

CANADIAN 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 Xylems 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

02 Softstarters controlling fans

### 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

### Fans

#### Soft starting adjusted to application

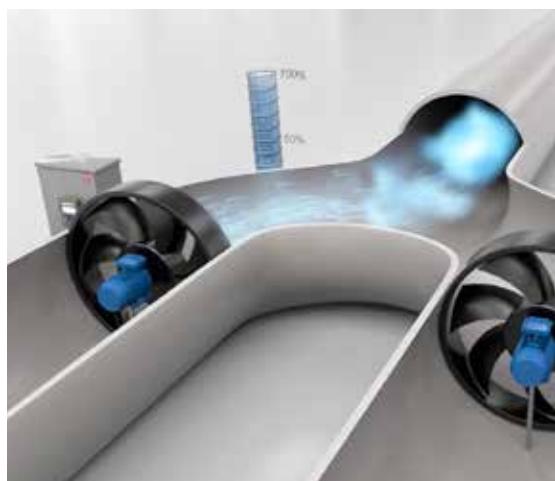
Fans normally have a high moment of inertia, which makes starting tough and current high. Using an ABB softstarter, the voltage is increased gradually during start, which reduces the current and removes the inrush peak. It is possible to adjust the settings to fit almost any starting condition, from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



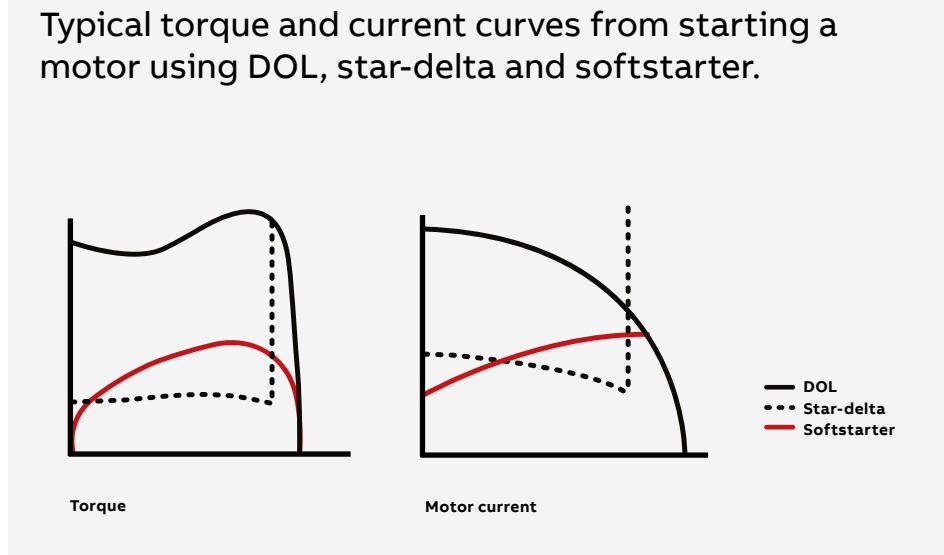
### Direct-on-line

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

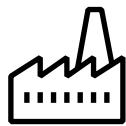
The table below describes which problems are prevented, using the most common starting methods.

Comparison	Starting method type			
	Direct on line DOL	Star-delta start 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.

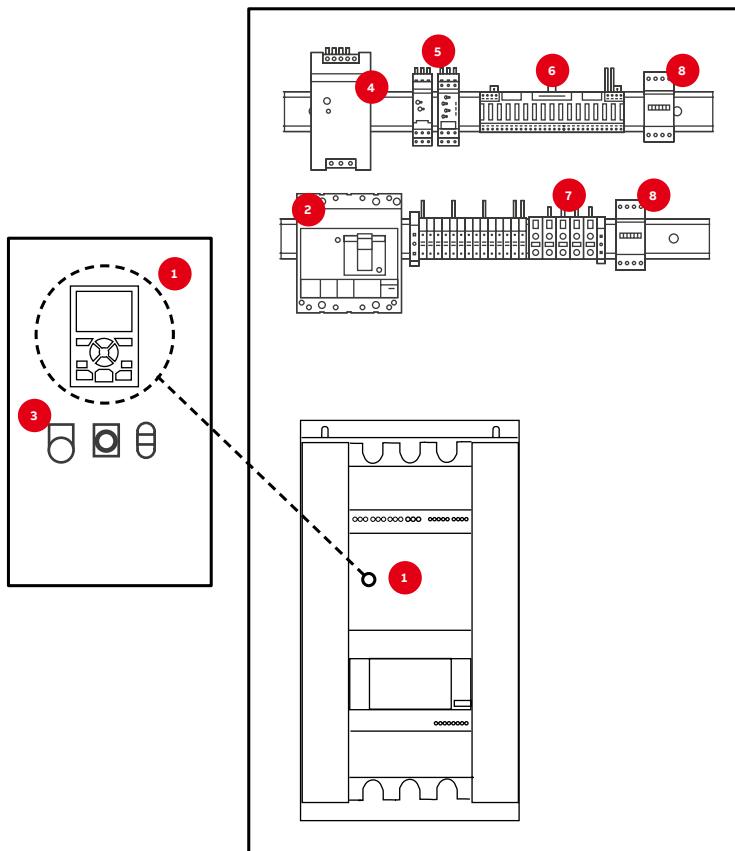


### Can I use a softstarter on a ship?

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.

Application combining Softstarters with various low voltage components



#### 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

- 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

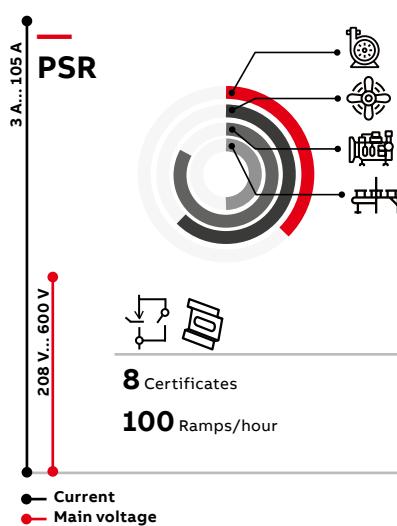
# Softstarters portfolio

## Overview



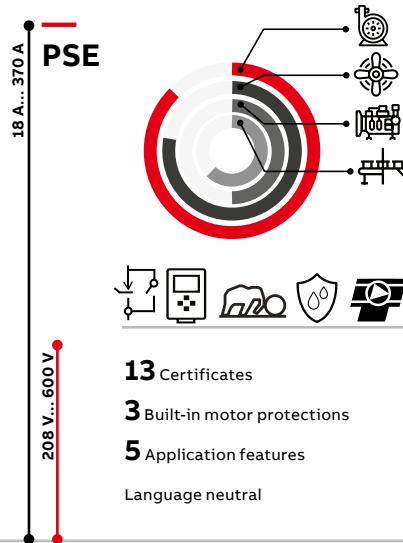
### PSR - The compact range

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



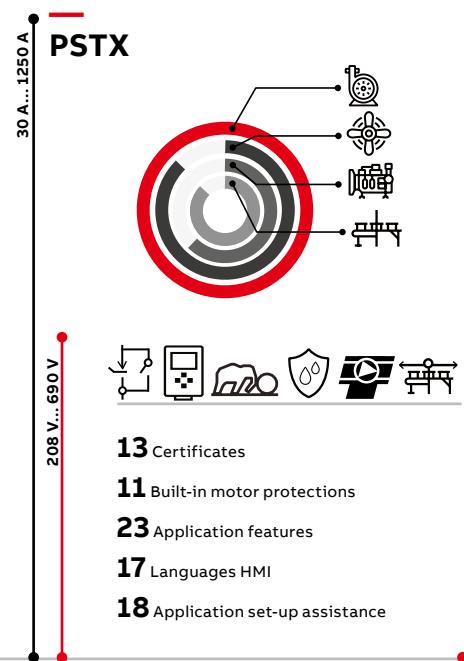
### PSE - The efficient range

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 Determine softstarter series

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.

#### 2 Match the softstarter size with the motor current

When the softstarter series is selected, the correct size should now be determined.

The selection of a softstarter is based on the current. Find the softstarter that corresponds to the motor current.

#### 3 Fine tune and select the correct size

The last step is to fine tune the selection, and there are three different factors to consider:

- Normal or a heavy load: If the load is characterized as a heavy load, select the next size softstarter in the series.
- High ambient temperature
- High altitude

Use the equations and the table on the right to find the correct de-rating equation.

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  $I_e = 100 - (x-1000)/150$

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  $I_e$  with 0.8%/ $^{\circ}C$

PSTX and PSR In Fahrenheit: 104...140 °F: Reduce  $FLA$  with 0.44%/ $^{\circ}F$

PSE In Celsius: 40...60 °C: Reduce  $I_e$  with 0.6%/ $^{\circ}C$

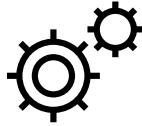
PSE In Fahrenheit: 104...140 °F: Reduce  $FLA$  with 0.33%/ $^{\circ}F$

### 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.

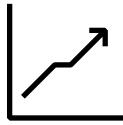
#### ...by having everything that you need built in.

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	-	-	●
Oversupply/undervoltage protection	-	-	●
Earth-fault protection	-	-	●

● = standard, O = 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	O	●	●
Event log	-	O	●
Multiple languages	-	-	17
Electricity metering	-	-	●

● = standard, O = 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	-	-	●

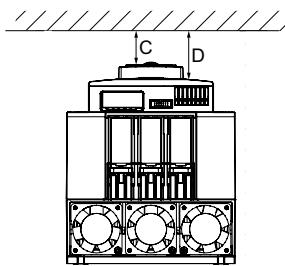
● = standard, O = option, - = not available

# Wall mounting Instructions

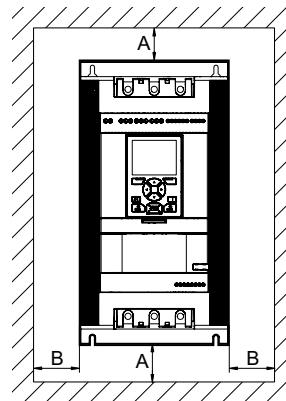
**Minimum distance to wall mm (in)**

Product	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)

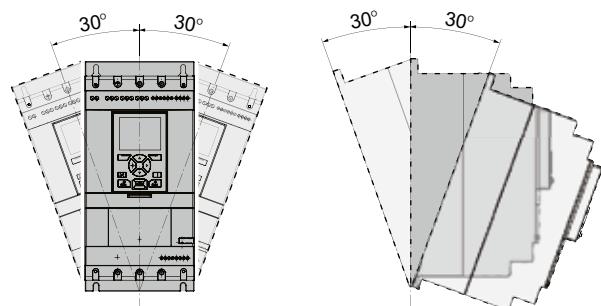
**Minimum distance to front**



**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 EU	cULus Canada USA	CCC China	EAC Russia	ANCE Mexico	C-tick Australia	ABS	DNV GL	Lloyd's Register	CCS	PRS	Class NK
<b>PSR3 ... PSR105</b>	•	•	•	•	•	•	-	-	-	-	•	-
<b>PSE18 ... PSE370</b>	•	•	•	•	•	•	•	•	•	•	•	•
<b>PSTX30 ... PSTX1250</b>	•	•	•	•	•	•	•	•	•	•	•	•

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

**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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<b>25</b>	<b>Technical data</b>
<b>26</b>	<b>Dimensions</b>
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# PSR - The compact range

## Introduction



- Two-phase controlled
- Operational voltage: 208...600 V AC
- Wide rated control supply voltage: 100...240 V AC, 50/60 Hz or 24 V AC/DC
- Rated operational current: 3...105 A
- 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

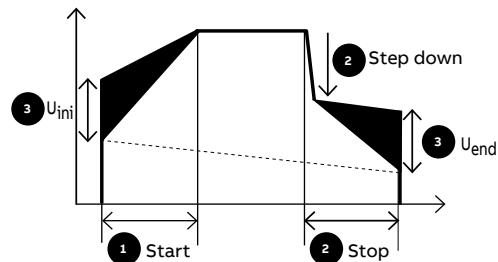
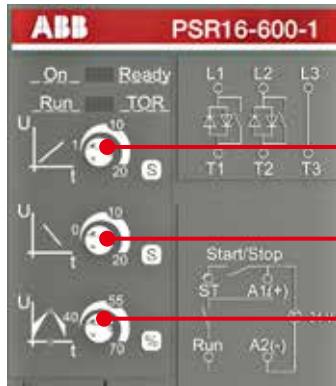
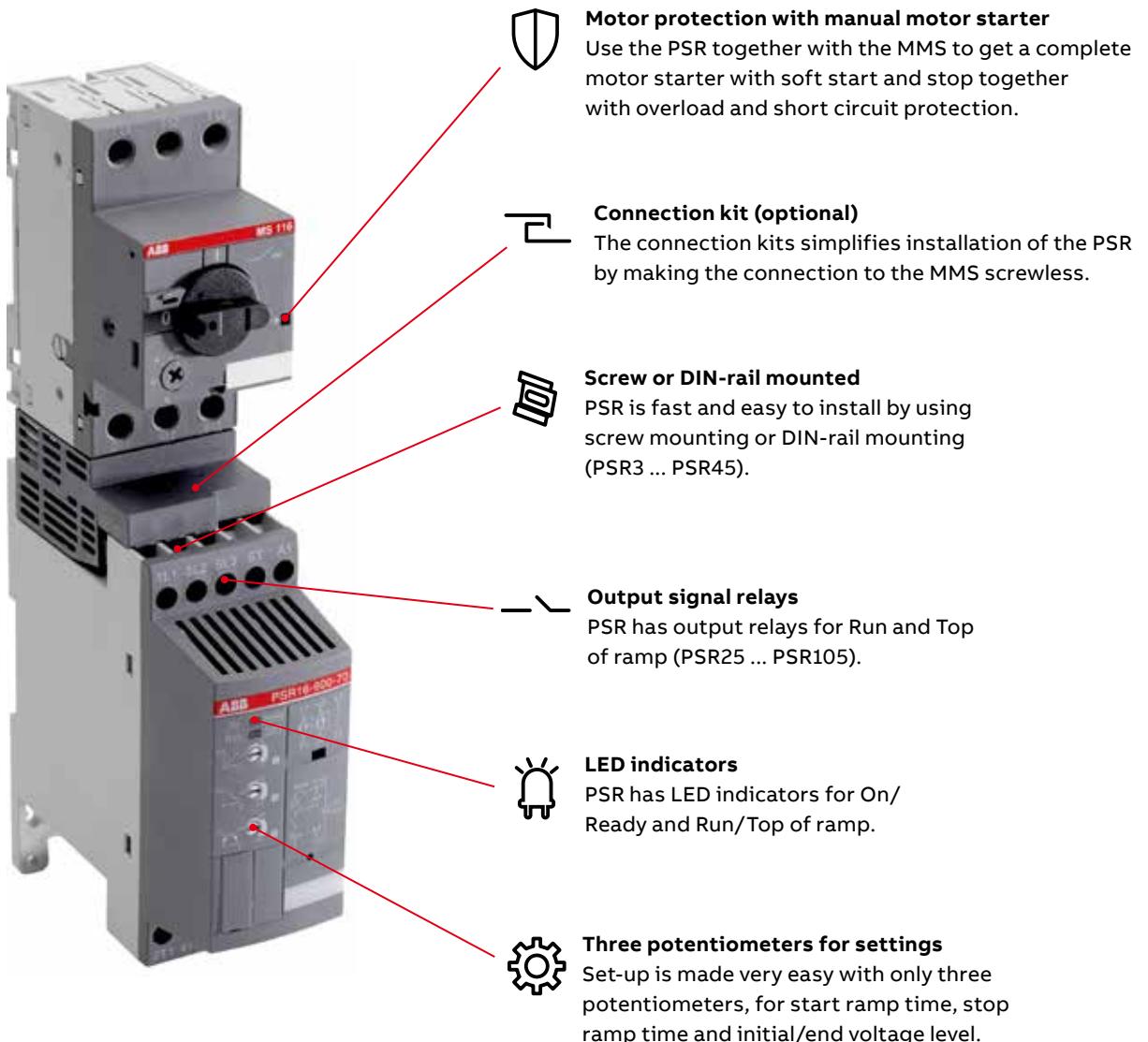
On the PSR, the bypass is built in and verified by ABB, saving you time during installation and space in your panel. Set-up is done through three potentiometers making it very fast and easy.



**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.



## PSR - The compact range

### Overview



	PSR3 ... PSR16				PSR25 ... PSR30				PSR37 ... PSR45				PSR60 ... PSR105							
<b>Normal start In-line connected</b>	<b>PSR3</b>	<b>PSR6</b>	<b>PSR9</b>	<b>PSR12</b>	<b>PSR16</b>	<b>PSR25</b>	<b>PSR30</b>	<b>PSR37</b>	<b>PSR45</b>	<b>PSR60</b>	<b>PSR72</b>	<b>PSR85</b>	<b>PSR105<sup>2)</sup></b>							
(400 V) kW	1.5	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55							
IEC, max. A	3.9	6.8	9	12	16	25	30	37	45	60	72	85	105							
(440-480 V) hp	2	3	5	7.5	10	15	20	25	30	40	50	60	75							
UL, max. FLA	3.4	6.1	9	11	15.2	24.2	28	34	46.2	59.4	68	80	104							
<b>400 V, 40 °C</b>																				
<b>Using manual motor starters type 1 coordination will be achieved<sup>1)</sup></b>	<b>Manual motor starter (50 kA)</b>				MS116				MS132				MS165							
													MS495							
<b>Using gG fuses type 1 coordination will be achieved<sup>1)</sup></b>	<b>Fuse protection (50 kA) gG Fuse</b>																			
	10 A	16 A	25 A	32 A		50 A	63 A	100 A	125 A		200 A		250 A							
<b>Suitable switch fuse for the above gG fuses<sup>1)</sup></b>	<b>Switch fuse</b>								OS32G				OS125G							
													OS250							
<b>J-type fuses for UL coordination<sup>1)</sup></b>	<b>Max. fuse, J-type</b>																			
	35 A				60 A				90 A				110 A							
<b>Overload protection is used to protect the motor from over heating<sup>1)</sup></b>	<b>Thermal overload relay</b>																			
	TF42DU								TA75DU				TA110DU							
<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>																			
	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					
			200/ 220/ 440/ 550/ 208 V 240 V 480 V 600 V												
P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	I <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	FLA						
kW	kW	kW	A	hp	hp	hp	hp	hp	A						
0.75	1.5	2.2	3.9	0.5	0.75	2	2	3.4	PSR3-600-70	PSR3-600-70	0.45	(0.99)			
1.5	3	4	6.8	1	1.5	3	5	6.1	PSR6-600-70	PSR6-600-70	0.45	(0.99)			
2.2	4	4	9	2	2	5	7.5	9	PSR9-600-70	PSR9-600-70	0.45	(0.99)			
3	5.5	5.5	12	3	3	7.5	10	11	PSR12-600-70	PSR12-600-70	0.45	(0.99)			
4	7.5	7.5	16	3	5	10	10	15.2	PSR16-600-70	PSR16-600-70	0.45	(0.99)			
5.5	11	15	25	7.5	7.5	15	20	24.2	PSR25-600-70	PSR25-600-70	0.65	(1.43)			
7.5	15	18.5	30	7.5	10	20	25	28	PSR30-600-70	PSR30-600-70	0.65	(1.43)			
7.5	18.5	22	37	10	10	25	30	34	PSR37-600-70	PSR37-600-70	1.00	(2.20)			
11	22	30	45	15	15	30	40	46.2	PSR45-600-70	PSR45-600-70	1.00	(2.20)			
15	30	37	60	20	20	40	50	59.4	PSR60-600-70	PSR60-600-70	2.20	(4.85)			
22	37	45	72	20	25	50	60	68	PSR72-600-70	PSR72-600-70	2.27	(5.00)			
22	45	55	85	25	30	60	75	80	PSR85-600-70	PSR85-600-70	2.27	(5.00)			
30	55	55	105	30	40	75	100	104	PSR105-600-70	PSR105-600-70	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	PSR3-600-11	0.45 (0.99)
1.5	3	4	6.8	1	1.5	3	5	6.1	PSR6-600-11	PSR6-600-11	0.45 (0.99)
2.2	4	4	9	2	2	5	7.5	9	PSR9-600-11	PSR9-600-11	0.45 (0.99)
3	5.5	5.5	12	3	3	7.5	10	11	PSR12-600-11	PSR12-600-11	0.45 (0.99)
4	7.5	7.5	16	3	5	10	10	15.2	PSR16-600-11	PSR16-600-11	0.45 (0.99)
5.5	11	15	25	7.5	7.5	15	20	24.2	PSR25-600-11	PSR25-600-11	0.65 (1.43)
7.5	15	18.5	30	7.5	10	20	25	28	PSR30-600-11	PSR30-600-11	0.65 (1.43)
7.5	18.5	22	37	10	10	25	30	34	PSR37-600-11	PSR37-600-11	1.00 (2.20)
11	22	30	45	15	15	30	40	46.2	PSR45-600-11	PSR45-600-11	1.00 (2.20)
15	30	37	60	20	20	40	50	59.4	PSR60-600-11	PSR60-600-11	2.20 (4.85)
22	37	45	72	20	25	50	60	68	PSR72-600-11	PSR72-600-11	2.27 (5.00)
22	45	55	85	25	30	60	75	80	PSR85-600-11	PSR85-600-11	2.27 (5.00)
30	55	55	105	30	40	75	100	104	PSR105-600-11	PSR105-600-11	2.27 (5.00)

