

SSW900 - SOFT-STARTER

Power and
full protection
to the motor

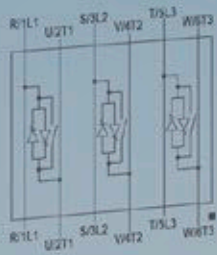




S U M M A R Y

Introduction	04
Easy to use	07
Flexibility	07
Adjustable protections	08
Start and stop control methods	08
Connectivity	10
Applications	12
Coding	13
Specification	14
Accessories	15
Accessory installation	16
Dimensions	16
Installation	17
Technical specifications	18
Block diagram	19





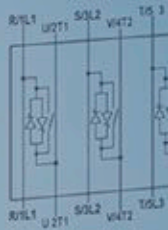
weg

SSW900
SOFT-STARTER

The control panel features a color LCD screen displaying a menu with the following items:

- 1. Motor
- 2. Control Function
- 3. Control Mode
- 4. JOP
- 5. Parameter

Below the screen is a control keypad with a central directional pad, a power button, and several function buttons.



weg

SSW900
SOFT-STARTER

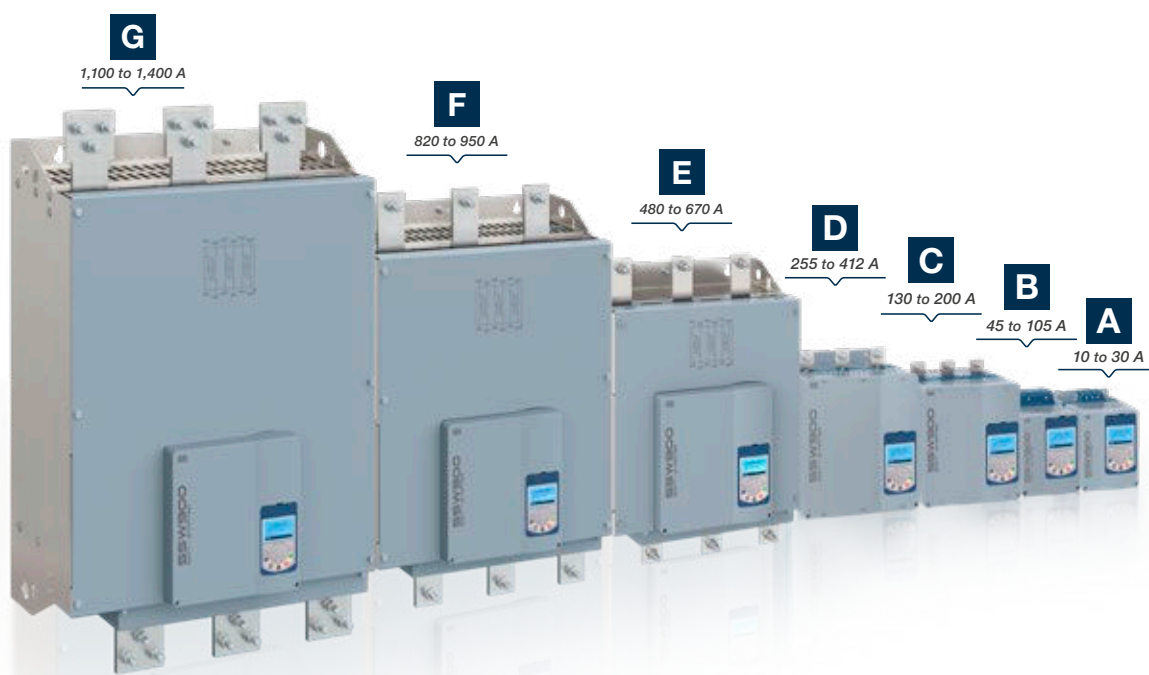
SSW900

SOFT-STARTER

Soft-starters are devices dedicated to the smooth acceleration and deceleration of three-phase induction motors by controlling the voltage applied to it.

Combining convenience and innovation, the SSW900 is the right choice for a complete motor protection and start/stop control. Developed for industrial or professional use, the new line of soft-starters allows simple and quick access to application information and configuration settings.

Using a well structured menu interface, the SSW900 line presents an unprecedented experience of interactivity with the user, allowing adjustments and configurations allied to online parameter help right on the HMI, in addition event logs with date and time and setup assistant are also available. The equipment brings also a built-in bypass, which contributes to extending the life time of the soft-stater, optimizing space and reducing heat dissipation inside electric panels.





POWER AND FULL PROTECTION TO THE MOTOR



Connectivity



Smaller dimensions



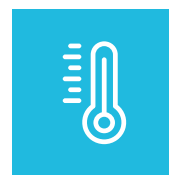
Fire mode
(emergency start)



Optimal cost
effectiveness



Varnishing of the boards class
3C2 in the standard product or
3C3 as optional, according to
IEC 60721-3-3



Connection for motor
thermistor (PTC)



Graphic HMI



Built-in bypass

Certifications¹⁾



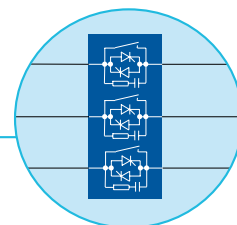
Note: 1) Please consult the availability of certification with your sales representative.



SSW900

Characteristics

- Current ranges from 10 to 1,400 A
- Supply voltage from 220 to 575 V ac (T5) or from 380 to 690 V ac (T6)
- Oriented start-up
- Standard connection (3 cables) or motor inside delta connection (6 cables)
- Integral motor thermal protection
- Reduction of voltage drops during motor start
- Pump control function for smart control of pumping systems that prevent water hammer and pressure overshoots in the hydraulic piping
- Great mechanical stresses reduction on the couplings and transmission devices (gear boxes, pulleys, gears, belts, etc.) during the motor start
- Increased motor and equipment lifetime
- Elimination of starting mechanical shock to couplings and driven equipment
- Operation at ambient temperature up to 55 °C without current¹⁾ derating
- Three braking methods to stop the motor and the load faster. Braking methods with or without external contactors
- Built-in bypass: minimizing power losses and heat dissipation in the thyristor, providing space reduction, contributing to energy saving and increasing the product's life



MORE ADVANTAGES

The SSW900 can substitute direct online starters or star-delta starters, bringing benefits to your application, such as:

- Electric energy savings
- Greater protection and increased durability of the electric motor
- Diagnosis and fault history
- Flexibility, it allows the installation of accessories in the application (Plug & Play)
- Graphic monitoring
- Customizable main screens



Menu navigation



Easy to install



Easy to operate



Simple monitoring

Note: 1) Models A to D.

