

CATALOG

# Softstarters

## PSR, PSE and PSTX



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**Motors use almost one third of the world's generated electricity. So it is safe to say that reliable motor operation is crucial to our modern way of life.**

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# ABB softstarters

## How we are helping the industry

A softstarter from ABB offers you several values and benefits. Whether you are a consultant, OEM, panel builder or end-user, A softstarter will add to your business value by securing motor reliability, improving installation efficiency and increasing application productivity.



SECURE  
MOTOR  
**Reliability**

ABB softstarters help increase your motors lifetime by protecting it from electrical stress. Starting currents are easily optimized to your load, application and motor size. Over ten motor protection features are included to keep your motor safe from different load and network irregularities.



IMPROVE  
INSTALLATION  
**Efficiency**

Reduce your installation time and panel size by having all features you need built into your softstarter. Our softstarters are easy to install thanks to their compact design and many built-in features. The built-in bypass saves energy and space while reducing heat generation. A complete motor starting solution in one unit.



INCREASE  
APPLICATION  
**Productivity**

Reduce the number of stops in your production by allowing your softstarter to do more than just starting. Our softstarters reduce the mechanical stress on your motor application, which will increase your uptime. Torque control, pump cleaning, motor brake and many other features enable you to operate your process at its full potential.



## **Xylem - South Africa**

### **ABB softstarters providing efficiency to the mining industry**

One of Xylem's water solutions helps to prevent flooding in mines. Previous softstarters needed a lot of extra protection equipment. Xylem was looking for a simpler solution that would ensure reliability even at 3,500 meters depth. Reducing the number of components by 80 percent, shortened installation time by 60 percent. Costs cut to half has helped Xylem sell twice as many panels with softstarters as before.

For more examples of how ABB softstarters are helping the industry, visit:

[www.abb.com/lowvoltage/launches/pstx](http://www.abb.com/lowvoltage/launches/pstx)



**Installation  
time reduced  
by 60%**



**Total panel  
cost reduced  
by 50%**

# Common applications for softstarters

## Pumps, fans, compressors and conveyors

A softstarter can do wonders with your operations. Packed with useful features, it reduces the wear of your equipment, improve the reliability of your processes and increase overall productivity.



01 Softstarters controlling pumps

### Pump

#### Eliminating water hammering with torque control

Water hammering is a common problem with pumps and typically results in wear in pipes and valves when starting and stopping the pump. The ABB softstarter feature torque control provides a soft pipe fill during start and eliminates water hammering during stop. The benefits are prolonged lifetime of the system and increased uptime.

#### Keep pipes and pumps clean

Many pumps risk getting clogged over time. This will cause reduced flow and increased risk of pump damage. Thanks to the feature to reverse the direction of the flow and start again with kick-start, ABB softstarters can help prevent and solve pump clogging and associated downtime.

#### Avoid running dry with underload protection

Damages due to pumps running dry can be avoided with the softstarter feature dry pump protection, called underload protection. It stops the motor which saves the pump from additional wear and contributes to prolonging its lifetime.

01



02 Softstarters controlling fans

### Fans

#### Soft starting adjusted to application

Fans normally have a high moment of inertia, which makes starting tough and current high. Using an ABB softstarter, the voltage is increased gradually during start, which reduces the current and removes the inrush peak. It is possible to adjust the settings to fit almost any starting condition, from unloaded to fully loaded.

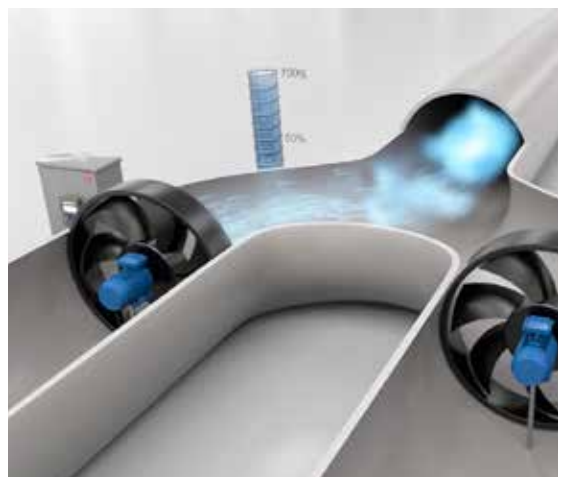
#### Fast stops with motor braking

It can also take a long time to stop a fan. With the dynamic brake feature, also called flux braking, the stopping time can be reduced. This improves process safety when the load has a high moment of inertia and makes fan operation easier for the operator.

#### Avoid unwanted movements with stand still brake

An idle fan that is rotating backwards, due to wind or airflow from another fan, can be kept still using the stand still brake. It prevents unwanted airflow and improves the control of the system without the need for an external mechanical brake.

02





03 Softstarters controlling compressors



04 Softstarters controlling conveyor belts

## Compressors

### Full control of current with current limit

Many applications are sensitive to high or variable starting currents. The feature current limit makes it possible to start the motor securely even in a weaker network, improving the availability of the equipment and system. Reducing the current means reducing the stress on cables, network and motor.

### Full voltage start for scroll compressors

For scroll compressors it is often necessary to start the motor in a very short time while still maintaining a low starting current. Full voltage start is a start mode that gives you almost a direct start but without the current peak.

### Phase reversal protection for problem-free commissioning

A motor rotating in the wrong direction, which may occur due to connecting the phases wrongly, may cause severe damage to a compressor. Using phase reversal protection, the motor won't start in the wrong direction, avoiding costly compressor downtime and repairs.

03



## Conveyors

### Avoid overheating with overload protection

Too much material on a conveyor belt may cause overload and overheating, reducing the reliability and longevity of the motor. ABB's overload protection feature shuts down the motor in case of overload, avoiding overheating.

### Increased flexibility with jog with slow speed

After stopping the belt, it may be necessary to run the motor at low speed to correctly position the belt before resuming operation. The jog with slow speed feature makes it possible to position the belt manually, in both forward and reverse direction, before re-starting the belt. This improves process efficiency and eliminates the need for a variable speed drive, a considerably more expensive solution for solving the problem.

### Continuous operation with limp mode

Shorted thyristor is a possible problem for a softstarter, putting it out of operation until the component has been replaced. Using limp mode, the softstarter will continue to work with one thyristor shorted, avoiding costly unplanned stoppages.

04



# Motor starting

## Why motor starting and stopping matters

There are some common issues associated with starting and stopping electrical motors. Depending on requirement, different starting and stopping methods can be used.



### Direct-on-line

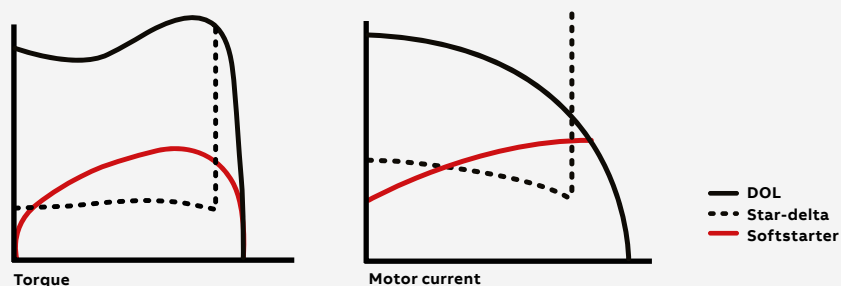
Direct-on-line starting (DOL) is the easiest and most commonly used starting method. It is suitable for stable networks and mechanically stiff and well-dimensioned shaft systems due to the high current and torque generated during start. DOL starting is uncontrolled, which means that the motor will start with maximum current and torque regardless of load type.



### Star-delta

A star-delta starter reduces current and torque during start. The starting current is about one third compared to direct-on-line starting, although it also reduces the starting torque to about 25 percent. Star-delta is not adjustable, so if the torque is reduced too much, the motor will not start. Current peaks will happen when switching from star to delta connection.

Typical torque and current curves from starting a motor using DOL, star-delta and softstarter.







## Softstarter

Like direct-on-line and star delta starters, softstarters are used to start and stop motors in full-speed applications. It eliminates common problems associated with motor starting and stopping, including electrical surges, spikes and high inrush currents. Because it offers soft starting and stopping, a softstarter is the optimal compromise between a direct-on-line or star-delta starter and a variable speed drive in many full-speed motor applications.



## Variable speed drive

Like a softstarter, a variable speed drive (VSD) can perform soft motor starting and stopping. However, the VSD was designed primarily to control motor speed, resulting in energy efficient motor operation in variable speed applications. Using a VSD with the sole purpose of ensuring soft starting and stopping of full-speed motors can therefore be considered an unnecessarily advanced solution.

## Comparison between different starting methods

The table below describes which problems are prevented, using the most common starting methods.

| Comparison   | Starting method type  |                         |             |       |
|--|-----------------------|-------------------------|-------------|-------|
|  | Direct on line<br>DOL | Star-delta start<br>Y/D | Softstarter | Drive |
| Reduce high inrush current                             | No                    | Yes                     | Yes         | Yes   |
| Reduce heavy wear on bearings, shafts, gear boxes, etc | No                    | Reduced                 | Yes         | Yes   |
| Prevent slipping belts                                 | No                    | Reduced                 | Yes         | Yes   |
| Remove torque/current peaks                            | No                    | No                      | Yes         | Yes   |
| Prevent water hammering in piping system               | No                    | No                      | Yes         | Yes   |
| Need of variable speed control                         | No                    | No                      | No          | Yes   |

# ABB softstarters

## A part of your motor starting solution

Motor starting requires several components to work perfectly together. ABB is a one-stop shop for motor starting, offering all the necessary components and complete motor starting solutions, proven together in numerous installations worldwide.



### Can I use a softstarter for an ATEX motor?

ABB softstarters PSR, PSE and PSTX can be used to start ATEX classified motors in Ex environments if the following considerations are taken into account:



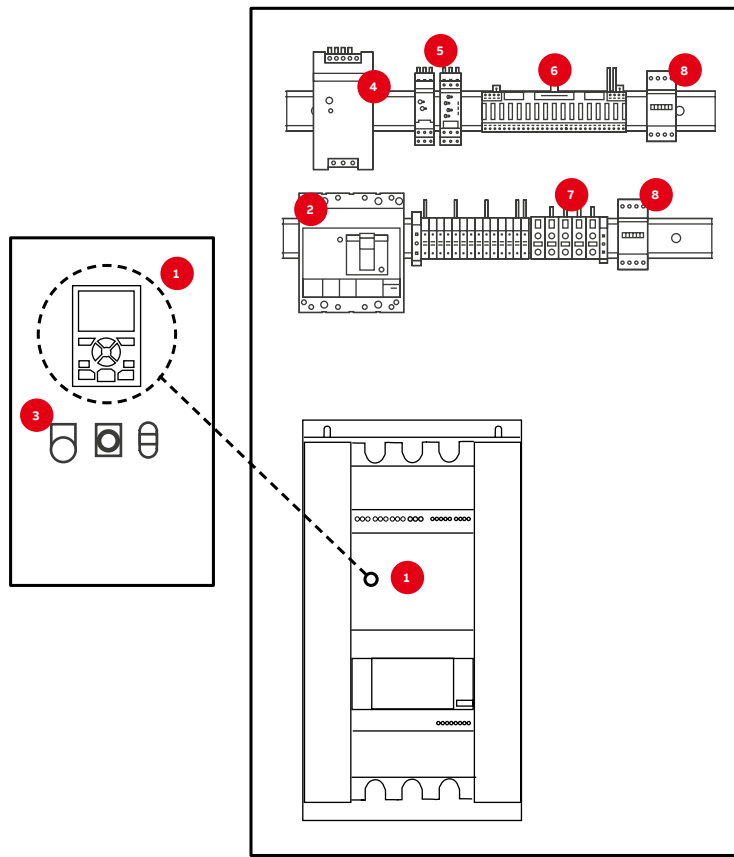
- The softstarter has to be placed outside the Ex area. Either in another location or inside an ATEX approved panel.
- A separate ATEX approved overload relay from ABB has to be used together with a line contactor. This overload relay will replace the built-in EOL in The softstarter and has an ATEX approved tripping curve.
- Select softstarter according to normal or heavy-duty start depending on application and line contactor and overload relay with type 2 coordination.



### Can I use a softstarter on a ship?

ABB softstarters PSE and PSTX have marine approvals and are certified for marine environment.

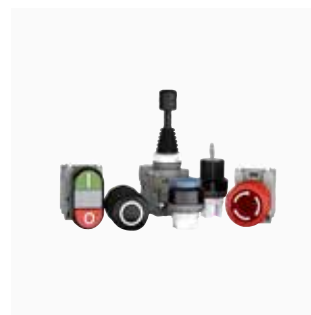
Ships uses IT-networks which means that there is a floating electrical ground. It is possible to use an ABB softstarter in such a network but it is recommended to not connect the functional ground on the softstarter to the ship to avoid disturbances from the network to effect the electronics inside the softstarter.



**01 Softstarter**  
 - Soft start and stop with reduced current  
 - Features to improve process productivity  
 - Detachable keypad for front door mounting on a panel



**02 Short circuit breaker MCCB**  
 - Short circuit protection of motor  
 - Possibility for electrical isolation



**03 Pilot devices**  
 - Remote control of motor  
 - Indication of Softstarter and motor status with light and sound  
 - Emergency stop of motor



**04 Power supply CP-E**  
 - Possible to use 24V AC/DC equipments in the panel, e.g. PLC



**05 Liquid level monitoring relays CM-ENS**  
 - Monitoring and signalling the water level



**06 PLC AC500**  
 - Automatic control  
 - Remote communication



**07 Terminal blocks SNK range**  
 - Easy installation of control wires



**08 Line contactor AF**  
 - Isolation at stop  
 - Isolation at faults  
 - Emergency stop  
 - Back-up DOL starter

# Softstarters portfolio

## Overview



### PSR - The compact range

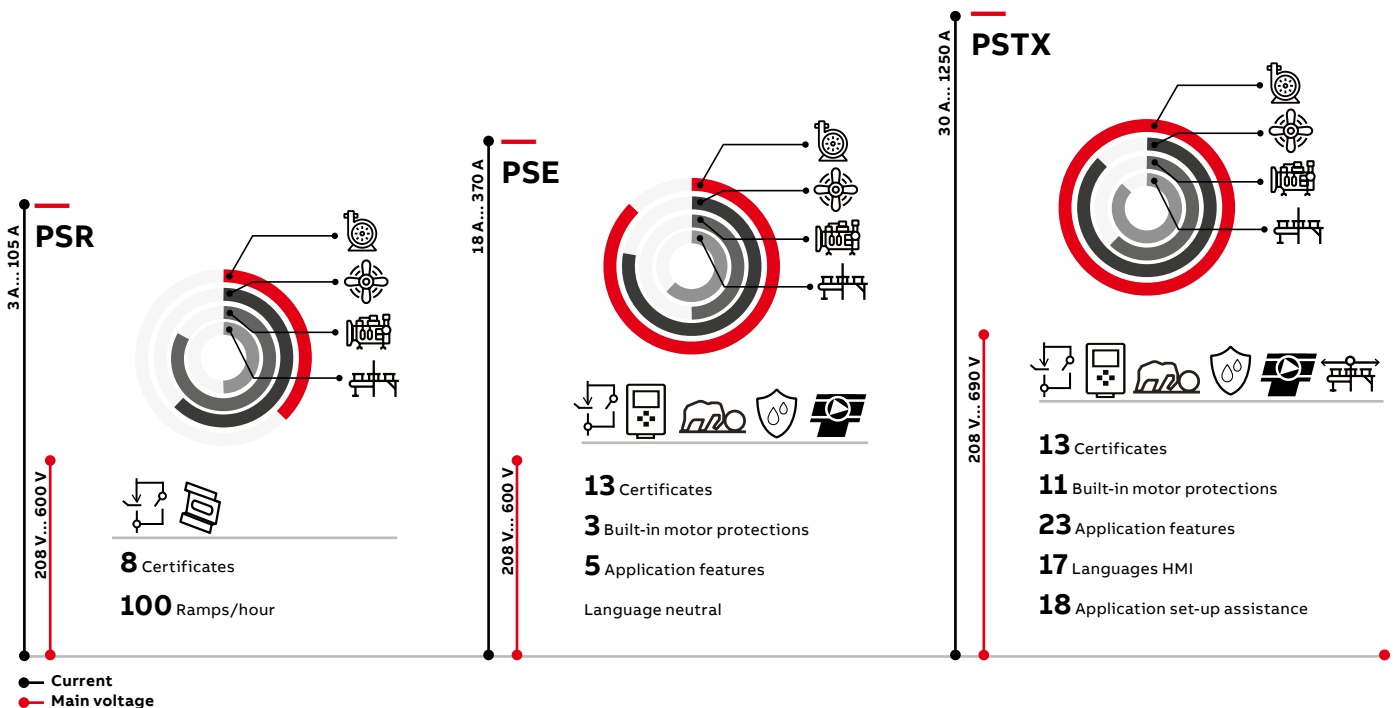
PSR is our most compact softstarter with basic benefits and values. PSR can handle up to 100 starts per hour. Suitable for small motors.

### PSE - The efficient range

The new generation PSE is a true general purpose softstarter. It's a perfect balance between high starting capacity and cost efficiency. Now featuring built-in fieldbus communication.

### PSTX - The advanced range

PSTX is our most advanced softstarter with full control and motor protection built-in. PSTX is the most complete alternative for any motor starting application. Featuring built-in modbus and anybus modules that support all major communication protocols.



# Softstarters selection

ABB softstarters offering consists of three ranges, covering every need. The products help you secure motor reliability, improve installation efficiency and increase application productivity.



## PSR – The compact range

- When soft start and stop benefits and values are requested
- When operating a small motor
- When up to 100 starts per hour are requested

## PSE – The efficient range

- When there is limited space
- When common softstarter functions and protections are needed
- When communication is needed

## PSTX – The advanced range

- When full control and motor protection is needed
- When an advanced softstarter with an extensive functionality is needed
- When motor is connected inside delta or in 690 V

| Step | Process   |
|------|---|
| 1    | <p><b>Determine softstarter series</b></p> <p>First, determine the softstarter series that fulfill the needs of the application and motor. Use the guide on the left to explore the three series and the power range each one covers.</p>   |
| 2    | <p><b>Match the softstarter size with the motor current</b></p> <p>When the softstarter series is selected, the correct size should now be determined.</p> <p>The selection of a softstarter is based on the current. Find the softstarter that corresponds to the motor current.</p>   |
| 3    | <p><b>Fine tune and select the correct size</b></p> <p>The last step is to fine tune the selection, and there are three different factors to consider:</p> <ol style="list-style-type: none"> <li>Normal or a heavy load: If the load is characterized as a heavy load, select the next size softstarter in the series.</li> <li>High ambient temperature</li> <li>High altitude</li> </ol> <p>Use the equations and the table on the right to find the correct de-rating equation.</p> |

Note: If the application is more complicated and there are specific requirements on acceleration time, maximum starting current or many starts per hour, the software proSoft should be used for a fine tuned selection.

| Altitude formula  |  |
|---|--|
| De-rate for altitudes between 1000-4000 m or 3280-13123 ft with the following equations for all softstarters: |  |
| In meters: % of I <sub>e</sub> = 100 – (x-1000)/150   |  |
| In feet: % of FLA = 100 – (y-3280)/480  |  |
| Where x/y is the actual altitude in m/ft  |  |
| Temperature equations   |  |
| PSTX and PSR In Celsius:  | 40...60 °C: Reduce I <sub>e</sub> with 0.8%/°C |
| PSTX and PSR In Fahrenheit:   | 104...140 °F: Reduce FLA with 0.44%/°F         |
| PSE In Celsius:   | 40...60 °C: Reduce I <sub>e</sub> with 0.6%/°C |
| PSE In Fahrenheit:  | 104...140 °F: Reduce FLA with 0.33%/°F         |
| Typical applications  |  |
| Normal duty start   | Heavy duty                                     |
| Bow thrusters   | Centrifugal fan                                |
| Centrifugal pump  | Conveyor belt (long)                           |
| Compressors   | Crusher  |
| Conveyor belt (short)   | Stirrer  |
| Elevator  | Sawmill  |

# Softstarters benefits and features

## Case studies



### SECURE MOTOR Reliability

#### Increase your motors lifetime...

With ABB softstarters, starting currents are easily optimized to your load, application and motor size.

#### ...by protecting it from electrical stresses.

Over ten motor protection features are included to keep your motor safe from overloads and network irregularities.

#### RHOSS keeps air flowing with secured reliability

RHOSS, an HVAC specialist from Italy has managed to reduce the starting currents by 60% while keeping the short starting time that a scroll compressor needs.

**Starting currents reduced by 60%**



### IMPROVE INSTALLATION Efficiency

#### Reduce your installation time and panel size...

ABB softstarters are easy to install thanks to their compact design and many built-in features.

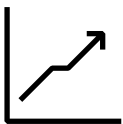
#### ...by having everything that you need built in.

Built-in bypass saves energy and space while reducing heat generation: a complete motor starting solution in one unit designed and verified by ABB.

#### Xylem - South Africa ABB softstarters providing efficiency to the mining industry

Xylem reducing the number of components by 80%, shortened installation time by 60%. Costs cut to half has helped Xylem sell twice as many panels with softstarters as before.

**Total panel costs reduced by 50%**



### INCREASE APPLICATION Productivity

#### Reduce the number of production stops...

ABB softstarters reduce mechanical stress on your application which increases uptime.

#### ...by letting the softstarter do more than just starting.

Torque control, pump cleaning, motor break and many more features enables you to use your process to its full potential.

#### Yantai Guhe cuts costs by stopping pumps

Increasing application productivity at Yantai Guhe, a leading Chinese pump manufacturer, increasing productivity by solved water hammering with PSE and are now saving costs and winning orders.

**Reduced maintenance costs by 40%**



| Softstarter features                      | PSR | PSE | PSTX |
|---|-----|-----|------|
| Current limit                             | -   | ●   | ●    |
| Current limit ramp and dual current limit | -   | -   | ●    |
| Electronic motor overload protection      | -   | ●   | ●    |
| Dual overload protection                  | -   | -   | ●    |
| Underload protection                      | -   | ●   | ●    |
| Power factor underload protection         | -   | -   | ●    |
| Locked rotor protection                   | -   | ●   | ●    |
| Current/Voltage imbalance protection      | -   | -   | ●    |
| Phase reversal protection                 | -   | -   | ●    |
| Customer defined protection               | -   | -   | ●    |
| Motor heating                             | -   | -   | ●    |
| PTC/PT100 input for motor protection      | -   | -   | ●    |
| Overvoltage/undervoltage protection       | -   | -   | ●    |
| Earth-fault protection                    | -   | -   | ●    |

● = standard, ○ = option, - = not available



| Softstarter features             | PSR | PSE | PSTX |
|----------------------------------|-----|-----|------|
| Built-in bypass                  | ●   | ●   | ●    |
| Inside-delta connection possible | -   | -   | ●    |
| Graphical display and keypad     | -   | ●   | ●    |
| Detachable keypad                | -   | -   | ●    |
| Motor runtime and start count    | -   | -   | ●    |
| Programmable warning functions   | -   | -   | ●    |
| Diagnostics                      | -   | -   | ●    |
| Overload time-to-trip            | -   | -   | ●    |
| Overload time-to-cool            | -   | -   | ●    |
| Analog output                    | -   | ●   | ●    |
| Fieldbus communication           | ○   | ●   | ●    |
| Event log                        | -   | ○   | ●    |
| Multiple languages               | -   | -   | 17   |
| Electricity metering             | -   | -   | ●    |

● = standard, ○ = option, - = not available



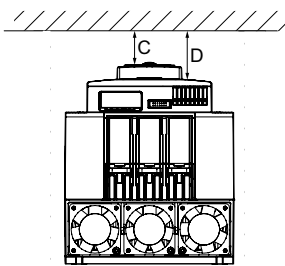
| Softstarter features                 | PSR | PSE | PSTX |
|--------------------------------------|-----|-----|------|
| Torque control                       | -   | ●   | ●    |
| Torque limit                         | -   | -   | ●    |
| Coated PCBA                          | -   | ●   | ●    |
| Limp mode                            | -   | -   | ●    |
| Jog with slow speed forward/ reverse | -   | -   | ●    |
| Dynamic brake                        | -   | -   | ●    |
| Stand still brake                    | -   | -   | ●    |
| Sequence start                       | -   | -   | ●    |
| Full voltage start                   | -   | -   | ●    |
| Kick start                           | -   | ●   | ●    |
| Automatic pump cleaning              | -   | -   | ●    |

● = standard, ○ = option, - = not available

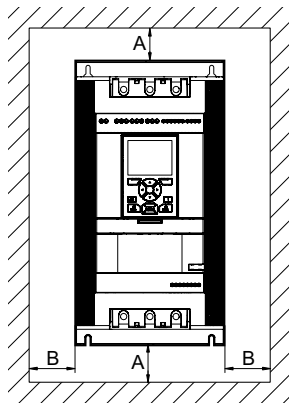
# Wall mounting Instructions

| Product               | Minimum distance to wall mm (in) |           |           |           |
|-----------------------|----------------------------------|-----------|-----------|-----------|
|                       | A                                | B         | C         | D         |
| <b>PSR</b>            |                                  |           |           |           |
| PSR3 ... PSR16        | 0                                | 0         | 25 (0.98) | N/A       |
| PSR25 ... PSR30       | 0                                | 0         | 25 (0.98) | N/A       |
| PSR37 ... PSR45       | 0                                | 0         | 25 (0.98) | N/A       |
| PSR60 ... PSR105      | 0                                | 0         | 25 (0.98) | N/A       |
| <b>PSE</b>            |                                  |           |           |           |
| PSE18 ... PSE105      | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | N/A       |
| PSE142 ... PSE170     | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | N/A       |
| PSE210 ... PSE370     | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | N/A       |
| <b>PSTX</b>           |                                  |           |           |           |
| PSTX30 ... PSTX105    | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | 35 (1.38) |
| PSTX142 ... PSTX170   | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | 35 (1.38) |
| PSTX210 ... PSTX370   | 100 (3.94)                       | 10 (0.39) | 20 (0.79) | 35 (1.38) |
| PSTX470 ... PSTX570   | 150 (5.91)                       | 15 (0.59) | 20 (0.79) | 35 (1.38) |
| PSTX720 ... PSTX840   | 150 (5.91)                       | 15 (0.59) | 20 (0.79) | 35 (1.38) |
| PSTX1050 ... PSTX1250 | 150 (5.91)                       | 15 (0.59) | 20 (0.79) | 35 (1.38) |

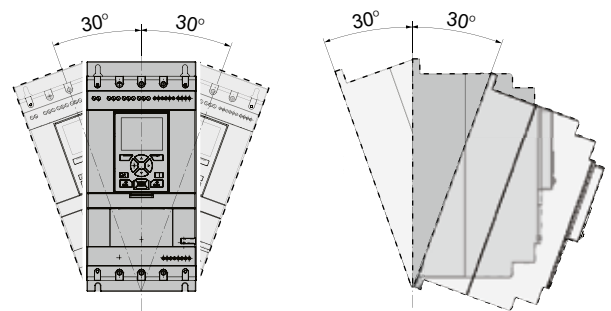
Minimum distance to front



Minimum distance to wall



Maximum mounting angle








## Items included in the box with the softstarter

|                     | Multi-language manual | Terminal kit | Cable and mounting kit for detachable keypad |
|---------------------|-----------------------|--------------|--|
| PSR3 ... PSR105     | •                     | —            | —  |
| PSE18 ... PSE370    | •                     | •            | —  |
| PSTX30 ... PSTX1250 | •                     | —            | •  |



# Certifications and approvals

The table below shows the certifications and approvals for ABB softstarters. For other certifications and/or approvals, please contact ABB.

| Certifications and approvals |  |  |  |   |                |   |                 |  |           |                     |     |     |             |
|------------------------------|--|--|--|---|----------------|---|-----------------|--|-----------|---------------------|-----|-----|-------------|
| Abbreviation approved in     | Certifications   |  |  |   |                |   |                 | Approvals: ship classification societies |           |                     |     |     |             |
|                              |  CE<br>EU |  cULus<br>Canada<br>USA |  CCC<br>China |  EAC<br>Russia | ANCE<br>Mexico |  C-tick<br>Australia | KC<br>Korea     | ABS                                      | DNV<br>GL | Lloyd's<br>Register | CCS | PRS | Class<br>NK |
| PSR3 ... PSR105              | •  | •  | •  | •   | •              | •   | • <sup>1)</sup> | —  | —         | —                   | —   | •   | —           |
| PSE18 ... PSE370             | •  | •  | •  | •   | •              | •   | •               | •  | •         | •                   | •   | •   | •           |
| PSTX30 ... PSTX1250          | •  | •  | •  | •   | •              | •   | •               | •  | •         | •                   | •   | •   | •           |

Note: • Standard design approved, the products wear the certification mark when it is required.

