.8 |
| 18.5 | 22 | - | 37 | **PST44-600-70** | **1SFA 894 004 R7000** | 4.8 |
| 22 | 25 | - | 44 | **PST50-600-70** | **1SFA 894 005 R7000** | 4.8 |
| 25 | 30 | - | 50 | **PST60-600-70** | **1SFA 894 006 R7000** | 5.0 |
| 30 | 37 | - | 60 | **PST72-600-70** | **1SFA 894 007 R7000** | 5.0 |
| 37 | 45 | - | 72 | **PST85-600-70** | **1SFA 894 008 R7000** | 11.2 |
| 45 | 55 | - | 85 | **PST105-600-70** | **1SFA 894 009 R7000** | 13.0 |
| 55 | 75 | - | 105 | **PST142-600-70** | **1SFA 894 010 R7000** | 13.0 |
| 75 | 90 | - | 142 | **PST175-600-70** | **1SFA 894 011 R7000** | 21.5 |
| 90 | 110 | - | 175 | **PST210-600-70** | **1SFA 894 012 R7000** | 21.5 |
| 110 | 132 | - | 210 | **PST250-600-70** | **1SFA 894 013 R7000** | 23.0 |
| 132 | 160 | - | 250 | **PST300-600-70** | **1SFA 894 014 R7000** | 23.0 |

#### 400 – 690 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 15 | 18.5 | 25 | 30 | **PST37-690-70** | **1SFA 895 003 R7000** | 4.8 |
| 18.5 | 22 | 30 | 37 | **PST44-690-70** | **1SFA 895 004 R7000** | 4.8 |
| 22 | 25 | 37 | 44 | **PST50-690-70** | **1SFA 895 005 R7000** | 4.8 |
| 25 | 30 | 45 | 50 | **PST60-690-70** | **1SFA 895 006 R7000** | 5.0 |
| 30 | 37 | 55 | 60 | **PST72-690-70** | **1SFA 895 007 R7000** | 5.0 |
| 37 | 45 | 59 | 72 | **PST85-690-70** | **1SFA 895 008 R7000** | 11.2 |
| 45 | 55 | 75 | 85 | **PST105-690-70** | **1SFA 895 009 R7000** | 13.0 |
| 55 | 75 | 90 | 105 | **PST142-690-70** | **1SFA 895 010 R7000** | 13.0 |
| 75 | 90 | 132 | 142 | **PST175-690-70** | **1SFA 895 011 R7000** | 21.5 |
| 90 | 110 | 160 | 175 | **PST210-690-70** | **1SFA 895 012 R7000** | 21.5 |
| 110 | 132 | 184 | 210 | **PST250-690-70** | **1SFA 895 013 R7000** | 23.0 |
| 132 | 160 | 220 | 250 | **PST300-690-70** | **1SFA 895 014 R7000** | 23.0 |

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

#### 230 – 600 V

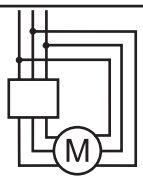
**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 160 | 200 | - | 300 | **PSTB370-600-70** | **1SFA 894 015 R7000** | 31.0 |
| 200 | 250 | - | 370 | **PSTB470-600-70** | **1SFA 894 016 R7000** | 31.0 |
| 250 | 315 | - | 470 | **PSTB570-600-70** | **1SFA 894 017 R7000** | 52.0 |
| 315 | 400 | - | 570 | **PSTB720-600-70** | **1SFA 894 018 R7000** | 55.0 |
| 400 | 500 | - | 720 | **PSTB840-600-70** | **1SFA 894 019 R7000** | 60.0 |
| 450 | 560 | - | 840 | **PSTB1050-600-70** | **1SFA 894 020 R7000** | 60.0 |

#### 400 – 690 V

**Supply voltage** 100...250 V, 50/60 Hz

| Motor power 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 160 | 200 | 257 | 300 | **PSTB370-690-70** | **1SFA 895 015 R7000** | 31.0 |
| 200 | 250 | 355 | 370 | **PSTB470-690-70** | **1SFA 895 016 R7000** | 31.0 |
| 250 | 315 | 450 | 470 | **PSTB570-690-70** | **1SFA 895 017 R7000** | 52.0 |
| 315 | 400 | 560 | 570 | **PSTB720-690-70** | **1SFA 895 018 R7000** | 55.0 |
| 400 | 500 | 710 | 720 | **PSTB840-690-70** | **1SFA 895 019 R7000** | 60.0 |
| 450 | 560 | 800 | 840 | **PSTB1050-690-70** | **1SFA 895 020 R7000** | 60.0 |



# PST37 ... 300 and PSTB370 ... 1050

## Heavy duty starts, class 30 – Inside Delta

1SFC132017F0201

PST37...PST72

1SFC132013F0201

PST85...PST142

1SFC132015F0201

PST175...PST300

1SFC132018F0201

PSTB370...PSTB470

1SFC132014F0201

PSTB570...PSTB1050

## Ordering details Inside Delta

### PST37 ... PST300

**Heavy duty**

### 230 – 600 V

**Motor power**

**Supply voltage** 100...250 V, 50/60 Hz

| 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 25 | 30 | - | 52 | **PST37-600-70** | **1SFA 894 003 R7000** | 4.8 |
| 30 | 37 | - | 64 | **PST44-600-70** | **1SFA 894 004 R7000** | 4.8 |
| 37 | 45 | - | 76 | **PST50-600-70** | **1SFA 894 005 R7000** | 4.8 |
| 45 | 55 | - | 85 | **PST60-600-70** | **1SFA 894 006 R7000** | 5.0 |
| 55 | 75 | - | 105 | **PST72-600-70** | **1SFA 894 007 R7000** | 5.0 |
| 59 | 80 | - | 124 | **PST85-600-70** | **1SFA 894 008 R7000** | 11.2 |
| 75 | 90 | - | 147 | **PST105-600-70** | **1SFA 894 009 R7000** | 13.0 |
| 90 | 110 | - | 181 | **PST142-600-70** | **1SFA 894 010 R7000** | 13.0 |
| 132 | 160 | - | 245 | **PST175-600-70** | **1SFA 894 011 R7000** | 21.5 |
| 160 | 200 | - | 300 | **PST210-600-70** | **1SFA 894 012 R7000** | 21.5 |
| 184 | 250 | - | 360 | **PST250-600-70** | **1SFA 894 013 R7000** | 23.0 |
| 220 | 295 | - | 430 | **PST300-600-70** | **1SFA 894 014 R7000** | 23.0 |

### 400 – 690 V

**Motor power**

**Supply voltage** 100...250 V, 50/60 Hz

| 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 25 | 30 | 45 | 52 | **PST37-690-70** | **1SFA 895 003 R7000** | 4.8 |
| 30 | 37 | 55 | 64 | **PST44-690-70** | **1SFA 895 004 R7000** | 4.8 |
| 37 | 45 | 59 | 76 | **PST50-690-70** | **1SFA 895 005 R7000** | 4.8 |
| 45 | 55 | 75 | 90 | **PST60-690-70** | **1SFA 895 006 R7000** | 5.0 |
| 55 | 75 | 90 | 105 | **PST72-690-70** | **1SFA 895 007 R7000** | 5.0 |
| 59 | 80 | 110 | 124 | **PST85-690-70** | **1SFA 895 008 R7000** | 11.2 |
| 75 | 90 | 132 | 147 | **PST105-690-70** | **1SFA 895 009 R7000** | 13.0 |
| 90 | 110 | 160 | 181 | **PST142-690-70** | **1SFA 895 010 R7000** | 13.0 |
| 132 | 160 | 220 | 245 | **PST175-690-70** | **1SFA 895 011 R7000** | 21.5 |
| 160 | 200 | 257 | 300 | **PST210-690-70** | **1SFA 895 012 R7000** | 21.5 |
| 184 | 250 | 315 | 360 | **PST250-690-70** | **1SFA 895 013 R7000** | 23.0 |
| 220 | 295 | 400 | 430 | **PST300-690-70** | **1SFA 895 014 R7000** | 23.0 |

