Built-in motor, switch and By-pass protection

Total control on the three phases

Higher starting cycles

Soft-Starter

SSW 07

SOFT-STARTER

WEG

SSW07
SOFT-STARTER

Soft-Starters are static starting switches, designed for the acceleration, deceleration and protection of three-phase, electric, induction motor, through the control of the voltage applied to the motor.

The **SSW-07,** with DSP control (Digital Signal Processor) was designed to provide great performance at motor starts and stops with excellent cost-benefit relation. Easy to set up, it simplifies start-up activities and daily operation.

The **SSW-07** is compact, contributing to optimize space in electric panels.

The **SSW-07** already incorporates all electric motor protections.

The **SSW-07** adapts to customer needs through its easy-to-install optional accessories. Thus, a keypad, a communication interface or a motor PTC input can be added to the product.

Benefits

• Strong reduction on mechanical stresses over the coupling and transmission devices (gearboxes, pulleys, gears, conveyers, etc) during the start;

• Eliminates mechanical shocks;

• Increases motor and machine mechanical equipment lifetime due to the elimination of mechanical shocks;

• Easy operation, setup and maintenance;

• Simple electric installation;

• Operates in environments up to 55 °C (without current reduction for all models);

• Integral, electronic motor protection;

• Built-in electronic thermal relay;

• "Kick-Start" function for starting high breakaway torque loads;

• Avoids the "Water Hammer" in pumps;

• Limitation of voltage drop during start;

• Universal voltage (220 to 575 Vac);

• Switched type power supply with EMC filter for the control electronics (110 to 240 Vac);

• Soft-Starter (17 to 200 A) with built-in by-pass providing size reduction and energy saving;

• Voltage monitoring of the electronics makes possible to back-up I x t values (thermal image).
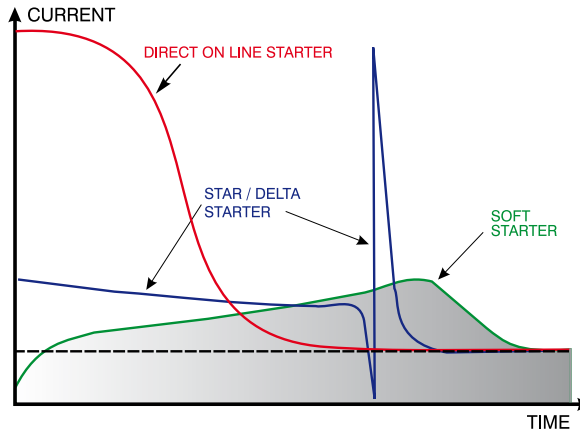
Applications

CHEMICAL AND PETROCHEMICAL	PLASTIC AND RUBBER	PAPER AND PULP
Fans / Exhaust fans	Extruders	Dosing Pumps
Centrifugal Pumps	Injectors / Blowers	Process Pumps
Dosing / Process Pumps	Mixers	Fans / Exhaust fans
Stirrers / Mixers	Rollers / Pullers	Stirrers / Mixers
Compressors	Granulators	Rotating Filters
Soap Extruders		Rotating Ovens
		Wood Chip Conveyers
		Rollers
		Coaters
		Paper Refineries

SUGAR AND ALCOHOL	BEVERAGES	CEMENT AND MINING
Fans / Exhaust fans	Stirrers / Mixers	Dosing/Process Pumps
Process Pumps	Rollout Tables	Pumps
Conveyers	Conveyers	Sifters (Sievers) / Vibrating Tables
	Bottling Lines	Dynamic Separators
		Dozers

FOOD AND RATION	TEXTILE	METALLURGY
Dosing/Process Pumps	Stirrers / Mixers	Fans / Exhaust fans
Fan / Exhaust fans	Driers / Washers	Conveyers
Stirrers / Mixers		Drills / Grinders
Driers / Continuous Ovens		Wire Drawing
Pelletizers		Pumps
Conveyers / Monorails		

CERAMICS	GLASS	REFRIGERATION
Fans / Exhaust fans	Fans / Exhaust fans	Process Pumps
Driers / Continuous Ovens	Bottle Manufacturing Machine	Fans / Exhaust fans
Balls / Hammer Mills	Rollout Tables	Air Conditioning Systems
Rollout Tables	Conveyers	Screw/Piston Compressors
Conveyers		