Easy to use

USB port

Easy monitoring via PC or firmware updating

Removable HMI

Possibility of installation on panel or machine door

Easy access to the control terminals: digital and analog inputs and outputs



Bluetooth® connectivity¹⁾

RTC

Real time clock with event log including date and time

Graphic HMI

Intuitive, customizable, complete

Flexibility

LED

Visual status indication

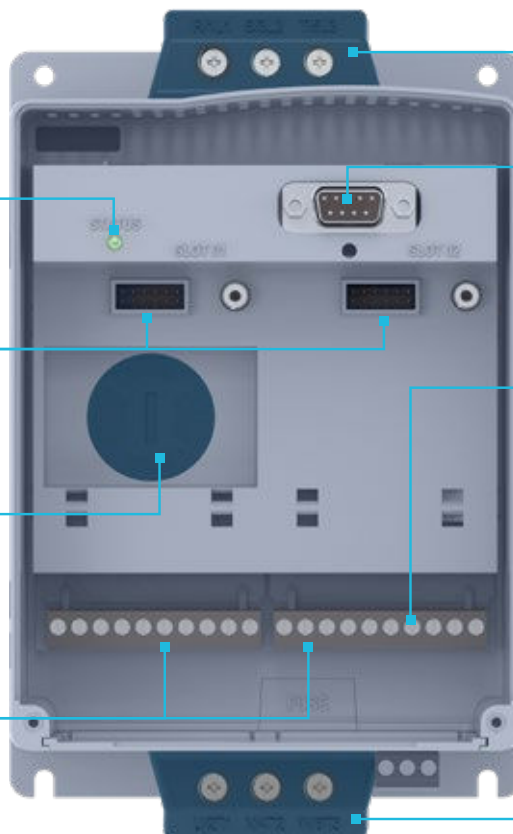
Two slots

Possibility to use two accessory modules

RTC (Real Time Clock) battery

Quick connect

Easily detachable terminals



Power supply connection

HMI connection

I/O

Totally programmable inputs and outputs

- **6 isolated digital inputs²⁾**
24 V dc
- **1 analog output**
0-10 V dc / 4-20 mA
- **1 input** for motor PTC thermistor
- **3 relay outputs**
1.0 A / 240 V dc

Motor connection

Notes: 1) HMI with Bluetooth® connectivity available as an accessory item. Please consult availability of certification for your region.
2) The SSW900 has 6 digital inputs. DI1 to DI5 normal, and DI6 can be set to the motor PTC Input or used for digital input.

Adjustable protections

The SSW900 uses advanced techniques to detect supply line and connection faults, allowing the user to choose the actuation mode of protections (selectable by programming: fault or alarm) for total motor protection:

- Protections for overvoltage, undervoltage, voltage imbalance between phases and phase sequence
- Protections for motor overload and underload
- Thermal protections through Pt-100 reading and motor heating and cooling curves
- Protections against overcurrent and undercurrent, current imbalance, undertorque and overtorque, underpower and overpower
- Protections against short-circuit on the power side
- Bypass protections (overcurrent, undercurrent and failure in the bypass contactor opening)
- Minimum time interval between starts
- Protections against communication faults
- Actuation of the programmable protections between fault or alarm
- Fault auto-reset

Start and stop control methods

The SSW900 offers, through its algorithm, flexibility and high performance control to meet application requirements on start and stop cycles of three-phase induction motors.

	Actuation	
	Start	Stop
Voltage ramp	✓	✓
Voltage ramp + current limit	✓	✗
Current limit	✓	✗
Current ramp	✓	✗
Pump control ¹⁾	✓	✓
Torque control ²⁾	✓	✓
D.O.L SCR	✓	✗
Coast to stop	✗	✓

Notes: 1) The setting of the function Pump Control is allowed for stopping the motor only when it is used at the starting as well.
 2) The setting of the function Torque Control is allowed for stopping the motor only when it is used at the starting as well.

Main features



Forward / Reverse



JOG



Kick start



Fire mode (emergency start)

Allows starting and stopping the motor in emergency situations, even when any fault occurs, disregarding the SSW or motor protections. Used to drive hydraulic pumps for firefighting systems.



High performance graphic HMI

Indication of all variables of the motor or SSW in an easy and intuitive way, using many units and formats, through bar graphs or time graphs.



Diagnosis

Several status of the SSW are saved at certain moments to facilitate the diagnosis of faults and problems in the application or in the motor. For instance:

- Faults, with history of all faults and storage in CSV file.
- Alarms, with history of all alarms and storage in CSV file.
- Event history with storage in CSV file.
- All saved information goes with RTC time and date stamp.



Id	Code	Description	Date and Time	Current R (A)	Current S (A)	Current T (A)	V-line voltage (V)	S-line voltage (V)	T-line voltage (V)	Control voltage (V)	100 Temperature (C)	100 Status
1	F001	Subtensão na alimentação do Motor	2018-09-10 09:02:24	1,7	0,2	0,2	236,7	234,8	235,3	234,9	26	Falha Alimentação
2	F002	Tempo SSW expirado	2018-09-10 09:02:38	0,7	0,7	0,3	237,4	234,9	236,2	234,7	26	Tempo SSW
3	F003	Desbalanceamento de Tensão no Motor	2018-09-10 17:22:02	3,1	3,1	3,3	237,4	234,9	236,2	234,7	26	Tempo SSW
4	F004	Falha de Fase no Partida do Motor	2018-09-10 17:22:17	0,2	0,1	0,1	237,4	234,9	236,2	234,7	26	Tempo SSW
5	F005	Falha de Fase no Partida do Motor	2018-09-10 18:25:59	0,2	0,1	0,1	237,4	234,9	236,2	234,7	26	Tempo SSW
6	F006	Subtensão no Motor	2018-09-10 18:26:25	0,7	0,7	0,3	237,4	234,9	236,2	234,7	26	Tempo SSW
7	F007	Falha de Fase no Partida do Motor	2018-09-10 18:26:45	0,2	0,1	0,1	237,4	234,9	236,2	234,7	26	Tempo SSW
8	F008	Subtensão na alimentação do Motor	2018-09-10 18:26:45	0,8	0,8	0,4	237,4	234,9	236,2	234,7	26	Tempo SSW
9	F009	Subtensão na alimentação do Motor	2018-09-10 18:26:45	1,8	1,8	0,9	237,4	234,9	236,2	234,7	26	Tempo SSW
10	F010	Subtensão na alimentação do Motor	2018-09-10 18:26:45	1,8	1,8	0,9	237,4	234,9	236,2	234,7	26	Tempo SSW
11	F011	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
12	F012	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
13	F013	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
14	F014	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
15	F015	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
16	F016	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW
17	F017	Desbalanceamento de Tensão no Motor	2018-09-10 18:26:45	0,2	0,2	0,2	237,4	234,9	236,2	234,7	26	Tempo SSW