## PSR - The compact range

### Accessories

Article	Type	Order code	Pkg qty	Weight pkg /1pce
				kg (lb)
<b>Connection kit</b>				
	PSR3...16	MS116/132	PSR16-MS116	1 0.022 (0.049)
	PSR25...30	MS132	PSR30-MS132	1 0.040 (0.088)
	PSR37...45	MS165	PSR45-MS165	1 0.050 (0.110)
	PSR60...72	MS165	PSR60-MS165	1 0.050 (0.110)
	PSR60...105	MS495	PSR105-MS495	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> 1 x 10...50 mm <sup>2</sup> , 2 x 10...25 mm <sup>2</sup>	PSLW-72	PSLW-72	1 0.150 (0.033)

## 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

**PSR3 - PSR30**

**PSR37 - PSR105**

**main circuit**

IP20

IP10

**control circuit**

IP20

#### Power consumption:

**Supply circuit** **PSR3 - PSR30**

**PSR37 - PSR105**

**Supply circuit**

at 100...240 V AC 12 VA

10 VA

at 24 V AC/DC 5 W

<b>Softstarter types</b>	<b>PSR3</b>	<b>PSR6</b>	<b>PSR9</b>	<b>PSR12</b>	<b>PSR16</b>	<b>PSR25</b>	<b>PSR30</b>	<b>PSR37</b>	<b>PSR45</b>	<b>PSR60</b>	<b>PSR72</b>	<b>PSR85</b>	<b>PSR105</b>
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													
main circuit	1 x 0.75...2.5 mm <sup>2</sup> (19...14 AWG)					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)			
	2 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...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

Green

resistive load

3 A

3 A

AC-15 (contactor)

0.5 A

0.5 A

for top of ramp signal

resistive load

3 A

AC-15 (contactor)

-

0.5 A

#### 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.

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

#### Number of starts per hour using PSR softstarters

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

Data based on an ambient temperature of 40° (104 F), starting current of 4 x  $I_e$  and ramp time 6 seconds.

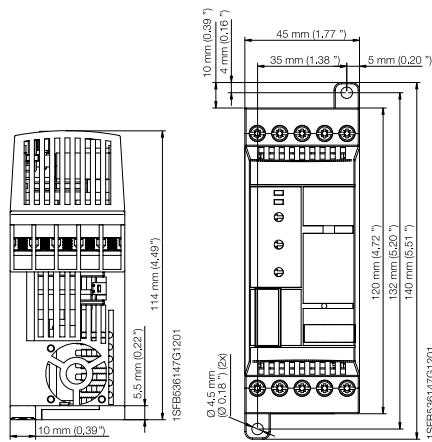
For more optimized selection or to use PSR for heavy-duty starts, please use the softstarter selection tool.

## PSR - The compact range

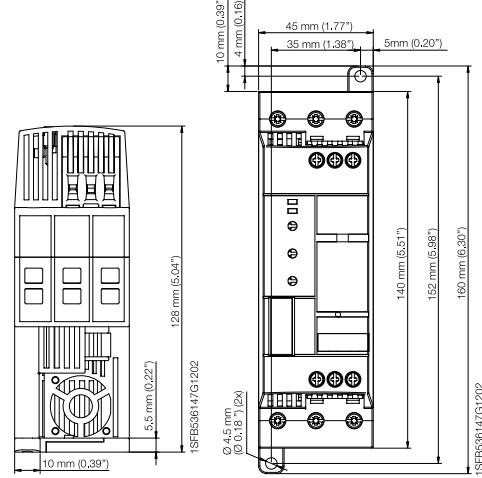
### Dimensions

#### Main dimensions mm, inches

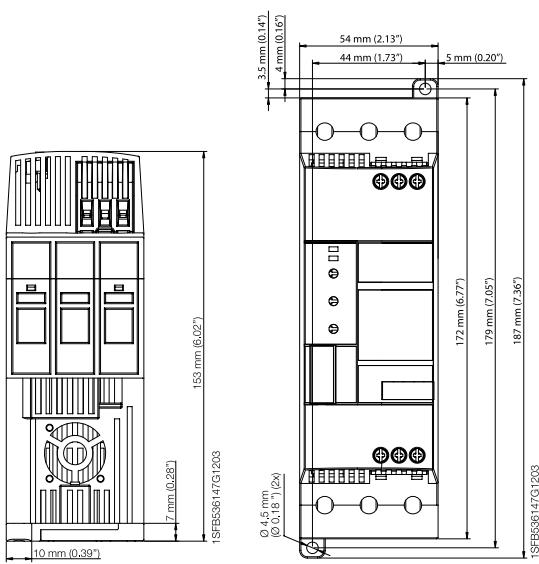
**PSR3 ... PSR16**



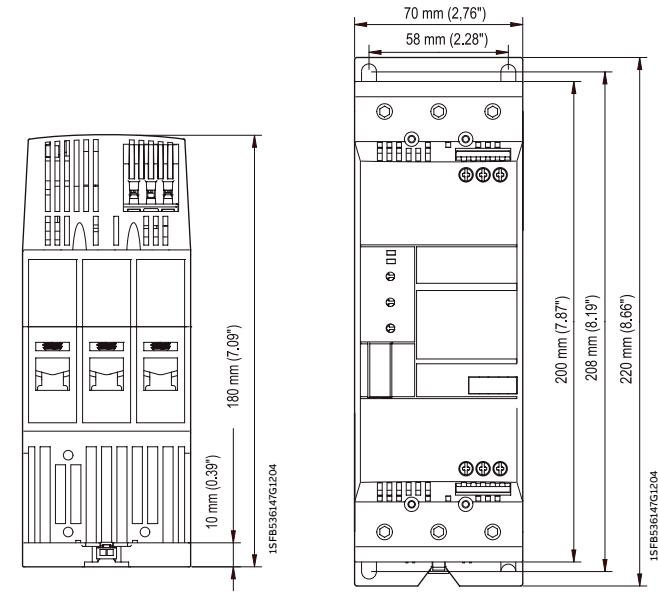
**PSR25 ... PSR30**



**PSR37 ... PSR45**



**PSR60 ... PSR105**

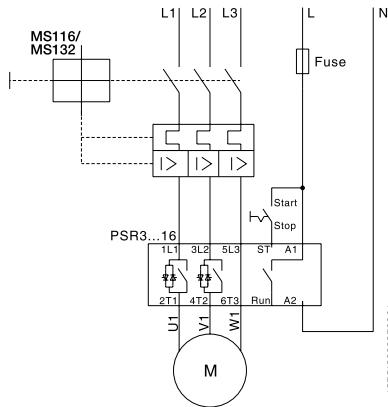


## PSR - The compact range

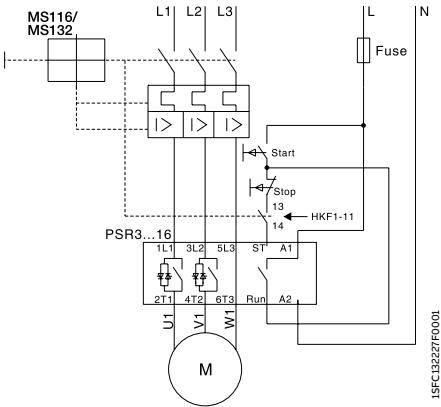
### Circuit diagrams

#### Main dimensions mm, inches

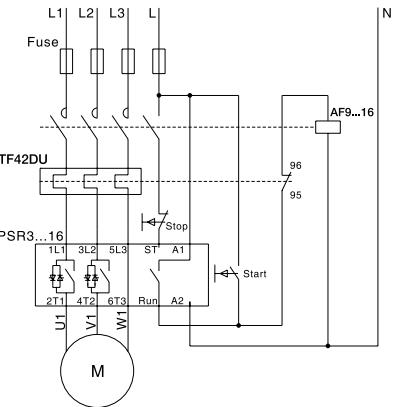
PSR3 ... PSR16 With MMS



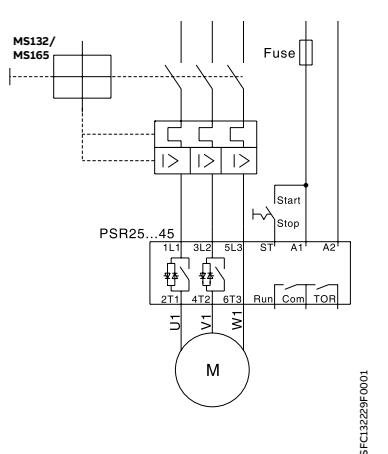
With MMS and auxiliary contact



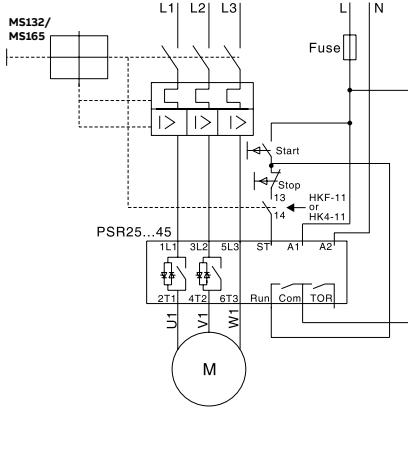
With fuses, contactor and O.L.



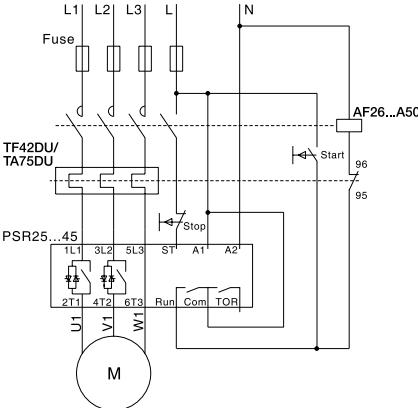
PSR25 ... PSR45 With MMS



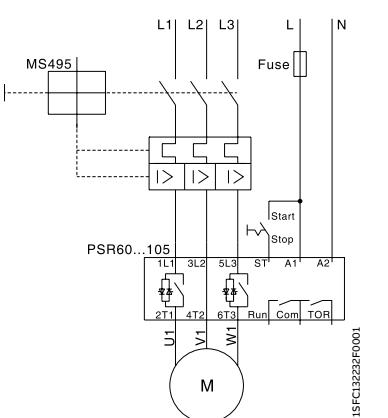
With MMS and auxiliary contact



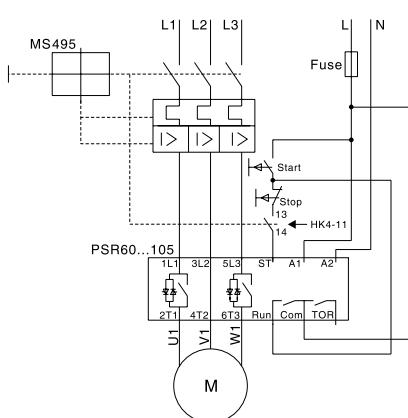
With fuses, contactor and O.L.



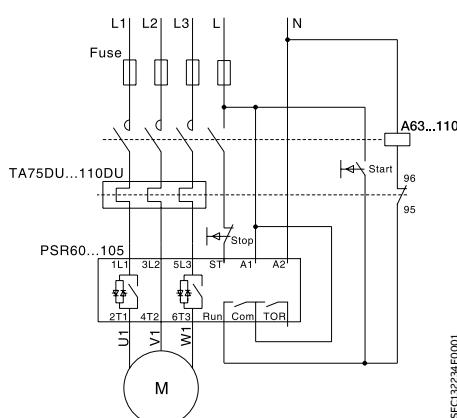
PSR60 ... PSR105 With MMS



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

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<b>32</b>	<b>Overview</b>
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<b>36</b>	<b>Accessories</b>
<b>37</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



### 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.



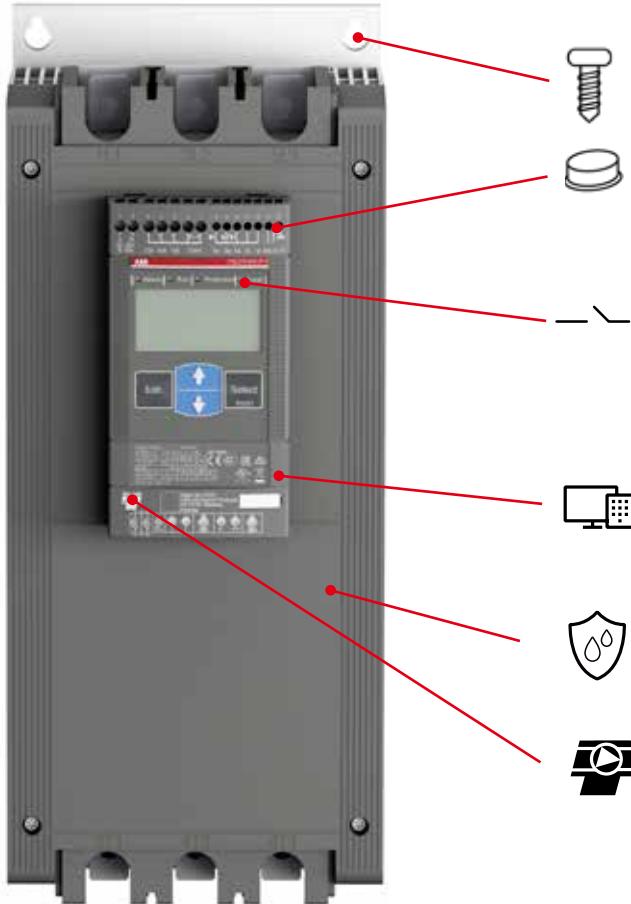
### Saving time and money with built-in bypass and compact design

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.



### 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**

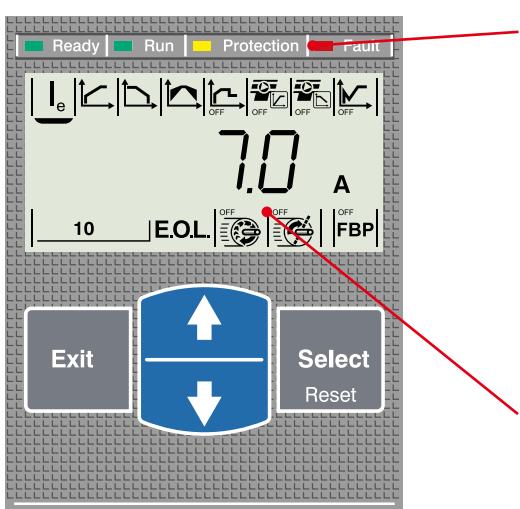
Built-in Modbus- RTU fieldbus communication for monitoring and control. Support for all major communication protocols.