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

### 230 – 600 V

**Motor power**

**Supply voltage** 100...250 V, 50/60 Hz

| 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 257 | 355 | - | 515 | **PSTB370-600-70** | **1SFA 894 015 R7000** | 31.0 |
| 355 | 450 | - | 640 | **PSTB470-600-70** | **1SFA 894 016 R7000** | 31.0 |
| 450 | 600 | - | 814 | **PSTB570-600-70** | **1SFA 894 017 R7000** | 52.0 |
| 540 | 690 | - | 987 | **PSTB720-600-70** | **1SFA 894 018 R7000** | 55.0 |
| 670 | 880 | - | 1247 | **PSTB840-600-70** | **1SFA 894 019 R7000** | 60.0 |
| 780 | 1000 | - | 1455 | **PSTB1050-600-70** | **1SFA 894 020 R7000** | 60.0 |

### 400 – 690 V

**Motor power**

**Supply voltage** 100...250 V, 50/60 Hz

| 400 V $P_e$ kW | 500 V $P_e$ kW | 690 V $P_e$ kW | Rated motor current, $I_e$ A | Type | Order code | Weight kg |
|---|---|---|---|---|---|---|
| 257 | 355 | 500 | 515 | **PSTB370-690-70** | **1SFA 895 015 R7000** | 31.0 |
| 355 | 450 | 600 | 640 | **PSTB470-690-70** | **1SFA 895 016 R7000** | 31.0 |
| 450 | 600 | 800 | 814 | **PSTB570-690-70** | **1SFA 895 017 R7000** | 52.0 |
| 540 | 690 | 960 | 987 | **PSTB720-690-70** | **1SFA 895 018 R7000** | 55.0 |
| 670 | 880 | 1200 | 1247 | **PSTB840-690-70** | **1SFA 895 019 R7000** | 60.0 |
| 780 | 1000 | 1400 | 1455 | **PSTB1050-690-70** | **1SFA 895 020 R7000** | 60.0 |

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


1SFT98099-011C1


1SFT98099-095C2


SB854C2

LZ...

## Cable connectors for Cu cables

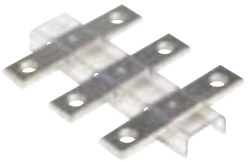
For PST85...300 you need 9 pieces if also using the terminals B1, B2, B3 for external by-pass contactor.

| For softstarter type | Wire range mm² | Tightening torque max. Nm | Type | Order code | Packing piece | Weight kg 1 piece |
|---|---|---|---|---|---|---|
| PST85 ...142 | 6-120 | 16 | – | **1SDA 023 354 R0001** | 3 | 0.20 |
| PST85 ...142 | 2 x (50-120) | 16 | **LZ185-2C/120** | **1SFN 074 709 R1000** | 3 | 0.30 |
| PST175 ...300 | 16-240 | 25 | – | **1SDA 023 368 R0001** | 3 | 0.40 |

## 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 mm² | Tightening torque max. Nm | Type | Order code | Packing piece | Weight kg 1 piece |
|---|---|---|---|---|---|---|
| PST85 ...142 | 35-95 | 13.5 | – | **1SDA 023 356 R0001** | 3 | 0.10 |
| PST85 ...142 | 25-150 | 31 | – | **1SDA 023 357 R0001** | 3 | 0.10 |
| PST175 ...300 | 120-240 | 43 | – | **1SDA 023 370 R0001** | 3 | 0.10 |


1SFT98000-012C3

LX...

## Terminal extensions

| For softstarter type | Dimensions hole ø mm² | bar mm | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|---|
| PST85…142 | 8.5 | 17.5 x 5 | **LX185** | **1SFN 074 710 R1000** | 1 | 0.250 |
| PST175…300 | 10.5 | 20 x 5 | **LX300** | **1SFN 075 110 R1000** | 1 | 0.350 |
| PSTB370...470 | 10.5 | 25 x 5 | **LX400** | **1SFN 075 710 R1000** | 1 | 0.500 |
| PSTB570...1050 | 13 | 40 x 6 | **LX750** | **1SFN 076 110 R1000** | 1 | 0.850 |


1SFT98000-011C3

LW...

## Terminal enlargements

| For softstarter type | Dimensions hole ø mm² | bar mm | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|---|
| PST30…72 | 6.5 | 15 x 3 | **LW110** | **1SFN 074 307 R1000** | 1 | 0.100 |
| PST85…142 | 10.5 | 17.5 x 5 | **LW185** | **1SFN 074 707 R1000** | 1 | 0.250 |
| PST175...300 | 10.5 | 20 x 5 | **LW300** | **1SFN 075 107 R1000** | 1 | 0.450 |
| PSTB370...470 | 10.5 | 25 x 5 | **LW460** | **1SFN 075 707 R1000** | 1 | 0.730 |
| PSTB570...1050 | 13 | 40 x 6 | **LW750** | **1SFN 076 107 R1000** | 1 | 1.230 |

## Terminal nut washer

| For softstarter type | Type | Order code | Packing piece | Weight kg 1 piece |
|---|---|---|---|---|
| PST85/147…142/245 | **LE185** | **1SFN 074 716 R1000** | 2 | 0.20 |
| PST175/300…300/515 | **LE300** | **1SFN 075 116 R1000** | 2 | 0.30 |


1SFC132010F0201

LE185

## Terminal shrouds

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


1SFT98099-019C3

LT ... -AC


1SFT98099-125

LT ... -AL

ASP22-FBP

ASF11-FBP

ASX11-FBP

ASM11-FBP.0

ASF11-FBP.0

AST11-FBP.0

## AS-Interface FieldBusPlug Performance

Ready-made AS-Interface Slave fieldbus interface with various cable lengths.

- Applicable on all FBP motor starters and devices with max. 4 input signals and 3 output signals
- Degree of protection IP65, diagnostic LED

| Designation FieldBusPlug | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| AS-Interafce Performance | 0.25 m | **ASP22-FBP.025** | **1SAJ 220 000 R0003** | 1 | 0.09 |
| AS-Interafce Performance | 0.50 m | **ASP22-FBP.050** | **1SAJ 220 000 R0005** | 1 | 0.10 |
| AS-Interafce Performance | 1.00 m | **ASP22-FBP.100** | **1SAJ 220 000 R0010** | 1 | 0.13 |
| AS-Interafce Performance | 5.00 m | **ASP22-FBP.500** | **1SAJ 220 000 R0050** | 1 | 0.36 |

## Accessories for AS-Interface Bus Connection

### AS-Interface 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. AS-Interface couplers or devices with an integrated AS-Interface

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| AS-Interface Round Cable with female connector | 0.30 m | **ASF11-FBP.030** | **1SAJ 922 002 R0003** | 1 | 0.04 |
| AS-Interface Round Cable with male connector | 0.30 m | **ASM11-FBP.030** | **1SAJ 922 003 R0003** | 1 | 0.04 |

### AS-Interface Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| AS-Interface Extension Cable | 1.00 m | **ASX11-FBP.100** | **1SAJ 922 001 R0010** | 1 | 0.08 |
| AS-Interface Extension Cable | 3.00 m | **ASX11-FBP.300** | **1SAJ 922 001 R0030** | 1 | 0.20 |
| AS-Interface Extension Cable | 5.00 m | **ASX11-FBP.500** | **1SAJ 922 001 R0050** | 1 | 0.31 |
| AS-Interface Extension Cable | 100 m | **ASC11-FBP.999** | **1SAJ 922 004 R1000** | 1 | 5.60 |

### AS-Interface Round Cable and Accessories for Bus Extension Bus cable and coupling accessories

| Designation | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|
| AS-Interface Round Cable, male conn. | **ASM11-FBP.0** | **1SAJ 922 005 R0001** | 5 | 0.15 |
| AS-Interface Round Cable, female conn. | **ASF11-FBP.0** | **1SAJ 922 006 R0001** | 5 | 0.15 |
| AS-Interface Flat-Cable Branch Circuit with M12 socket | **AST11-FBP.0** | **1SAJ 922 007 R0001** | 1 | 0.15 |

### AS-Interface Addressing Device, Power Unit, miscellaneous accessories

| Designation FieldBusPlug | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|
| AS-Interface Addr. Device, including plug-in power unit | **ASA21-FBP.0** | **1SAJ 922 010 R0001** | 1 | 0.56 |
| Address Signs for FieldBusPlug | **CAL11-FBP.0** | **1SAJ 929 005 R0001** | 400 | 0.15 |