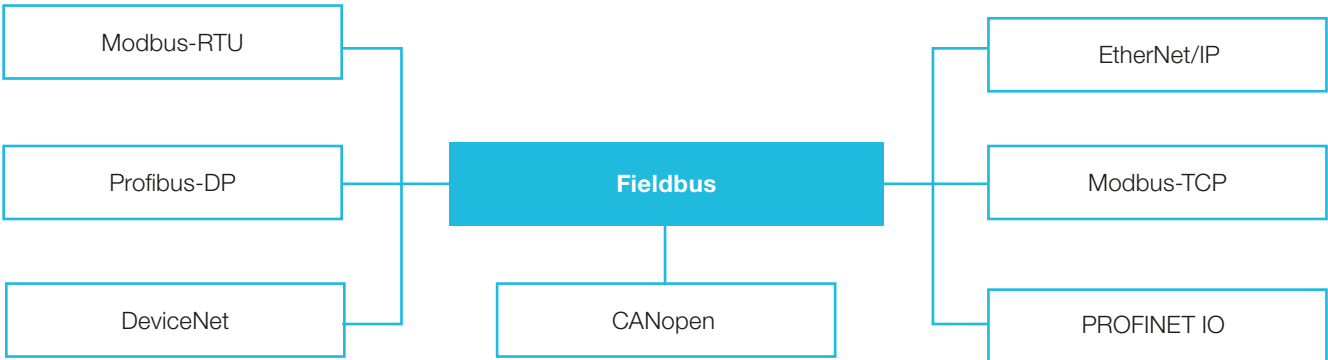


Oriented startup

Guides the user on how to program the SSW900 easily.

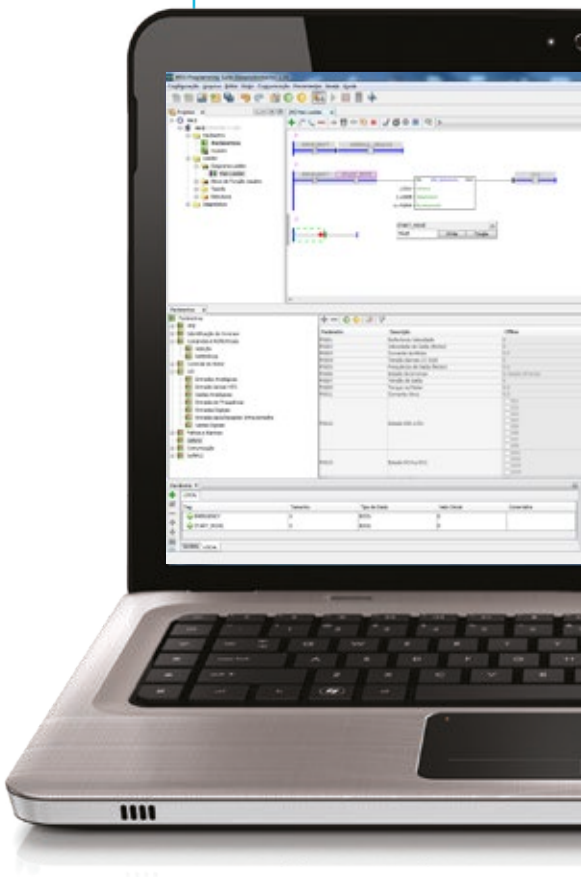
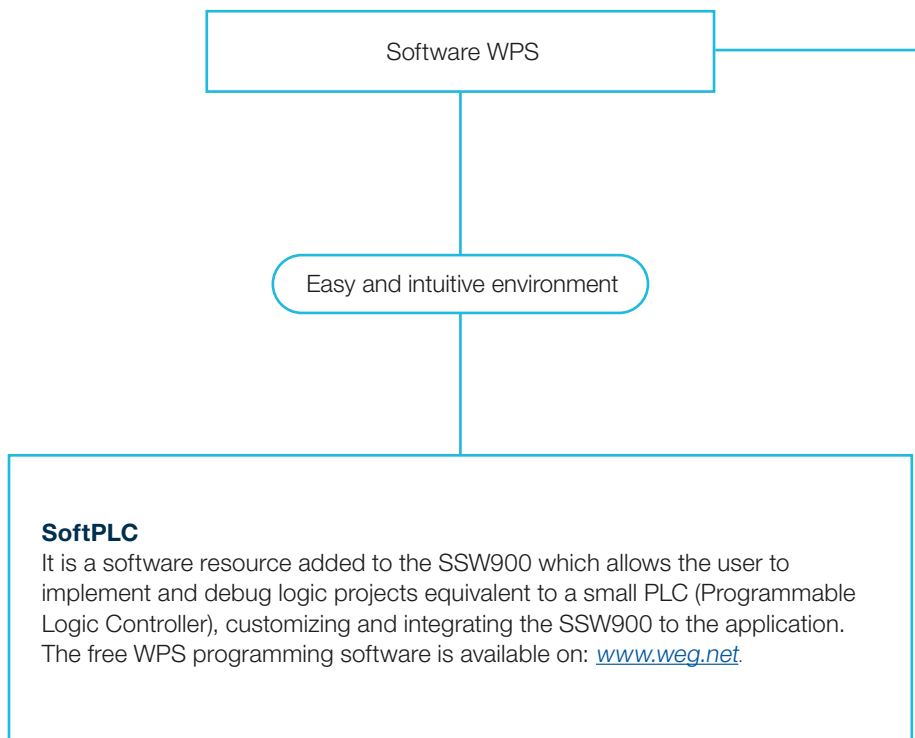
Connectivity

The SSW900 can be integrated to the main Fieldbus industrial communication networks, such as Profibus-DP, CANopen, DeviceNet and EtherNet/IP, using the appropriate plug-in module.

