

# Specifications

## Eaton 168998

Eaton S811 Soft starter, 420 A, 200 - 690 V AC, Us= 24 V DC, with control unit and pump algorithm, for 690-V grids, Frame size V

### General specifications

<b>PRODUCT NAME</b>	Eaton S811 Soft starter
<b>CATALOG NUMBER</b>	168998
<b>MODEL CODE</b>	S811+V42V3S
<b>EAN</b>	4015081654925
<b>PRODUCT LENGTH/DEPTH</b>	187.8 mm
<b>PRODUCT HEIGHT</b>	420.8 mm
<b>PRODUCT WIDTH</b>	280.6 mm
<b>PRODUCT WEIGHT</b>	41.4 kg
<b>CERTIFICATIONS</b>	CSA CSA22.2-14-1995 UL Category Control No.: NMFT C-Tick CCC UL IEC/EN 60947-4-2 CE GB14048 UL File No.: E202571 UL 508
<b>GLOBAL CATALOG</b>	168998
<b>PRODUCT TYPE</b>	Soft starter



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## Product specifications

<b>TYPE</b>	Soft starter for three-phase loads, with control unit and pump algorithm, for 690-V grids
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF</b>	Does not apply, since the entire switchgear needs to

## Resources

APPLICATION NOTES	<a href="#">eaton-softstarter-s801-to-s811-ap039013-en-us.pdf</a>
BROCHURES	<a href="#">eaton-softstarter-s811-ds7-brochure-br039001en-en-us.pdf</a>
CATALOGS	<a href="#">Product Range Catalog Drives Engineering</a>
DRAWINGS	<a href="#">eaton-semiconductor-contactors-s811-soft-starter-dimensions-005.eps</a> <a href="#">eaton-semiconductor-contactors-s811-soft-starter-3d-drawing-005.eps</a>
ECAD MODEL	<a href="#">DA-CE-ETN.S811_V42V3S</a>
MCAD MODEL	<a href="#">DA-CS-s811_v</a> <a href="#">DA-CD-s811_v</a>

<b>ASSEMBLIES</b>	be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
	Motor overload protection
<b>FITTED WITH:</b>	Internal bypass Internal bypass contacts Display
<b>POLLUTION DEGREE</b>	3
<b>CLASS</b>	Adjustable
<b>CLIMATIC PROOFING</b>	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-3
<b>CONNECTION TO SMARTWIRE-DT</b>	No
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	4000 V
<b>FRAME SIZE</b>	V
<b>ALTITUDE</b>	Above 2000 m with 0.5 % derating per 100 m Max. 2000 m
<b>NUMBER OF INPUTS</b>	1 (current input)
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	50 °C
<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-30 °C
<b>AMBIENT STORAGE TEMPERATURE - MAX</b>	70 °C
<b>AMBIENT STORAGE TEMPERATURE - MIN</b>	-50 °C

<b>ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE</b>	150 HP
<b>ASSIGNED MOTOR POWER AT 220/230 V, 60 HZ, 3-PHASE</b>	150 HP
<b>ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE</b>	350 HP
<b>ASSIGNED MOTOR POWER AT 600 V, 60 HZ, 3-PHASE</b>	450 HP
<b>ASSIGNED MOTOR POWER AT 690 V, 60 HZ, 3-PHASE</b>	500 HP
<b>ASSIGNED MOTOR POWER IN-DELTA AT 690 V, 60 HZ</b>	850 HP
<b>EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT PVID</b>	25 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT- DEPENDENT PVID</b>	0 W
<b>MAINS VOLTAGE - MAX</b>	690 V
<b>MAINS VOLTAGE - MIN</b>	200 V
<b>OUTPUT VOLTAGE</b>	120 V AC/DC (relay outputs)
<b>NUMBER OF OUTPUTS</b>	2 Relay Outputs (programmable)
<b>SCREWDRIVER SIZE</b>	0.6 x 3.5 mm, Terminal screws, Control circuit cables
<b>VOLTAGE TYPE</b>	DC
<b>RATED OPERATIONAL VOLTAGE (UE) - MIN</b>	200 V
<b>RATED POWER THREE- PHASE MOTOR, INLINE, AT 230 V</b>	132 kW
<b>RATED POWER THREE- PHASE MOTOR, INLINE, AT 400 V</b>	200 kW
<b>RATED POWER THREE- PHASE MOTOR, INSIDE DELTA, AT 230 V</b>	200 kW
<b>RATED POWER THREE- PHASE MOTOR, INSIDE DELTA, AT 400 V</b>	400 kW
<b>STATIC HEAT</b>	25 W