<sup>1)</sup> Not for PSR37-45

## Directives and standards

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

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**The PSR softstarter is the most compact of all the softstarter ranges which allows for design of a compact starting equipment.**

**The PSR combined with a manual motor starter makes up a far more compact starting solution than the complex star-delta starter, and with the built-in bypass, the energy losses inside the softstarter are highly reduced.**

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# PSR

## The compact range

|           |                         |
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# PSR - The compact range

## Introduction



- Rated operational current: 3...105 A
- Operational voltage: 208...600 V AC
- Wide rated control supply voltage: 100...240 V AC, 50/60 Hz or 24 V AC/DC
- Two-phase controlled
- Soft start with voltage ramp
- Soft stop with voltage ramp
- Built-in bypass for energy saving and easy installation
- Easy set-up by three potentiometers
- Fieldbus communication with fieldbus plug adapter and the fieldbus plug
- Run and Top of Ramp relays available for monitoring
- Connection kits available for connection to ABB's manual motor starters (MMS)



### SECURE MOTOR Reliability

#### Reduce the electrical stresses and keep the motor protected with the MMS

The PSR reduces the starting current for the motor. The possibility to connect it to the manual motor starter makes it possible to build a compact and complete starting solution with overload and short-circuit protection.



### IMPROVE INSTALLATION Efficiency

#### Saving time and money with built-in bypass and easy set-up

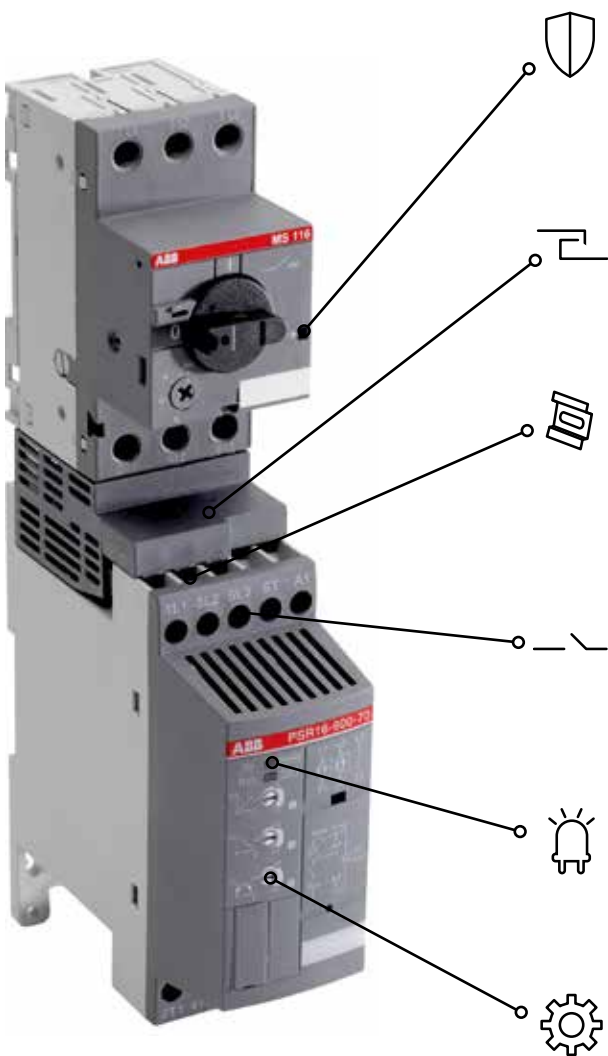
On the PSR, the bypass is built in and verified by ABB, saving you time during installation and space in your panel. Set-up is done through three potentiometers making it very fast and easy.



### INCREASE APPLICATION Productivity

#### Reduce the mechanical stresses on your motor

Soft start and stop with PSR will reduce mechanical wear and tear on the application and increase the availability and uptime.



**Motor protection with manual motor starter**

Use the PSR together with the MMS to get a complete motor starter with soft start and stop together with overload and short circuit protection.

**Connection kit (optional)**

The connection kits simplifies installation of the PSR by making the connection to the MMS screwless.

**Screw or DIN-rail mounted**

PSR is fast and easy to install by using screw mounting or DIN-rail mounting (PSR3 ... PSR45).

**Output signal relays**

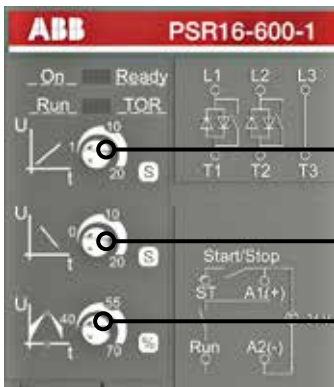
PSR has output relays for Run and Top of ramp (PSR25 ... PSR105).

**LED indicators**

PSR has LED indicators for On/Ready and Run/Top of ramp.

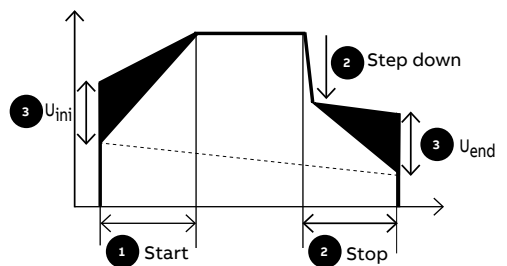
**Three potentiometers for settings**

Set-up is made very easy with only three potentiometers, for start ramp time, stop ramp time and initial/end voltage level.



**Settings**

- 1. Start = 1...20 sec
- 2. Stop = 0...20 sec - including the step down voltage Step down = 2% reduction for each second increased stop ramp
- 3.  $U_{ini}$  = 40...70% results in end voltage = 30...60%



## PSR - The compact range

### Overview



PSR3 ... PSR16



PSR25 ... PSR30



PSR37 ... PSR45



PSR60 ... PSR105

| Normal start<br>In-line connected<br>(400 V) kW<br>IEC, max. A<br>(440-480 V) hp<br>UL, max. FLA | PSR3 | PSR6 | PSR9 | PSR12 | PSR16 | PSR25 | PSR30 | PSR37 | PSR45 | PSR60 | PSR72 | PSR85 | PSR105 <sup>2)</sup> |
|--|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
|  | 1.5  | 3    | 4    | 5.5   | 7.5   | 11    | 15    | 18.5  | 22    | 30    | 37    | 45    | 55                   |
|  | 3.9  | 6.8  | 9    | 12    | 16    | 25    | 30    | 37    | 45    | 60    | 72    | 85    | 105                  |
|  | 2    | 3    | 5    | 7.5   | 10    | 15    | 20    | 25    | 30    | 40    | 50    | 60    | 75                   |
|  | 3.4  | 6.1  | 9    | 11    | 15.2  | 24.2  | 28    | 34    | 46.2  | 59.4  | 68    | 80    | 104                  |

400 V, 40 °C

Using manual motor  
starters type 1  
coordination will  
be achieved<sup>1)</sup>

Manual motor starter (50 kA)

MS116

MS132

MS165

MS495

Using gG fuses type 1  
coordination will  
be achieved<sup>1)</sup>

Fuse protection (50 kA) gG Fuse

10 A

16 A

25 A

32 A

50 A

63 A

100 A

125 A

200 A

250 A

Suitable switch fuse for  
the above gG fuses<sup>1)</sup>

Switch fuse

OS32G

OS125G

OS250

J-type fuses for UL  
coordination<sup>1)</sup>

Max. fuse, J-type

35 A

60 A

90 A

110 A

125 A

150 A

200 A

Overload protection is  
used to protect the motor  
from over heating<sup>1)</sup>

Thermal overload relay

TF42DU

TA75DU

TA110DU

The line contactor is not  
required for the softstarter  
itself but often used  
to open if OL trips<sup>1)</sup>

Line contactor

AF9

AF12

AF16

AF26

AF30

AF38

AF52

AF65

AF80

AF96

AF116

<sup>1)</sup> These are an example of coordination. For more examples see: [applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)

<sup>2)</sup> Can be used with MS495 up to 100 A

## PSR - The compact range

Normal starts, class 10, in-line

Ordering details

### Typical applications

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



For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on:  
[new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



PSR3 ... PSR16



PSR25 ... PSR30



PSR37 ... PSR45



PSR60 ... PSR105

Rated operational voltage  $U_e$ , 208...600 V AC

Rated control supply voltage,  $U_s$ , 100...240 V AC, 50/60 Hz

| IEC                             |       |       | UL/CSA                          |       |           |           | Type      | Order code | Weight        |                 |             |
|---------------------------------|-------|-------|---------------------------------|-------|-----------|-----------|-----------|------------|---------------|-----------------|-------------|
| Rated operational power current |       |       | Rated operational power current |       |           |           |           |            | pkg/1pce      |                 |             |
| 230 V                           | 400 V | 500 V | 200/208 V                       |       | 220/240 V | 440/480 V | 550/600 V |            |               |                 |             |
| $P_e$                           | $P_e$ | $P_e$ | $I_e$                           | $P_e$ | $P_e$     | $P_e$     | $P_e$     | FLA        |               |                 |             |
| kW                              | kW    | kW    | A                               | hp    | hp        | hp        | hp        | A          |               | kg (lb)         |             |
| 0.75                            | 1.5   | 2.2   | 3.9                             | 0.5   | 0.75      | 2         | 2         | 3.4        | PSR3-600-70   | 1SFA896103R7000 | 0.45 (0.99) |
| 1.5                             | 3     | 4     | 6.8                             | 1     | 1.5       | 3         | 5         | 6.1        | PSR6-600-70   | 1SFA896104R7000 | 0.45 (0.99) |
| 2.2                             | 4     | 4     | 9                               | 2     | 2         | 5         | 7.5       | 9          | PSR9-600-70   | 1SFA896105R7000 | 0.45 (0.99) |
| 3                               | 5.5   | 5.5   | 12                              | 3     | 3         | 7.5       | 10        | 11         | PSR12-600-70  | 1SFA896106R7000 | 0.45 (0.99) |
| 4                               | 7.5   | 7.5   | 16                              | 3     | 5         | 10        | 10        | 15.2       | PSR16-600-70  | 1SFA896107R7000 | 0.45 (0.99) |
| 5.5                             | 11    | 15    | 25                              | 7.5   | 7.5       | 15        | 20        | 24.2       | PSR25-600-70  | 1SFA896108R7000 | 0.65 (1.43) |
| 7.5                             | 15    | 18.5  | 30                              | 7.5   | 10        | 20        | 25        | 28         | PSR30-600-70  | 1SFA896109R7000 | 0.65 (1.43) |
| 7.5                             | 18.5  | 22    | 37                              | 10    | 10        | 25        | 30        | 34         | PSR37-600-70  | 1SFA896110R7000 | 1.00 (2.20) |
| 11                              | 22    | 30    | 45                              | 15    | 15        | 30        | 40        | 46.2       | PSR45-600-70  | 1SFA896111R7000 | 1.00 (2.20) |
| 15                              | 30    | 37    | 60                              | 20    | 20        | 40        | 50        | 59.4       | PSR60-600-70  | 1SFA896112R7000 | 2.20 (4.85) |
| 22                              | 37    | 45    | 72                              | 20    | 25        | 50        | 60        | 68         | PSR72-600-70  | 1SFA896113R7000 | 2.27 (5.00) |
| 22                              | 45    | 55    | 85                              | 25    | 30        | 60        | 75        | 80         | PSR85-600-70  | 1SFA896114R7000 | 2.27 (5.00) |
| 30                              | 55    | 55    | 105                             | 30    | 40        | 75        | 100       | 104        | PSR105-600-70 | 1SFA896115R7000 | 2.27 (5.00) |









Rated operational voltage  $U_e$ , 208...600 V AC

Rated control supply voltage,  $U_s$ , 24 V AC/DC, 50/60 Hz

|      |      |      |     |     |      |     |     |      |               |                 |             |
|------|------|------|-----|-----|------|-----|-----|------|---------------|-----------------|-------------|
| 0.75 | 1.5  | 2.2  | 3.9 | 0.5 | 0.75 | 2   | 2   | 3.4  | PSR3-600-11   | 1SFA896103R1100 | 0.45 (0.99) |
| 1.5  | 3    | 4    | 6.8 | 1   | 1.5  | 3   | 5   | 6.1  | PSR6-600-11   | 1SFA896104R1100 | 0.45 (0.99) |
| 2.2  | 4    | 4    | 9   | 2   | 2    | 5   | 7.5 | 9    | PSR9-600-11   | 1SFA896105R1100 | 0.45 (0.99) |
| 3    | 5.5  | 5.5  | 12  | 3   | 3    | 7.5 | 10  | 11   | PSR12-600-11  | 1SFA896106R1100 | 0.45 (0.99) |
| 4    | 7.5  | 7.5  | 16  | 3   | 5    | 10  | 10  | 15.2 | PSR16-600-11  | 1SFA896107R1100 | 0.45 (0.99) |
| 5.5  | 11   | 15   | 25  | 7.5 | 7.5  | 15  | 20  | 24.2 | PSR25-600-11  | 1SFA896108R1100 | 0.65 (1.43) |
| 7.5  | 15   | 18.5 | 30  | 7.5 | 10   | 20  | 25  | 28   | PSR30-600-11  | 1SFA896109R1100 | 0.65 (1.43) |
| 7.5  | 18.5 | 22   | 37  | 10  | 10   | 25  | 30  | 34   | PSR37-600-11  | 1SFA896110R1100 | 1.00 (2.20) |
| 11   | 22   | 30   | 45  | 15  | 15   | 30  | 40  | 46.2 | PSR45-600-11  | 1SFA896111R1100 | 1.00 (2.20) |
| 15   | 30   | 37   | 60  | 20  | 20   | 40  | 50  | 59.4 | PSR60-600-11  | 1SFA896112R1100 | 2.20 (4.85) |
| 22   | 37   | 45   | 72  | 20  | 25   | 50  | 60  | 68   | PSR72-600-11  | 1SFA896113R1100 | 2.27 (5.00) |
| 22   | 45   | 55   | 85  | 25  | 30   | 60  | 75  | 80   | PSR85-600-11  | 1SFA896114R1100 | 2.27 (5.00) |
| 30   | 55   | 55   | 105 | 30  | 40   | 75  | 100 | 104  | PSR105-600-11 | 1SFA896115R1100 | 2.27 (5.00) |

## PSR - The compact range

### Accessories

| Article   | Type   | Order code          | Pkg qty        | Weight pkg /1pce<br>kg (lb) |   |       |         |
|---|--|---------------------|----------------|-----------------------------|---|-------|---------|
| <b>Connection kit</b>   |  | <b>Breaker type</b> |                |                             |   |       |         |
|    | PSR3...16  | MS116/132           | PSR16-MS116    | 1SFA896211R1001             | 1 | 0.022 | (0.049) |
|    | PSR25...30   | MS132               | PSR30-MS132    | 1SFA896212R1001             | 1 | 0.040 | (0.088) |
|    | PSR37...45   | MS165               | PSR45-MS165    | 1SFA896216R1001             | 1 | 0.050 | (0.110) |
|    | PSR60...72   | MS165               | PSR60-MS165    | 1SFA896215R1001             | 1 | 0.050 | (0.110) |
|    | PSR60...105  | MS495               | PSR105-MS495   | 1SAM501903R1001             | 1 | 0.034 | (0.075) |
| <b>Fan</b>  |  |                     |                |                             |   |       |         |
|    | PSR3 ... PSR45   |                     | PSR-FAN3-45A   | 1SFA896311R1001             | 1 | 0.010 | (0.022) |
|   | PSR60 ... PSR105   |                     | PSR-FAN60-105A | 1SFA896313R1001             | 1 | 0.013 | (0.029) |
| <b>Terminal enlargements</b>  |  |                     |                |                             |   |       |         |
|  | PSR60 ... PSR105 Wire range mm <sup>2</sup><br>1 x 10...50 mm <sup>2</sup> , 2 x 10...25 mm <sup>2</sup> |                     | PSLW-72        | 1SFA899002R1072             | 1 | 0.150 | (0.033) |
| <b>Fieldbus plug connection, cable included</b>                                     |  |                     |                |                             |   |       |         |
|  | Fieldbus plug adaptor  |                     | PS-FBPA        | 1SFA896312R1002             | 1 | 0.060 | (0.132) |



# PSR - The compact range

## Technical data

| Technical data                     |  |
|------------------------------------|--|
| Rated insulation voltage $U_i$     | 600 V  |
| Rated operational voltage $U_e$    | 208...600 V +10%/-15%, 50/60 Hz ±5%  |
| Rated control supply voltage $U_s$ | 100...240 V AC, 50/60Hz ±5% or 24 V AC/DC, +10%/-15%,                      |
| Starting capacity at $I_e$         | 4 x $I_e$ for 6 sec.   |
| Number of starts per hour          | See table below for details  |
| standard                           | 10 <sup>1)</sup>   |
| with aux. fan                      | 20 <sup>1)</sup>   |
| Ambient temperature                |  |
| during operation                   | -25...+60 °C (-13...+140 F) <sup>2)</sup>                                  |
| during storage                     | -40...+70 °C (-40...+158 F)  |
| Maximum altitude                   | 4000 m (13123 ft) <sup>3)</sup>  |
| Degree of protection               | <b>PSR3 - PSR30</b> <span style="float:right"><b>PSR37 - PSR105</b></span> |
| main circuit                       | IP20 <span style="float:right">IP10</span>                                 |
| control circuit                    | IP20   |
| Power consumption:                 | <b>PSR3 - PSR30</b> <span style="float:right"><b>PSR37 - PSR105</b></span> |
| Supply circuit                     |  |
| at 100...240 V AC                  | 12 VA <span style="float:right">10 VA</span>                               |
| at 24 V AC/DC                      | 5 W  |

| Softstarter types              | PSR3   | PSR6  | PSR9  | PSR12  | PSR16  | PSR25  | PSR30 | PSR37  | PSR45 | PSR60                                     | PSR72 | PSR85 | PSR105 |
|--------------------------------|--|-------|-------|--------|--------|--|-------|--|-------|---|-------|-------|--------|
| Max. Power loss at rated $I_e$ | 0.7 W  | 2.9 W | 6.5 W | 11.5 W | 20.5 W | 25 W   | 36 W  | 5.5 W  | 8.1 W | 3.6 W                                     | 5.2 W | 7.2 W | 6.6 W  |
| Connectable cable area         |  |       |       |        |        | 1 x 2.5...10 mm <sup>2</sup> (14...8 AWG)    |       | 1 x 6...35 mm <sup>2</sup> (10...2 AWG)      |       | 1 x 10...95 mm <sup>2</sup> (8...4/0 AWG) |       |       |        |
| main circuit                   | 1 x 0.75...2.5 mm <sup>2</sup> (19...14 AWG) |       |       |        |        | 2 x 2.5...10 mm <sup>2</sup> (14...8 AWG)    |       | 2 x 6...16 mm <sup>2</sup> (10...6 AWG)      |       | 2 x 6...35 mm <sup>2</sup> (10...2 AWG)   |       |       |        |
| control circuit                | 1 x 0.75...2.5 mm <sup>2</sup> (19...14 AWG) |       |       |        |        | 1 x 0.75...2.5 mm <sup>2</sup> (19...14 AWG) |       | 2 x 0.75...1.5 mm <sup>2</sup> (19...16 AWG) |       |   |       |       |        |

| Signal relays                         |       |
|---------------------------------------|-------|
| for run signal resistive load         | 3 A   |
| AC-15 (contactor)                     | 0.5 A |
| for top of ramp signal resistive load | -     |
| AC-15 (contactor)                     | -     |

| LED                 |       |
|---------------------|-------|
| for On/Ready        | Green |
| for Run/Top of ramp | Green |

| Settings                 |             |
|--------------------------|-------------|
| Ramp time during start   | 1...20 sec. |
| Ramp time during stop    | 0...20 sec. |
| Initial- and end voltage | 40...70%    |

<sup>1)</sup> Valid for 50% on time and 50% off time. If other data is required, contact your local ABB office.

<sup>2)</sup> Above 40 °C (104 F) up to max. 60 °C (140 F) reduce the rated current with 0.8% per °C (0.44% per F).

<sup>3)</sup> When used at high altitudes, above 1000 meters (3281 ft) up to 4000 meters (13123 ft), de-rate the rated current using the following formula.

$$[\% \text{ of } I_e = 100 - \frac{x-1000}{150}] \times \text{actual altitude of the softstarter in meter.}$$

### Number of starts per hour using PSR softstarters

| Motor current $I_e$ | Starts/hour without auxiliary fan |    |        |    |        |    |        |     | Starts/hour with auxiliary fan |    |        |    |        |    |        |     |
|---------------------|-----------------------------------|----|--------|----|--------|----|--------|-----|--------------------------------|----|--------|----|--------|----|--------|-----|
|                     | 10                                | 20 | 30     | 40 | 50     | 60 | 80     | 100 | 10                             | 20 | 30     | 40 | 50     | 60 | 80     | 100 |
| 3 A                 | PSR3                              |    |        |    |        |    |        |     | PSR3                           |    |        |    |        |    |        |     |
| 6 A                 | PSR6                              |    |        |    | PSR9   |    |        |     | PSR6                           |    |        |    | PSR9   |    |        |     |
| 9 A                 | PSR9                              |    | PSR12  |    | PSR16  |    | PSR25  |     | PSR9                           |    |        |    | PSR12  |    |        |     |
| 12 A                | PSR12                             |    | PSR16  |    | PSR25  |    | PSR30  |     | PSR12                          |    |        |    | PSR16  |    | PSR25  |     |
| 16 A                | PSR16                             |    | PSR25  |    | PSR30  |    | PSR37  |     | PSR16                          |    | PSR25  |    | PSR30  |    |        |     |
| 25 A                | PSR25                             |    | PSR30  |    | PSR37  |    | PSR45  |     | PSR25                          |    | PSR30  |    | PSR37  |    | PSR45  |     |
| 30 A                | PSR30                             |    | PSR37  |    | PSR45  |    | PSR60  |     | PSR30                          |    | PSR37  |    | PSR45  |    |        |     |
| 37 A                | PSR37                             |    | PSR45  |    | PSR60  |    | PSR72  |     | PSR37                          |    | PSR45  |    | PSR60  |    |        |     |
| 45 A                | PSR45                             |    | PSR60  |    | PSR72  |    | PSR85  |     | PSR45                          |    | PSR60  |    | PSR72  |    |        |     |
| 60 A                | PSR60                             |    | PSR72  |    | PSR85  |    | PSR105 |     | PSR60                          |    | PSR72  |    | PSR85  |    | PSR105 |     |
| 72 A                | PSR72                             |    | PSR85  |    | PSR105 |    | -      |     | PSR72                          |    | PSR85  |    | PSR105 |    | -      |     |
| 85 A                | PSR85                             |    | PSR105 |    | -      |    | -      |     | PSR85                          |    | PSR105 |    | -      |    | -      |     |
| 105 A               | PSR105                            |    | -      |    | -      |    | -      |     | PSR105                         |    | -      |    | -      |    | -      |     |

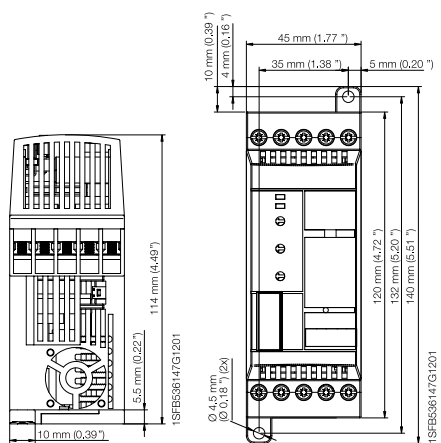
Data based on an ambient temperature of 40° (104 F), starting current of 4 x  $I_e$  and ramp time 6 seconds. For more optimized selection or to use PSR for heavy-duty starts, please use the softstarter selection tool.

