# DATASHEET - S811+V50P3S

**Soft starter, 500 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size V**

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| **Part no.** | **S811+V50P3S 169000** |
| **EL Number (Norway)** | **4137484** |

## General specifications

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| Product name | Eaton S811 Soft starter |
| Part no. | S811+V50P3S |
| EAN | 4015081654949 |
| Product Length/Depth | 187.8 millimetre |
| Product height | 420.8 millimetre |
| Product width | 280.6 millimetre |
| Product weight | 41.4 kilogram |
| Certifications | UL File No.: E202571<br>C-Tick<br>UL Category Control No.: NMFT<br>CSA-C22.2 No. 14<br>GB14048<br>CSA<br>CSA Class No.: 3211-06<br>UL 508<br>CCC<br>CSA File No.: LR 353<br>IEC/EN 60947-4-2<br>CE<br>CSA22.2-14-1995<br>UL |
| Product Tradename | S811 |
| Product Type | Soft starter |
| Product Sub Type | None |

## Features & Functions

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| Fault memory | 10 Faults |
| Fitted with: | Display<br>Internal bypass<br>Internal bypass contacts<br>Motor overload protection |
| Functions | Suppression of closing transients<br>Min. ramp time 1 s - fast switching (semiconductor contactor)<br>Potential isolation between power and control sections<br>Suppression of DC components for motors<br>Overload monitoring<br>Single direction<br>Underload monitoring<br>Soft start function<br>Current limitation |
| Interfaces | Modbus RTU (built-in) |

## General information

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| Class | Adjustable |
| Connection to SmartWire-DT | No |
| Degree of protection | NEMA Other<br>IP00 |
| Frame size | V |
| Mains voltage - min | 200 V |
| Mains voltage - max | 600 V |
| Mounting position | As required |
| Overvoltage category | II |
| Pollution degree | 3 |
| Radio interference class | Class A (EN 55011) |
| Rated impulse withstand voltage (Uimp) | 4000 V |
| Rated insulation voltage (Ui) | 660 V |
| Shock resistance | 15 g, Mechanical |
| Startup class | CLASS 30 (6 x I# for 30 s)<br>CLASS 10 (star-delta replacement) |

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| | CLASS 20 (heavy starting duty 3 x I# for 45 s) |
| Suitable for | Branch circuits, not as BCPD, (UL/CSA) |
| Type | Soft starter for three-phase loads, with control unit and pump algorithm |
| Voltage type | DC |
| **Climatic environmental conditions** | |
| Altitude | Max. 2000 m<br>Above 2000 m with 0.5 % derating per 100 m |
| Ambient operating temperature - min | -30 °C |
| Ambient operating temperature - max | 50 °C |
| Ambient storage temperature - min | -50 °C |
| Ambient storage temperature - max | 70 °C |
| Climatic proofing | Damp heat, cyclic, to IEC 60068-2-30<br>Damp heat, constant, to IEC 60068-2-3 |
| **Main conducting paths** | |
| Overload cycle | AC-53a: 4.0 - 32: 99 - 3 |
| Rated operational current (Ie) at AC-53 | 500 A |
| Rated operational current (Ie) at AC-53, in-delta | 865 A |
| Rated operational voltage (Ue) - min | 200 V |
| Rated operational voltage (Ue) - max | 600 V |
| Short-circuit protection rating | NZMN3-S500, Type “1” coordination, Main conducting paths |
| Supply frequency | 50/60 Hz, fLN, Main circuit |
| Voltage rating - max | 600 V |
| **Motor rating** | |
| Assigned motor power at 200/208 V, 60 Hz, 3-phase | 150 HP |
| Assigned motor power at 220/230 V, 60 Hz, 3-phase | 200 HP |
| Assigned motor power at 460/480 V, 60 Hz, 3-phase | 400 HP |
| Assigned motor power at 600 V, 60 Hz, 3-phase | 500 HP |
| Assigned motor power in-delta at 220/230 V, 60 Hz | 350 HP |
| Assigned motor power in-delta at 460/480 V, 60 Hz | 750 HP |
| Assigned motor power in-delta at 575/600 V, 60 Hz | 850 HP |
| Rated operational power at 220/230 V, 50 Hz | 160 kW |
| Rated operational power at 400 V, 50 Hz | 250 kW |
| Rated operational power at 500 V, 50 Hz | 315 kW |
| Rated operational power in-delta at 220/230 V, 50 Hz | 200 kW |
| Rated operational power in-delta at 400 V, 50 Hz | 450 kW |
| Rated operational power in-delta at 500 V, 50 Hz | 450 kW |
| **Terminal capacities** | |
| Terminal capacity (flexible with ferrule) | 2 x (120 - 240) $mm^2$, Main cables<br>6 x (120 - 240) $mm^2$, Main cables<br>4 x (70 - 240) $mm^2$, Main cables<br>1 x (2.5 - 4) $mm^2$, Control circuit cables<br>2 x (1 - 2.5) $mm^2$, Control circuit cables |
| Terminal capacity (solid) | 6 x (120 - 240) $mm^2$, Main cables<br>1 x (2.5 - 4) $mm^2$, Control circuit cables<br>4 x (70 - 240) $mm^2$, Main cables<br>2 x (120 - 240) $mm^2$, Main cables<br>2 x (1 - 2.5) $mm^2$, Control circuit cables |
| Terminal capacity (solid/stranded AWG) | 4 x (4 - 500 kcmil), Main cables<br>1 x (14 - 12), Control circuit cables<br>2 x (4 - 500 kcmil), Main cables<br>6 x (4 - 500 kcmil), Main cables<br>2 x (14 - 12), Control circuit cables |
| Terminal capacity (stranded) | 1 x (2.5 - 4) $mm^2$, Control circuit cables<br>4 x (70 - 240) $mm^2$, Main cables<br>6 x (120 - 240) $mm^2$, Main cables<br>2 x (120 - 240) $mm^2$, Main cables<br>2 x (1 - 2.5) $mm^2$, Control circuit cables |
| Screwdriver size | 0.6 x 3.5 mm, Terminal screws, Control circuit cables |
| Tightening torque | 0.4 Nm, Screw terminals, Control circuit cables |
| **Control circuit** | |
| Current consumption | 10 A/150 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC<br>1400 mA, Control circuit, Regulator supply |