WOOD	SANITATION	LOAD TRANSPORTATION
Sanders	Centrifugal Pumps	Conveyers / Belts / Chains
Cutters	Suppression Systems	Rollout Tables
Wood Chippers		Monorails / Hoist
Saws and Planers		Escalators
		Baggage Conveyers (Airports)

Starting method comparison

CURRENT

DIRECT ON LINE STARTER

STAR / DELTA STARTER

SOFT STARTER

TIME

Typical Starters
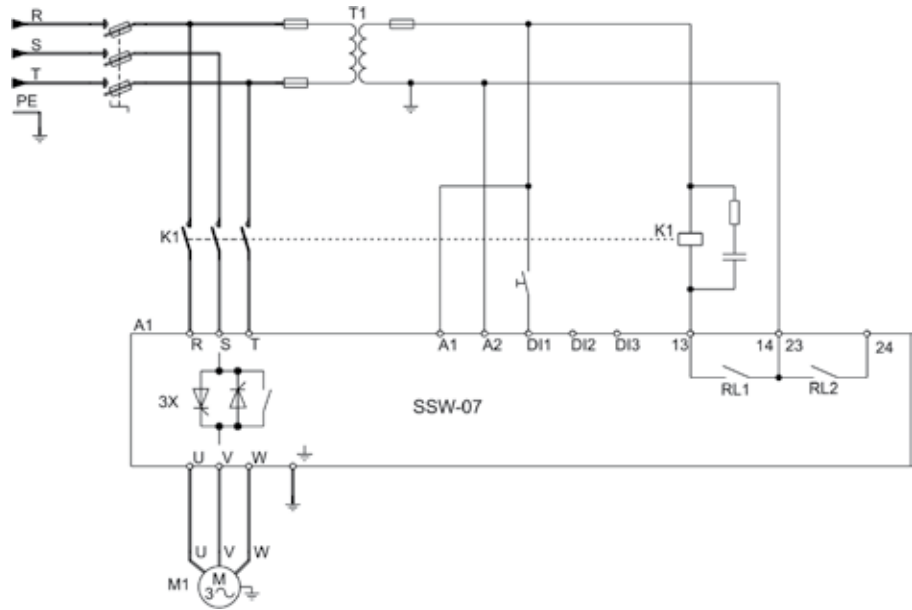
Applications and Indications

Supply input

Setting trimpots

DIP Switch to set and enable the protections

SSW-07 status indication LEDs

DIP Switch for thermal class setting

Lid for optional Plug-ins

Electronics power supply (A1 and A2)

Relay output

Motor On / Off command (DI1 and Reset (DI2 and DI3)