# PSR - The compact range

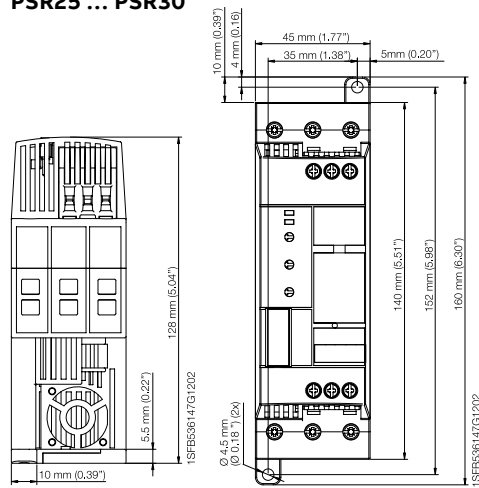
## Dimensions

### Main dimensions mm, inches

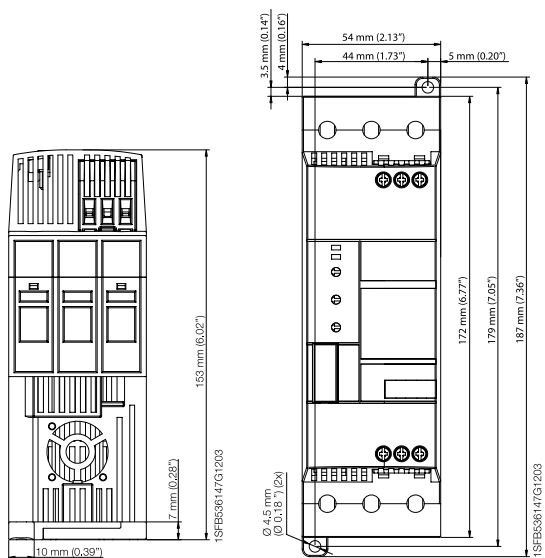
#### PSR3 ... PSR16



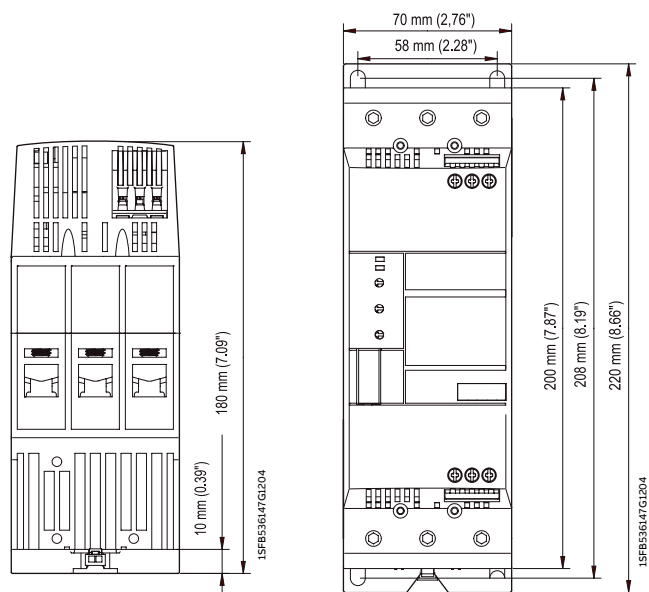
#### PSR25 ... PSR30



#### PSR37 ... PSR45



#### PSR60 ... PSR105

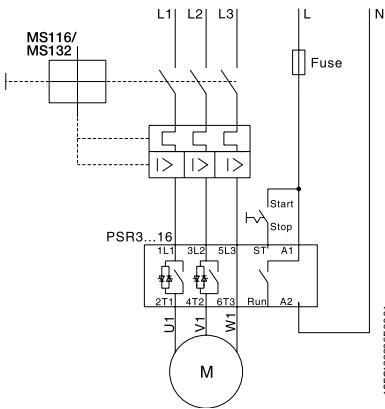


# PSR - The compact range

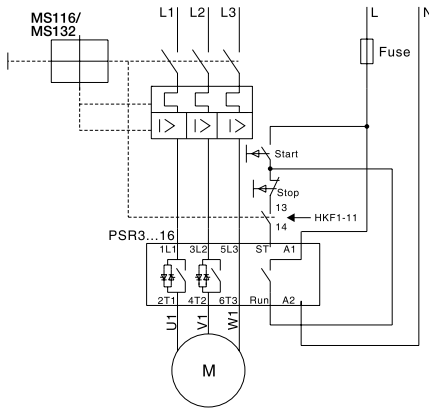
## Circuit diagrams

### Main dimensions mm, inches

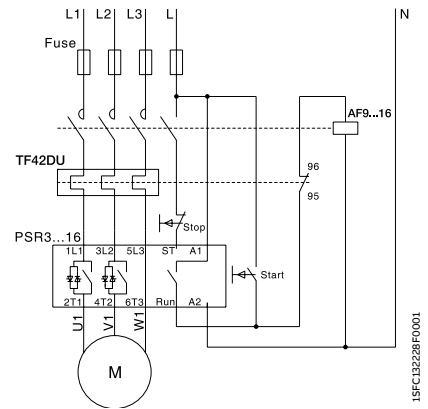
PSR3 ... PSR16 With MMS



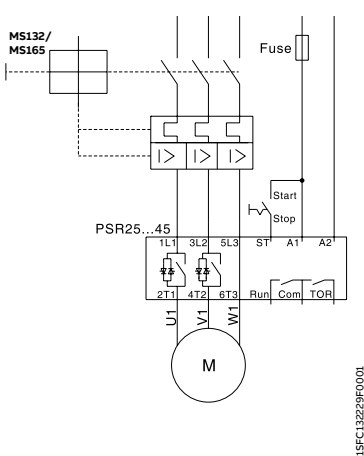
With MMS and auxiliary contact



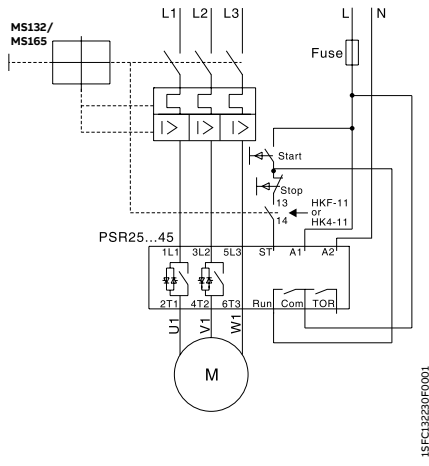
With fuses, contactor and O.L.



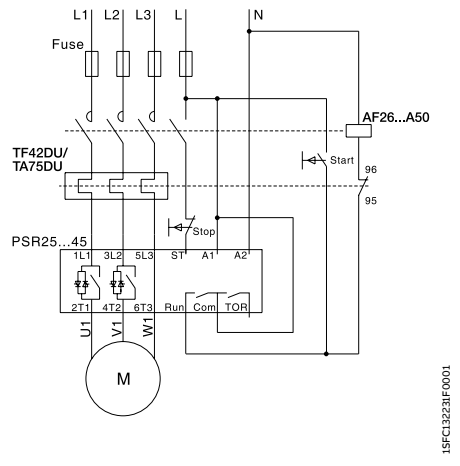
PSR25 ... PSR45 With MMS



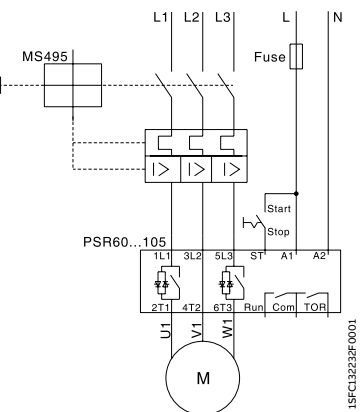
With MMS and auxiliary contact



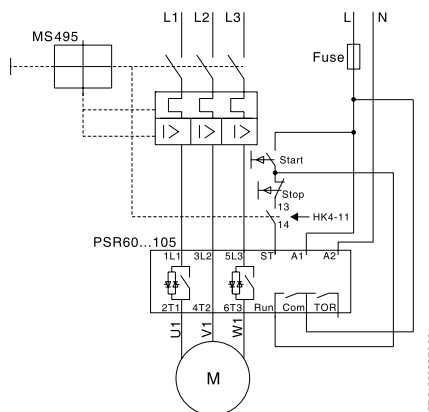
With fuses, contactor and O.L.



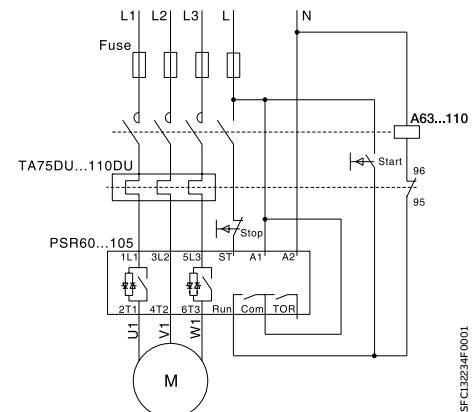
PSR60 ... PSR105 With MMS



With MMS and auxiliary contact



With fuses, contactor and O.L.



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**The PSE has been designed to meet the most common requirements from the water segment and is specialized on pump operation. It combines the requested protections with a very compact design and built-in bypass. Remote operation with external keypad or over fieldbus is available as an option.**

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# **PSE**

## The efficient range

|           |                         |
|-----------|-------------------------|
| <b>30</b> | <b>Introduction</b>     |
| <b>32</b> | <b>Overview</b>         |
| <b>34</b> | <b>Ordering details</b> |
| <b>36</b> | <b>Accessories</b>      |
| <b>38</b> | <b>Technical data</b>   |
| <b>40</b> | <b>Dimensions</b>       |
| <b>41</b> | <b>Circuit diagrams</b> |

# PSE - The efficient range

## Introduction



- Rated operational current: 18...370 A
- Operational voltage: 208...600 V AC
- Wide rated control supply voltage: 100...250 V AC, 50/60 Hz
- Voltage ramp and torque control for both start and stop
- Two-phase controlled
- Current limit
- Kick-start
- Built-in bypass for energy saving and easy installation
- Coated PCBA protecting from dust, moist and corrosive atmosphere
- Illuminated display that uses symbols to become language neutral
- External keypad rated IP66 (Type 1, 4X,12) as an option
- **NEW** Built-in modbus-RTU communication for monitoring and control.
- Fieldbus communication with fieldbus plug adapter and the fieldbus plug
- Analog output for display of motor current
- Electronic overload protection
- Underload protection
- Locked rotor protection



SECURE  
MOTOR  
**Reliability**

### Basic motor protection and current limit

The PSE includes the most important protections for handling different load situations that can happen to pumps e.g. overload and underload. The current limit gives you more control of the motor during start and allows you to start your motor in weaker networks.



IMPROVE  
INSTALLATION  
**Efficiency**

### Saving time and money with built-in bypass and compact design

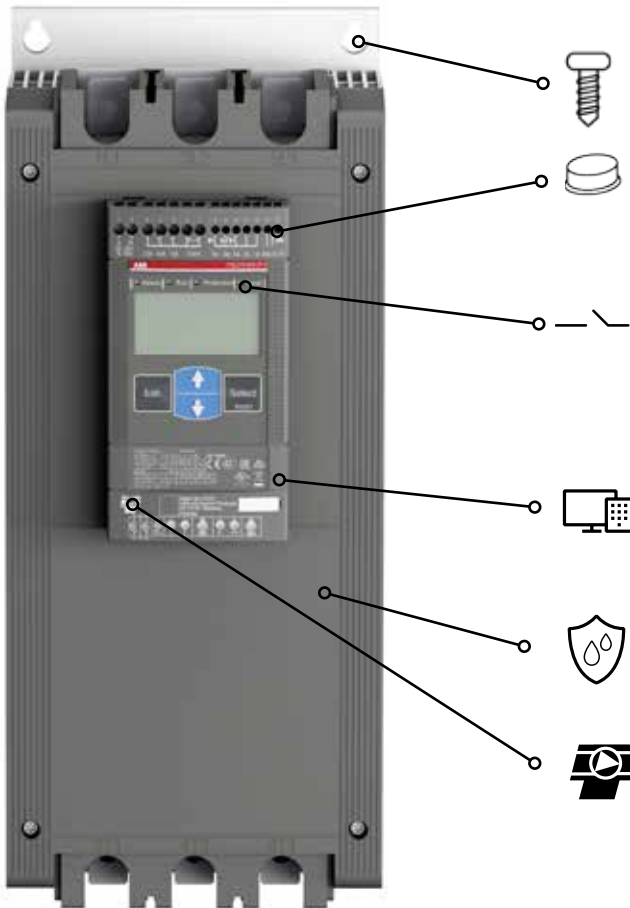
On the PSE, the bypass is built in and verified by ABB, saving you time during installation and space in your panel. The keypad is language neutral and illuminated for easy set-up and operation in field. The compact design makes installation fast and easy.



INCREASE  
APPLICATION  
**Productivity**

### Torque control for elimination of water hammering in pumps

Torque control is the most efficient way to stop a full speed pump. The PSE has a special torque stop ramp that is designed together with a pump manufacturer to eliminate water hammering in an optimal way.



**Screw mounting**

PSE is fast easy to install by using screw mounting.



**Digital input for start, stop and reset**

PSE is controlled through digital inputs using the internal 24 V DC source. This allows easy control with e.g. push buttons or relays.



**Output signal relays for run, top of ramp and event**

Three output signal relays for indicating that the motor is running, that the softstarter is in top of ramp and if any event has happened. The relays can be used e.g. with pilot lights or to control a line contactor.



**NEW Modbus- RTU**

Built-in Modbus- RTU fieldbus communication for monitoring and control. Support for all major communication protocols.



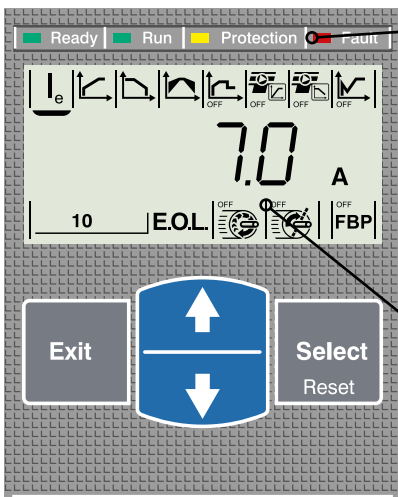
**Coated PCB**

Coated circuit boards protecting from dust, moist and corrosive atmosphere



**Torque control**

The torque control function the absolutely best possible stop of pumps without water hammering and pressure surges.



**LED indicators**

- Green ready LED  
Flashing - Control supply  
Steady - Main power available
- Green run LED  
Flashing - Ramping up/down  
Steady - TOR
- Yellow protection LED
- Red fault LED



**Illuminated and language-neutral display with icons**

The display on PSE uses icons for fast and easy set-up of parameters. Each icon indicates a different parameter to set and makes navigation and setting of parameters easy.

## PSE - The efficient range

### Overview



PSE18 ... PSE105

| Normal start<br>In-line connected   | PSE18               | PSE25    | PSE30    | PSE37    | PSE45    | PSE60    | PSE72    | PSE85    | PSE105   |
|---|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| (400 V) kW  | 7.5                 | 11       | 15       | 18.5     | 22       | 30       | 37       | 45       | 55       |
| IEC, max. A   | 18                  | 25       | 30       | 37       | 45       | 60       | 72       | 85       | 106      |
| (440-480 V) hp  | 10                  | 15       | 20       | 25       | 30       | 40       | 50       | 60       | 75       |
| UL, max. FLA  | 18                  | 25       | 28       | 34       | 42       | 60       | 68       | 80       | 104      |
| <b>400 V, 40 °C</b>   |                     |          |          |          |          |          |          |          |          |
| <b>MCCB (35 kA)</b>   |                     |          |          |          |          |          |          |          |          |
| Using MCCB only, type 1<br>coordination will<br>be achieved <sup>1)</sup>   | T2N160              |          |          |          |          |          |          |          | T3N250   |
|   | <b>MCCB (50 kA)</b> |          |          |          |          |          |          |          |          |
| T2S160  |                     |          |          |          |          |          |          |          |          |
| T3S250  |                     |          |          |          |          |          |          |          |          |
| <b>Fuse protection (85 kA), Semiconductor fuses, Bussmann</b>   |                     |          |          |          |          |          |          |          |          |
| To achieve type 2<br>coordination, semi-<br>conductor fuses<br>must be used <sup>1)</sup>   | 170M1563            | 170M1564 | 170M1566 | 170M1567 | 170M1568 | 170M1569 | 170M1571 | 170M1572 | 170M3819 |
| <b>Suitable switch fuse for<br/>recommended semi-<br/>conductor fuses <sup>1)</sup></b>   |                     |          |          |          |          |          |          |          |          |
| <b>Switch fuse</b>  |                     |          |          |          |          |          |          |          |          |
| OS32GD  |                     | OS63GD   |          |          | OS125GD  |          |          | OS250D   |          |
| <b>The line contactor is not<br/>required for the softstarter<br/>itself but often used<br/>to open if OL trips <sup>1)</sup></b> |                     |          |          |          |          |          |          |          |          |
| <b>Line contactor</b>   |                     |          |          |          |          |          |          |          |          |
| AF26  |                     | AF30     |          | AF38     |          | AF52     |          | AF65     |          |
| AF80  |                     | AF96     |          | AF116    |          |          |          |          |          |

<sup>1)</sup> These are an example of coordination. For more examples see: [applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)



## PSE - The efficient range

### Overview



PSE142 ... PSE170



NEW PSE210 ... PSE370

| Normal start<br>In-line connected<br>(400 V) kW<br>IEC, max. A<br>(440-480 V) hp<br>UL, max. FLA                        | PSE142   | PSE170   | PSE210   | PSE250   | PSE300   | PSE370   |
|---|--|----------|----------|----------|----------|----------|
|   | 75   | 90       | 110      | 132      | 160      | 200      |
|   | 143  | 171      | 210      | 250      | 300      | 370      |
|   | 100  | 125      | 150      | 200      | 250      | 300      |
|   | 130  | 169      | 192      | 248      | 302      | 361      |
|   | <b>400 V, 40 °C</b>  |          |          |          |          |          |
|   | <b>MCCB (35 kA)</b>  |          |          |          |          |          |
| Using MCCB only, type 1<br>coordination will<br>be achieved <sup>1)</sup>   | T3N250   |          | T4N320   | T5N400   |          | T5N630   |
|   | <b>MCCB (50 kA)</b>  |          |          |          |          |          |
|   | T3S250   |          | T4S320   | T5S400   |          | T5S630   |
| To achieve type 2<br>coordination, semi-<br>conductor fuses<br>must be used <sup>1)</sup>                               | <b>Fuse protection (85kA), Semiconductor fuses, Bussmann</b> |          |          |          |          |          |
|   | 170M5809   | 170M5810 | 170M5812 | 170M5813 | 170M6812 | 170M6813 |
| Suitable switch fuse for<br>recommended semi-<br>conductor fuses <sup>1)</sup>  | <b>Switch fuse</b>   |          |          |          |          |          |
|   | OS400D   |          |          |          | OS630D   |          |
| The line contactor is not<br>required for the softstarter<br>itself but often used<br>to open if OL trips <sup>1)</sup> | <b>Line contactor</b>  |          |          |          |          |          |
|   | AF146  | AF190    | AF265    | AF265    | AF305    | AF370    |

<sup>1)</sup> These are an example of coordination. For more examples see: [applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)

## PSE - The efficient range

Normal starts, class 10, in-line

Ordering details

### Typical applications:

- Bow thruster
- Centrifugal pump
- Compressor
- Conveyorbelt (short)
- Elevator
- Escalator



If more than 10 starts/h, select one size larger than the standard selection.  
For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



PSE18 ... PSE105



PSE142 ... PSE170



NEW PSE210 ... PSE370

Rated operational voltage  $U_e$ , 208...600 V

Rated control supply voltage  $U_s$ , 100...250 V AC, 50/60 Hz

| IEC                     |       |       | UL/CSA                    |               |               |               |               | Type |                 | Order code      |       | Weight   |      |
|-------------------------|-------|-------|---------------------------|---------------|---------------|---------------|---------------|------|-----------------|-----------------|-------|----------|------|
| Rated operational power |       |       | Rated operational current |               |               |               |               |      |                 |                 |       | pkg/1pce |      |
| 230 V                   | 400 V | 500 V |                           | 200/<br>208 V | 220/<br>240 V | 440/<br>480 V | 550/<br>600 V | FLA  |                 |                 |       | kg       | (lb) |
| $P_e$                   | $P_e$ | $P_e$ | $I_e$                     | $P_e$         | $P_e$         | $P_e$         | $P_e$         |      |                 |                 |       |          |      |
| kW                      | kW    | kW    | A                         | hp            | hp            | hp            | hp            | A    |                 |                 |       |          |      |
| 4                       | 7.5   | 11    | 18                        | 5             | 5             | 10            | 15            | 18   | PSE18-600-70    | 1SFA897101R7000 | 2.40  | (5.29)   |      |
| 5.5                     | 11    | 15    | 25                        | 7.5           | 7.5           | 15            | 20            | 25   | PSE25-600-70    | 1SFA897102R7000 | 2.40  | (5.29)   |      |
| 7.5                     | 15    | 18.5  | 30                        | 7.5           | 10            | 20            | 25            | 28   | PSE30-600-70    | 1SFA897103R7000 | 2.40  | (5.29)   |      |
| 9                       | 18.5  | 22    | 37                        | 10            | 10            | 25            | 30            | 34   | PSE37-600-70    | 1SFA897104R7000 | 2.40  | (5.29)   |      |
| 11                      | 22    | 30    | 45                        | 10            | 15            | 30            | 40            | 42   | PSE45-600-70    | 1SFA897105R7000 | 2.40  | (5.29)   |      |
| 15                      | 30    | 37    | 60                        | 20            | 20            | 40            | 50            | 60   | PSE60-600-70    | 1SFA897106R7000 | 2.40  | (5.29)   |      |
| 18.5                    | 37    | 45    | 72                        | 20            | 25            | 50            | 60            | 68   | PSE72-600-70    | 1SFA897107R7000 | 2.50  | (5.51)   |      |
| 22                      | 45    | 55    | 85                        | 25            | 30            | 60            | 75            | 80   | PSE85-600-70    | 1SFA897108R7000 | 2.50  | (5.51)   |      |
| 30                      | 55    | 75    | 106                       | 30            | 40            | 75            | 100           | 104  | PSE105-600-70   | 1SFA897109R7000 | 2.50  | (5.51)   |      |
| 40                      | 75    | 90    | 143                       | 40            | 50            | 100           | 125           | 130  | PSE142-600-70   | 1SFA897110R7000 | 4.20  | (9.26)   |      |
| 45                      | 90    | 110   | 171                       | 60            | 60            | 125           | 150           | 169  | PSE170-600-70   | 1SFA897111R7000 | 4.20  | (9.26)   |      |
| 59                      | 110   | 132   | 210                       | 60            | 75            | 150           | 200           | 192  | PSE210-600-70-1 | 1SFA897112R7001 | 9.50  | (20.94)  |      |
| 75                      | 132   | 160   | 250                       | 75            | 100           | 200           | 250           | 248  | PSE250-600-70-1 | 1SFA897113R7001 | 10.90 | (24.03)  |      |
| 90                      | 160   | 200   | 300                       | 100           | 100           | 250           | 300           | 302  | PSE300-600-70-1 | 1SFA897114R7001 | 10.90 | (24.03)  |      |
| 110                     | 200   | 250   | 370                       | 125           | 150           | 300           | 350           | 361  | PSE370-600-70-1 | 1SFA897115R7001 | 10.90 | (24.03)  |      |

## PSE - The efficient range

Heavy-duty starts, class 30, in-line

Ordering details

### Typical applications

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







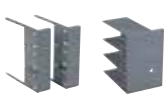





If more than 10 starts/h, select one size larger than the standard selection. For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



| Rated operational voltage $U_e$ , 208-600 V                 |       |       |       |                                 |       |       |               |               |                 |                 |       |         |
|---|-------|-------|-------|---------------------------------|-------|-------|---------------|---------------|-----------------|-----------------|-------|---------|
| Rated control supply voltage $U_s$ , 100-250 V AC, 50/60 Hz |       |       |       |                                 |       |       |               |               |                 |                 |       |         |
| IEC   |       |       |       | UL/CSA                          |       |       |               | Type          | Order code      | Weight          |       |         |
| Rated operational power current                             |       |       |       | Rated operational power current |       |       |               |               |                 | pkg/1pce        |       |         |
| 230 V   |       |       | 400 V | 200/<br>208 V                   |       |       | 220/<br>240 V | 440/<br>480 V | 550/<br>600 V   |                 |       |         |
| $P_e$   | $P_e$ | $P_e$ | $I_e$ | $P_e$                           | $P_e$ | $P_e$ | $P_e$         | $P_e$         | FLA             |                 |       |         |
| kW  | kW    | kW    | A     | hp                              | hp    | hp    | hp            | hp            | A               | kg              | (lb)  |         |
| 3   | 5.5   | 7.5   | 12    | 3                               | 3     | 7.5   | 10            | 11            | PSE18-600-70    | 1SFA897101R7000 | 2.40  | (5.29)  |
| 4   | 7.5   | 11    | 18    | 5                               | 5     | 10    | 15            | 18            | PSE25-600-70    | 1SFA897102R7000 | 2.40  | (5.29)  |
| 5.5   | 11    | 15    | 25    | 7.5                             | 7.5   | 15    | 20            | 25            | PSE30-600-70    | 1SFA897103R7000 | 2.40  | (5.29)  |
| 7.5   | 15    | 18.5  | 30    | 7.5                             | 10    | 20    | 25            | 28            | PSE37-600-70    | 1SFA897104R7000 | 2.40  | (5.29)  |
| 9   | 18.5  | 22    | 37    | 10                              | 10    | 25    | 30            | 34            | PSE45-600-70    | 1SFA897105R7000 | 2.40  | (5.29)  |
| 11  | 22    | 30    | 45    | 10                              | 15    | 30    | 40            | 42            | PSE60-600-70    | 1SFA897106R7000 | 2.40  | (5.29)  |
| 15  | 30    | 37    | 60    | 20                              | 20    | 40    | 50            | 60            | PSE72-600-70    | 1SFA897107R7000 | 2.50  | (5.51)  |
| 18.5  | 37    | 45    | 72    | 20                              | 25    | 50    | 60            | 68            | PSE85-600-70    | 1SFA897108R7000 | 2.50  | (5.51)  |
| 22  | 45    | 55    | 85    | 25                              | 30    | 60    | 75            | 80            | PSE105-600-70   | 1SFA897109R7000 | 2.50  | (5.51)  |
| 30  | 55    | 75    | 106   | 30                              | 40    | 75    | 100           | 104           | PSE142-600-70   | 1SFA897110R7000 | 4.20  | (9.26)  |
| 40  | 75    | 90    | 143   | 40                              | 50    | 100   | 125           | 130           | PSE170-600-70   | 1SFA897111R7000 | 4.20  | (9.26)  |
| 45  | 90    | 110   | 171   | 60                              | 60    | 125   | 150           | 169           | PSE210-600-70-1 | 1SFA897112R7001 | 9.50  | (20.94) |
| 59  | 110   | 132   | 210   | 60                              | 75    | 150   | 200           | 192           | PSE250-600-70-1 | 1SFA897113R7001 | 10.90 | (24.03) |
| 75  | 132   | 160   | 250   | 75                              | 100   | 200   | 250           | 248           | PSE300-600-70-1 | 1SFA897114R7001 | 10.90 | (24.03) |
| 90  | 160   | 200   | 300   | 100                             | 100   | 250   | 300           | 302           | PSE370-600-70-1 | 1SFA897115R7001 | 10.90 | (24.03) |