DNP21-11FBP


DNF-11FBP.050


DNM-11FBP.050


DNX11-FDP


DNC11-FBP.999


DNM11-FBP.0


DNF11-FBP.0

## 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 FieldBusPlug | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| DeviceNet | 0.25 m | **DNP21-FBP.025** | **1SAJ 230 000 R0003** | 1 | 0.09 |
| DeviceNet | 0.50 m | **DNP21-FBP.050** | **1SAJ 230 000 R0005** | 1 | 0.10 |
| DeviceNet | 1.00 m | **DNP21-FBP.100** | **1SAJ 230 000 R0010** | 1 | 0.13 |
| DeviceNet | 5.00 m | **DNP21-FBP.500** | **1SAJ 230 000 R0050** | 1 | 0.36 |

## Accessories for the DeviceNet Bus Connector

### DeviceNet 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. DeviceNet couplers or devices with an integrated DeviceNet interface

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| DeviceNet Round Cable with female connector | 0.50 m | **DNF11-FBP.050** | **1SAJ 923 002 R0005** | 1 | 0.04 |
| DeviceNet Round Cable with male connector | 0.50 m | **DNM11-FBP.050** | **1SAJ 923 003 R0005** | 1 | 0.04 |

### DeviceNet Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| DeviceNet Extension Cable | 1.00 m | **DNX11-FBP.100** | **1SAJ 923 001 R0010** | 1 | 0.08 |
| DeviceNet Extension Cable | 3.00 m | **DNX11-FBP.300** | **1SAJ 923 001 R0030** | 1 | 0.20 |
| DeviceNet Extension Cable | 5.00 m | **DNX11-FBP.500** | **1SAJ 923 001 R0050** | 1 | 0.31 |
| Device Net Round Cable | 100 m | **DNC11-FBP.999** | **1SAJ 923 004 R0001** | 1 | 5.6 |

### DeviceNet Round Cable and Accessories for Bus Extension
### Bus cable and coupling accessories

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| Device Net 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 |

### Termination Resistor, Power Unit, Miscellaneous Accessories

| Designation | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|
| Device Net 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** on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

PDP21-FBP

PDF11-FBP.50

PDM11-FBP.50

PDX11-FBP

PDM11-FBP.0

PDF11-FBP.0

## Profibus DP FieldBusPlug

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

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

| Designation FieldBusPlug | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| Profibus DP-FBP | 0.25 m | **PDP21-FBP.025** | **1SAJ 240 000 R0003** | 1 | 0.09 |
| Profibus DP-FBP | 0.50 m | **PDP21-FBP.050** | **1SAJ 240 000 R0005** | 1 | 0.10 |
| Profibus DP-FBP | 1.00 m | **PDP21-FBP.100** | **1SAJ 240 000 R0010** | 1 | 0.13 |
| Profibus DP-FBP | 5.00 m | **PDP21-FBP.500** | **1SAJ 240 000 R0050** | 1 | 0.36 |

## Accessories for the Profibus DP Bus Connector

### Profibus DP 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 | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| Profibus DP Round Cable with female connector | 0.50 m | **PDF11-FBP.050** | **1SAJ 924 002 R0005** | 1 | 0.04 |
| Profibus DP Round Cable with male connector | 0.50 m | **PDM11-FBP.050** | **1SAJ 924 003 R0005** | 1 | 0.04 |

### Profibus DP Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

| Designation | Cable length | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|---|
| Profibus DP Extension Cable | 1.00 m | **PDX11-FBP.100** | **1SAJ 924 001 R0010** | 1 | 0.08 |
| Profibus DP Extension Cable | 3.00 m | **PDX11-FBP.300** | **1SAJ 924 001 R0030** | 1 | 0.20 |
| Profibus DP Extension Cable | 5.00 m | **PDX11-FBP.500** | **1SAJ 924 001 R0050** | 1 | 0.31 |
| Profibus DP Round Cable | 100 m | **PDC11-FBP.999** | **1SAJ 924 004 R1000** | 1 | 5.60 |

### Profibus DP Accessories for Bus Extension

| Designation | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|
| Profibus DP Male Connector | **PDM11-FBP.0** | **1SAJ 924 005 R0001** | 5 | 0.03 |
| Profibus DP Female Connector | **PDF11-FBP.0** | **1SAJ 924 006 R0001** | 5 | 0.03 |

### Profibus DP Termination Resistor, Miscellaneous Accessories

| Designation | Type | Order code | Packing pieces | Weight kg 1 piece |
|---|---|---|---|---|
| Profibus DP Termination resistor, 150 ohm | **PDR11-FBP.150** | **1SAJ 924 007 R0001** | 1 | 0.02 |

**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** on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

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

| | PST30 … 300 | PSTB370 ... 1050 |
|---|---|---|
| **Rated insulation voltage $U_i$** | 690 V | 690 V |
| **Rated operational voltage $U_e$** | 208 ... 690 V | 208 ... 690 V |
| **Starting capacity** | | |
| at max rated current $I_r$ | 3 x $I_r$ for 15 sec. | 3 x $I_r$ for 15 sec |
| **Number of starts per hour** | 30 [1] | 10 [1] |
| **Overload capability**, | | |
| Overload Class | 10 | 10 |
| **Service factor** | 115 % | 115 % (PSTB370... PSTB840)<br>100 % (PSTB1050) |
| **Ambient temperature** | | |
| During operation | ±0 … +50 °C [2] | ±0 … +50 °C [2] |
| During storage | -25… +70 °C | -25… +70 °C |
| **Altitudes** | | |
| Maximum altitude | 4000 m [3] | 4000 m [3] |
| **Degree of protection** | | |
| Main circuit | IP10 (PST30 ... 72)<br>IP00 ( PST85 ... 300) | IP00 (all) |
| Supply and Control circuit | IP20 | IP20 |
| **Main circuit** | | |
| Built in By-pass contactor | No | Yes |
| Cooling system - Fan cooled *(thermostat controlled)* | Yes | Yes |
| **Supply circuit** | | |
| Supply voltage – one range | 100 ... 250 V, 50/60 Hz +10 %/-15 % | 100 ... 250 V 50/60 Hz +10 %/-15 % |
| **HMI for settings** *(Human Machine Interface)* | | |
| 20 segment display | Yes | Yes |
| Keypad with two selection keys and two navigating keys | Yes | Yes |
| Plain text in 11 languages *(English, German, Italian, Chinese, Finnish, Swedish, French, Spanish, Dutch Portuguese and Russian)* | Yes | Yes |
| **Signal relays** | | |
| Number of programmable signal relays *(Each relay can be programmed to be Run, By-pass or Event signal)* | 3 | 3 |
| K4 – Default as Run signal | Yes | Yes |
| K5 – Default as By-pass signal | Yes | Yes |
| K6 – Default as Event signal | Yes | Yes |
| Rated operational voltage $U_e$ | 250 V | 250 V |
| Rated thermal current $I_{th}$ | 5 A | 5 A |
| Rated operational current $I_e$ at AC-15 ($U_e$ = 250 V) | 1.5 A | 1.5 A |

| | PST30 … 300 | PSTB370 ... 1050 |
|---|---|---|
| **Control circuit /Hardware inputs** | | |
| Internal 24 V DC (10 mA closed) | Yes | Yes |
| Start / Stop inputs | Yes | Yes |
| Two extra programmable inputs *(Each input can be programmed to be either; Non, Reset, Enable, Jog, DOL- On, Start motor 2 or Start motor 3, FB-Dis ).* | Yes | Yes |
| **Signal indication LED's** | | |
| Power on – Green | Yes | Yes |
| Fault - Red | Yes | Yes |
| Protection - Yellow | Yes | Yes |
| **Protections** | | |
| Electronic overload | Yes | Yes |
| Adjustable tripping classes - Class 10 A, 10, 20 and 30 | Yes | Yes |
| Dual overload (separate overload function for start and run) | Yes | Yes |
| PTC connection | Yes | Yes |
| Locked rotor protection | Yes | Yes |
| Underload protection | Yes | Yes |
| Phase imbalance | Yes | Yes |
| High current (8 x $I_e$) | Yes | Yes |
| Phase reversal protection | Yes | Yes |
| **Warnings (pre-warning)** | | |
| High current | Yes | Yes |
| Low current (underload) | Yes | Yes |
| Overload trip | Yes | Yes |
| Overtemp. thyristors (SCR) | Yes | Yes |
| **Start of several motors** | | |
| Possible to set up and start three different motors | Yes | Yes |
| **Field bus connection** | | |
| Connection for ABB FieldBusPlug | Yes | Yes |
| AS-Interface (option cable) | Yes | Yes |
| DeviceNet (option cable) | Yes | Yes |
| Profibus DP (option cable) | Yes | Yes |

[1] Valid for 50 % on time and 50 % off time, with 3.5 x $I_e$ for 7 seconds. If other data is required, please contact your sales office

[2] Above 40 ºC up to max. 50 ºC reduce the rated current with 0.8 % per ºC.