**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 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
(600 V) hp	15	20	25	30	40	50	60	75	100
UL, max. FLA	18	25	28	34	42	60	68	80	104
600 V, 40 °C									
Using MCCB only, type 1 coordination will be achieved <sup>1)</sup>	<b>MCCB (25 kA)</b>								
	XT4S250								
<b>J-type or L-type fuses for UL coordination<sup>1)</sup> must be used<sup>1)</sup></b>	<b>MCCB (65 kA)</b>								
	XT4V250								
<b>J-type or L-type fuses for UL coordination<sup>1)</sup> must be used<sup>1)</sup></b>	<b>Fuse protection (85kA), J-type or L-type</b>								
	J-40	J-50	J-60	J-80	J-100	J-125	J-150	J-175	J-225
<b>To achieve type 2 coordination, semi- conductor fuses must be used<sup>1)</sup></b>	<b>Fuse protection (85 kA), Semiconductor fuses, Bussmann</b>								
	170M1563	170M1564	170M1566	170M1567	170M1568	170M1569	170M1571	170M1572	170M3819
<b>Suitable switch fuse for recommended semi- conductor fuses<sup>1)</sup></b>	<b>Switch fuse</b>								
	OS32GD			OS63GD			OS125GD		OS250D
<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>								
	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

1SFC132002V0001



NEW PSE210 ... PSE370

1SFC132154V0001

	<b>PSE142</b>	<b>PSE170</b>	<b>PSE210</b>	<b>PSE250</b>	<b>PSE300</b>	<b>PSE370</b>	
<b>Normal start In-line connected (400 V) kW</b>	75	90	110	132	160	200	
<b>IEC, max. A</b>	143	171	210	250	300	370	
<b>(600 V) hp</b>	125	150	200	250	300	350	
<b>UL, max. FLA</b>	130	169	192	248	302	361	
<b>600 V, 40 °C</b>							
<b>Using MCCB only, type 1 coordination will be achieved<sup>1)</sup></b>	<b>MCCB (25 kA)</b> XT4H250		T5S600				
	<b>MCCB (65 kA)</b> XT4V250		T4S320	T5L600			
<b>J-type or L-type fuses for UL coordination<sup>1)</sup></b>	<b>Fuse protection (85kA), J-type</b>						
	J-300	J-350	J-450	J-500	J-600		
<b>To achieve type 2 coordination, semi- conductor fuses must be used<sup>1)</sup></b>	<b>Fuse protection (85kA), Semiconductor fuses, Bussmann</b>						
	170M5809	170M5810	170M5812	170M5813	170M6812	170M6813	
<b>Suitable switch fuse for recommended semi- conductor fuses<sup>1)</sup></b>	<b>Switch fuse</b>						
	OS400D				OS630D		
<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>						
	AF140	AF190	AF205	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.ab.com/low-voltage/products/Softstarters](http://new.ab.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					
						pkg/1pce					
Rated operational power		Rated operational current									
power	current	200/ 208 V	220/ 240 V	440/ 480 V	550/ 600 V						
P <sub>e</sub>	kW	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	FLA					
kW	kW	kW	A	hp	hp	hp					
4	7.5	11	18	5	5	10	15	18	PSE18-600-70	PSE18-600-70	2.40 (5.29)
5.5	11	15	25	7.5	7.5	15	20	25	PSE25-600-70	PSE25-600-70	2.40 (5.29)
7.5	15	18.5	30	7.5	10	20	25	28	PSE30-600-70	PSE30-600-70	2.40 (5.29)
9	18.5	22	37	10	10	25	30	34	PSE37-600-70	PSE37-600-70	2.40 (5.29)
11	22	30	45	10	15	30	40	42	PSE45-600-70	PSE45-600-70	2.40 (5.29)
15	30	37	60	20	20	40	50	60	PSE60-600-70	PSE60-600-70	2.40 (5.29)
18.5	37	45	72	20	25	50	60	68	PSE72-600-70	PSE72-600-70	2.50 (5.51)
22	45	55	85	25	30	60	75	80	PSE85-600-70	PSE85-600-70	2.50 (5.51)
30	55	75	106	30	40	75	100	104	PSE105-600-70	PSE105-600-70	2.50 (5.51)
40	75	90	143	40	50	100	125	130	PSE142-600-70	PSE142-600-70	4.20 (9.26)
45	90	110	171	60	60	125	150	169	PSE170-600-70	PSE170-600-70	4.20 (9.26)
59	110	132	210	60	75	150	200	192	PSE210-600-70	PSE210-600-70	9.50 (20.94)
75	132	160	250	75	100	200	250	248	PSE250-600-70	PSE250-600-70	10.90 (24.03)
90	160	200	300	100	100	250	300	302	PSE300-600-70	PSE300-600-70	10.90 (24.03)
110	200	250	370	125	150	300	350	361	PSE370-600-70	PSE370-600-70	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)



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 pkg/1pce			
	Rated operational power current				Rated operational power current									
	230 V	400 V	500 V		200/ 208 V	220/ 240 V	440/ 480 V	550/ 600 V						
P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	I <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	P <sub>e</sub>	FLA			kg (lb)			
kW	kW	kW	A	hp	hp	hp	hp	A						
3	5.5	7.5	12	3	3	7.5	10	11	PSE18-600-70	PSE18-600-70	2.40 (5.29)			
4	7.5	11	18	5	5	10	15	18	PSE25-600-70	PSE25-600-70	2.40 (5.29)			
5.5	11	15	25	7.5	7.5	15	20	25	PSE30-600-70	PSE30-600-70	2.40 (5.29)			
7.5	15	18.5	30	7.5	10	20	25	28	PSE37-600-70	PSE37-600-70	2.40 (5.29)			
9	18.5	22	37	10	10	25	30	34	PSE45-600-70	PSE45-600-70	2.40 (5.29)			
11	22	30	45	10	15	30	40	42	PSE60-600-70	PSE60-600-70	2.40 (5.29)			
15	30	37	60	20	20	40	50	60	PSE72-600-70	PSE72-600-70	2.50 (5.51)			
18.5	37	45	72	20	25	50	60	68	PSE85-600-70	PSE85-600-70	2.50 (5.51)			
22	45	55	85	25	30	60	75	80	PSE105-600-70	PSE105-600-70	2.50 (5.51)			
30	55	75	106	30	40	75	100	104	PSE142-600-70	PSE142-600-70	4.20 (9.26)			
40	75	90	143	40	50	100	125	130	PSE170-600-70	PSE170-600-70	4.20 (9.26)			
45	90	110	171	60	60	125	150	169	PSE210-600-70	PSE210-600-70	9.50 (20.94)			
59	110	132	210	60	75	150	200	192	PSE250-600-70	PSE250-600-70	10.90 (24.03)			
75	132	160	250	75	100	200	250	248	PSE300-600-70	PSE300-600-70	10.90 (24.03)			
90	160	200	300	100	100	250	300	302	PSE370-600-70	PSE370-600-70	10.90 (24.03)			

## PSE - The efficient range

### Accessories

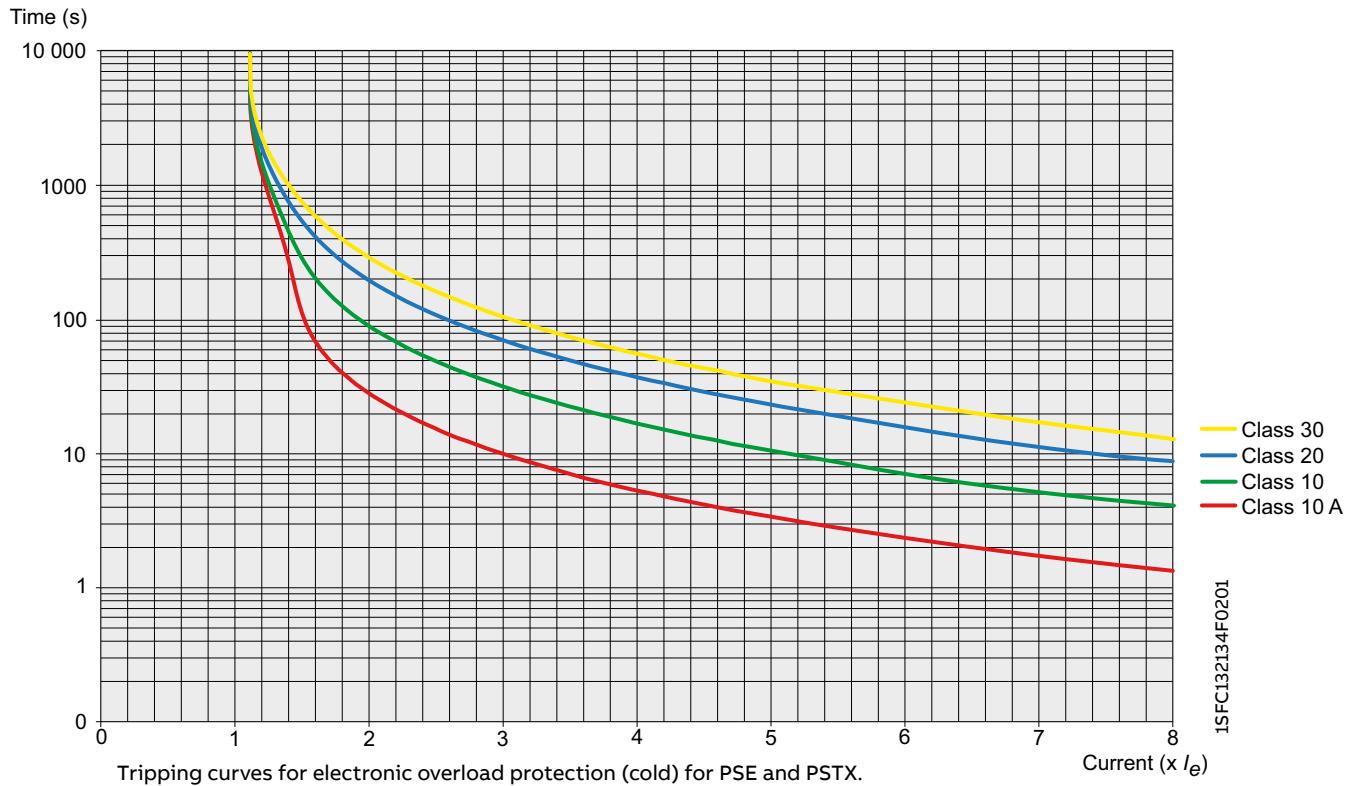
Description	Article	Type	Order code	Pkg qty	Weight pkg /1pce kg (lb)
<b>Cable connectors for Cu cables</b>					
		Wire range mm <sup>2</sup>	Tightening torque max. Nm		
	PSE142 ... PSE170	6...120	14 –	*Please contact ABB	3 0.113 (0.249)
	PSE142 ... PSE170	2 x (50...120)	16 LZ185-2C/120	*Please contact ABB	3 0.100 (0.220)
	PSE210 ... PSE370	16...300	25 –	*Please contact ABB	3 0.133 (0.293)
<b>Cable connectors for Al and Cu cables</b>					
	For softstarter type	Wire range AWG	Tightening torque max. in lb	Type	Order code
					Pkg qty
					Weight (1 pce) kg (lb)
	<b>Connection capacity according to UL/CSA</b>				
ATK...	PSE142 ... PSE170	6...300 MCM	300	ATK185	ATK185/RM 3 0.054 (0.12)
	PSE210 ... PSE370	4...400 MCM	375	ATK300	ATK300/RM 3 0.058 (0.13)
	PSE210 ... PSE370	(2x) 4...500 MCM	375	ATK300/2	ATK300/2/RM 3 0.145 (0.32)
<b>Terminal enlargements</b>					
		Dimensions hole ø mm <sup>2</sup>	bar mm <sup>2</sup>		
	PSE18 ... PSE105	6.5	15 x 3	LW110	LW110/RM 1 0.100 (0.220)
	PSE142 ... PSE170	10.5	17.5 x 5	LW185	LW185/RM 1 0.450 (0.992)
	PSE210 ... PSE370	10.5	20 x 5	LW300	LW300/RM 1 1.230 (2.712)
<b>Terminal kit</b>					
	PSE142...PSE170		PSLE-185	PSLE-185	1 0.200 (0.441)
	PSE210...370		PSLE-300	PSLE-300	1 0.300 (0.661)
<b>Terminal extension</b>					
	PSE142 ... PSE170 8.5 17.5 x 5		LX205	LX205/RM	1 0.250 (5.551)
	PSE210 ... PSE370 10.5 20 x 5		LX370	LX370/RM	1 0.350 (0.772)
<b>Terminal shrouds</b>					
	PSE18... PSE105, Screw terminals		LT140-30L	*Please contact ABB	2 0.070 (0.154)
	PSE142... PSE170, short for use with cable clamps		LT185-AC	LT185-AC/RM	2 0.050 (0.110)
	PSE142... PSE170, long for use with compression lugs		LT185-AL	LT185-AL/RM	2 0.220 (0.485)
	PSE210... PSE370, short for use with cable clamps		LT300-AC	LT300-AC/RM	2 0.070 (0.154)
	PSE210... PSE370, long for use with compression lugs		LT300-AL	LT300-AL/RM	2 0.280 (0.617)
<b>External keypad including a 3m cable</b>					
	PSE18 ... PSE370		PSEEK	PSEEK	1 0.198 (0.437)
<b>USB cable for Service Engineer Tool</b>					
	PSE18 ... PSE370		PSECA	PSECA	1 0.130 (0.287)
<b>Fieldbus plug connection, cable included</b>					
	Fieldbus plug adaptor		PS-FBPA	PS-FBPA	1 0.060 (0.132)
<b>Terminal Extensions retrofit kit</b>					
	Terminal Extensions retrofit kit		LXR370	LXR370/RM	1 0.450 (0.992)
<b>Modbus adaptern</b>					
	Modbus adapter		PS-MBIA	PS-MBIA	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	
<b>Rated insulation voltage <math>U_i</math></b>	600 V	
<b>Rated operational voltage <math>U_e</math></b>	208...600 V +10%/-15%	
<b>Rated control supply voltage <math>U_s</math></b>	100...250 V +10%/-15%, 50/60 Hz ±10 %	
<b>Rated control circuit voltage <math>U_c</math></b>	Internal 24 V DC	
<b>Starting capacity at <math>I_e</math></b>	$4 \times I_e$ for 10 sec.	
<b>Number of starts per hour</b>	10 <sup>1)</sup>	
<b>Overload capability</b>	Overload class	10
<b>Ambient temperature</b>	During operation	-25...+60 °C (-13...+140 F) <sup>2)</sup>
	During storage	-40...+70 °C (-40...+158 F)
<b>Maximum Altitude</b>		4000 m (13123 ft) <sup>3)</sup>
<b>Degree of protection</b>	Main circuit	IP00
	Supply and control circuit	IP20
<b>Main circuit</b>	Built-in bypass	Yes
	Cooling system - fan cooled (thermostat controlled)	Yes
<b>HMI for settings</b>	Display	4 7-segments and icons. Illuminated
	Keypad	2 selection keys and 2 navigation keys
<b>Main settings</b>	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 × $I_e$
	Torque control for start	Yes / No
	Torque control for stop	Yes / No
	Kick start	Off, 30...100%
<b>Signal relays</b>	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
<b>Analog output</b>	Output signal reference	4...20 mA
	Type of output signal	1 Amp
	Scaling	Fixed at 1.2 × $I_e$
<b>Control circuit</b>	Number of inputs	3 (start, stop, reset of faults)
<b>Signal indication LED</b>	On / Ready	Green flashing / steady
	Run / TOR	Green flashing / steady
	Protection	Yellow
	Fault	Red
<b>Protections</b>	Electronic overload	Yes (Class 10A, 10, 20, 30)
	Locked rotor protection	Yes
	Underload protection	Yes
<b>Fieldbus connection</b>	Connection for ABB Fieldbus plug	Yes (option)
	<b>NEW</b> Built-in modbus	Yes
<b>External keypad</b>	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 -  $x$  - 1000 ]  $x$  = actual altitude of the softstarter in meters.

## PSE - The efficient range

### Technical data

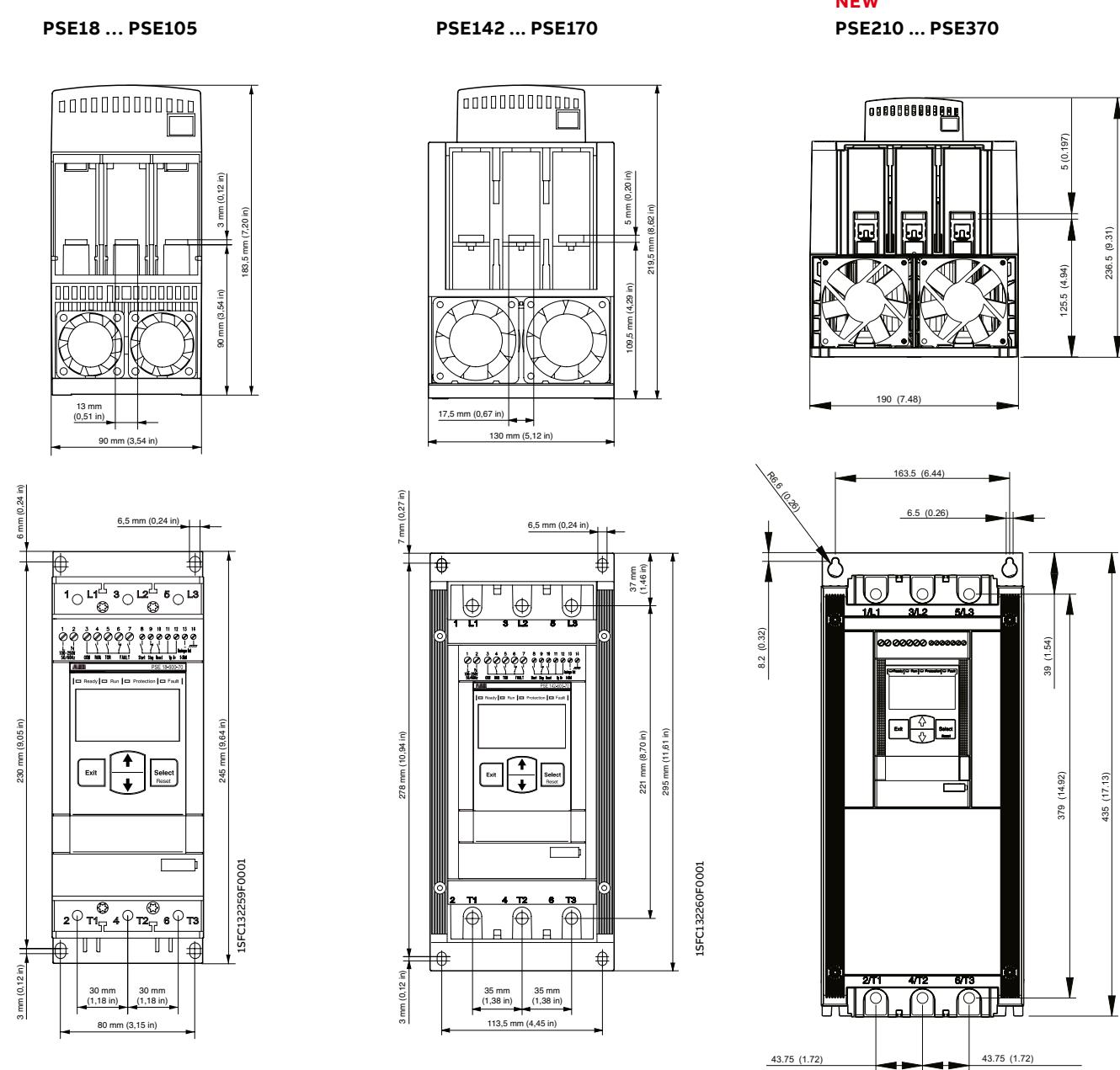
Main terminals	PSE18 ... PSE105	PSE142 ... PSE170	PSE210 ... PSE370
Cu cable - Flexible	1 x mm <sup>2</sup>	2.5...70 mm <sup>2</sup>	6...120 mm <sup>2</sup>
Clamp type		Included	1SDA066917R1
Tightening torque		8 Nm	14 Nm
Cu cable - Flexible	2 x mm <sup>2</sup>	2.5...70 mm <sup>2</sup>	50...120 mm <sup>2</sup>
Clamp type		Included	1SFN074709R1000
Tightening torque		8 Nm	16 NM
Cu cable - Stranded	1 x mm <sup>2</sup>	2.5...70 mm <sup>2</sup>	6...120 mm <sup>2</sup>
Clamp type		Included	1SDA066917R1
Tightening torque		8 Nm	14 Nm
Cu cable - Stranded	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
Al cable - Stranded	1 x mm <sup>2</sup>	-	95...185 mm <sup>2</sup>
Clamp type		-	185...240
Tightening torque		-	1SDA054988R1
Lugs	Width	22 mm (0.866 in)	24 mm (0.945 in)
Diameter>=		6.5 mm (0.256 in)	8.5 mm (0.335 in)
Tightening torque		9 Nm (80 in lb)	18 Nm (159 in lb)
Connection capacity acc to UL / CSA 1 x AWG / kcmil		6...2/0	6...300 kcmil
Clamp type		Included	ATK185
Tightening torque		71 in lb	300 in lb
Connection capacity acc to UL / CSA 2 x AWG / kcmil		-	-
Clamp type		-	4...500 kcmil
Tightening torque		-	ATK300/2
Supply and control circuit	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> Bussmann fuses, DIN43 620 (Knife)		Power requirements supply circuit Holding (VA) / Pull-in (VA)
Type	A	W	A	Type	Size
PSE18	5.4...18.0	0.2	40	170M1563	000
PSE25	7.5...25.0	0.4	50	170M1564	000
PSE30	9.0...30.0	0.5	80	170M1566	000
PSE37	11.1...37.0	0.8	100	170M1567	000
PSE45	13.5...45.0	1.2	125	170M1568	000
PSE60	18.0...60.0	2.2	160	170M1569	000
PSE72	21.6...72.0	3.1	250	170M1571	000
PSE85	25.5...85.0	4.3	315	170M1572	000
PSE105	31.8...106.0	6.6	400	170M3819	1*
PSE142	42.9...143.0	12.1	450	170M5809	2
PSE170	51.3...171.0	17.6	500	170M5810	2
PSE210	63.0...210.0	8.8	630	170M5812	2
PSE250	75.0...250.0	12.5	700	170M5813	2
PSE300	90.6...302.0	18.0	800	170M6812	3
PSE370	111.0...370.0	27.4	900	170M6813	3

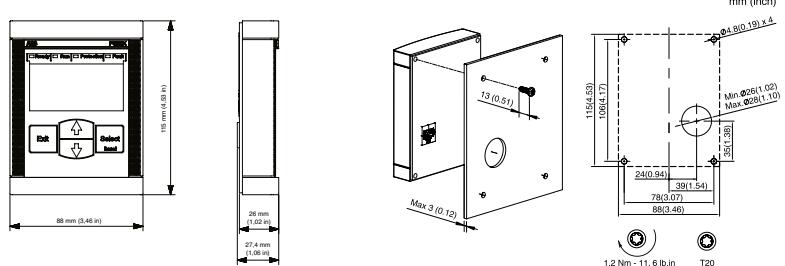
<sup>1)</sup> For the supply circuit 6 A delayed, for MCB use C characteristics.