## PSE - The efficient range

### Accessories

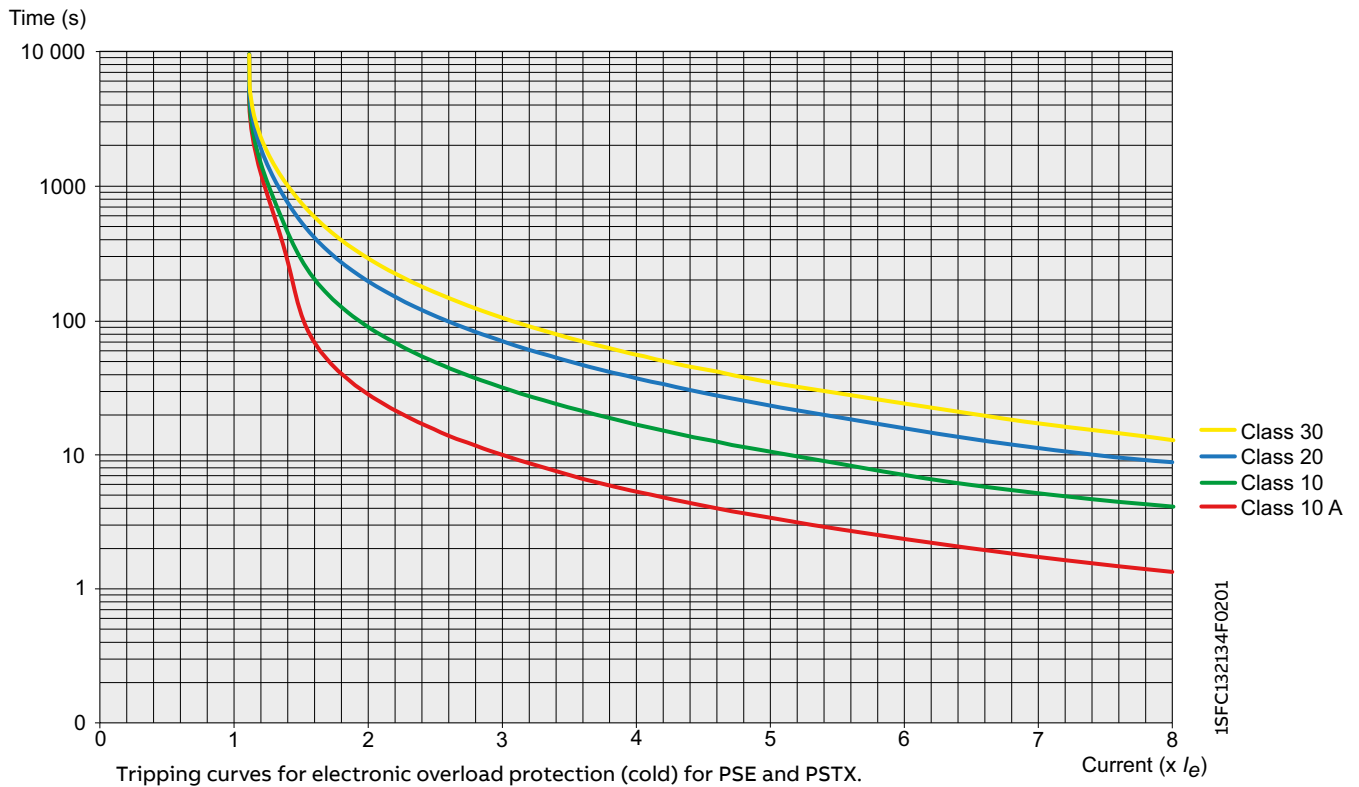
| Description   | Article  | Type                              | Order code                | Pkg qty      | Weight pkg /1pce | kg            | (lb)          |
|---|--|-----------------------------------|---------------------------|--------------|------------------|---------------|---------------|
| <b>Cable connectors for Cu cables</b>   |  |                                   |                           |              |                  |               |               |
|    |  | Wire range mm <sup>2</sup>        | Tightening torque max. Nm |              |                  |               |               |
|   | PSE142 ... PSE170                                    | 6...120                           | 14                        | -            | 1SDA066917R1     | 3             | 0.113 (0.249) |
|   | PSE142 ... PSE170                                    | 2 x (50...120)                    | 16                        | LZ185-2C/120 | 1SFN074709R1000  | 3             | 0.100 (0.220) |
| PSE210 ... PSE370   | 16...300   | 25                                | -                         | 1SDA055016R1 | 3                | 0.133 (0.293) |               |
| <b>Cable connectors for Al and Cu cables</b>  |  |                                   |                           |              |                  |               |               |
|    |  | Wire range mm <sup>2</sup>        | Tightening torque max. Nm |              |                  |               |               |
|   | PSE142 ... PSE170                                    | 95...185                          | 31                        | -            | 1SDA054988R1     | 3             | 0.078 (0.172) |
|   | PSE210 ... PSE370                                    | 185...240                         | 43                        | -            | 1SDA055020R1     | 3             | 0.133 (0.293) |
| <b>Terminal enlargements</b>  |  |                                   |                           |              |                  |               |               |
|    |  | Dimensions hole ø mm <sup>2</sup> | bar mm <sup>2</sup>       |              |                  |               |               |
|   | PSE18 ... PSE105                                     | 6.5                               | 15 x 3                    | LW110        | 1SFN074307R1000  | 1             | 0.100 (0.220) |
|   | PSE142 ... PSE170                                    | 10.5                              | 17.5 x 5                  | LW185        | 1SFN074707R1000  | 1             | 0.450 (0.992) |
|   | PSE210 ... PSE370                                    | 10.5                              | 20 x 5                    | LW300        | 1SFN075107R1000  | 1             | 1.230 (2.712) |
| <b>Terminal kit</b>   |  |                                   |                           |              |                  |               |               |
|   | PSE142...PSE170                                      |                                   |                           | PSLE-185     | 1SFA899221R1002  | 1             | 0.200 (0.441) |
|   | PSE210...370   |                                   |                           | PSLE-300     | 1SFA899221R1003  | 1             | 0.300 (0.661) |
| <b>Terminal extension</b>   |  |                                   |                           |              |                  |               |               |
|  | PSE142 ... PSE170                                    | 8.5 17.5 x 5                      |                           | LX205        | 1SFN074810R1000  | 1             | 0.250 (5.551) |
|   | PSE210 ... PSE370                                    | 10.5 20 x 5                       |                           | LX370        | 1SFN075410R1000  | 1             | 0.350 (0.772) |
|   |  |                                   |                           |              |                  |               |               |
| <b>Terminal shrouds</b>   |  |                                   |                           |              |                  |               |               |
|  | PSE18... PSE105, Screw terminals                     |                                   |                           | LT140-30L    | 1SFN124203R1000  | 2             | 0.070 (0.154) |
|   | PSE142... PSE170, short for use with cable clamps    |                                   |                           | LT185-AC     | 1SFN124701R1000  | 2             | 0.050 (0.110) |
|   | PSE142... PSE170, long for use with compression lugs |                                   |                           | LT185-AL     | 1SFN124703R1000  | 2             | 0.220 (0.485) |
|   | PSE210... PSE370, short for use with cable clamps    |                                   |                           | LT300-AC     | 1SFN125101R1000  | 2             | 0.070 (0.154) |
|   | PSE210... PSE370, long for use with compression lugs |                                   |                           | LT300-AL     | 1SFN125103R1000  | 2             | 0.280 (0.617) |
| <b>External keypad including a 3m cable</b>   |  |                                   |                           |              |                  |               |               |
|  | PSE18 ... PSE370                                     |                                   |                           | PSEEK        | 1SFA897100R1001  | 1             | 0.198 (0.437) |
| <b>USB cable for Service Engineer Tool</b>  |  |                                   |                           |              |                  |               |               |
|  | PSE18 ... PSE370                                     |                                   |                           | PSECA        | 1SFA897201R1001  | 1             | 0.130 (0.287) |
| <b>Fieldbus plug connection, cable included</b>                                     |  |                                   |                           |              |                  |               |               |
|  | Fieldbus plug adaptor                                |                                   |                           | PS-FBPA      | 1SFA896312R1002  | 1             | 0.060 (0.132) |
| <b>Terminal Extensions retrofit kit</b>   |  |                                   |                           |              |                  |               |               |
|  | Terminal Extensions retrofit kit                     |                                   |                           | LXR370       | 1SFA899222R1003  | 1             | 0.450 (0.992) |
| <b>Modbus adapter</b>   |  |                                   |                           |              |                  |               |               |
|  | Modbus adapter                                       |                                   |                           | PS-MBIA      | 1SFA899300R1020  | 1             |               |

## PSE - The efficient range

### Technical data

Tripping curves for the integrated electronic overload protection

PSE has an integrated electronic overload protection that can be set to four different tripping classes. Below you find a curve for each tripping class in cold state.



## PSE - The efficient range

### Technical data

| Technical data  |   | PSE18 ... PSE370                           |                             |
|---|---|--|-----------------------------|
| Rated insulation voltage $U_i$                            |   | 600 V                                      |                             |
| Rated operational voltage $U_e$                           |   | 208...600 V +10%/-15%                      |                             |
| Rated control supply voltage $U_s$                        |   | 100...250 V +10%/-15%, 50/60 Hz $\pm$ 10 % |                             |
| Rated control circuit voltage $U_c$                       |   | Internal 24 V DC                           |                             |
| Starting capacity at $I_e$                                |   | $4 \times I_e$ for 10 sec.                 |                             |
| Number of starts per hour                                 |   | 10 <sup>1)</sup>                           |                             |
| Overload capability                                       | Overload class                                      | 10   |                             |
| Ambient temperature                                       | During operation                                    | -25...+60 °C (-13...+140 F) <sup>2)</sup>  |                             |
|   | During storage                                      | -40...+70 °C (-40...+158 F)                |                             |
| Maximum Altitude  |   | 4000 m (13123 ft) <sup>3)</sup>            |                             |
| Degree of protection                                      | Main circuit  | IP00                                       |                             |
|   | Supply and control circuit                          | IP20                                       |                             |
| Main circuit  | Built-in bypass                                     | Yes  |                             |
|   | Cooling system - fan cooled (thermostat controlled) | Yes  |                             |
| HMI for settings  | Display   | 4 7-segments and icons. Illuminated        |                             |
|   | Keypad  | 2 selection keys and 2 navigation keys     |                             |
| Main settings   | Setting current                                     | Size dependent                             |                             |
|   | Ramp time during start                              | 1...30 sec                                 |                             |
|   | Ramp time during stop                               | 0...30 sec                                 |                             |
|   | Initial/end voltage                                 | 30...70%                                   |                             |
|   | Current limit                                       | 1.5...7 x $I_e$                            |                             |
|   | Torque control for start                            | Yes / No                                   |                             |
|   | Torque control for stop                             | Yes / No                                   |                             |
| Signal relays   | Kick start  | Off, 30...100%                             |                             |
|   | Number of signal relays                             | 3  |                             |
|   | K2  | Run signal                                 |                             |
|   | K3  | TOR (bypass) signal                        |                             |
|   | K1  | Event signal                               |                             |
|   | Rated operational voltage $U_e$                     | 100-250 V AC/24 V DC <sup>4)</sup>         |                             |
|   | Rated thermal current $I_{th}$                      | 3 A  |                             |
| Rated operational current $I_e$ at AC-15 ( $U_e = 250$ V) | 1.5 A   |  |                             |
| Analog output   | Output signal reference                             | 4...20 mA                                  |                             |
|   | Type of output signal                               | I Amp                                      |                             |
|   | Scaling   | Fixed at $1.2 \times I_e$                  |                             |
| Control circuit   | Number of inputs                                    | 3 (start, stop, reset of faults)           |                             |
| Signal indication LED                                     | On / Ready  | Green flashing / steady                    |                             |
|   | Run / TOR   | Green flashing / steady                    |                             |
|   | Protection  | Yellow                                     |                             |
|   | Fault   | Red  |                             |
| Protections   | Electronic overload                                 | Yes (Class 10A, 10, 20, 30)                |                             |
|   | Locked rotor protection                             | Yes  |                             |
|   | Underload protection                                | Yes  |                             |
| Fieldbus connection                                       | Connection for ABB Fieldbus plug                    | Yes (option)                               |                             |
|   | <b>NEW</b> Built-in modbus                          | Yes  |                             |
| External keypad   | Display   | LCD type                                   |                             |
|   | Ambient temperature                                 | During operation                           | -25...+60 °C (-13...+140 F) |
|   |   | During storage                             | -40...+70 °C (-40...+158 F) |
|   |   | Degree of protection                       | IP66                        |

<sup>1)</sup> Valid for 50% on time and 50% off time. If other data is required, contact your local ABB office.


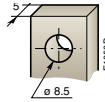
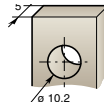






<sup>2)</sup> Above 40 °C (104 F) up to max. 60 °C (140 F) reduce the rated current with 0.6% per °C (0.33% per F).

<sup>3)</sup> When used at high altitudes, above 1000 meters (3281 ft) up to 4000 meters (13123 ft), de-rate the rated current using the following formula. [% of  $I_e = 100 - \frac{x - 1000}{3000}$ ] x = actual altitude of the softstarter in meters.

<sup>4)</sup> A common voltage needs to be used for all 3 signal relays.

## PSE - The efficient range

### Technical data

| Main terminals  |                            | PSE18 ... PSE105  | PSE142 ... PSE170   | PSE210 ... PSE370   |
|---|----------------------------|---|---|---|
|   |                            |  |  |  |
|    | <b>Cu cable - Flexible</b> | 1 x mm <sup>2</sup>   | 2.5...70 mm <sup>2</sup>  | 6...120 mm <sup>2</sup>   |
|   | Clamp type                 | Included  | 1SDA066917R1  | 1SDA055016R1  |
|   | Tightening torque          | 8 Nm  | 14 Nm   | 25 Nm   |
|    | <b>Cu cable - Flexible</b> | 2 x mm <sup>2</sup>   | 2.5...70 mm <sup>2</sup>  | 50...120 mm <sup>2</sup>  |
|   | Clamp type                 | Included  | 1SFN074709R1000   | -   |
|   | Tightening torque          | 8 Nm  | 16 Nm   | -   |
|    | <b>Cu cable - Stranded</b> | 1 x mm <sup>2</sup>   | 2.5...70 mm <sup>2</sup>  | 6...120 mm <sup>2</sup>   |
|   | Clamp type                 | Included  | 1SDA066917R1  | 1SDA055016R1  |
|   | Tightening torque          | 8 Nm  | 14 Nm   | 25 Nm   |
|    | <b>Cu cable - Stranded</b> | 2 x mm <sup>2</sup>   | 2.5...70 mm <sup>2</sup>  | 50...120 mm <sup>2</sup>  |
|   | Clamp type                 | Included  | 1SFN074709R1000   | -   |
|   | Tightening torque          | 8 Nm  | 16 Nm   | -   |
|  | <b>Al cable - Stranded</b> | 1 x mm <sup>2</sup>   | -   | 95...185 mm <sup>2</sup>  |
|   | Clamp type                 | -   | 1SDA054988R1  | 1SDA055020R1  |
|   | Tightening torque          | -   | 31 Nm   | 43 Nm   |
|  | <b>Lugs</b>                |   |   |   |
|   | Width                      | 22 mm (0.866 in)  | 24 mm (0.945 in)  | 30 mm (1.181 in)  |
|   | Diameter >=                | 6.5 mm (0.256 in)   | 8.5 mm (0.335 in)   | 10.2 mm (0.402 in)  |
|   | Tightening torque          | 9 Nm (80 in lb)   | 18 Nm (159 in lb)   | 28 Nm (248 in lb)   |
| <b>Connection capacity acc to UL / CSA 1 x AWG / kcmil</b>                          |                            |   | 6...2/0   | 6...300 kcmil   |
|   | Clamp type                 | Included  | ATK185  | ATK300  |
|   | Tightening torque          | 71 in lb  | 300 in lb   | 375 in lb   |
| <b>Connection capacity acc to UL / CSA 2 x AWG / kcmil</b>                          |                            |   | -   | 4...500 kcmil   |
|   | Clamp type                 | -   | -   | ATK300/2  |
|   | Tightening torque          | -   | -   | 375 in lb   |
| <b>Supply and control circuit</b>   |                            |   |   |   |
|   | Cu cable - Stranded        | 1 x mm <sup>2</sup>   | 0.75...2.5 mm <sup>2</sup> (19...14 AWG)  |   |
|   | Cu cable - Stranded        | 2 x mm <sup>2</sup>   | 0.75...1.5 mm <sup>2</sup> (19...16 AWG)  |   |
|   | Tightening torque          |   | 0.5 Nm (4.4 in lb)  |   |

### Fuse ratings and power losses

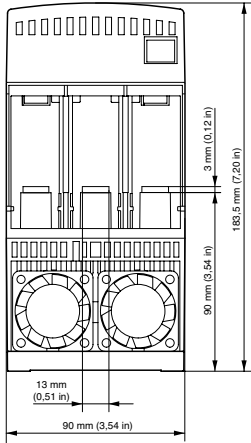
| For softstarter | Current range | Max power loss at rated I <sub>e</sub> | Max fuse rating - main circuit <sup>1)</sup><br>Bussmann fuses, DIN43 620 (Knife) |          |      | Power requirements supply circuit Holding (VA) / Pull-in (VA) |
|-----------------|---------------|--|---|----------|------|---|
|                 |               |  | A   | Type     | Size |   |
| PSE18           | 5.4...18.0    | 0.2                                    | 40  | 170M1563 | 000  | 16/19.9   |
| PSE25           | 7.5...25.0    | 0.4                                    | 50  | 170M1564 | 000  | 16/19.9   |
| PSE30           | 9.0...30.0    | 0.5                                    | 80  | 170M1566 | 000  | 16/19.9   |
| PSE37           | 11.1...37.0   | 0.8                                    | 100   | 170M1567 | 000  | 16/19.9   |
| PSE45           | 13.5...45.0   | 1.2                                    | 125   | 170M1568 | 000  | 16/19.9   |
| PSE60           | 18.0...60.0   | 2.2                                    | 160   | 170M1569 | 000  | 16/19.9   |
| PSE72           | 21.6...72.0   | 3.1                                    | 250   | 170M1571 | 000  | 16/19.9   |
| PSE85           | 25.5...85.0   | 4.3                                    | 315   | 170M1572 | 000  | 16/19.9   |
| PSE105          | 31.8...106.0  | 6.6                                    | 400   | 170M3819 | 1*   | 16/19.9   |
| PSE142          | 42.9...143.0  | 12.1                                   | 450   | 170M5809 | 2    | 16/31   |
| PSE170          | 51.3...171.0  | 17.6                                   | 500   | 170M5810 | 2    | 16/31   |
| PSE210          | 63.0...210.0  | 8.8                                    | 630   | 170M5812 | 2    | 21/244  |
| PSE250          | 75.0...250.0  | 12.5                                   | 700   | 170M5813 | 2    | 21/244  |
| PSE300          | 90.6...302.0  | 18.0                                   | 800   | 170M6812 | 3    | 21/244  |
| PSE370          | 111.0...370.0 | 27.4                                   | 900   | 170M6813 | 3    | 21/244  |

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

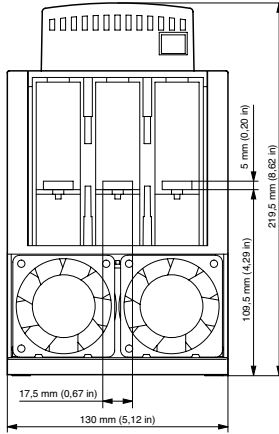
# PSE - The efficient range

## Dimensions

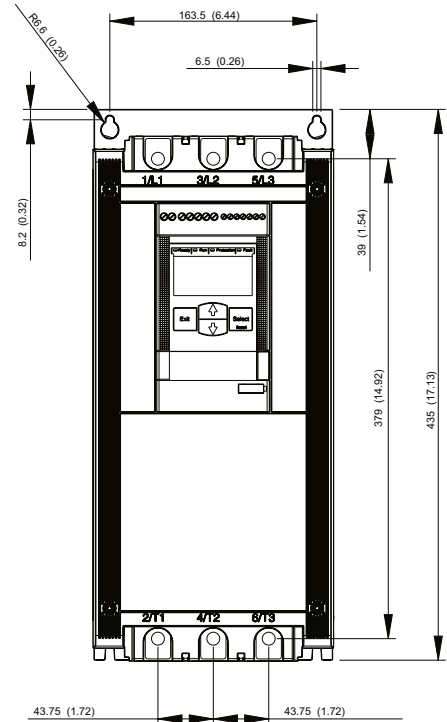
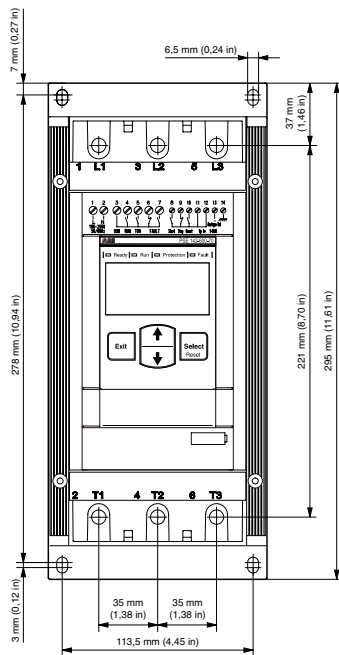
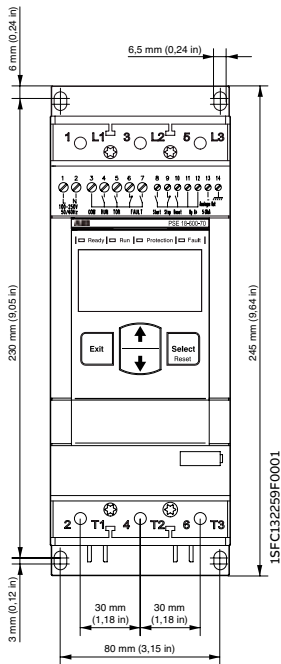
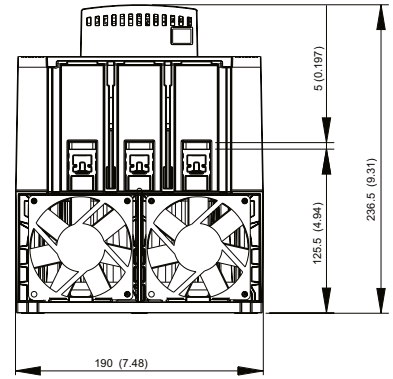
PSE18 ... PSE105



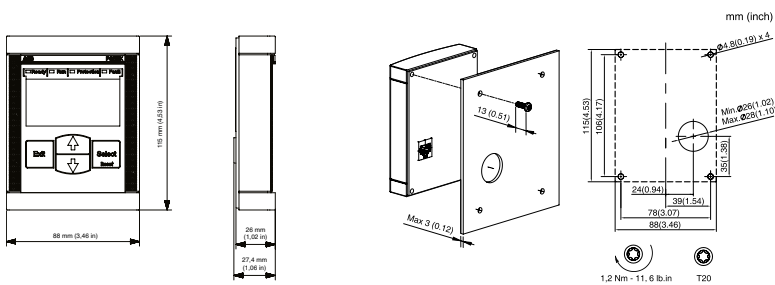
PSE142 ... PSE170



**NEW**  
PSE210 ... PSE370



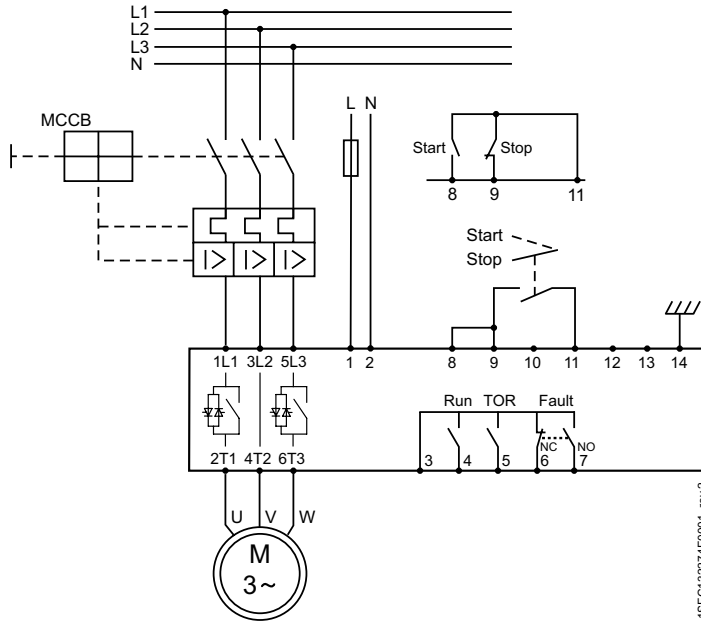
### PSE external keypad (PSEEK)



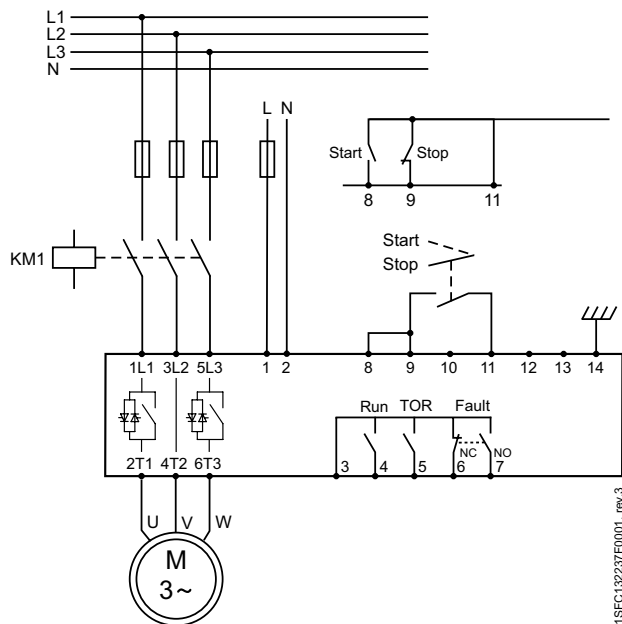


**PSE - The efficient range**  
 Circuit diagrams

**PSE18 ... PSE370**  
**With MCCB and line contactor**



**With fuses and line contactor**



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**The PSTX combines many years of research and product development with extensive knowledge of application specific requirements and needs. It is our latest advancement in motor control & protection, and it adds new functionality and increased reliability.**

---

# PSTX

## The advanced range

|           |                         |
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# PSTX - The advanced range

## Introduction



- Rated operational current: 30 to 1250 A
- Three-phase controlled
- Operational voltage: 208 – 690 VAC
- Wide rated control supply voltage: 100 – 250 V, 50/60 Hz
- (inside-delta: 2160 A)
- Both in-line and inside-delta connection
- Coated circuit boards protecting from dust, moist and corrosive atmosphere
- Detachable keypad rated IP66 (4X outdoor)
- Graphical display with 17 languages for easy setup and operation
- Built-in bypass for energy saving and easy installation
- Built-in Modbus RTU for monitoring and control
- Support for all major communication protocols
- Analog output for measurement of current, voltage, power factor etc.



SECURE  
MOTOR

**Reliability**

### Complete motor protection

The PSTX offers complete motor protection in only one unit and is able to handle both load and network irregularities. PT-100, earth fault protection and over/under voltage protection along with many other functions keep your motor safer than ever. PSTX also offers three types of current limit: standard, dual and ramp. This gives you full control of your motor during start. It also allows you to use your motor in weaker networks.



IMPROVE  
INSTALLATION

**Efficiency**

### Built-in bypass saves time and energy

When reaching full speed, the PSTX will activate its bypass. This saves energy while reducing the softstarters heat generation. On the PSTX, the bypass is built in and verified by ABB, saving you time during installation and space in your panel.



INCREASE  
APPLICATION

**Productivity**

### Complete control of pumps

Time to use your processes to their full potential. The PSTX features many application enhancing features, including torque control: the most efficient way to start and stop pumps. The pump cleaning feature can reverse pump flow and clean out pipes, securing uptime of your pump system.



**IP66**

**HMI**

A user-friendly and clear display saves you time and resources during both setup and operation. The detachable keypad is standard on all PSTX softstarters with IP66 and 4x outdoor for tough environments.



**Jog with slow speed forward & reverse**

The slow speed forward and backward jog feature will make you more flexible when operating e.g. conveyor belts and cranes.