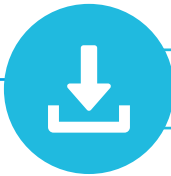
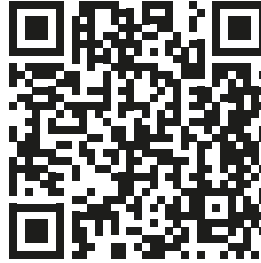


WEG Programming Suite (WPS)

WPS is an integrated PC software that assists in the creation of automation applications allowing graphical monitoring, parameterization and programming in Ladder language (IEC 61131-3) of several WEG product families.



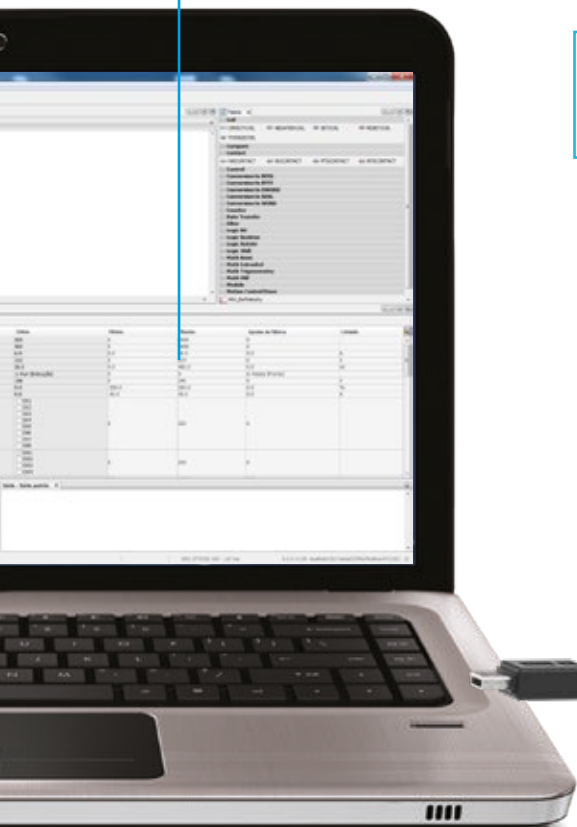
WEG WPS for mobile available:



Free on the website: www.weg.net

Bluetooth® communication¹⁾

USB connector on the HMI, available on standard product




Note: 1) HMI with Bluetooth® connectivity available as an accessory item.

Applications



Cement and Mining




- Dosing pumps
- Sifters / vibrating tables
- Dynamic graders
- Conveyor belts

Chemical and Petrochemical




- Fans / exhaust fans
- Centrifugal pumps
- Dosing pumps
- Centrifuges
- Stirrers / mixers
- Compressors
- Soap extruders

Wood




- Veneer machines
- Polishing machines
- Cutting machines
- Wood chippers
- Saw and plains

Plastic and Rubber




- Extruders
- Blowers
- Mixers
- Calenders
- Granulators

Water & Wastewater




- Centrifugal-pumps
- Suppression systems

Food & Beverage




- Continuous centrifuges
- Roller tables
- Conveyor belts
- Bottling lines

Ceramic




- Fans / exhaust fans
- Continuous dryers / ovens
- Ball mills
- Roller tables
- Conveyor belts

Steel and Metallurgy




- Fans / exhaust fans
- Conveyors
- Drilling machines / grinders
- Pumps

Glass

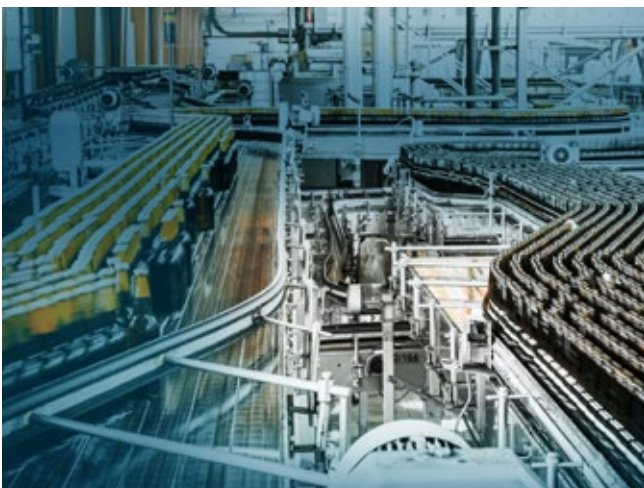


- Fans / exhaust fans
- Continuous dryers / ovens
- Roller tables

Textile



- Stirrers / mixers
- Dryers / washing machines



Coding¹⁾

1	SSW900	2	A	3	0010	4	T5	5	E2	6	---	7	---
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1 - Soft-Starter SSW900

2 - Frame size of the SSW900, according to the table below

3 - Rated output current, according to the table below

Frame size	Rated current
A	0010 = 10 A
	0017 = 17 A
	0024 = 24 A
	0030 = 30 A
B	0045 = 45 A
	0061 = 61 A
	0085 = 85 A
	0105 = 105 A
C	0130 = 130 A
	0171 = 171 A
D	0200 = 200 A
	0255 = 255 A
	0312 = 312 A
	0365 = 365 A
E	0412 = 412 A
	0480 = 480 A
	0604 = 604 A
F	0670 = 670 A
	0820 = 820 A
G	0950 = 950 A
	1100 = 1,100 A
	1400 = 1,400 A

Note: 1) Other configurations available upon request.

4 - Rated power supply voltage

T5	220 - 575 V
T6	380 - 690 V

5 - Rated electronic supply voltage

E2	110 - 240 V
E3	110 - 130 V ¹⁾
E4	220 - 240 V ¹⁾

Note: 1) Only for frame D, E, F and G.

6 - Special hardware versions

Blank	Electronic boards with coating class 3C2
EC	Electronic boards with class 3C3 extra coating

7 - Special software version

Blank	Standard software
Sx	Special software



Specification

The power ratings for the maximum applicable motor shown in the following tables are referential and valid for WEG 4-pole three-phase induction motors under light load conditions (e.g., centrifugal pump). Motor rated power may vary according to the motor data and application.

