





To the left: A combination with PSR and a manual Motor Starter MS116
Above: PSR16, PSR30 and PSR 45 ①

ABB Automation Products serve customers worldwide and have long experience and comprehensive know-how of the development and production of softstarters.

After the PSS and the PST(B) ranges, it is now time to introduce the small compact PSR Softstarter.

The Softstarter is the solution to both mechanical and electrical problems.

Constant-speed AC motors are the workhorses of industry; they are used to drive fans, pumps, conveyors and lots of other types of machinery. These motors are tough machines, but they have some drawbacks. During start and stop both mechanical and electrical stresses are high, causing undesirable load peaks each time the motors are started. An ABB Softstarter eliminates many of these problems. The voltage is smoothly applied to, and removed from, the motor. Both the torque and the current consequently behave in the same way. The result is that mechanical and electrical stresses are significantly lower than with conventional starting methods.

Fewer electrical problems

The starting current will be significantly lower than with across the line starting and compared with Y/D starters the switching transients will be eliminated.

Fewer mechanical problems

Sliding drive belts and gearbox wear caused by heavy torque peaks are familiar problems that require lots of maintenance. Our PSR Softstarters reduce the torque peaks as they apply the torque smoothly.

Fewer operational problems

Pressure surges in pipelines are often called water hammer. It is a common but undesirable effect when stopping almost all pumps. PSR Softstarters allow smooth stops and reduce the problems associated with water hammer.

① In the background an application example, a snow cannon from Lenko Snow, Sweden

ABB softstarters - Advanced, Flexible and Compact Range

ABB offers three different ranges of softstarters to cover every customer need for solutions for small to medium-sized motor applications.

PST(B) - Advanced range, covers motor currents from 30 to 1050 A and provides advanced functionality, including integrated protections, programmable signal relays, a flexible communication system and an LCD display. Sizes PSTB370 to 1050 A include a by-pass contactor as a standard function.

PSS - Flexible range covers motor currents from 18 to 300 A and offers a flexible solution with easy installation and setup. It can also be connected in-line or inside delta.

PSR - Compact range, covers motor currents from 3 to 45 A. It is the latest addition to the softstarter family and has an attractive, compact design. Further, the system concept includes the possibility to easily connect our Type MS manual motor protectors when used in Group motor applications and the softstarters are available for remote control connection using the FieldBusPlug as an accessory. All sizes include a Run signal relay. The 25A and above are also provided with an output signal for TOR (Top Of Ramp), i.e. full voltage). With standard performance the PSR Softstarters handle ten starts per hour. When an auxiliary cooling fan is added, the starting capacity is increased to 20 starts per hour.

- Current ratings 3.9 – 45 A
- Motor voltage 208 – 600 V
- Supply voltage 24 V DC or 100-240 V AC
- Easy to install and adjust
- DIN rail or screw mounting

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

PSR3 ... PSR45

Softstarters
Type PSR



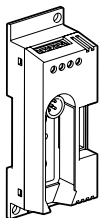
PSR3 ... PSR16



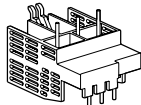
PSR25, PSR30



PSR37 ... PSR45



PSR-FBPA



PSR16-MS116



PSR-FAN



Motor power					Max rated current, I_e A	Catalog No.	List Price
208 V	240 V	480 V	600V motor				
P_e HP	P_e HP	P_e HP	P_e HP				
208 – 600 V AC							
Supply voltage 100-240 V AC							
0.5	0.75	2	2	3.4	PSR3-600-70	\$ 190	
1	1.5	3	5	6.1	PSR6-600-70	225	
2	2	5	7.5	9.0	PSR9-600-70	265	
3	3	7.5	10	11.0	PSR12-600-70	270	
3	5	10	10	15.2	PSR16-600-70	310	
7.5	7.5	15	20	24.2	PSR25-600-70	320	
7.5	10	20	25	28.0	PSR30-600-70	410	
10	10	25	30	34.0	PSR37-600-70	510	
15	15	30	40	46.2	PSR45-600-70	640	
Supply voltage 24 V DC							
0.5	0.75	2	2	3.4	PSR3-600-81	190	
1	1.5	3	5	6.1	PSR6-600-81	225	
2	2	5	7.5	9.0	PSR9-600-81	265	
3	3	7.5	10	11.0	PSR12-600-81	270	
3	5	10	10	15.2	PSR16-600-81	310	
7.5	7.5	15	20	24.2	PSR25-600-81	320	
7.5	10	20	25	28.0	PSR30-600-81	410	
10	10	25	30	34.0	PSR37-600-81	510	
15	15	30	40	46.0	PSR45-600-81	640	

Accessories

Description	Catalog No.	List price
Fieldbus Plug Connection Accessory		
The same accessory for all sizes	PSR-FBPA	\$ 290
Connection kit PSR3-16 and MS116		
	PSR16-MS116	12
Connection kit PSR37-45 and MS450		
	PSR45-MS450	25
Fan		
All sizes can be equipped with auxiliary cooling fan for increased starting capacity.	PSR-FAN	64
ABB Field Bus Plug		
The same accessory for all sizes, see Catalog LV023, Product Selector, pages 6.33 - 6.35, November 2005 or later revisions.		

Technical data

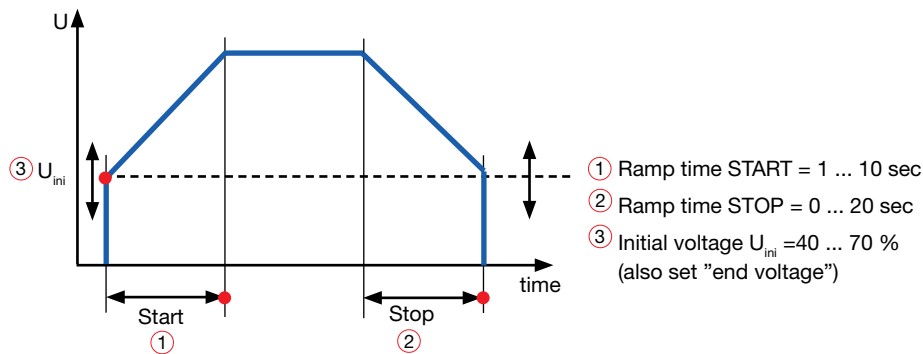
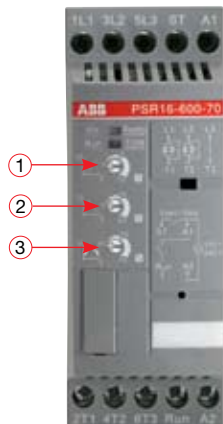
Rated insulation voltage, U_i	600 V										
Rated operational voltage, U_e	208...600 V										
Rated supply voltage, U_s	100...240 V AC or 24 V DC										
Rated operational current, I_r	PSR3	PSR6	PSR9	PSR12	PSR16	PSR25	PSR30	PSR37	PSR45		
	3.9 A	6.8 A	9 A	12 A	16 A	25 A	30 A	37 A	45 A		
Starting capacity at I_r	4 x I_r for 6 sec.										
Number of starts per hour, with aux. fan	standard 10 (4 x I_e during 6 s) 20 (4 x I_e during 6 s)										
Service factor	100 %										
Ambient temperature	during operation ¹⁾	-25 °C to +60 °C		-13 °F to +140°F							
	during storage	-40 °C to +70 °C		-40 °F to +158° F							
Maximum altitude ²⁾	4000 m										
Degree of protection,		PSR3	PSR6	PSR9	PSR12	PSR16	PSR25	PSR30	PSR37	PSR45	
	main circuit	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP10	IP10	
	control circuit	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	
Connectable cable area,		PSR3 - PSR16			PSR25 - PSR30			PSR37 - PSR45			
	main circuit	1 x 2.5 mm ² (1 x 14 AWG) 2 x 2.5 mm ² (2 x 14 AWG)			1 x 10 mm ² (1 x 8 AWG) 2 x 10 mm ² (2 x 8 AWG)			1 x 35 mm ² (1 x 2 AWG) 2 x 16 mm ² (2 x 6 AWG)			
	control circuit	PSR3 - PSR16 1 x 2.5 mm ² (1 x 14 AWG) 2 x 2.5 mm ² (2 x 14 AWG)			PSR25 - PSR45 1 x 2.5 mm ² (1 x 14 AWG) 2 x 1.5 mm ² (2 x 16 AWG)						
Signal relays		PSR3 - PSR16				PSR25 - PSR45					
	for Run signal										
	Resistive load	240 V, 2 A				250 V, 5 A					
	AC-15 (Contactor)	240 V, 0.5 A				250 V, 0.5 A					
	for Top of Ramp signal										
	Resistive load	-				250 V, 2 A					
	AC-15 (Contactor)	-				250 V, 0.5 A					
LED	for On/Ready	Green									
	for Run/Top Of Ramp	Green									
Setting of Start Ramp	1-10 sec.										
	Stop Ramp	0-20 sec.									
Initial- and End Voltage	40-70%										

¹⁾ 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) to derate the softstarter.
EX: At 122°F, the derating is: 122°F - 104°F = 18°F; 18°F x 0.44 = 7.92%, approximately 8%. Current FLA is derated by 8%.

²⁾ When used at high altitudes above 1000 meters (3300 feet) up to 4000 meters (13,000 feet) you need to derate the rated current using the following formula.

$$[\% \text{ of } I_e = 100 - \frac{x - 1000}{150}], \text{ where } x = \text{actual altitude for the softstarter}$$

Settings



PSR3 ... PSR45

Technical data

Softstarters
Type PSR

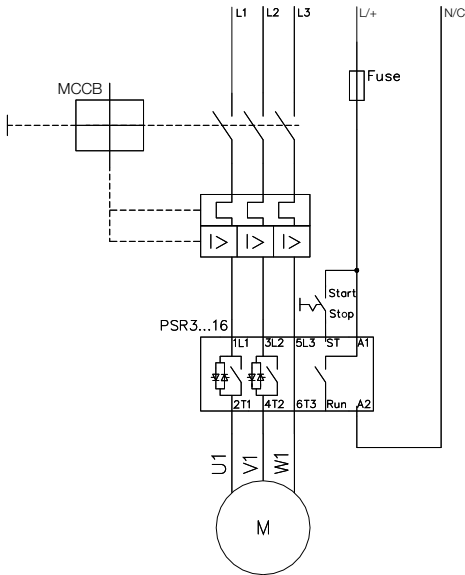
UL ratings (File #E161428)

Softstarter		Motor power P (hp) and full load current FLA (A)				Max. fuse	Max Breaker
FLA		U _e 208 V	U _e 240 V	U _e 480 V	U _e 600V		
Type	A	hp	hp	hp	hp	Type	A
208 -600 V AC							
Supply voltage 100-240 V AC alt. 24 V DC							
PSR3	3.4	0.5	0.75	2	2	40 A J-Type	50
PSR6	6.1	1	1.5	3	5	40 A J-Type	50
PSR9	9	2	2	5	7.5	40 A J-Type	50
PSR12	11	3	3	7.5	10	40 A J-Type	50
PSR16	15.2	3	5	10	10	40 A J-Type	50
PSR25	24.2	7.5	7.5	15	20	60 A J-Type	100
PSR30	28	7.5	10	20	25	70 A J-Type	100
PSR37	34	10	10	25	30	100 A J-Type	150
PSR45	46.2	15	15	30	40	100 A J-Type	150

