

Specifications



Eaton 168986

Eaton S811 Soft starter, 180 A, 200 - 690 V AC, Us= 24 V DC, with control unit and pump algorithm, for 690-V grids, Frame size T

General specifications

PRODUCT NAME	Eaton S811 Soft starter
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CATALOG NUMBER	168986
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MODEL CODE	S811+T18V3S
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EAN	4015081654819
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PRODUCT LENGTH/DEPTH	164.4 mm
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PRODUCT HEIGHT	322.9 mm
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PRODUCT WIDTH	194.4 mm
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PRODUCT WEIGHT	18.6 kg
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CERTIFICATIONS	UL 508 C-Tick UL File No.: E202571 UL IEC/EN 60947-4-2 CCC CE GB14048 UL Category Control No.: NMFT CSA CSA22.2-14-1995
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Powering Business Worldwide

Climatic environmental conditions

ALTITUDE	Above 2000 m with 0.5 % derating per 100 m Max. 2000 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 1000 mA, Control circuit, Regulator supply 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 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	Overload monitoring Soft start function Suppression of closing transients Suppression of DC components for motors Min. ramp time 1 s - fast switching (semiconductor contactor) Potential isolation between power and control sections Current limitation Underload monitoring Single direction
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)	180 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	25 W

General information

CLASS	Adjustable
CONNECTION TO SMARTWIRE-DT	No
DEGREE OF PROTECTION	IP20 NEMA Other
FRAME SIZE	T
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 30 (6 x I _e for 30 s) CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I _e 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, 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	180 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	690 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	200 V
SHORT-CIRCUIT PROTECTION RATING	NZMN2-S200, 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 (-10 %/+10 %) 24 V DC
RATED OPERATIONAL CURRENT (IE) AT AC-11	3 A

Motor rating

ASSIGNED MOTOR POWER AT 200/208 V, 60 HZ, 3-PHASE	60 HP
ASSIGNED MOTOR POWER AT 220/230 V, 60 HZ, 3-PHASE	60 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	150 HP
ASSIGNED MOTOR POWER AT 600 V, 60 HZ, 3-PHASE	150 HP
ASSIGNED MOTOR POWER AT 690 V, 60 HZ, 3-PHASE	200 HP

ASSIGNED MOTOR POWER IN-DELTA AT 690 V, 60 HZ	350 HP
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ	55 kW
RATED OPERATIONAL POWER AT 400 V, 50 HZ	90 kW
RATED OPERATIONAL POWER AT 500 V, 50 HZ	110 kW
RATED OPERATIONAL POWER AT 690 V, 50 HZ	160 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	100% (Kickstart voltage) Max. 2000 ms (Kickstart Duration)
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 4 mm Hexagon socket-head screw, Terminal screw, Main cables
TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	2 x (1 - 2.5) mm ² , Control circuit cables 2 x (25 - 240) mm ² , Main cables 1 x (2.5 - 4) mm ² , Control circuit cables 1 x (70 - 240) mm ² , Main cables
TERMINAL CAPACITY (SOLID)	1 x (2.5 - 4) mm ² , Control circuit cables 2 x (25 - 240) mm ² , Main cables 2 x (1 - 2.5) mm ² , Control circuit cables 1 x (70 - 240) mm ² , Main cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	2 x (14 - 12), Control circuit cables 2 x (4 - 500 kcmil), Main cables 1 x (14 - 12), Control circuit cables 1 x (4 - 500 kcmil), Main cables
TERMINAL CAPACITY (STRANDED)	2 x (25 - 240) mm ² , Main cables 1 x (2.5 - 4) mm ² , Control circuit cables 1 x (70 - 240) mm ² , Main cables 2 x (1 - 2.5) mm ² , Control circuit cables
TIGHTENING TORQUE	25.5 Nm (≤ 150 mm ²) 0.4 Nm, Screw terminals,

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-003.eps eaton-semiconductor-contactors-s811-soft-starter-3d-drawing-003.eps
ECAD MODEL	DA-CE-ETN.S811_T18V3S DA-CS-s811_t
MCAD MODEL	eaton-low-voltage-soft-starters-mcad-drawings-s811-t.dwg

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE: