

Specifications



Eaton 168981

Eaton S811 Soft starter, 105 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size R

General specifications

PRODUCT NAME	Eaton S811 Soft starter
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CATALOG NUMBER	168981
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MODEL CODE	S811+R10P3S
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EAN	4015081654772
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PRODUCT LENGTH/DEPTH	168.6 mm
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PRODUCT HEIGHT	201.2 mm
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PRODUCT WIDTH	111.3 mm
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PRODUCT WEIGHT	4.8 kg
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CERTIFICATIONS

UL Category Control No.:
NMFT
UL 508
GB14048
UL
CSA
CSA-C22.2 No. 14
UL File No.: E202571
CSA Class No.: 3211-06,
2411-01
CSA22.2-14-1995
CCC
IEC/EN 60947-4-2
CE
C-Tick
CSA File No.: LR 353



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)
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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:	Internal bypass Motor overload protection Display Internal bypass contacts
FUNCTIONS	Suppression of closing transients Overload monitoring Potential isolation between power and control sections Current limitation Soft start function Suppression of DC components for motors Single direction Min. ramp time 1 s - fast switching (semiconductor contactor) 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)	105 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	R
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 30 (6 x I _e for 30 s) 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
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	105 A
RATED OPERATIONAL CURRENT (IE) AT AC-53, IN-DELTA	182 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	600 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	200 V
SHORT-CIRCUIT PROTECTION RATING	NZMN2-S125, 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	30 HP
ASSIGNED MOTOR POWER AT 220/230 V, 60 HZ, 3-PHASE	40 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	75 HP
ASSIGNED MOTOR POWER AT 600 V, 60 HZ, 3-PHASE	100 HP
ASSIGNED MOTOR POWER IN-DELTA AT 220/230 V, 60 HZ	60 HP
ASSIGNED MOTOR POWER IN-DELTA AT 460/480 V, 60 HZ	150 HP
ASSIGNED MOTOR POWER IN-DELTA AT 575/600 V, 60 HZ	150 HP
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ	30 kW
RATED OPERATIONAL POWER AT 400 V, 50 HZ	55 kW
RATED OPERATIONAL POWER AT 500 V, 50 HZ	55 kW
RATED OPERATIONAL POWER IN-DELTA AT 220/230 V, 50 HZ	55 kW
RATED OPERATIONAL POWER IN-DELTA AT 400 V, 50 HZ	90 kW
RATED OPERATIONAL POWER IN-DELTA AT 500 V, 50 HZ	110 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

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)

1 x (2.5 - 95) 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 (2.5 - 4) mm², Control circuit cables
2 x (1 - 2.5) mm², Control circuit cables
1 x (2.5 - 95) mm², Main cables

TERMINAL CAPACITY (SOLID/STRANDED AWG)

1 x (14 - 4/0), Main cables
1 x (14 - 12), Control circuit cables
2 x (14 - 12), Control circuit cables

TERMINAL CAPACITY (STRANDED)

1 x (2.5 - 4) mm², Control circuit cables
2 x (1 - 2.5) mm², Control circuit cables
1 x (2.5 - 95) mm², Main cables

TIGHTENING TORQUE

0.4 Nm, Screw terminals, Control circuit cables
11.3 Nm

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-002.eps eaton-semiconductor-contactors-s811-soft-starter-3d-drawing-002.eps
ECAD MODEL	DA-CE-ETN.S811_R10P3S
INSTALLATION INSTRUCTIONS	s811+-soft-starter-frame-r-IL03901016E.pdf
MCAD MODEL	DA-CS-s811_r eaton-low-voltage-soft-starters-mcad-drawings-s811-r.dwg

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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