## PSE - The efficient range

### Dimensions



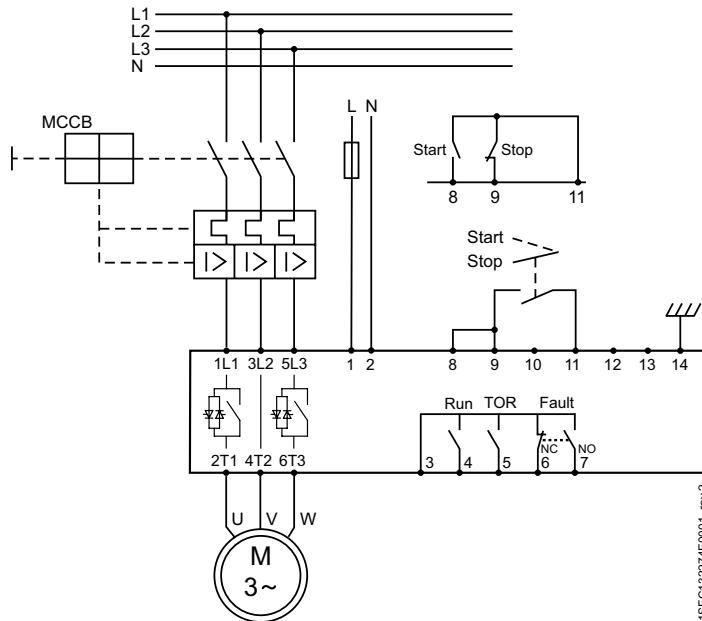
**PSE external keypad (PSEEK)**



## PSE - The efficient range

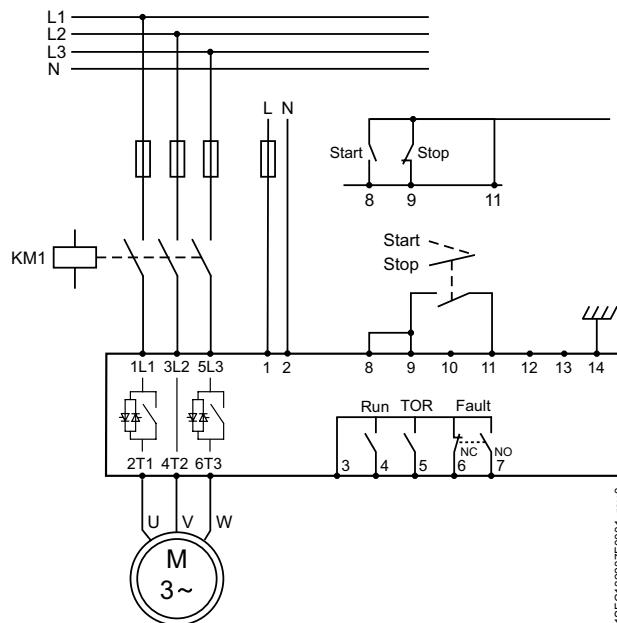
## Circuit diagrams

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



1SEC132274E0001 rev2

#### **With fuses and line contactor**



11SEC132237E0001 rev.3

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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.**

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# PSTX

## The advanced range

<b>44</b>	<b>Introduction</b>
<b>46</b>	<b>Overview</b>
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<b>52</b>	<b>Accessories</b>
<b>54</b>	<b>Technical data</b>
<b>58</b>	<b>Dimensions</b>
<b>60</b>	<b>Circuit diagrams</b>

# 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 (440-480 V) hp</b>	30	37	45	60	72	85	106	143	171
<b>UL, max. FLA</b>	20	25	30	40	50	60	75	100	125
	28	34	42	60	68	80	104	130	169
<b>600 V, 40 °C</b>									
<b>Using manual motor starter or MCCB, type 1 coordination will be achieved.<sup>1)</sup></b>	<b>MCCB (25kA)</b>								
	XT4H250								
	<b>MCCB (65kA)</b>								
XT4V250									
<b>J-type or L-type fuses for UL coordination<sup>1)</sup></b>	<b>MCCB (100kA)</b>								
	J-60	J-70	J-90	J-125	J-150	J-175	J-225	J-250	J-250
<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	AF140	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	PSTX250	PSTX300	PSTX370	PSTX470	PSTX570	PSTX720	PSTX840	PSTX1050	PSTX1250
Normal start In-Line connected (400 V) kW	110	132	160	200	250	315	400	450	560	710
IEC, max. A (440-480 V) hp	210	250	300	370	470	570	720	840	1050	1250
UL, max. FLA	150	200	250	300	400	500	600	700	900	1000
	192	248	302	361	480	590	720	840	1062	1250

600 V, 40 °C

Using manual motor starter or MCCB, type 1 coordination will be achieved. <sup>1)</sup>	MCCB (25 kA)				*Please Contact ABB		
	T5S400	T5S600	T5S800				
<b>MCCB (65 kA)</b>							
T5L400                    T5L600                    T7L1200                    T8V3000                    *Please Contact ABB							

J-type or L-type fuses for UL coordination <sup>1)</sup>	MCCB (100 kA)					
	J-400	J-500	J-600	L-1200	L-1600	L-2500

Using gG fuses, type 1 coordination will be achieved. To achieve type 2 coordination, semiconductor fuses must be used. <sup>1)</sup>	Fuse protection (80 kA), Semiconductor fuses, Bussmann							
	170M5812	170M5813	170M6812	170M6813	170M6814	170M8554	170M6018	170M6020

Suitable switch fuse for the recommended semiconductor fuses. <sup>1)</sup>	Switch fuse							
	OS400		OS630		OS800		-	

The line contactor is not Line contactor required for the softstarter itself but often used to open if OL trips. <sup>1)</sup>	AF205	AF265	AF305	AF370	AF460	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<sub>e</sub>, 208...690 V, **rated control supply voltage** U<sub>s</sub>, 100...250 V AC, 50/60 Hz

IEC		UL/CSA		Type	Order code	Weight pkg/1pce				
Rated operational power current				Rated operational power current						
400V	500V	690V		200/ 208V	220/ 240V	440/ 480V	550/ 600V			
P <sub>e</sub> kW	P <sub>e</sub> kW	P <sub>e</sub> kW	I <sub>e</sub> A	P <sub>e</sub> hp	P <sub>e</sub> hp	P <sub>e</sub> hp	P <sub>e</sub> hp	FLA A		
									kg	(lb)
15	18.5	25	30	7.5	10	20	25	28	PSTX30-690-70	PSTX30-690-70 6.10 (13.45)
18.5	22	30	37	10	10	25	30	34	PSTX37-690-70	PSTX37-690-70 6.10 (13.45)
22	25	37	45	10	15	30	40	42	PSTX45-690-70	PSTX45-690-70 6.10 (13.45)
30	37	55	60	20	20	40	50	60	PSTX60-690-70	PSTX60-690-70 6.10 (13.45)
37	45	59	72	20	25	50	60	68	PSTX72-690-70	PSTX72-690-70 6.10 (13.45)
45	55	75	85	25	30	60	75	80	PSTX85-690-70	PSTX85-690-70 6.10 (13.45)
55	75	90	106	30	40	75	100	104	PSTX105-690-70	PSTX105-690-70 6.10 (13.45)
75	90	132	143	40	50	100	125	130	PSTX142-690-70	PSTX142-690-70 9.60 (21.16)
90	110	160	171	50	60	125	150	169	PSTX170-690-70	PSTX170-690-70 9.60 (21.16)
110	132	184	210	60	75	150	200	192	PSTX210-690-70	PSTX210-690-70 12.70 (27.99)
132	160	220	250	75	100	200	250	248	PSTX250-690-70	PSTX250-690-70 12.70 (27.99)
160	200	257	300	100	100	250	300	302	PSTX300-690-70	PSTX300-690-70 12.70 (27.99)
200	257	355	370	125	150	300	350	361	PSTX370-690-70	PSTX370-690-70 12.70 (27.99)
250	315	450	470	150	200	400	500	480	PSTX470-690-70	PSTX470-690-70 25.00 (55.12)
315	400	560	570	200	200	500	600	590	PSTX570-690-70	PSTX570-690-70 25.00 (55.12)
400	500	710	720	250	300	600	700	720	PSTX720-690-70	PSTX720-690-70 46.20 (101.85)
450	600	800	840	300	350	700	800	840	PSTX840-690-70	PSTX840-690-70 46.20 (101.85)
560	730	1000	1050	400	450	900	1000	1062	PSTX1050-690-70	PSTX1050-690-70 64.20 (141.54)
710	880	1200	1250	400	500	1000	1200	1250	PSTX1250-690-70	PSTX1250-690-70 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<sub>e</sub>, 208...690 V, rated control supply voltage U<sub>s</sub>, 100...250 V AC, 50/60 Hz

IEC		UL/CSA		Type	Order code	Weight			
Rated operational power		Rated operational current				pkg/1pce			
400V	500V	690V	200/ 208 V	220/ 240 V	440/ 480 V	550/ 600 V			
kW	kW	kW	Ie	Pe	Pe	Pe	Pe	FLA	
kW	kW	kW	A	hp	hp	hp	hp	A	
11	15	18.5	22	5	7.5	15	20	25	PSTX30-690-70    PSTX30-690-70    6.10 (13.45)
15	18.5	25	30	7.5	10	20	25	28	PSTX37-690-70    PSTX37-690-70    6.10 (13.45)
18.5	22	30	37	10	10	25	30	34	PSTX45-690-70    PSTX45-690-70    6.10 (13.45)
22	25	37	44	10	15	30	40	42	PSTX60-690-70    PSTX60-690-70    6.10 (13.45)
30	37	55	60	20	20	40	50	60	PSTX72-690-70    PSTX72-690-70    6.10 (13.45)
37	45	59	72	20	25	50	60	68	PSTX85-690-70    PSTX85-690-70    6.10 (13.45)
45	55	75	85	25	30	60	75	80	PSTX105-690-70    PSTX105-690-70    6.10 (13.45)
55	75	90	106	30	40	75	100	104	PSTX142-690-70    PSTX142-690-70    9.60 (21.16)
75	90	132	143	40	50	100	125	130	PSTX170-690-70    PSTX170-690-70    9.60 (21.16)
90	110	160	171	50	60	125	150	169	PSTX210-690-70    PSTX210-690-70    12.70 (27.99)
110	132	184	210	60	75	150	200	192	PSTX250-690-70    PSTX250-690-70    12.70 (27.99)
132	160	220	250	75	100	200	250	248	PSTX300-690-70    PSTX300-690-70    12.70 (27.99)
160	200	257	300	100	100	250	300	302	PSTX370-690-70    PSTX370-690-70    12.70 (27.99)
200	257	355	370	125	150	300	350	361	PSTX470-690-70    PSTX470-690-70    25.00 (55.12)
250	315	450	470	150	200	400	500	480	PSTX570-690-70    PSTX570-690-70    25.00 (55.12)
315	400	560	570	200	200	500	600	590	PSTX720-690-70    PSTX720-690-70    46.20 (101.85)
400	500	710	720	250	300	600	700	720	PSTX840-690-70    PSTX840-690-70    46.20 (101.85)
450	600	800	840	300	350	700	800	840	PSTX1050-690-70    PSTX1050-690-70    64.20 (141.54)
560	730	1000	1050	400	450	900	1000	1062	PSTX1250-690-70    PSTX1250-690-70    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: [newabb.com/low-voltage/products/Softstarters](http://newabb.com/low-voltage/products/Softstarters)



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

Rated operational voltage  $U_e$ , 208...690 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/1pc				
400 V	500 V	690 V		200/ 208V	220/ 240V	440/ 480V	550/ 600V			
Pe	Pe	Pe	I <sub>e</sub>	Pe	Pe	Pe	Pe	FLA		
kW	kW	kW	A	hp	hp	hp	hp	A	kg	(lb)
25	30	45	52	10	15	30	40	48	PSTX30-690-70	PSTX30-690-70 6.10 (13.45)
30	37	55	64	15	20	40	50	58	PSTX37-690-70	PSTX37-690-70 6.10 (13.45)
37	45	59	76	20	25	50	60	72	PSTX45-690-70	PSTX45-690-70 6.10 (13.45)
55	75	90	105	30	40	75	100	103	PSTX60-690-70	PSTX60-690-70 6.10 (13.45)
59	80	110	124	30	40	75	100	117	PSTX72-690-70	PSTX72-690-70 6.10 (13.45)
75	90	132	147	40	50	100	125	138	PSTX85-690-70	PSTX85-690-70 6.10 (13.45)
90	110	160	181	60	60	150	150	180	PSTX105-690-70	PSTX105-690-70 6.10 (13.45)
132	160	220	245	75	75	150	200	225	PSTX142-690-70	PSTX142-690-70 9.60 (21.16)
160	200	257	300	75	100	200	250	292	PSTX170-690-70	PSTX170-690-70 9.60 (21.16)
184	250	315	360	100	125	250	300	332	PSTX210-690-70	PSTX210-690-70 12.70 (27.99)
220	295	400	430	150	150	350	450	429	PSTX250-690-70	PSTX250-690-70 12.70 (27.99)
257	355	500	515	150	200	450	500	523	PSTX300-690-70	PSTX300-690-70 12.70 (27.99)
355	450	600	640	200	250	500	600	625	PSTX370-690-70	PSTX370-690-70 12.70 (27.99)
450	600	800	814	250	300	600	700	830	PSTX470-690-70	PSTX470-690-70 25.00 (55.12)
540	700	960	987	300	350	700	800	1020	PSTX570-690-70	PSTX570-690-70 25.00 (55.12)
710	880	1200	1247	400	500	1000	1200	1240	PSTX720-690-70	PSTX720-690-70 46.20 (101.85)
800	1000	1400	1455	500	600	1200	1500	1450	PSTX840-690-70	PSTX840-690-70 46.20 (101.85)
1000	1250	1700	1810	600	700	1500	1800	1830	PSTX1050-690-70	PSTX1050-690-70 64.20 (141.54)
1200	1500	2000	2160	800	900	1800	2000	2160	PSTX1250-690-70	PSTX1250-690-70 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
- Sawill
- 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...690 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						
	200/ 208V	220/ 240V	440/ 480V	550/ 600V							
400 V 500 V 690 V	P <sub>e</sub> kW	P <sub>e</sub> kW	I <sub>e</sub> A	P <sub>e</sub> hp	P <sub>e</sub> hp	P <sub>e</sub> hp	FLA A		kg (lb)		
<b>Rated operational voltage <math>U_e</math>, 208...690 V, rated control supply voltage <math>U_s</math>, 100...250 V AC, 50/60 Hz</b>											
18.5	25	37	42	7.5	10	25	30	34	PSTX30-690-70	PSTX30-690-70	6.10 (13.45)
25	30	45	52	10	15	30	40	48	PSTX37-690-70	PSTX37-690-70	6.10 (13.45)
30	37	55	64	15	20	40	50	58	PSTX45-690-70	PSTX45-690-70	6.10 (13.45)
37	45	59	76	20	25	50	60	72	PSTX60-690-70	PSTX60-690-70	6.10 (13.45)
55	75	90	105	30	40	75	100	103	PSTX72-690-70	PSTX72-690-70	6.10 (13.45)
59	80	110	124	30	40	75	100	117	PSTX85-690-70	PSTX85-690-70	6.10 (13.45)
75	90	132	147	40	50	100	125	138	PSTX105-690-70	PSTX105-690-70	6.10 (13.45)
90	110	160	181	60	60	150	150	180	PSTX142-690-70	PSTX142-690-70	9.60 (21.16)
132	160	220	245	75	75	150	200	225	PSTX170-690-70	PSTX170-690-70	9.60 (21.16)
160	200	257	300	75	100	200	250	292	PSTX210-690-70	PSTX210-690-70	12.70 (27.99)
184	250	315	360	100	125	250	300	332	PSTX250-690-70	PSTX250-690-70	12.70 (27.99)
220	295	400	430	150	150	350	450	429	PSTX300-690-70	PSTX300-690-70	12.70 (27.99)
257	355	500	515	150	200	450	500	523	PSTX370-690-70	PSTX370-690-70	12.70 (27.99)
355	450	600	640	200	250	500	600	625	PSTX470-690-70	PSTX470-690-70	25.00 (55.12)
450	600	800	814	250	300	600	700	830	PSTX570-690-70	PSTX570-690-70	25.00 (55.12)
540	700	960	987	300	350	700	800	1020	PSTX720-690-70	PSTX720-690-70	46.20 (101.85)
710	880	1200	1247	400	500	1000	1200	1240	PSTX840-690-70	PSTX840-690-70	46.20 (101.85)
800	1000	1400	1455	500	600	1200	1500	1450	PSTX1050-690-70	PSTX1050-690-70	64.20 (141.54)
1000	1250	1700	1810	600	700	1500	1800	1830	PSTX1250-690-70	PSTX1250-690-70	64.70 (142.64)