Standard connection (with 3 cables)

SSW900	Frame size	Rated current (A)	Maximum applicable motor											
			220/230 V ¹⁾		380/400 V		440/460 V		525 V		575 V		690 V ²⁾	
			HP	kW	HP	kW	HP	kW	HP	kW	HP	kW	HP	kW
SSW900A0010T5E2	A	10	3	2.2	6	4.5	7.5	5.5	7.5	5.5	10	7.5	-	-
SSW900A0017T5E2		17	6	4.5	10	7.5	12.5	9.2	15	11	15	11	-	-
SSW900A0024T5E2		24	7.5	5.5	15	11	15	11	20	15	20	15	-	-
SSW900A0030T5E2		30	10	7.5	20	15	20	15	25	18.5	30	22	-	-
SSW900B0045T5E2	B	45	15	11	30	22	30	22	40	30	40	30	-	-
SSW900B0061T5E2		61	20	15	40	30	50	37	50	37	60	45	-	-
SSW900B0085T5E2		85	30	22	60	45	60	45	75	55	75	55	-	-
SSW900B0105T5E2		105	40	30	75	55	75	55	75	55	100	75	-	-
SSW900C0130E2	C	130	50	37	75	55	100	75	125	90	125	90	150	110
SSW900C0171E2		171	60	45	125	90	125	90	150	110	175	132	220	165
SSW900C0200E2		200	75	55	150	110	150	110	200	150	200	150	250	185
SSW900D0255E♦	D	255	100	75	175	132	200	150	250	185	250	185	340	250
SSW900D0312E♦		312	125	90	200	150	250	185	300	220	300	220	430	320
SSW900D0365E♦		365	150	110	250	185	300	225	350	260	400	300	470	350
SSW900D0412E♦		412	150	110	300	220	350	260	440	315	450	330	500	370
SSW900E0480E♦	E	480	200	150	350	260	400	300	500	370	500	370	600	450
SSW900E0604E♦		604	250	185	450	330	500	370	600	450	650	485	750	550
SSW900E0670E♦		670	250	185	500	370	550	410	650	485	750	550	850	630
SSW900F0820E♦	F	820	350	260	550	410	700	525	800	600	850	630	1,000	750
SSW900F0950E♦		950	400	300	750	550	800	600	900	670	1,050	775	1,150	860
SSW900G1100E♦	G	1,100	450	330	800	600	900	670	1,100	810	1,200	900	1,300	1,000
SSW900G1400E♦		1,400	550	410	1,000	750	1,200	900	1,400	1,050	1,500	1,100	1,700	1,250

Notes: 1) Only for T5 versions.

2) Only for T6 versions.

Change □ by T5 for products with 220-575 V supply voltage or T6 for 380-690 V.

Change ♦ by 3 to select the control voltage of 110-130 V or by 4 to 220-240 V.

Models ≤412 A: AC-53b 3-25:335, ambient temperature of 55 °C.

Models ≥480 A: AC-53b 3-25:695, ambient temperature of 40 °C.

Models from 130 A to 200 A: with ventilation kit.

WEG motors Premium or Plus, IV poles.

Motor inside delta connection (with 6 cables)

SSW900	Frame size	Rated current (A)	Maximum applicable motor									
			220/230 V ¹⁾		380/400 V		440/460 V		525 V ²⁾		575 V ²⁾	
			HP	kW	HP	kW	HP	kW	HP	kW	HP	kW
SSW900C0130T5E2	C	225	75	55	150	110	175	132	200	150	250	185
SSW900C0171T5E2		296	125	90	200	150	200	150	250	185	300	220
SSW900C0200T5E2		346	150	110	250	185	300	220	300	220	350	260
SSW900D0255T5E♦	D	441	175	132	300	220	350	260	400	300	450	330
SSW900D0312T5E♦		540	200	150	350	260	450	330	500	370	550	410
SSW900D0365T5E♦		631	250	185	450	330	500	370	600	450	650	485
SSW900D0412T5E♦		713	250	185	500	370	600	450	700	525	800	600
SSW900E0480T5E♦	E	831	350	260	600	450	700	525	800	600	900	670
SSW900E0604T5E♦		1,046	450	330	750	550	850	630	1,050	775	1,150	820
SSW900E0670T5E♦		1,160	500	370	850	630	950	700	1,150	820	1,250	920
SSW900F0820T5E♦	F	1,420	600	450	1,000	750	1,200	900	1,400	1,050	1,550	1,140
SSW900F0950T5E♦		1,645	720	520	1,200	900	1,400	1,030	1,650	1,200	1,800	1,325
SSW900G1100T5E♦	G	1,905	800	600	1,400	1,030	1,600	1,175	1,900	1,400	2,100	1,550
SSW900G1400T5E♦		2,425	1,050	775	1,750	1,290	2,000	1,475	2,450	1,800	2,650	1,950

Notes: 1) Only for T5 versions.

2) Only for T6 versions.

Change ♦ by 3 to select the control voltage of 110-130 V or by 4 to 220-240 V.














Models ≤412 A: AC-53b 3-25:335, ambient temperature of 55 °C.

Models ≥480 A: AC-53b 3-25:695, ambient temperature of 40 °C.

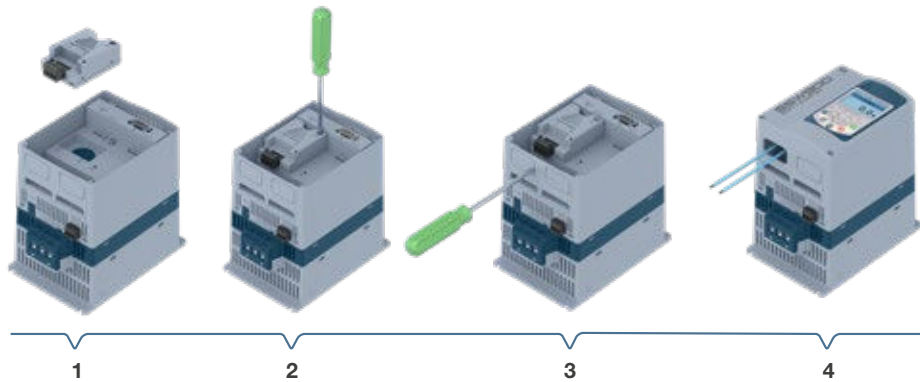
Models from 130 A to 200 A: with ventilation kit.

WEG motors Premium or Plus, IV poles.