[3] 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

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

| Description | Text on display (Eng) | Values on display | Default value |
|---|---|---|---|
| Setting current for overload, locked rotor etc. | Setting $I_e$ | 9,0 ...1380 A divided into 19 overlapping ranges. | See table, page 33 |
| Time for start ramp | Start Ramp | 1 ... 30 s, 1 ... 120 s (Range depends on Start Range) | 10 s |
| Time for stop ramp | Stop Ramp | 0 ... 30 s, 0 ... 120 s (Range depends on Stop Range) | 0 s |
| Initial voltage for start ramp | Init Volt | 30 ... 70 % | 30 % |
| End voltage for stop ramp | End Volt | 30 ... 70 % | 30 % |
| Step down voltage | Step Down | 30 ...100 % | 100 % |
| Level of the current limit. | Current Lim | 2,0 ... 7,0 x $I_e$ | 4,0 x $I_e$ |
| Selection of Kick start | Kick Start | Yes, No | No |
| Level of Kick start if selected | Kick Level | 50 ... 100 % | 50 % |
| Time for Kick start if selected | Kick Time | 0,1 ... 1,5 s | 0,2 |

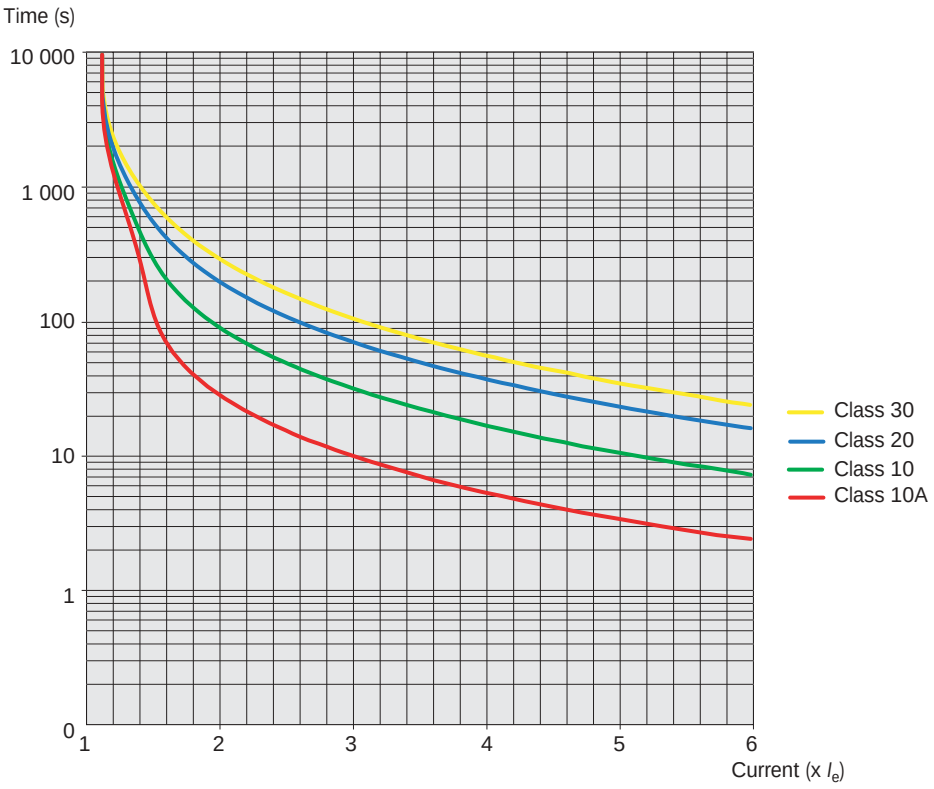
*cont.*

*Cont.* Major possible settings and the displayed text and the set default values

| Description | Text on display (Eng) | Values on display | Default value |
|---|---|---|---|
| Selectable range for start ramp | Start Range | 1 ... 30 s, 1...120 s | 1 ... 30 s |
| Selectable range for stop ramp | Stop Range | 0 ... 30 s, 0 ... 120 s | 0 ... 30 s |
| Overload protection | Overload | No, Normal, Dual | Normal |
| Overload Class | OL Class | 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 |
| Locked rotor protection | Locked Rotor | Yes, No | No |
| Trip level for locked rotor protection | Lock R Lev | 3,0 ... 8,0 x $I_e$ | 4,0 x $I_e$ |
| Trip time for locked rotor protection | Lock R Time | 0,2 ... 10 s | 1,0 s |
| Type of operation for locked rotor protection | Lock R Op | Stop-M, Stop-A, Ind | Stop-M |
| Underload protection | Underload | Yes, No | No |
| Trip level for Underload protection | Underl Lev | 0,4 ... 0,8 x $I_e$ | 0,8 x $I_e$ |
| Trip time for Underload protection | Underl Time | 1...30 s | 10 s |
| Type of operation for Underload protection | Underl Op | Stop-M, Stop-A, Ind | Stop-M |
| Phase imbalance protection | Phase Imb | Yes, No | No |
| Trip level for phase imbalance protection | Ph Imb Lev | 10...80 % | 80 % |
| Type of operation for phase imbalance protection | Ph Imb Op | Stop-M, Stop-A, Ind | Stop-M |
| High current protection | High I | Yes, No | No |
| Type of operation for high current protection | High I Op | Stop-M, Stop-A, Ind | Stop-M |
| Phase reversal protection | Phase Rev | Yes, No | No |
| Type of operation for phase reversal protection | Ph Rev Op | Stop-M, Stop-A, Ind | Stop-M |
| PTC protection | PTC | Yes, No | No |
| Type of operation for PTC protection | PTC Op | Stop-M, Stop-A | Stop-M |
| An external Bypass contactor is used | Ext ByPass | Yes, No | No |
| High current warning | Warn I=High | Yes, No | No |
| Trip level for high current warning | Wa I=H Lev | 0,5 ... 5,0 x $I_e$ | 1,2 x $I_e$ |
| Low current warning | Warn I=Low | Yes, No | No |
| Trip level for low current warning | Wa I=L Lev | 0,4 ...1,0 x $I_e$ | 0,5 x $I_e$ |
| Overload warning | Warn OL | Yes, No | No |
| Trip level for overload warning | Wa OL Lev | 40...99 % | 90 % |
| Thyristor overload warning | Warn SCR OL | Yes, No | Yes |
| Type of operation for phase loss fault | Ph Loss Op | Stop-M, Stop-A | Stop-M |
| Type of operation for by-pass fault | BP Fault Op | Stop-M, Stop-A | 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 |
| 1st sequence, time for start ramp | Start Ramp1 | 1...30 s, 1...120 s (Range depends on Start Range) | 10 s |
| 1st sequence, initial voltage for start ramp | Init Volt1 | 30...70 % | 30 % |
| 1st sequence, current limit | Curr Lim1 | 2,0 ... 7,0 x $I_e$ | 4,0 x $I_e$ |
| 1st sequence, setting current | 1st Set Ie | 9,0 ... 1380 A divided into 19 overlapping ranges | See table, page 33 |
| 2nd sequence, time for start ramp | Start Ramp2 | 1...30 s, 1...120 s (Range depends on Start Range) | 10 s |
| 2nd sequence, initial voltage for start ramp | Init Volt2 | 30...70 % | 30 % |
| 2nd sequence, current limit | Curr Lim2 | 2,0 ... 7,0 x $I_e$ | 4,0 x $I_e$ |
| 2nd sequence, setting current | 2nd Set Ie | 9,0 ... 1380 A divided into 19 overlapping ranges | See table, page 33 |
| 3rd sequence, time for start ramp | Start Ramp3 | 1...30 s, 1...120 s (Range depends on Start Range) | 10 s |
| 3rd sequence, initial voltage for start ramp | Init Volt3 | 30 ... 70 % | 30 % |
| 3rd sequence, current limit | Curr Lim3 | 2,0 ... 7,0 x $I_e$ | 4,0 x $I_e$ |
| 3rd sequence, setting current | 3rd Set Ie | 9,0 ... 1380 A divided into 19 overlapping ranges | See table, page 33 |
| Language to use on display | Language | US/UK, FI, SE, PT, NL, IT, FR, ES, DE, CN, RU | US/UK |
| Time for display automatic turn off | LCD Auto Off | 1 ... 255 min | 15 min |
| Password for display | Password | No, 1 ... 255 | 1 |
| Type of date presentation | Date Type | ISO, CE, US | ISO |
| Year | Date Year | 2001...2060 | Individual |
| Month | Date Month | 1 ...12 | Individual |
| Day | Date Day | 1 ... 31 | Individual |
| Hour | Time Hour | 0 ... 23 | Individual |
| Minutes | Time Min | 0 ... 59 | Individual |