## PSTX - The advanced range

### Accessories

	Article	Wire range mm <sup>2</sup>	Tightening torque max. Nm	Type	Order code	Pkg qty kg	Weight (1 pce) (lb)
<b>Cable connectors for Cu cables</b>							
ATK...	PSTX142 ... PSTX170	6-120	8	-	*Please contact ABB	3	0.113 (0.249)
	PSTX142 ... PSTX170	2 x (50-95)	16	LZ185-2C/120	*Please contact ABB	3	0.300 (0.661)
	PSTX210 ... PSTX370	16-240	25	-	*Please contact ABB	3	0.133 (0.293)
	PSTX210 ... PSTX370	2 x (70-185)	22	OZXB4	*Please contact ABB	3	0.570 (1.257)
	PSTX470 ... PSTX570	2 x (120-240)	35	-	*Please contact ABB	3	0.570 (1.257)
	PSTX570 ... PSTX1050	3 x (70-185)	45	-	*Please contact ABB	3	0.570 (1.257)
LX...	PSTX142 ... PSTX170	6...300 MCM	300	-	ATK185/RM	3	0.054 (0.12)
	PSTX210 ... PSTX370	4...400 MCM	375	-	ATK300/RM	3	0.058 (0.13)
	PSTX210 ... PSTX370	(2x) 4...500 MCM	375	-	ATK300/2/RM	3	0.145 (0.32)
	PSTX470 ... PSTX1050	(2x) 2/0...500 MCM	375	-	ATK580/2/RM	3	0.344 (0.76)
	PSTX470 ... PSTX1050	(3x) 2/0...750 MCM	375	-	ATK750/3/RM	3	0.453 (1.00)
	Article	Dimensions hole ø mm <sup>2</sup>	bar mm	Type	Order code	Pkg qty kg	Weight (1 pce) (lb)
<b>Terminal extensions</b>							
LW...	PSTX142 ... PSTX170	8.5	17.5 x 5	LX205	LX205/RM	1	0.250 (5.551)
	PSTX210 ... PSTX370	10.5	20 x 5	LX370	LX370/RM	1	0.350 (0.772)
	PSTX470 ... PSTX570	10.5	25 x 5	LX460	LX460/RM	1	0.500 (1.102)
	PSTX720 ... PSTX840	13	40 x 6	LX750	LX750/RM	1	0.850 (1.874)
	<b>Terminal enlargements</b>						
PSLE460	PSTX30 ... PSTX105	6.5	15 x 3	LW110	LW110 /RM	1	0.100 (0.220)
	PSTX142 ... PSTX170	10.5	17.5 x 5	LW205	LW205 /RM	1	0.250 (5.551)
	PSTX210 ... PSTX370	10.5	20 x 5	LW370	LW370 /RM	1	0.450 (0.992)
	PSTX470 ... PSTX570	10.5	25 x 5	LW460	LW460 /RM	1	0.730 (1.609)
	PSTX720 ... PSTX840	13	40 x 6	LW750	LW750 /RM	1	1.230 (2.712)
	Article	Req. qty	Type	Order code	Pkg qty kg	Weight (1 pce) (lb)	
<b>Terminal kit</b>							
LT ... -AC LT ... -C	PSTX142 ... PSTX170	1	PSLE-185	*Please contact ABB	1	0.200 (0.441)	
	PSTX210 ... PSTX370	1	PSLE-300	*Please contact ABB	1	0.300 (0.661)	
	PSTX470 ... PSTX570	1	PSLE-460	*Please contact ABB	1	0.600 (1.323)	
	PSTX720 ... PSTX840	1	PSLE-750	*Please contact ABB	1	0.750 (1.653)	
	Article	Req. qty	Type	Order code	Pkg qty kg	Weight (1 pce) (lb)	
<b>Terminal shrouds</b>							
LT ... -AL LT ... -L	PSTX142 ... PSTX170, short for use with cable clamps	2	LT205-30C	LT205-30C/RM	2	0,050 (0.110)	
	PSTX142 ... PSTX170, long for use with compression lugs	2	LT205-30L	LT205-30L/RM	2	0.220 (0.485)	
	PSTX210 ... PSTX370, short for use with cable clamps	2	LT370-30C	LT370-30C/RM	2	0.035 (0.077)	
	PSTX210 ... PSTX370, long for use with compression lugs	2	LT370-30L	LT370-30L/RM	2	0.280 (0.617)	
	PSTX210 ... PSTX370, long and deep for use with extending cable clamps, ATK300/2 and OZXB4	2	LT370-30D	LT370-30D/RM	2	0.150 (0.331)	
	PSTX470 ... PSTX570, short for use with cable clamps	2	LT460-AC	LT460-AC/RM	2	0.100 (0.220)	
	PSTX470 ... PSTX570, long for use with compression lugs	2	LT460-AL	LT460-AL/RM	2	0.800 (1.764)	
	PSTX720 ... PSTX840, short for use with cable clamps	2	LT750-AC	LT750-AC/RM	2	0.120 (0.265)	
	PSTX720 ... PSTX840, long for use with compression lugs	2	LT750-AL	LT750-AL/RM	2	0.825 (1.819)	

## PSTX - The advanced range

### Accessories

Article	Type	Order code	Pkg qty	Weight pkg /1pce
				kg (lb)
<b>Anybus connection accessory for communication protocol suitable for PSTX30 ... PSTX1250</b>				
	Profibus	AB-PROFIBUS-1	AB-PROFIBUS-1	1 0.042 (0.093)
	DeviceNet	AB-DEVICENET-1	AB-DEVICENET-1	1 0.042 (0.093)
	Modbus-RTU	AB-MODBUS-RTU-1	AB-MODBUS-RTU-1	1 0.042 (0.093)
	EtherNet/IP (1-port)	AB-ETHERNET-IP-1	AB-ETHERNET-IP-1	1 0.042 (0.093)
	EtherNet/IP (2-port)	AB-ETHERNET-IP-2	AB-ETHERNET-IP-2	1 0.042 (0.093)
	Modbus/TCP (1-port)	AB-MODBUS-TCP-1	AB-MODBUS-TCP-1	1 0.042 (0.093)
	Modbus/TCP (2-port)	AB-MODBUS-TCP-2	AB-MODBUS-TCP-2	1 0.042 (0.093)
	Profinet (2-port)	AB-PROFINET-2	AB-PROFINET-2	1 0.042 (0.093)
<b>Fieldbus plug connection, cable included</b>				
<b>I/O module, 24 V DC digital input</b>				
	Extension module for I/O	DX111-FBP.0	DX111-FBP.0	1 0.220 (0.485)
	Extension module for I/O 24 VDC	DX122-FBP.0	DX122-FBP.0	1 0.220 (0.485)

## PSTX - The advanced range

### Technical data

Technical data		PSTX30 ... PSTX1250
<b>Rated insulation voltage <math>U_i</math></b>		690V
<b>Rated operational voltage <math>U_e</math></b>		208...600 V, 208...690V +10% / -15%, 50/60Hz ±10%
<b>Rated control supply voltage <math>U_s</math></b>		100...250 V +10% / -15%, 50/60Hz ±10%
<b>Rated control circuit voltage <math>U_c</math></b>		Internal or external 24 V DC
<b>Starting capacity at <math>I_e</math></b>		4 x $I_e$ for 10 sec.
<b>Number of starts per hour</b>		10 for PSTX30 ... PSTX370 <sup>1)</sup> 6 for PSTX470 ... PSTX1250 <sup>1)</sup>
<b>Overload capability</b>	Overload class	10
<b>Ambient temperature</b>	During operation	-25...+60 °C, (-13...+140 F) <sup>2)</sup>
	During storage	-40...+70 °C, (-40...+158 F)
<b>Maximum altitude</b>		4000 m (13123 ft) <sup>3)</sup>
<b>Degree of protection</b>	Main circuit	-
	Supply and control circuit	IP20
<b>Main circuit</b>	Built-in bypass contactor	Yes
	Cooling system - Fan cooled	Yes (thermostat controlled)
<b>HMI for settings (Human Machine Interface)</b>	Display	LCD type, graphical
	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
<b>Signal relays</b>	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
<b>Analog output</b>	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), Apparent 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)
<b>Control circuit</b>	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)
<b>Signalling indication LED</b>	Ready	Green
	Run	Green
	Fault	Red
	Protection	Yellow
<b>External keypad</b>	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)
<b>Start and stop functions</b>	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
<b>Fieldbus connection</b>	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 -  $\frac{x \cdot 1000}{3280}$  ] x = actual altitude of the softstarter in meter, [ % of  $I_e$  = 100 -  $\frac{x \cdot 3280}{1000}$  ] 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 ± 20%
	Switch on resistance	1200 ohm ± 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)</sup> Bussmann fuses, DIN43 620 (Knife)	Type	Size	Power requirements supply circuit	Holding (VA) /Pull-in (VA)
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.

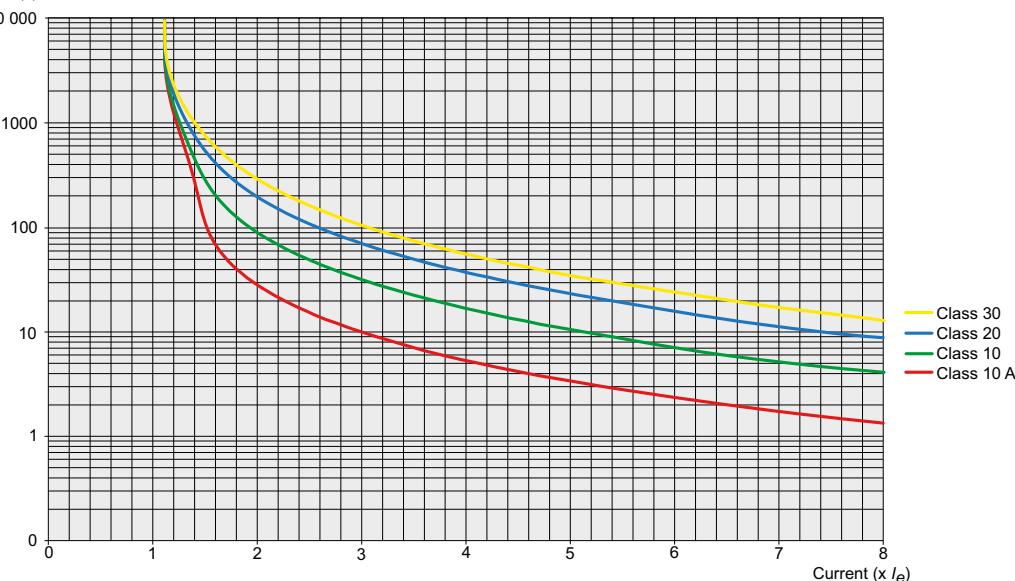
<sup>4)</sup> For 690 V version, Bussmann fuses are only available for motors with rated current up to 1150 A.

#### 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.

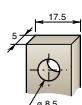
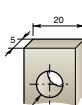
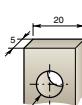
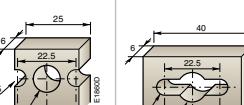
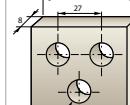
Time (s)



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

## PSTX - The advanced range

### Technical data

Main terminals	PSTX30 ... PSTX105	PSTX142 ... PSTX170	PSTX210 ... PSTX370	PSTX470 ... PSTX570	PSTX720 ... PSTX1050	PSTX1250
						
 Cu cable - flexible	1 x mm <sup>2</sup>	10...70 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	-	-
 Cu cable - flexible	2 x mm <sup>2</sup>	6...35 mm <sup>2</sup>	50...95 mm <sup>2</sup>	70...185 mm <sup>2</sup>	-	-
Clamp type		Included	LZ185-2C/120 1SFN074709R1000	OZXB4 <sup>1)</sup> 1SCA022194R0890	-	-
Tightening torque		8 Nm	16 Nm	22 Nm	-	-
 Cu cable - Stranded	1 x mm <sup>2</sup>	10...95 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	-	-
 Cu cable - Stranded	2 x mm <sup>2</sup>	6...35 mm <sup>2</sup>	50...120 mm <sup>2</sup>	70...185 mm <sup>2</sup>	120...240 mm <sup>2</sup>	-
Clamp type		Included	LZ185 - 2C/120 1SFN074709R1000	OZXB4 <sup>1)</sup> 1SCA022194R0890	1SDA013922R1	-
Tightening torque		8 Nm	16 Nm	22 Nm	35 Nm	-
 Cu cable - Stranded	3 x mm <sup>2</sup>	-	-	-	70...185 mm <sup>2</sup>	-
Clamp type		-	-	-	1SDA013956R1	-
Tightening torque		-	-	-	45 Nm	-
 Al cable - Stranded	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	-	-
 Al cable - Stranded	2 x mm <sup>2</sup>	-	-	-	120...240 mm <sup>2</sup>	-
Clamp type		-	-	-	1SDA023380R1	-
Tightening torque		-	-	-	31 Nm	-
 Lugs	Width ≤	-	24 mm (0.945 in)	32 mm (1.260 in)	47 mm (1.850 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)
Tightening torque		-	18 Nm (160 in lb)	28 Nm (248 in lb)	35 Nm (310 in lb)	45 Nm (398 in lb)
Connection capacity acc to UL / CSA 1 x AWG / kcmil	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	-	-	-
Connection capacity acc to UL / CSA 2 x AWG / kcmil	-	-	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	-
Connection capacity acc to UL / CSA 3 x AWG / kcmil	-	-	-	2/0...500 kcmil	2/0...500 kcmil	-
Clamp type	-	-	-	ATK750/3	ATK750/3	-
Tightening torque	-	-	-	375 in lb	375 in lb	-
Supply and control circuit	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.

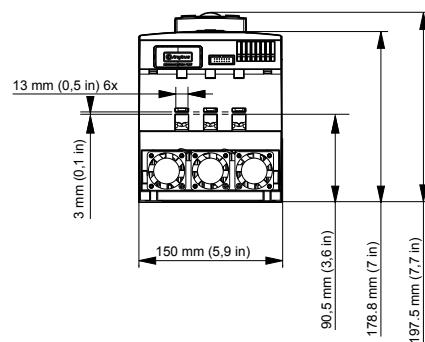
<sup>2)</sup> Terminal shrouds 1SFN125406R1000 can be used.

## PSTX - The advanced range

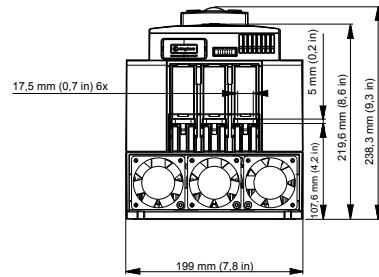
# Dimensions

Main dimensions mm, inches

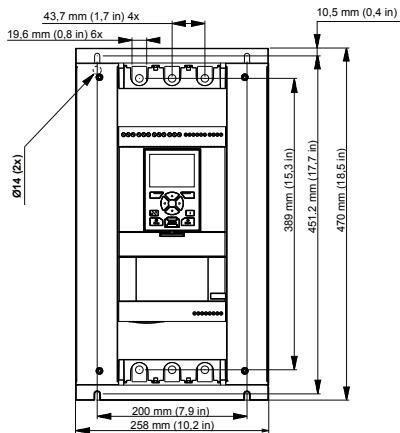
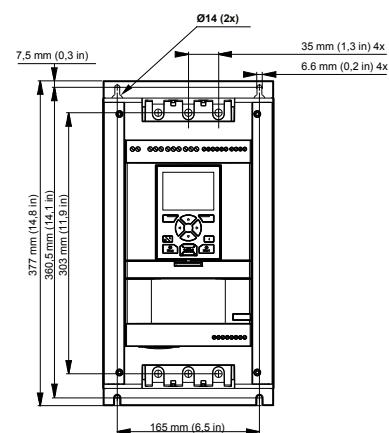
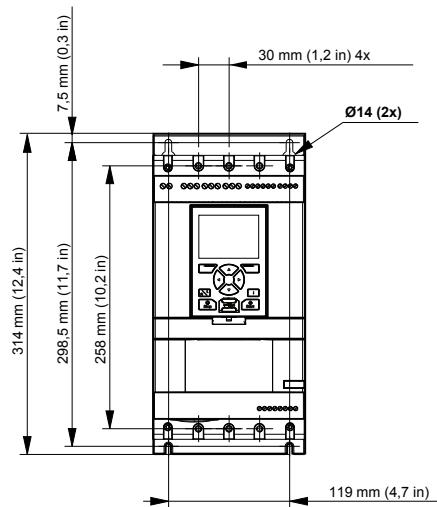
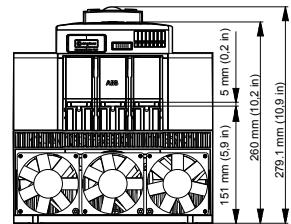
PSTX30 ... PSTX105



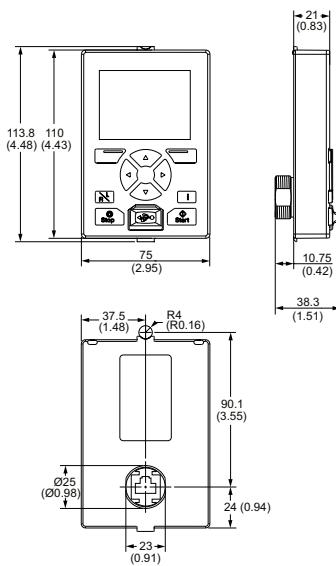
PSTX142 ... PSTX170



PSTX210 ... PSTX370



PSTX detachable keypad

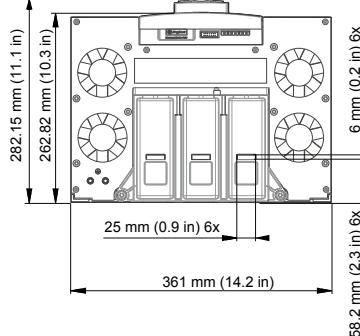


## PSTX - The advanced range

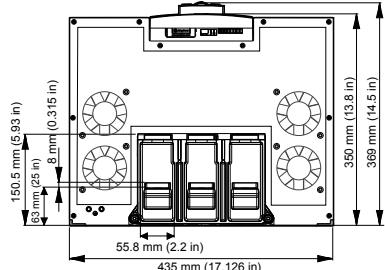
### Dimensions

Main dimensions mm, inches

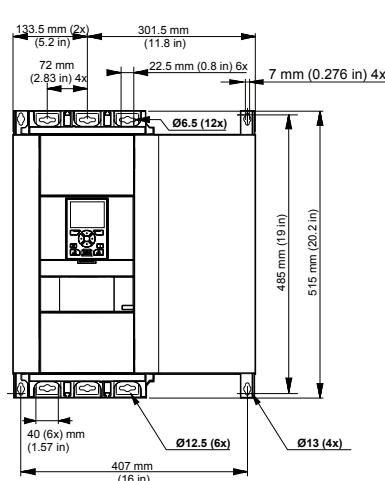
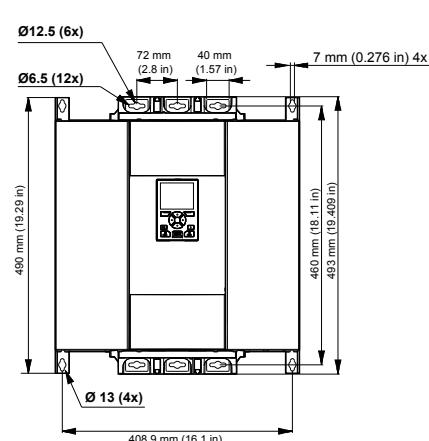
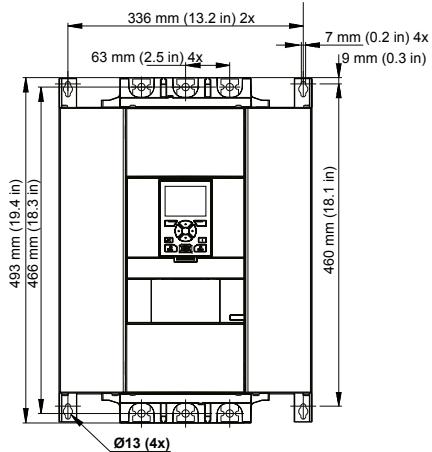
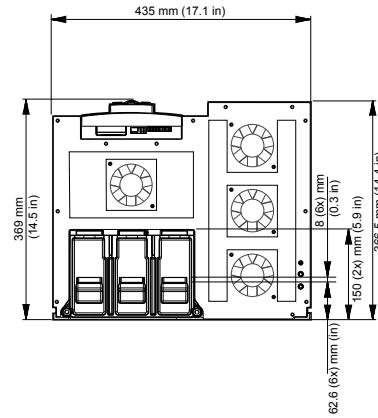
PSTX470 ... PSTX570