**Coated PCB**

Coated circuit boards protecting from dust, moist and corrosive atmosphere



**Heavy duty**

Designed to handle heavy applications such as centrifugal fan, mill and mixers.



**Torque control**

The torque control function the absolutely best possible stop of pumps without water hammering and pressure surges.



**Customizable**

The PSTX has 17 pre-installed languages along with options to customize your own specific home screens (up to seven different). You can use your customized home screens to show status information important to your process and hide information that is not.



**Easy to learn**

A large graphical display along with built-in assistants make learning how to handle the PSTX fun and simple. The interface resembles other interfaces from ABB which will streamline and help with training of field personnel.



**Detachable**

The PSTX comes with a detachable keypad as standard. It can be placed on your panel door, meaning you do not have to interrupt your process in order to read status information or to change settings.

## PSTX - The advanced range

### Overview



PSTX30... PSTX105



PSTX142... PSTX170

|   | PSTX30  | PSTX37   | PSTX45   | PSTX60 | PSTX72   | PSTX85   | PSTX105  | PSTX142  | PSTX170  |
|---|---|----------|----------|--------|----------|----------|----------|----------|----------|
| <b>Normal start</b>   |   |          |          |        |          |          |          |          |          |
| <b>In-Line connected (400 V) kW</b>   | 15  | 18.5     | 22       | 30     | 37       | 45       | 55       | 75       | 90       |
| <b>IEC, max. A</b>  | 30  | 37       | 45       | 60     | 72       | 85       | 106      | 143      | 171      |
| <b>(440-480 V) hp</b>   | 20  | 25       | 30       | 40     | 50       | 60       | 75       | 100      | 125      |
| <b>UL, max. FLA</b>   | 28  | 34       | 42       | 60     | 68       | 80       | 104      | 130      | 169      |
| <b>400 V, 40 °C</b>   |   |          |          |        |          |          |          |          |          |
| <b>Using manual motor starter or MCCB, type 1 coordination will be achieved.<sup>1)</sup></b>   | <b>MCCB (50 kA)</b>   |          |          |        |          |          |          |          |          |
|   | XT2S160   |          |          |        |          |          |          |          | XT4S250  |
| <b>Using gG fuses, type 1 coordination will be achieved. To achieve type 2 coordination, semiconductor fuses must be used.<sup>1)</sup></b> | <b>Fuse protection (80 kA), Semiconductor fuses, Bussmann</b> |          |          |        |          |          |          |          |          |
|   | 170M1567  | 170M1568 | 170M1569 |        | 170M1571 | 170M1572 | 170M3819 | 170M5810 | 170M5812 |
| <b>Suitable switch fuse for the recommended semiconductor fuses.<sup>1)</sup></b>   | <b>Switch fuse</b>  |          |          |        |          |          |          |          |          |
|   | OS32G   | OS63G    |          |        | OS125G   |          | OS250    | OS400    |          |
| <b>The line contactor is not required for the softstarter itself but often used to open if OL trips<sup>1)</sup></b>                        | <b>Line contactor</b>   |          |          |        |          |          |          |          |          |
|   | AF30  | AF38     | AF52     | AF65   | AF80     | AF96     | AF116    | AF146    | AF190    |

<sup>1)</sup> These is an example of coordination. For more examples see: [applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)

## PSTX - The advanced range

### Overview



PSTX210... PSTX370



PSTX470... PSTX570



PSTX720... PSTX840



PSTX1050... PSTX1250

|   | PSTX210   | PSTX250  | PSTX300  | PSTX370  | PSTX470  | PSTX570    | PSTX720  | PSTX840  | PSTX1050 | PSTX1250 |
|---|---|----------|----------|----------|----------|------------|----------|----------|----------|----------|
| <b>Normal start</b>   |   |          |          |          |          |            |          |          |          |          |
| <b>In-Line connected (400 V) kW</b>   | 110   | 132      | 160      | 200      | 250      | 315        | 400      | 450      | 560      | 710      |
| <b>IEC, max. A (440-480 V) hp</b>   | 210   | 250      | 300      | 370      | 470      | 570        | 720      | 840      | 1050     | 1250     |
| <b>UL, max. FLA</b>   | 150   | 200      | 250      | 300      | 400      | 500        | 600      | 700      | 900      | 1000     |
|   | 192   | 248      | 302      | 361      | 480      | 590        | 720      | 840      | 1062     | 1250     |
| <b>400 V, 40 °C</b>   |   |          |          |          |          |            |          |          |          |          |
| <b>Using manual motor starter or MCCB, type 1 coordination will be achieved.<sup>1)</sup></b>   | <b>MCCB (50 kA)</b>   |          |          |          |          |            |          |          |          |          |
|   | T4S320  | T5S400   | T5S630   | T7S800   | T7S1250  | E2.2N 2000 |          |          |          |          |
| <b>Using gG fuses, type 1 coordination will be achieved. To achieve type 2 coordination, semiconductor fuses must be used.<sup>1)</sup></b> | <b>Fuse protection (80 kA), Semiconductor fuses, Bussmann</b> |          |          |          |          |            |          |          |          |          |
|   | 170M5812  | 170M5813 | 170M6812 | 170M6813 | 170M6814 | 170M8554   | 170M6018 | 170M6020 | 170M6021 |          |
| <b>Suitable switch fuse for the recommended semiconductor fuses.<sup>1)</sup></b>   | <b>Switch fuse</b>  |          |          |          |          |            |          |          |          |          |
|   | OS400   | OS630    | OS800    |          |          |            |          |          |          |          |
| <b>The line contactor is not required for the softstarter itself but often used to open if OL trips.<sup>1)</sup></b>                       | <b>Line contactor</b>   |          |          |          |          |            |          |          |          |          |
|   | AF265   | AF265    | AF305    | AF370    | AF580    | AF580      | AF750    | AF1350   | AF1650   | -        |

<sup>1)</sup> These is an example of coordination. For more examples see: [applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)

# PSTX - The advanced range

Normal starts, class 10, in-line

Ordering details

### Typical applications

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



For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



PSTX30... PSTX105   PSTX142... PSTX170   PSTX210... PSTX370   PSTX470... PSTX570   PSTX720... PSTX840   PSTX1050... PSTX1250

| Rated operational voltage $U_e$ , 208...600 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |          |          |          |         |                 |                 |          |          |
|--|-------|-------|---------|-------------------------|----------|----------|----------|---------|-----------------|-----------------|----------|----------|
| IEC  |       |       |         | UL/CSA                  |          |          |          | Type    |                 | Order code      | Weight   |          |
| Rated operational power  |       |       | current | Rated operational power |          |          |          | current |                 |                 | pkg/1pce |          |
| 400V   | 500V  | 690V  |         | 200/208V                | 220/240V | 440/480V | 550/600V |         |                 |                 |          |          |
| $P_e$  | $P_e$ | $P_e$ | $I_e$   | $P_e$                   | $P_e$    | $P_e$    | $P_e$    | FLA     |                 |                 | kg       | (lb)     |
| 15   | 18.5  | -     | 30      | 7.5                     | 10       | 20       | 25       | 28      | PSTX30-600-70   | 1SFA898103R7000 | 6.10     | (13.45)  |
| 18.5   | 22    | -     | 37      | 10                      | 10       | 25       | 30       | 34      | PSTX37-600-70   | 1SFA898104R7000 | 6.10     | (13.45)  |
| 22   | 25    | -     | 45      | 10                      | 15       | 30       | 40       | 42      | PSTX45-600-70   | 1SFA898105R7000 | 6.10     | (13.45)  |
| 30   | 37    | -     | 60      | 20                      | 20       | 40       | 50       | 60      | PSTX60-600-70   | 1SFA898106R7000 | 6.10     | (13.45)  |
| 37   | 45    | -     | 72      | 20                      | 25       | 50       | 60       | 68      | PSTX72-600-70   | 1SFA898107R7000 | 6.10     | (13.45)  |
| 45   | 55    | -     | 85      | 25                      | 30       | 60       | 75       | 80      | PSTX85-600-70   | 1SFA898108R7000 | 6.10     | (13.45)  |
| 55   | 75    | -     | 106     | 30                      | 40       | 75       | 100      | 104     | PSTX105-600-70  | 1SFA898109R7000 | 6.10     | (13.45)  |
| 75   | 90    | -     | 143     | 40                      | 50       | 100      | 125      | 130     | PSTX142-600-70  | 1SFA898110R7000 | 9.60     | (21.16)  |
| 90   | 110   | -     | 171     | 50                      | 60       | 125      | 150      | 169     | PSTX170-600-70  | 1SFA898111R7000 | 9.60     | (21.16)  |
| 110  | 132   | -     | 210     | 60                      | 75       | 150      | 200      | 192     | PSTX210-600-70  | 1SFA898112R7000 | 12.70    | (27.99)  |
| 132  | 160   | -     | 250     | 75                      | 100      | 200      | 250      | 248     | PSTX250-600-70  | 1SFA898113R7000 | 12.70    | (27.99)  |
| 160  | 200   | -     | 300     | 100                     | 100      | 250      | 300      | 302     | PSTX300-600-70  | 1SFA898114R7000 | 12.70    | (27.99)  |
| 200  | 257   | -     | 370     | 125                     | 150      | 300      | 350      | 361     | PSTX370-600-70  | 1SFA898115R7000 | 12.70    | (27.99)  |
| 250  | 315   | -     | 470     | 150                     | 200      | 400      | 500      | 480     | PSTX470-600-70  | 1SFA898116R7000 | 25.00    | (55.12)  |
| 315  | 400   | -     | 570     | 200                     | 200      | 500      | 600      | 590     | PSTX570-600-70  | 1SFA898117R7000 | 25.00    | (55.12)  |
| 400  | 500   | -     | 720     | 250                     | 300      | 600      | 700      | 720     | PSTX720-600-70  | 1SFA898118R7000 | 46.20    | (101.85) |
| 450  | 600   | -     | 840     | 300                     | 350      | 700      | 800      | 840     | PSTX840-600-70  | 1SFA898119R7000 | 46.20    | (101.85) |
| 560  | 730   | -     | 1050    | 400                     | 450      | 900      | 1000     | 1062    | PSTX1050-600-70 | 1SFA898120R7000 | 64.20    | (141.54) |
| 710  | 880   | -     | 1250    | 400                     | 500      | 1000     | 1200     | 1250    | PSTX1250-600-70 | 1SFA898121R7000 | 64.70    | (142.64) |
| Rated operational voltage $U_e$ , 208...690 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |          |          |          |         |                 |                 |          |          |
| 15   | 18.5  | 25    | 30      | 7.5                     | 10       | 20       | 25       | 28      | PSTX30-690-70   | 1SFA898203R7000 | 6.10     | (13.45)  |
| 18.5   | 22    | 30    | 37      | 10                      | 10       | 25       | 30       | 34      | PSTX37-690-70   | 1SFA898204R7000 | 6.10     | (13.45)  |
| 22   | 25    | 37    | 45      | 10                      | 15       | 30       | 40       | 42      | PSTX45-690-70   | 1SFA898205R7000 | 6.10     | (13.45)  |
| 30   | 37    | 55    | 60      | 20                      | 20       | 40       | 50       | 60      | PSTX60-690-70   | 1SFA898206R7000 | 6.10     | (13.45)  |
| 37   | 45    | 59    | 72      | 20                      | 25       | 50       | 60       | 68      | PSTX72-690-70   | 1SFA898207R7000 | 6.10     | (13.45)  |
| 45   | 55    | 75    | 85      | 25                      | 30       | 60       | 75       | 80      | PSTX85-690-70   | 1SFA898208R7000 | 6.10     | (13.45)  |
| 55   | 75    | 90    | 106     | 30                      | 40       | 75       | 100      | 104     | PSTX105-690-70  | 1SFA898209R7000 | 6.10     | (13.45)  |
| 75   | 90    | 132   | 143     | 40                      | 50       | 100      | 125      | 130     | PSTX142-690-70  | 1SFA898210R7000 | 9.60     | (21.16)  |
| 90   | 110   | 160   | 171     | 50                      | 60       | 125      | 150      | 169     | PSTX170-690-70  | 1SFA898211R7000 | 9.60     | (21.16)  |
| 110  | 132   | 184   | 210     | 60                      | 75       | 150      | 200      | 192     | PSTX210-690-70  | 1SFA898212R7000 | 12.70    | (27.99)  |
| 132  | 160   | 220   | 250     | 75                      | 100      | 200      | 250      | 248     | PSTX250-690-70  | 1SFA898213R7000 | 12.70    | (27.99)  |
| 160  | 200   | 257   | 300     | 100                     | 100      | 250      | 300      | 302     | PSTX300-690-70  | 1SFA898214R7000 | 12.70    | (27.99)  |
| 200  | 257   | 355   | 370     | 125                     | 150      | 300      | 350      | 361     | PSTX370-690-70  | 1SFA898215R7000 | 12.70    | (27.99)  |
| 250  | 315   | 450   | 470     | 150                     | 200      | 400      | 500      | 480     | PSTX470-690-70  | 1SFA898216R7000 | 25.00    | (55.12)  |
| 315  | 400   | 560   | 570     | 200                     | 200      | 500      | 600      | 590     | PSTX570-690-70  | 1SFA898217R7000 | 25.00    | (55.12)  |
| 400  | 500   | 710   | 720     | 250                     | 300      | 600      | 700      | 720     | PSTX720-690-70  | 1SFA898218R7000 | 46.20    | (101.85) |
| 450  | 600   | 800   | 840     | 300                     | 350      | 700      | 800      | 840     | PSTX840-690-70  | 1SFA898219R7000 | 46.20    | (101.85) |
| 560  | 730   | 1000  | 1050    | 400                     | 450      | 900      | 1000     | 1062    | PSTX1050-690-70 | 1SFA898220R7000 | 64.20    | (141.54) |
| 710  | 880   | 1200  | 1250    | 400                     | 500      | 1000     | 1200     | 1250    | PSTX1250-690-70 | 1SFA898221R7000 | 64.70    | (142.64) |



# PSTX - The advanced range

Heavy-duty starts, class 30, in-line

Ordering details

**Typical applications**

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



For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



PSTX30... PSTX105    PSTX142... PSTX170    PSTX210... PSTX370    PSTX470... PSTX570    PSTX720... PSTX840    PSTX1050... PSTX1250

| Rated operational voltage $U_e$ , 208...600 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |           |           |           |      |                 |                 |          |          |
|--|-------|-------|---------|-------------------------|-----------|-----------|-----------|------|-----------------|-----------------|----------|----------|
| IEC  |       |       |         | UL/CSA                  |           |           |           | Type |                 | Order code      | Weight   |          |
| Rated operational power  |       |       | current | Rated operational power |           |           |           |      | FLA             |                 | pkg/1pce |          |
| 400V   | 500V  | 690V  |         | 200/240 V               | 220/240 V | 440/480 V | 550/600 V |      |                 |                 |          |          |
| $P_e$  | $P_e$ | $P_e$ | $I_e$   | $P_e$                   | $P_e$     | $P_e$     | $P_e$     | A    |                 | kg              | (lb)     |          |
| kW   | kW    | kW    | A       | hp                      | hp        | hp        | hp        |      |                 |                 |          |          |
| 11   | 15    | -     | 22      | 5                       | 7.5       | 15        | 20        | 25   | PSTX30-600-70   | 1SFA898103R7000 | 6.10     | (13.45)  |
| 15   | 18.5  | -     | 30      | 7.5                     | 10        | 20        | 25        | 28   | PSTX37-600-70   | 1SFA898104R7000 | 6.10     | (13.45)  |
| 18.5   | 22    | -     | 37      | 10                      | 10        | 25        | 30        | 34   | PSTX45-600-70   | 1SFA898105R7000 | 6.10     | (13.45)  |
| 22   | 25    | -     | 45      | 10                      | 15        | 30        | 40        | 42   | PSTX60-600-70   | 1SFA898106R7000 | 6.10     | (13.45)  |
| 30   | 37    | -     | 60      | 20                      | 20        | 40        | 50        | 60   | PSTX72-600-70   | 1SFA898107R7000 | 6.10     | (13.45)  |
| 37   | 45    | -     | 72      | 20                      | 25        | 50        | 60        | 68   | PSTX85-600-70   | 1SFA898108R7000 | 6.10     | (13.45)  |
| 45   | 55    | -     | 85      | 25                      | 30        | 60        | 75        | 80   | PSTX105-600-70  | 1SFA898109R7000 | 6.10     | (13.45)  |
| 55   | 75    | -     | 106     | 30                      | 40        | 75        | 100       | 104  | PSTX142-600-70  | 1SFA898110R7000 | 9.60     | (21.16)  |
| 75   | 90    | -     | 143     | 40                      | 50        | 100       | 125       | 130  | PSTX170-600-70  | 1SFA898111R7000 | 9.60     | (21.16)  |
| 90   | 110   | -     | 171     | 50                      | 60        | 125       | 150       | 169  | PSTX210-600-70  | 1SFA898112R7000 | 12.70    | (27.99)  |
| 110  | 132   | -     | 210     | 60                      | 75        | 150       | 200       | 192  | PSTX250-600-70  | 1SFA898113R7000 | 12.70    | (27.99)  |
| 132  | 160   | -     | 250     | 75                      | 100       | 200       | 250       | 248  | PSTX300-600-70  | 1SFA898114R7000 | 12.70    | (27.99)  |
| 160  | 200   | -     | 300     | 100                     | 100       | 250       | 300       | 302  | PSTX370-600-70  | 1SFA898115R7000 | 12.70    | (27.99)  |
| 200  | 257   | -     | 370     | 125                     | 150       | 300       | 350       | 361  | PSTX470-600-70  | 1SFA898116R7000 | 25.00    | (55.12)  |
| 250  | 315   | -     | 470     | 150                     | 200       | 400       | 500       | 480  | PSTX570-600-70  | 1SFA898117R7000 | 25.00    | (55.12)  |
| 315  | 400   | -     | 570     | 200                     | 200       | 500       | 600       | 590  | PSTX720-600-70  | 1SFA898118R7000 | 46.20    | (101.85) |
| 400  | 500   | -     | 720     | 250                     | 300       | 600       | 700       | 720  | PSTX840-600-70  | 1SFA898119R7000 | 46.20    | (101.85) |
| 450  | 600   | -     | 840     | 300                     | 350       | 700       | 800       | 840  | PSTX1050-600-70 | 1SFA898120R7000 | 64.20    | (141.54) |
| 560  | 730   | -     | 1050    | 400                     | 450       | 900       | 1000      | 1062 | PSTX1250-600-70 | 1SFA898121R7000 | 64.70    | (142.64) |
| Rated operational voltage $U_e$ , 208...690 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |           |           |           |      |                 |                 |          |          |
| 11   | 15    | 18.5  | 22      | 5                       | 7.5       | 15        | 20        | 25   | PSTX30-690-70   | 1SFA898203R7000 | 6.10     | (13.45)  |
| 15   | 18.5  | 25    | 30      | 7.5                     | 10        | 20        | 25        | 28   | PSTX37-690-70   | 1SFA898204R7000 | 6.10     | (13.45)  |
| 18.5   | 22    | 30    | 37      | 10                      | 10        | 25        | 30        | 34   | PSTX45-690-70   | 1SFA898205R7000 | 6.10     | (13.45)  |
| 22   | 25    | 37    | 44      | 10                      | 15        | 30        | 40        | 42   | PSTX60-690-70   | 1SFA898206R7000 | 6.10     | (13.45)  |
| 30   | 37    | 55    | 60      | 20                      | 20        | 40        | 50        | 60   | PSTX72-690-70   | 1SFA898207R7000 | 6.10     | (13.45)  |
| 37   | 45    | 59    | 72      | 20                      | 25        | 50        | 60        | 68   | PSTX85-690-70   | 1SFA898208R7000 | 6.10     | (13.45)  |
| 45   | 55    | 75    | 85      | 25                      | 30        | 60        | 75        | 80   | PSTX105-690-70  | 1SFA898209R7000 | 6.10     | (13.45)  |
| 55   | 75    | 90    | 106     | 30                      | 40        | 75        | 100       | 104  | PSTX142-690-70  | 1SFA898210R7000 | 9.60     | (21.16)  |
| 75   | 90    | 132   | 143     | 40                      | 50        | 100       | 125       | 130  | PSTX170-690-70  | 1SFA898211R7000 | 9.60     | (21.16)  |
| 90   | 110   | 160   | 171     | 50                      | 60        | 125       | 150       | 169  | PSTX210-690-70  | 1SFA898212R7000 | 12.70    | (27.99)  |
| 110  | 132   | 184   | 210     | 60                      | 75        | 150       | 200       | 192  | PSTX250-690-70  | 1SFA898213R7000 | 12.70    | (27.99)  |
| 132  | 160   | 220   | 250     | 75                      | 100       | 200       | 250       | 248  | PSTX300-690-70  | 1SFA898214R7000 | 12.70    | (27.99)  |
| 160  | 200   | 257   | 300     | 100                     | 100       | 250       | 300       | 302  | PSTX370-690-70  | 1SFA898215R7000 | 12.70    | (27.99)  |
| 200  | 257   | 355   | 370     | 125                     | 150       | 300       | 350       | 361  | PSTX470-690-70  | 1SFA898216R7000 | 25.00    | (55.12)  |
| 250  | 315   | 450   | 470     | 150                     | 200       | 400       | 500       | 480  | PSTX570-690-70  | 1SFA898217R7000 | 25.00    | (55.12)  |
| 315  | 400   | 560   | 570     | 200                     | 200       | 500       | 600       | 590  | PSTX720-690-70  | 1SFA898218R7000 | 46.20    | (101.85) |
| 400  | 500   | 710   | 720     | 250                     | 300       | 600       | 700       | 720  | PSTX840-690-70  | 1SFA898219R7000 | 46.20    | (101.85) |
| 450  | 600   | 800   | 840     | 300                     | 350       | 700       | 800       | 840  | PSTX1050-690-70 | 1SFA898220R7000 | 64.20    | (141.54) |
| 560  | 730   | 1000  | 1050    | 400                     | 450       | 900       | 1000      | 1062 | PSTX1250-690-70 | 1SFA898221R7000 | 64.70    | (142.64) |

# PSTX - The advanced range

Normal starts, class 10, inside delta

Ordering details

**Typical applications:**

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



For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



PSTX30 ... PSTX105   PSTX142 ... PSTX170   PSTX210 ... PSTX370   PSTX470 ... PSTX570   PSTX720 ... PSTX840   PSTX1050 ... PSTX1250

| Rated operational voltage $U_e$ , 208...600 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |          |          |          |       |                 |                 |                |  |
|--|-------|-------|---------|-------------------------|----------|----------|----------|-------|-----------------|-----------------|----------------|--|
| IEC  |       |       |         | UL/CSA                  |          |          |          | Type  |                 | Order code      | Weight         |  |
| Rated operational power  |       |       | current | Rated operational power |          |          |          |       | FLA             | pkg/1pce        |                |  |
| 400 V  | 500 V | 690 V |         | 200/208V                | 220/240V | 440/480V | 550/600V | kg    |                 | (lb)            |                |  |
| $P_e$  | $P_e$ | $P_e$ | $I_e$   | $P_e$                   | $P_e$    | $P_e$    | $P_e$    | $P_e$ |                 |                 |                |  |
| kW   | kW    | kW    | A       | hp                      | hp       | hp       | hp       | hp    |                 |                 |                |  |
| 25   | 30    | -     | 52      | 10                      | 15       | 30       | 40       | 48    | PSTX30-600-70   | 1SFA898103R7000 | 6.10 (13.45)   |  |
| 30   | 37    | -     | 64      | 15                      | 20       | 40       | 50       | 58    | PSTX37-600-70   | 1SFA898104R7000 | 6.10 (13.45)   |  |
| 37   | 45    | -     | 76      | 20                      | 25       | 50       | 60       | 72    | PSTX45-600-70   | 1SFA898105R7000 | 6.10 (13.45)   |  |
| 55   | 75    | -     | 105     | 30                      | 40       | 75       | 100      | 103   | PSTX60-600-70   | 1SFA898106R7000 | 6.10 (13.45)   |  |
| 59   | 80    | -     | 124     | 30                      | 40       | 75       | 100      | 117   | PSTX72-600-70   | 1SFA898107R7000 | 6.10 (13.45)   |  |
| 75   | 90    | -     | 147     | 40                      | 50       | 100      | 125      | 138   | PSTX85-600-70   | 1SFA898108R7000 | 6.10 (13.45)   |  |
| 90   | 110   | -     | 181     | 60                      | 60       | 150      | 150      | 180   | PSTX105-600-70  | 1SFA898109R7000 | 6.10 (13.45)   |  |
| 132  | 160   | -     | 245     | 75                      | 75       | 150      | 200      | 225   | PSTX142-600-70  | 1SFA898110R7000 | 9.60 (21.16)   |  |
| 160  | 200   | -     | 300     | 75                      | 100      | 200      | 250      | 292   | PSTX170-600-70  | 1SFA898111R7000 | 9.60 (21.16)   |  |
| 184  | 250   | -     | 360     | 100                     | 125      | 250      | 300      | 332   | PSTX210-600-70  | 1SFA898112R7000 | 12.70 (27.99)  |  |
| 220  | 295   | -     | 430     | 150                     | 150      | 350      | 450      | 429   | PSTX250-600-70  | 1SFA898113R7000 | 12.70 (27.99)  |  |
| 257  | 355   | -     | 515     | 150                     | 200      | 450      | 500      | 523   | PSTX300-600-70  | 1SFA898114R7000 | 12.70 (27.99)  |  |
| 355  | 450   | -     | 640     | 200                     | 250      | 500      | 600      | 625   | PSTX370-600-70  | 1SFA898115R7000 | 12.70 (27.99)  |  |
| 450  | 600   | -     | 814     | 250                     | 300      | 600      | 700      | 830   | PSTX470-600-70  | 1SFA898116R7000 | 25.00 (55.12)  |  |
| 540  | 700   | -     | 987     | 300                     | 350      | 700      | 800      | 1020  | PSTX570-600-70  | 1SFA898117R7000 | 25.00 (55.12)  |  |
| 710  | 880   | -     | 1247    | 400                     | 500      | 1000     | 1200     | 1240  | PSTX720-600-70  | 1SFA898118R7000 | 46.20 (101.85) |  |
| 800  | 1000  | -     | 1455    | 500                     | 600      | 1200     | 1500     | 1450  | PSTX840-600-70  | 1SFA898119R7000 | 46.20 (101.85) |  |
| 1000   | 1250  | -     | 1810    | 600                     | 700      | 1500     | 1800     | 1830  | PSTX1050-600-70 | 1SFA898120R7000 | 64.20 (141.54) |  |
| 1200   | 1500  | -     | 2160    | 800                     | 900      | 1800     | 2000     | 2160  | PSTX1250-600-70 | 1SFA898121R1000 | 64.70 (142.64) |  |
| Rated operational voltage $U_e$ , 208...690 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |       |         |                         |          |          |          |       |                 |                 |                |  |
| 25   | 30    | 45    | 52      | 10                      | 15       | 30       | 40       | 48    | PSTX30-690-70   | 1SFA898203R7000 | 6.10 (13.45)   |  |
| 30   | 37    | 55    | 64      | 15                      | 20       | 40       | 50       | 58    | PSTX37-690-70   | 1SFA898204R7000 | 6.10 (13.45)   |  |
| 37   | 45    | 59    | 76      | 20                      | 25       | 50       | 60       | 72    | PSTX45-690-70   | 1SFA898205R7000 | 6.10 (13.45)   |  |
| 55   | 75    | 90    | 105     | 30                      | 40       | 75       | 100      | 103   | PSTX60-690-70   | 1SFA898206R7000 | 6.10 (13.45)   |  |
| 59   | 80    | 110   | 124     | 30                      | 40       | 75       | 100      | 117   | PSTX72-690-70   | 1SFA898207R7000 | 6.10 (13.45)   |  |
| 75   | 90    | 132   | 147     | 40                      | 50       | 100      | 125      | 138   | PSTX85-690-70   | 1SFA898208R7000 | 6.10 (13.45)   |  |
| 90   | 110   | 160   | 181     | 60                      | 60       | 150      | 150      | 180   | PSTX105-690-70  | 1SFA898209R7000 | 6.10 (13.45)   |  |
| 132  | 160   | 220   | 245     | 75                      | 75       | 150      | 200      | 225   | PSTX142-690-70  | 1SFA898210R7000 | 9.60 (21.16)   |  |
| 160  | 200   | 257   | 300     | 75                      | 100      | 200      | 250      | 292   | PSTX170-690-70  | 1SFA898211R7000 | 9.60 (21.16)   |  |
| 184  | 250   | 315   | 360     | 100                     | 125      | 250      | 300      | 332   | PSTX210-690-70  | 1SFA898212R7000 | 12.70 (27.99)  |  |
| 220  | 295   | 400   | 430     | 150                     | 150      | 350      | 450      | 429   | PSTX250-690-70  | 1SFA898213R7000 | 12.70 (27.99)  |  |
| 257  | 355   | 500   | 515     | 150                     | 200      | 450      | 500      | 523   | PSTX300-690-70  | 1SFA898214R7000 | 12.70 (27.99)  |  |
| 355  | 450   | 600   | 640     | 200                     | 250      | 500      | 600      | 625   | PSTX370-690-70  | 1SFA898215R7000 | 12.70 (27.99)  |  |
| 450  | 600   | 800   | 814     | 250                     | 300      | 600      | 700      | 830   | PSTX470-690-70  | 1SFA898216R7000 | 25.00 (55.12)  |  |
| 540  | 700   | 960   | 987     | 300                     | 350      | 700      | 800      | 1020  | PSTX570-690-70  | 1SFA898217R7000 | 25.00 (55.12)  |  |
| 710  | 880   | 1200  | 1247    | 400                     | 500      | 1000     | 1200     | 1240  | PSTX720-690-70  | 1SFA898218R7000 | 46.20 (101.85) |  |
| 800  | 1000  | 1400  | 1455    | 500                     | 600      | 1200     | 1500     | 1450  | PSTX840-690-70  | 1SFA898219R7000 | 46.20 (101.85) |  |
| 1000   | 1250  | 1700  | 1810    | 600                     | 700      | 1500     | 1800     | 1830  | PSTX1050-690-70 | 1SFA898220R7000 | 64.20 (141.54) |  |
| 1200   | 1500  | 2000  | 2160    | 800                     | 900      | 1800     | 2000     | 2160  | PSTX1250-690-70 | 1SFA898221R7000 | 64.70 (142.64) |  |