Motor output
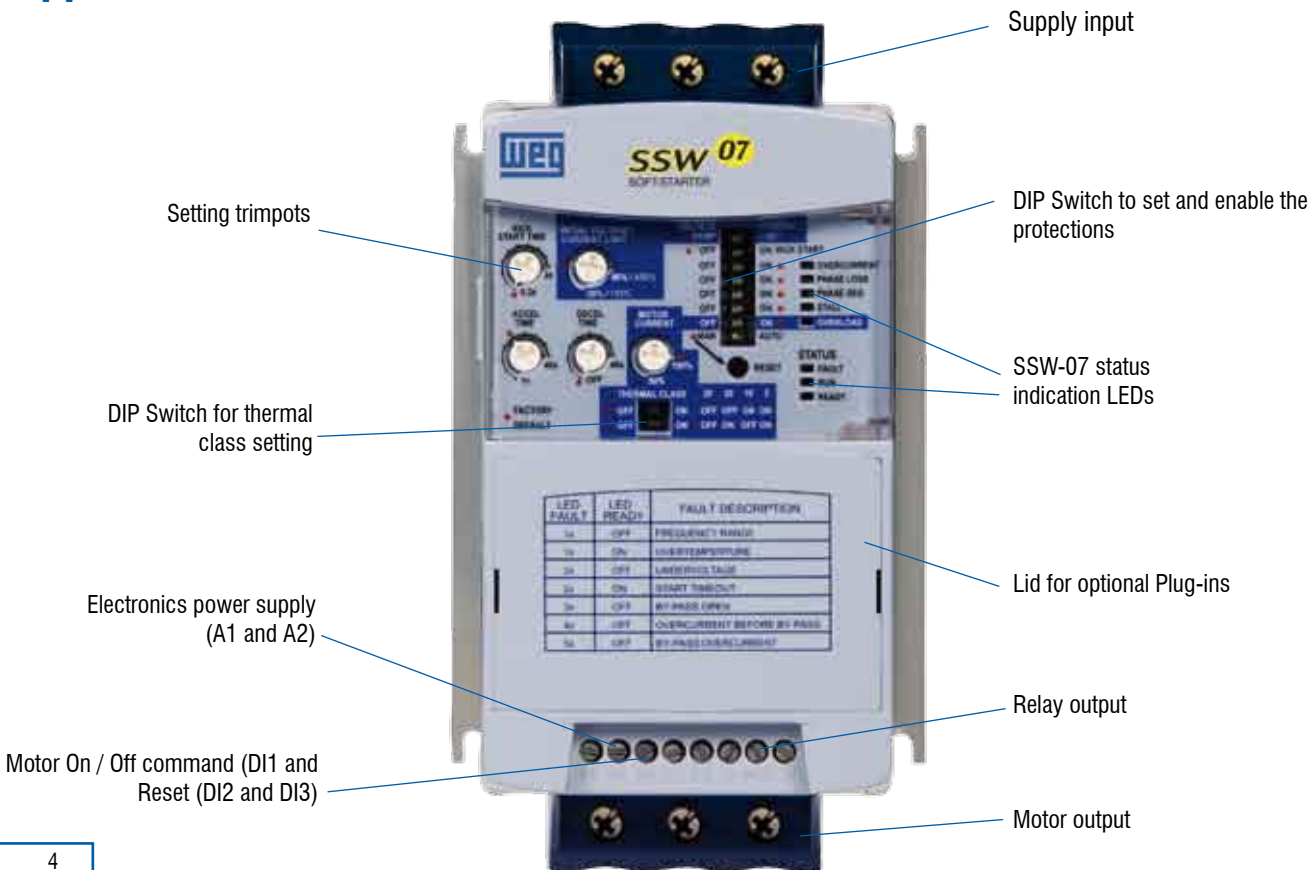
Accessories and Options

The SSW-07 Soft-Starters can be interconnected to quick "FieldBus" communication networks, through Modbus RTU protocol.

Mainly designed to integrate large industrial automation plants, the quick communication networks provide advantages in supervision, monitoring and control, "online" and complete, over the Soft-Starters, providing high performance and great operating flexibility, which characteristics are demanded for complex and/or integrated system applications.

For interconnection in "FieldBus" type communication networks, the SSW-07 Soft-Starters allows the installation of plug-in type optionals on the front of the product. There are optional modules for the Modbus RTU protocol for communication in RS-232 or RS-485.

PLC

"FIELDBUS" NETWORKS
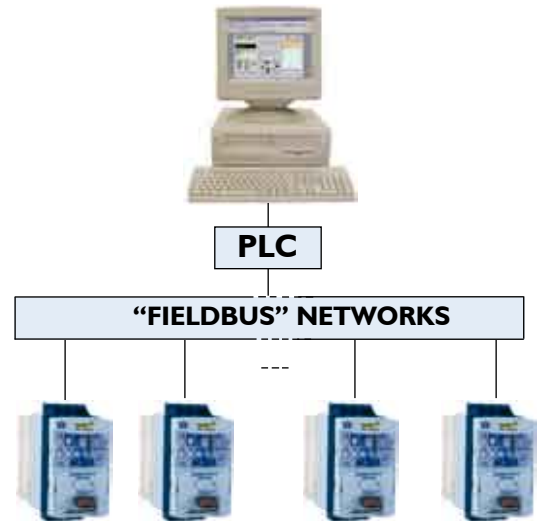
MAN-MACHINE INTERFACE[1] (MMI)

The MMI with 7-segment LED display allows excellent parameter visualization from distance.
The interface also incorporates the "Copy" function, which permits to copy the parameterization from a SSW-07 to other ones, providing fast programming, reliability and repeatability in serial manufacturing machinery.

