

Specifications



Eaton 169001

Eaton S811 Soft starter, 500 A, 200 - 690 V AC, Us= 24 V DC, with control unit and pump algorithm, for 690-V grids, Frame size V

General specifications

PRODUCT NAME	Eaton S811 Soft starter
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CATALOG NUMBER	169001
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MODEL CODE	S811+V50V3S
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EAN	4015081654956
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PRODUCT LENGTH/DEPTH	187.8 mm
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PRODUCT HEIGHT	420.8 mm
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PRODUCT WIDTH	280.6 mm
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PRODUCT WEIGHT	41.4 kg
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CERTIFICATIONS	UL File No.: E202571 CSA22.2-14-1995 C-Tick UL CCC GB14048 UL 508 IEC/EN 60947-4-2 CSA CE UL Category Control No.: NMFT
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Powering Business Worldwide

Climatic environmental conditions

ALTITUDE	Max. 2000 m Above 2000 m with 0.5 % derating per 100 m
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-30 °C
AMBIENT STORAGE TEMPERATURE - MIN	-50 °C
CLIMATIC PROOFING	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-3

Control circuit

CURRENT CONSUMPTION	10 A/150 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC 150 mA, Control circuit, Digital inputs, External 24 V 100 mA, Control circuit, Digital inputs, External 24 V (no-load) 1400 mA, Control circuit, Regulator supply
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 DC - MAX	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	24 V

Design verification

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.
10.13 MECHANICAL FUNCTION	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.
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	Does not apply, since the

Features & functions

FAULT MEMORY	10 Faults
FITTED WITH:	Motor overload protection Internal bypass Display Internal bypass contacts
FUNCTIONS	Min. ramp time 1 s - fast switching (semiconductor contactor) Soft start function Potential isolation between power and control sections Overload monitoring Single direction Suppression of DC components for motors Suppression of closing transients Current limitation Underload monitoring
INTERFACES	Modbus RTU (built-in)

AGAINST ELECTRIC SHOCK	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.
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

General information

CLASS	Adjustable
CONNECTION TO SMARTWIRE-DT	No
DEGREE OF PROTECTION	IP00 NEMA Other
FRAME SIZE	V
MAINS VOLTAGE - MAX	690 V
MAINS VOLTAGE - MIN	200 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
SHOCK RESISTANCE	15 g, Mechanical
STARTUP CLASS	CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty $3 \times I_e$ for 45 s) CLASS 30 ($6 \times I_e$ for 30 s)
SUITABLE FOR	Branch circuits, not as BCPD, (UL/CSA)
TYPE	Soft starter for three-phase loads, with control unit and pump algorithm, for 690-V grids
VOLTAGE TYPE	DC

Main conducting paths

OVERLOAD CYCLE	AC-53a: 4.0 - 32: 99 - 3
RATED OPERATIONAL CURRENT (IE) AT AC-53	500 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	690 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	200 V
SHORT-CIRCUIT PROTECTION RATING	NZMN3-S500, Type "1" coordination, Main conducting paths
SUPPLY FREQUENCY	50/60 Hz, fLN, Main circuit
VOLTAGE RATING - MAX	690 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 24 V DC (-10 %/+10 %)
RATED OPERATIONAL CURRENT (IE) AT AC-11	3 A

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 AT 690 V, 60 HZ, 3-PHASE	600 HP

ASSIGNED MOTOR POWER IN-DELTA AT 690 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 AT 690 V, 50 HZ	500 kW

Soft start function

- APPLICATION**
- 3-phase motors: Yes
 - Soft starting of three-phase asynchronous motors

DELAY TIME	0 - 120 s, Soft start function, Ramp times
KICKSTART	Max. 2000 ms (Kickstart Duration) 100% (Kickstart voltage)
RAMP/RUN-UP TIME	360 s
START VOLTAGE	Max. 85 %, Soft start function, Start voltage = turn-off voltage

Terminal capacities

SCREWDRIVER SIZE	0.6 x 3.5 mm, Terminal screws, Control circuit cables
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (120 - 240) mm ² , Main cables 1 x (2.5 - 4) mm ² , Control circuit cables 2 x (1 - 2.5) mm ² , Control circuit cables 4 x (70 - 240) mm ² , Main cables 6 x (120 - 240) mm ² , Main cables
TERMINAL CAPACITY (SOLID)	1 x (2.5 - 4) mm ² , Control circuit cables 2 x (1 - 2.5) mm ² , Control circuit cables 2 x (120 - 240) mm ² , Main cables 6 x (120 - 240) mm ² , Main cables 4 x (70 - 240) mm ² , Main cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	4 x (4 - 500 kcmil), Main cables 6 x (4 - 500 kcmil), Main cables 1 x (14 - 12), Control circuit cables 2 x (4 - 500 kcmil), Main cables 2 x (14 - 12), Control circuit cables
TERMINAL CAPACITY (STRANDED)	1 x (2.5 - 4) mm ² , Control circuit cables 6 x (120 - 240) mm ² , Main cables 4 x (70 - 240) mm ² , Main cables 2 x (1 - 2.5) mm ² , Control

	circuit cables 2 x (120 - 240) mm², Main cables
TIGHTENING TORQUE	0.4 Nm, Screw terminals, Control circuit cables

Resources

APPLICATION NOTES	eaton-softstarter-s801-to-s811-ap039013-en-us.pdf
BROCHURES	eaton-softstarter-s811-ds7-brochure-br039001en-en-us.pdf
CATALOGUES	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf
DECLARATIONS OF CONFORMITY	eaton-soft-starter-declaration-of-conformity-eu260065en.pdf
DRAWINGS	eaton-semiconductor-contactors-s811-soft-starter-dimensions-005.eps eaton-semiconductor-contactors-s811-soft-starter-3d-drawing-005.eps
ECAD MODEL	DA-CE-ETN.S811_V50V3S DA-CS-s811_v
MCAD MODEL	eaton-low-voltage-soft-starters-mcad-drawings-s811-v.dwg

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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