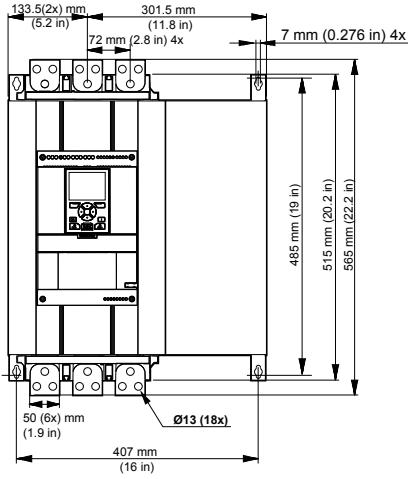
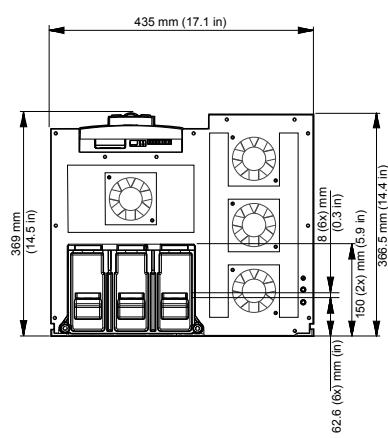
PSTX720 ... PSTX840



PSTX1050



PSTX1250

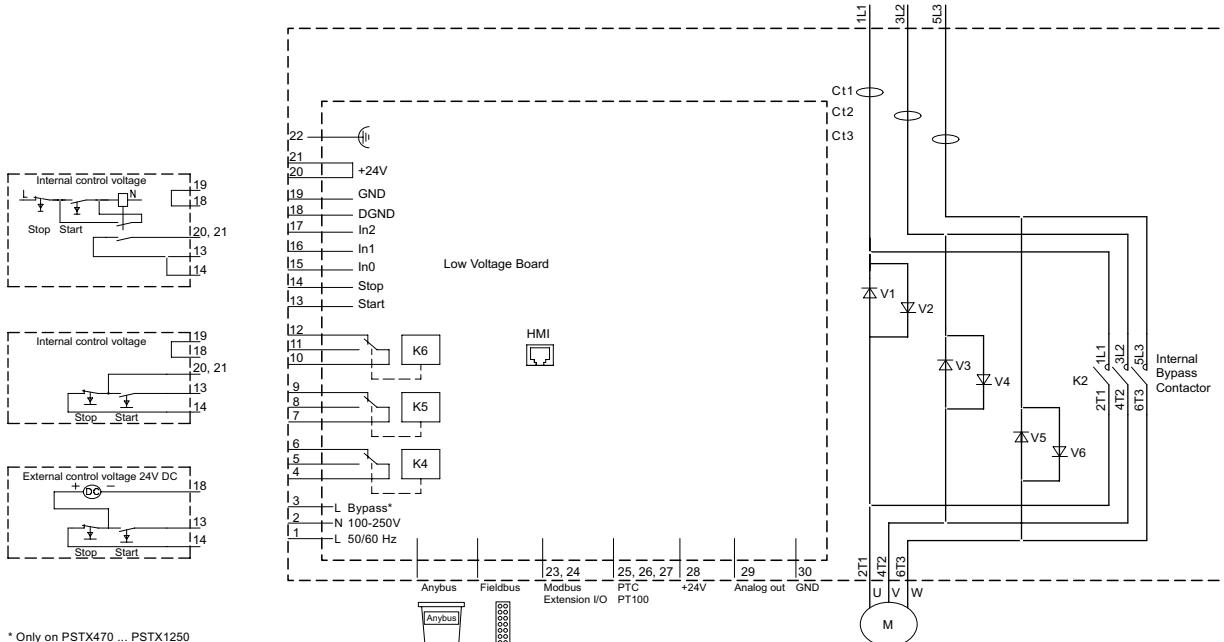


## PSTX - The advanced range

### Circuit diagrams

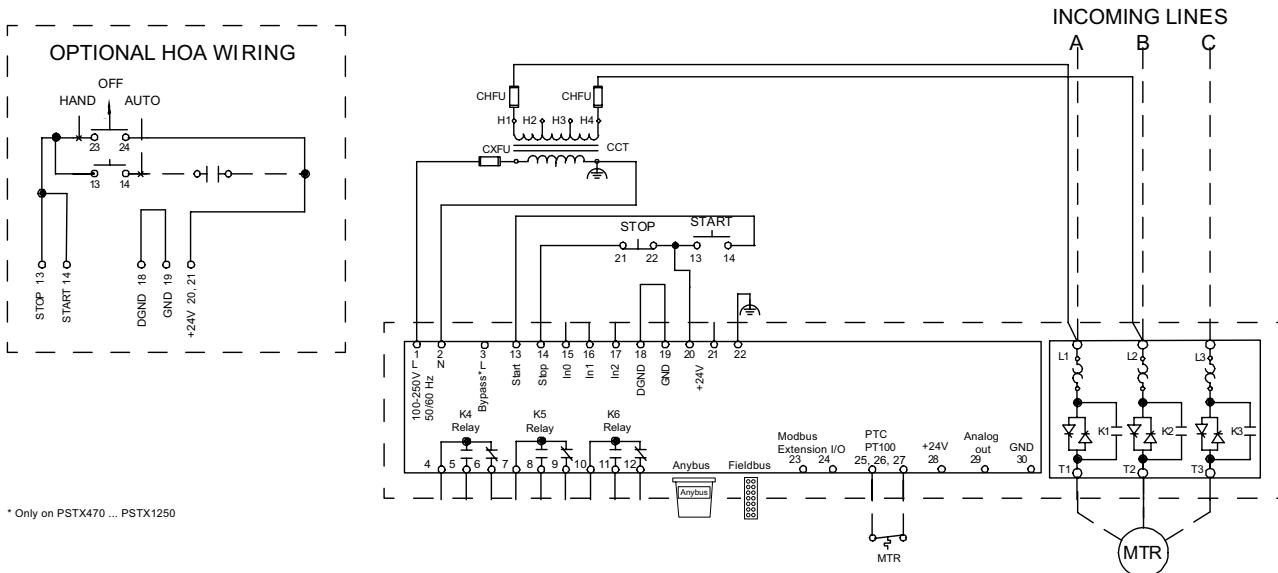
#### PSTX30 ... PSTX1250

##### 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)

## CAUTION

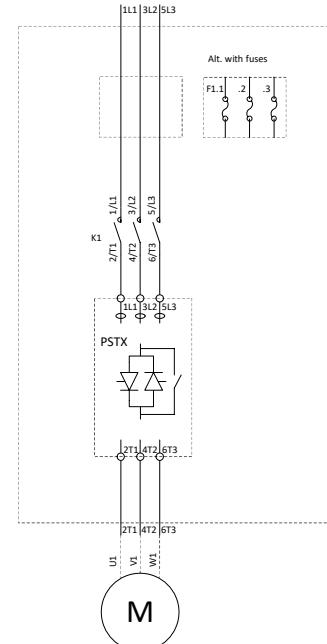
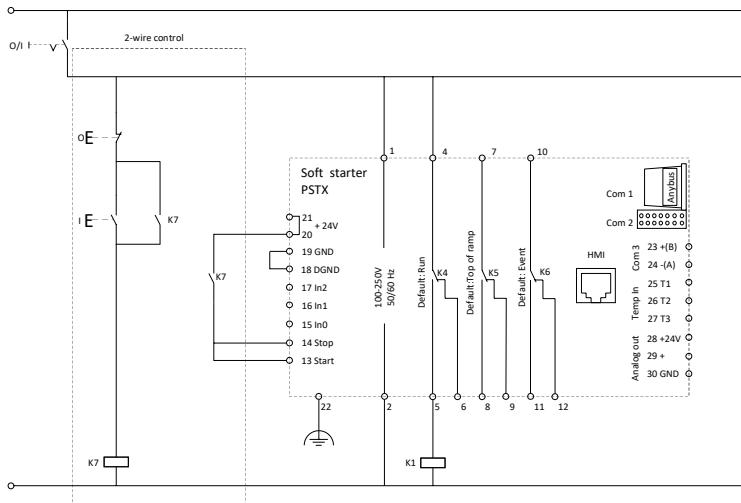
Terminal 22 is a function earth, it is not a protective earth. It shall be connected to the mounting plate.

## PSTX - The advanced range

## Circuit diagrams

PSTX30 ... PSTX1250

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

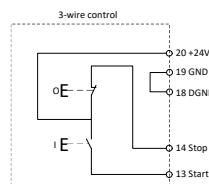


#### Coil consumption for main contactors.

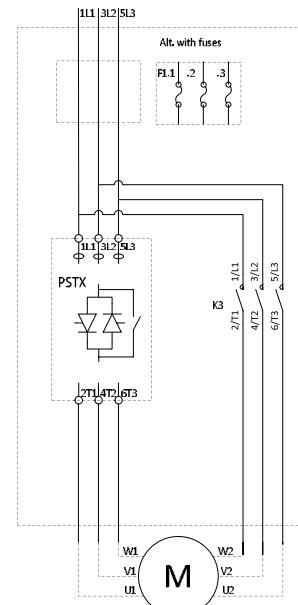
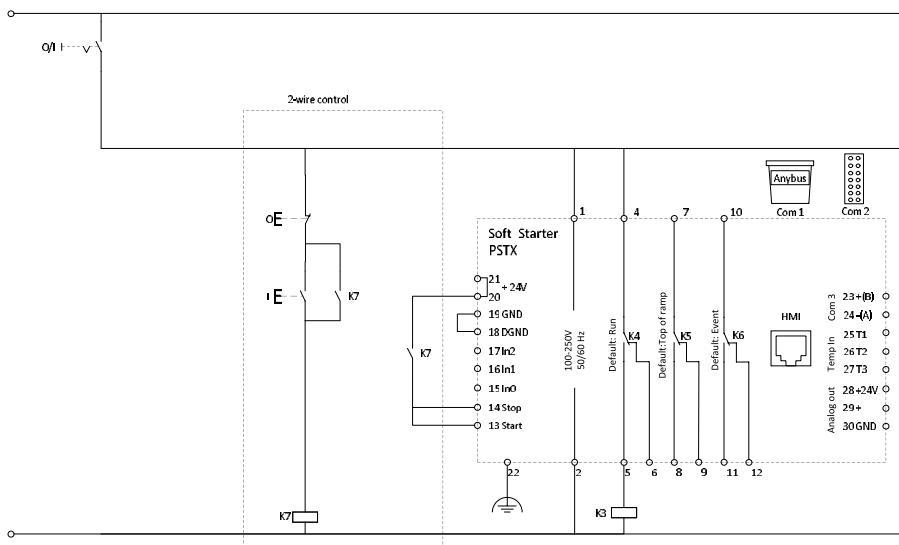
Pull-in max 15A

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**

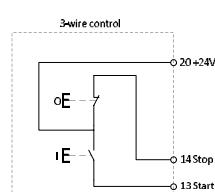


### Coil consumption for Inside Delta contactor-

Pull-in max 15A

**Fullfill max 15A**

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





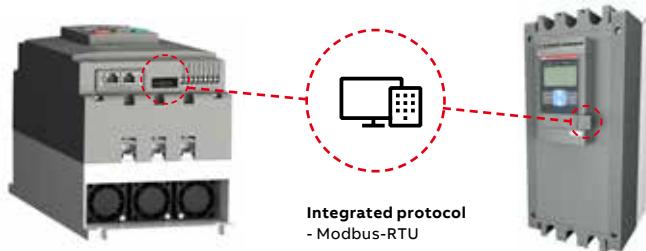
# Fieldbus communication

## 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	●



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

Type	Order code	Pkg qty	Weight pkg/1pc
			kg (lb)
Profibus	AB-PROFIBUS-1	AB-PROFIBUS-1	1 0.042 (0.093)
DeviceNet	AB-DEVICENET-1	AB-DEVICENET-1	1 0.042 (0.093)
Modbus-RTU	AB-MODBUS-RTU-1	AB-MODBUS-RTU-1	1 0.042 (0.093)
EtherNet/IP (1-port)	AB-ETHERNET-IP-1	AB-ETHERNET-IP-1	1 0.042 (0.093)
EtherNet/IP (2-port)	AB-ETHERNET-IP-2	AB-ETHERNET-IP-2	1 0.042 (0.093)
Modbus/TCP (1-port)	AB-MODBUS-TCP-1	AB-MODBUS-TCP-1	1 0.042 (0.093)
Modbus/TCP (2-port)	AB-MODBUS-TCP-2	AB-MODBUS-TCP-2	1 0.042 (0.093)
Profinet (2-port)	AB-PROFINET-2	AB-PROFINET-2	1 0.042 (0.093)

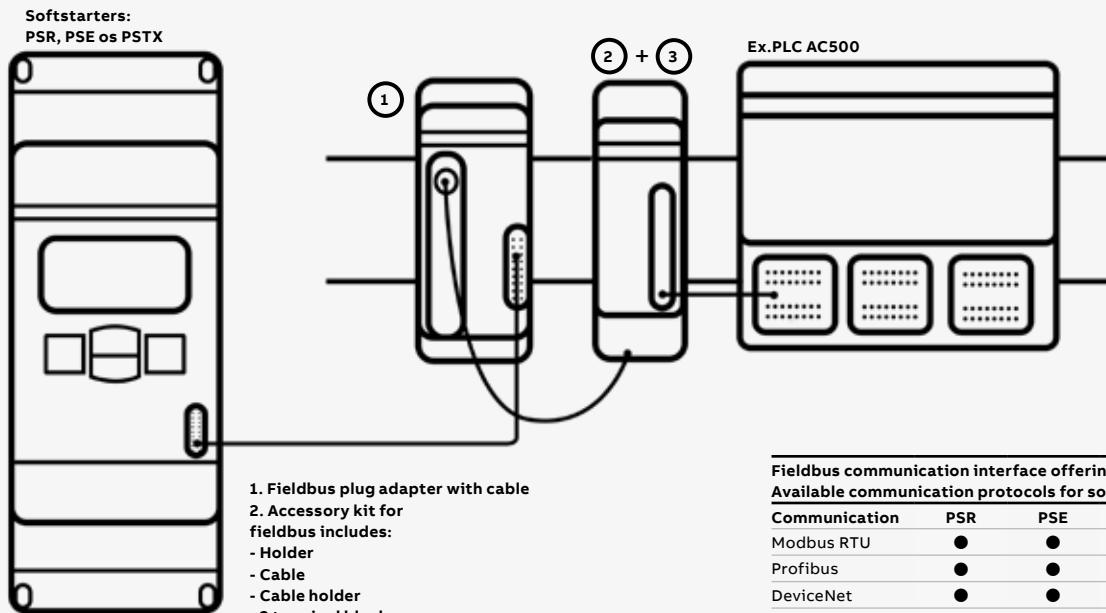
### Fieldbus communication interface offering

- See page 64

# Fieldbus communication

## For PSR, PSE and PSTX

### Fieldbus communication interface offering



1

#### Fieldbus plug adapter with cable



Article	Type	Order code	Pkg qty	Weight pkg/1 pce kg (lb)
Fieldbus plug adapter	PS-FBPA	PS-FBPA	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	PS-FBPK	1	0.150 (0.331)
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# 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					
<b>Modbus-RTU</b>					
	Description	Type	Order code	Pkg qty	Weight pkg/1 pce kg (lb)
	Modbus RTU communication interface; terminal block for fieldbus connection included	MRP31.0	MRP31.0	1	0.039 (0.086)
	Cable from MRP31.0 to drawer outside, length 1.5 m	CDP24.150	CDP24.150	1	0.060 (0.132)
<b>Profibus</b>					
	Profibus DP communication interface	PDP32.0	PDP32.0	1	0.050 (0.110)
	Cable from PDP32.0 to drawer outside, length 1.5 m	CDP24.150	CDP24.150	1	0.060 (0.132)
<b>Device net</b>					
	DeviceNet communication interface; terminal block for fieldbus connection included	DNP31.0	DNP31.0	1	0.039 (0.086)
	Cable from DNP31.0 to drawer outside, length 1.5 m	CDP24.150	CDP24.150	1	0.060 (0.132)
<b>Modbus-TCP</b>					
	Ethernet Modbus TCP interface	MTQ22-FBP	MTQ22-FBP	1	0.172 (0.379)
	Cable ETH-X1/X4-M12 female, length 1.5m	CDP17-FBP.150	CDP17-FBP.150	1	0.075 (0.165)



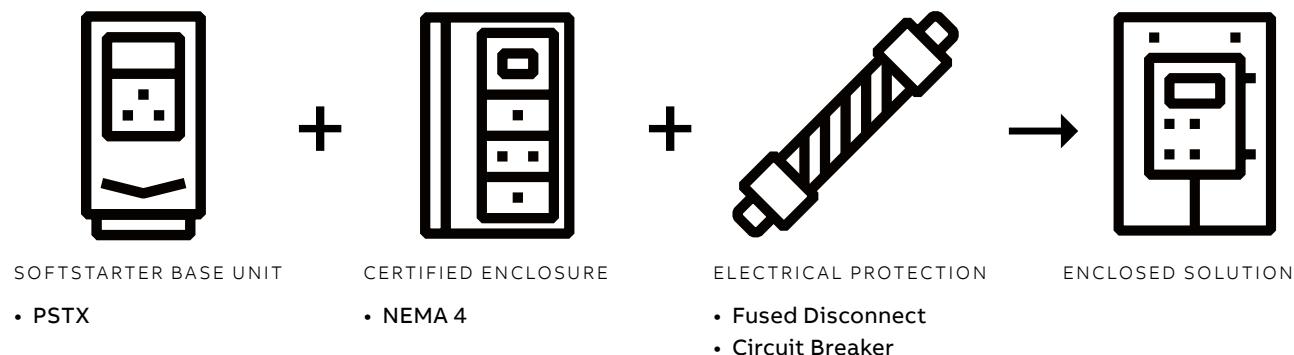
The Enclosed Solution combines our PSTX Softstarter lineup with the proper electrical and environmental protections that are needed in the industry, creating easy integration into various different applications.

# Enclosed Softstarter

<b>68</b>	<b>Introduction</b>
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<b>75</b>	<b>Typical Circuit Diagram - Full External ByPass</b>

# Enclosed Softstarter

## Introduction



**COMPLETE INSTALLATION PROTECTION**  
The Enclosed Softstarters combine efficient built in motor protection with industry tested branch protection and environment protection.

**CHOICE OF ELECTRICAL PROTECTION**  
Multiple available types of protections, from Fused Disconnects to Molded case Circuit Brakers fitting your short circuit coordination needs.



