

Quick Start Guide

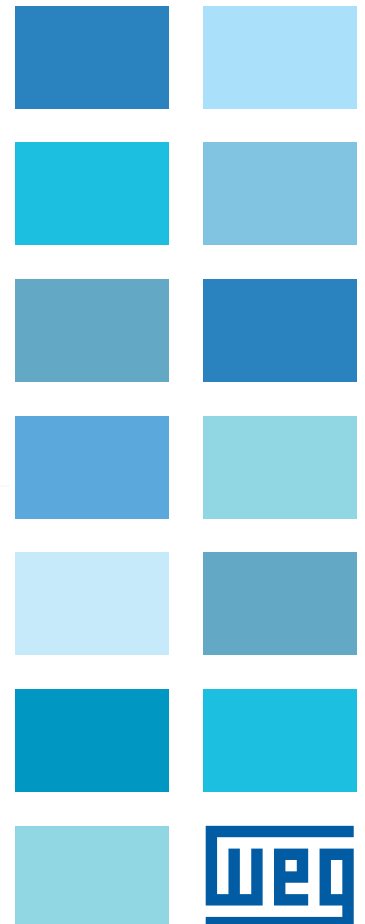
SSW03

- 50 to 400HP (120 to 950A) 230V
- 100 to 800HP (120 to 950A) 460V
- 125 to 1000HP (120 to 950A) 575V



SSW 03

QS004SSW03



Power Connections and Keypad Operation:

The SSW03 Quick Start Guide is a supplement to help get the SSW03 started quickly using the most common installation and configuration options. This SSW03 Quick Start Guide is not meant to replace the SSW03 User's Manual. For detailed instructions, safety precautions, proper mounting, installation, configuration, and operation please refer to the SSW03 User's Guide. **Warning:** Only qualified personnel should plan or implement the installation, start-up, operation and maintenance of this equipment. Personnel must read the entire SSW03 User's Guide before attempting to install, operate or troubleshoot the SSW03.

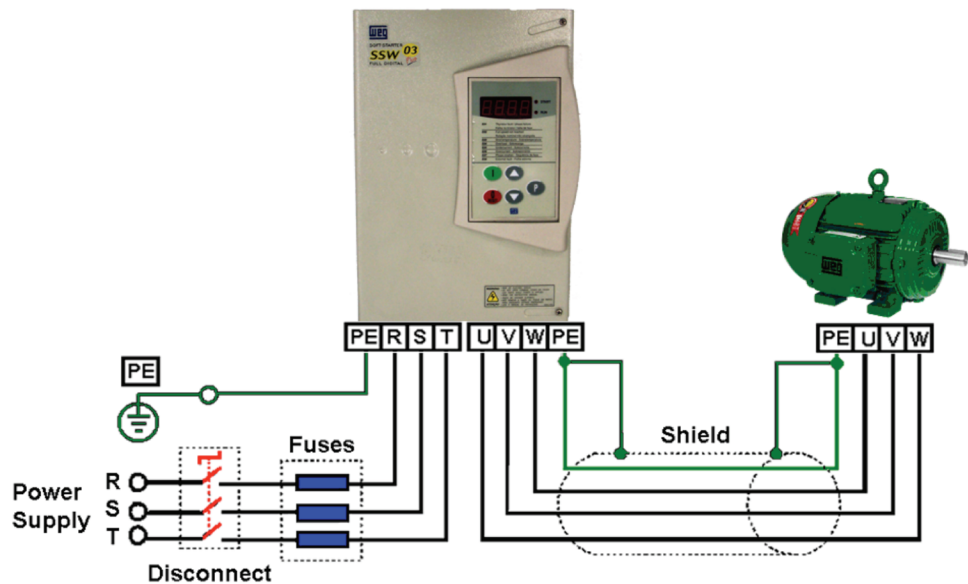


Figure 1 - Power and Grounding Connections

LED Display – indicates fault codes, Soft Starter status, parameter number and value.