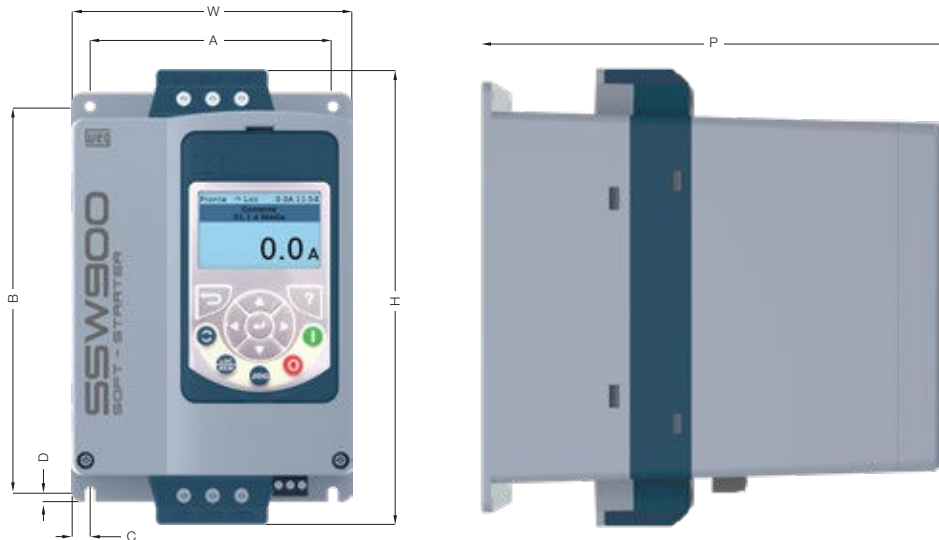
Accessories

Accessory	Description	Image
Accessories for communication and control - Slots 1 and 2		
SSW900-CAN-W	CANOpen and DeviceNet communication plug-in module	
SSW900-CRS485-W	Modbus-RTU communication plug-in module	
SSW900-CDN-N	DeviceNet - Anybus communication plug-in module	
SSW900-CPDP-N	Profibus-DP - Anybus communication plug-in module	
SSW900-CETH-IP-N	EtherNet/IP - Anybus communication plug-in module	
SSW900-CMB-TCP-N	Modbus-TCP - Anybus communication plug-in module	
SSW900-CPN-IO-N	PROFINET IO - Anybus communication plug-in module	
SSW900-CETH-W	EtherNet/IP and Modbus-TCP communication plug-in module	
SSW900-HMI-BLT	Remote operating interface with Bluetooth® communication	
SSW900-PT100-W	Temperature plug-in module for Pt-100 sensors - 6 channels	
Accessories for mechanical installation		
SSW0708900-KVT-2B	Ventilation kit for frame B (currents from 45 to 105 A)	
SSW0708900-KVT-3C	Ventilation kit for frame C (currents from 130 to 200 A)	
SSW0708900-IP20-3C	IP20 kit for frame C (currents from 130 to 200 A)	
SSW0708900-IP20-4D	IP20 kit for frame D (currents from 255 to 412 A)	
SSW0708900-PROT-3C	Front cover kit for power terminals of frame C (currents from 130 to 200 A)	
SSW0708900-PROT-4D	Front cover kit for power terminals of frame D (currents from 255 to 412 A)	
SSW900-PROT-E	Front cover kit for power terminals of frame E (currents from 480 to 670 A)	
Other accessories		
SSW900-KMD-CB01	Frame kit for HMI + 1 m cable	-
SSW900-KMD-CB02	Frame kit for HMI + 2 m cable	-
SSW900-KMD-CB03	Frame kit for HMI + 3 m cable	-
SSW900-KMD-CB05	Frame kit for HMI + 5 m cable	-
SSW900-KMD-CB07	Frame kit for HMI + 7,5 m cable	-
SSW900-KMD-CB10	Frame kit for HMI + 10 m cable	-
SSW900-KMD-CB20	Frame kit for HMI + 20 m cable	-
SSW900-KECA-10	Current acquisition kit for 10 A	-
SSW900-KECA-17	Current acquisition kit for 17 A	-
SSW900-KECA-24	Current acquisition kit for 24 A	-
SSW900-KECA-30	Current acquisition kit for 30 A	-
SSW900-KECA-45	Current acquisition kit for 45 A	-
SSW900-KECA-61	Current acquisition kit for 61 A	-
SSW900-KECA-85	Current acquisition kit for 85 A	-
SSW900-KECA-105	Current acquisition kit for 105 A	-
SSW900-KECA-130	Current acquisition kit for 130 A	-
SSW900-KECA-171	Current acquisition kit for 171 A	-
SSW900-KECA-200	Current acquisition kit for 200 A	-
SSW900-KECA-255	Current acquisition kit for 255 A	-
SSW900-KECA-312	Current acquisition kit for 312 A	-
SSW900-KECA-365	Current acquisition kit for 365 A	-
SSW900-KECA-412	Current acquisition kit for 412 A	-
SSW900-6BAR-E	Kit with six bars for frame E (currents from 480 to 670 A)	-
SSW900-6BAR-F	Kit with six busbars for frame F (currents of 820 and 950 A)	-
SSW900-3BAR-G	Kit with three busbars for frame G (currents of 1,100 and 1,400 A)	-

