

# Eaton 168977

Catalog Number: 168977

Eaton S811 Soft starter, 37 A, 200 - 600 V AC, Us= 24 V DC, with control unit and pump algorithm, Frame size N



## General specifications

### Product Name

Eaton S811 Soft starter

### Catalog Number

168977

### EAN

4015081654734

### Product Length/Depth

163.9 mm

### Product Height

174.5 mm

### Product Width

67.5 mm

### Product Weight

2.6 kg

### Certifications

C-Tick

IEC/EN 60947-4-2

CSA-C22.2 No. 14

CE

UL

CCC

CSA File No.: LR 353

GB14048

CSA22.2-14-1995

CSA

UL 508

UL Category Control No.: NMFT

CSA Class No.: 3211-06, 2411-01

UL File No.: E202571

## Features & Functions

### Fault memory

10 Faults

### Fitted with:

Internal bypass

Internal bypass contacts

Display

Motor overload protection

### Functions

Current limitation

Soft start function

Suppression of DC components for motors

Underload monitoring

Potential isolation between power and control sections

Suppression of closing transients

Overload monitoring

Single direction

Min. ramp time 1 s - fast switching (semiconductor contactor)

### Interfaces

Modbus RTU (built-in)

## General

### Class

Adjustable

### Connection to SmartWire-DT

No

### Degree of protection

IP00

NEMA Other

### Frame size

N

### Mains voltage - min

200 V

### Mains voltage - max

600 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 20 (heavy starting duty  $3 \times I_e$  for 45 s)

CLASS 10 (star-delta replacement)

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

## Climatic environmental conditions

### Altitude

Above 2000 m with 0.5 % derating per 100 m

Max. 2000 m

### Ambient operating temperature - max

50 °C

### Ambient operating temperature - min

-30 °C

### Ambient storage temperature - max

70 °C

### Ambient storage temperature - min

-50 °C

### Climatic proofing

Damp heat, constant, to IEC 60068-2-3

Damp heat, cyclic, to IEC 60068-2-30

## Main conducting paths

### Overload cycle

AC-53a: 4.0 - 32: 99 - 3

### Rated operational current (I<sub>e</sub>) at AC-53

37 A

### Rated operational current (I<sub>e</sub>) at AC-53, in-delta

65 A

### Rated operational voltage (U<sub>e</sub>) - min

200 V

### Rated operational voltage (U<sub>e</sub>) - max

600 V

### Short-circuit protection rating

NZMN1-S40, 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

10 HP

### Assigned motor power at 220/230 V, 60 Hz, 3-phase

10 HP

### Assigned motor power at 460/480 V, 60 Hz, 3-phase

25 HP

### Assigned motor power at 600 V, 60 Hz, 3-phase

30 HP

### Assigned motor power in-delta at 220/230 V, 60 Hz

20 HP

### Assigned motor power in-delta at 460/480 V, 60 Hz

50 HP

### Assigned motor power in-delta at 575/600 V, 60 Hz

60 HP

### Rated operational power at 220/230 V, 50 Hz

7.5 kW

### Rated operational power at 400 V, 50 Hz

18.5 kW

### Rated operational power at 500 V, 50 Hz

22 kW

Rated operational power in-delta at 220/230 V, 50 Hz

18.5 kW

Rated operational power in-delta at 400 V, 50 Hz

30 kW

Rated operational power in-delta at 500 V, 50 Hz

45 kW

## Terminal capacities

### Terminal capacity (flexible with ferrule)

2 x (1 - 2.5) mm<sup>2</sup>, Control circuit cables

1 x (2.5 - 35) mm<sup>2</sup>, Main cables

1 x (2.5 - 4) mm<sup>2</sup>, Control circuit cables

### Terminal capacity (solid)

2 x (1 - 2.5) mm<sup>2</sup>, Control circuit cables

1 x (2.5 - 35) mm<sup>2</sup>, Main cables

1 x (2.5 - 4) mm<sup>2</sup>, Control circuit cables

### Terminal capacity (solid/stranded AWG)

2 x (14 - 12), Control circuit cables

1 x (14 - 2), Main cables

### Terminal capacity (stranded)

2 x (1 - 2.5) mm<sup>2</sup>, Control circuit cables

1 x (2.5 - 35) mm<sup>2</sup>, Main cables

1 x (2.5 - 4) mm<sup>2</sup>, Control circuit cables

### Screwdriver size

1.5 x 6 mm, Terminal screw, Main cables

0.6 x 3.5 mm, Terminal screws, Control circuit cables

### Tightening torque

5 Nm ( $\leq 25 \text{ mm}^2$ )

4 Nm ( $\leq 6 \text{ mm}^2$ )

0.4 Nm, Screw terminals, Control circuit cables

4.5 Nm ( $\leq 10 \text{ mm}^2$ )

5.6 Nm ( $> 25 \text{ mm}^2$ )

## Control circuit

### Current consumption

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

150 mA, Control circuit, Digital inputs, External 24 V

### Drop-out time

100 ms, DC operated

### Drop-out voltage

0 - 3 V, DC operated

### Pick-up time

100 ms at 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 (U<sub>c</sub>)

#### Pick-up voltage

21.6 - 26.4 V DC

#### Rated control supply voltage (Us) at AC, 50 Hz - max

0 V

#### Rated control supply voltage (Us) at AC, 50 Hz - min

0 V

#### Rated control supply voltage (Us) at AC, 60 Hz - min

0 V

#### Rated control supply voltage (Us) at AC, 60 Hz - max

0 V

#### Rated control supply voltage (Us) at DC - min

24 V

#### Rated control supply voltage (Us) at DC - max

24 V

24 V DC

24 V DC (-10 %/+10 %)

#### Rated operational current (Ie) at AC-11

3 A

### 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

### Design verification

#### Equipment heat dissipation, current-dependent Pvid

25 W

#### Heat dissipation capacity Pdis

0 W

#### Heat dissipation per pole, current-dependent Pvid

0 W

#### Rated operational current for specified heat dissipation (In)

37 A

#### Static heat dissipation, non-current-dependent Pvs

25 W

#### 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

### Lisämateriaalit

#### Asennusohjeet

[s801+-soft-starter-frame-n-IL03901020E.pdf](#)

#### eCAD model

[DA-CE-ETN.S811\\_N37P3S](#)

#### Katalogit

[Drives - Product range catalog](#)

[eaton-softstarter-s811-ds7-brochure-br039001en-en-us.pdf](#)

#### mCAD model

[DA-CS-s811\\_n](#)

[DA-CD-s811\\_n](#)

#### Piirrokkset

[eaton-semiconductor-contactors-s811-soft-starter-dimensions.eps](#)

[eaton-semiconductor-contactors-s811-soft-starter-3d-drawing.eps](#)

#### Sertifikaattiraportit

[DA-DC-00004321.pdf](#)

#### 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 against electric shock

Does not apply, since the 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.

#### 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.



Eaton Corporation plc  
Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com  
© 2024 Eaton. Kaikki  
oikeudet pidätetään.

Eaton is a registered trademark.

All other trademarks are  
property of their respective  
owners.



[Eaton.com/socialmedia](https://www.eaton.com/socialmedia)