Local
Plug-in type MMI in front of product.

SSW-07 local MMI

Remote
Remote MMI for placing in panel door or machinery console.

SSW-07 remote MMI

Cable for connecting MMI to SSW-07.
Cable length: 1,2,3,5,7.5 and 10m.

SUPERDRIVE G2

Software in Windows platform, for SSW-07 parameterization, command and monitoring.

- SSW-07 automatic identification.
- Reads SSW-07 parameters.
- Writes parameters in SSW-07.
- Edits online parameters in SSW-07
- Edits offline parameters in PC.
- Enables creation of all application documentation.
- Easily accessible.
- Enables parameterization, command and monitoring of the SSW-07.
- Supplied with a 3m RS-232 serial cable when the Superdrive G2 software is acquired.
- Free version available at WEG's website www.weg.net

[1] Optional accessory

ACCESSORIES AND OPTIONS

Modbus RTU – RS-232
Optional Plug-in type module for Mobus RTU communication in RS-232

Modbus RTU – RS-485
Optional Plug-in type module for Mobus RTU communication in RS-485

IP20 Kit
For models from 130 A to 200 A
This Kit guarantees protection against contact with energized parts.

Cable for connecting RS-232
Cable length in 3 and 10m

Communication modules
DeviceNet via gateway MFW-01/DN or Profibus-DP via gateway MFW-01/PD.

Motor PTC
Optional module for motor PTC connection.

Ventilation kit
For models from 45 A to 200 A
A ventilation kit is necessary for heavy duty starting cycle.

PROGRAMMING FEATURES

All programming necessary for starting any type of load is available through trimpots and dip-switch.

- ## Voltage ramp

  Permits smooth acceleration and/or deceleration, through voltage ramps.

- ## Current limit

  Permits to set the current limit during the start, according to the application requirints.

VOLTAGE KICK START

Enables an initial voltage pulse which, applied to the motor, provides initial starting torque reinforcement. This is necessary for starting high breakway torque loads.

BUILT-IN BY-PASS

Built-in by-pass minimizes power losses and heat dissipation in the thyristors, providing size reduction and contributing to energy saving. This is available in all models.
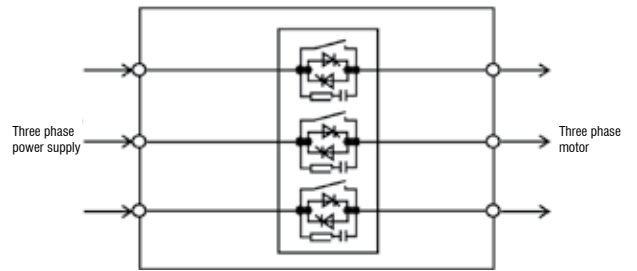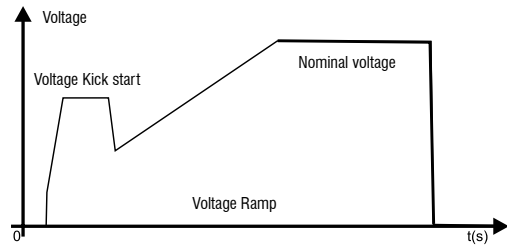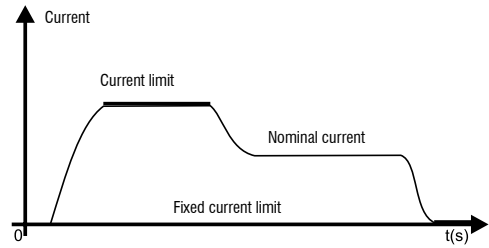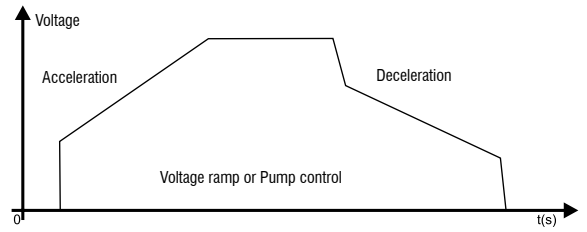
Dimensions and weights