## Tripping curves for the integrated electronic overload 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.




Tripping curves for electronic overload protection (Cold)

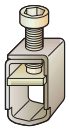
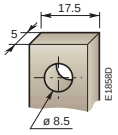
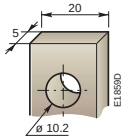
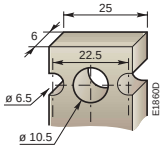
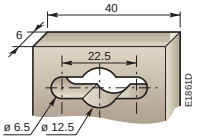
## ABB FieldBusPlug

## Controlling possibilities when using different field buses

| | AS-Interface | DeviceNet | Profibus DP |
|---|---|---|---|
| Simple control (start/stop etc) | X | X | X |
| Complete control | – | X | X |
| Simple status information | X | X | X |
| Detailed status information | – | X | X |
| Possibilities to write parameters | – | X | X |
| Possibilities to read parameters | – | X | – |

For more detailed information, please see the Installation and Commissioning manual available at **www.abb.com/lowvoltage** on the Softstarter pages.

## Cross section of connectable cables

| | | Type of softstarter PST30 ... 72 | PST85 ... 142 | PST175 ... 300 | PSTB370 ... 470 | PSTB570 ... 1050 |
|---|---|---|---|---|---|---|
| **Main circuit** | | | | | | |
| Available terminals: | L1, L2, L3 | Yes | Yes | Yes | Yes | Yes |
| | T1, T2, T3 | Yes | Yes | Yes | Yes | Yes |
| (For external by-pass): | B1, B2, B3 | Yes | Yes | Yes | No | No |
| Connection clamp | |  | | | | |
| Solid/Stranded | 1 x mm² | 10 ... 95 | See accessories | See accessories | – | – |
| Solid/Stranded | 2 x mm² | 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 |
| **Supply and control circuit** | | | | | | |
| Connection clamp | | Yes | Yes | Yes | Yes | Yes |
| Solid/Stranded | 1 x mm² | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Solid/Stranded | 2 x mm² | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Tightening torque (recommended), | Nm | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |

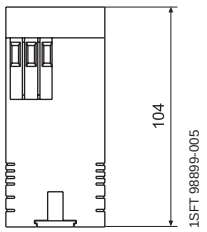
## Fuse ratings and power losses

| For softstarter | Recommended ABB Overload protection Type | Current range A | Max power loss at rated $I_e$ W | Maximum fuse ratings - main circuit [1] Bussmann fuses A | Type | Holder | Ferraz fuses A | Type | Power requirements supply circuit VA/VA pull in |
|---|---|---|---|---|---|---|---|---|---|
| **PST** | | | | | | | | | |
| PST30 | Integrated | 9... 35 | 100 | 80 | 170M1366 | 170H1007 | 100 | 6,6 URB 000 D08V 0100 | 5 |
| PST37 | Integrated | 12…46 | 120 | 125 | 170M1368 | 170H1007 | 160 | 6,6 URB 000 D08V 0160 | 5 |
| PST44 | Integrated | 15…58 | 140 | 160 | 170M1369 | 170H1007 | 200 | 6,6 URD 30 D08A 0200 | 5 |
| PST50 | Integrated | 15…58 | 160 | 160 | 170M1369 | 170H1007 | 200 | 6,6 URD 30 D08A 0200 | 5 |
| PST60 | Integrated | 18…69 | 190 | 200 | 170M1370 | 170H1007 | 250 | 6,6 URD 30 D08A 0250 | 5 |
| PST72 | Integrated | 23…86 | 230 | 250 | 170M1371 | 170H1007 | 315 | 6,6 URD 30 D08A 0315 | 5 |
| PST85 | Integrated | 30…115 | 270 | 315 | 170M1372 | 170H1007 | 400 | 6,6 URD 30 D08A 0400 | 10 |
| PST105 | Integrated | 38…144 | 325 | 400 | 170M3019 | 170H3004 | 400 | 6,6 URD 30 D08A 0400 | 10 |
| PST142 | Integrated | 45…173 | 435 | 450 | 170M3020 | 170H3004 | 500 | 6,6 URD 30 D08A 0500 | 10 |
| PST175 | Integrated | 60…230 | 540 | 500 | 170M3021 | 170H3004 | 550 | 6,6 URD 30 D08A 0550 | 15 |
| PST210 | Integrated | 75…288 | 645 | 630 | 170M5012 | 170H3004 | 630 | 6,6 URD 31 D08A 0630 | 15 |
| PST250 | Integrated | 75…288 | 765 | 700 | 170M5013 | 170H3004 | 630 | 6,6 URD 31 D08A 0630 | 15 |
| PST300 | Integrated | 90…345 | 920 | 900 | 170M5015 | 170H3004 | 900 | 6,6 URD 31 D11A 0900 | 15 |
| **PSTB 600 V** | | | | | | | | | |
| PSTB370 | Integrated | 120…460 | 90 | 700 | 170M5013 | 170H3004 | 630 | 6,6 URD 31 D08A 0630 | 20/480 |
| PSTB470 | Integrated | 150…575 | 110 | 900 | 170M5015 | 170H3004 | 900 | 6,6 URD 31 D11A 0900 | 20/480 |
| PSTB570 | Integrated | 180…690 | 105 | 900 | 170M5015 | 170H3004 | 900 | 6,6 URD 31 D11A 0900 | 25/900 |
| PSTB720 | Integrated | 225…863 | 110 | 1250 | 170M5018 | 170H3004 | 1250 | 6,6 URD 33 D11A 1250 | 25/860 |
| PSTB840 | Integrated | 300…1160 | 170 | 1500 | 170M6018 | 170H3004 | 1600 | 6,6 URD 33 D11A 1250 | 25/860 |
| PSTB1050 | Integrated | 360…1380 | 170 | 1800 | 170M6020 | 170H3004 | 2000 | 6,6 URD 33 PLAF 2000 | 25/860 |
| **PSTB 690 V** | | | | | | | | | |
| PSTB370 | Integrated | 120…460 | 90 | 700 | 170M5013 | 170H3004 | 630 | 6,6 URD 31 D08A 0630 | 20/480 |
| PSTB470 | Integrated | 150…575 | 110 | 900 | 170M5015 | 170H3004 | 900 | 6,6 URD 31 D11A 0900 | 20/480 |
| PSTB570 | Integrated | 180…690 | 105 | 900 | 170M5015 | 170H3004 | 900 | 6,6 URD 31 D11A 0900 | 25/900 |
| PSTB720 | Integrated | 225…863 | 110 | 1250 | 170M5018 | 170H3004 | 1250 | 6,6 URD 33 D11A 1250 | 25/860 |
| PSTB840 | Integrated | 300…1150 | 170 | 1500 | 170M6018 | 170H3004 | 1600 | 6,6 URD 33 TTFA 1600 | 25/860 |
| PSTB1050 | Integrated | 360…1380 | 170 | 1600 | 170M6019 | 170H3004 | 1600 | 6,6 URD 33 TTFA 1600 | 25/860 |

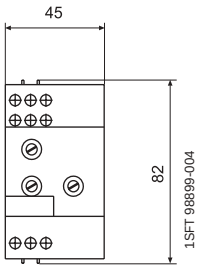
[1] For the supply circuit 6A delayed, for MCB use C characteristics.