**TURN KEY SOLUTION**  
Quick and easy installation with all the parts pre-assembled inside a NEMA rated cabinet.

**DOOR MOUNTED KEYPAD**  
A user-friendly and clear display saves you time and resources during both setup and operation. The keypad comes mounted on the cabinet for all Enclosed Softstarters



**AVOIDING DOWN TIME**  
With the optional Emergency Bypass never lose time on a critical application when experiencing equipment, keep the motor running until the scheduled maintenance time.

**CUSTOMER ENGINEERED SOLUTION**  
It is possible to get an Engineered Enclosed Softstarter custom made to your application for needs that go beyond the scope of this catalogue.

## PSTX, softstarters, enclosed

### Overview

The PSTX combines many years of research and product development with extensive knowledge of application specific requirements and needs. The PSTX is our latest advancement in motor control and protection and adds new functionality with increased reliability to any motor starting application.

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.

It 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.

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

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.

#### Main benefits

- Secure motor reliability
- Improve installation efficiency
- Increase application productivity.

#### Main features

- Three-phase controlled
- Operational voltage: 220 to 600 V AC
- Rated operational current: 30...1250 A
- Coated circuit boards
- Torque control for excellent control of pumps
- Integrated Control Transformer

#### Standard equipment package additional features

- Circuit Breaker or Fused Disconnect
- Door Mounted Keypad
- Start Pushbutton
- Stop Pushbutton
- Hand-Off-Auto selector switch
- Power On Pilot Light
- Run Pilot Light
- Fault Pilot Light
- NEMA 4 Enclosure

#### Full external bypass equipment package features

- Emergency Bypass
- Normal-E-Bypass selector switch
- E-Bypass Start Pushbutton
- E-Bypass Stop Pushbutton
- E-Bypass Pilot Light
- Circuit Breaker or Fused Disconnect
- Door Mounted Keypad
- Start Pushbutton
- Stop Pushbutton
- Hand-Off-Auto selector switch
- Power On Pilot Light
- Run Pilot Light
- Fault Pilot Light
- NEMA 4 Enclosure

## Enclosed PSTX

### Ordering details-Standard



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 Ue, 550/600 V, 50/60 Hz

Standalone type	Fused	Weight(1 pce)		Standard		Weight(1 pce)			
		kg	(lb)	MCCB (25kA)	kg	(lb)	MCCB (65kA)		
PSTX30-690-70	PSTX30E-F4-60-ST	34.09	(75.00)	PSTX30E-L4-60-ST	35.00	(77.00)	PSTX30E-H4-60-ST	35.00	(77.00)
PSTX60-690-70	PSTX60E-F4-60-ST	35.00	(77.00)	PSTX60E-L4-60-ST	35.00	(77.00)	PSTX60E-H4-60-ST	35.00	(77.00)
PSTX72-690-70	PSTX72E-F4-60-ST	35.00	(77.00)	PSTX72E-L4-60-ST	35.00	(77.00)	PSTX72E-H4-60-ST	35.00	(77.00)
PSTX85-690-70	PSTX85E-F4-60-ST	36.36	(80.00)	PSTX85E-L4-60-ST	35.00	(77.00)	PSTX85E-H4-60-ST	35.00	(77.00)
PSTX105-690-70	PSTX105E-F4-60-ST	36.36	(80.00)	PSTX105E-L4-60-ST	35.45	(78.00)	PSTX105E-H4-60-ST	35.45	(78.00)
PSTX142-690-70	PSTX142E-F4-60-ST	60.45	(133.00)	PSTX142E-L4-60-ST	59.55	(131.00)	PSTX142E-H4-60-ST	59.55	(131.00)
PSTX170-690-70	PSTX170E-F4-60-ST	64.55	(142.00)	PSTX170E-L4-60-ST	59.55	(131.00)	PSTX170E-H4-60-ST	59.55	(131.00)
PSTX210-690-70	PSTX210E-F4-60-ST	129.09	(284.00)	PSTX210E-L4-60-ST	127.27	(280.00)	PSTX210E-H4-60-ST	127.27	(280.00)
PSTX250-690-70	PSTX250E-F4-60-ST	129.09	(284.00)	PSTX250E-L4-60-ST	127.27	(280.00)	PSTX250E-H4-60-ST	127.27	(280.00)
PSTX300-690-70	PSTX300E-F4-60-ST	135.00	(297.00)	PSTX300E-L4-60-ST	132.27	(291.00)	PSTX300E-H4-60-ST	132.27	(291.00)
PSTX370-690-70	PSTX370E-F4-60-ST	139.09	(306.00)	PSTX370E-L4-60-ST	136.36	(300.00)	PSTX370E-H4-60-ST	136.36	(300.00)
PSTX470-690-70	PSTX470E-F4-60-ST	153.18	(337.00)	PSTX470E-L4-60-ST	148.64	(327.00)	PSTX470E-H4-60-ST	148.64	(327.00)
PSTX570-690-70	PSTX570E-F4-60-ST	273.18	(601.00)	PSTX570E-L4-60-ST	273.18	(601.00)	PSTX570E-H4-60-ST	273.18	(601.00)
PSTX720-690-70	PSTX720E-F4-60-ST	289.55	(637.00)	PSTX720E-L4-60-ST	350.00	(770.00)	PSTX720E-H4-60-ST	350.00	(770.00)
PSTX840-690-70	PSTX840E-F4-60-ST	350.00	(770.00)	PSTX840E-L4-60-ST	350.00	(770.00)	PSTX840E-H4-60-ST	350.00	(770.00)

#### Rated operational voltage Ue, 440/480 V, 50/60 Hz

Standalone type	Fused	Weight(1 pce)		Standard		Weight(1 pce)			
		kg	(lb)	MCCB (25kA)	kg	(lb)	MCCB (65kA)		
PSTX30-690-70	-	-	-	-	-	-	PSTX30E-H4-48-ST	35.00	(77.00)
PSTX60-690-70	-	-	-	-	-	-	PSTX60E-H4-48-ST	35.00	(77.00)
PSTX72-690-70	-	-	-	-	-	-	PSTX72E-H4-48-ST	35.00	(77.00)
PSTX85-690-70	-	-	-	-	-	-	PSTX85E-H4-48-ST	35.00	(77.00)
PSTX105-690-70	-	-	-	-	-	-	PSTX105E-H4-48-ST	35.45	(78.00)
PSTX142-690-70	-	-	-	-	-	-	PSTX142E-H4-48-ST	59.55	(131.00)
PSTX170-690-70	-	-	-	-	-	-	PSTX170E-H4-48-ST	59.55	(131.00)
PSTX210-690-70	-	-	-	-	-	-	PSTX210E-H4-48-ST	127.27	(280.00)
PSTX250-690-70	-	-	-	-	-	-	PSTX250E-H4-48-ST	127.27	(280.00)
PSTX300-690-70	-	-	-	-	-	-	PSTX300E-H4-48-ST	132.27	(291.00)
PSTX370-690-70	-	-	-	-	-	-	PSTX370E-H4-48-ST	136.36	(300.00)
PSTX470-690-70	-	-	-	-	-	-	PSTX470E-H4-48-ST	148.64	(327.00)
PSTX570-690-70	-	-	-	-	-	-	PSTX570E-H4-48-ST	273.18	(601.00)
PSTX720-690-70	-	-	-	-	-	-	PSTX720E-H4-48-ST	350.00	(770.00)
PSTX840-690-70	-	-	-	-	-	-	PSTX840E-H4-48-ST	350.00	(770.00)

## Enclosed PSTX

### Ordering details-Full External ByPass



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 Ue, 550/600 V, 50/60 Hz

Standalone type	Fused	Weight(1 pce)		Full External ByPass		Weight(1 pce)		
		kg	(lb)	MCCB (25kA)	kg	(lb)	MCCB (65kA)	
PSTX30-690-70	PSTX30E-F4-60-FB	39.55	(87.00)	PSTX30E-L4-60-FB	39.55	(87.00)	PSTX30E-H4-60-FB	39.55 (87.00)
PSTX60-690-70	PSTX60E-F4-60-FB	40.00	(88.00)	PSTX60E-L4-60-FB	40.00	(88.00)	PSTX60E-H4-60-FB	40.00 (88.00)
PSTX72-690-70	PSTX72E-F4-60-FB	40.00	(88.00)	PSTX72E-L4-60-FB	40.00	(88.00)	PSTX72E-H4-60-FB	40.00 (88.00)
PSTX85-690-70	PSTX85E-F4-60-FB	41.36	(91.00)	PSTX85E-L4-60-FB	40.00	(88.00)	PSTX85E-H4-60-FB	40.00 (88.00)
PSTX105-690-70	PSTX105E-F4-60-FB	41.36	(91.00)	PSTX105E-L4-60-FB	41.36	(91.00)	PSTX105E-H4-60-FB	41.36 (91.00)
PSTX142-690-70	PSTX142E-F4-60-FB	64.09	(141.00)	PSTX142E-L4-60-FB	64.09	(141.00)	PSTX142E-H4-60-FB	64.09 (141.00)
PSTX170-690-70	PSTX170E-F4-60-FB	65.00	(143.00)	PSTX170E-L4-60-FB	65.00	(143.00)	PSTX170E-H4-60-FB	65.00 (143.00)
PSTX210-690-70	PSTX210E-F4-60-FB	130.00	(286.00)	PSTX210E-L4-60-FB	129.09	(284.00)	PSTX210E-H4-60-FB	129.09 (284.00)
PSTX250-690-70	PSTX250E-F4-60-FB	130.00	(286.00)	PSTX250E-L4-60-FB	129.09	(284.00)	PSTX250E-H4-60-FB	129.09 (284.00)
PSTX300-690-70	PSTX300E-F4-60-FB	140.91	(310.00)	PSTX300E-L4-60-FB	138.18	(304.00)	PSTX300E-H4-60-FB	138.18 (304.00)
PSTX370-690-70	PSTX370E-F4-60-FB	145.00	(319.00)	PSTX370E-L4-60-FB	142.27	(313.00)	PSTX370E-H4-60-FB	142.27 (313.00)
PSTX470-690-70	PSTX470E-F4-60-FB	275.91	(607.00)	PSTX470E-L4-60-FB	273.18	(601.00)	PSTX470E-H4-60-FB	273.18 (601.00)
PSTX570-690-70	PSTX570E-F4-60-FB	280.00	(616.00)	PSTX570E-L4-60-FB	280.91	(618.00)	PSTX570E-H4-60-FB	280.91 (618.00)
PSTX720-690-70	PSTX720E-F4-60-FB	323.18	(711.00)	PSTX720E-L4-60-FB	309.55	(681.00)	PSTX720E-H4-60-FB	309.55 (681.00)

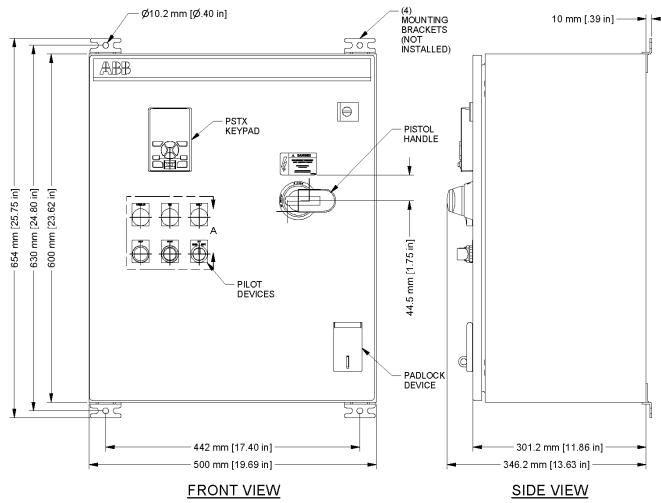
#### Rated operational voltage Ue, 440/480 V, 50/60 Hz

Standalone type	Fused	Weight(1 pce)		Full External ByPass		Weight(1 pce)		
		kg	(lb)	MCCB (25kA)	kg	(lb)	MCCB (65kA)	
PSTX30-690-70	-	-	-	-	-	-	PSTX30E-H4-48-FB	39.55 (87.00)
PSTX60-690-70	-	-	-	-	-	-	PSTX60E-H4-48-FB	40.00 (88.00)
PSTX72-690-70	-	-	-	-	-	-	PSTX72E-H4-48-FB	40.00 (88.00)
PSTX85-690-70	-	-	-	-	-	-	PSTX85E-H4-48-FB	40.00 (88.00)
PSTX105-690-70	-	-	-	-	-	-	PSTX105E-H4-48-FB	41.36 (91.00)
PSTX142-690-70	-	-	-	-	-	-	PSTX142E-H4-48-FB	64.09 (141.00)
PSTX170-690-70	-	-	-	-	-	-	PSTX170E-H4-48-FB	65.00 (143.00)
PSTX210-690-70	-	-	-	-	-	-	PSTX210E-H4-48-FB	129.09 (284.00)
PSTX250-690-70	-	-	-	-	-	-	PSTX250E-H4-48-FB	129.09 (284.00)
PSTX300-690-70	-	-	-	-	-	-	PSTX300E-H4-48-FB	138.18 (304.00)
PSTX370-690-70	-	-	-	-	-	-	PSTX370E-H4-48-FB	142.27 (313.00)
PSTX470-690-70	-	-	-	-	-	-	PSTX470E-H4-48-FB	273.18 (601.00)
PSTX570-690-70	-	-	-	-	-	-	PSTX570E-H4-48-FB	280.91 (618.00)
PSTX720-690-70	-	-	-	-	-	-	PSTX720E-H4-48-FB	309.55 (681.00)

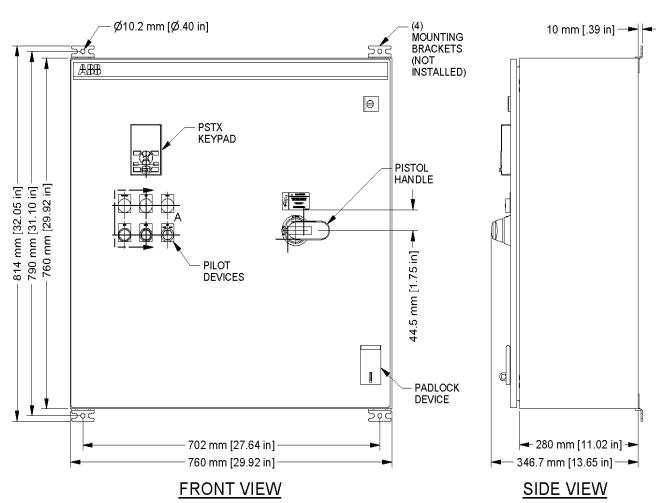
## Enclosed PSTX

### Typical Enclosure Dimensions

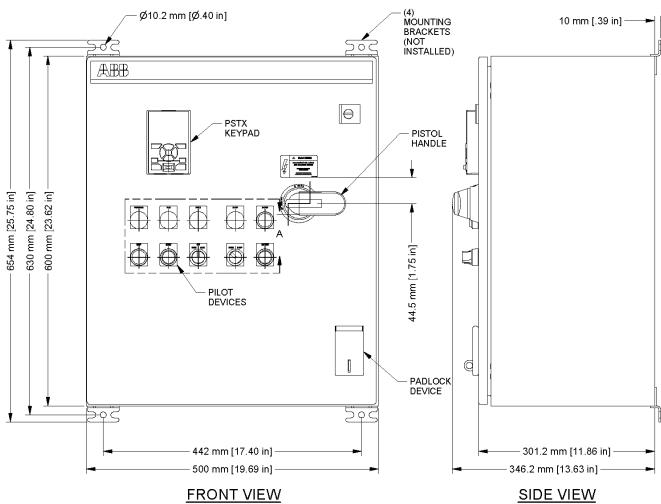
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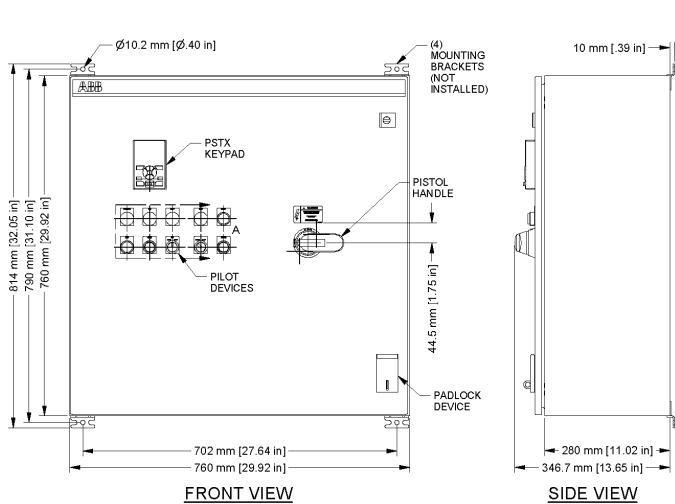
PSTX142E-F4-60-ST...PSTX170E-F4-60-ST



PSTX30E-F4-60-FB...PSTX85E-F4-60-FB



PSTX105E-F4-60-B...PSTX142E-F4-60-FB



## Enclosed PSTX

### Actual Enclosure Dimensions

Type Code	H(in)	W(in)	D(in)	Type Code	H(in)	W(in)	D(in)	Type Code	H(in)	W(in)	D(in)
PSTX30E-F4-60-ST	24	20	12	PSTX30E-L4-60-ST	24	20	12	PSTX30E-H4-60-ST	24	20	12
PSTX60E-F4-60-ST	24	20	12	PSTX60E-L4-60-ST	24	20	12	PSTX60E-H4-60-ST	24	20	12
PSTX72E-F4-60-ST	24	20	12	PSTX72E-L4-60-ST	24	20	12	PSTX72E-H4-60-ST	24	20	12
PSTX85E-F4-60-ST	24	20	12	PSTX85E-L4-60-ST	24	20	12	PSTX85E-H4-60-ST	24	20	12
PSTX105E-F4-60-ST	24	20	12	PSTX105E-L4-60-ST	24	20	12	PSTX105E-H4-60-ST	24	20	12
PSTX142E-F4-60-ST	30	30	12	PSTX142E-L4-60-ST	30	30	12	PSTX142E-H4-60-ST	30	30	12
PSTX170E-F4-60-ST	30	30	12	PSTX170E-L4-60-ST	30	30	12	PSTX170E-H4-60-ST	30	30	12
PSTX210E-F4-60-ST	48	36	16	PSTX210E-L4-60-ST	48	36	16	PSTX210E-H4-60-ST	48	36	16
PSTX250E-F4-60-ST	48	36	16	PSTX250E-L4-60-ST	48	36	16	PSTX250E-H4-60-ST	48	36	16
PSTX300E-F4-60-ST	48	36	16	PSTX300E-L4-60-ST	48	36	16	PSTX300E-H4-60-ST	48	36	16
PSTX370E-F4-60-ST	48	36	16	PSTX370E-L4-60-ST	48	36	16	PSTX370E-H4-60-ST	48	36	16
PSTX470E-F4-60-ST	48	36	16	PSTX470E-L4-60-ST	48	36	16	PSTX470E-H4-60-ST	48	36	16
PSTX570E-F4-60-ST	72	36	24	PSTX570E-L4-60-ST	72	36	24	PSTX570E-H4-60-ST	72	36	24
PSTX720E-F4-60-ST	90	36	24	PSTX720E-L4-60-ST	90	36	24	PSTX720E-H4-60-ST	90	36	24
PSTX840E-F4-60-ST	90	36	24	PSTX840E-L4-60-ST	90	36	24	PSTX840E-H4-60-ST	90	36	24