SSW-07 Model	Height H mm (In)	Width L mm (In)	Depth. P mm (In)	A mm (In)	B mm (In)	C mm (In)	D mm (In)	Fixing screw	Weight kg (lb)	Enclosure
SSW070017 SSW070024 SSW070030	162 (6.38)	95 (3.74)	157 (6.18)	85 (3.35)	120 (4.72)	5 (0.20)	4 (0.16)	M4	1.3 (2.9)	IP20
SSW070045 SSW070061 SSW070085	208 (8.19)	144 (5.67)	203 (7.99)	132 (5.2)	148 (5.83)	6 (0.24)	3.4 (0.13)	M4	3.3 (7.28)	IP20
SSW070130 SSW070171 SSW070200	276 (10.9)	223 (8.78)	220 (8.66)	208 (8.19)	210 (8.27)	7.5 (0.3)	5 (0.2)	M5	7.6 16.8)	IP00*

Table 3.1 Data for installation with dimensions in mm (in)
*Option for IP20 Kit
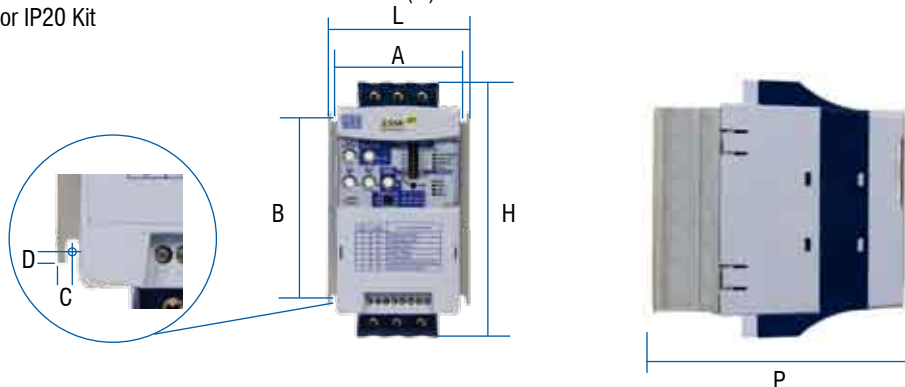
Technical Characteristics