# PSTX - The advanced range

Heavy-duty starts, class 30, inside delta

Ordering details

**Typical applications:**

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



For a more precise selection, use the online softstarter selection tool available by scanning the shown QR code or using the selection tool available on: [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)









PSTX30 ... PSTX105   PSTX142 ... PSTX170   PSTX210 ... PSTX370   PSTX470 ... PSTX570   PSTX720 ... PSTX840   PSTX1050 ... PSTX1250

| Rated operational voltage $U_e$ , 208...600 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |         |       |                         |          |          |          |      |                 |                 |       |          |  |
|--|-------|---------|-------|-------------------------|----------|----------|----------|------|-----------------|-----------------|-------|----------|--|
| IEC  |       |         |       | UL/CSA                  |          |          |          | Type |                 | Order code      |       | Weight   |  |
| Rated operational power  |       | current |       | Rated operational power |          | current  |          |      |                 | pkg/1pce        |       |          |  |
| 400 V 500 V 690 V  |       |         |       | 200/208V                | 220/240V | 440/480V | 550/600V |      |                 |                 |       |          |  |
| $P_e$  | $P_e$ | $P_e$   | $I_e$ | $P_e$                   | $P_e$    | $P_e$    | $P_e$    | FLA  |                 |                 | kg    | (lb)     |  |
| kW   | kW    | kW      | A     | hp                      | hp       | hp       | hp       | A    |                 |                 |       |          |  |
| 18.5   | 25    | -       | 42    | 7.5                     | 10       | 25       | 30       | 34   | PSTX30-600-70   | 1SFA898103R7000 | 6.10  | (13.45)  |  |
| 25   | 30    | -       | 52    | 10                      | 15       | 30       | 40       | 48   | PSTX37-600-70   | 1SFA898104R7000 | 6.10  | (13.45)  |  |
| 30   | 37    | -       | 64    | 15                      | 20       | 40       | 50       | 58   | PSTX45-600-70   | 1SFA898105R7000 | 6.10  | (13.45)  |  |
| 37   | 45    | -       | 76    | 20                      | 25       | 50       | 60       | 72   | PSTX60-600-70   | 1SFA898106R7000 | 6.10  | (13.45)  |  |
| 55   | 75    | -       | 105   | 30                      | 40       | 75       | 100      | 103  | PSTX72-600-70   | 1SFA898107R7000 | 6.10  | (13.45)  |  |
| 59   | 80    | -       | 124   | 30                      | 40       | 75       | 100      | 117  | PSTX85-600-70   | 1SFA898108R7000 | 6.10  | (13.45)  |  |
| 75   | 90    | -       | 147   | 40                      | 50       | 100      | 125      | 138  | PSTX105-600-70  | 1SFA898109R7000 | 6.10  | (13.45)  |  |
| 90   | 110   | -       | 181   | 60                      | 60       | 150      | 150      | 180  | PSTX142-600-70  | 1SFA898110R7000 | 9.60  | (21.16)  |  |
| 132  | 160   | -       | 245   | 75                      | 75       | 150      | 200      | 225  | PSTX170-600-70  | 1SFA898111R7000 | 9.60  | (21.16)  |  |
| 160  | 200   | -       | 300   | 75                      | 100      | 200      | 250      | 292  | PSTX210-600-70  | 1SFA898112R7000 | 12.70 | (27.99)  |  |
| 184  | 250   | -       | 360   | 100                     | 125      | 250      | 300      | 332  | PSTX250-600-70  | 1SFA898113R7000 | 12.70 | (27.99)  |  |
| 220  | 295   | -       | 430   | 150                     | 150      | 350      | 450      | 429  | PSTX300-600-70  | 1SFA898114R7000 | 12.70 | (27.99)  |  |
| 257  | 355   | -       | 515   | 150                     | 200      | 450      | 500      | 523  | PSTX370-600-70  | 1SFA898115R7000 | 12.70 | (27.99)  |  |
| 355  | 450   | -       | 640   | 200                     | 250      | 500      | 600      | 625  | PSTX470-600-70  | 1SFA898116R7000 | 25.00 | (55.12)  |  |
| 450  | 600   | -       | 814   | 250                     | 300      | 600      | 700      | 830  | PSTX570-600-70  | 1SFA898117R7000 | 25.00 | (55.12)  |  |
| 540  | 700   | -       | 987   | 300                     | 350      | 700      | 800      | 1020 | PSTX720-600-70  | 1SFA898118R7000 | 46.20 | (101.85) |  |
| 710  | 880   | -       | 1247  | 400                     | 500      | 1000     | 1200     | 1240 | PSTX840-600-70  | 1SFA898119R7000 | 46.20 | (101.85) |  |
| 800  | 1000  | -       | 1455  | 500                     | 600      | 1200     | 1500     | 1450 | PSTX1050-600-70 | 1SFA898120R7000 | 64.20 | (141.54) |  |
| 1000   | 1250  | -       | 1810  | 600                     | 700      | 1500     | 1800     | 1830 | PSTX1250-600-70 | 1SFA898121R7000 | 64.70 | (142.64) |  |
| Rated operational voltage $U_e$ , 208...690 V, rated control supply voltage $U_s$ , 100...250 V AC, 50/60 Hz |       |         |       |                         |          |          |          |      |                 |                 |       |          |  |
| 18.5   | 25    | 37      | 42    | 7.5                     | 10       | 25       | 30       | 34   | PSTX30-690-70   | 1SFA898203R7000 | 6.10  | (13.45)  |  |
| 25   | 30    | 45      | 52    | 10                      | 15       | 30       | 40       | 48   | PSTX37-690-70   | 1SFA898204R7000 | 6.10  | (13.45)  |  |
| 30   | 37    | 55      | 64    | 15                      | 20       | 40       | 50       | 58   | PSTX45-690-70   | 1SFA898205R7000 | 6.10  | (13.45)  |  |
| 37   | 45    | 59      | 76    | 20                      | 25       | 50       | 60       | 72   | PSTX60-690-70   | 1SFA898206R7000 | 6.10  | (13.45)  |  |
| 55   | 75    | 90      | 105   | 30                      | 40       | 75       | 100      | 103  | PSTX72-690-70   | 1SFA898207R7000 | 6.10  | (13.45)  |  |
| 59   | 80    | 110     | 124   | 30                      | 40       | 75       | 100      | 117  | PSTX85-690-70   | 1SFA898208R7000 | 6.10  | (13.45)  |  |
| 75   | 90    | 132     | 147   | 40                      | 50       | 100      | 125      | 138  | PSTX105-690-70  | 1SFA898209R7000 | 6.10  | (13.45)  |  |
| 90   | 110   | 160     | 181   | 60                      | 60       | 150      | 150      | 180  | PSTX142-690-70  | 1SFA898210R7000 | 9.60  | (21.16)  |  |
| 132  | 160   | 220     | 245   | 75                      | 75       | 150      | 200      | 225  | PSTX170-690-70  | 1SFA898211R7000 | 9.60  | (21.16)  |  |
| 160  | 200   | 257     | 300   | 75                      | 100      | 200      | 250      | 292  | PSTX210-690-70  | 1SFA898212R7000 | 12.70 | (27.99)  |  |
| 184  | 250   | 315     | 360   | 100                     | 125      | 250      | 300      | 332  | PSTX250-690-70  | 1SFA898213R7000 | 12.70 | (27.99)  |  |
| 220  | 295   | 400     | 430   | 150                     | 150      | 350      | 450      | 429  | PSTX300-690-70  | 1SFA898214R7000 | 12.70 | (27.99)  |  |
| 257  | 355   | 500     | 515   | 150                     | 200      | 450      | 500      | 523  | PSTX370-690-70  | 1SFA898215R7000 | 12.70 | (27.99)  |  |
| 355  | 450   | 600     | 640   | 200                     | 250      | 500      | 600      | 625  | PSTX470-690-70  | 1SFA898216R7000 | 25.00 | (55.12)  |  |
| 450  | 600   | 800     | 814   | 250                     | 300      | 600      | 700      | 830  | PSTX570-690-70  | 1SFA898217R7000 | 25.00 | (55.12)  |  |
| 540  | 700   | 960     | 987   | 300                     | 350      | 700      | 800      | 1020 | PSTX720-690-70  | 1SFA898218R7000 | 46.20 | (101.85) |  |
| 710  | 880   | 1200    | 1247  | 400                     | 500      | 1000     | 1200     | 1240 | PSTX840-690-70  | 1SFA898219R7000 | 46.20 | (101.85) |  |
| 800  | 1000  | 1400    | 1455  | 500                     | 600      | 1200     | 1500     | 1450 | PSTX1050-690-70 | 1SFA898220R7000 | 64.20 | (141.54) |  |
| 1000   | 1250  | 1700    | 1810  | 600                     | 700      | 1500     | 1800     | 1830 | PSTX1250-690-70 | 1SFA898221R7000 | 64.70 | (142.64) |  |











## PSTX - The advanced range

### Accessories

| Article   | Wire range<br>mm <sup>2</sup>  | Tightening<br>torque max.<br>Nm             | Type          | Order code      | Pkg<br>qty      | Weight<br>pkg /1pce<br>kg (lb) |
|---|--|---|---------------|-----------------|-----------------|--------------------------------|
| <b>Cable connectors for Cu cables</b>   |  |   |               |                 |                 |                                |
|    | PSTX142 ... PSTX170  | 6-120                                       | 8             | -               | 1SDA066917R1    | 3 0.113 (0.249)                |
|   | PSTX142 ... PSTX170  | 2 x (50-95)                                 | 16            | LZ185-2C/120    | 1SFN074709R1000 | 3 0.300 (0.661)                |
|   | PSTX210 ... PSTX370  | 16-240                                      | 25            | -               | 1SDA055016R1    | 3 0.133 (0.293)                |
|   | PSTX210 ... PSTX370  | 2 x (70-185)                                | 22            | OZXB4           | 1SCA022194R0890 | 3 0.570 (1.257)                |
|   | PSTX470 ... PSTX570  | 2 x (120-240)                               | 35            | -               | 1SDA013922R1    | 3 0.570 (1.257)                |
| PSTX570 ... PSTX1050  | 3 x (70-185)   | 45  | -             | 1SDA013956R1    | 3 0.570 (1.257) |                                |
| <b>Cable connectors for Al cables</b>   |  |   |               |                 |                 |                                |
|    | PSTX142 ... PSTX170  | 95-185                                      | 31            | -               | 1SDA054988R1    | 6 0.078 (0.172)                |
|   | PSTX210 ... PSTX370  | 185-240                                     | 43            | -               | 1SDA055020R1    | 6 0.133 (0.293)                |
|   | PSTX470 ... PSTX1050   | 2 x (120-240)                               | 31            | -               | 1SDA023380R1    | 6 0.110 (0.243)                |
| <b>Terminal extensions</b>  |  |   |               |                 |                 |                                |
|    |  | <b>Dimensions<br/>hole ø mm<sup>2</sup></b> | <b>bar mm</b> |                 |                 |                                |
|   | PSTX142 ... PSTX170  | 8.5   | 17.5 x 5      | LX205           | 1SFN074810R1000 | 1 0.250 (5.551)                |
|   | PSTX210 ... PSTX370  | 10.5  | 20 x 5        | LX370           | 1SFN075410R1000 | 1 0.350 (0.772)                |
|   | PSTX470 ... PSTX570  | 10.5  | 25 x 5        | LX460           | 1SFN075710R1000 | 1 0.500 (1.102)                |
| PSTX720 ... PSTX840   | 13   | 40 x 6                                      | LX750         | 1SFN076110R1003 | 1 0.850 (1.874) |                                |
| <b>Terminal enlargements</b>  |  |   |               |                 |                 |                                |
|   | PSTX30 ... PSTX105   | 6.5   | 15 x 3        | LW110           | 1SFN074307R1000 | 1 0.100 (0.220)                |
|   | PSTX142 ... PSTX170  | 10.5  | 17.5 x 5      | LW205           | 1SFN074807R1000 | 1 0.250 (5.551)                |
|   | PSTX210 ... PSTX370  | 10.5  | 20 x 5        | LW370           | 1SFN075407R1000 | 1 0.450 (0.992)                |
|   | PSTX470 ... PSTX570  | 10.5  | 25 x 5        | LW460           | 1SFN075707R1000 | 1 0.730 (1.609)                |
|   | PSTX720 ... PSTX840  | 13  | 40 x 6        | LW750           | 1SFN076107R1000 | 1 1.230 (2.712)                |
| <b>Terminal shrouds</b>   |  |   |               |                 |                 |                                |
|  | PSTX142 ... PSTX170, short for use with cable clamps                                       |   |               | LT205-30C       | 1SFN124801R1000 | 2 0,050 (0.110)                |
|   | PSTX142 ... PSTX170, long for use with compression lugs                                    |   |               | LT205-30L       | 1SFN124803R1000 | 2 0.220 (0.485)                |
|   | PSTX210 ... PSTX370, short for use with cable clamps                                       |   |               | LT370-30C       | 1SFN125401R1000 | 2 0.035 (0.077)                |
|   | PSTX210 ... PSTX370, long for use with compression lugs                                    |   |               | LT370-30L       | 1SFN125403R1000 | 2 0.280 (0.617)                |
|   | PSTX210 ... PSTX370, long and deep for use with extending cable clamps, ATK300/2 and OZXB4 |   |               | LT370-30D       | 1SFN125406R1000 | 2 0.150 (0.331)                |
|   | PSTX470 ... PSTX570, short for use with cable clamps                                       |   |               | LT460-AC        | 1SFN125701R1000 | 2 0.100 (0.220)                |
|   | PSTX470 ... PSTX570, long for use with compression lugs                                    |   |               | LT460-AL        | 1SFN125703R1000 | 2 0.800 (1.764)                |
|   | PSTX720 ... PSTX840, short for use with cable clamps                                       |   |               | LT750-AC        | 1SFN126101R1000 | 2 0.120 (0.265)                |
|   | PSTX720 ... PSTX840, long for use with compression lugs                                    |   |               | LT750-AL        | 1SFN126103R1000 | 2 0.825 (1.819)                |
| <b>PSTX USB Cable</b>   |  |   |               |                 |                 |                                |
|  | PSTX USB Cable   |   |               | PSCA-1          | 1SFA899314R1001 | 1 0.054 (0.119)                |

## PSTX - The advanced range

### Accessories

| Article  | Type                            | Order code       | Pkg<br>qty      | Weight<br>pkg /1pce |               |
|--|---------------------------------|------------------|-----------------|---------------------|---------------|
|  |                                 |                  |                 | kg                  | (lb)          |
| <b>Anybus connection accessory for communication protocol suitable for PSTX30 ... PSTX1250</b> |                                 |                  |                 |                     |               |
|               | Profibus                        | AB-PROFIBUS-1    | 1SFA899300R1001 | 1                   | 0.042 (0.093) |
|               | DeviceNet                       | AB-DEVICENET-1   | 1SFA899300R1002 | 1                   | 0.042 (0.093) |
|               | Modbus-RTU                      | AB-MODBUS-RTU-1  | 1SFA899300R1003 | 1                   | 0.042 (0.093) |
|               | EtherNet/IP (1-port)            | AB-ETHERNET-IP-1 | 1SFA899300R1005 | 1                   | 0.042 (0.093) |
|               | EtherNet/IP (2-port)            | AB-ETHERNET-IP-2 | 1SFA899300R1006 | 1                   | 0.042 (0.093) |
|               | Modbus/TCP (1-port)             | AB-MODBUS-TCP-1  | 1SFA899300R1007 | 1                   | 0.042 (0.093) |
|               | Modbus/TCP (2-port)             | AB-MODBUS-TCP-2  | 1SFA899300R1008 | 1                   | 0.042 (0.093) |
|              | Profinet (2-port)               | AB-PROFINET-2    | 1SFA899300R1010 | 1                   | 0.042 (0.093) |
| <b>Fieldbus plug connection, cable included</b>  |                                 |                  |                 |                     |               |
|             | Fieldbus plug adaptor           | PS-FBPA          | 1SFA896312R1002 | 1                   | 0.060 (0.132) |
| <b>I/O module, 24 V DC digital input</b>   |                                 |                  |                 |                     |               |
|             | Extension module for I/O        | DX111-FBP.0      | 1SAJ611000R0101 | 1                   | 0.220 (0.485) |
|  | Extension module for I/O 24 VDC | DX122-FBP.0      | 1SAJ622000R0101 | 1                   | 0.220 (0.485) |

## PSTX - The advanced range

### Technical data

| Technical data                           |   | PSTX30 ... PSTX1250  |   |
|--|---|--|---|
| Rated insulation voltage $U_i$           |   | 690V   |   |
| Rated operational voltage $U_e$          |   | 208...600 V, 208...690V +10% / -15%, 50/60Hz ±10%  |   |
| Rated control supply voltage $U_s$       |   | 100...250 V +10% / -15%, 50/60Hz ±10%  |   |
| Rated control circuit voltage $U_c$      |   | Internal or external 24 V DC   |   |
| Starting capacity at $I_e$               |   | 4 x $I_e$ for 10 sec.  |   |
| Number of starts per hour                |   | 10 for PSTX30 ... PSTX370 <sup>1)</sup> 6 for PSTX470 ... PSTX1250 <sup>1)</sup>   |   |
| Overload capability                      | Overload class  | 10   |   |
| Ambient temperature                      | During operation  | -25...+60 °C, (-13...+140 F) <sup>2)</sup>   |   |
|  | During storage  | -40...+70 °C, (-40...+158 F)   |   |
| Maximum altitude                         |   | 4000 m (13123 ft) <sup>3)</sup>  |   |
| Degree of protection                     | Main circuit  | -  |   |
|  | Supply and control circuit                              | IP20   |   |
| Main circuit                             | Built-in bypass contactor                               | Yes  |   |
|  | Cooling system - Fan cooled                             | Yes (thermostat controlled)  |   |
| HMI for settings                         | Display   | LCD type, graphical  |   |
| (Human Machine Interface)                | Languages   | Arabic, Chinese, Czech, Dutch, English, Finnish, French, German, Greek, Indonesian, Italian, Polish, Portuguese, Russian, Spanish, Swedish and Turkish   |   |
|  | Keypad  | 2 selection keys, 4 navigation keys, start key, stop key, info key and remote/local key  |   |
| Signal relays                            | Number of programmable signal relays                    | 3 (each relay can be programmed to None, Run, Top of ramp, Event group 0-6, Sequence 1-3 Run, Sequence 1-3 Top of ramp or Run reverse)   |   |
|  | K4  | Default as Run signal  |   |
|  | K5  | Default as Top of Ramp (Bypass) signal   |   |
|  | K6  | Default as Event group 0 (Faults)  |   |
|  | Rated operational voltage, $U_e$                        | 250 V AC/24 V DC   |   |
|  | Rated thermal current $I_{th}$                          | 5 A  |   |
|  | Rated operational current $I_e$ at AC-15 ( $U_e=250$ V) | 1.5 A  |   |
| Analog output                            | Output signal reference                                 | 0...10 V, 0...10 mA, 0...20 mA, 4...20 mA  |   |
|  | Type of output signal                                   | Motor current (A), Main voltage (V), Active power (kW), Active power (HP), Reactive power (kVAR), Apparant power (kVARh), Active energy (kWh), Reactive energy (kVARh), cos phi, Motor temperature (%), Thyristor temperature (%), Motor voltage (%), Main frequency (Hz), PT100 temperature (centigrade), PTC resistance (Ohm)                  |   |
| Control circuit                          | Number of inputs  | 2 (start, stop)  |   |
|  | Number of additional programmable inputs                | 3 (each input can be programmed to: None, Reset, Enable, Slow speed forward (Jog), Slow speed reverse (Jog), Motor heating, Stand still brake, Start reverse, User defined protection, Emergency mode (active high), Emergency mode (active low), Fieldbus disable control, Start 1, Start 2, Start 3, Switch to remote control or Cancel brake) |   |
| Signalling indication LED                | Ready   | Green  |   |
|  | Run   | Green  |   |
|  | Fault   | Red  |   |
|  | Protection  | Yellow   |   |
| External keypad                          | Detachable keypad                                       | Yes  |   |
|  | Display   | LCD type, graphical  |   |
|  | Ambient temperature                                     |  |   |
|  | During operation  | -25...+60 °C, (-13...+140 F)   |   |
|  | During storage  | -40...+70 °C, (-40...+158 F)   |   |
|  | Degree of protection                                    | IP66 (Type 1, 4X, 12)  |   |
|  | Start and stop functions                                | Soft start with voltage ramp   | Linear voltage ramp, suitable for most applications             |
| Soft stop with voltage ramp              |   | Used to prolong the stop sequence  |   |
| Soft start with torque control           |   | Linear torque ramp, the best way to start pumps  |   |
| Soft stop with torque control            |   | Commonly used to reduce water hammering in pumps   |   |
| Kick start                               |   | More power in the start for heavy duty applications.   |   |
| Full voltage start                       |   | 0.5 second start ramp for applications with need of high starting torque   |   |
| Sequence start                           |   | Start multiple motors with one softstarter   |   |
| Current limit                            |   | Limits the current below a specified value   |   |
| Dual current limit                       |   | Consist of a low level, a high level and a time between them   |   |
| Current limit ramp                       |   | A linear increase of the current from the low to the high level  |   |
| Torque limit                             |   | Limit the torque to between 20-200%  |   |
| Pre-start function                       |   | Use Motor heating, Stand still brake or Jog automatically prior to start ramp  |   |
| Jog with slow speed, forward and reverse |   | Run the motor in three different speeds, both forward and reverse  |   |
| Start reverse (external contactors)      |   | Internal logic that allows control of external contactors for reverse start  |   |
| Dynamic brake                            |   | Provides a braking force to decrease stop time   |   |
| Fieldbus connection                      |   | Built-in Modbus RTU  | Yes, with RS485 interface on terminals 23 and 24                |
|  |   | Connection for Anybus  | Yes, including most common protocols, see catalog for details   |
|  |   | Connection for ABB Fieldbus plug   | Yes, compatible with a special adapter, see catalog for details |

<sup>1)</sup> Valid for normal start (class 10) for 50% on time and 50% off time. If other data is required, contact your local ABB office.

<sup>2)</sup> Above 40 °C (104 F) up to max. 60 °C (140 F) reduce the rated current with 0,8% per °C (0,44% per F).

<sup>3)</sup> When used at high altitudes, above 1000 meters (3281 ft) up to 4000 meters (13123 ft), de-rate the rated current using the following formula.