Accessory installation



Dimensions

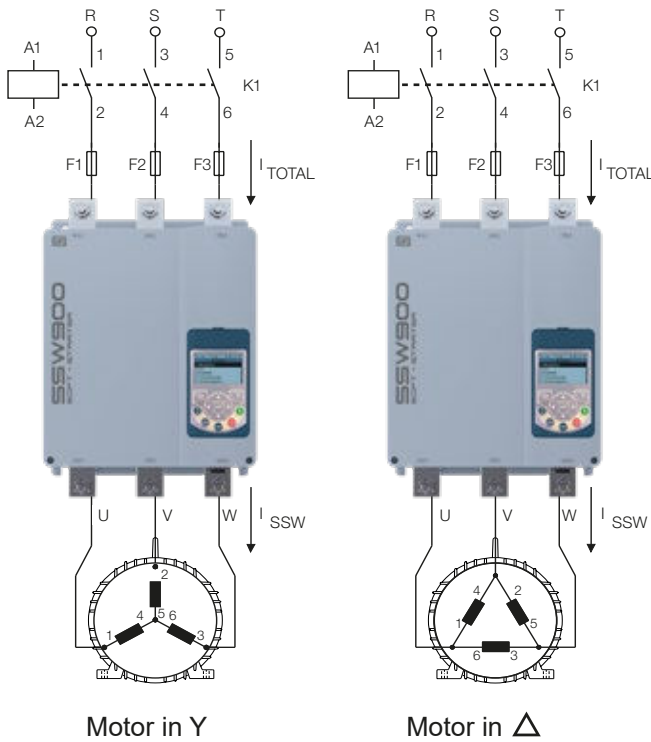


Frame size	Height (H) mm (in)	Width (W) mm (in)	Depth (P) mm (in)	(A) mm (in)	(B) mm (in)	(C) mm (in)	(D) mm (in)	Fastening screw	Weight (kg) (lb)	Degree of protection
A	200 (7.87)	127 (5)	203 (7.99)	110 (7.33)	175 (6.88)	8.5 (0.33)	4.3 (0.16)	M4	1.93 (4.25)	IP20
B	208 (8.18)	144 (5.66)	260 (10.23)	132 (5.19)	148 (5.82)	6 (0.23)	3.4 (0.13)	M4	4.02 (8.86)	IP20
C	276 (10.86)	223 (8.77)	261 (10.27)	208 (8.18)	210 (8.26)	7.5 (0.29)	5 (0.19)	M5	6.55 (14.44)	IP00 ¹⁾
D	331 (13.03)	227 (8.93)	282 (11.10)	200 (7.87)	280 (11.02)	15 (0.59)	9 (0.35)	M8	12.83 (28.28)	IP00 ¹⁾
E	575 (22.63)	390 (15.35)	260 (10.23)	270 (10.62)	480 (18.89)	56 (2.20)	10 (0.40)	M8	38 (83.75)	IP00
F	800 (31.50)	464 (18.27)	316 (12.44)	320 (12.60)	625 (24.61)	72 (2.83)	10 (0.39)	M8	75.40 (166.23)	IP00
G	914 (35.98)	539 (21.22)	316 (12.44)	369 (14.53)	732 (28.82)	85 (3.35)	12 (0.47)	M10	107.20 (236.34)	IP00

Note: 1) IP20 using SSW900-KIP accessory.

Installation

Standard (3 cables)

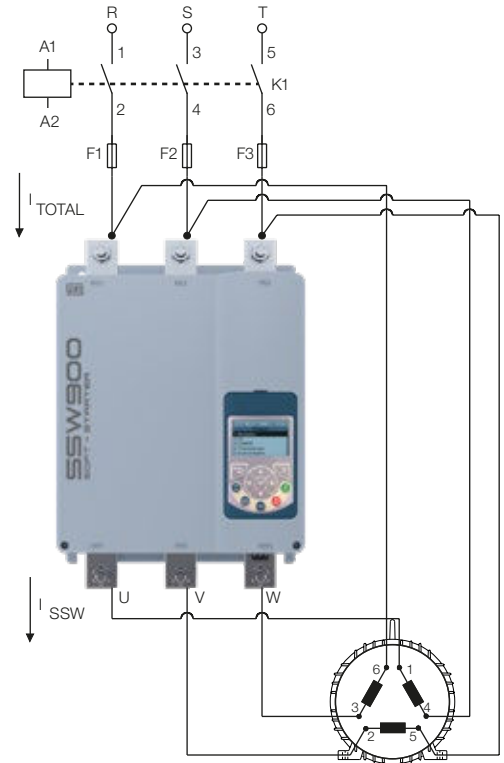


Motor in Y

Motor in Δ

$$I_{Soft- Starter} = I_{Rated}$$

Inside delta (6 cables)

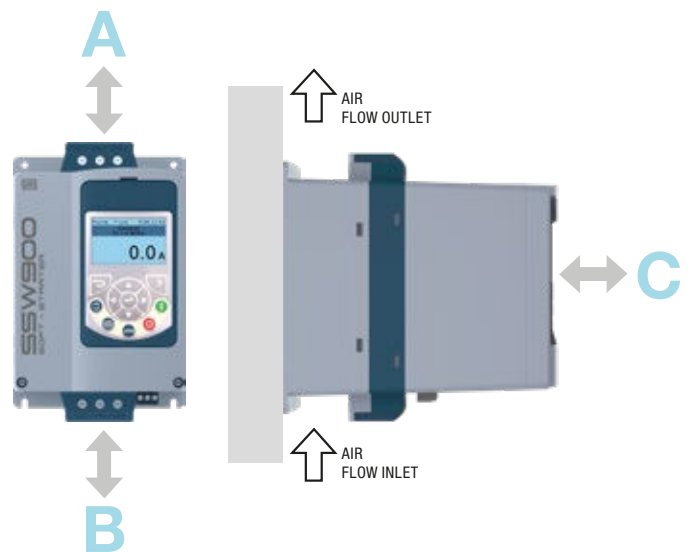


$$I_{Soft- Starter} = \frac{I_{Rated}}{\sqrt{3}} = 58\% \text{ of } I_{Rated} \text{ (After the start)}$$

$$I_{Soft- Starter} = \frac{I_{Rated}}{1.5} = 67\% \text{ of } I_{Rated} \text{ (During the start)}$$

Minimum free spaces recommended

Frame size	A mm (in)	B mm (in)	C mm (in)
A	50 (2)	50 (2)	30 (1.2)
B	80 (3.2)	80 (3.2)	30 (1.2)
C	100 (4)	100 (4)	30 (1.2)
D	150 (6)	150 (6)	30 (1.2)
E	150 (6)	150 (6)	30 (1.2)
F	180 (7.09)	180 (7.09)	30 (1.18)
G	180 (7.09)	180 (7.09)	30 (1.18)