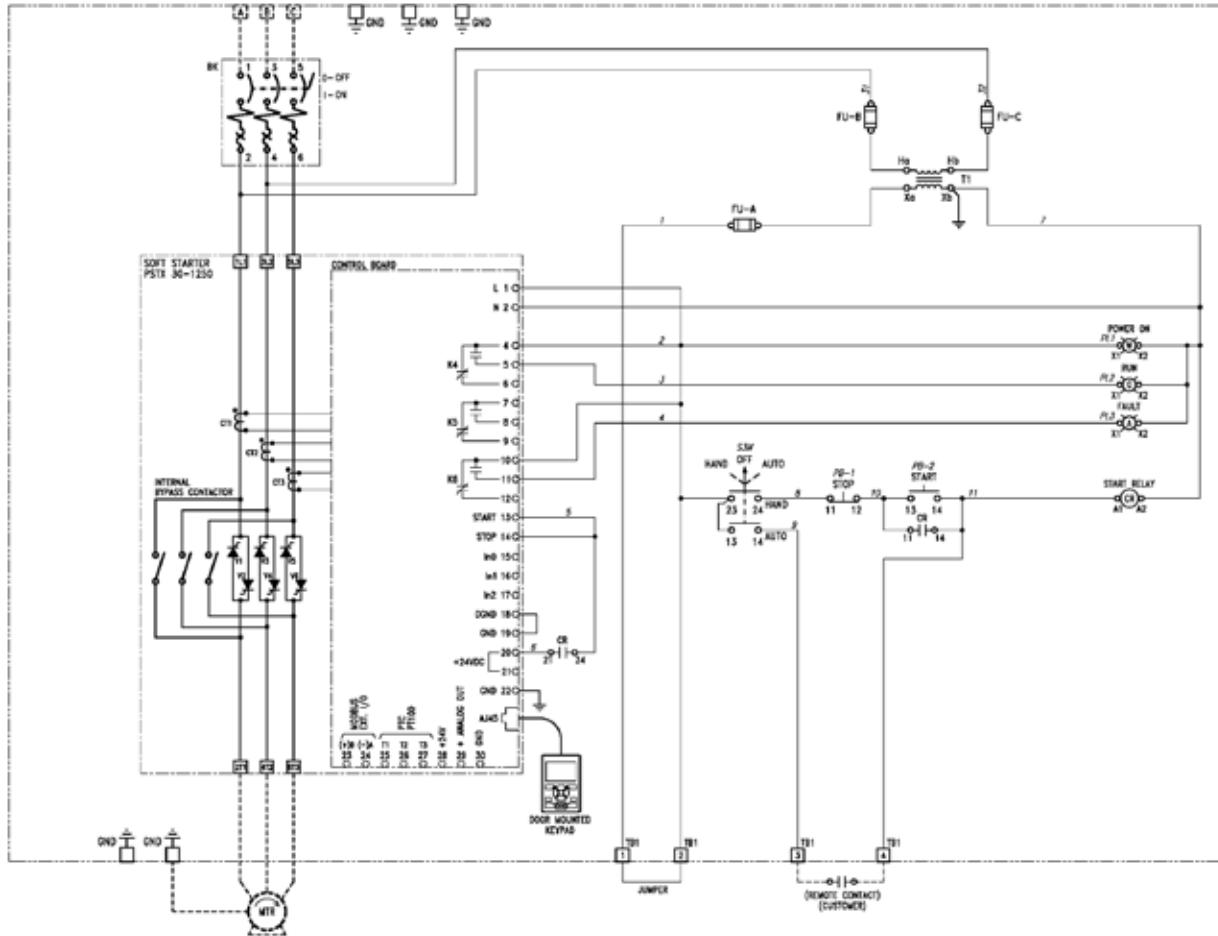
Type Code	H(in)	W(in)	D(in)
PSTX30E-H4-48-ST	24	20	12
PSTX60E-H4-48-ST	24	20	12
PSTX72E-H4-48-ST	24	20	12
PSTX85E-H4-48-ST	24	20	12
PSTX105E-H4-48-ST	24	20	12
PSTX142E-H4-48-ST	30	30	12
PSTX170E-H4-48-ST	30	30	12
PSTX210E-H4-48-ST	48	36	16
PSTX250E-H4-48-ST	48	36	16
PSTX300E-H4-48-ST	48	36	16
PSTX370E-H4-48-ST	48	36	16
PSTX470E-H4-48-ST	48	36	16
PSTX570E-H4-48-ST	72	36	24
PSTX720E-H4-48-ST	90	36	24
PSTX840E-H4-48-ST	90	36	24

Type Code	H(in)	W(in)	D(in)	Type Code	H(in)	W(in)	D(in)	Type Code	H(in)	W(in)	D(in)
PSTX30E-F4-60-FB	24	20	12	PSTX30E-L4-60-FB	24	20	12	PSTX30E-H4-60-FB	24	20	12
PSTX60E-F4-60-FB	24	20	12	PSTX60E-L4-60-FB	24	20	12	PSTX60E-H4-60-FB	24	20	12
PSTX72E-F4-60-FB	24	20	12	PSTX72E-L4-60-FB	24	20	12	PSTX72E-H4-60-FB	24	20	12
PSTX85E-F4-60-FB	24	20	12	PSTX85E-L4-60-FB	24	20	12	PSTX85E-H4-60-FB	24	20	12
PSTX105E-F4-60-FB	30	30	12	PSTX105E-L4-60-FB	30	30	12	PSTX105E-H4-60-FB	30	30	12
PSTX142E-F4-60-FB	30	30	12	PSTX142E-L4-60-FB	30	30	12	PSTX142E-H4-60-FB	30	30	12
PSTX170E-F4-60-FB	48	36	16	PSTX170E-L4-60-FB	48	36	16	PSTX170E-H4-60-FB	48	36	16
PSTX210E-F4-60-FB	48	36	16	PSTX210E-L4-60-FB	48	36	16	PSTX210E-H4-60-FB	48	36	16
PSTX250E-F4-60-FB	48	36	16	PSTX250E-L4-60-FB	48	36	16	PSTX250E-H4-60-FB	48	36	16
PSTX300E-F4-60-FB	48	36	16	PSTX300E-L4-60-FB	48	36	16	PSTX300E-H4-60-FB	48	36	16
PSTX370E-F4-60-FB	72	36	24	PSTX370E-L4-60-FB	72	36	24	PSTX370E-H4-60-FB	72	36	24
PSTX470E-F4-60-FB	72	36	24	PSTX470E-L4-60-FB	72	36	24	PSTX470E-H4-60-FB	72	36	24
PSTX570E-F4-60-FB	72	36	24	PSTX570E-L4-60-FB	72	36	24	PSTX570E-H4-60-FB	72	36	24
PSTX720E-F4-60-FB	85	72	24	PSTX720E-L4-60-FB	85	72	24	PSTX720E-H4-60-FB	85	72	24

Type Code	H(in)	W(in)	D(in)
PSTX30E-H4-48-FB	24	20	12
PSTX60E-H4-48-FB	24	20	12
PSTX72E-H4-48-FB	24	20	12
PSTX85E-H4-48-FB	24	20	12
PSTX105E-H4-48-FB	30	30	12
PSTX142E-H4-48-FB	30	30	12
PSTX170E-H4-48-FB	48	36	16
PSTX210E-H4-48-FB	48	36	16
PSTX250E-H4-48-FB	48	36	16
PSTX300E-H4-48-FB	48	36	16
PSTX370E-H4-48-FB	72	36	24
PSTX470E-H4-48-FB	72	36	24
PSTX570E-H4-48-FB	72	36	24
PSTX720E-H4-48-FB	85	72	24

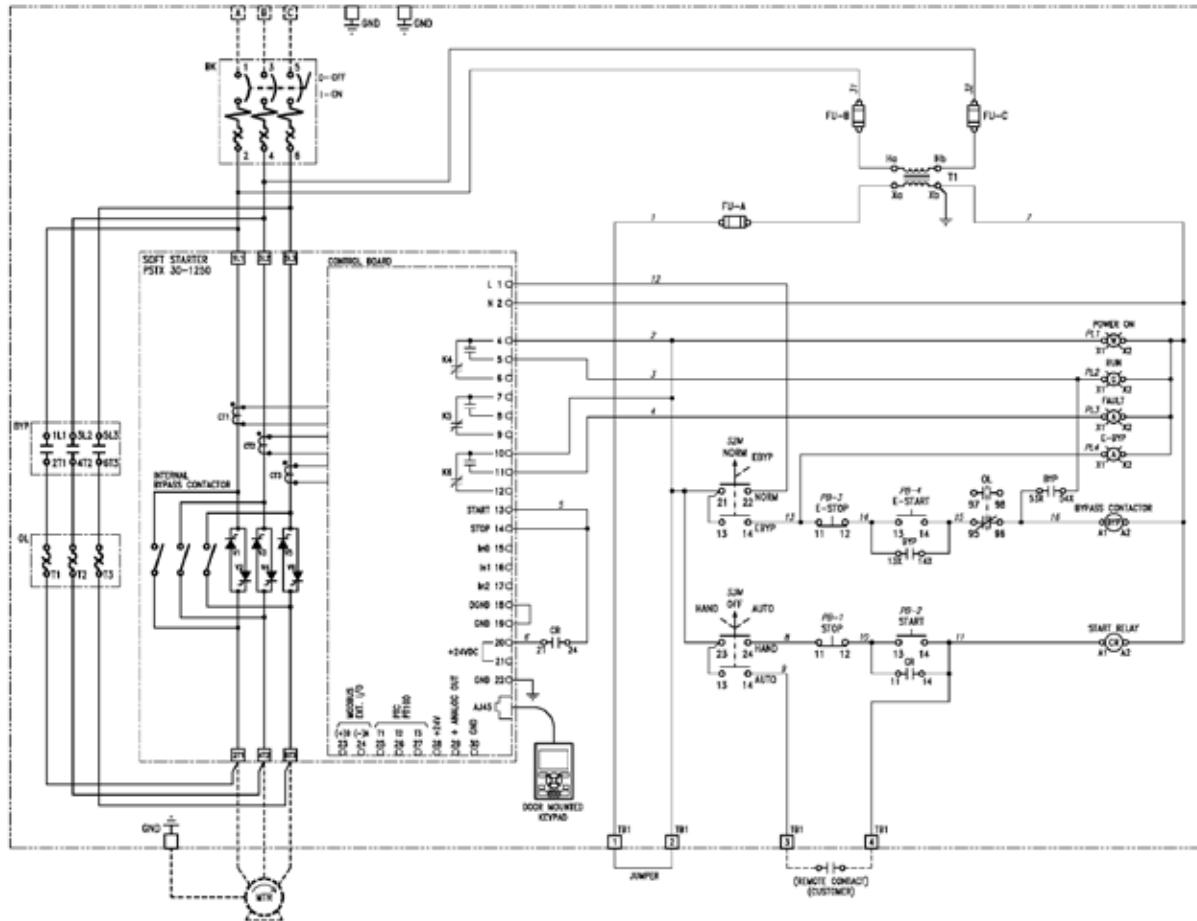
## **Enclosed PSTX**

## Typical Circuit Diagram - Standard



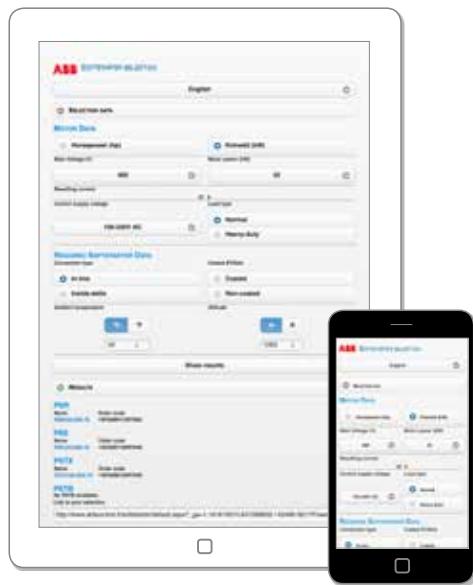
## Enclosed PSTX

## Typical Circuit Diagram - Full External ByPass



# Marketing material 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.



# 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.



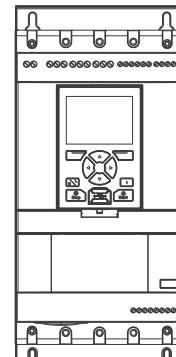
[applications.it.abb.com/SOC](http://applications.it.abb.com/SOC)

## 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

- Product catalogs and brochures
- Certificates and approvals
- Case studies
- Product simulator
- Circuit diagrams and application diagrams
- Manuals
- 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>

## 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)



# 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:**

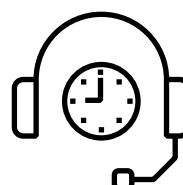
- Installation and Commissioning
- Spare Parts
- Preventive Maintenance
- ABB Drive and softstarter Care agreement
- Drive and softstarter Exchange

## Is rapid response a key consideration?

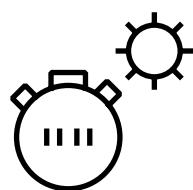
If your drives and softstarters require immediate action, our global network is at your service.

**Example services include:**

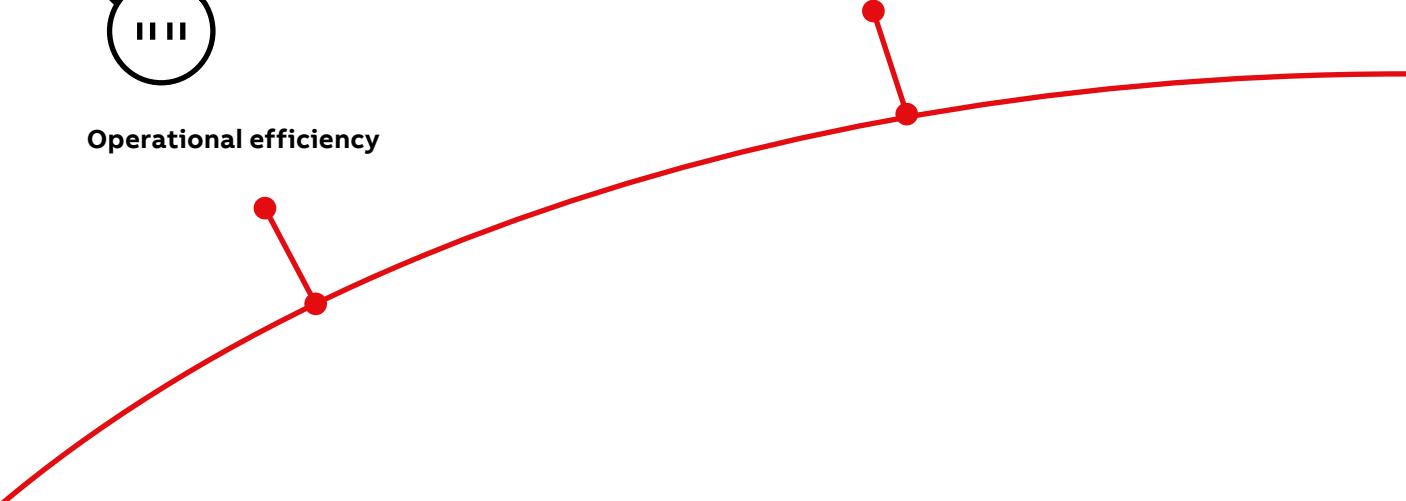
- Technical Support
- On-site Repair
- Response time agreements
- Training



Rapid response



Operational efficiency



# 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?

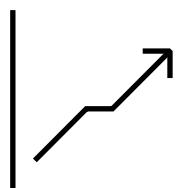
From here, you have our guidance and full support along the course you take, throughout the entire lifetime of your drives.

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



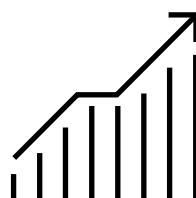
Life cycle management

Is performance most critical to your operation?

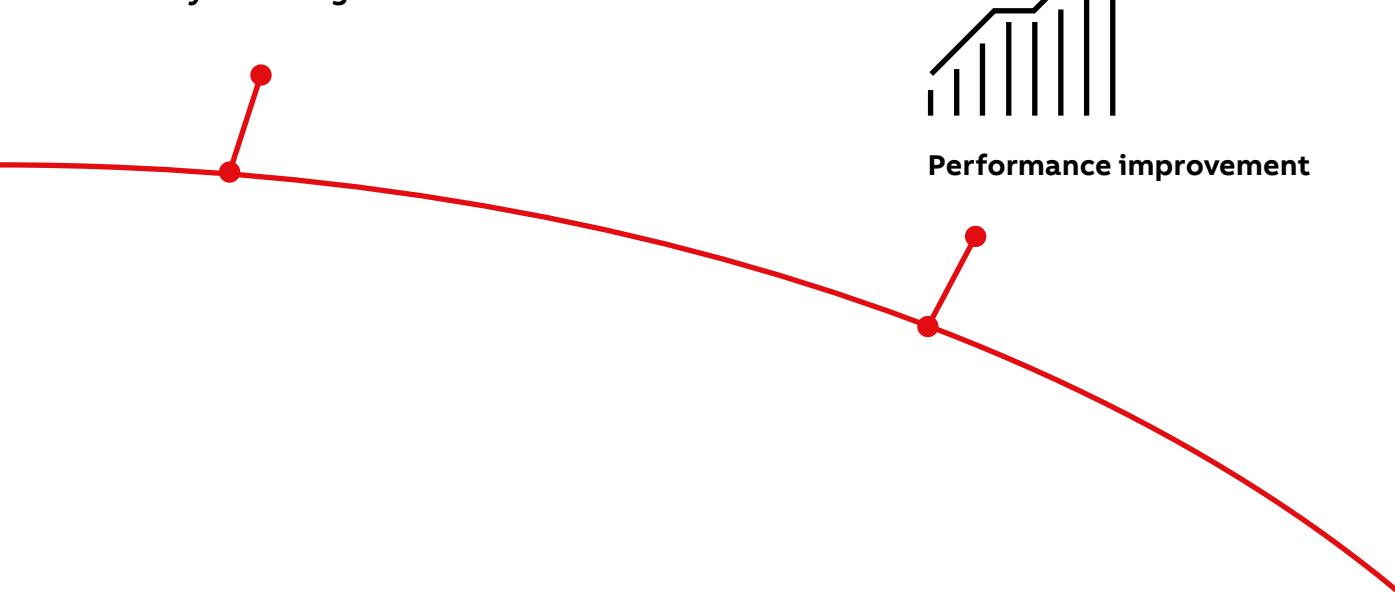
Get optimal performance out of your machinery and systems.

**Example services include:**

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



Performance improvement





—

ABB Inc.  
Drives, Robotics and Motion  
Saint-Laurent, QC, Canada

For more information, please contact  
your local ABB representative or visit  
[new.abb.com/low-voltage/products/softstarters](http://new.abb.com/low-voltage/products/softstarters)



To get more information,  
install QR code reader on  
your mobile device, scan the  
code and see more.