# PSS03 ... PSS300/515
## Dimensions

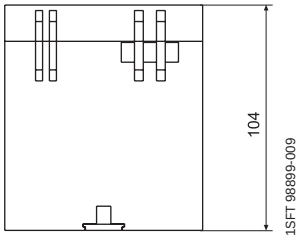
### PSS03, PSS12



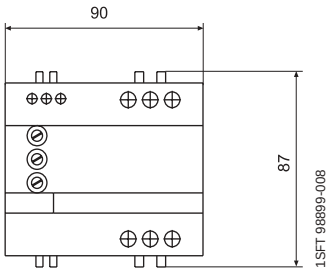

Depth from DIN rail 101 mm



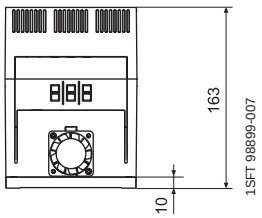

### PSS25

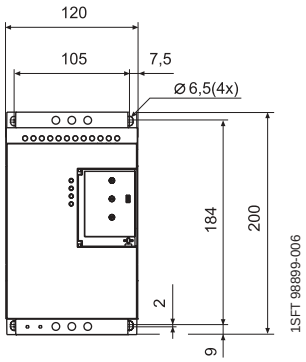



Depth from DIN rail 101 mm

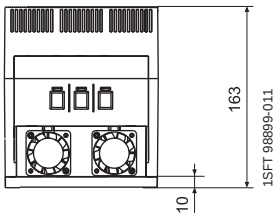


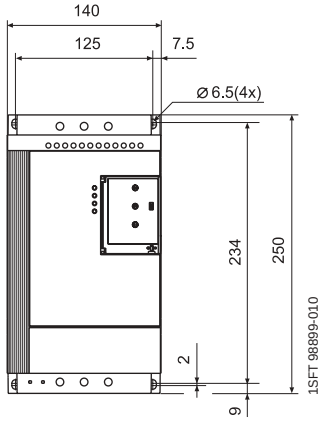

### PSS18/30-500 … 44/76-500



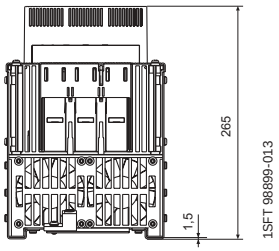



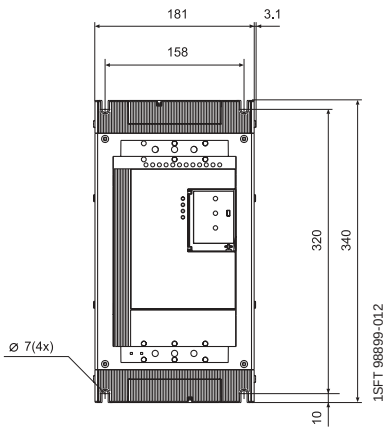

### PSS50/85-500 … 72/124-500
### PSS18/30-690 … 72/124-690



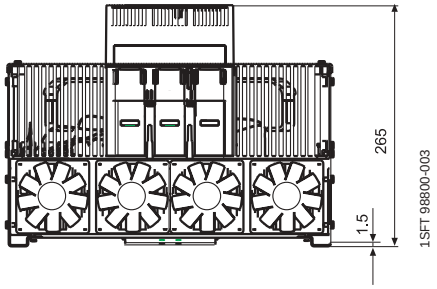



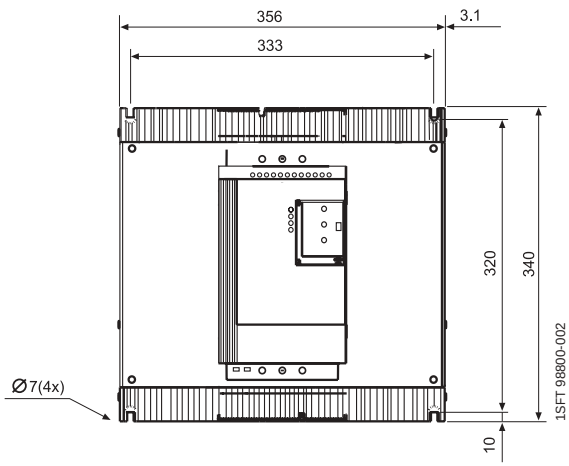