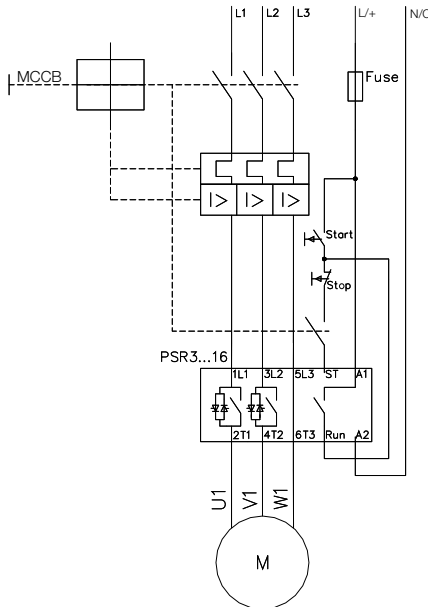
PSR3 ... PSR45 Application diagrams

PSR3 ...16

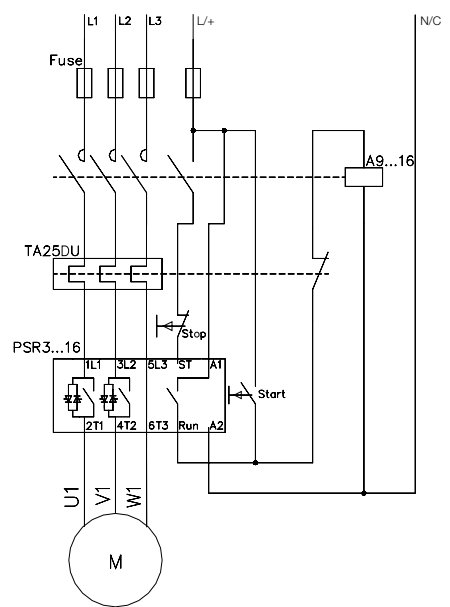
A) With MCCB



B) With MCCB and auxiliary contact

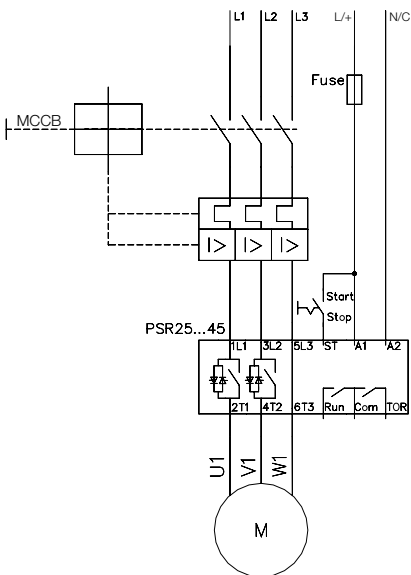


C) With fuses, contactor and O.L.

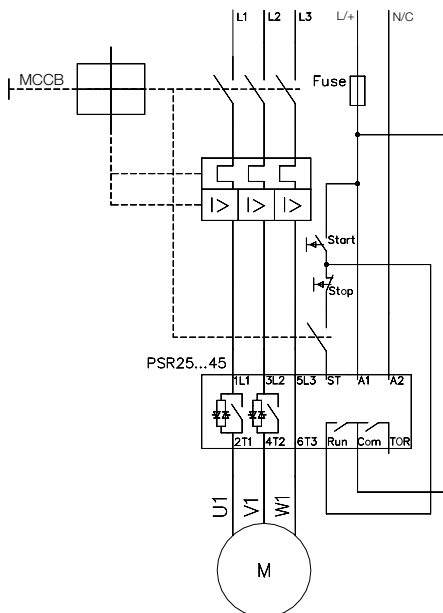


PSR25 ... 45

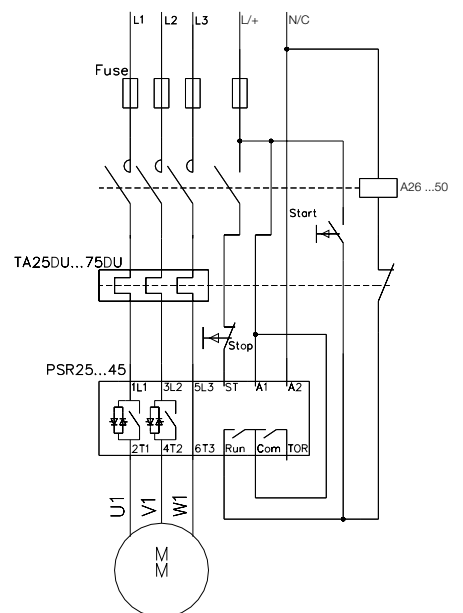
D) With MCCB



E) With MCCB and auxiliary contact



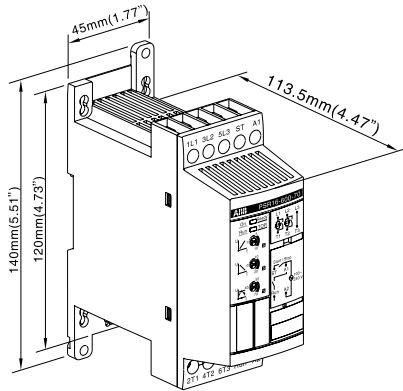
F) With fuses, contactor and O.L.