[ % of  $I_e = 100 - x \cdot 10000$  ] x = actual altitude of the softstarter in meter, [ % of  $I_e = 100 - x \cdot 3280$  ] x = actual altitude of the softstarter in feet. For de-rating of voltage, contact your local ABB office. 150

## PSTX - The advanced range

### Technical data

| Technical data   | PSTX30 ... PSTX1250  |
|--|--|
| <b>Protections</b>   |  |
| Electronic overload protection, EOL  | User defined, class 10A, 10, 20, 30  |
| Dual overload (separate overload for start and run)                        | Possible to set separate overloads for start and full speed                            |
| PTC connection   | User defined temperature control with external PTC sensor                              |
| PT-100 connection  | User defined temperature control with external PT-100 sensor                           |
| Locked rotor protection  | Prevents start if motor is stuck, e.g. stuck pumps and conveyors                       |
| Current underload protection   | Stops the process if the load is too light, e.g. a pump running dry                    |
| Current imbalance protection   | User defined, checks current imbalance between the phases                              |
| Power factor underload protection  | User defined, trip if power factor is out of range                                     |
| Under voltage protection   | User defined, prevents the motor from stalling in weak networks                        |
| Over voltage protection  | User defined, prevents the motor from damage at high voltage levels                    |
| Voltage imbalance protection   | User defined, checks voltage imbalance between the phases                              |
| Earth fault protection / ground fault protection                           | User defined, 0.1-1.0 sec, stops the process if earth fault is detected                |
| Phase reversal protection  | Prevents start if phases are connected in the wrong order                              |
| Bypass open protection   | Trips if the bypass is open when it should be closed                                   |
| User defined protection  | Programmable input, can be used with external protection device                        |
| Too long current limit protection  | User defined, trips when the current has been at the current limit for too long time   |
| HMI failure protection   | Indicates communication failure between softstarter and HMI                            |
| Fieldbus failure protection  | Indicates communication failure between softstarter and PLC                            |
| Extension IO failure protection  | Indicates communication failure between softstarter and IO module                      |
| Max number of starts/hour  | Prevents start if the thyristors gets too warm (thus used over specification)          |
| Too long start time protection   | User defined, trips when the starting time exceeds a set value                         |
| <b>Warnings</b>  |  |
| Current underload warning  | User defined on/off  |
| Current imbalance warning  | User defined on/off  |
| Voltage imbalance warning  | User defined on/off  |
| Thyristor overload warning (SCR)   | User defined on/off  |
| Electronic overload Time-to-trip   | User defined on/off  |
| Short circuit warning (for Limp mode)                                      | User defined on/off, for Limp mode   |
| Over voltage warning   | User defined on/off  |
| Under voltage warning  | User defined on/off  |
| Power factor underload warning   | User defined on/off  |
| Locked rotor warning   | User defined on/off  |
| Faulty fan warning   | User defined on/off  |
| THD(U) - Total Harmonic Distortion warning                                 | User defined on/off  |
| Motor runtime limit warning  | User defined on/off  |
| Phase loss warning (for stand by)  | User defined on/off, for stand by  |
| EOL warning  | User defined on/off  |
| <b>External faults detection</b>   |  |
| Phase loss   | Yes  |
| High current   | Yes  |
| Low control supply voltage   | Yes  |
| Faulty usage   | Yes, e.g. using limp mode inside-delta   |
| Faulty connection  | Yes  |
| Bad network quality  | Yes  |
| <b>Internal faults detection</b>   |  |
| Thyristor overload   | Yes  |
| Short circuit  | Yes  |
| Open circuit thyristor or gate   | Yes  |
| Heat sink over temperature   | Yes  |
| Shunt fault  | Yes  |
| <b>PTC input</b>   |  |
| Switch off resistance  | 2825 ohm $\pm$ 20%   |
| Switch on resistance   | 1200 ohm $\pm$ 20%   |
| <b>Other functions</b>   |  |
| Real time clock  | Can maintain time when the softstarter isn't powered up, 48 h back-up                  |
| Event log  | Log of events such as trips, parameters changed and operation                          |
| Emergency mode   | To keep the softstarter running regardless of trip or failure. Activated via DI        |
| Automatic restart  | In case of trip and stopped motor, the softstarter can restart itself                  |
| Keypad password  | Lock the keypad to inhibit unauthorized motor control                                  |
| Pump cleaning  | Can reverse pump flow and clean out pipes  |
| Electronic overload Time-to-cool   | Time until the motor is ready to be restarted after an EOL trip                        |
| Thyristor runtime measurement  | Measures most electrical variables, e.g. voltage, current and power                    |
| Auto phase sequence detection  | Detection of the phase sequence  |
| Electricity metering   | Measures most electrical variables, e.g. voltage, current and power                    |
| Motor heating  | DC injection in all windings to heat up the motor. Useful in cold or humid environment |
| Stand still brake  | Prevents the motor from moving, useful to keep fans from reversing                     |
| Voltage sags detection   | User defined   |
| Limp mode with two-phase motor control if one set of thyristors is shorted | Can keep process running until planned maintenance                                     |

For all functions and features see installation and commissioning manual, 1SFC132081M0201 available on [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters).

# PSTX - The advanced range

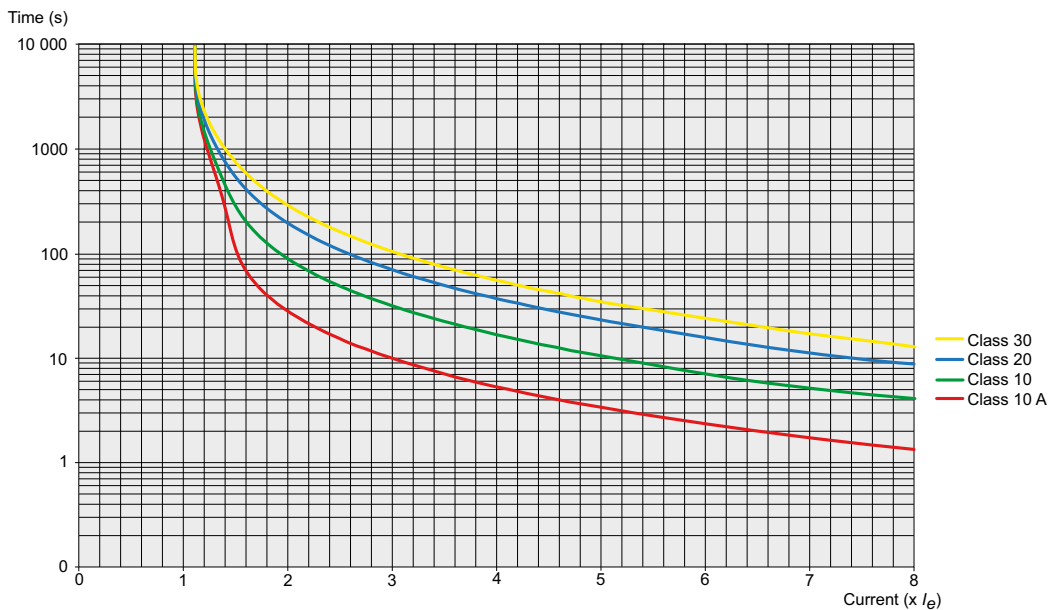
## Technical data

| Fuse ratings and power losses |                |                               |  |          |   |        |
|-------------------------------|----------------|-------------------------------|--|----------|---|--------|
| For softstarter               | Current range  | Max power loss at rated $I_e$ | Max fuse rating - main circuit <sup>1) 2)</sup><br>Bussmann fuses, DIN43 620 (Knife) |          | Power requirements supply circuit Holding (VA) / Pull-in (VA) |        |
| Type                          | A              | W                             | A  | Type     | Size  |        |
| PSTX30                        | 9.0...30.0     | 0.8                           | 100  | 170M1567 | 000   | 49/51  |
| PSTX37                        | 11.1...37.0    | 1.2                           | 125  | 170M1568 | 000   | 49/51  |
| PSTX45                        | 13.5...45.0    | 1.8                           | 160  | 170M1569 | 000   | 49/51  |
| PSTX60                        | 18.0...60.0    | 3.2                           | 160  | 170M1569 | 000   | 49/51  |
| PSTX72                        | 21.6...72.0    | 4.7                           | 250  | 170M1571 | 000   | 49/51  |
| PSTX85                        | 22.5...85.0    | 6.5                           | 315  | 170M1572 | 000   | 49/51  |
| PSTX105                       | 31.8...106.0   | 10                            | 400  | 170M3819 | 1*  | 49/51  |
| PSTX142                       | 42.9...143.0   | 18                            | 500  | 170M5810 | 2   | 49/53  |
| PSTX170                       | 51.3...171.0   | 26                            | 630  | 170M5812 | 2   | 49/53  |
| PSTX210                       | 63.0...210.0   | 48                            | 630  | 170M5812 | 2   | 56/276 |
| PSTX250                       | 75.0...250.0   | 68                            | 700  | 170M5813 | 2   | 56/276 |
| PSTX300                       | 90.0...300.0   | 97                            | 800  | 170M6812 | 3   | 56/276 |
| PSTX370                       | 111.0...370.0  | 148                           | 900  | 170M6813 | 3   | 56/276 |
| PSTX470                       | 141.0...470.0  | 99                            | 900  | 170M6813 | 3   | 67/434 |
| PSTX570                       | 171.0...570.0  | 146                           | 1000   | 170M6814 | 3   | 67/434 |
| PSTX720                       | 216.0...720.0  | 78                            | 1250   | 170M8554 | 3   | 61/929 |
| PSTX840                       | 252.0...840.0  | 106                           | 1500   | 170M6018 | 3   | 61/929 |
| PSTX1050 <sup>3)</sup>        | 315.0...1050.0 | 165                           | 1800   | 170M6020 | 3   | 68/929 |
| PSTX1250 <sup>3) 4)</sup>     | 375.0...1250.0 | 234                           | 2000   | 170M6021 | 3   | 68/929 |

<sup>1)</sup> For the supply circuit 6 A delayed, for MCB use C characteristics.  
<sup>2)</sup> For inside delta connection the fuses shall be placed inside the delta. Contact ABB for more information.  
<sup>3)</sup> 170M6019 with fuse rating 1600 A should be used for 690 V version.  
<sup>4)</sup> For 690 V version, Bussmann fuses are only available for motors with rated current up to 1150 A.

| PSTX Integrated bypass ratings                 |         |         |         |         |          |          |
|--|---------|---------|---------|---------|----------|----------|
| Softstarter                                    | PSTX470 | PSTX570 | PSTX720 | PSTX840 | PSTX1050 | PSTX1250 |
| Integrated contactor                           | AF370   |         | AF750   |         | AF1250   |          |
| AC-3 rating at 400 V (A)                       | 370     |         | 750     |         | -        |          |
| IEC AC-3 Rated operational power at 400 V (kW) | 200     |         | 400     |         | -        |          |
| UL/CSA 3-phase motor rating at 480 V (hp)      | 300     |         | 600     |         | -        |          |

Tripping curves for the integrated electronic overload protection. All units have an integrated electronic overload protection that can be set to four different tripping classes. Below you find a curve for each tripping class in cold state. These tripping curves are valid for PSTX.


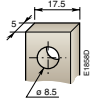
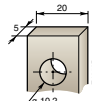
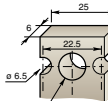
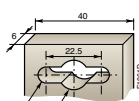
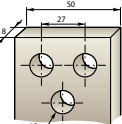










Tripping curves for electronic overload protection (cold) for PSE and PSTX.



## PSTX - The advanced range

### Technical data

| Main terminals  |   | PSTX30 ...<br>PSTX105   | PSTX142 ...<br>PSTX170  | PSTX210 ...<br>PSTX370  | PSTX470 ...<br>PSTX570  | PSTX720 ...<br>PSTX1050   | PSTX1250  |
|---|---|---|---|---|---|---|---|
|   |   |  |  |  |  |  |  |
|    | <b>Cu cable - flexible</b>              | 1 x mm <sup>2</sup>   | 6...120 mm <sup>2</sup>   | 16...240 mm <sup>2</sup>  | -   | -   | -   |
|   | Clamp type                              | Included  | 1SDA066917R1  | 1SDA055016R1  | -   | -   | -   |
|   | Tightening torque                       | 8 Nm  | 14 Nm   | 25 Nm   | -   | -   | -   |
|    | <b>Cu cable - flexible</b>              | 2 x mm <sup>2</sup>   | 6...35 mm <sup>2</sup>  | 70...185 mm <sup>2</sup>  | -   | -   | -   |
|   | Clamp type                              | Included  | LZ185 - 2C/120<br>1SFN074709R1000   | OZXB4 <sup>1)</sup><br>1SCA022194R0890  | -   | -   | -   |
|   | Tightening torque                       | 8 Nm  | 16 Nm   | 22 Nm   | -   | -   | -   |
|    | <b>Cu cable - Stranded</b>              | 1 x mm <sup>2</sup>   | 6...150 mm <sup>2</sup>   | 16...300 mm <sup>2</sup>  | -   | -   | -   |
|   | Clamp type                              | Included  | 1SDA066917R1  | 1SDA055016R1  | -   | -   | -   |
|   | Tightening torque                       | 8 Nm  | 14 Nm   | 25 Nm   | -   | -   | -   |
|    | <b>Cu cable - Stranded</b>              | 2 x mm <sup>2</sup>   | 6...35 mm <sup>2</sup>  | 50...120 mm <sup>2</sup>  | 70...185 mm <sup>2</sup>  | -   | -   |
|   | Clamp type                              | Included  | LZ185 - 2C/120<br>1SFN074709R1000   | OZXB4 <sup>1)</sup><br>1SCA022194R0890  | 1SDA013922R1  | -   | -   |
|   | Tightening torque                       | 8 Nm  | 16 Nm   | 22 Nm   | 35 Nm   | -   | -   |
|    | <b>Cu cable - Stranded</b>              | 3 x mm <sup>2</sup>   | -   | -   | -   | 70...185 mm <sup>2</sup>  | -   |
|   | Clamp type                              | -   | -   | -   | -   | 1SDA013956R1  | -   |
|   | Tightening torque                       | -   | -   | -   | -   | 45 Nm   | -   |
|    | <b>Al cable - Stranded</b>              | 1 x mm <sup>2</sup>   | -   | 95...185 mm <sup>2</sup>  | 185...240 mm <sup>2</sup>   | -   | -   |
|   | Clamp type                              | -   | -   | 1SDA0549881R1   | 1SDA055020R1  | -   | -   |
|   | Tightening torque                       | -   | -   | 31 Nm   | 43 Nm   | -   | -   |
|  | <b>Al cable - Stranded</b>              | 2 x mm <sup>2</sup>   | -   | -   | -   | 120...240 mm <sup>2</sup>   | -   |
|   | Clamp type                              | -   | -   | -   | -   | 1SDA023380R1  | -   |
|   | Tightening torque                       | -   | -   | -   | -   | 31 Nm   | -   |
|  | <b>Lugs</b>                             | Width ≤   | 24 mm (0.945 in)  | 32 mm (1.260 in)  | 47 mm (1.850 in)  | 50 mm (1.969 in)  | 50 mm (1.969 in)  |
|   | Diameter ≥                              | -   | 8 mm (0.355 in)   | 10.2 mm (0.402 in)  | 10.5 mm (0.413 in)  | 12.5 mm (0.492 in)  | 13 mm (0.519 in)  |
|   | Tightening torque                       | -   | 18 Nm (160 in lb)   | 28 Nm (248 in lb)   | 35 Nm (310 in lb)   | 45 Nm (398 in lb)   | 45 Nm (398 in lb)   |
| <b>Connection capacity acc to UL / CSA 1 x AWG / kcmil</b>                          |   | 6...2/0   | 6...300 kcmil   | 4...400 kcmil   | -   | -   | -   |
|   | Clamp type                              | Included  | ATK185  | ATK300  | -   | -   | -   |
|   | Tightening torque                       | 71 in lb  | 300 in lb   | 375 in lb   | -   | -   | -   |
| <b>Connection capacity acc to UL / CSA 2 x AWG / kcmil</b>                          |   | -   | -   | 4...500 kcmil   | 2/0...500 kcmil   | 2/0...500 kcmil   | -   |
|   | Clamp type                              | -   | -   | ATK300/2 <sup>2)</sup>  | ATK580/2  | ATK580/2  | -   |
|   | Tightening torque                       | -   | -   | 375 in lb   | 375 in lb   | 375 in lb   | -   |
| <b>Connection capacity acc to UL / CSA 3 x AWG / kcmil</b>                          |   | -   | -   | -   | 2/0...500 kcmil   | 2/0...500 kcmil   | -   |
|   | Clamp type                              | -   | -   | -   | ATK750/3  | ATK750/3  | -   |
|   | Tightening torque                       | -   | -   | -   | 375 in lb   | 375 in lb   | -   |
| <b>Supply and control circuit</b>   |   | Cu cable - Stranded 1 x mm <sup>2</sup>   |   | 0.75...2.5 mm <sup>2</sup> (19...14 AWG)  |   |   |   |
|   | Cu cable - Stranded 2 x mm <sup>2</sup> |   |   | 0.75...1.5 mm <sup>2</sup> (19...16 AWG)  |   |   |   |
|   | Tightening torque                       |   |   | 0.5 Nm (4.4 in lb)  |   |   |   |

<sup>1)</sup> Terminal shrouds 1SFN125406R1000 must be used.

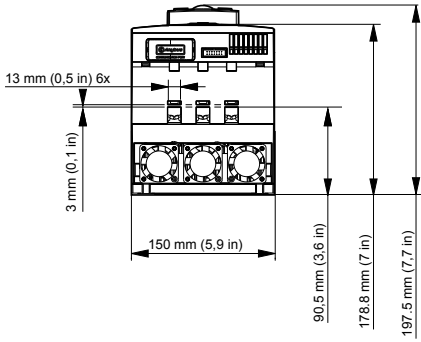
<sup>2)</sup> Terminal shrouds 1SFN125406R1000 can be used.

# PSTX - The advanced range

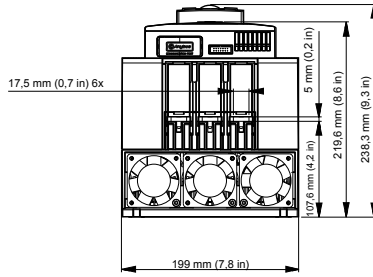
## Dimensions

Main dimensions mm, inches

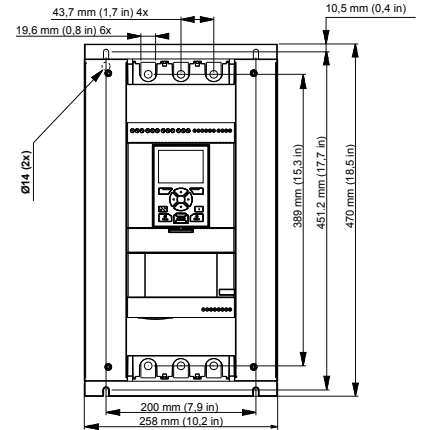
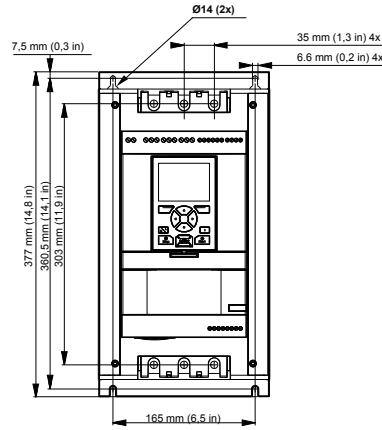
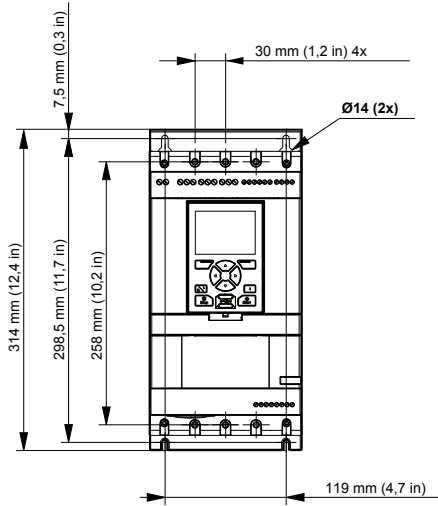
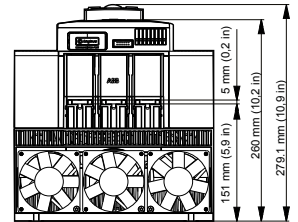
PSTX30 ... PSTX105



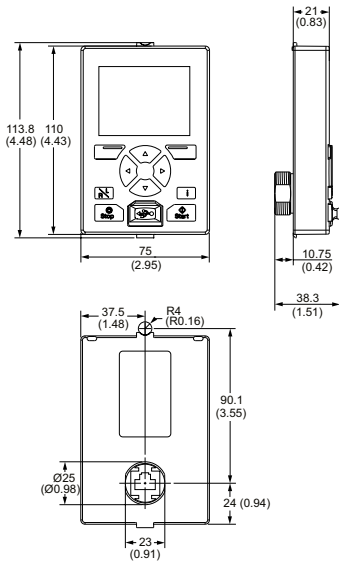
PSTX142 ... PSTX170



PSTX210 ... PSTX370



PSTX detachable keypad

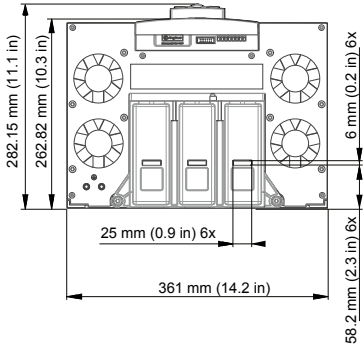


# PSTX - The advanced range

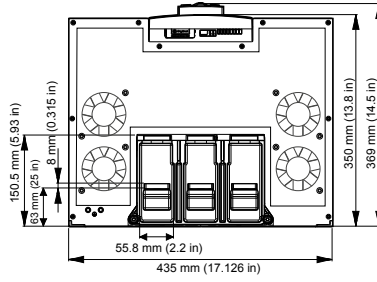
## Dimensions

Main dimensions mm, inches

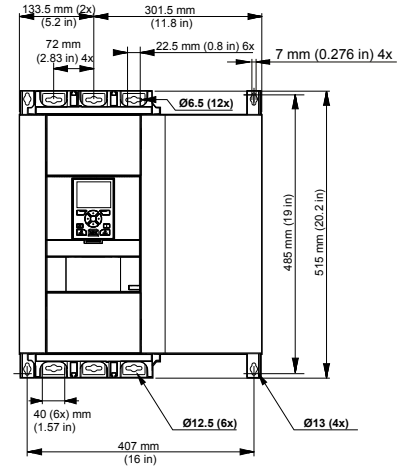
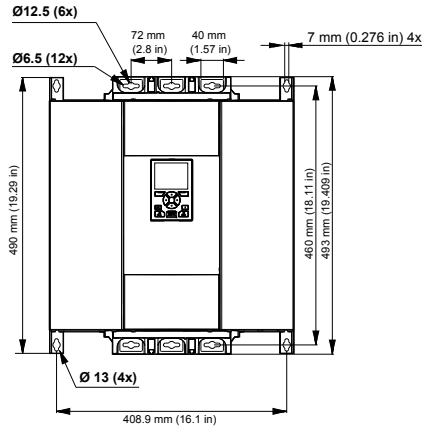
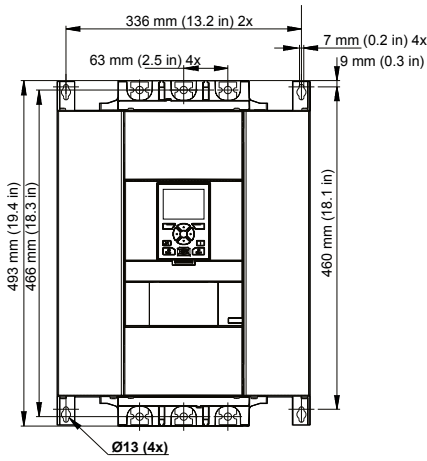
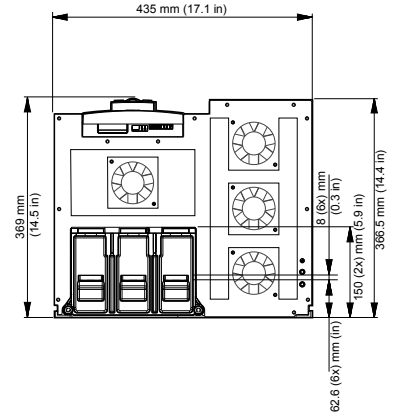
PSTX470 ... PSTX570



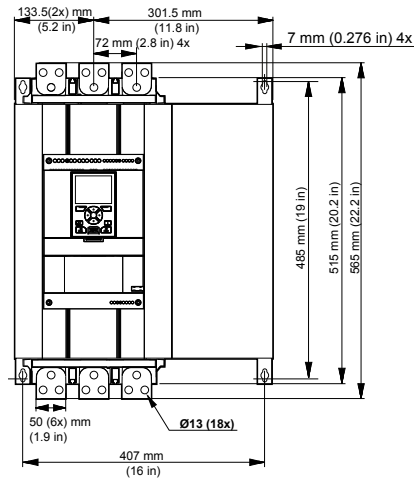
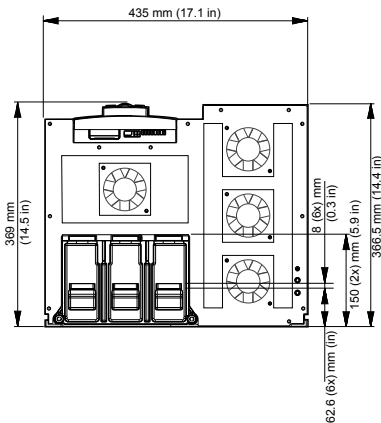
PSTX720 ... PSTX840



PSTX1050



PSTX1250



# PSTX - The advanced range

## Circuit diagrams

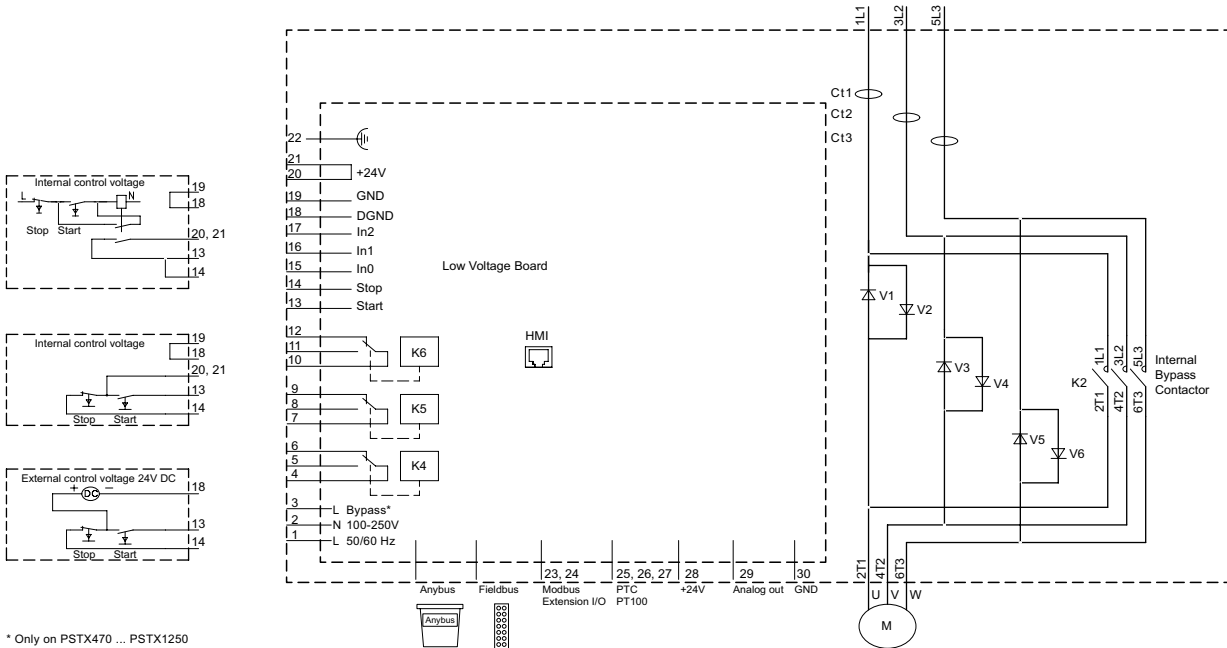


### CAUTION

Terminal 22 is a function earth, it is not a protective earth. It shall be connected to the mounting plate.