### PSS85/147-500 … 142/245-500
### PSS85/147-690 … 142/245-690




### PSS 175/300-500 … 300/515-500
### PSS 175/300-690 … 300/515-690

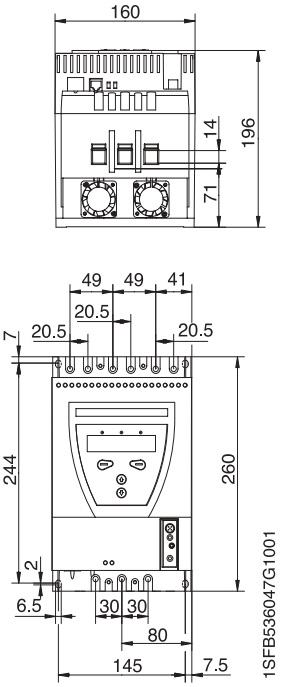


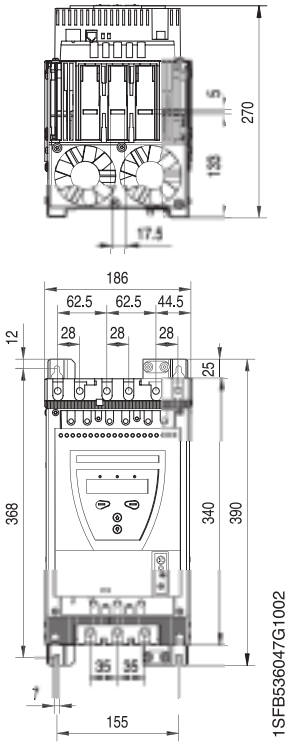

Dimensions in mm

# PST30 ... 300 and PSTB370 ... 1050
## Dimensions

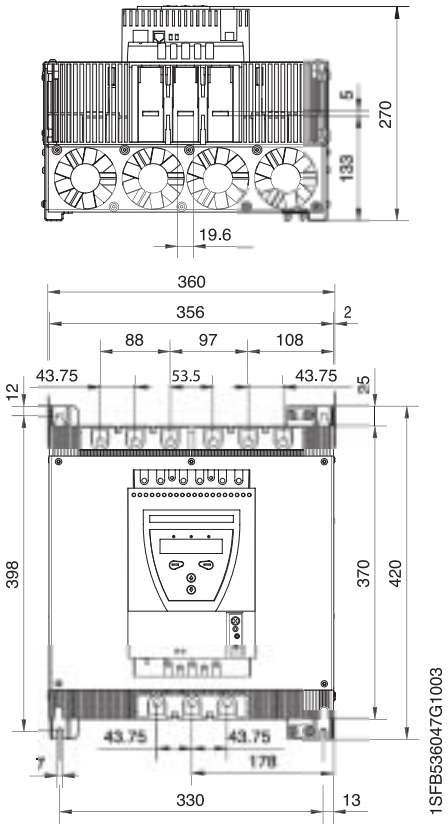
### PST30 ... 72



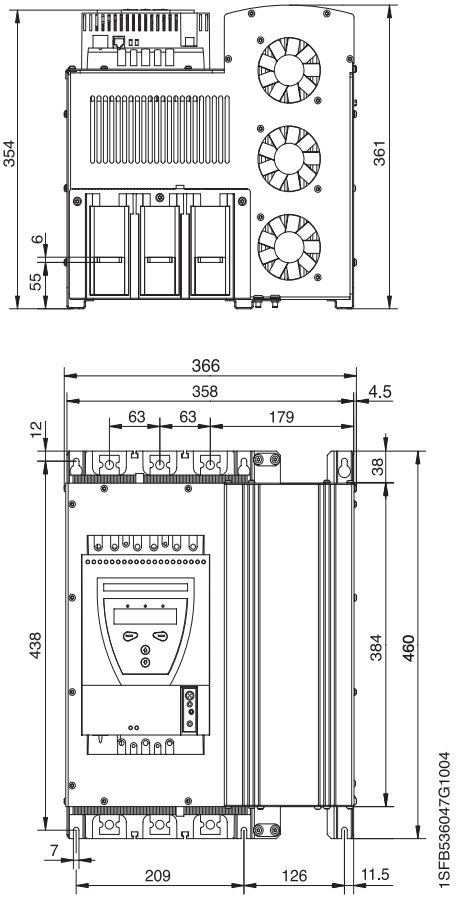

### PST85 ...142



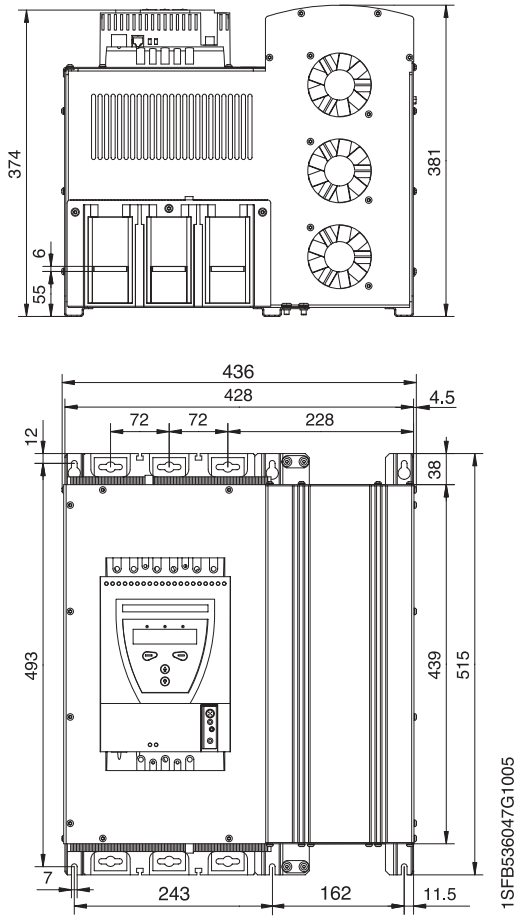

### PST175 ... 300




### PSTB370 ... 470



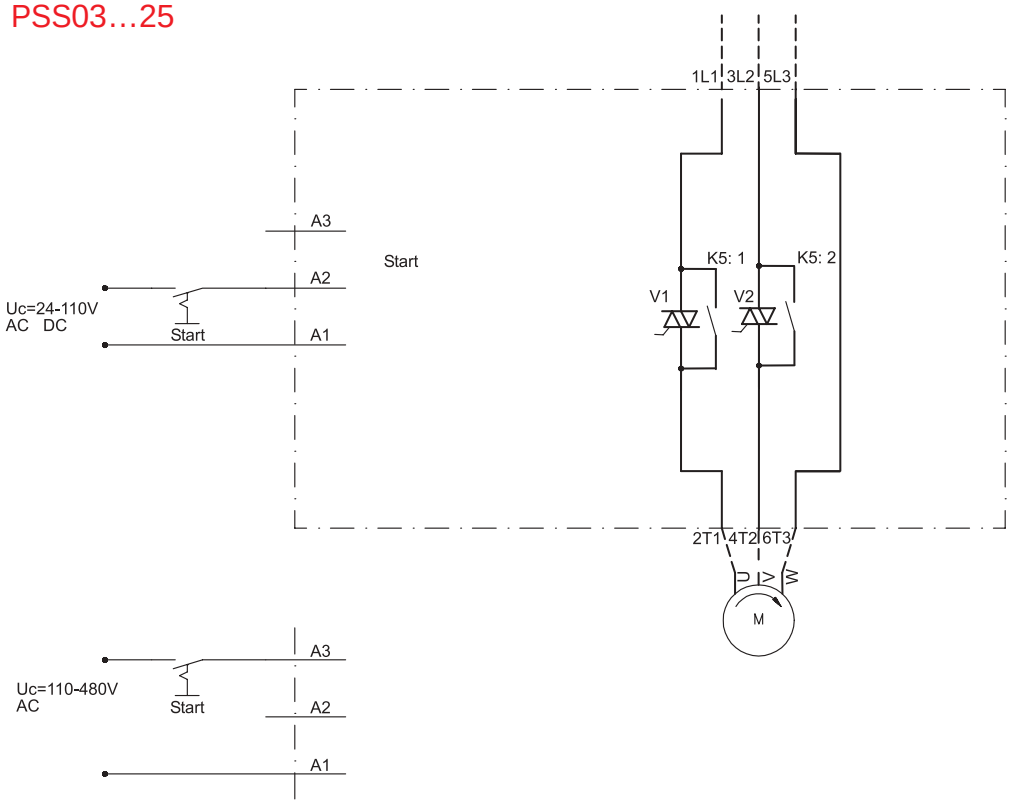

### PSTB570 ... 1050




Dimensions in mm

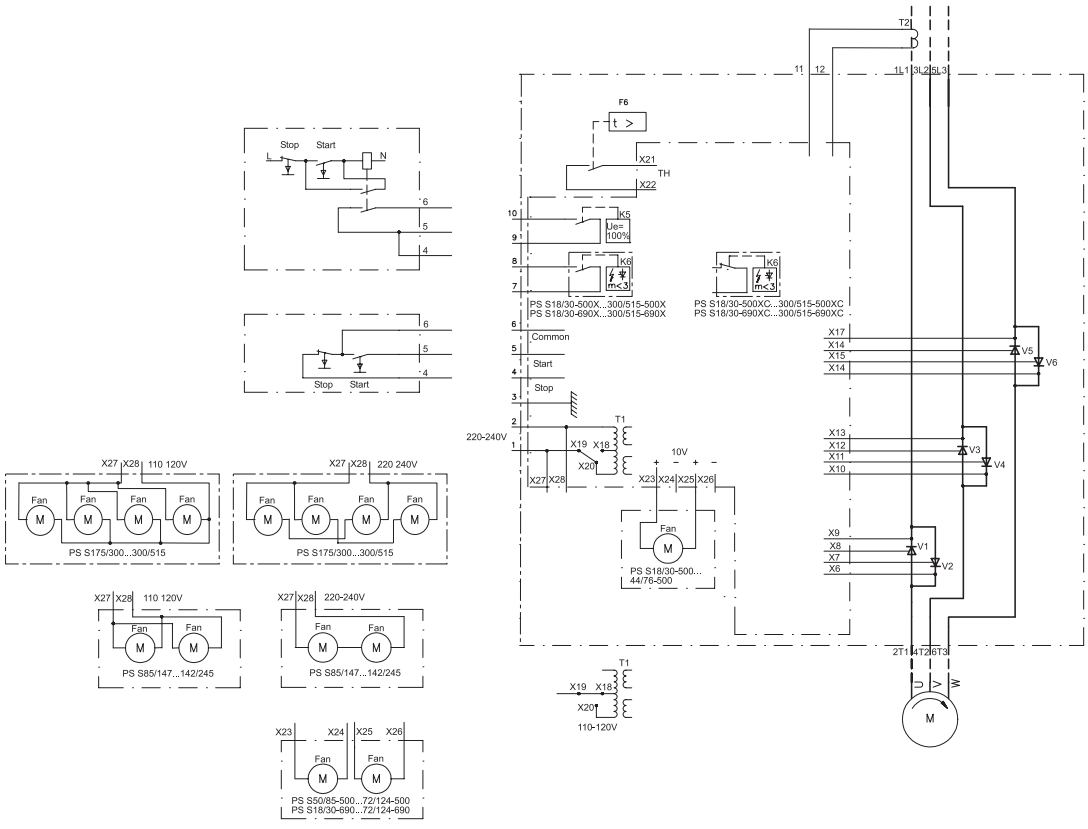
# PSS03 ... PSS300/515
## Circuit diagrams

