Installation Leaflet **IL03900005E**

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# Instructions for S811+ Soft Starter, S811+N... and S811+R...

## ⚠ DANGER HIGH VOLTAGE

**MAKE SURE ALL POWER IS OFF BEFORE WIRING. FAILURE TO DO SO WILL RESULT IN PERSONAL INJURY, DEATH OR SUBSTANTIAL PROPERTY DAMAGE.**

The Soft Starter features an electronic motor overload protection feature. This protects the motor and power wiring against overheating caused by excessive current for extended periods of time.

**Note:** Short circuit protection must be applied on the line side of the soft starter.

Entering the motor full load current rating, using the Mtr Nameplate FLA parameter programs trip current. It is programmable in amps from 32% - 100% of the unit's rated current.

**Table 1. Overload - Adjustment Settings**

| Catalog Number | Current Range |
|---|---|
| S811+N37... | 11 - 37 |
| S811+N66... | 20 - 66 |
| S811+R10... | 32 - 105 |
| S811+R13... | 42 - 135 |

**Notes:** Mtr Nameplate FLA parameter is settable to any point within its range.

The thermal overload is designed to protect the motor from heating caused by drawing too much current. If the motor is overloaded, the current drawn rises and heats the motor. The Mtr Nameplate FLA sets the trip threshold and the trip class (5 to 30) is set with the Overload Trip Class parameter.

### IMPORTANT: Note the following items before you begin.

1. P and Hand inputs must be energized (24V DC) to enable starting of the soft starter from the terminal block.
2. To Start: Apply 24V DC to Input 1 while the P input is energized.
3. To initiate a stop, remove the P input.
4. For 2-wire control, jumper P and Input 1 together.
5. **After an Overload Trip, the S811+ Soft Starter cannot be restarted until the prescribed cool-down time has elapsed.** Cycling power does not reset the timers. If 24V DC power is removed, the soft starters will remember the remaining time and will resume the cool-down timing when power is again reapplied.
6. When the S811+ goes into bypass, a sound similar to contactor chatter can be heard. This sound is the result of multiple contactors closing one after the other in a very short period. It is normal operation intended to reduce the surge current requirements of your power supply.

### Initial Configuration

1. Before applying the Line voltage, apply 24V DC to the + and - connections of the S811+'s terminal block. "**Eaton**" will be displayed by the DIM while the S811+ is powering up. When power-up is complete the DIM should be displaying "**3 Ø Line Currents**".
2. Using the DIM, review the parameter settings in the "Soft Start Config" and "Protections" menus. The following setup procedures will use the factory default settings unless changed by you.
3. In the Soft Start Config menu, set the Mtr Nameplate FLA parameter to the motor's nameplate rated current. This setting assumes the motor has a 1.15 Service Factor.
4. Set *Overload Trip Class* parameter for the desired overload trip characteristic (curve).
5. In the Protections menu set the Motor Rated Volt parameter to the motor's operating voltage.
6. If auto fault reset is required, set the Reset Mode parameter to Auto (and start Control to Level- default). **Note:** Auto Reset is intended for unattended installations where there is no danger to personnel or other equipment when the motor starts without warning. If Auto Reset is enabled, **CAUTION must be exercised to assure that any restart occurs in a safe manner.**
7. Apply the Main voltage and verify that no fault is present. If a fault is indicated, display the Motor Control menu's Active Faults parameter to determine the source of the fault.
   - A Phase Reversal Fault can be remedied by either changing the Phase Sequence parameter from ABC to ACB or removing Mains power and switching the incoming line connections at L1 and L2 of the S811+.
8. Using the S811+ Jog Input, jog the motor just enough to verify that the direction of rotation is correct.
9. The S811+ should now function properly for most applications. Adjust other parameters as necessary to meet your application needs.

**Table 2. Line and Load Power Wiring**

| Lug Kit | Number of Conductors | Lug Type | Wire Sizes Cu 75°C Only | Torque Req. |
|---|---|---|---|---|
| **S811+N...** | | | | |
| Supplied Standard with Box Lugs | 1 | Box Lug | 2 AWG | 50 Lb-in (5.6 N-m) |
| | | | 4 - 6 AWG | 45 Lb-in (5.0 N-m) |
| | | | 8 AWG | 40 Lb-in (4.5 N-m) |
| | | | 10 - 14 AWG | 35 Lb-in (4.0 N-m) |
| **S811+R...** | | | | |
| Supplied Standard with Box Lugs | 1 | Box Lug | 14 - 8 AWG (2.5 - 10 mm²) | 90 - 100 Lb-in (10.1 - 11.3 N-m) |
| | | | 6 - 4 AWG (16 - 25 mm²) | |
| | | | 3 - 3/0 AWG (27 - 95 mm²) | |

**Table 3. Control Wiring**

| Wire Size | Number of Conductors | Torque Req. |
|---|---|---|
| 22 - 14 AWG (0.33 - 2.5 mm²) | 2 | 3.5 Lb-in (0.4 N-m) |
| 12 AWG (4.0 mm²) | 1 | |

**Table 4. Short Circuit Rating**

| Soft Starter Catalog Number | Three-Phase Short Circuit Rating | | |
|---|---|---|---|
| | 240V | 480V | 600V |
| S811+N... | 10 kA | 10 kA | 10 kA |
| S811+R... | 10 kA | 10 kA | 10 kA |

Suitable for use in a circuit capable of delivering not more than 30,000 rms symmetrical amperes, 600 volts maximum when protected by Class L fuses or inverse time circuit breaker rated 600V, 1500 amperes, maximum.

**Table 5. MOV Kit Options**

| Catalog Number | Description |
|---|---|
| EMS39<br>EMS41 | 600V (max) MOV for S811+... Soft Starters<br>690V (max) MOV for S811+... Soft Starters |

**Note:** LOAD WIRES MUST BE 75° C STRANDED COPPER CONDUCTORS ONLY WHEN USING THE PROTECTIVE MODULE **[EMS39]**

**Table 6. 24V Power Supply Kits**

| Catalog Number | Steady State Wattage | Inrush Wattage | Input Voltage |
|---|---|---|---|
| PSG240E<br>PSG240F | 240W<br>240W | 360W<br>360W | 85 - 264 VAC<br>320 - 575 VAC |

**Table 7. Control Circuit Fuseholder Kit**

| Catalog Number | Fuse Type |
|---|---|
| C320FBR | Class CC |

**Note:** The ground-fault protection system shall be performance tested when first installed on site. The test shall be conducted in accordance with instructions that shall be provided with the equipment. A written record of this test shall be made and shall be available to the authority having jurisdiction.

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