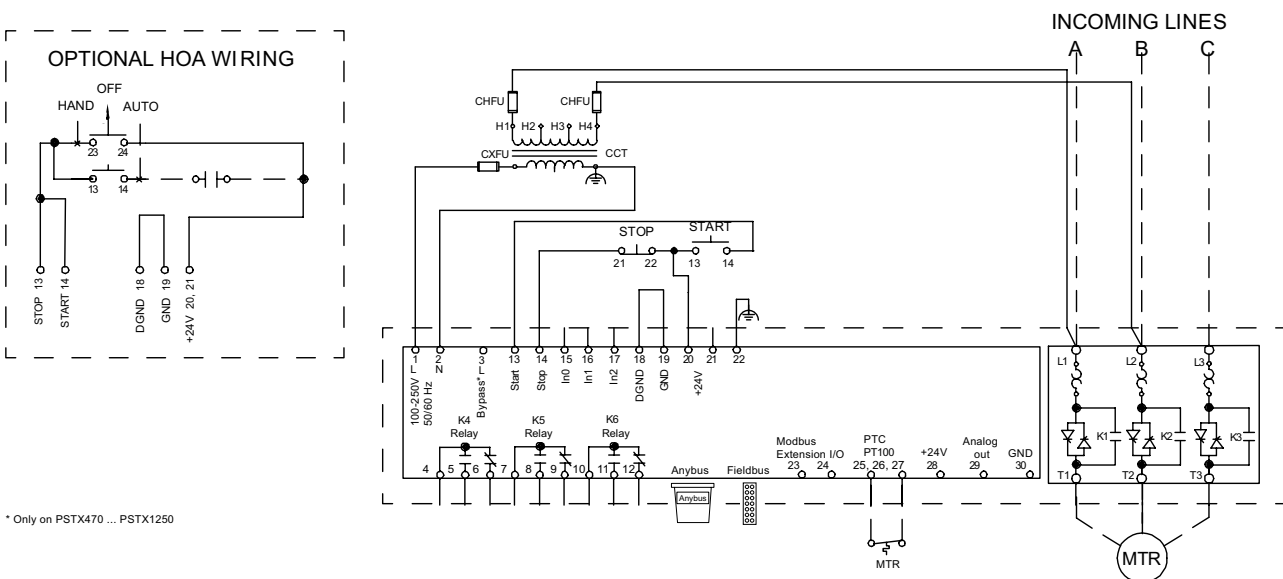
### PSTX30 ... PSTX1250

#### IEC circuit diagram



\* Only on PSTX470 ... PSTX1250

### UL circuit diagram



\* Only on PSTX470 ... PSTX1250

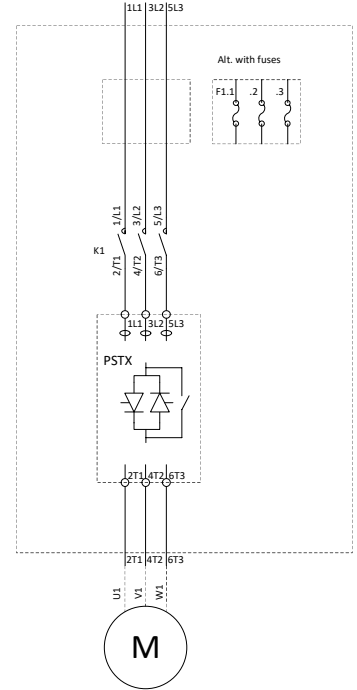
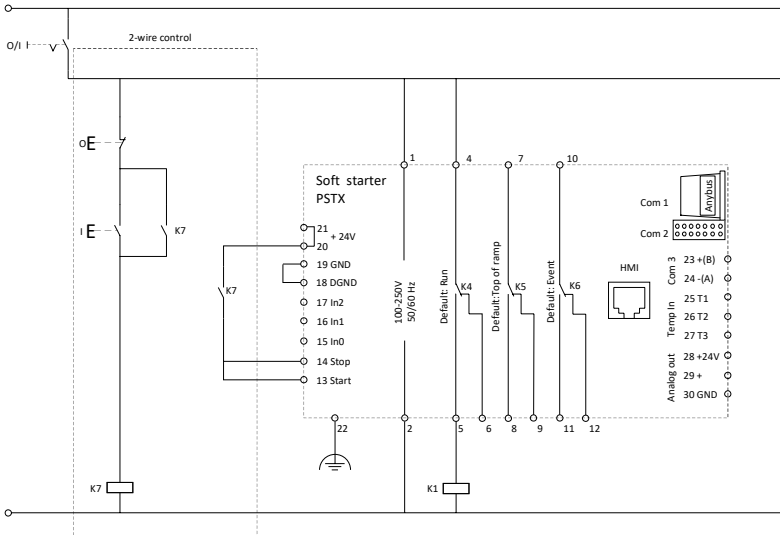
For more circuit diagrams see [new.abb.com/low-voltage/products/Softstarters](http://new.abb.com/low-voltage/products/Softstarters)

# PSTX - The advanced range

## Circuit diagrams

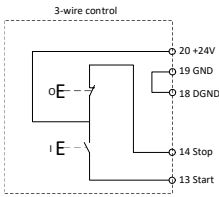
### PSTX30 ... PSTX1250

#### In-line connected with line contactor and fuses

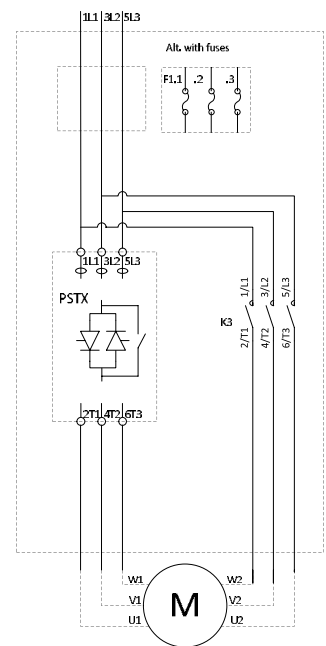
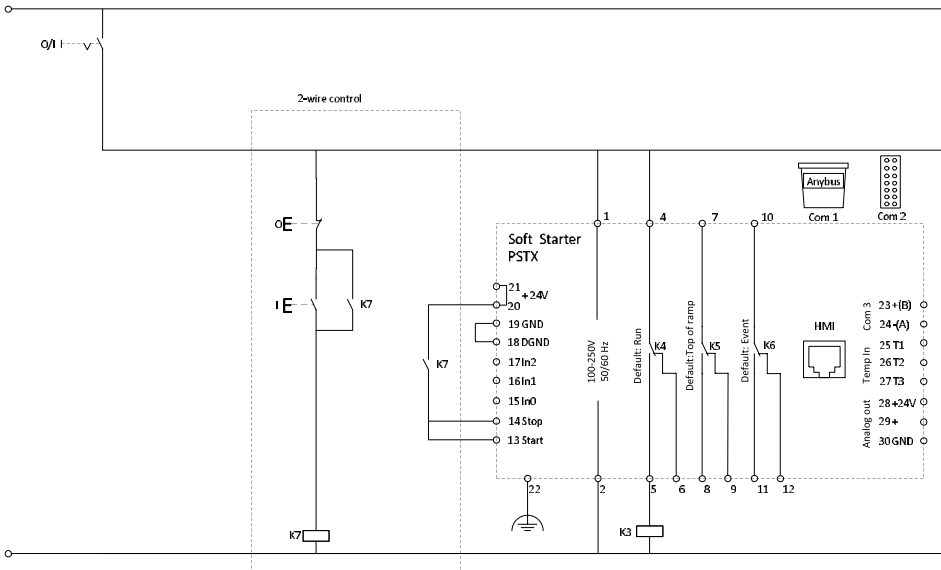


Coil consumption for main contactors.  
 Pull-in max 15A  
 Holding max 1.5A

If the pull-in or holding values are higher, the main contactors must be controlled via an auxiliary contactor.

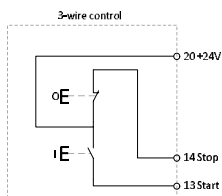


#### Inside-delta connected with contactor and fuses



Coil consumption for Inside Delta contactor.  
 Pull-in max 15A  
 Holding max 1,5A

If the pull-in or holding values are Higher, the Inside Delta contactor must be controlled via an auxiliary contactor.



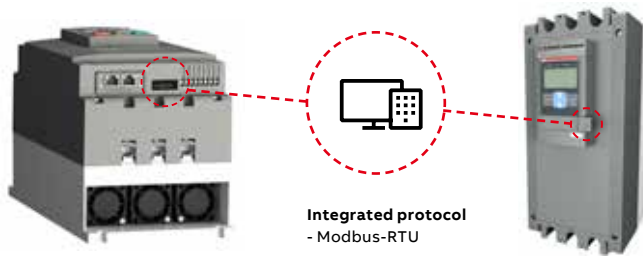


# Fieldbus communication For PSTX and PSE

PSR, PSE and PSTX softstarters can be connected to a fieldbus network for monitoring and control. All major industrial fieldbus protocols are covered with different accessories making the installation very flexible.

## Built-in Modbus-RTU for PSTX and PSE

- Built-in Modbus RTU communication interface
- Easy to install using the Modbus RTU adaptor which is included with the Softstarter
- Through this communication interface it is possible to get full control and status information of the Softstarter as well as reading- and writing parameters



## Anybus connection for PSTX

- Anybus connection accessory for communication protocol suitable for PSTX30... PSTX1250

| Available communication protocols for PSTX |      |
|--|------|
| Communication                              | PSTX |
| Modbus RTU                                 | ●    |
| Profibus DP                                | ●    |
| DeviceNet                                  | ●    |
| Modbus TCP                                 | ●    |
| Ethernet/IP                                | ●    |



DeviceNet



EtherNet/IP (1-port)  
Modbus/TCP (1-port)



Profibus  
Modbus-RTU



EtherNet/IP (2-port)  
Modbus/TCP (2-port)  
Profinet (2-port)

### Anybus connection accessory for communication protocol suitable for PSTX30 ...PSTX1250

|                      | Type             | Order code      | Pkg<br>qty | Weight   |         |
|----------------------|------------------|-----------------|------------|----------|---------|
|                      |                  |                 |            | pkg/1pce | (lb)    |
| Profibus             | AB-PROFIBUS-1    | 1SFA899300R1001 | 1          | 0.042    | (0.093) |
| DeviceNet            | AB-DEVICENET-1   | 1SFA899300R1002 | 1          | 0.042    | (0.093) |
| Modbus-RTU           | AB-MODBUS-RTU-1  | 1SFA899300R1003 | 1          | 0.042    | (0.093) |
| EtherNet/IP (1-port) | AB-ETHERNET-IP-1 | 1SFA899300R1005 | 1          | 0.042    | (0.093) |
| EtherNet/IP (2-port) | AB-ETHERNET-IP-2 | 1SFA899300R1006 | 1          | 0.042    | (0.093) |
| Modbus/TCP (1-port)  | AB-MODBUS-TCP-1  | 1SFA899300R1007 | 1          | 0.042    | (0.093) |
| Modbus/TCP (2-port)  | AB-MODBUS-TCP-2  | 1SFA899300R1008 | 1          | 0.042    | (0.093) |
| Profinet (2-port)    | AB-PROFINET-2    | 1SFA899300R1010 | 1          | 0.042    | (0.093) |

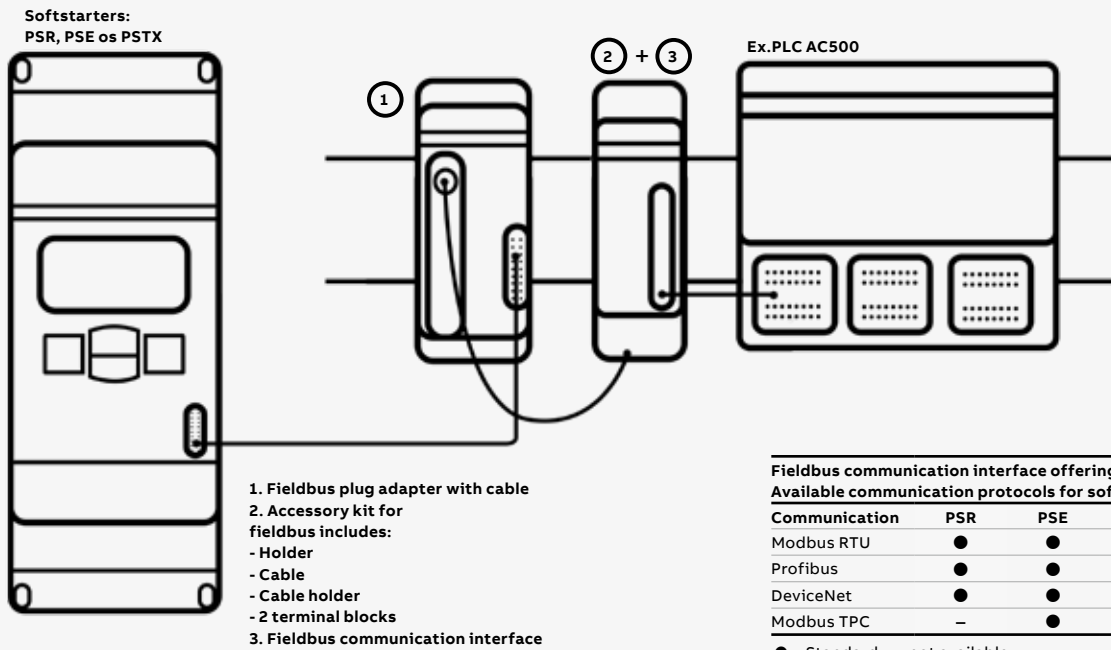
## Fieldbus communication interface offering

- See page 64

# Fieldbus communication

## For PSR, PSE and PSTX

### Fieldbus communication interface offering



**Fieldbus communication interface offering**


**Available communication protocols for softstarters**

| Communication | PSR | PSE | PSTX |
|---------------|-----|-----|------|
| Modbus RTU    | ●   | ●   | ●    |
| Profibus      | ●   | ●   | ●    |
| DeviceNet     | ●   | ●   | ●    |
| Modbus TPC    | -   | ●   | -    |

● = Standard, - = not available


1

**Fieldbus plug adapter with cable**

| Article   | Type    | Order code      | Pkg qty | Weight pkg/1 pce kg (lb) |
|---|---------|-----------------|---------|--------------------------|
|  Fieldbus plug adapter | PS-FBPA | 1SFA896312R1002 | 1       | 0.060 (0.132)            |

2

**Fieldbus plug kit for mounting fieldbus plug adapter together with fieldbus plugs**

|   |         |                 |   |               |
|---|---------|-----------------|---|---------------|
|  Accessory kit for fieldbus plug adapter and fieldbus plugs. Includes: Holder, cable, cable holder and 2 terminal blocks | PS-FBPK | 1SFA899320R1002 | 1 | 0.150 (0.331) |
|---|---------|-----------------|---|---------------|







# Fieldbus communication interface

## Part of ABB Universal Motor Controller offering

See separate catalog for fieldbus communication interfaces: [Link](#)

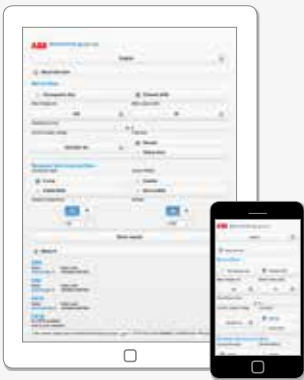
For more information visit the Universal Motor Controller website: [Link](#)

3

| Modbus-RTU  |   |               |                 |         |           |         |
|---|---|---------------|-----------------|---------|-----------|---------|
|    | Description   | Type          | Order code      | Pkg qty | Weight    |         |
|   |   |               |                 |         | pkg/1 pce | kg (lb) |
|   | Modbus RTU communication interface; terminal block for fieldbus connection included | MRP31.0       | 1SAJ251000R0001 | 1       | 0.039     | (0.086) |
|   | Cable from MRP31.0 to drawer outside, length 1.5 m                                  | CDP24.150     | 1SAJ929240R0015 | 1       | 0.060     | (0.132) |
| Profibus  |   |               |                 |         |           |         |
|   | Profibus DP communication interface   | PDP32.0       | 1SAJ242000R0001 | 1       | 0.050     | (0.110) |
|   | Cable from PDP32.0 to drawer outside, length 1.5 m                                  | CDP24.150     | 1SAJ929240R0015 | 1       | 0.060     | (0.132) |
| Device net  |   |               |                 |         |           |         |
|  | DeviceNet communication interface; terminal block for fieldbus connection included  | DNP31.0       | 1SAJ231000R0001 | 1       | 0.039     | (0.086) |
|   | Cable from DNP31.0 to drawer outside, length 1.5 m                                  | CDP24.150     | 1SAJ929240R0015 | 1       | 0.060     | (0.132) |
| Modbus-TCP  |   |               |                 |         |           |         |
|  | Ethernet Modbus TCP interface   | MTQ22-FBP     | 1SAJ260000R0100 | 1       | 0.172     | (0.379) |
|   | Cable ETH-X1/X4-M12 female, length 1.5m   | CDP17-FBP.150 | 1SAJ929170R0015 | 1       | 0.075     | (0.165) |

# Marketing materials and tools

It is easy to access more information about ABB softstarters online. On our web page you will find tools for selection, coordination tables, CAD drawings and different types of documentation.



### Advanced selection tool: prosoft

Download here: [Link](#)

### Online softstarter selection tool

Fast and easy selection of softstarter on any device.



[www.abbcontrol.fr/Softstarter](http://www.abbcontrol.fr/Softstarter)

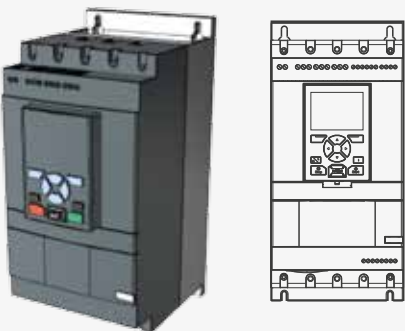


### Coordination tables

Online tool for coordination with short circuit protection, overload protection and line contactor.



[applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)



### Download 2D and 3D drawings in any format

Use our Cadenas portal to download CAD drawings to all our Softstarters.



[Cadenas portal for CAD drawings](#)



More information online

- Marketing materials
- Certificates and approvals
- Product simulator
- Circuit diagrams and application diagrams
- EDS- and GSD-files for fieldbus connection
- Softstarter selection tool



[new.abb.com/  
low-voltage/  
products/  
Softstarters](http://new.abb.com/low-voltage/products/Softstarters)



[http://new.abb.com/low-voltage/  
launches/pstx](http://new.abb.com/low-voltage/launches/pstx)



SoftstarterCare™ – Service Engineer Tool

Software for easy set-up of PSE and PSTX, using a PC.



[new.abb.com/low-voltage/products/  
Softstarters](http://new.abb.com/low-voltage/products/Softstarters)

Softstarter demo units

Demo units, demonstration unit without power electronics, contains pushbuttons for demonstrations and short form manual

| Description    | Type                               | Order code      | Pkg<br>qty | Weight |        |
|----------------|------------------------------------|-----------------|------------|--------|--------|
|                |                                    |                 |            | kg     | (lb)   |
| PSR demo unit  | PSR - softstarters and accessories | 1SFA896599R1001 | 1          | 0.01   | (0.02) |
| PSE demo unit  | PSE105                             | 1SFA897109R7008 | 1          | 2.40   | (5.29) |
| PSTX demo unit | PSTX105                            | 1SFA898109R7008 | 1          | 2.95   | (6.50) |



# Services to match your needs

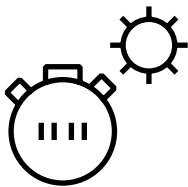
Your service needs depend on your operation, life cycle of your equipment and business priorities. We have identified our customers four most common needs and defined service options to satisfy them. What is your choice to keep your drives at peak performance?

## Is uptime your priority?

Keep your drives and softstarters running with precisely planned and executed maintenance.

**Example services include:**

- Installation and Commissioning
- Spare Parts
- Preventive Maintenance
- ABB Drive and softstarter Care agreement
- Drive and softstarter Exchange



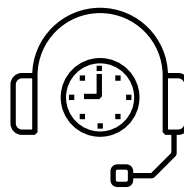
Operational efficiency

## Is rapid response a key consideration?

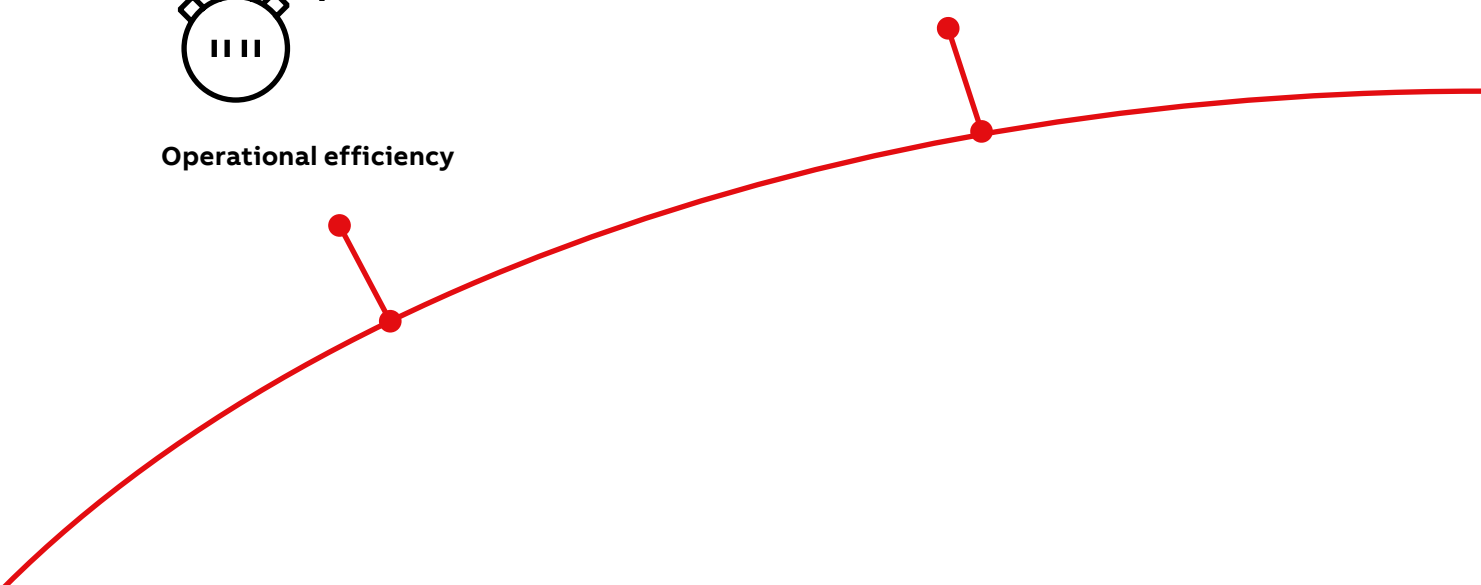
If your drives and softstarters require immediate action, our global network is at your service.

**Example services include:**

- Technical Support
- On-site Repair
- Response time agreements
- Training



Rapid response



# Drives and softstarters service

## Your choice, your future

### The future of your drives and softstarters depends on the service you choose.

Whatever you choose, it should be a well-informed decision. No guesswork. We have the expertise and experience to help you find and implement the right service for your drive equipment. You can start by asking yourself these two critical questions:

- Why should my drive and softstarter be serviced?
- What would my optimal service options be?

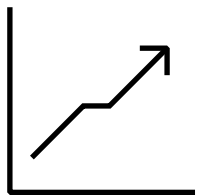
From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

### Need to extend your assets' lifetime?

Maximize your drive's lifetime with our services.

#### Example services include:

- Upgrades, Retrofits and Modernization
- Replacement, Disposal and Recycling



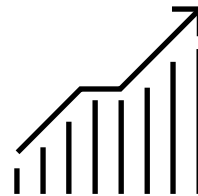
Life cycle management

### Is performance most critical to your operation?

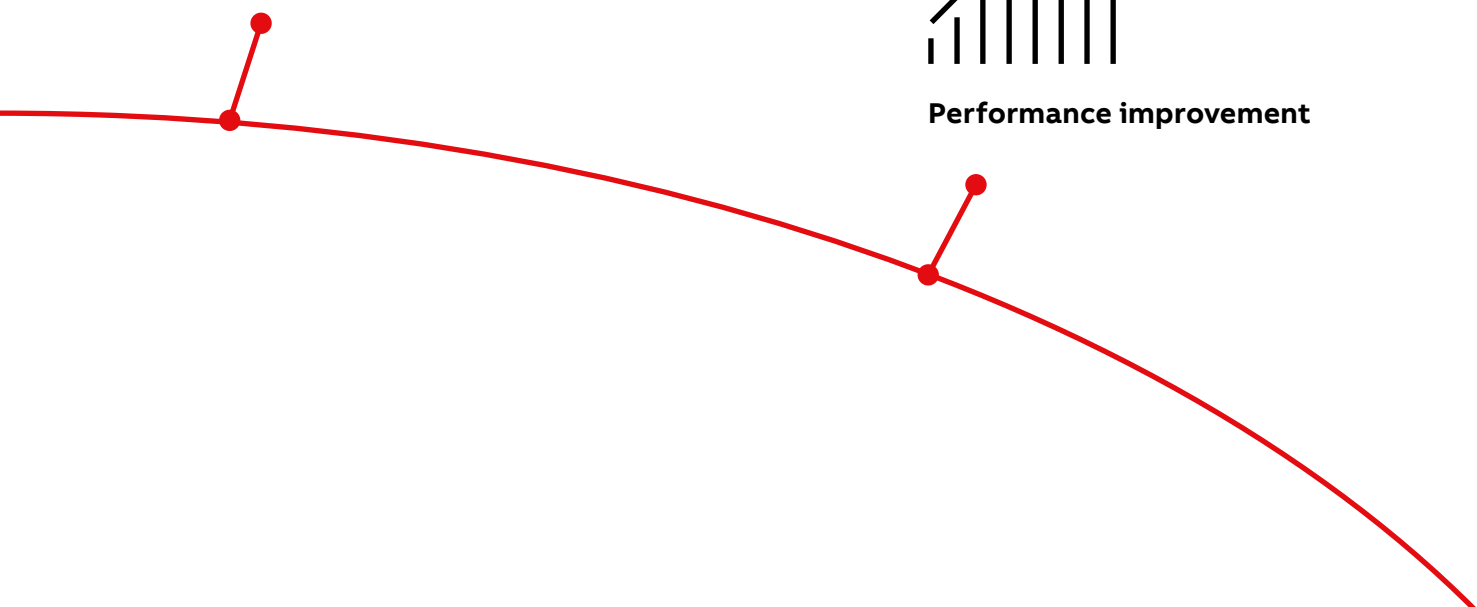
Get optimal performance out of your machinery and systems.

#### Example services include:

- Consulting
- Inspection and Diagnostics
- Upgrades, Retrofits and Modernization
- Workshop Repair
- Tailored services



Performance improvement







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For more information, please contact  
your local ABB representative or visit

[www.abb.com/drives](http://www.abb.com/drives)

[www.new.abb.com/low-voltage/products/softstarters](http://www.new.abb.com/low-voltage/products/softstarters)



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your mobile device, scan the  
code and see more.