Specifications

# Eaton 134954



## Catalog Number: 134954

Eaton DS7 Soft starter, 70 A, 200 - 480 V AC, 24 V DC, Frame size: FS3, Communication Interfaces: SmartWire-DT

### General specifications

**Product Name**
Eaton DS7 Soft starter

**Catalog Number**
134954

**EAN**
4015081317691

**Product Length/Depth**
156 mm

**Product Height**
175 mm

**Product Width**
93 mm

**Product Weight**
1.8 kg

**Certifications**
CSA-C22.2 No 0-M91
UL 508
CSA-C22.2 No 14-05
CSA22.2-14
UL
GB 14048.6
IEC/EN 60947-4-2
C-Tick
UkrSEPRO
CSA
CE

Powering Business Worldwide

## Features & Functions

### Fault memory

8 Faults

### Fitted with:

Internal bypass

Internal bypass contacts

### Functions

Current limitation, with PKE

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

Soft start function

Single direction

Suppression of DC components for motors

Potential isolation between power and control sections

Suppression of closing transients

### Interfaces

SmartWire-DT (built-in)

## General

### Class

Other

### Connection to SmartWire-DT

Yes

### Degree of protection

NEMA 1

IP20

### Frame size

FS3

### Mains voltage - max

480 V

### Mains voltage - min

200 V

### Overvoltage category

II

### Pollution degree

2

### Product category

SmartWire-DT slave

### Radio interference class

Class B (EN 55011)

### Suitable for

Branch circuits, (UL/CSA)

### Type

Soft starter for three-phase loads

### Voltage type

DC

## Ambient conditions, mechanical

### Mounting position

Vertical

### Shock resistance

8 g, 11 ms, Mechanical

### Vibration resistance

2M2 to EN 60721-3-2

## Climatic environmental conditions

### Altitude

Max. 2000 m

Above 1000 m with 1 % derating per 100 m

### Ambient operating temperature - min

-5 °C

### Ambient operating temperature - max

40 °C

Ambient storage temperature - min

-25 °C

Ambient storage temperature - max

60 °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: 3 - 5: 75 - 10

Rated operational current (Ie) at AC-53

70 A

Rated operational voltage (Ue) - min

230 V

Rated operational voltage (Ue) - max

480 V

Short-circuit protection rating

NZMN1-M80, Type “1” coordination, Main conducting paths

3 x 170M4008, Type „2“ coordination (additional with the fuses for coordination type „1“), Main conducting paths

Supply frequency

50/60 Hz, fLN, Main circuit

Voltage rating - max

480 V

## Motor rating

Assigned motor power at 200/208 V, 60 Hz, 3-phase

20 HP

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

25 HP

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

50 HP

Rated operational power at 220/230 V, 50 Hz

15 kW

Rated operational power at 400 V, 50 Hz

37 kW

## Terminal capacities

Terminal capacity (copper band)

9 x 9 x 0.8 mm, Main cables

2 x 9 x 0.8 mm, Main cables

Terminal capacity (flexible with ferrule)

2 x (0.5 - 0.75) mm², Control circuit cables

1 x (0.5 - 1.5) mm², Control circuit cables

Terminal capacity (solid)

1 x (0.5 - 2.5) mm², Control circuit cables

2 x (0.5 - 1.0) mm², Control circuit cables

1 x (25 - 70) mm², Main cables

2 x (6 - 25) mm², Main cables

Terminal capacity (solid/stranded AWG)

1 x (21 - 14), Control circuit cables

2 x (21 - 18), Control circuit cables

1 x (12 - 2/0), Main cables

Terminal capacity (stranded)

2 x (6 - 25) mm², Main cables

1 x (0.5 - 1.5) mm², Control circuit cables

2 x (0.5 - 1.0) mm², Control circuit cables

1 x (25 - 70) mm², Main cables

### Tightening torque

9 Nm (> 10 mm²)

6 Nm (≤ 10 mm²)

0.4 Nm, Screw terminals, Control circuit cables

## Control circuit

### Current consumption

0,6 A/50 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC

50 mA, Control circuit, Regulator supply

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

### Drop-out time

350 ms, Control circuit, Digital Inputs, DC operated

### Drop-out voltage

0 - 3 V, DC operated

### Pick-up time

250 ms at DC

### Pick-up voltage

17.3 - 27 V DC

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

0 V

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

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

## Input/Output

### Number of outputs

2 Relay Outputs (TOR, Ready)

### Output voltage

250 V AC (relay outputs)

### Protection

Finger and back-of-hand proof, Protection against direct contact

### Rated control voltage (Uc)

24 V DC

24 V DC (-15 %/+10 %) or via SmartWire-DT

## Soft start function

### Application

1-phase motors: No

3-phase motors: Yes

Soft starting of three-phase asynchronous motors

### Current limitation

(0 - 8) x Ie, Soft start function

### Delay time

Rated operational current (Ie) at AC-11

1 A

0 - 30 s, Soft start function, Ramp times

Ramp/run-up time

1 - 30 s

Start voltage

Max. 100 %, Soft start function, Start voltage = turn-off voltage

Min. 30 %, Soft start function, Start voltage = turn-off voltage

## Design verification

Equipment heat dissipation, current-dependent Pvid

13 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Rated operational current for specified heat dissipation (In)

70 A

Static heat dissipation, non-current-dependent Pvs

13 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 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.

## Resources

Brochures

eaton-softstarter-s811-ds7-brochure-br039001en-en-us.pdf

Catalogs

Product Range Catalog Drives Engineering

Declarations of conformity

DA-DC-00003978.pdf

DA-DC-00004193.pdf

Drawings

eaton-semiconductor-contactors-softstarter-ds7-dimensions-004.eps

eaton-semiconductor-contactors-softstarter-ds7-3d-drawing-008.eps

eCAD model

DA-CE-ETN.DS7-34DSX070N0-D

Installation instructions

IL03902005Z2021_06.pdf

Installation videos

Soft starter DS7 up to 32 A

Manuals and user guides

MN05006002Z_EN

MN03901001Z_EN

mCAD model

DA-CD-ds7_3_darwin_100316

DA-CS-ds7_3_darwin_100316

Sales notes

eaton-rmq-chemical-resistance-flyer-fl047011en-en-us.pdf

### 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.




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