Technical specifications

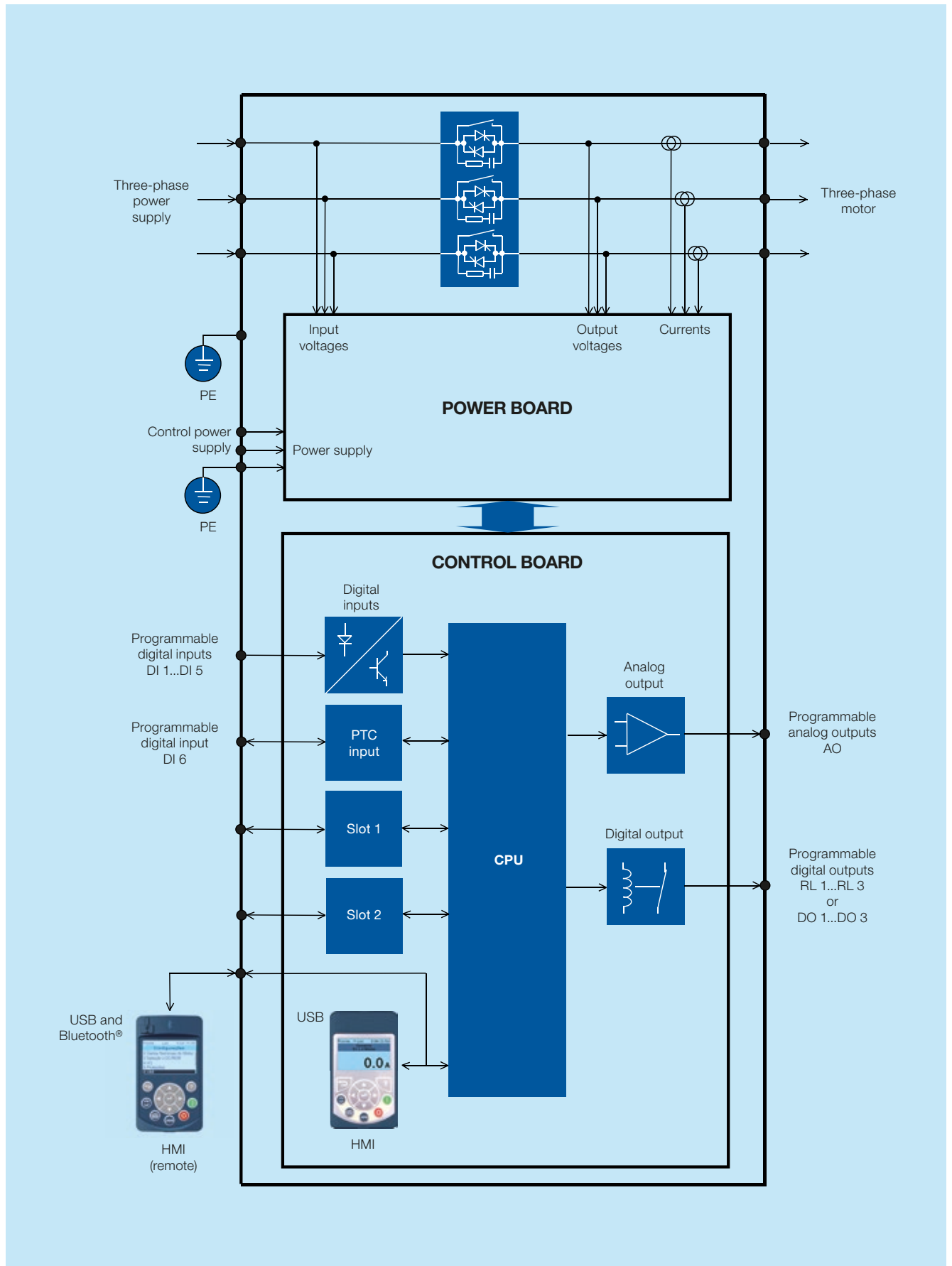
Power supply	Power voltage (R/1L1, S/3L2, T/5L3)	T5 = 220...575 V (-15%...+10%) for standard connection or 220...500 V (-15%...+10%) inside motor delta connection T6 = 380...690 V (-15%...+10%) for standard connection or 380...575 V (-15%...+10%) inside motor delta connection
	Control voltage	10 A to 200 A models: 110 to 240 V (-15% to +10%), or 93.5 to 264 V ac 255 to 1,400 A models: 110 to 130 V (-15% to +10%), or 93.5 to 143 V ac, or 220 to 240 V (-15% to +10%), or 176.8 to 264 V ac
	Frequency	50 to 60 Hz ($\pm 10\%$)
	Power consumption	10 A to 200 A models: 32 VA 255 to 412 A models: 70 VA continuous, 700 VA additional during the closing of the internal bypass 480 A to 670 A models: 90 VA continuous, 700 VA additional during the closing of the internal bypass Models from 820 A to 950 A: 140 VA continuous, 800 VA additional during the closing of the internal bypass Models from 1,100 A to 1,400 A: 180 VA continuous, 850 VA additional during the closing of the internal bypass
Inputs	Digital	6 isolated digital inputs ¹⁾ Minimum high level: 18 V dc Minimum low level: 3 V dc Maximum voltage: 30 V dc Input current: 11 mA @ 24 V dc Programmable functions
Outputs	Digital	2 relays with NO contacts, 240 V ac, 1 A, programmable functions 1 relay with NO/NC contact, 240 V ac, 1 A, programmable functions
	Analog	1 analog output 0 to 10 V or 0/4 to 20 mA configurable by software
HMI (Human Machine Interface)	Standard HMI IHM Bluetooth® (accessory)	12 keys: run/stop, forward/reverse, Jog, local/remote, navigation buttons: left, right, up, down, enter, back and help Graphic LCD display Allows monitoring/changing all SSW parameters Possibility of external mounting, panel door USB for firmware updates or communication with the product
PC connection for programming	USB connector in the HMI	USB standard rev. 2.0 (basic speed) Mini B-type USB plug Interconnecting cable: shielded USB cable, standard host/device shielded USB cable

Note: 1) DI1 to DI5 normal, and DI6 can be set to the motor PTC Input or used for digital input. (As thermistor: Actuation: 3.9 k Ω , release: 1.6 k Ω Minimum resistance 100 Ω .)

Standards

Safety standards	UL508 - industrial control equipment EN 60947-4-2, LVD 2006/95/EC - low-voltage switchgear and controlgear
Electromagnetic compatibility standards	CISPR 11 - industrial, scientific and medical (ISM) radio-frequency equipment - electromagnetic disturbance characteristics - limits and methods of measurement EN 61000-4-2 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 2: electrostatic discharge immunity test EN 61000-4-3 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 3: radiated, radio-frequency, electromagnetic field immunity test EN 61000-4-4 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 4: electrical fast transient/burst immunity test EN 61000-4-5 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 5: surge immunity test EN 61000-4-6 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 6: immunity to conducted disturbances, induced by radio-frequency fields EN 61000-4-11 - electromagnetic compatibility (EMC) - part 4: testing and measurement techniques - section 11: voltage dips, short interruptions and voltage variations immunity tests
Mechanical construction standards	EN 60529 - degrees of protection provided by enclosures (IP code) UL50 - enclosures for electrical equipment IEC 60721-3-3 - classification of environmental conditions

Block diagram





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