| Key | Description |
|-----|--|
| | Switches the display between parameter number and content. |
| | Increases Parameter number/content. |
| | Decreases Parameter number/content. |
| | Starts (Enable) the motor. |
| | Stops (Disables) the motor. Also resets the Soft Starter after a fault has occurred. |

Figure 2 – Keypad Operation

| Display | Display Description |
|---------|-------------------------------------|
| rdy | Soft Starter is ready to be enabled |
| Pup | Loading pump control parameters |
| EEP | Loading "Default" values |
| on | Function enabled |
| oFF | Function disabled |

Basic Wiring:

- 1. Mount the SSW03 to a flat vertical surface.
- 2. For three-phase input power connect the incoming power leads to the R, S, and T connections on the power terminal and connect the GROUND lead to PE on the chassis (Refer to Figure 1). Connect the motor leads to the U, V, and W connections on the power terminal and connect the GROUND lead to PE on the chassis (Refer to Figure 1). **Note:** Only three-phase AC motors can be used.
- 3. Connect the control power leads to the connector X1-1, 2, and 3 (PE). Select the power supply voltage by connecting the wire with the fast-on terminal from X9 to either X10 (110/120V or X11 (220/230V) located on the control board. (See Figure 3 and 4).
- 4. Apply power to the SSW03 soft starter and proceed to “Initial Start-up”. The Soft Starter will display “rdy” (ready to be operated) on the LED display.

Note: When the Soft Starter is powered up for the first time or when the factory default parameter values are loaded (P46 = on), the soft starter is ready to be commissioning.

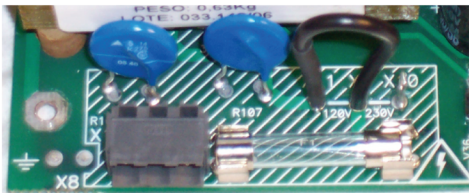


Figure 3 – 110/120V (X11-X9)

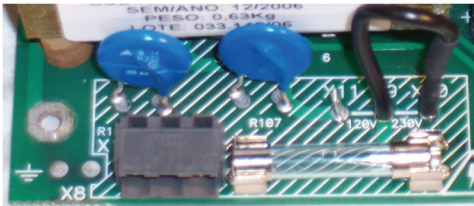


Figure 4 – 220/230V (X10-X9)

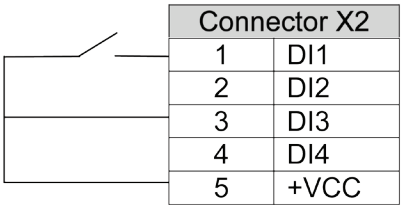


Figure 5 – 2 Wire Start/Stop

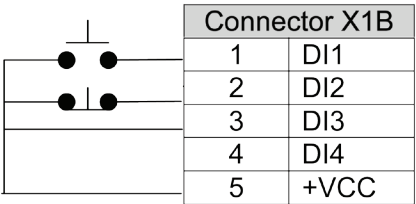


Figure 6 - 3 Wire Start/Stop

Signal and Control Connections:

| X2 Connector | |
|--------------|--------|
| 1 | DI1 |
| 2 | DI2 |
| 3 | DI3 |
| 4 | DI4 |
| 5 | 24Vdc |
| 6 | AI+ |
| 7 | AI- |
| 8 | AO |
| 9 | AO |
| 10 | RL1/NO |
| 11 | RL1/NC |
| 12 | RL2/NO |
| 13 | RL2/NC |
| 14 | RL3/NC |
| 15 | RL3/NO |
| 16 | RL3 |

Figure 7 - Commissioning and Operation Using the Local Mode



































| Action | LED Display | Description |
|---|---|--|
| After power-up, the display shows the following message. |  | Soft Starter powered-up. |
| Press  "Start" |  | Motor begins to accelerate. |
| |  | After starting time has reached P02. P72 (% of motor current) |
| Press  "Stop" |  | The motor decelerates until stopping by coast to rest. |
| |  | Soft Starter is turned off in "RDY" condition. |

Figure 8 - Commissioning and Operation Using the Remote Mode

| Action | LED Display | Description |
|---|---|---|
| After power-up, the display shows the following message. |  | Soft Starter powered-up. |
| Press  |  | |
| Press  |  | It permits changing of the parameters. |
| Press  |  | |
| Press  |  | It enables to change the parameters. |
| Press  |  | |
| Press  |  | To program operation using the terminals. |
| Press  |  | |
| Press  |  | |
| Press  |  | |
| Press  |  | Reading parameter of the current in percentage (%In). |
| Press  |  | Soft Starter ready to be operated. |
| Close the Start switch |  | Motor starts |
| |  | After starting time has reached P02. |
| Open the Stop switch |  | Switching Off by deceleration provided P04 is to value other than "Off" |
| |  | Soft Starter is turned off in "RDY" condition. |



Fault Codes:

When a fault is detected, the soft starter is disabled and the Fault Code is displayed (example E03). To restart the soft starter after a fault has occurred, the soft starter must be reset. Resetting the soft starter can be done by disconnecting and reapplying AC power (power-on reset), by pressing the "O/RESET" key (manual reset), automatic reset, or via digital inputs. For details on Reset and a full list and description of Fault Codes please read Chapter 7 in the SSW03 User's Guide.

Parameters Example:

Minimum Parameters to be set:

P21 – Motor Current Setting
P25 – Thermal Classes of the Overload Protection
P26 – Motor Service Factor

P21 – Motor Current Setting (%I_N Of the Switch)

Set the motor current value percentage relating to rated switch current.

How to set P21

Standard connection

- I_N of the switch = 170A
- I_N of the motor = 140A
- I_N of the motor / I_N of the switch = 140A / 170A = 0.823
- P21 = 82.3%

Note: These are the minimum parameters for a perfect adaptation between soft starter and motor.

For a complete description of Parameters and Error codes refer to Chapters 6 and 7 in the SSW03 User's Guide.

Motor Data (Example)

Power: 75 HP
Rated Speed: 1770 RPM
Rated Current: 140A
Rated Voltage: 380 V
Service Factor: 1.15

Please read the SSW03 User's Guide for additional information.



Soft Starters

SSW03

Technical Data

| | | | |
|---|---------------------------|--|---|
| POWER SUPPLY | Voltage | Model D: 220 / 230 / 240 / 380 / 400 / 415 / 440 V (+ 10 % , - 15 %) Model G: 460 / 480 / 575 V (+ 10 % , - 15 %) | |
| | Frequency | 50 / 60 Hz +/- 5 Hz (45 ... 65 Hz) | |
| | Control Voltage | 120 VAC | |
| ENCLOSURE | Metallic Cabinet | IP 00 | |
| | Color | Cover: Opaque Gray, Cabinet: Opaque Blue | |
| CONTROL | Method | Motor Voltage Variation | |
| | Power Supply | Switched Mode Power Supply | |
| | CPU | 16 Bit Microprocessor | |
| STARTING DUTY CYCLE (10 Starts / Hr) | | 300 % (3 x Rated Current) for 30 sec (10 Starts/hour) | |
| INPUTS | Digital | 4 x 24VDC Programmable Isolated Inputs | |
| OUTPUTS | Relay | 2 programmable Outputs: 250 V / 1 A Form A Contact (NO) | |
| | Analog | 1 Output (Reversing (NO + NC) : 250 V / 1 A – Fault Indication | |
| COMMUNICATION | Serial Interface | RS-232 | |
| SAFETY | Protections | Power supply phase loss | Programming Error |
| | | Motor Phase Loss | Motor locked rotor |
| | | Motor Overload - I _{2t} | CPU Error (Watchdog) |
| | | External Fault | Motor Immediate Over Current |
| | | Phase Sequence | Motor Over Temperature (via Thermistor input) |
| | | Motor Immediate Under Current | Self Diagnosis Error |
| | | Thyristor Fault | Thyristor's / Heatsink Over Temperature |
| | | Serial Communication Error | |
| FUNCTIONS / FEATURES | Standard | Built-in Operator Interface (keypad) Detachable – 7 Segment LED Display | |
| | | Programming Enabling Password | |
| | | Fault Auto-Diagnosis | |
| | | PUMP CONTROL Feature (Water Hammer Protection for Pumps) | |
| | | ENERGY SAVING Feature | |
| | | BY-PASS Relay | |
| | | FWD / REV Feature via Digital Input (Needs External Contactor) | |
| | | RS-232 Serial Interface | |
| | | Motor PTC thermistor input | |
| | | Programmable Pedestal Voltage | 25 ... 90% of Rated Voltage |
| | | Programmable Acceleration Ramp | 1 ... 240 seconds |
| | | Programmable Deceleration Ramp | OFF, 2 ... 240 seconds |
| | | Programmable Step Down Voltage for Deceleration | 100 ... 40 % of Rated Voltage |
| | | Programmable Starting Current Limit | OFF, 150 ... 500 % of Rated Current |
| | | Programmable Immediate Motor Over Current Level | 105 ... 200 % of Rated Current |
| | | Programmable Immediate Over Current Time | OFF, 1 ... 20 seconds |
| | | Programmable Immediate Motor Under Current Level | 25 ... 95 % of Rated Current |
| | | Programmable Immediate Under Current Time | OFF, 1 ... 30 seconds |
| | | Kick Start | Level : 70 ... 90 % of Rated Voltage Duration: 0.1 ... 2 seconds |
| | | DC Braking (DC Current Injection) | Level : 30 ... 50 % of Rated Voltage Duration: 1 ... 10 seconds |
| | | Programmable Motor Overload Protection | OFF, 50 ... 120 % of Rated Current |
| | | JOG Function | 25 ... 50 % of Rated Voltage |
| | | Programmable Fault Auto Reset | OFF, 10 ... 600 seconds |
| | | Programmable Motor Thermal Memory Auto-Reset | OFF, 1 ... 600 seconds |
| | | Motor Thermal Overload Protection Class | 5, 10, 15, 20, 25 and 30 |
| | | Motor Service Factor | 0.80 ... 1.50 |
| | | Programmable Line Voltage | 220 ... 440 V and 460 ... 575 V |
| | Optional | Remote Operator Interface (LED's) | |
| | | | |
| OPERATOR INTERFACE (Keypad) | Programming / Commands | Start, Stop / Reset and Programming Increment and Decrement Parameters Content | |
| | | | |
| | Display Readings | Output Current (Motor) – [A] | Output Voltage – [0...100 % Rated Voltage] |
| | | Output Current (Motor) – [% of Rated] | Motor Output Factor – [0.00 ... 0.99] |
| | | Load Active Power – [kW] | 4 Last Faults Back-up |
| | | Load Apparent Power – [kVA] | Soft Starter Software Version |
| AMBIENT | Temperature | 0 ... 40 °C (32 ... 104 °F) 40 ... 55 °C (104 ... 131 °F) | Standard Operation at Rated Current With Output Current Derating |
| | Humidity | 0 ... 90 % , Non Condensing | |
| | Altitude | 0 ... 1000 m (3,300 ft) Standard Operation at Rated Current Up to 4000 m (13,200 ft) – With Current Derating (1%/100 m(328 ft) above 1000 m (13,200 ft)) | |
| | Color | Cover: Light Grey RAL 7032 | Cabinet: Dark Grey RAL 7022 |
| | | | |
| FINISHING | | | |
| CONFORMITIES | Safety | UL 508 Standard – Industrial Control Equipment | |
| | Low Voltage | EN 60947-4-2 Standard ; LVD 73 / 23 / EEC – Low Voltage Directive | |
| | EMC | EMC Directive 89 / 336 / EEC – Industrial Environment With Additional Filter | |
| CERTIFICATIONS | UL(USA)/cUL(Canada) | Underwriters Laboratories Inc. – USA (models 1100 and 1400 pending) | |
| | CE (Europe) | Certified by ITS – UK (models 1100 and 1400 pending) | |



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