

Specifications



Eaton 168991

Eaton S811 Soft starter, 304 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size T

General specifications

PRODUCT NAME	Eaton S811 Soft starter
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CATALOG NUMBER	168991
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MODEL CODE	S811+T30P3S
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EAN	4015081654864
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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 Category Control No.:
NMFT
UL 508
CSA
GB14048
UL File No.: E202571
UL
IEC/EN 60947-4-2
C-Tick
CCC
CE
CSA Class No.: 3211-06,
2411-01
CSA22.2-14-1995
CSA File No.: LR 353
CSA-C22.2 No. 14



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	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) 10 A/150 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC
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 Internal bypass contacts Display
FUNCTIONS	Current limitation Suppression of closing transients Single direction Overload monitoring Potential isolation between power and control sections Soft start function Suppression of DC components for motors Underload monitoring Min. ramp time 1 s - fast switching (semiconductor contactor)
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)	304 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	600 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
RATED INSULATION VOLTAGE (UI)	660 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
VOLTAGE TYPE	DC

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

Main conducting paths

OVERLOAD CYCLE	AC-53a: 4.0 - 32: 99 - 3
RATED OPERATIONAL CURRENT (IE) AT AC-53	304 A
RATED OPERATIONAL CURRENT (IE) AT AC-53, IN-DELTA	526 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	600 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	200 V
SHORT-CIRCUIT PROTECTION RATING	NZMN3-S320, 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	100 HP
ASSIGNED MOTOR POWER AT 220/230 V, 60 HZ, 3-PHASE	100 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	250 HP
ASSIGNED MOTOR POWER AT 600 V, 60 HZ, 3-PHASE	300 HP
ASSIGNED MOTOR POWER IN-DELTA AT 220/230 V, 60 HZ	200 HP
ASSIGNED MOTOR POWER IN-DELTA AT 460/480 V, 60 HZ	450 HP
ASSIGNED MOTOR POWER IN-DELTA AT 575/600 V, 60 HZ	500 HP
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ	90 kW
RATED OPERATIONAL POWER AT 400 V, 50 HZ	160 kW
RATED OPERATIONAL POWER AT 500 V, 50 HZ	200 kW
RATED OPERATIONAL POWER IN-DELTA AT 220/230 V, 50 HZ	160 kW
RATED OPERATIONAL POWER IN-DELTA AT 400 V, 50 HZ	250 kW
RATED OPERATIONAL POWER IN-DELTA AT 500 V, 50 HZ	315 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

4 mm Hexagon socket-head screw, Terminal screw, Main cables
0.6 x 3.5 mm, Terminal screws, Control circuit cables

TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)

2 x (25 - 240) mm², Main cables
1 x (70 - 240) mm², Main cables
1 x (2.5 - 4) mm², Control circuit cables
2 x (1 - 2.5) mm², Control circuit cables

TERMINAL CAPACITY (SOLID)

1 x (70 - 240) mm², Main cables
1 x (2.5 - 4) mm², Control circuit cables
2 x (1 - 2.5) mm², Control circuit cables
2 x (25 - 240) mm², Main cables

TERMINAL CAPACITY (SOLID/STRANDED AWG)

1 x (4 - 500 kcmil), Main cables
2 x (4 - 500 kcmil), Main cables
1 x (14 - 12), Control circuit cables
2 x (14 - 12), Control circuit cables

TERMINAL CAPACITY (STRANDED)

2 x (1 - 2.5) mm², Control circuit cables
2 x (25 - 240) mm², Main cables
1 x (70 - 240) mm², Main cables
1 x (2.5 - 4) mm², Control circuit cables

TIGHTENING TORQUE

25.5 Nm ($\leq$ 150 mm²)
0.4 Nm, Screw terminals, Control circuit cables
28.3 Nm ($>$ 150 mm²)

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_T30P3S DA-CS-s811_t
MCAD MODEL	eaton-low-voltage-soft-starters-mcad-drawings-s811-t.dwg

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



Eaton Corporation plc Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

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