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| | 150 mA, Control circuit, Digital inputs, External 24 V<br>100 mA, Control circuit, Digital inputs, External 24 V (no-load) |
| Drop-out time | 100 ms, DC operated |
| Drop-out voltage | 0 - 3 V, DC operated |
| Pick-up time | 100 ms at DC |
| Pick-up voltage | 21.6 - 26.4 V DC |
| Rated control supply voltage (Us) at AC, 50 Hz - min | 0 V |
| Rated control supply voltage (Us) at AC, 50 Hz - max | 0 V |
| Rated control supply voltage (Us) at AC, 60 Hz - min | 0 V |
| Rated control supply voltage (Us) at AC, 60 Hz - max | 0 V |
| Rated control supply voltage (Us) at DC - min | 24 V |
| Rated control supply voltage (Us) at DC - max | 24 V |
| **Input/Output** | |
| Input current | 4 - 20 mA (Analog inputs) |
| Number of inputs | 1 (current input) |
| Number of outputs | 2 Relay Outputs (programmable) |
| Output voltage | 120 V AC/DC (relay outputs) |
| Protection | Finger and back-of-hand proof, Protection against direct contact |
| Rated control voltage (Uc) | 24 V DC (-10 %/+10 %)<br>24 V DC |
| Rated operational current (Ie) at AC-11 | 3 A |
| **Soft start function** | |
| Application | Soft starting of three-phase asynchronous motors<br>3-phase motors: Yes |
| Delay time | 0 - 120 s, Soft start function, Ramp times |
| Kickstart | 100% (Kickstart voltage)<br>Max. 2000 ms (Kickstart Duration) |
| Ramp/run-up time | 360 s |
| Start voltage | Max. 85 %, Soft start function, Start voltage = turn-off voltage |
| **Design verification** | |
| Equipment heat dissipation, current-dependent Pvid | 25 W |
| Heat dissipation capacity Pdiss | 0 W |
| Heat dissipation per pole, current-dependent Pvid | 0 W |
| Rated operational current for specified heat dissipation (In) | 500 A |
| Static heat dissipation, non-current-dependent Pvs | 25 W |
| 10.2.2 Corrosion resistance | Meets the product standard's requirements. |
| 10.2.3.1 Verification of thermal stability of enclosures | Meets the product standard's requirements. |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat | Meets the product standard's requirements. |
| 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects | Meets the product standard's requirements. |
| 10.2.4 Resistance to ultra-violet (UV) radiation | Meets the product standard's requirements. |
| 10.2.5 Lifting | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.6 Mechanical impact | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.7 Inscriptions | Meets the product standard's requirements. |
| 10.3 Degree of protection of assemblies | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.4 Clearances and creepage distances | Meets the product standard's requirements. |
| 10.5 Protection against electric shock | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.6 Incorporation of switching devices and components | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.7 Internal electrical circuits and connections | Is the panel builder's responsibility. |
| 10.8 Connections for external conductors | Is the panel builder's responsibility. |
| 10.9.2 Power-frequency electric strength | Is the panel builder's responsibility. |
| 10.9.3 Impulse withstand voltage | Is the panel builder's responsibility. |
| 10.9.4 Testing of enclosures made of insulating material | Is the panel builder's responsibility. |
| 10.10 Temperature rise | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating | Is the panel builder's responsibility. The specifications for the switchgear must be observed. |
| 10.12 Electromagnetic compatibility | Is the panel builder's responsibility. The specifications for the switchgear must be observed. |

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| 10.13 Mechanical function | | | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed. |

## Technical data ETIM 9.0

Low-voltage industrial components (EG000017) / Soft starter (EC000640)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Semiconductor motor controller or soft starter (ecl@ss13-27-37-09-07 [ACO300016])

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|---|---|---|---|
| Rated operation current Ie at 40 °C Tu | | A | 500 |
| Rated operating voltage Ue | | V | 200 - 600 |
| Rated power three-phase motor, inline, at 230 V | | kW | 160 |
| Rated power three-phase motor, inline, at 400 V | | kW | 250 |
| Rated power three-phase motor, inside delta, at 230 V | | kW | 200 |
| Rated power three-phase motor, inside delta, at 400 V | | kW | 450 |
| Function | | | Single direction |
| Internal bypass | | | Yes |
| With display | | | Yes |
| Torque control | | | No |
| Rated surrounding temperature without derating | | °C | 50 |
| Rated control supply voltage AC 50 Hz | | V | 0 - 0 |
| Rated control supply voltage AC 60 Hz | | V | 0 - 0 |
| Rated control supply voltage DC | | V | 24 - 24 |
| Voltage type for actuating | | | DC |
| Integrated motor overload protection | | | Yes |
| Release class | | | Adjustable |
| Degree of protection (IP) | | | IP00 |
| Degree of protection (NEMA) | | | Other |