### PSS03…25



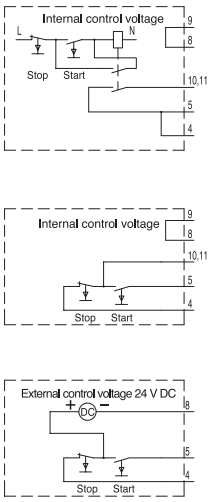

K5 Integrated By-pass
V1, V2 Thyristor

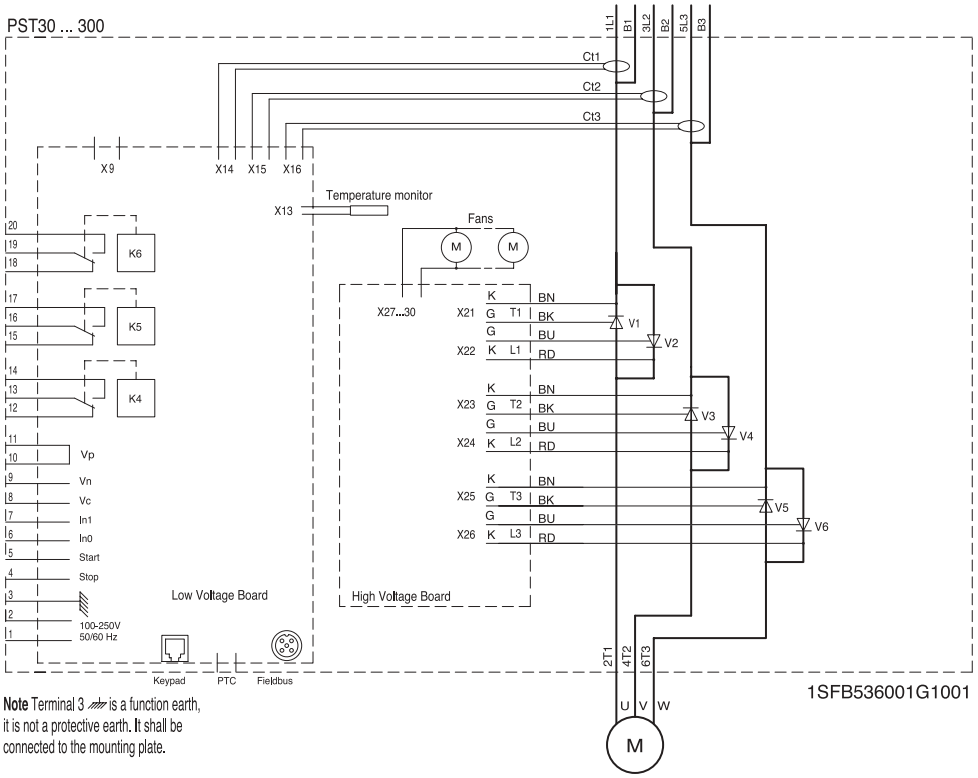
### PSS18/30…300/515




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

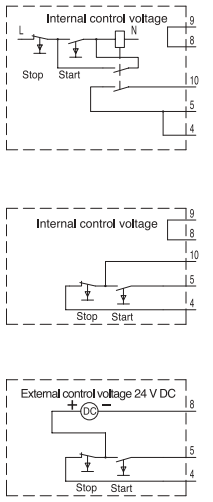
## PST30...300

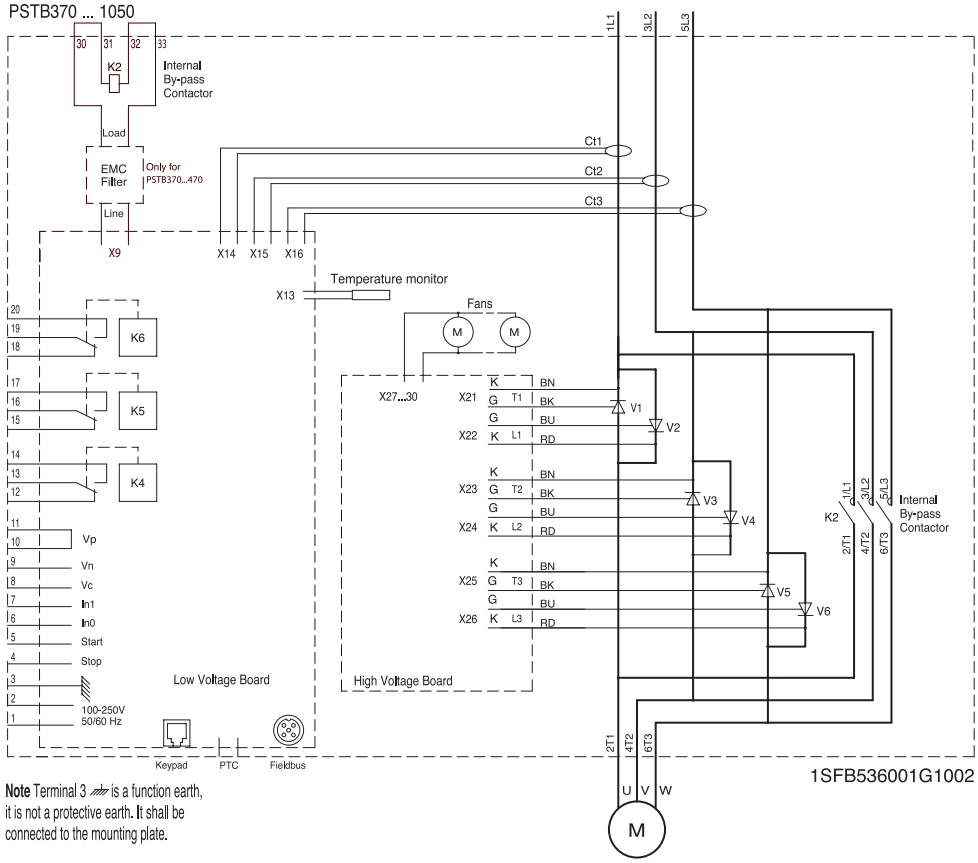



**Note** Terminal 3 ⏚ is a function earth, it is not a protective earth. It shall be connected to the mounting plate.

## PSTB370...1050

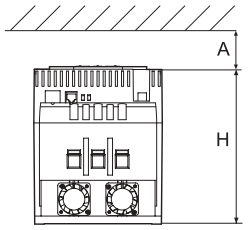


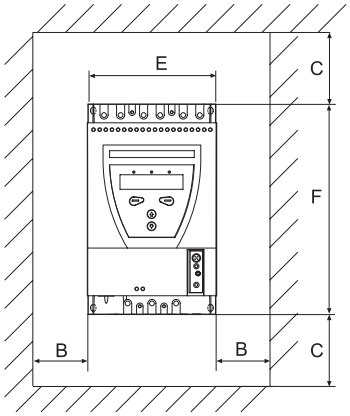




**Note** Terminal 3 ⏚ is a function earth, it is not a protective earth. It shall be connected to the mounting plate.

# PSS ... PST ... PSTB
## Wall mounting instruction

### Minimum distance to wall/front




| | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| **Softstarter type** | **A** | **B** | **C** | **E** | **F** | **H** |
| **PSS_-500 for 500 V** | | | | | | |
| PSS18/30 ... 44/76 | 20 | 10 | 100 | 120 | 200 | 163 |
| PSS50/85 ... 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 |
| **PSS_-690 for 690 V** | | | | | | |
| 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 |
| **PST - all** | | | | | | |
| PST30 ... 72 | 20 | 10 | 100 | 160 | 260 | 196 |
| PST85 ... 300 | 20 | 10 | 100 | 186 | 390 | 270 |
| PST175 ... 300 | 20 | 10 | 100 | 360 | 420 | 270 |
| **PSTB - all** | | | | | | |
| PSTB370 ... 470 | 20 | 15 | 150 | 365 | 460 | 361 |
| PSTB570 ... 1050 | 20 | 15 | 150 | 435 | 515 | 381 |

Dimensions in mm

# Notes

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