SSW 07 SOFT-STARTER

Power Supply	Power	220 to 575 Vac	
	Control	110 to 240 Vca (-15% to +10%), or 94 to 264 Vac	
	Frequency	50 to 60 Hz (+/- 10%), or 45 to 66 Hz	
Enclosure	Injected plastic	IP20 in models from 17 to 85 A	
		IP00 in models from 130 to 200 A (IP20 as option)	
Control	Control Method	Voltage variation over the load (three-phase induction motor)	
	CPU	DSP type microcontroller (Digital Signal Processor)	
	Types of Control	Voltage ramp	
		Current limitation	
Starting Cycle (1)	Normal	300% (3 x Inom.) during 30 s, 10 starts per hour (every 6 minutes)	
Inputs	Digital	3 isolated programmable inputs	
Outputs	Relay	02 relays with NO contacts, 240Vac, 1A, programmable functions	
Safety	Protections (Standard)	Overcurrent;	Locked Rotor
		Overcurrent before By-pass	Excess starting time
		Phase loss;	Frequency outside tolerance
		Inverted phase sequence;	By-pass contact open
		Overtemperature in power heatsink;	Undervoltage in control supply
		Motor Overload (class 5 to 30)	
	Protections (with Accessory)	Undercurrent	Programming error
		Current imbalance	Serial communication error
		Subcurrent before By-pass	MMI communication error
		External defects	Overtemperature in motor PTC
Functions / Resources	Standard	Voltage ramp (Initial voltage: 30% to 90%)	
		Current limitation (150% to 450% of SSW-07 rated current)	
		Starting time (1 to 40s)	
		Kick Start (Off - 0,2 to 2s)	
		Deceleration ramp (0 to 40s)	
		Motor and SSW-07 current relation (50% to 100%)	
		Faults auto-reset	
		Thermal memory auto-reset	
		Factory standard reset	
		Soft-starter built-in By-pass	
Programming Accessory (MMI or Serial communication)	Command	On, Off / Reset and Parameterization (function Programming)	
	Additional Functions / Resources	Starting time up to 240s	
		Deceleration time up to 240s	
		Program enabling password	
		Selection for Local / Remote operation	
		COPY function (SSW-07 >>> MMI and MMI >>> SSW-07)	
		Programmable rated voltage	
	Supervision (Reading)	Motor current (%Soft-Starter In)	
		Motor current (%motor In)	
		Motor current (A)	
		Current indication in each phase R-S-T	
		Supply network frequency	
		Apparent power supplied to load (kVA)	
		Soft-Starter status	
		Digital input and output status	
		Back up of 4 last errors	
		Soft-Starter Software Version	
		Heatsink temperature	
		Motor thermal protection status	
Accessories and Options	Options	Plug-in type local MMI	
		MMI remote Kit	
		1,2,3,5,7.5 and 10m for remote MMI interconnection	
		RS-232 communication kit	
		SSW-07 interconnection cables>>> PC Serial (RS-232) 3 and 10m	
		RS-485 communication kit	
		Motor PTC kit	
		Ventilation kit for size 2 (45 to 85 A)	
		Ventilation kit for size 3 (130 to 200 A)	
		IP20 kit for size 3 (130 to 200 A)	
Finishing	Color	Lid: Gray Ultra Mat	
		Cabinet: Blue Ultra Mat	
Conformities / Standards	Safety	UL 508 Standard- Industrial Control Equipment	
	Low voltage	EN60947-4-2;LVD 2006/95/EC Standard – Low voltage Directive	
	EMC	EMC 89/336/EEC Directive – Industrial Environment	
	UL (USA) / cUL (Canada)	Underwriters Laboratories Inc. – USA	
	CE (Europe)	Conformity test conducted by EPCOS	
	C-Tick (Australia)	Australian Communication Authority	
	GOST (Russia)		

(1) For the 45 to 200 A currents using the ventilation kit.

WEG

Specification table

Model	SSW-07 rated current	Voltage	Power	
SSW07	(A)	(V)	(HP)	(kW)
SSW070017	17		6	4.5
SSW070024	24		7.5	5.5
SSW070030	30		10	7.5
SSW070045	45		15	11
SSW070061	61	220	20	15
SSW070085	85		30	22
SSW070130	130		50	37
SSW070171	171		60	45
SSW070200	200		75	55
SSW070017	17		10	7.5
SSW070024	24		15	11
SSW070030	30		15	11
SSW070045	45		30	22
SSW070061	61	380	40	30
SSW070085	85		60	40
SSW070130	130		75	56
SSW070171	171		125	90
SSW070200	200		125	90
SSW070017	17		12.5	9.2
SSW070024	24		15	11
SSW070030	30		20	15
SSW070045	45		30	22
SSW070061	61	440	50	37
SSW070085	85		60	45
SSW070130	130		100	75
SSW070171	171		125	90
SSW070200	200		150	110
SSW070017	17		15	11
SSW070024	24		20	15
SSW070030	30		30	22
SSW070045	45		40	30
SSW070061	61	575	60	45
SSW070085	85		75	55
SSW070130	130		125	90
SSW070171	171		175	132
SSW070200	200		200	150

NOTES: The above maximum motor powers, were calculated based on WEG models, 4 poles, IP55, standard, 55ºC ambient temperature.

Codification

EX SSW07 0017 T 5 S __ __ __ Z
1   2   3   4 5 6   7   8   9 10

1 - Market / Manual: EX= Export/English, Spanish and Portuguese

2 - WEG SSW-07 Series Soft-Starter

3 - Soft-Starter rated output current

4 - Soft-Starter input supply: T= Three-phase

5 – Supply voltage: 5 = 220 to 575 V range

6 – Product version: S = Standard O = with Options

7 – Enclosure: Blank = Standard IP = IP20 for models
    from 130 A to 200 A

8 - Special Hardware: Blank = Standard

9 - Special Software: Blank = Standard

10 - End of code: Z = End of product code indicator digit.