<b>DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	
<b>VOLTAGE RATING - MAX</b>	690 V
<b>APPLICATION</b>	<ul style="list-style-type: none"> <li>• 3-phase motors: Yes</li> <li>• Soft starting of three-phase asynchronous motors</li> </ul>
<b>PROTECTION</b>	Finger and back-of-hand proof, Protection against direct contact
<b>MOUNTING POSITION</b>	As required
<b>INPUT CURRENT</b>	4 - 20 mA (Analog inputs)
<b>DROP-OUT VOLTAGE</b>	0 - 3 V, DC operated
<b>OVERVOLTAGE CATEGORY</b>	II
<b>DEGREE OF PROTECTION</b>	IP20 NEMA Other
<b>CURRENT CONSUMPTION</b>	<p>10 A/150 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC</p> <p>100 mA, Control circuit, Digital inputs, External 24 V (no-load)</p> <p>150 mA, Control circuit, Digital inputs, External 24 V</p> <p>1400 mA, Control circuit, Regulator supply</p>
<b>FUNCTIONS</b>	<p>Suppression of closing transients</p> <p>Min. ramp time 1 s - fast switching (semiconductor contactor)</p> <p>Current limitation</p> <p>Soft start function</p> <p>Single direction</p> <p>Suppression of DC components for motors</p> <p>Potential isolation between power and control sections</p> <p>Overload monitoring</p> <p>Underload monitoring</p>
<b>DELAY TIME</b>	0 - 120 s, Soft start function, Ramp times
<b>OVERLOAD CYCLE</b>	AC-53a: 4.0 - 32: 99 - 3
<b>DROP-OUT TIME</b>	100 ms, DC operated
<b>PICK-UP VOLTAGE</b>	21.6 - 26.4 V DC

<b>RADIO INTERFERENCE CLASS</b>	Class A (EN 55011)
<b>FAULT MEMORY</b>	10 Faults
<b>PICK-UP TIME</b>	100 ms at DC
<b>INTERFACES</b>	Modbus RTU (built-in)
<b>KICKSTART</b>	100% (Kickstart voltage) Max. 2000 ms (Kickstart Duration)
<b>RATED CONTROL VOLTAGE (UC)</b>	24 V DC 24 V DC (-10 %/+10 %)
<b>SUPPLY FREQUENCY</b>	50/60 Hz, fLN, Main circuit
<b>TERMINAL CAPACITY (STRANDED)</b>	2 x (120 - 240) mm <sup>2</sup> , Main cables 6 x (120 - 240) mm <sup>2</sup> , Main cables 2 x (1 - 2.5) mm <sup>2</sup> , Control circuit cables 1 x (2.5 - 4) mm <sup>2</sup> , Control circuit cables 4 x (70 - 240) mm <sup>2</sup> , Main cables
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX</b>	24 V
<b>RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN</b>	24 V
<b>RATED OPERATIONAL CURRENT (IE) AT AC-11</b>	3 A
<b>RATED OPERATIONAL CURRENT (IE) AT AC-53</b>	420 A
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	420 A
<b>RATED OPERATIONAL POWER AT 220/230 V, 50 HZ</b>	132 kW
<b>RATED OPERATIONAL POWER AT 400 V, 50 HZ</b>	200 kW
<b>RATED OPERATIONAL POWER AT 500 V, 50 HZ</b>	250 kW
<b>RATED OPERATIONAL POWER AT 690 V, 50 HZ</b>	400 kW
<b>RATED OPERATIONAL VOLTAGE (UE) - MAX</b>	690 V
<b>RAMP/RUN-UP TIME</b>	360 s
<b>SHOCK RESISTANCE</b>	15 g, Mechanical
<b>SUITABLE FOR</b>	Branch circuits, not as BCPD, (UL/CSA)
<b>TIGHTENING TORQUE</b>	0.4 Nm, Screw terminals, Control circuit cables

<b>SHORT-CIRCUIT PROTECTION RATING</b>	NZMN3-S500, Type "1" coordination, Main conducting paths
<b>START VOLTAGE</b>	Max. 85 %, Soft start function, Start voltage = turn-off voltage
<b>STARTUP CLASS</b>	CLASS 30 (6 x I <sub>e</sub> for 30 s) CLASS 20 (heavy starting duty 3 x I <sub>e</sub> for 45 s) CLASS 10 (star-delta replacement)
<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	1 x (2.5 - 4) mm <sup>2</sup> , Control circuit cables 2 x (1 - 2.5) mm <sup>2</sup> , Control circuit cables 6 x (120 - 240) mm <sup>2</sup> , Main cables 4 x (70 - 240) mm <sup>2</sup> , Main cables 2 x (120 - 240) mm <sup>2</sup> , Main cables
<b>TERMINAL CAPACITY (SOLID)</b>	4 x (70 - 240) mm <sup>2</sup> , Main cables 1 x (2.5 - 4) mm <sup>2</sup> , Control circuit cables 2 x (120 - 240) mm <sup>2</sup> , Main cables 6 x (120 - 240) mm <sup>2</sup> , Main cables 2 x (1 - 2.5) mm <sup>2</sup> , Control circuit cables
<b>TERMINAL CAPACITY (SOLID/STRANDED AWG)</b>	2 x (14 - 12), Control circuit cables 4 x (4 - 500 kcmil), Main cables 1 x (14 - 12), Control circuit cables 2 x (4 - 500 kcmil), Main cables 6 x (4 - 500 kcmil), Main cables

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**PROJECT NAME:**

**PROJECT NUMBER:**

**PREPARED BY:**

**DATE:**

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