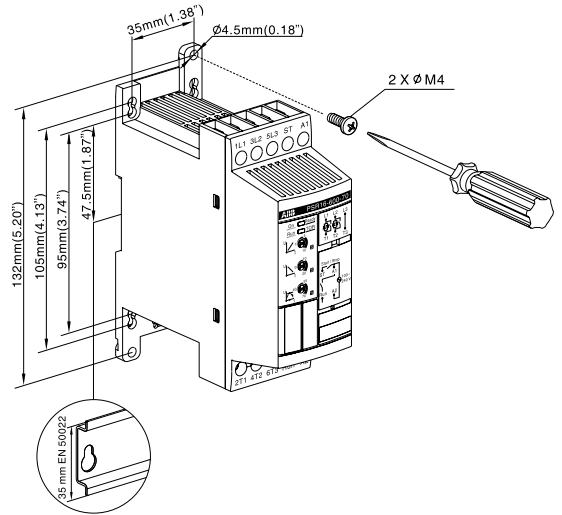
PSR3 ... PSR45 Dimensions

Softstarters
Type PSR

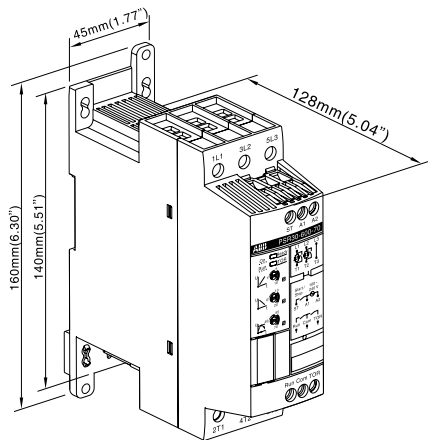
PSR3 ... 16



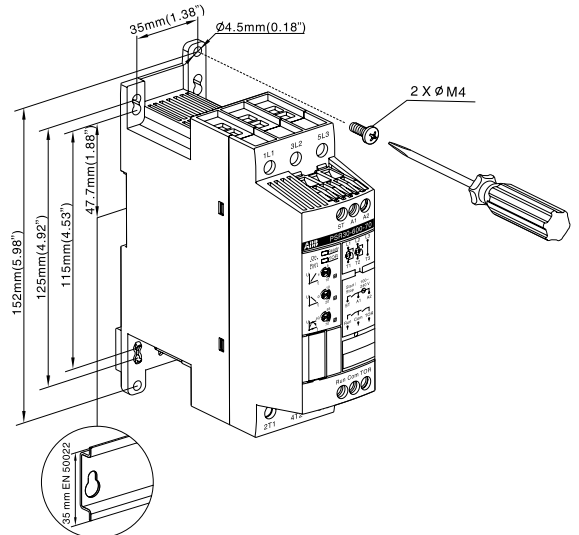
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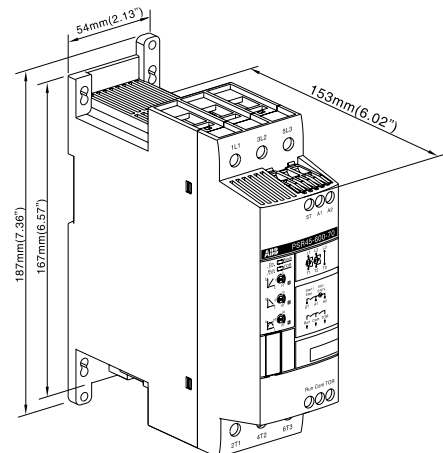
PSR25 ... 30



PSR25 ... 30



PSR37 ...45



PSR37 ...45

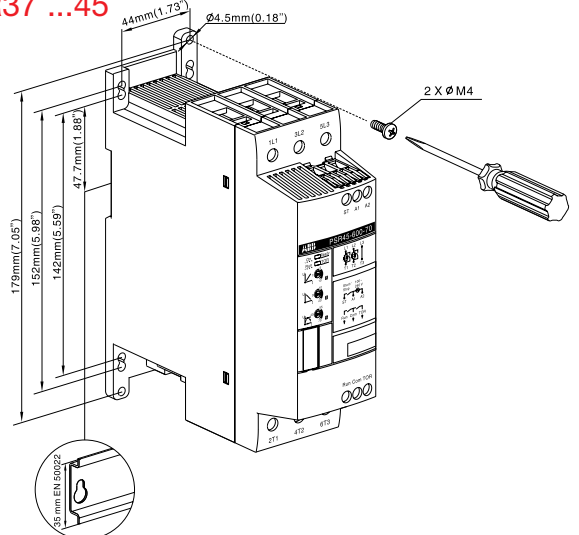




ABB is leader in power and automation technologies that enable utility and industry customers to improve performance while lowering their environmental impact.

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